



EASY CONVEYORS
Collse Heide 44
5674 VN Nuenen
The Netherlands

Phone: +31 (0)40 - 283 83 19
Telefax: +31 (0)40 - 283 59 99

E-mail: info@easy-conveyors.com
Website: www.easy-conveyors.com

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CATALOGUE
Components & Systems

CATALOGUE
Components & Systems 2016 Version 16.1

STC. Ø 83 (varvel)
STC. Ø 80 (nord)
STC. Ø 75 (motovario)
STC. Ø 70 (SEW WA20)





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CATALOGUE
Components & Systems

THE EASY WAY...

OF SOLVING YOUR MATERIAL HANDLING NEEDS



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Easy conveyors bv

Easy conveyors bv is a company with 25 years of experience in the field of intralogistic conveyor components, we have specialised ourselves in developing modular components for the production of Belt conveyors, Table top conveyors, Mat top conveyors and Roller conveyors. All our products are being developed with the "modular thought"

Quality with innovative solutions

At Easy conveyors, we believe in delivering precision in our products and services, there's simply no compromising in the quality of our products and services. We make it our business to understand your needs and requirements. This is to ensure that our continuous R&D effort for technological breakthrough enables your business to maintain its competitive advantage while delivering more value to your customers Flexibility in fulfilling infinite potential. Today's dynamic business environment requires businesses to constantly evolve with technology and new customer requirements. With this in mind, Easy conveyors components are designed to get the best out of your investment and realise the unlimited potential of your business.

Efficiency for all businesses

At end of the day, all businesses depend on their bottom lines. Results, that's all that matters and Easy conveyors has continuously raised and set the benchmark to cater to the needs and budgets of various industries.

We work towards ensuring optimal results for businesses with our cost-efficient systems that afford you with...

- | | |
|--------------------------------|--------------------------|
| 01 Fast layout capability | 05 Enhanced productivity |
| 02 Minimal component variation | 06 Low maintenance |
| 03 Design simplicity | 07 User-friendliness |
| 04 Effective space utilization | |

Distribution network

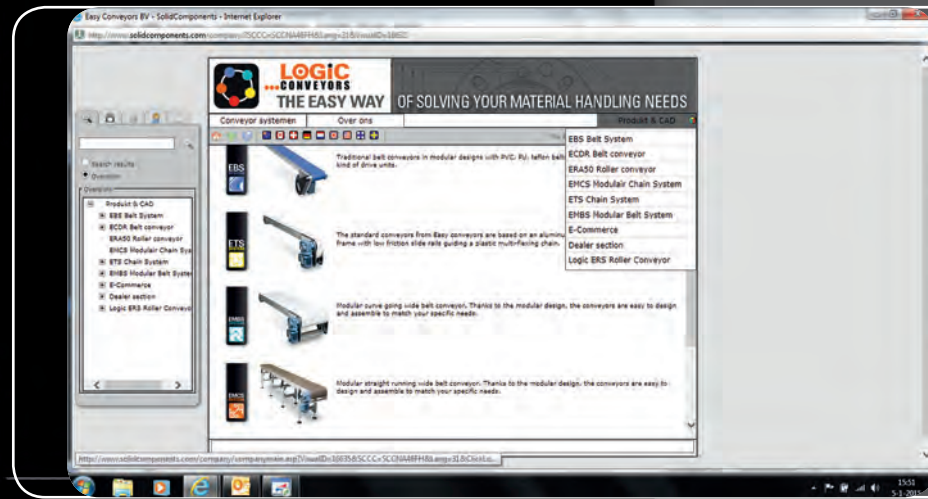
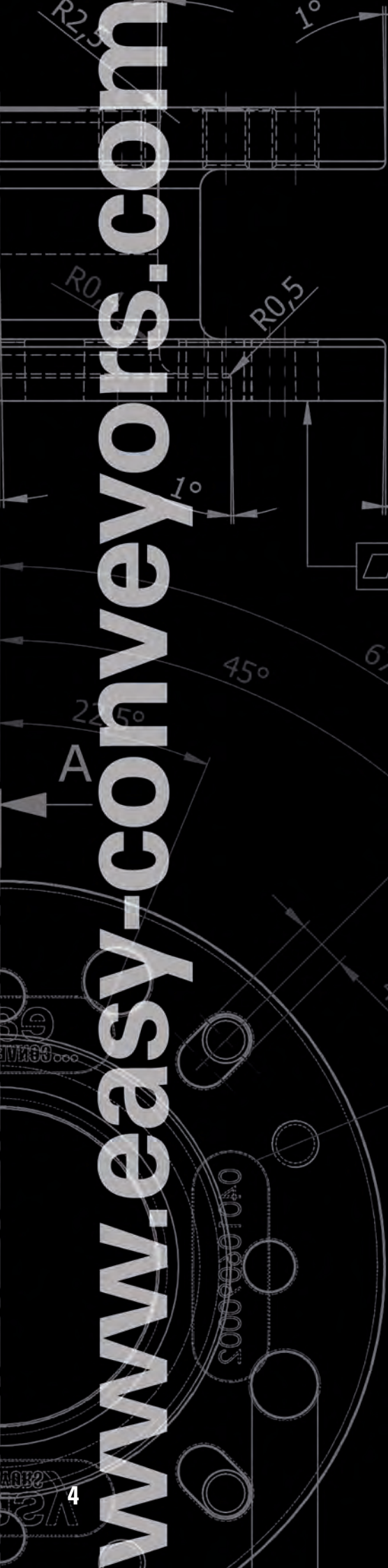
Easy conveyors is worldwide available and has set up a well-established network of exclusive distributors or integrators. Our partners are able to offer you the complete solution integrating our components. Deliveries of our components are being made out of our major stock facilities in Europe, North America, Australia and Asia, from these locations orders from the product configurator can be shipped out with 24 hours lead time.

Product configurator online

Easy conveyors offers an online engineering tool, where you can configure your desired conveyor online by answering a few simple questions. The configurator will generate the desired conveyor and you can download the file in the selected cad format.

TRY OUT ON WWW.EASY-CONVEYORS.COM





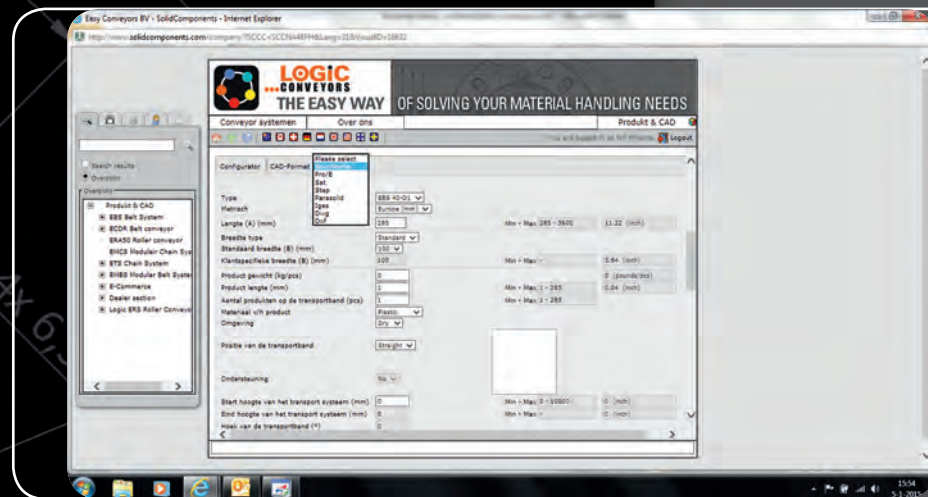
1

All our products are available online, you can either configure an EBS belt conveyor, EMBS mat top conveyor, ETS table top conveyor, EMCS mat top conveyor or a ERA roller conveyor by selecting the product under product and cad button.



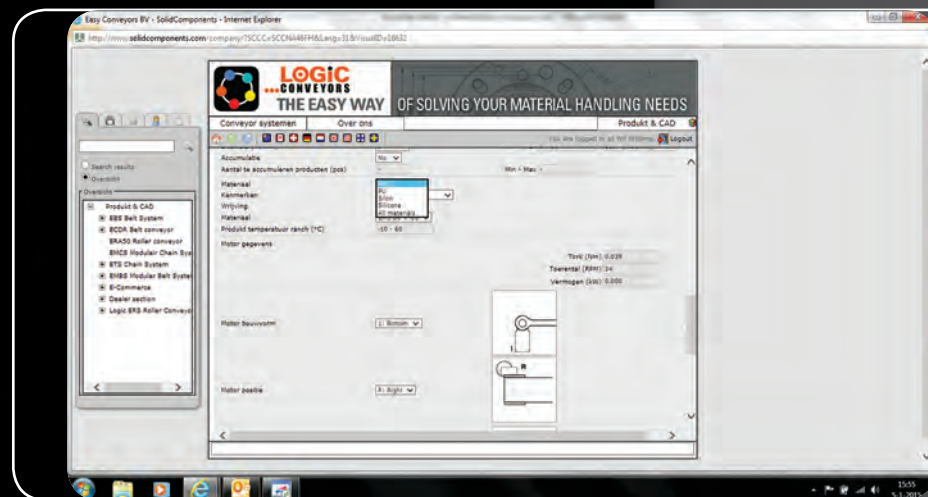
2

For example we choose an EBS belt conveyor, we need to know A & B size. When we scroll down you can select the type of cad format.



3

In this part you have to fill in the desired length, width, speed, weight etc. to configure the conveyor.



4

In this part the backoffice will calculate the needed power and if it fit is all possible with this conveyor.

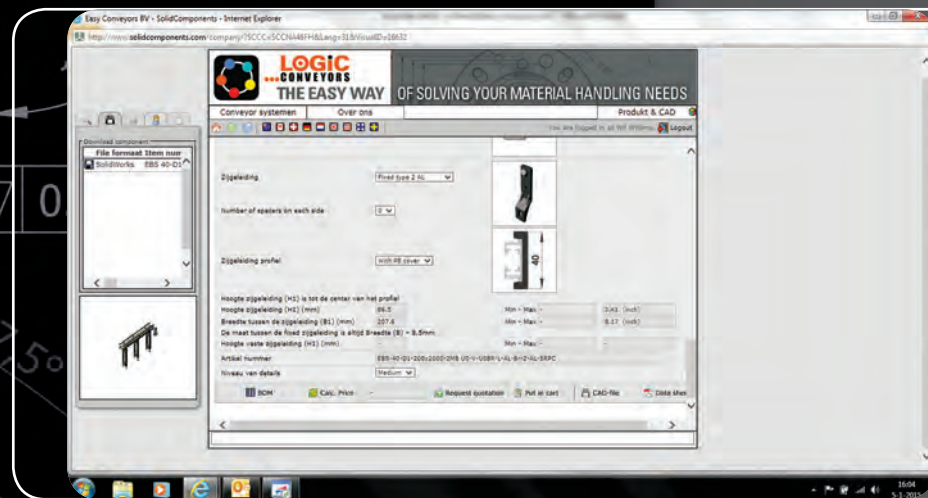
Online product configurator

Go to www.easy-conveyors.com and click on product configurator and experience the simplicity of easy conveyors



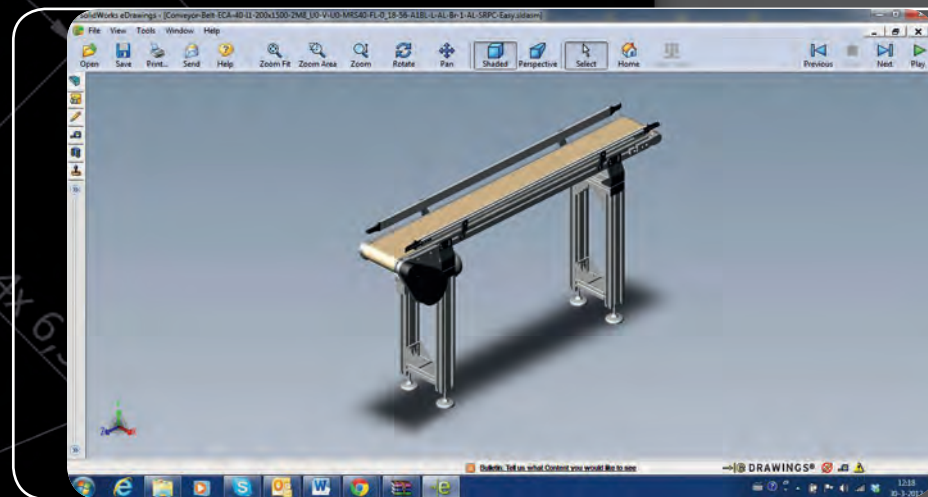
5

When you scroll down, you have the choice to either, "request for a quote" or download the "cad" file or a "pdf" file. If you request a quote, your local dealer will receive an email with the request, they will take care of the quotation and send this to you.



6

When you click on cad-file, the system will generate a cad drawing in the selected format, with your cad program or with a viewer (free download on <http://www.edrawingsviewer.com/>) you can open the drawing.



7

The drawing.

THE EASY WAY...
OF SOLVING YOUR MATERIAL HANDLING NEEDS

CATALOGUE CONTENT



**ALSO AVAILABLE
CATALOGUE 2016**
Roller Conveyor modules

Logic Conveyors
by Easy Conveyors

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Download the catalogue FOR FREE



EBS
SYSTEM

Belt Conveyors **PAGE 13**



ETS
SYSTEM

Table Top Conveyors **PAGE 137**



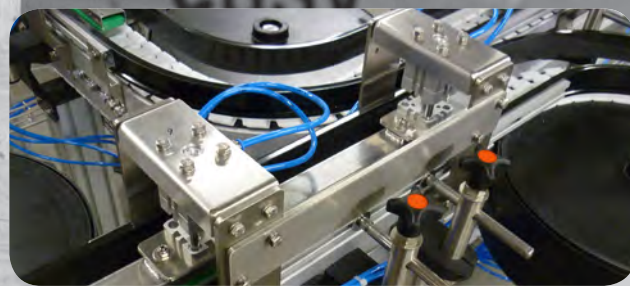
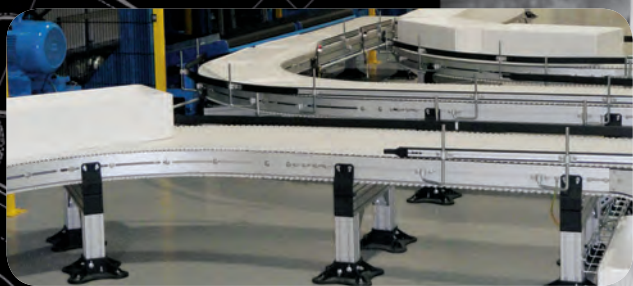
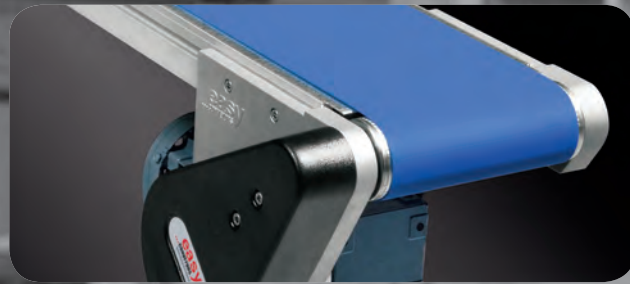
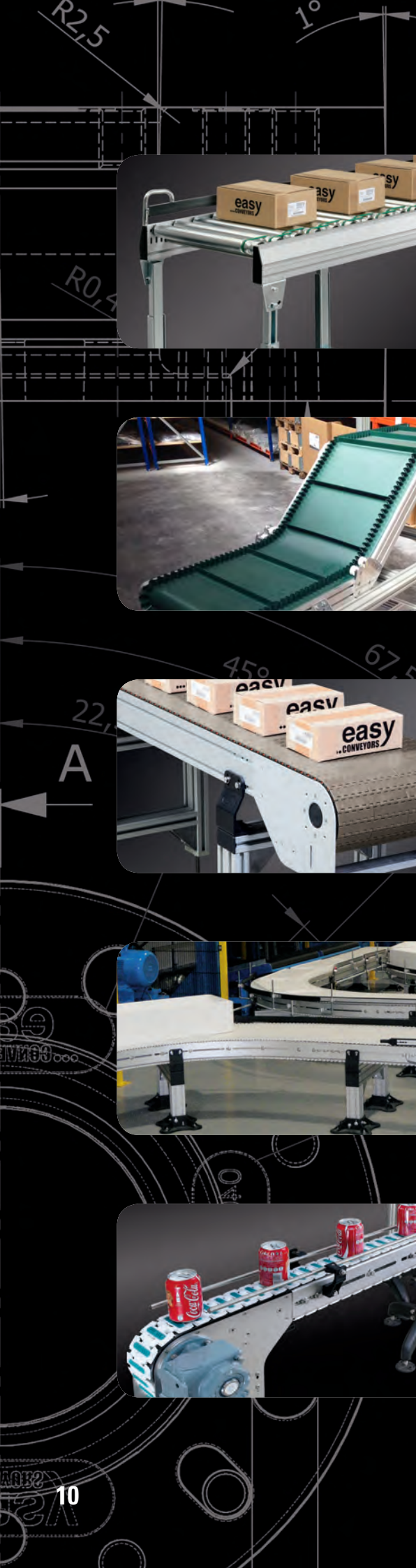
EMBS
SYSTEM

Mat Top Conveyors **PAGE 273**

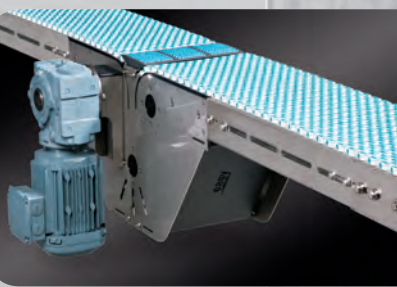


EMCS
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Mat Top Conveyor **PAGE 401**



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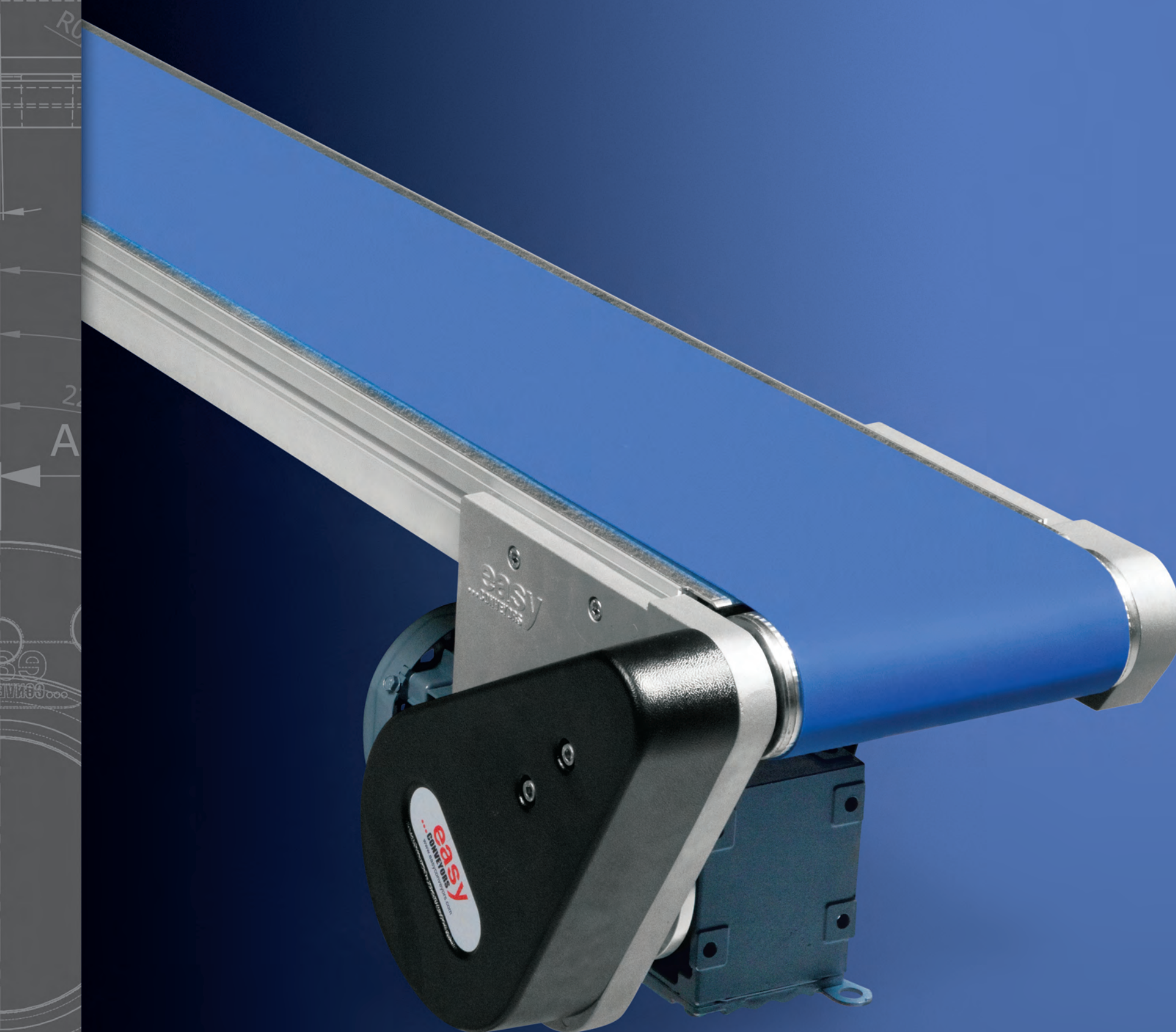
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0.8

0.05

R1

1°

1°

0.05

8 x \varnothing 5 THRU ALL
M6 - 6H THRU ALL

\varnothing 6.05 X 90°, Near Side

\varnothing 7 X 90°, Far Side



STC. \varnothing 83 (varvel)

STC. \varnothing 80 (nord)

STC. \varnothing 75 (motovario)

STC. \varnothing 70 (SEW WA20)

4x \varnothing 6,5



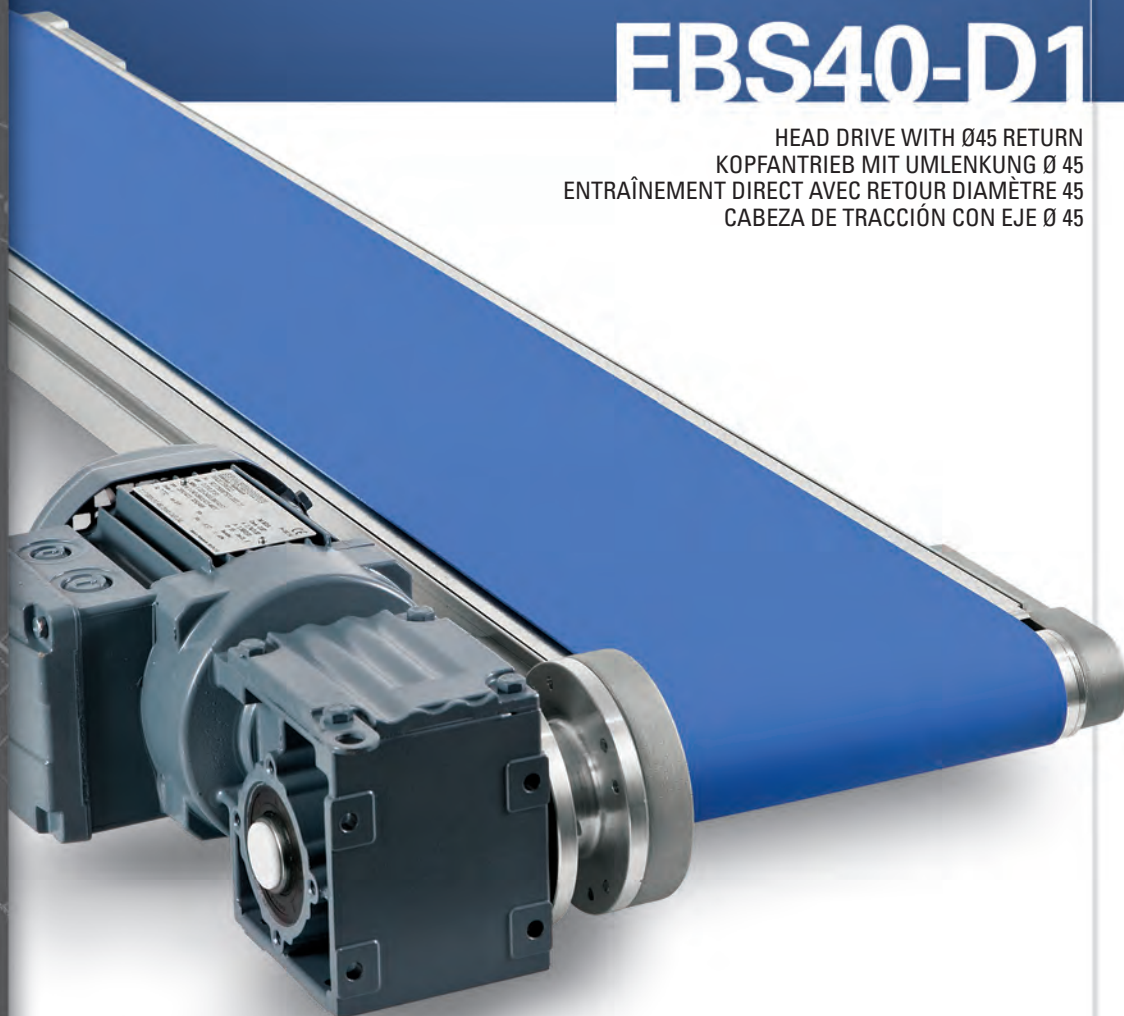


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Convoyeur a bande
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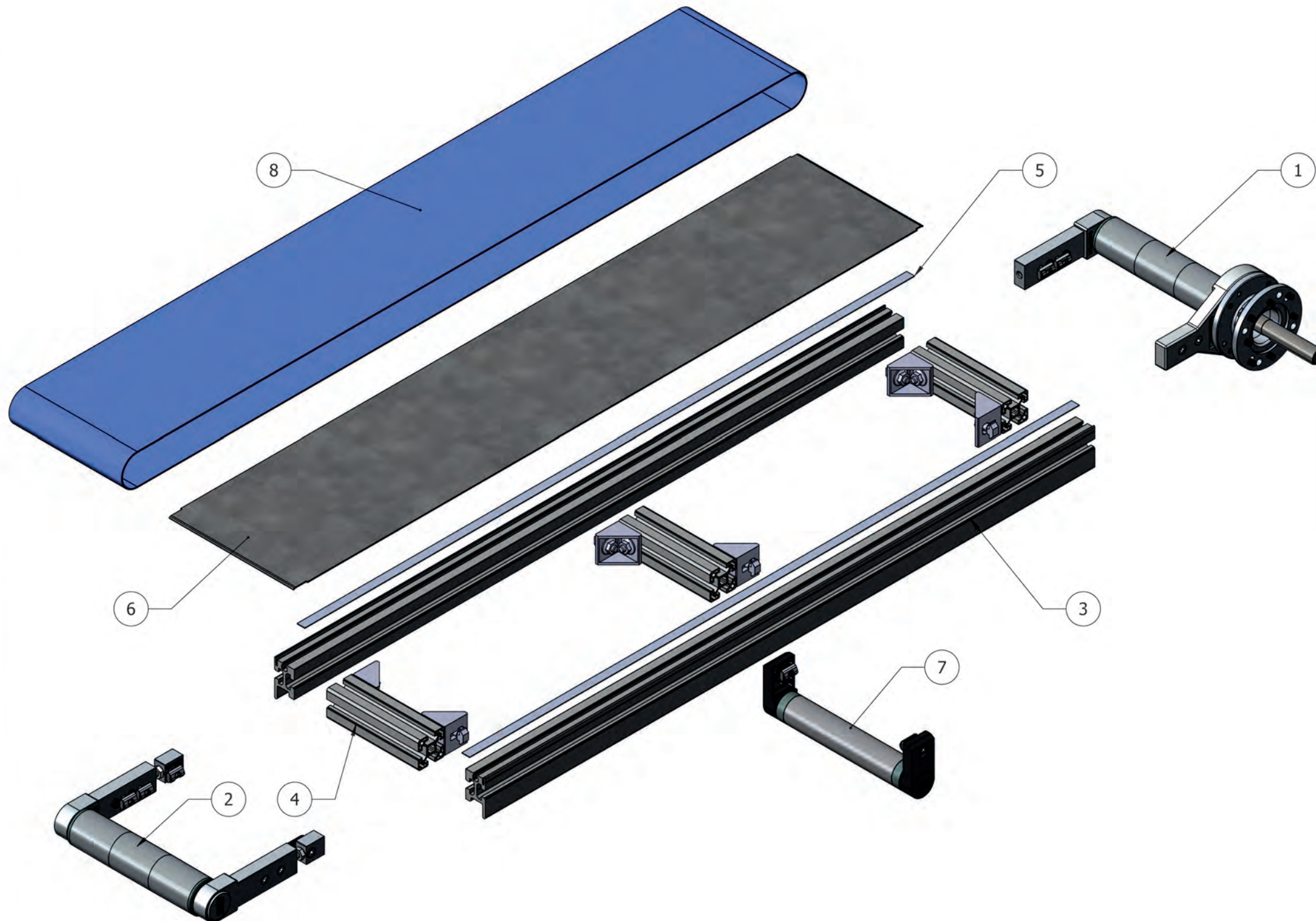
EBS40-D1

HEAD DRIVE WITH Ø45 RETURN
KOPFANTRIEB MIT UMLENKUNG Ø 45
ENTRAÎNEMENT DIRECT AVEC RETOUR DIAMÈTRE 45
CABEZA DE TRACCIÓN CON EJE Ø 45



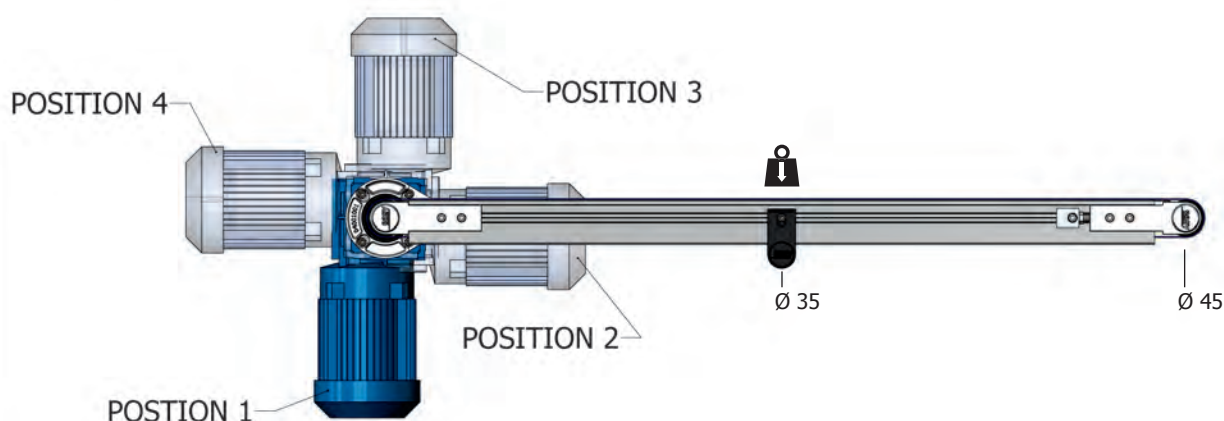
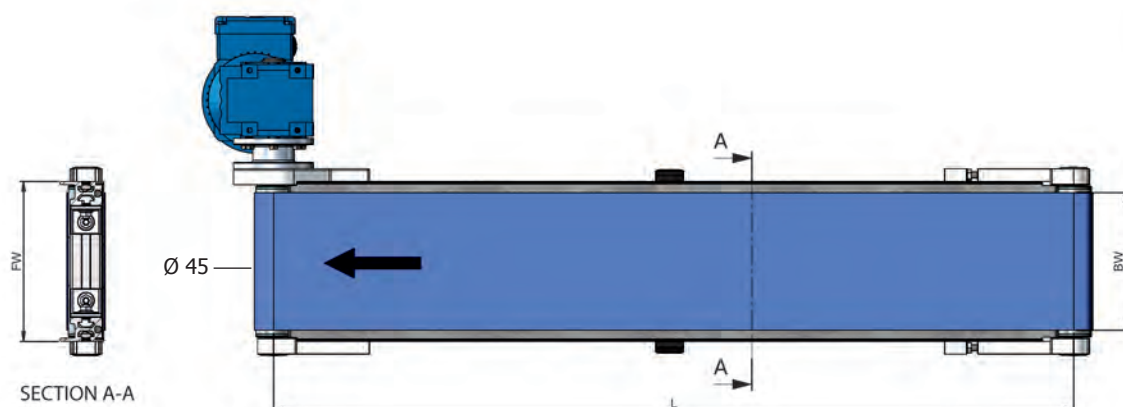
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6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 64
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





More technical information: See engineering online www.easy-conveyors.com

EBS 40-D1	Dimensions - Abmessungen - Dimensions - Dimensiones					
L =	285 - 5600 mm 11,22" - 236,22" inch					
FW =	100	200	300	400	500	600 mm
	3,93"	7,87"	11,81"	15,74"	19,68"	23,62" inch
BW =	81	172	270	370	470	560 mm
	3,19"	6,77"	10,63"	14,57"	18,50"	22,05" inch
V ≈	Max. 60 mtr./min 197 Foot/min					
ⓘ ≈	Max. 75 kg 165 Pounds					
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



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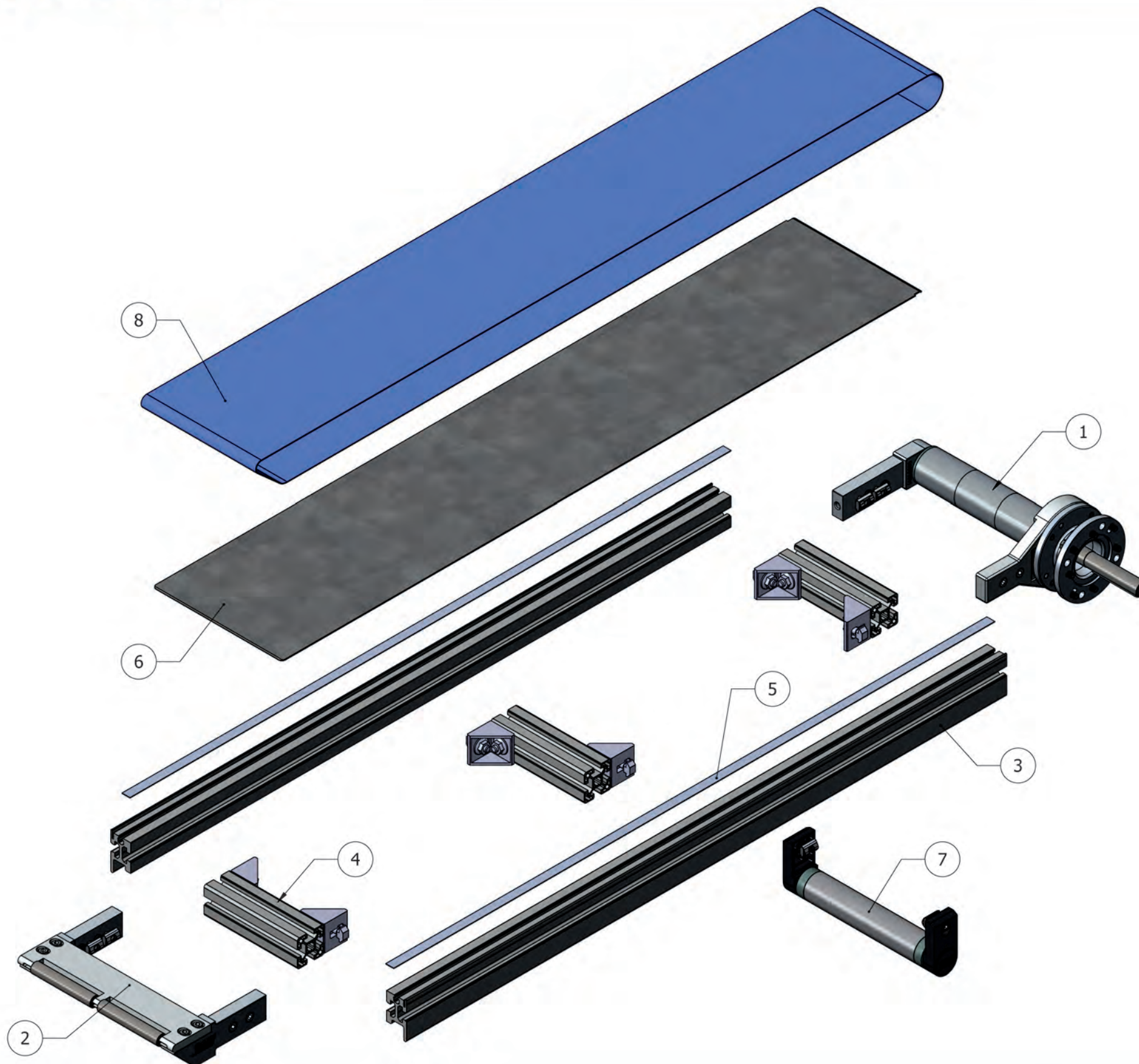
EBS40-D2

HEAD DRIVE WITH Ø15 RETURN
KOPFANTRIEB MIT UMLENKUNG Ø 15
ENTRAÎNEMENT DIRECT AVEC RETOUR DIAMÈTRE 15
CABEZA DE TRACCIÓN CON EJE Ø 15



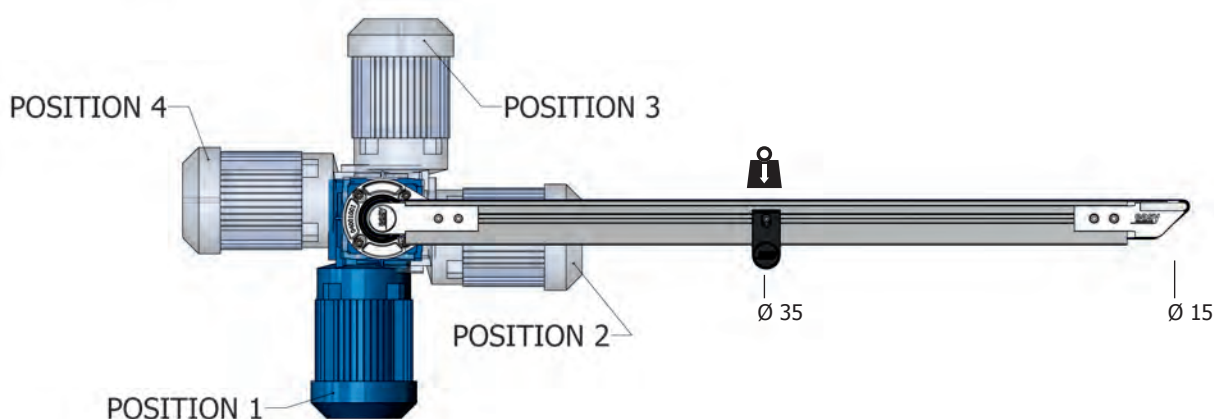
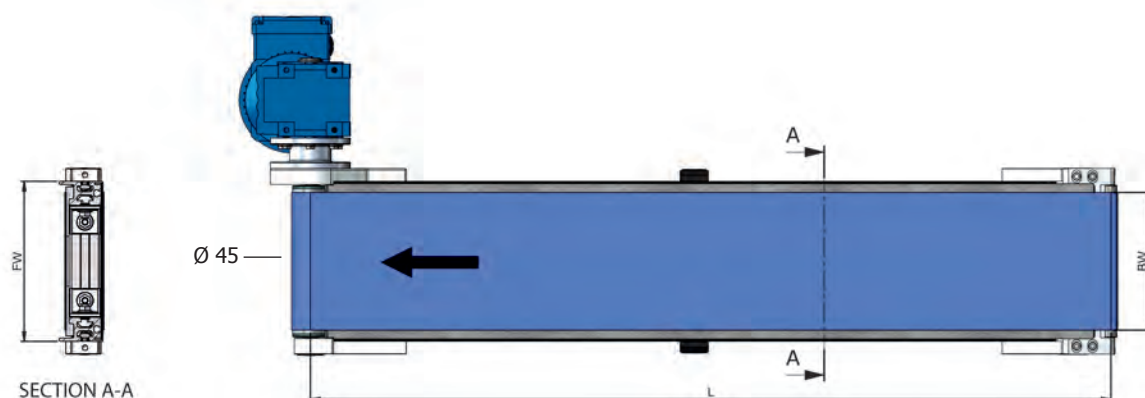
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2	Return set Ø 15 Umlenkungsatz Ø 15 Ensemble de retour diamètre 15 Reenvío Ø 15, juego	Module page 78
3	EBS profile 40 EBS profil 40 Profilé EBS 40 Perfil EBS 40	Module page 64
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 64
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 64
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7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





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EBS 40-D2	Dimensions - Abmessungen - Dimensions - Dimensiones				
L =	260 - 5600 mm 10,24" - 220,47" inch				
FW =	100	200	300	400	500 mm
	3,93"	7,87"	11,81"	15,74"	19,68" inch
BW =	81	172	270	370	470 mm
	3,19"	6,77"	10,63"	14,57"	18,50" inch
V ≈	Max. 60 mtr./min 197 Foot/min				
⚖ ≈	Max. 75 kg 165 Pounds				
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



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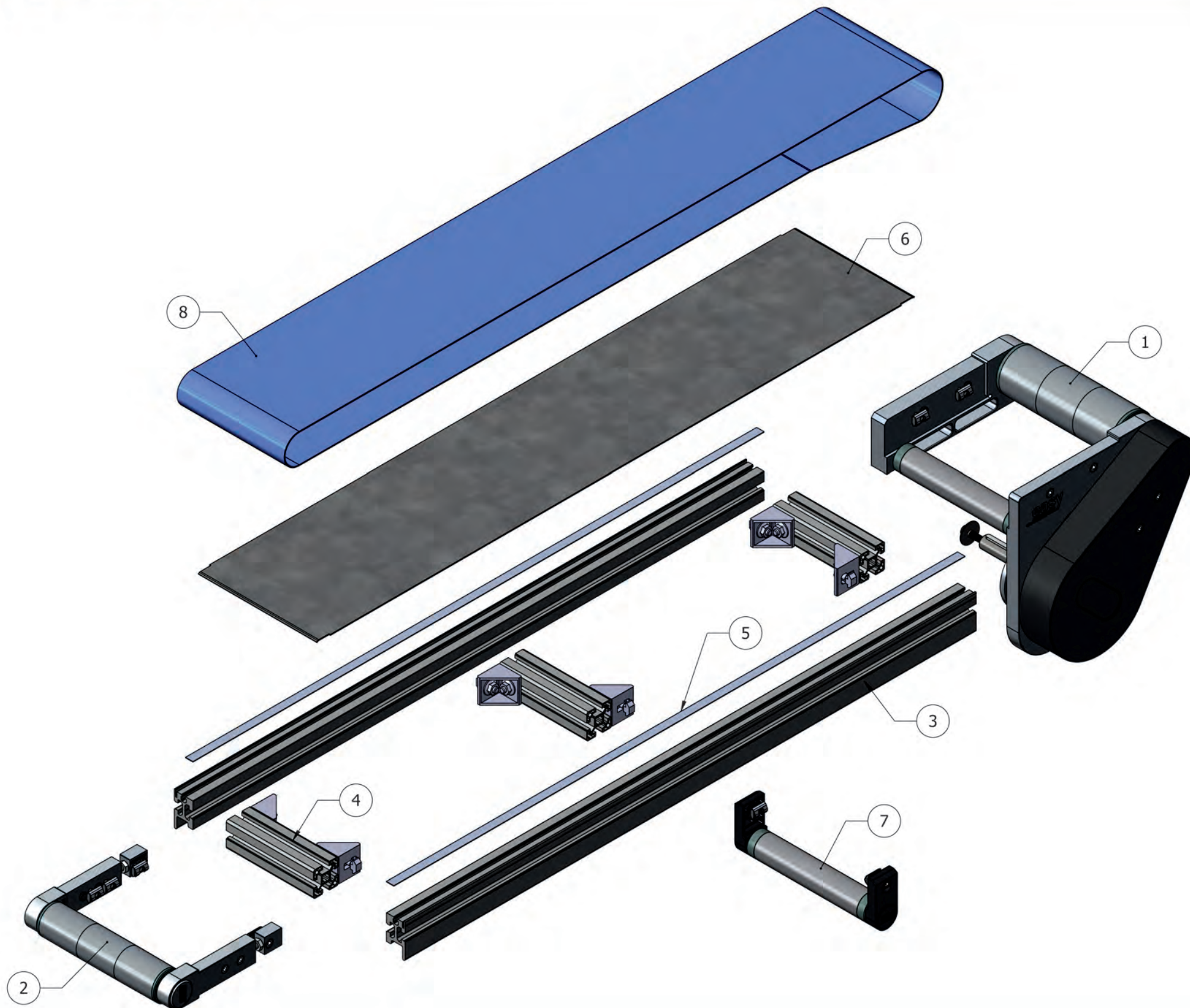
EBS40-I1

TRANSMISSION DRIVE WITH Ø45 RETURN
INDIREKTER KOPFANTRIEB MIT Ø 45 UMLENKUNG
ENTRAÎNEMENT DÉPORTÉ AVEC RETOUR DIAMÈTRE 45
TRANSMISIÓN CON REENVÍO Ø 45

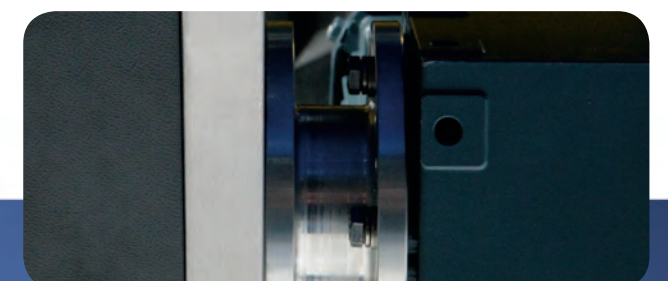


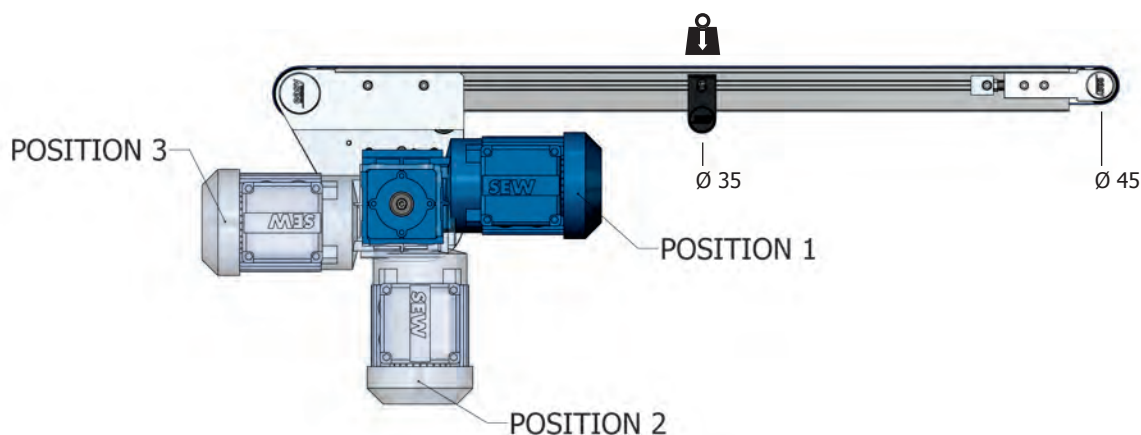
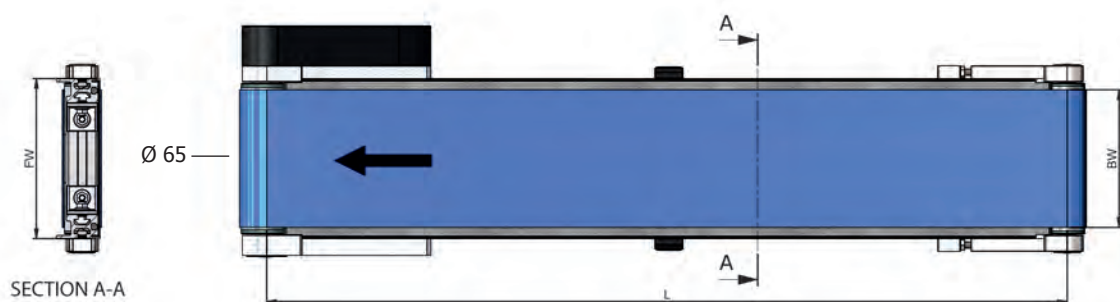
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1	Transmission drive set Indirekter Kopfantrieb – Satz Ensemble Entraînement Déporté Accionamiento transmisión, juego	Module page 68-70
2	Return set Ø 45 Umlenkungsatz Ø 45 Ensemble de retour diamètre 45 Reenvío Ø 45, juego	Module page 76
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5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 64
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 64
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





More technical information: See engineering online www.easy-conveyors.com

EBS 40-I1	Dimensions - Abmessungen - Dimensions - Dimensiones					
L =	370 - 5600 mm 14,57" - 220,47" inch					
FW =	100	200	300	400	500	600 mm
	3,93"	7,87"	11,81"	15,74"	19,68"	23,62" inch
BW =	81	172	270	370	470	560 mm
	3,19"	6,77"	10,63"	14,57"	18,50"	22,05" inch
V ≈	Max. 80 mtr./min 263 Foot/min					
⚖ ≈	Max. 75 kg 165 Pounds					
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



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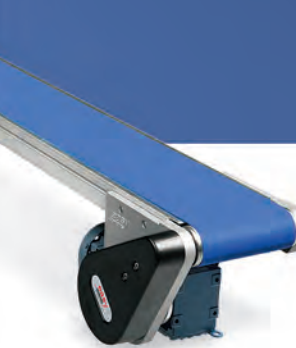
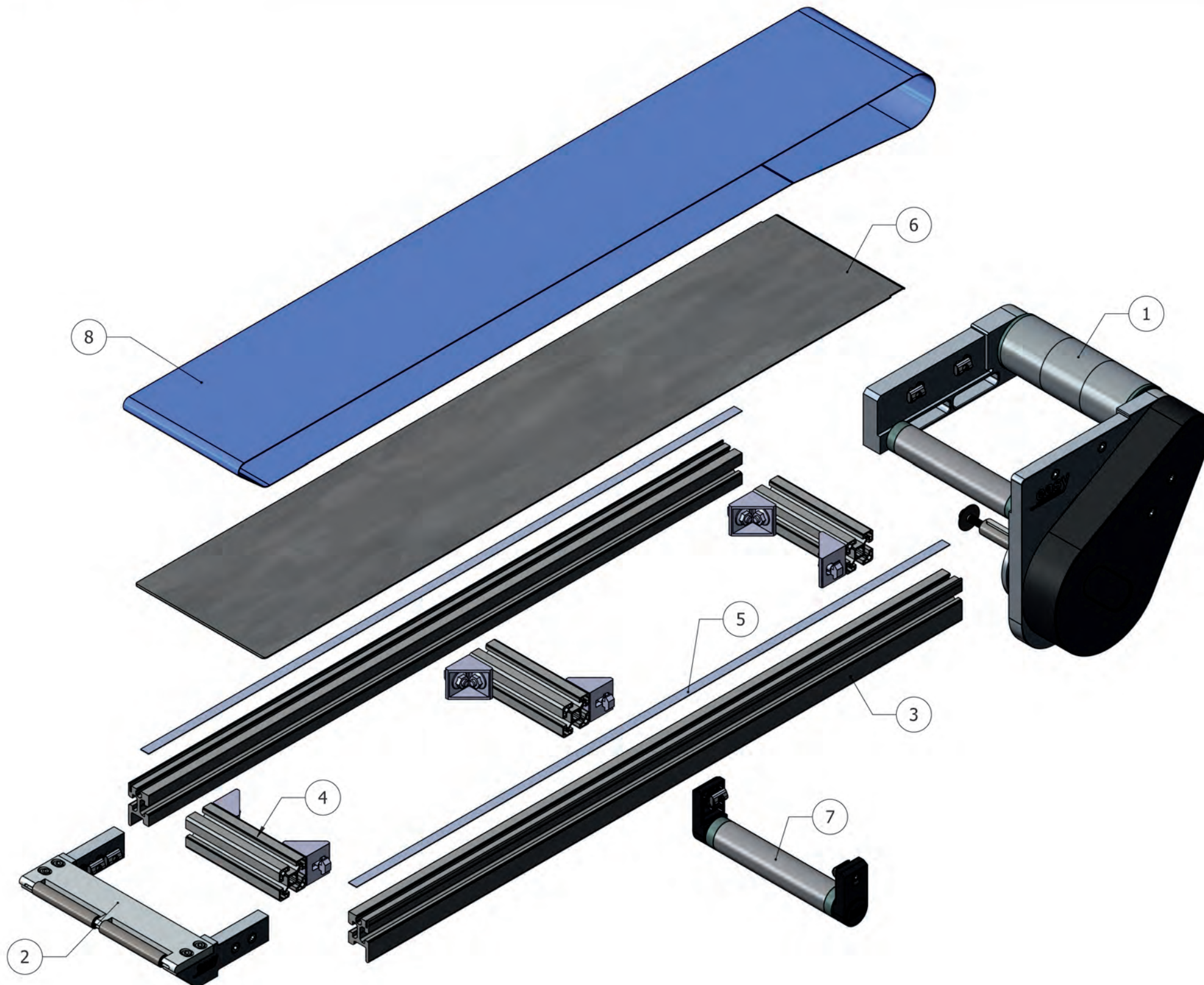
EBS40-I2

TRANSMISSION DRIVE WITH Ø15 RETURN
INDIREKTER KOPFANTRIEB MIT Ø 15 UMLENKUNG
ENTRAÎNEMENT DÉPORTÉ AVEC RETOUR DIAMÈTRE 15
TRANSMISIÓN CON REENVÍO Ø 15

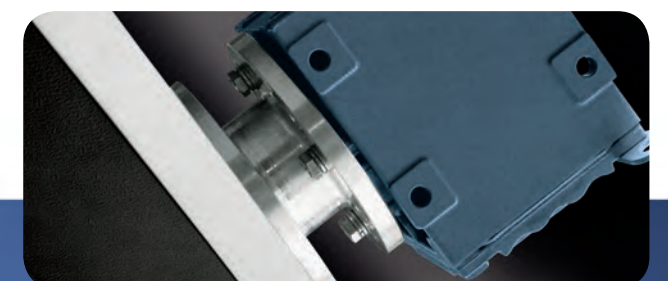


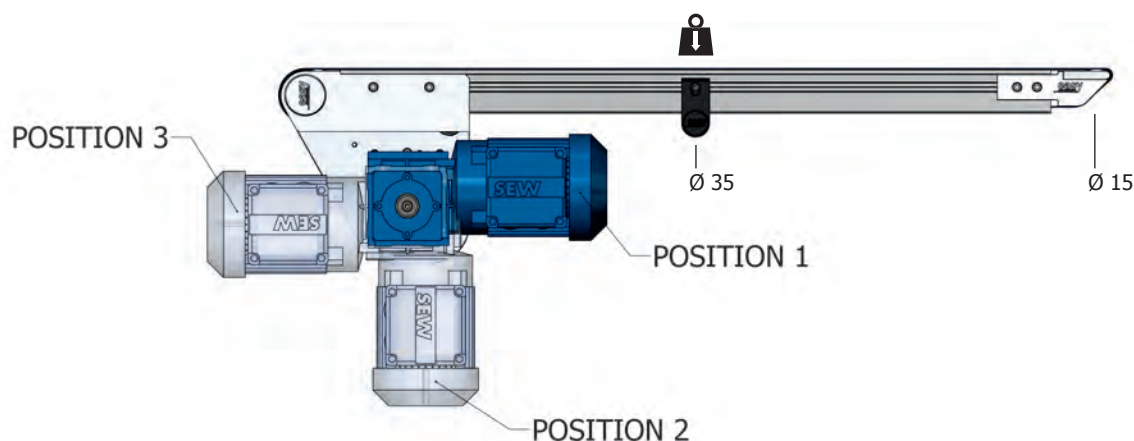
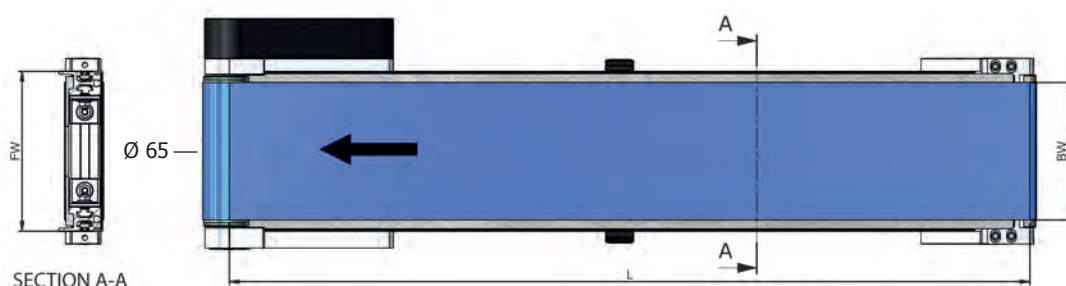
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- | | |
|---|-------------------|
| 1 Transmission drive set
Indirekter Kopfantrieb – Satz
Ensemble Entraînement Déporté
Accionamiento transmisión, juego | Module page 68-70 |
| 2 Return set Ø 15
Umlenkungsatz Ø 15
Ensemble de retour diamètre 15
Reenvío Ø 15, juego | Module page 78 |
| 3 EBS profile 40
EBS profil 40
Profilé EBS 40
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| 5 Top plate tape
Abdeckplatte Klebeband
Ruban adhésif pour plaque supérieure
Cinta adhesiva para chapa de apoyo | Module page 64 |
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Abdeckplatte
Plaque supérieure
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| 7 Support roller
Unterstützungsrolle
Rouleau support
Rodillo de soporte | Module page 100 |
| 8 Belt
Gurt
Courroie
Banda | Module page 96 |





More technical information: See engineering online www.easy-conveyors.com

EBS 40-I2	Dimensions - Abmessungen - Dimensions - Dimensiones				
L =	345 - 5600 mm 13,58" - 220,47" inch				
FW =	100	200	300	400	500 mm
	3,93"	7,87"	11,81"	15,74"	19,68" inch
BW =	81	172	270	370	470 mm
	3,19"	6,77"	10,63"	14,57"	18,50" inch
V ≈	Max. 80 mtr./min 263 Foot/min				
Ⓐ ≈	Max. 75 kg 165 Pounds				
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

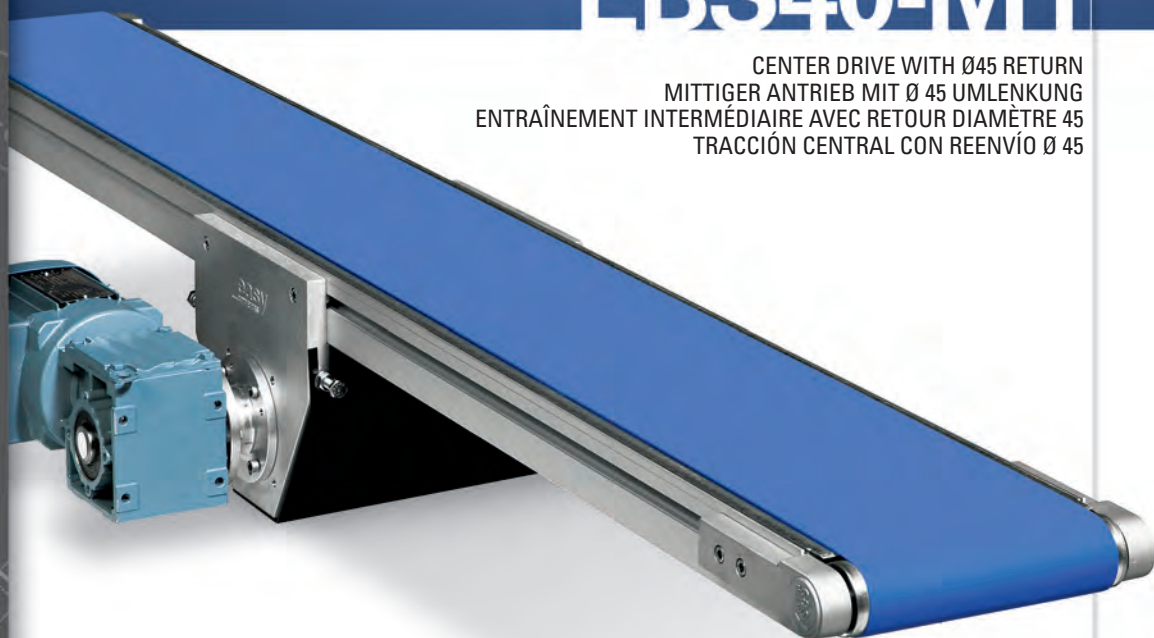


EBS
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Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

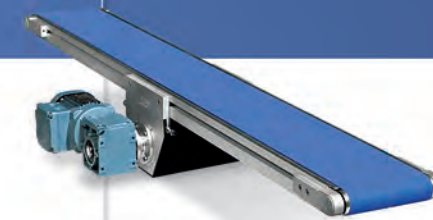
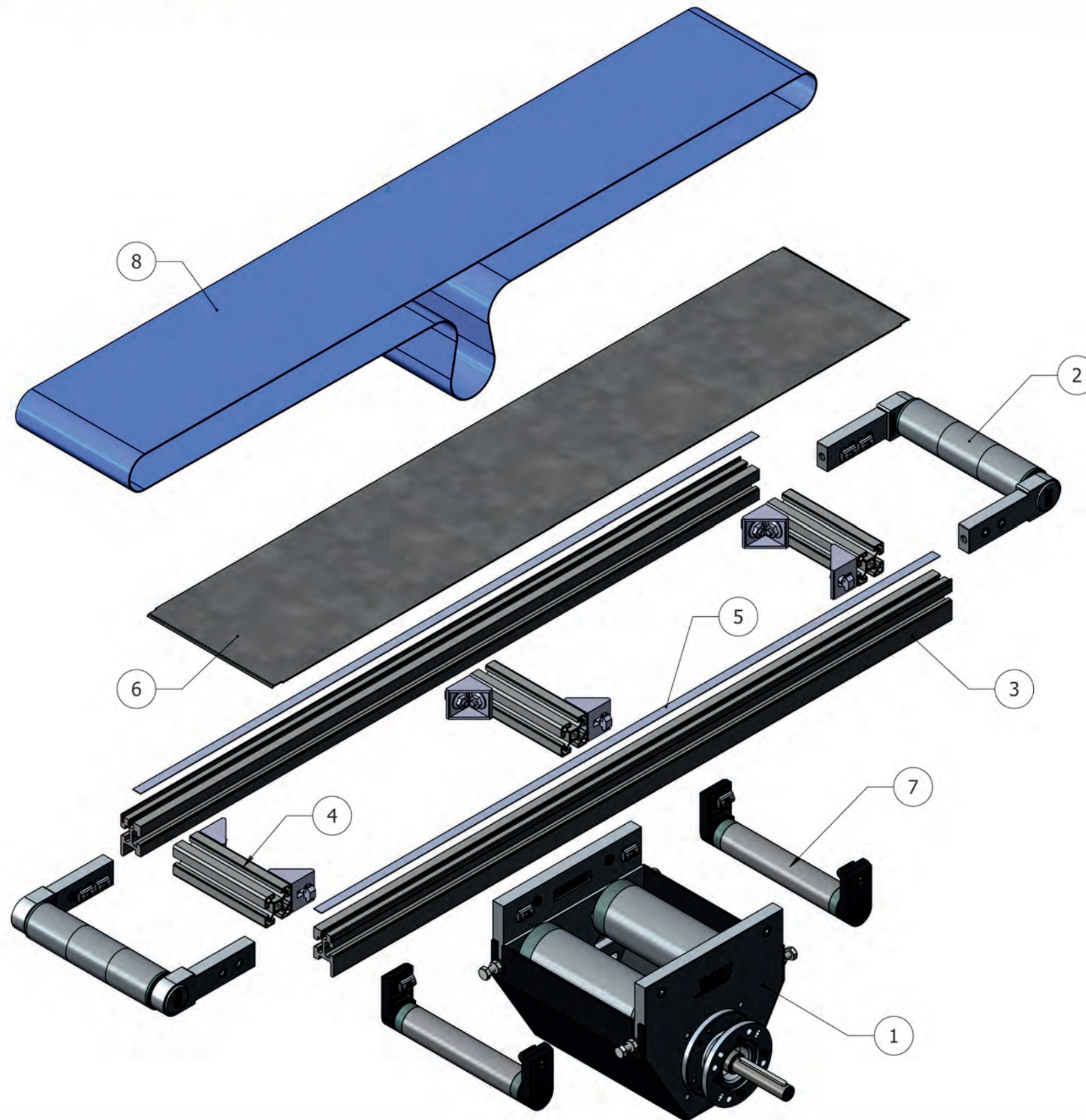
EBS40-M1

CENTER DRIVE WITH Ø45 RETURN
MITTIGER ANTRIEB MIT Ø 45 UMLENKUNG
ENTRAÎNEMENT INTERMÉDIAIRE AVEC RETOUR DIAMÈTRE 45
TRACCIÓN CENTRAL CON REENVÍO Ø 45

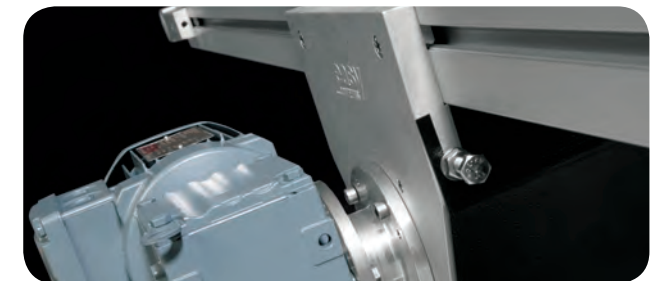


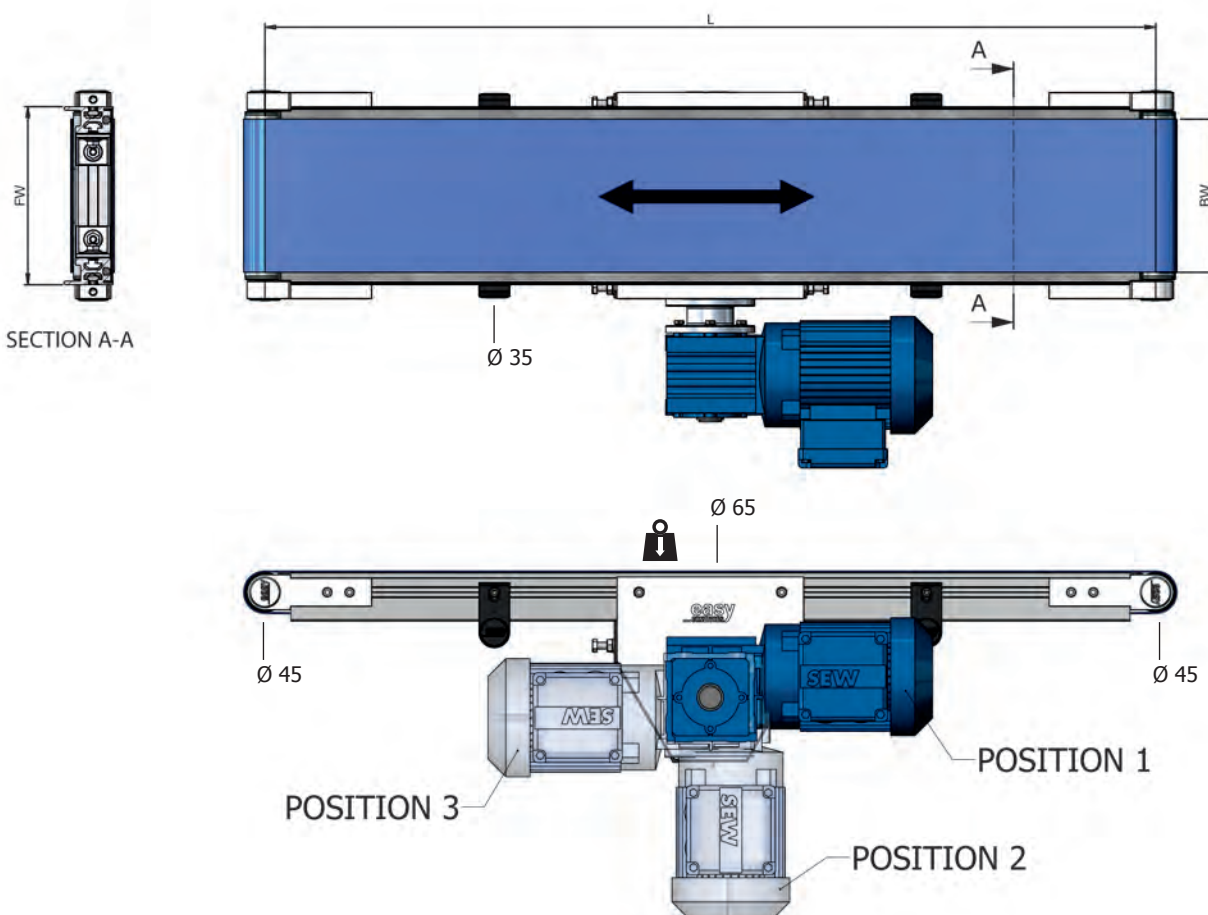
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1	Center drive set Mittiger Antrieb - Satz Ensemble Entraînement Intermédiaire Accionamiento central, juego	Module page 72
2	Return set Ø 45 Umlenkungsatz Ø 45 Ensemble de retour diamètre 45 Reenvío Ø 45, juego	Module page 76
3	EBS profile 40 EBS profil 40 Profilé EBS 40 Perfil EBS 40	Module page 64
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 64
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 64
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 64
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





More technical information: See engineering online www.easy-conveyors.com

EBS 40-M1	Dimensions - Abmessungen - Dimensions - Dimensiones					
L =	450 - 5600 mm 17,72" - 220,47" inch					
FW =	100	200	300	400	500	600 mm
	3,93"	7,87"	11,81"	15,74"	19,68"	23,62" inch
BW =	81	172	270	370	470	560 mm
	3,19"	6,77"	10,63"	14,57"	18,50"	22,05" inch
V ≈	Max. 80 mtr./min 263 Foot/min					
ⓘ ≈	Max. 75 kg 165 Pounds					
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

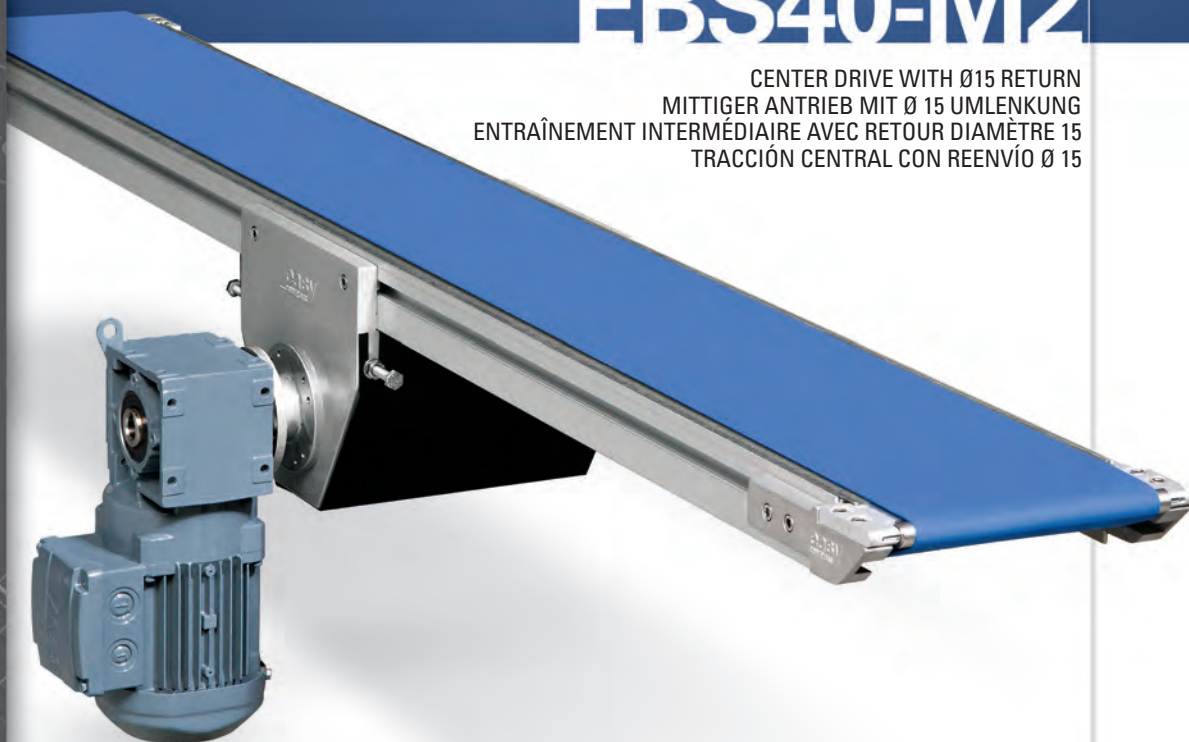


EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

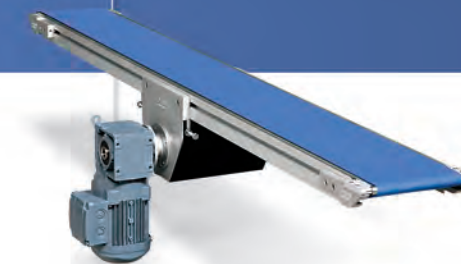
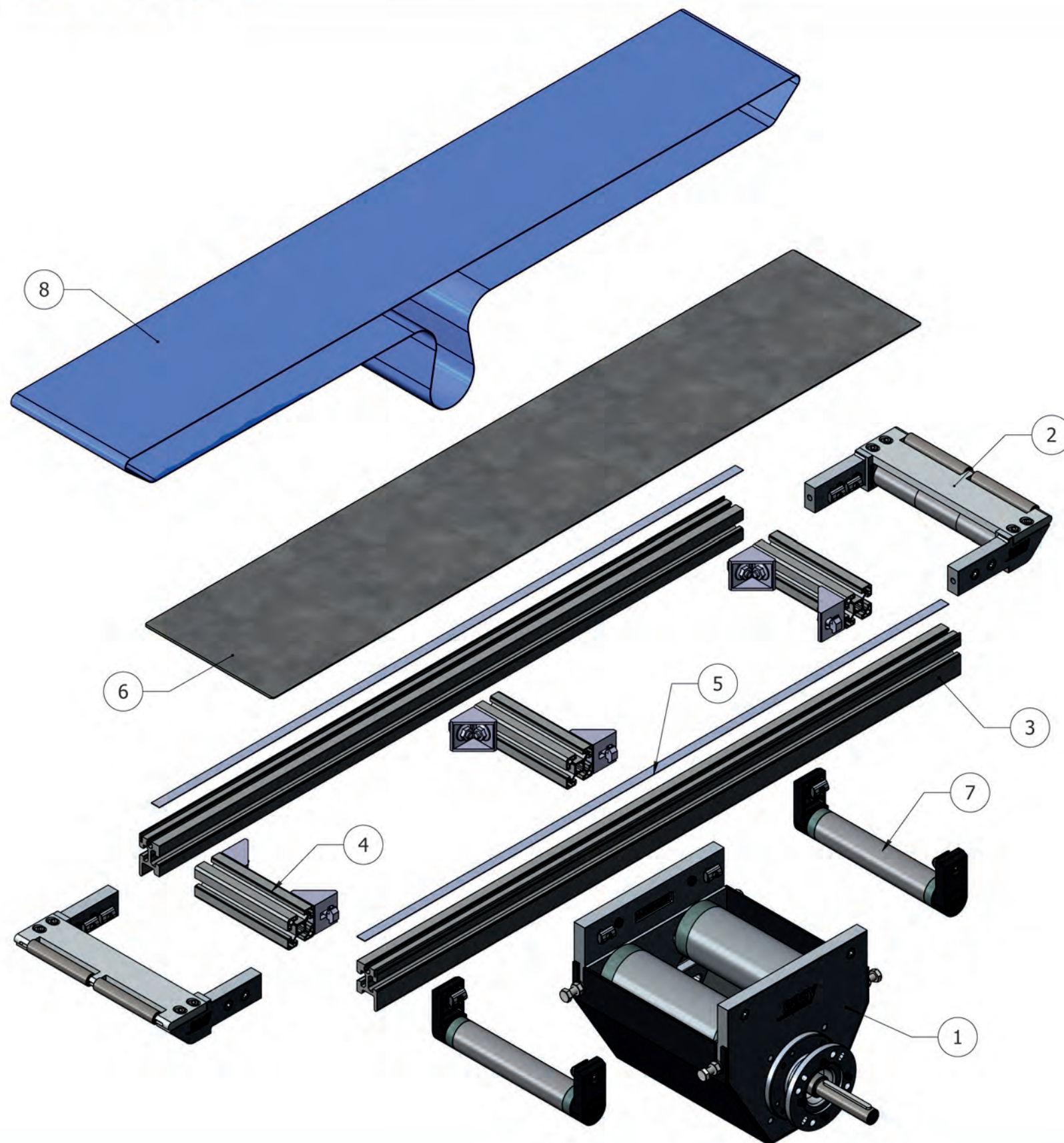
EBS40-M2

CENTER DRIVE WITH Ø15 RETURN
MITTIGER ANTRIEB MIT Ø 15 UMLENKUNG
ENTRAÎNEMENT INTERMÉDIAIRE AVEC RETOUR DIAMÈTRE 15
TRACCIÓN CENTRAL CON REENVÍO Ø 15

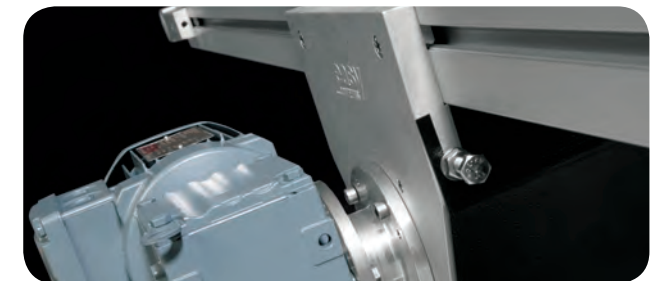


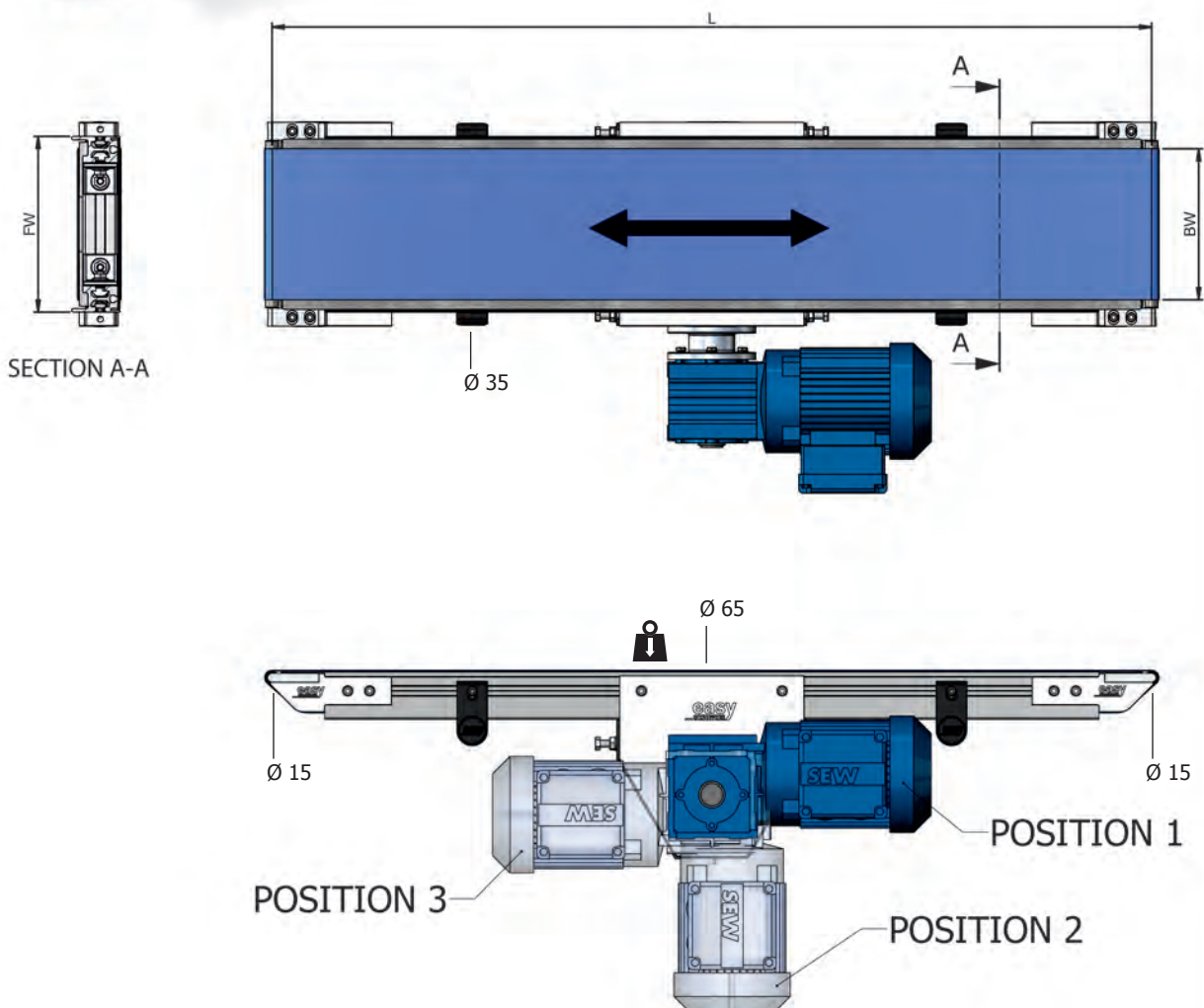
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1	Center drive set Mittiger Antrieb - Satz Ensemble Entraînement Intermédiaire Accionamiento central, juego	Module page 72
2	Return set Ø 15 Umlenkungsatz Ø 15 Ensemble de retour diamètre 15 Reenvío Ø 15, juego	Module page 78
3	EBS profile 40 EBS profil 40 Profilé EBS 40 Perfil EBS 40	Module page 64
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 64
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 64
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 64
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





More technical information: See engineering online www.easy-conveyors.com

EBS 40-M2	Dimensions - Abmessungen - Dimensions - Dimensiones				
L =	450 - 5600 mm 17,72" - 220,47" inch				
FW =	100	200	300	400	500 mm 3,93" 7,87" 11,81" 15,74" 19,68" inch
BW =	81	172	270	370	470 mm 3,19" 6,77" 10,63" 14,57" 18,50" inch
V ≈	Max. 80 mtr./min 263 Foot/min				
ⓘ ≈	Max. 75 kg 165 Pounds				
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

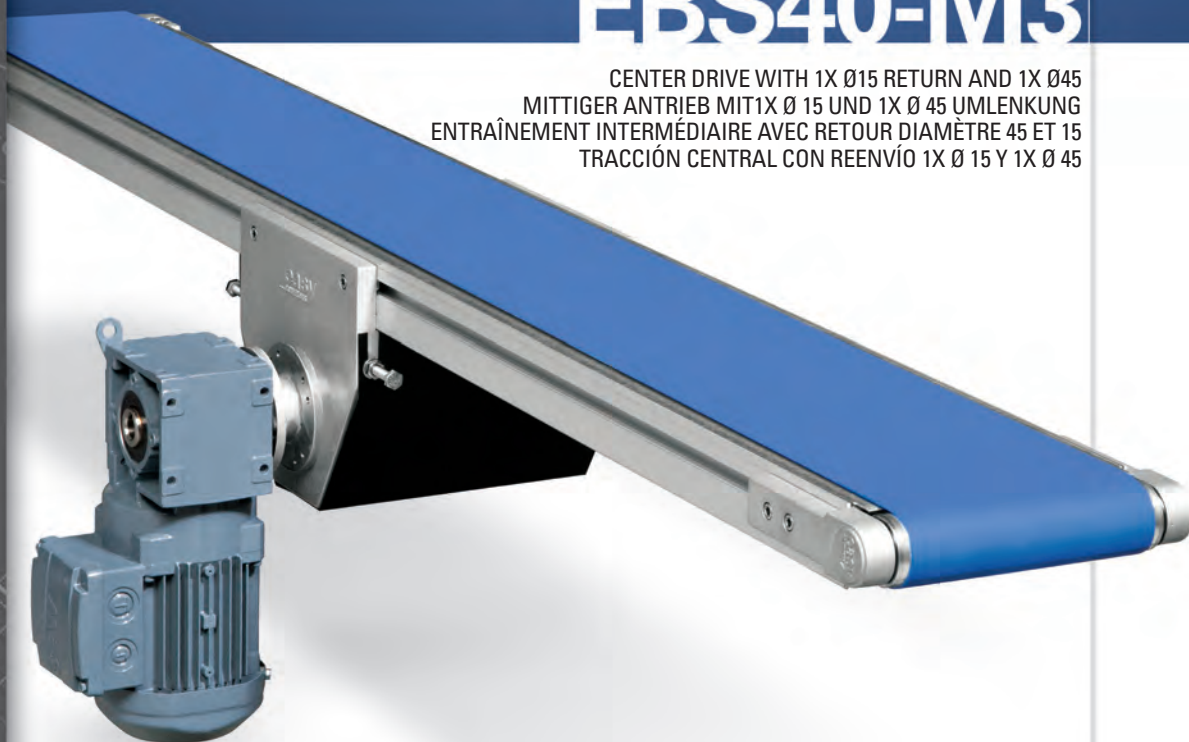


EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

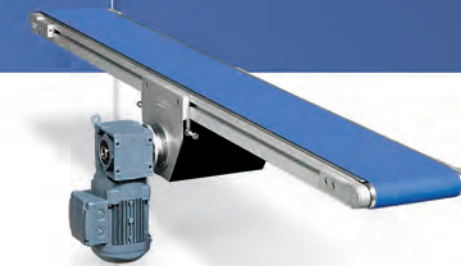
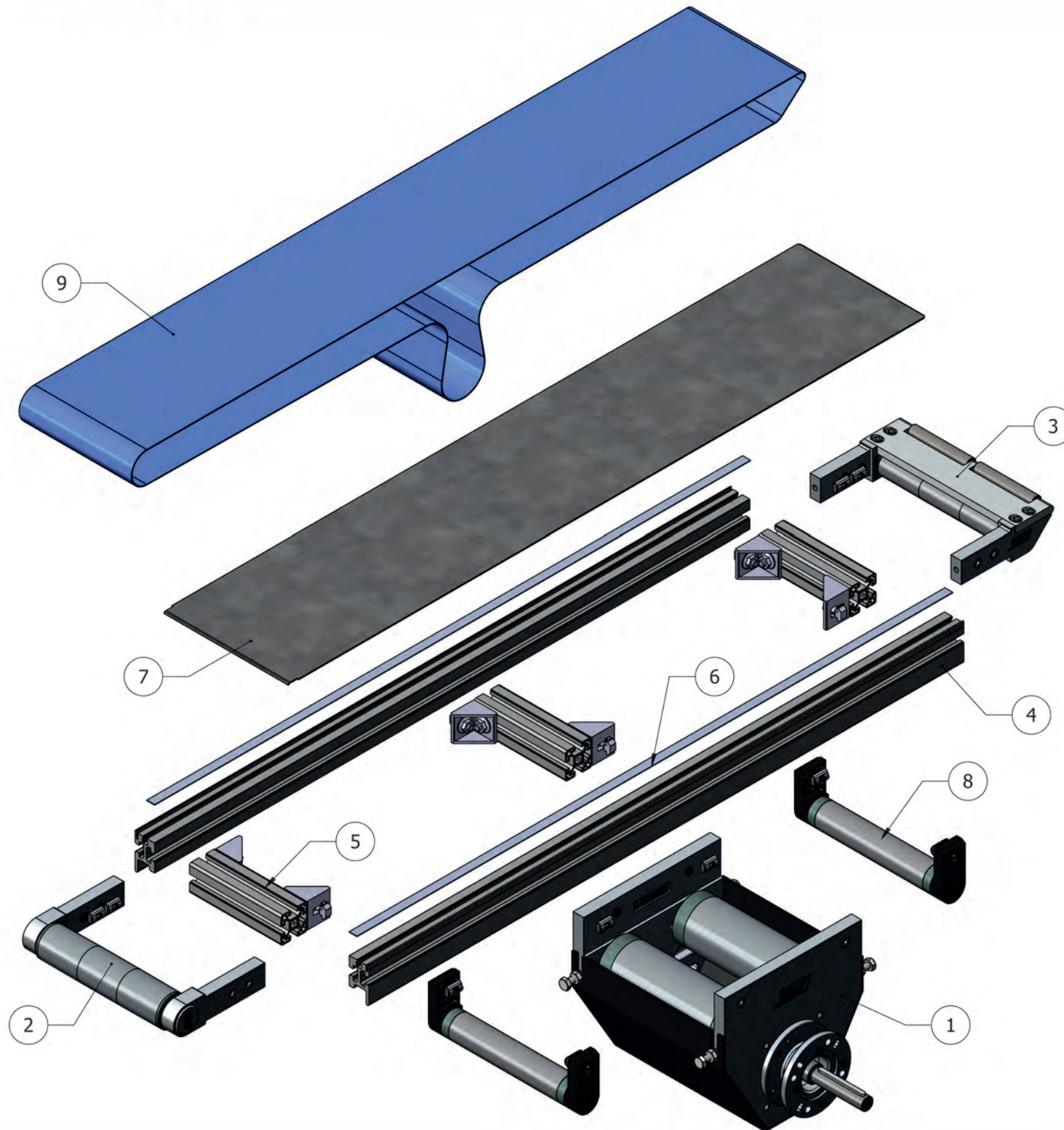
EBS40-M3

CENTER DRIVE WITH 1X Ø15 RETURN AND 1X Ø45
MITTIGER ANTRIEB MIT 1X Ø 15 UND 1X Ø 45 UMLENKUNG
ENTRAÎNEMENT INTERMÉDIAIRE AVEC RETOUR DIAMÈTRE 45 ET 15
TRACCIÓN CENTRAL CON REENVÍO 1X Ø 15 Y 1X Ø 45



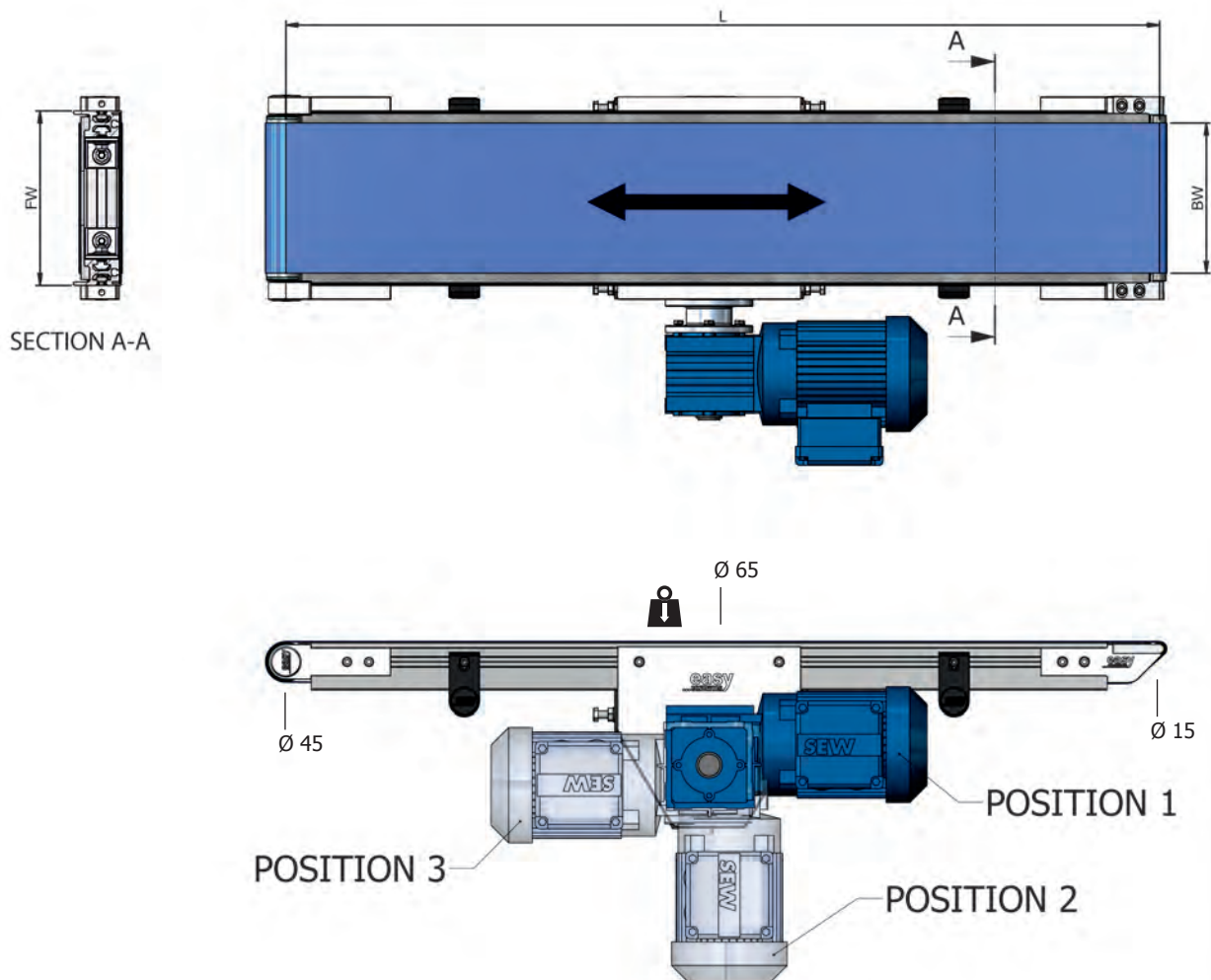
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- | | | |
|---|--|-----------------|
| 1 | Center drive set
Mittiger Antrieb - Satz
Ensemble Entraînement Intermédiaire
Accionamiento central,, juego | Module page 72 |
| 2 | Return set Ø 45
Umlenkungsatz Ø 45
Ensemble de retour diamètre 45
Reenvío Ø 45, juego | Module page 76 |
| 3 | Return set Ø 15
Umlenkungsatz Ø 15
Ensemble de retour diamètre 15
Reenvío Ø 15, juego | Module page 78 |
| 4 | EBS profile 40
EBS profil 40
Profilé EBS 40
Perfil EBS 40 | Module page 64 |
| 5 | Straight connector
Querstrebe
Connecteur droit
Tramo de unión | Module page 64 |
| 6 | Top plate tape
Abdeckplatte Klebeband
Ruban adhésif pour plaque supérieure
Cinta adhesiva para chapa de apoyo | Module page 64 |
| 7 | Top plate
Abdeckplatte
Plaque supérieure
Chapa de apoyo | Module page 64 |
| 8 | Support roller
Unterstützungsrolle
Rouleau support
Rodillo de soporte | Module page 100 |
| 9 | Belt
Gurt
Courroie
Banda | Module page 96 |





More technical information: See engineering online www.easy-conveyors.com

EBS 40-M3	Dimensions - Abmessungen - Dimensions - Dimensiones				
L =	470 - 5600 mm 18,50" - 220,47" inch				
FW =	100	200	300	400	500 mm
	3,93"	7,87"	11,81"	15,74"	19,68 " inch
BW =	81	172	270	370	470 mm
	3,19"	6,77"	10,63"	14,57"	18,50" inch
V ≈	Max. 80 mtr./min 263 Foot/min				
ⓘ ≈	Max. 75 kg 165 Pounds				
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

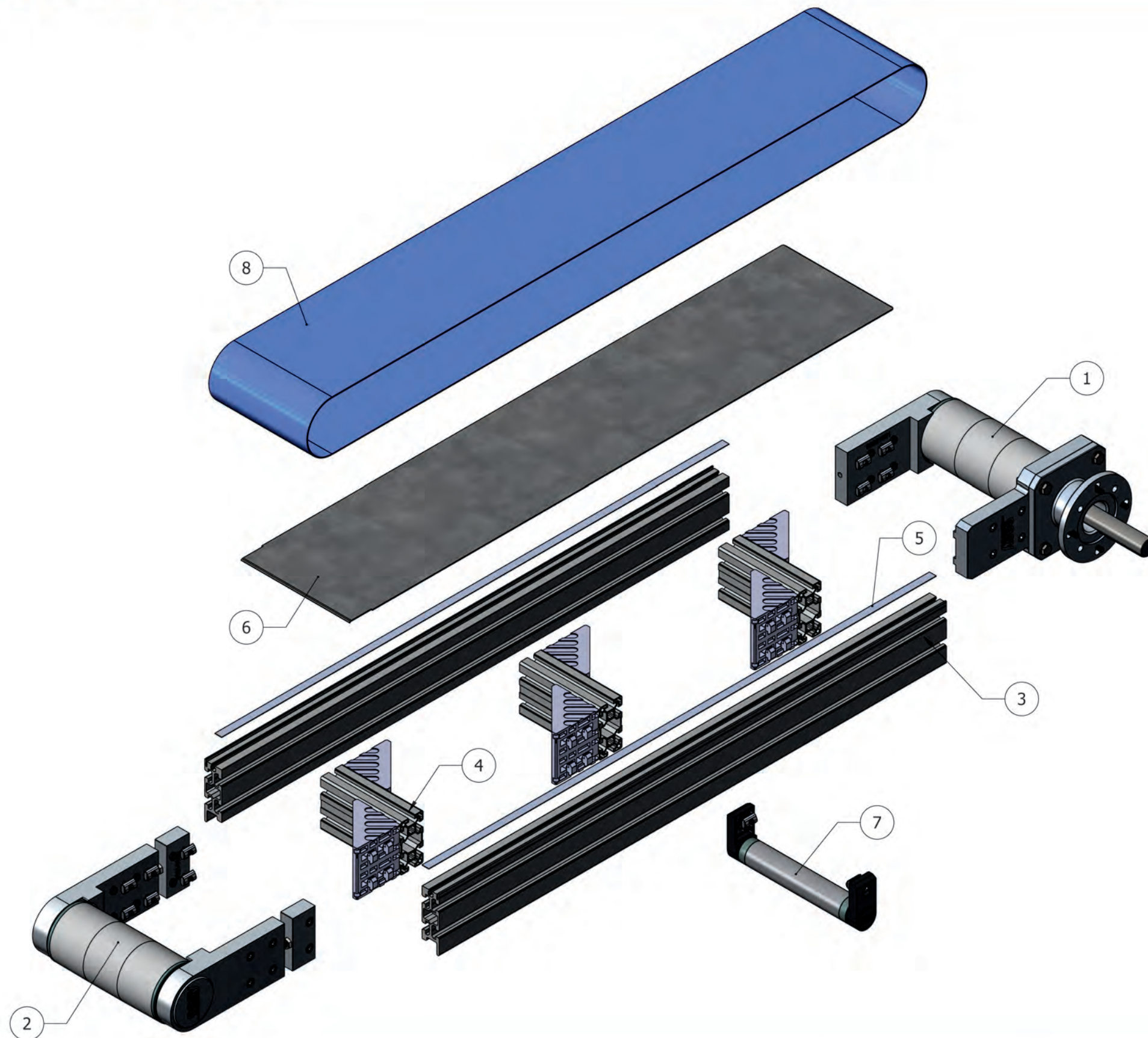
EBS80-D1

HEAD DRIVE WITH Ø85 RETURN
KOPFANTRIEB MIT UMLENKUNG Ø 85
ENTRAÎNEMENT DIRECT AVEC RETOUR DIAMÈTRE 85
CABEZA DE TRACCIÓN CON EJE Ø 85



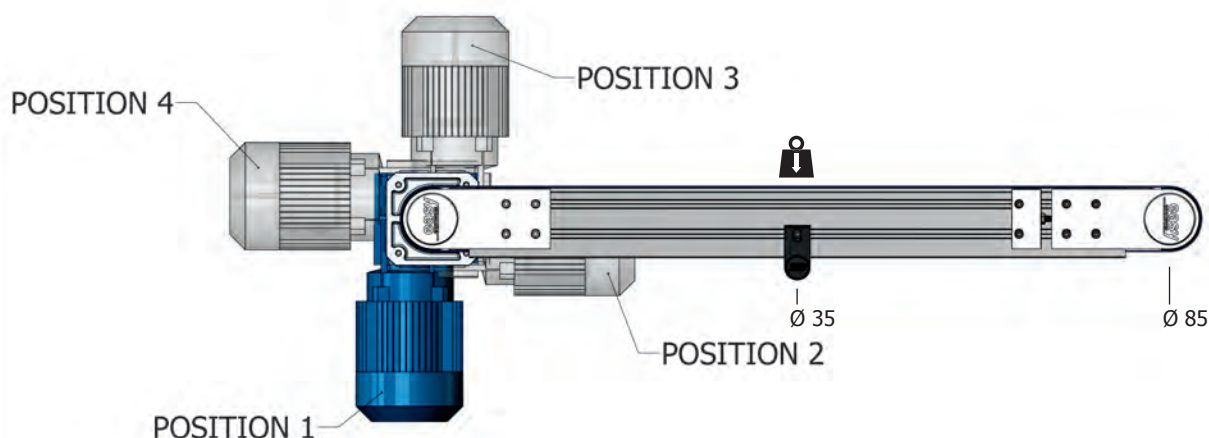
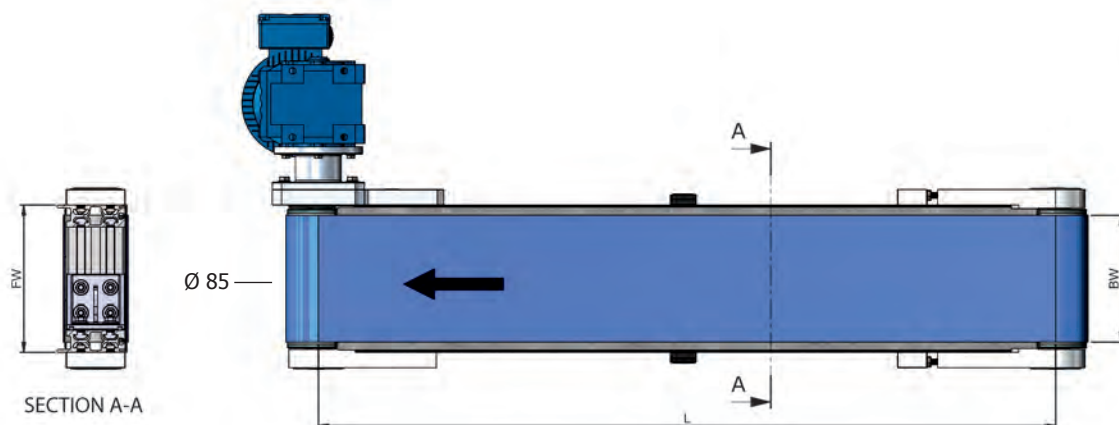
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1	Head drive Kopfantrieb Entraînement Direct Cabeza de tracción	Module page 84
2	Return set Ø 85 Umlenkungsatz Ø 85 Ensemble de retour diamètre 85 Reenvío Ø 85, juego	Module page 94
3	EBS profile 80 EBS profil 80 Profilé EBS 80 Perfil EBS 80	Module page 82
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 82
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 82
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 82
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





More technical information: See engineering online www.easy-conveyors.com

EBS 80-D1	Dimensions - Abmessungen - Dimensions - Dimensiones					
L =	380 - 11200 mm 14,96" - 440,94" inch					
FW =	200	400	600	800	1000	1200 mm
	7,87"	15,74"	23,62"	31,49"	39,37"	47,24" inch
BW =	172	370	560	760	960	1160 mm
	6,77"	14,57"	22,05"	29,92"	73,80"	45,67" inch
V ≈	Max. 85 mtr./min 279 Foot/min					
⚖ ≈	Max. 150 kg 331 Pounds					
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 118-122	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

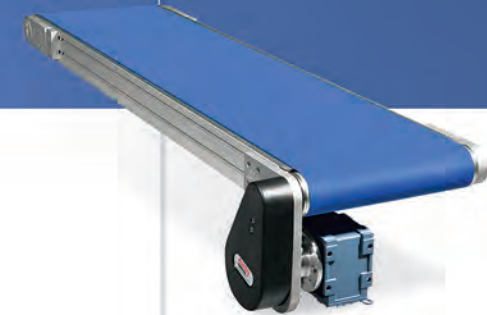
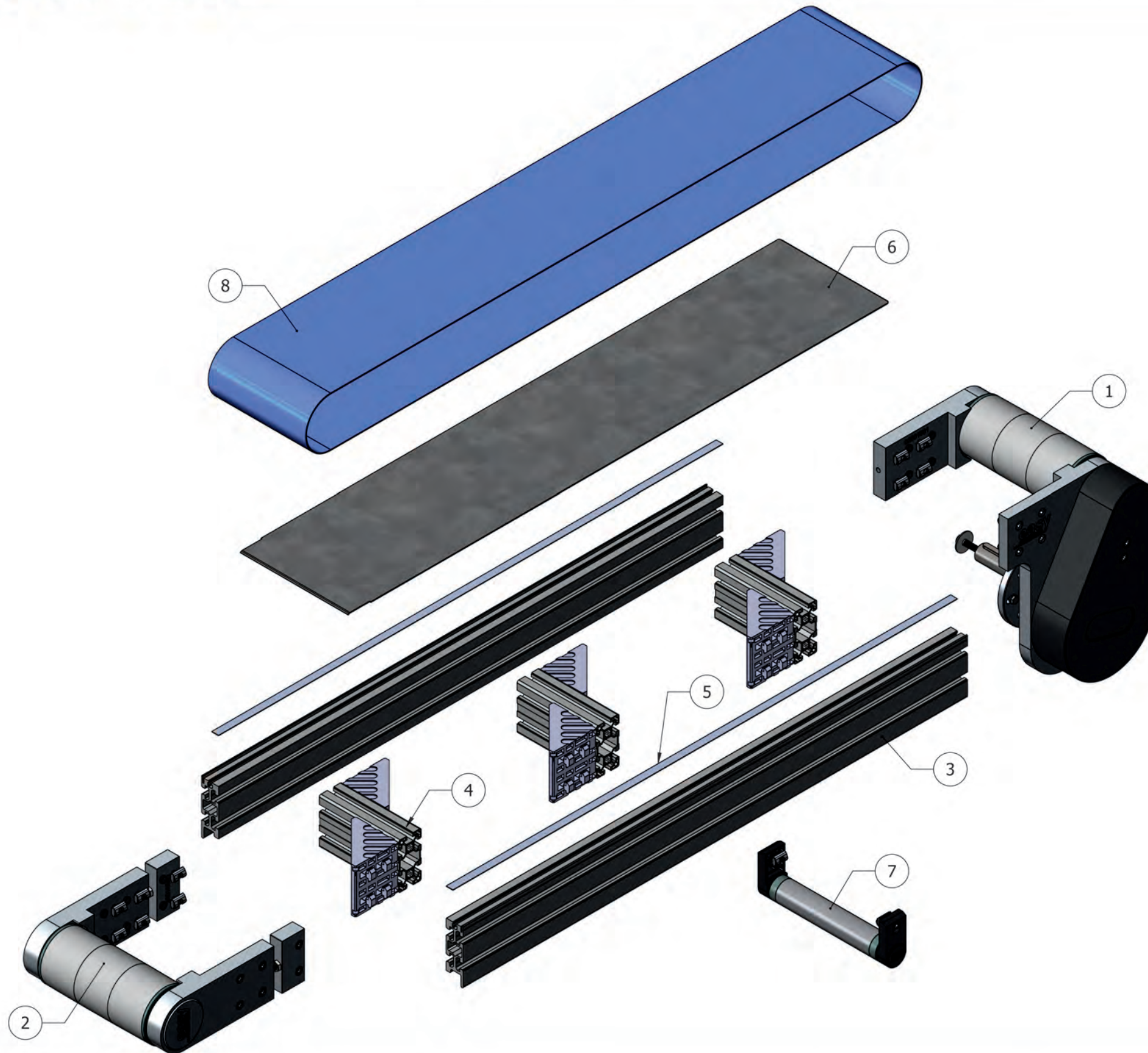
EBS80-I1

TRANSMISSION DRIVE WITH Ø85 RETURN
INDIREKTER KOPFANTRIEB MIT Ø 85 UMLENKUNG
ENTRAÎNEMENT DÉPORTÉ AVEC RETOUR DIAMÈTRE 85
TRANSMISIÓN CON REENVÍO Ø 85



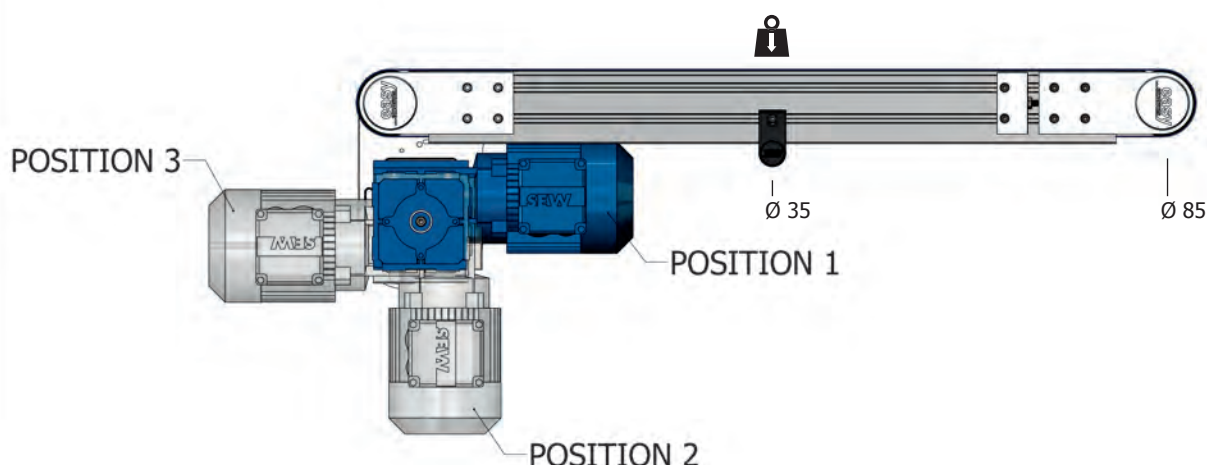
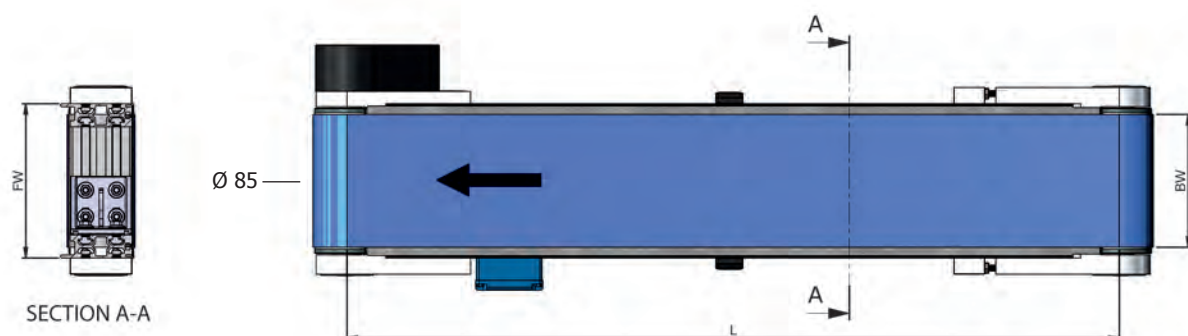
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- | | |
|---|-------------------|
| 1 Transmission drive set
Indirekter Kopfantrieb – Satz
Ensemble Entraînement Déporté
Accionamiento transmisión, juego | Module page 86-88 |
| 2 Return set Ø 85
Umlenkungsatz Ø 85
Ensemble de retour diamètre 85
Reenvío Ø 85, juego | Module page 94 |
| 3 EBS profile 80
EBS profil 80
Profilé EBS 80
Perfil EBS 80 | Module page 82 |
| 4 Straight connector
Längsverbinder
Connecteur droit
Conector longitudinal | Module page 82 |
| 5 Top plate tape
Abdeckplatte Klebeband
Ruban adhésif pour plaque supérieure
Cinta adhesiva para chapa de apoyo | Module page 82 |
| 6 Top plate
Abdeckplatte
Plaque supérieure
Chapa de apoyo | Module page 82 |
| 7 Support roller
Unterstützungsrolle
Rouleau support
Rodillo de soporte | Module page 100 |
| 8 Belt
Gurt
Courroie
Banda | Module page 96 |





More technical information: See engineering online www.easy-conveyors.com

EBS 80-I1	Dimensions - Abmessungen - Dimensions - Dimensiones					
L =	380 - 11200 mm 14,96" - 440,94" inch					
FW =	200	400	600	800	1000	1200 mm
	7,87"	15,74"	23,62"	31,49"	39,37"	47,24" inch
BW =	172	370	560	760	960	1160 mm
	6,77"	14,57"	22,05"	29,92"	73,80"	45,67" inch
V ≈	Max. 85 mtr./min 279 Foot/min					
⚖ ≈	Max. 150 kg 331 Pounds					
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 118-122	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

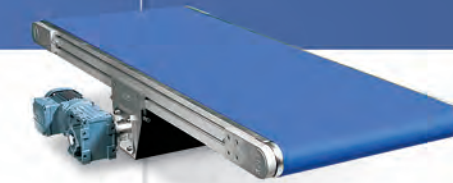
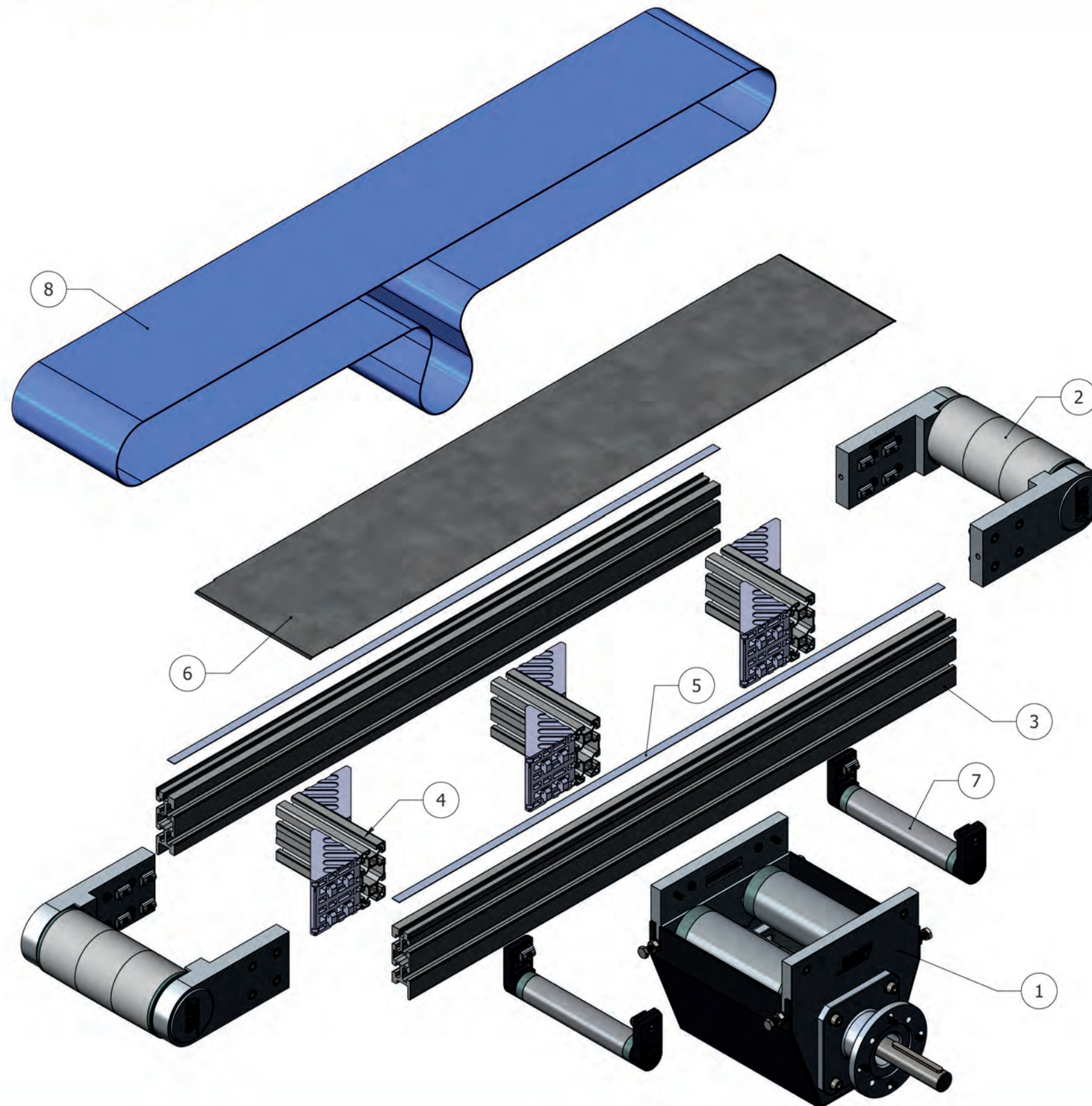
EBS80-M1

CENTER DRIVE WITH Ø85 RETURN
MITTIGER ANTRIEB MIT Ø 85 UMLENKUNG
ENTRAÎNEMENT INTERMÉDIAIRE AVEC RETOUR DIAMÈTRE 85
TRACCIÓN CENTRAL CON REENVÍO Ø 85



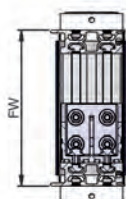
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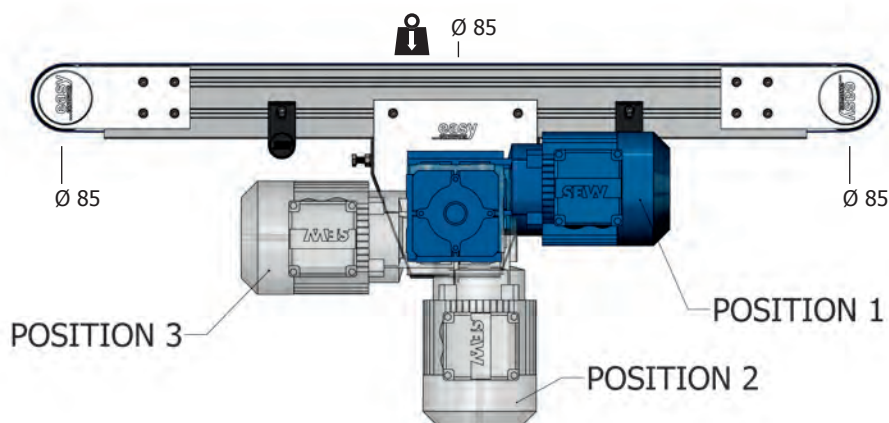
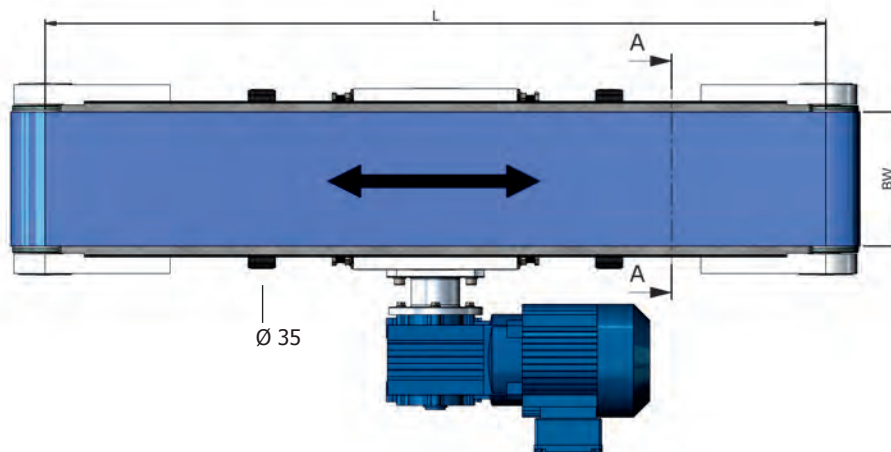


1	Center drive set Mittiger Antrieb - Satz Ensemble Entraînement Intermédiaire Accionamiento central, juego	Module page 90
2	Return set Ø 85 Umlenkungsatz Ø 85 Ensemble de retour diamètre 85 Reenvío Ø 85, juego	Module page 94
3	EBS profile 80 EBS profil 80 Profilé EBS 80 Perfil EBS 80	Module page 82
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 82
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 82
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 82
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





SECTION A-A


 More technical information: See engineering online www.easy-conveyors.com

EBS 80-M1	Dimensions - Abmessungen - Dimensions - Dimensiones					
L =	535 - 11200 mm 21,06" - 440,94" inch					
FW =	200	400	600	800	1000	1200 mm
	7,87"	15,74"	23,62"	31,49"	39,37"	47,24" inch
BW =	172	370	560	760	960	1160 mm
	6,77"	14,57"	22,05"	29,92"	73,80"	45,67" inch
V ≈	Max. 85 mtr./min 279 Foot/min					
⚖ ≈	Max. 150 kg 331 Pounds					
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 118-122	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

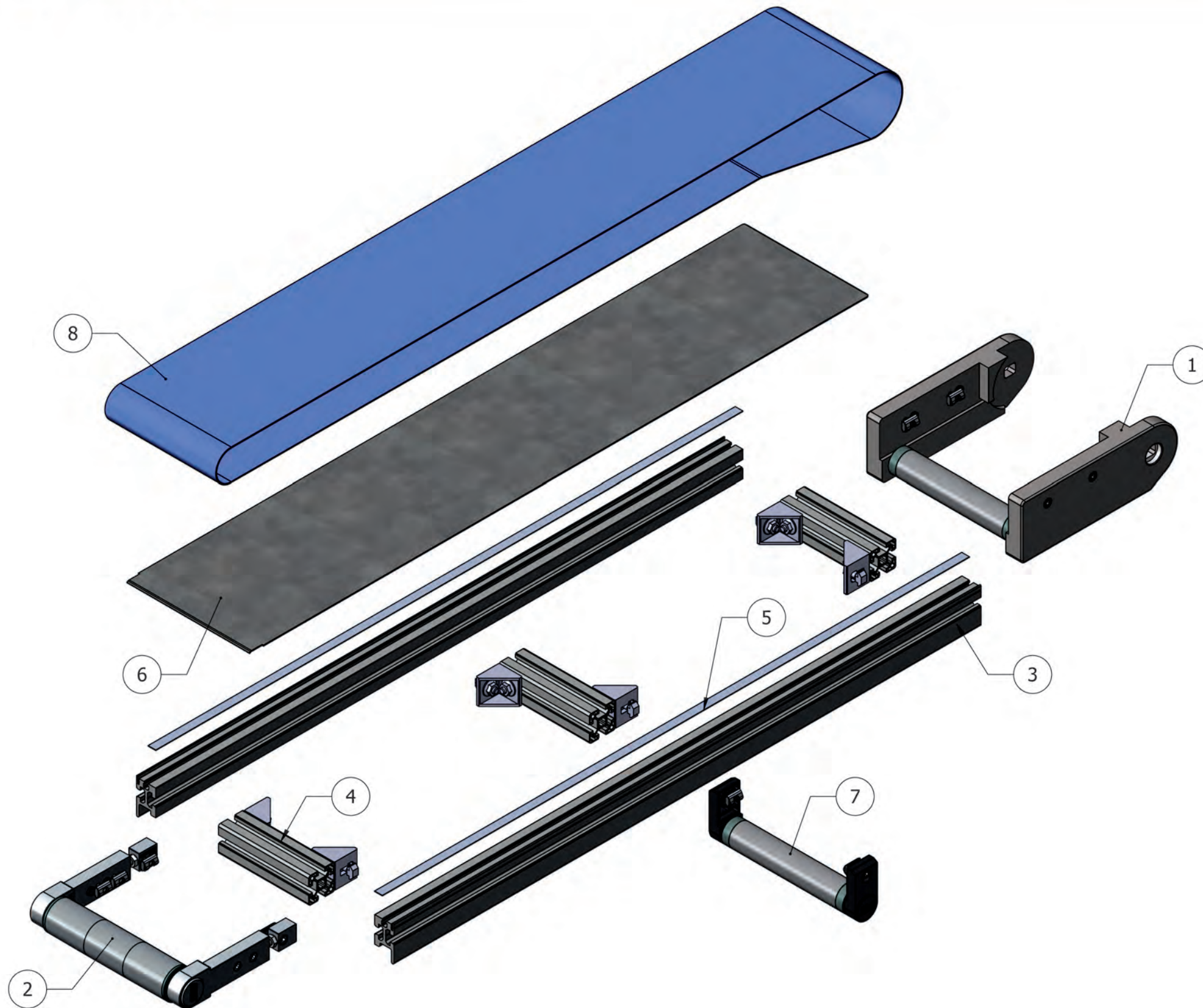
ECDR40

DRUM DRIVE WITH Ø45 RETURN
TROMMEL KOPFANTRIEB MIT Ø 45 UMLENKUNG
TA MBOUR ENTRAÎNEMENT DIRECT AVEC RETOUR DIAMÈTRE 45
TA MBOR CABEZA DE TRACCIÓN CON REENVÍO Ø 45



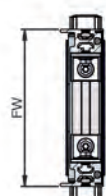
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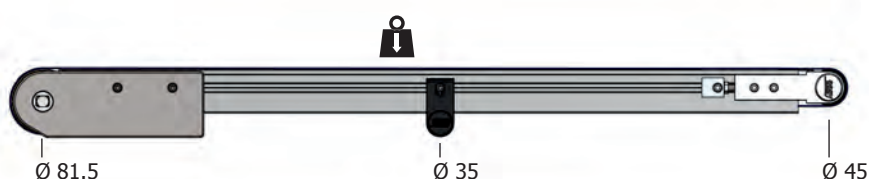
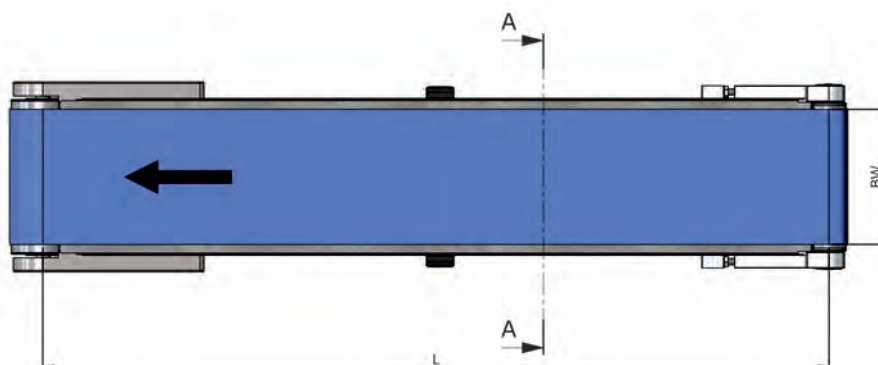


1	Drum head drive Trommel kopfantrieb Tambour entraînement Direct Tambor cabeza de tracción	Module page 74
2	Return set Ø 45 Umlenkungsatz Ø 45 Ensemble de retour diamètre 45 Reenvío Ø 45, juego	Module page 76
3	EBS profile 40 EBS profil 40 Profilé EBS 40 Perfil EBS 40	Module page 64
4	Straight connector Längverbinder Connecteur droit Conector longitudinal	Module page 64
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 64
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 64
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





SECTION A-A



More technical information: See engineering online www.easy-conveyors.com

ECDR 40	Dimensions - Abmessungen - Dimensions - Dimensiones				
L =	367 - 5600 mm 14,45" - 220,47" inch				
FW =	200	300	400	500	600 mm
	7,87"	11,81"	15,74"	19,68"	23,62" inch
BW =	172	270	370	470	560 mm
	6,77"	10,63"	14,57"	18,50"	22,05" inch
V ≈	Max. 60 mtr./min 197 Foot/min				
⚖ ≈	Max. 35 kg 77 Pounds				
Support legs, Stützen, Supports, Patas de apoyo					Module page 102-110
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 112-116

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EBS
SYSTEM

Belt Conveyor
Bandförderer
Convoyeur a bande
Transportador de banda

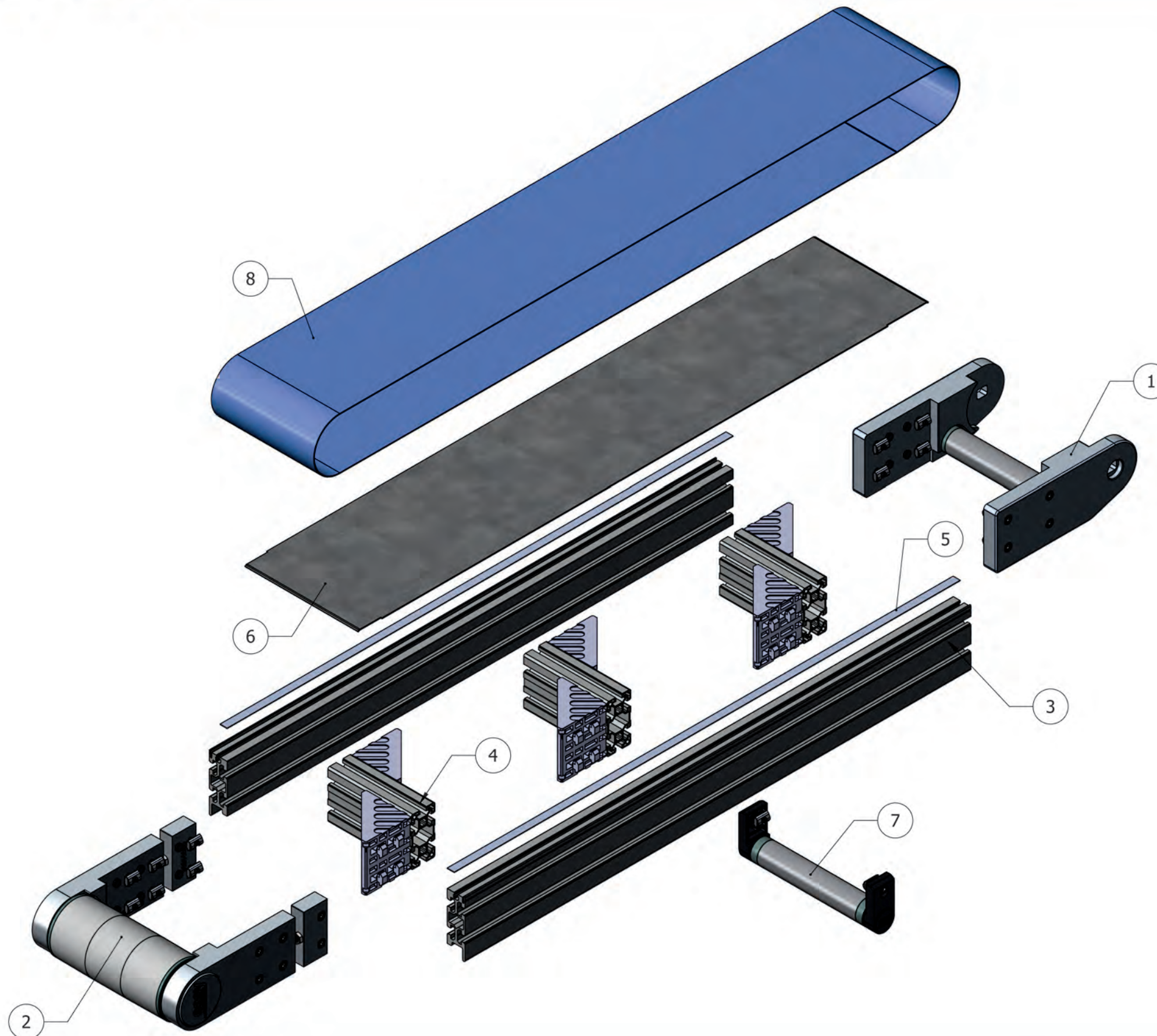
ECDR80

DRUM DRIVE WITH Ø85 RETURN
TROMMEL KOPFANTRIEB MIT Ø 85 UMLENKUNG
TA MBOUR ENTRAÎNEMENT DIRECT AVEC RETOUR DIAMÈTRE 85
TA MBOR CABEZA DE TRACCIÓN CON REENVÍO Ø 85



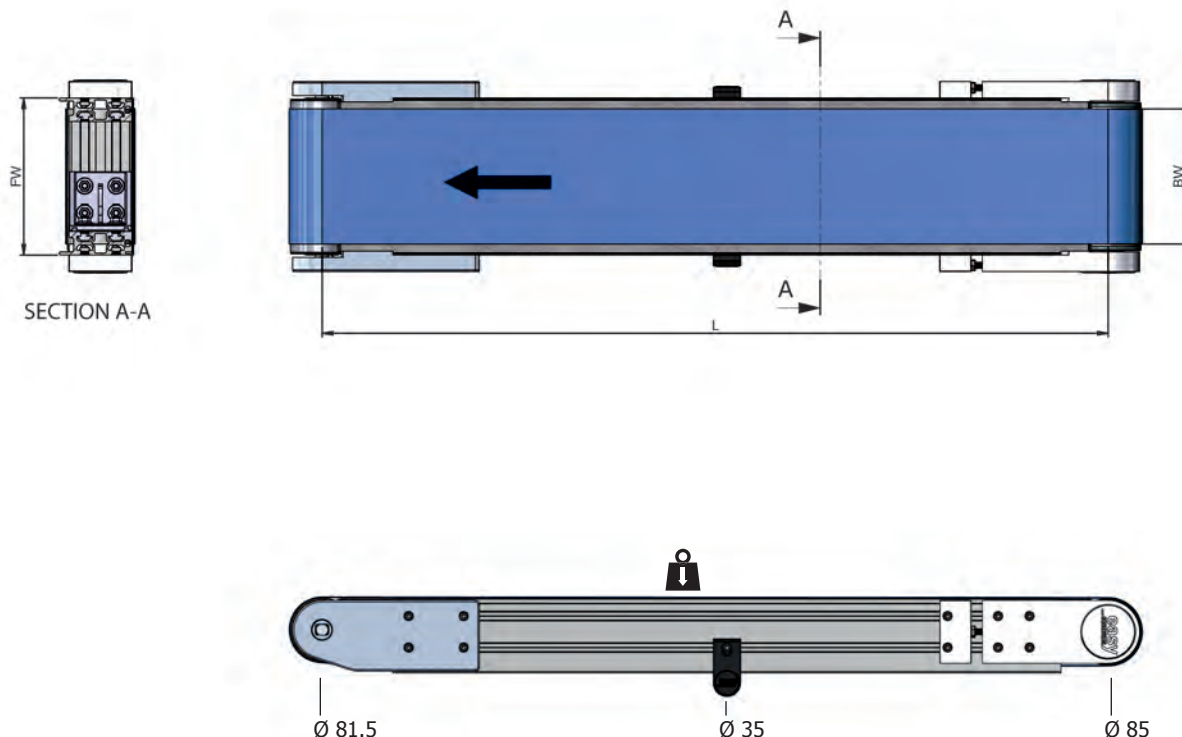
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1	Drum head drive Trommel kopfantrieb Tambour entraînement Direct Tambor cabeza de tracción	Module page 92
2	Return set Ø 85 Umlenkungsatz Ø 85 Ensemble de retour diamètre 85 Reenvío Ø 85, juego	Module page 94
3	EBS profile 80 EBS profil 80 Profilé EBS 80 Perfil EBS 80	Module page 82
4	Straight connector Längverbinder Connecteur droit Conector longitudinal	Module page 82
5	Top plate tape Abdeckplatte Klebeband Ruban adhésif pour plaque supérieure Cinta adhesiva para chapa de apoyo	Module page 82
6	Top plate Abdeckplatte Plaque supérieure Chapa de apoyo	Module page 82
7	Support roller Unterstützungsrolle Rouleau support Rodillo de soporte	Module page 100
8	Belt Gurt Courroie Banda	Module page 96





More technical information: See engineering online www.easy-conveyors.com

ECDR 80	Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	415 - 11200 mm 16,34" - 440,94" inch			
FW =	200	400	600	800 mm 7,87" 15,74" 23,62" 31,49" inch
BW =	172	370	560	760 mm 6,77" 14,57" 22,05" 29,92" inch
V ≈	Max. 60 mtr./min 197 Foot/min			
⬇️ ≈	Max. 35 kg 77 Pounds			
Support legs, Stützen, Supports, Patas de apoyo				Module page 102-110
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral				Module page 118-122

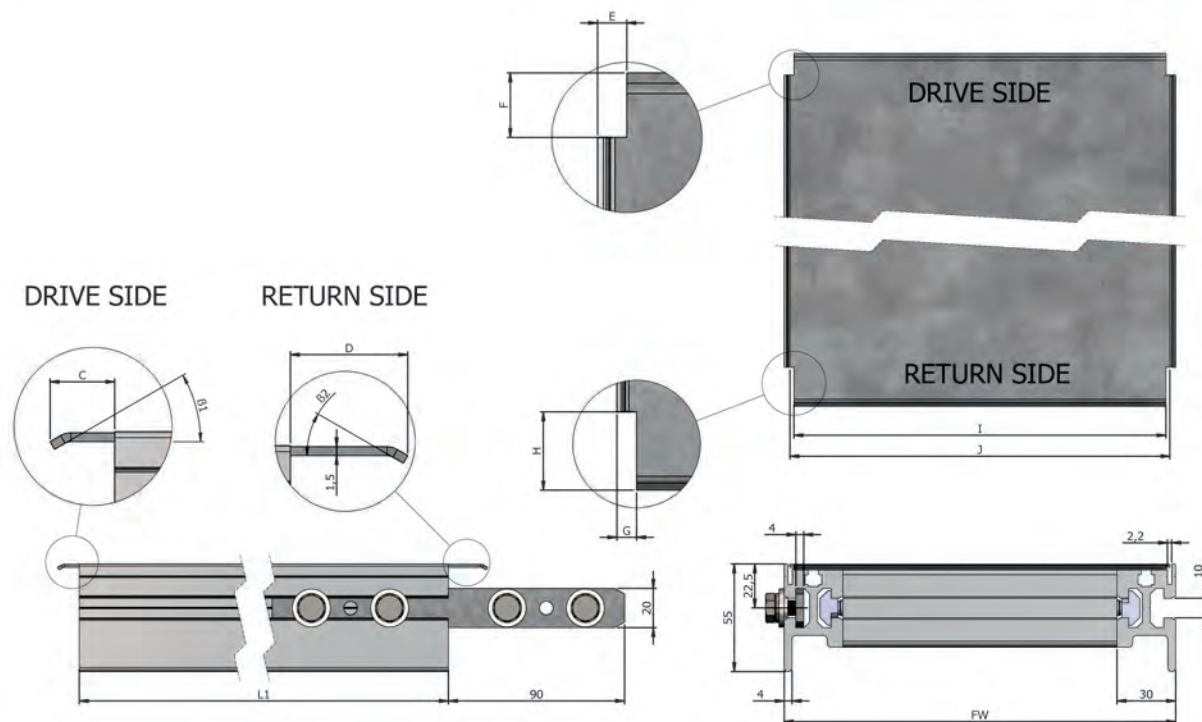
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EBS
SYSTEM

MODULE PAGES



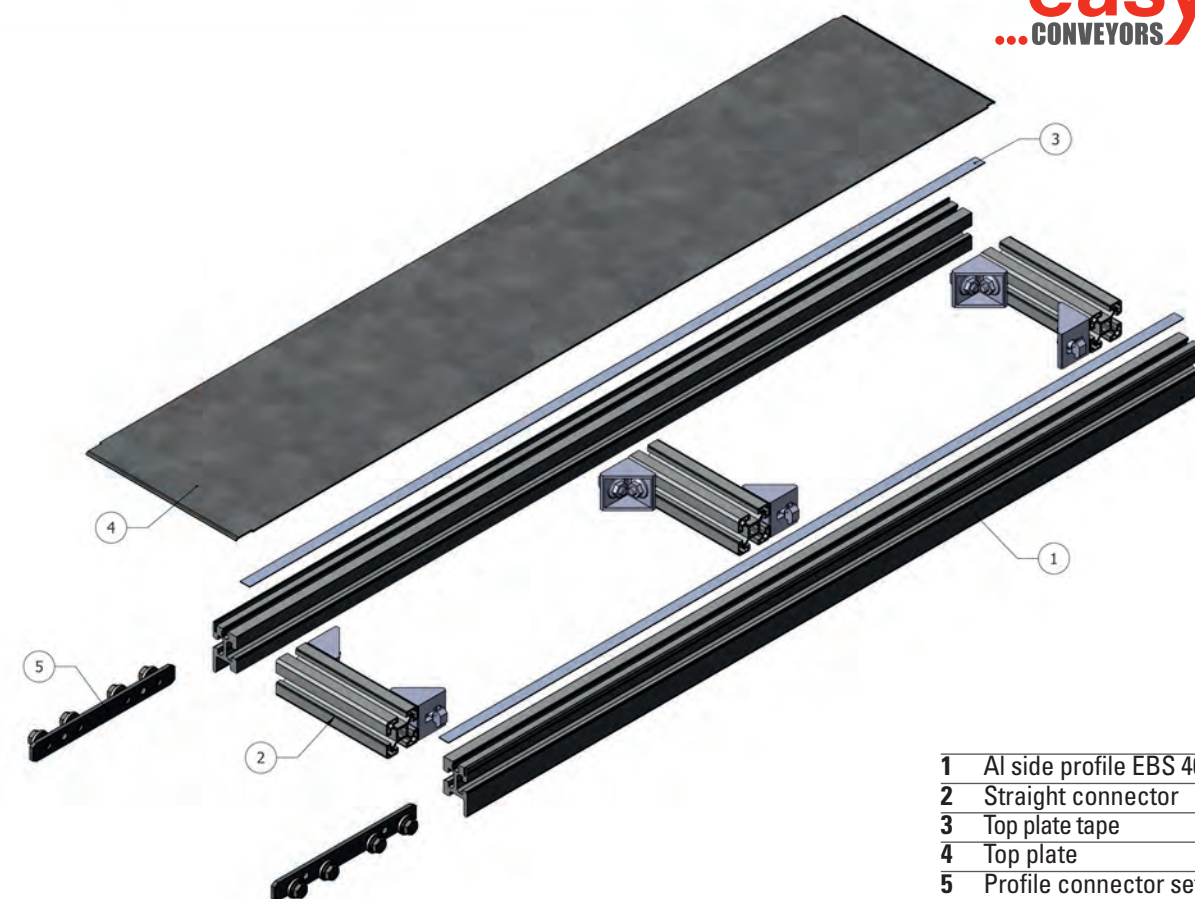


More technical information: See engineering online www.easy-conveyors.com

	C	D	E	F	G	H	I-return	I-drive	J	J*	B1	B2	L1
* With fixed side guiding, mit fester Seitenführung, Avec le cote de guidage fixe, Con guía lateral fija													
EBS 40 - D1	11	20	5	11	5	20	FW-10	FW-10	FW-6	W-9	30°	30°	L-68
EBS 40 - D2	11	50	5	11	-	-	-	FW-10	FW-6	W-9	30°	-	L-99
EBS 40 - I1	23	20	5	23	5	20	FW-10	FW-10	FW-6	W-9	30°	30°	L-83
EBS 40 - I2	23	50	5	23	-	-	-	FW-10	FW-6	W-9	30°	-	L-103
EBS 40 - M1	14.5	14.5	5	14.5	5	14.5	FW-10	FW-10	FW-6	W-9	30°	30°	L-58
EBS 40 - M2	50	50	-	-	-	-	-	-	FW-6	W-9	-	-	L-120
EBS 40 - M3	14.5	50	5	14.5	-	-	-	FW-10	FW-6	W-9	30°	-	L-89
ECDR 40	30	20	-	-	5	20	FW-10	-	FW-6	W-9	-	30°	L-89

	Dimensions - Abmessungen - Dimensions - Dimensiones					
FW =	100	200	300	400	500	600 mm
	3,93"	7,87"	11,81"	15,74"	19,68"	23,62" inch

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Al side profile EBS 40
- 2 Straight connector
- 3 Top plate tape
- 4 Top plate
- 5 Profile connector set

Art Nr. Pos 1		Material
ECA04090000	L = 5600 mm / 220,46" inch	1 AL

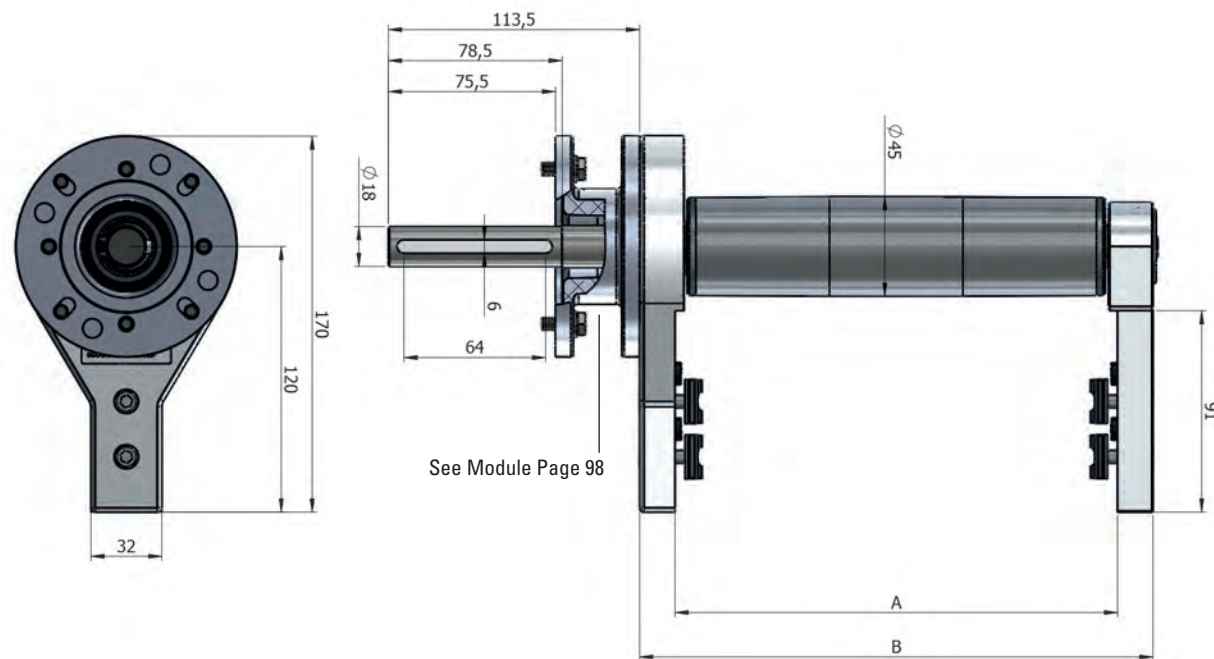
Art Nr. Pos 2	A =	Material
ECA04090010	100 mm 3,93" inch	1 set AL
ECA04090020	200 mm 7,87" inch	1 set AL
ECA04090030	300 mm 11,81" inch	1 set AL
ECA04090040	400 mm 15,74" inch	1 set AL
ECA04090050	500 mm 19,68" inch	1 set AL
ECA04090060	600 mm 23,62" inch	1 set AL

Art Nr. Pos 3	
ECA00092100	1 roll of 33 meters
Material	2 Sided tape, doppelseitigem Klebeband, Cinta de doble cara, Ruban double face adhésif

Art Nr. Pos 4	
ECA00092000	On request, Auf Anfrage, Sur demande, A petición
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado

Art Nr. Pos 5	
EMPT040705000006	1 set
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



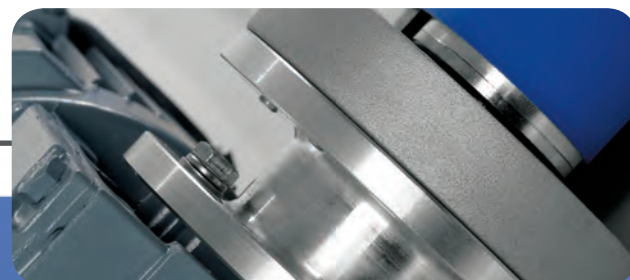
- 1 Head drive set multi; general
2 Head drive shaft multi

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040101080100	100 mm	3,93" inch	133 mm	5,24" inch	1 set
EBS040101080200	200 mm	7,87" inch	233 mm	9,17" inch	1 set
EBS040101080300	300 mm	11,81" inch	333 mm	13,11" inch	1 set
EBS040101080400	400 mm	15,74" inch	433 mm	17,05" inch	1 set
EBS040101080500	500 mm	19,68" inch	533 mm	20,98" inch	1 set
EBS040101080600	600 mm	23,62" inch	633 mm	24,92" inch	1 set
Suitable for, Geeignet für, SEW-WA20; Motovario-NMRV40; Varvel-MRS40; Nord-SK 1SI 40					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1

ECA040101020000

1 set

Material AL

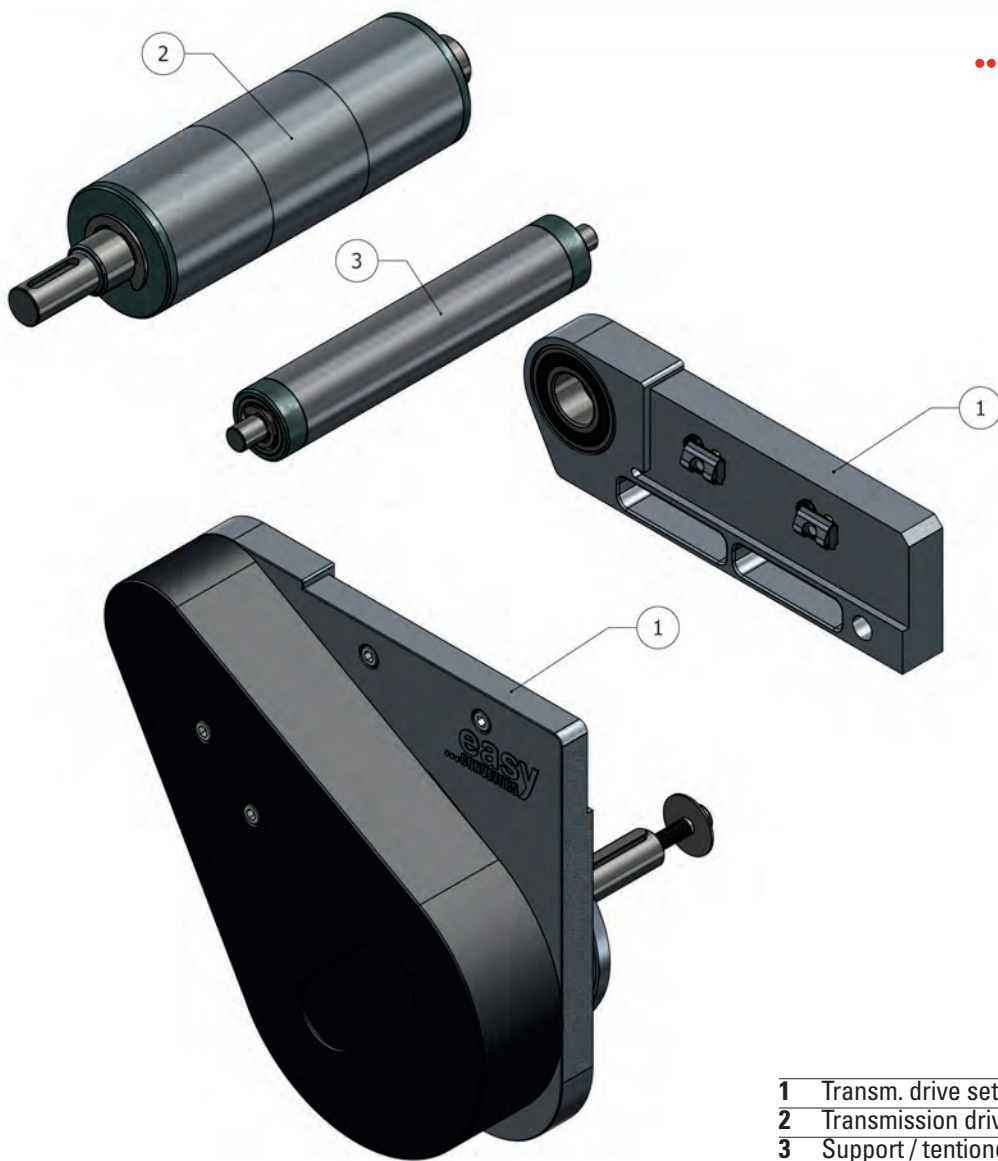
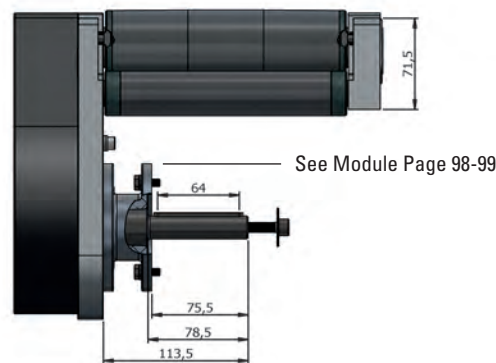
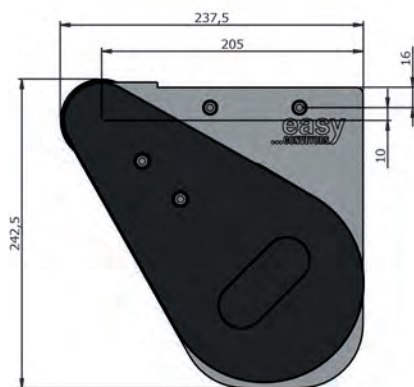
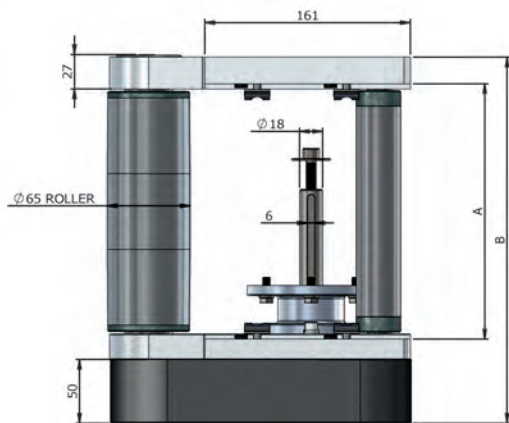
Art Nr. Pos 2

A =

040110410100	100 mm	3,93" inch	1
040110410200	200 mm	7,87" inch	1
040110410300	300 mm	11,81" inch	1
040110410400	400 mm	15,74" inch	1
040110410500	500 mm	19,68" inch	1
040110410600	600 mm	23,62" inch	1
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			102Nm

Material Stainless steel shaft with aluminum roller tube, end caps galvanized steel
Welle aus Edelstahl mit Rolle aus Alu-Rohr, Endkappen Stahl verzinkt
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio, tapaz en acero galvanizado

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



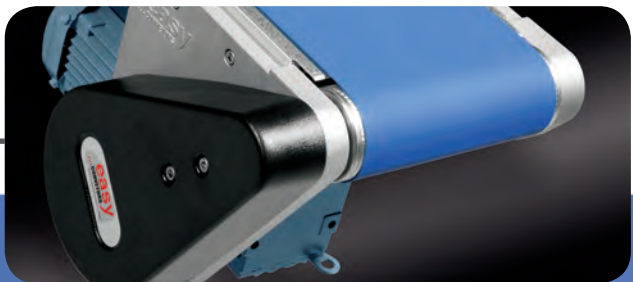
- 1 Transm. drive set multi; general left
- 2 Transmission drive shaft
- 3 Support / tensioner roller

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040102040100	100 mm	3,93" inch	189 mm	7,44" inch	1 set
EBS040102040200	200 mm	7,87" inch	289 mm	11,38" inch	1 set
EBS040102040300	300 mm	11,81" inch	389 mm	15,32" inch	1 set
EBS040102040400	400 mm	15,74" inch	489 mm	19,25" inch	1 set
EBS040102040500	500 mm	19,68" inch	589 mm	23,19" inch	1 set
EBS040102040600	600 mm	23,62" inch	689 mm	27,13" inch	1 set
Suitable for, Geeignet für, SEW-WA20; Motovario-NMRV40; Varvel-MRS40; Nord-SK 1SI 40					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1

ECA040102030001

1 set

Material Al & ABS Cover, AL & ABS Abdeck kappe, AL & ABS Couvrir, AL & ABS Cubrir

Art Nr. Pos 2

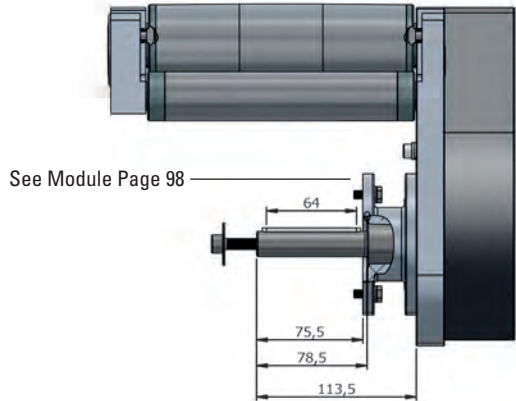
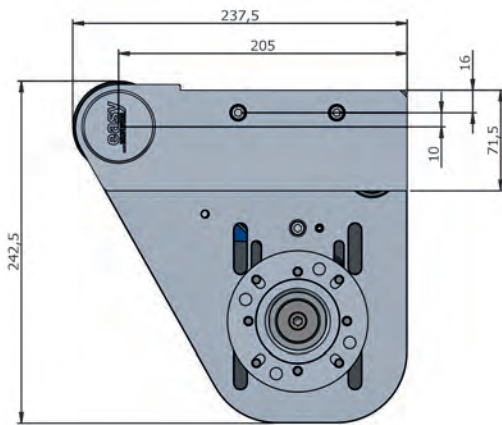
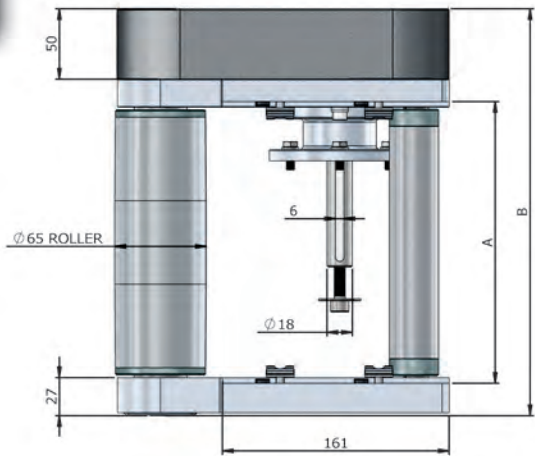
Art Nr. Pos 3

A =

040110060100	040110130100	100 mm	3,93" inch	1
040110060200	040110130200	200 mm	7,87" inch	1
040110060300	040110130300	300 mm	11,81" inch	1
040110060400	040110130400	400 mm	15,74" inch	1
040110060500	040110130500	500 mm	19,68" inch	1
040110060600	040110130600	600 mm	23,62" inch	1
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment				102Nm

Material Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

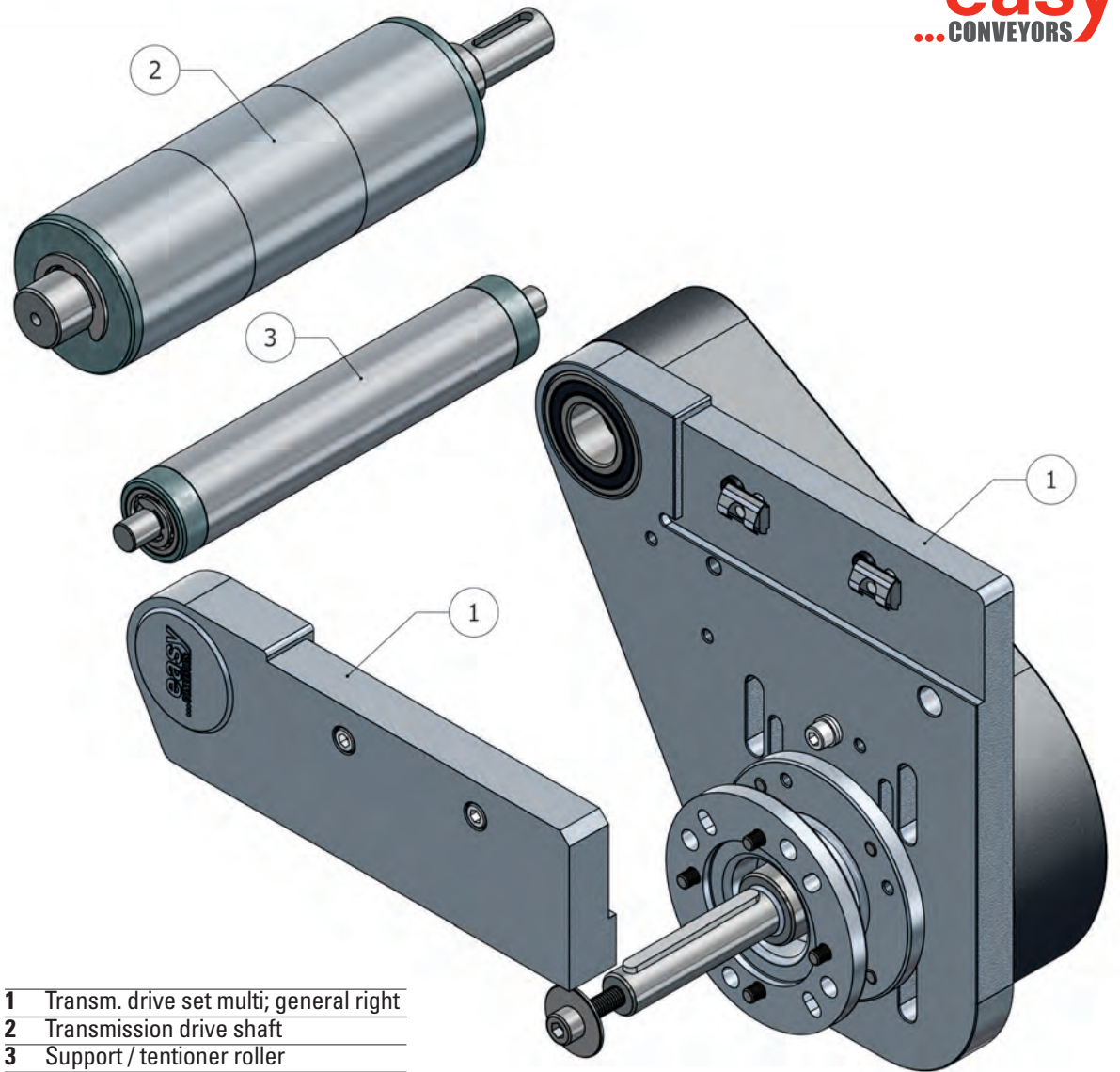
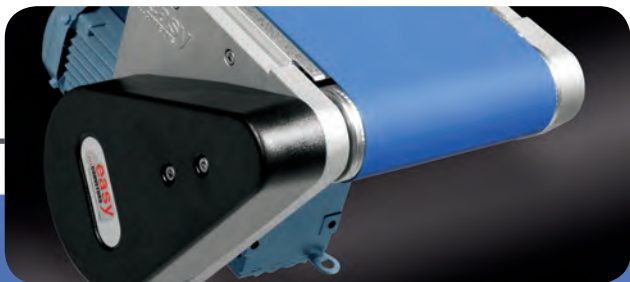


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040102030100	100 mm	3,93" inch	189 mm	7,44" inch	1 set
EBS040102030200	200 mm	7,87" inch	289 mm	11,38" inch	1 set
EBS040102030300	300 mm	11,81" inch	389 mm	15,32" inch	1 set
EBS040102030400	400 mm	15,74" inch	489 mm	19,25" inch	1 set
EBS040102030500	500 mm	19,68" inch	589 mm	23,19" inch	1 set
EBS040102030600	600 mm	23,62" inch	689 mm	27,13" inch	1 set
Suitable for, Geeignet für, SEW-WA20; Motovario-NMRV40 ; Varvel-MRS40; Nord-SK 1SI 40					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Transm. drive set multi; general right
- 2 Transmission drive shaft
- 3 Support / tensioner roller

Art Nr. Pos 1

ECA040102030000

1 set

Material

Al & ABS Cover, AL & ABS Abdeck kappe, AL & ABS Couvrir, AL & ABS Cubrir

Art Nr. Pos 2

Art Nr. Pos 3

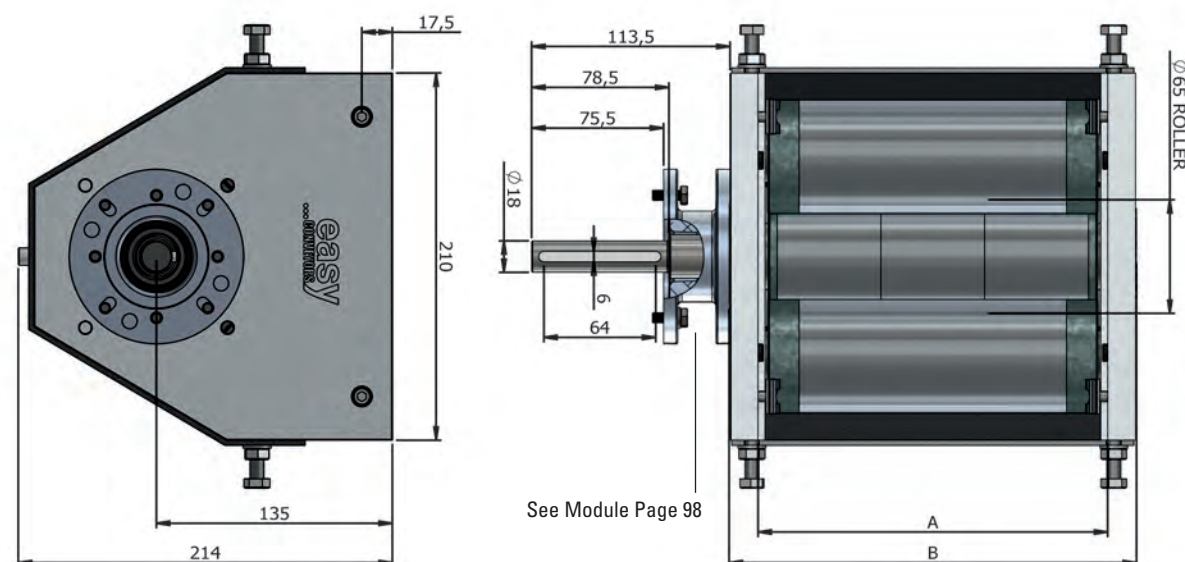
A =

040110060100	040110130100	100 mm	3,93" inch	1
040110060200	040110130200	200 mm	7,87" inch	1
040110060300	040110130300	300 mm	11,81" inch	1
040110060400	040110130400	400 mm	15,74" inch	1
040110060500	040110130500	500 mm	19,68" inch	1
040110060600	040110130600	600 mm	23,62" inch	1
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment				102Nm

Material

Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

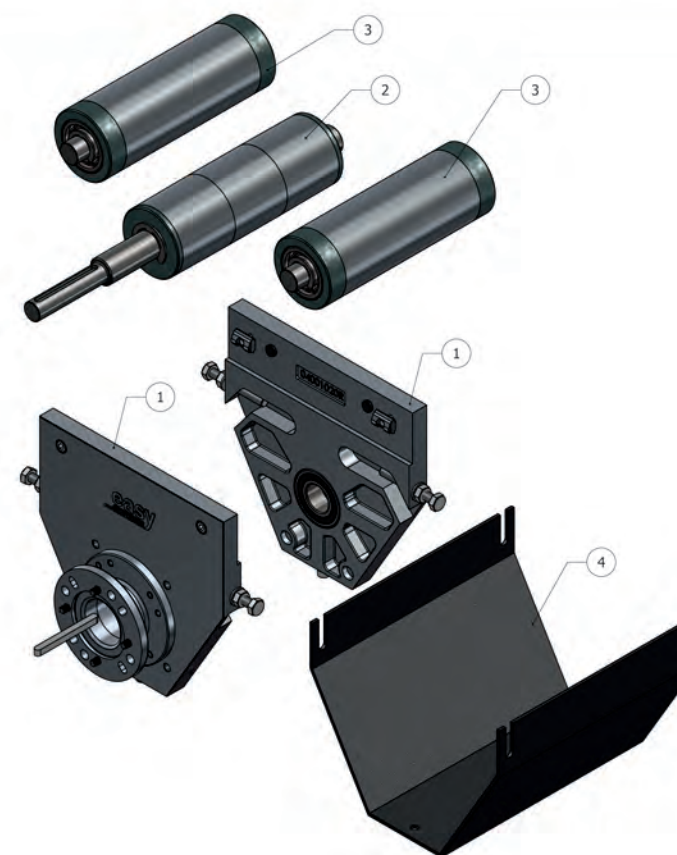
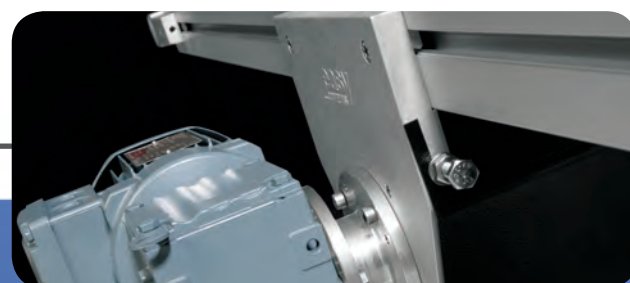


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040103090100	100 mm	3,93" inch	134 mm	5,28" inch	1 set
EBS040103090200	200 mm	7,87" inch	234 mm	9,21" inch	1 set
EBS040103090300	300 mm	11,81" inch	334 mm	13,15" inch	1 set
EBS040103090400	400 mm	15,74" inch	434 mm	17,09" inch	1 set
EBS040103090500	500 mm	19,68" inch	534 mm	21,02" inch	1 set
EBS040103090600	600 mm	23,62" inch	634 mm	24,96" inch	1 set
Suitable for, Geeignet für, SEW-WA20; Motovario-NMRV40 ; Varvel-MRS40; Nord-SK 1SI 40					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Center drive set multi; general
- 2 Center drive shaft multi
- 3 Tentioner roller
- 4 Middle drive cover cap

Art Nr. Pos 1

ECA040103030000

1 set

Material Al & ABS Cover, AL & ABS Abdeck kappe, AL & ABS Couvrir, AL & ABS Cubrir

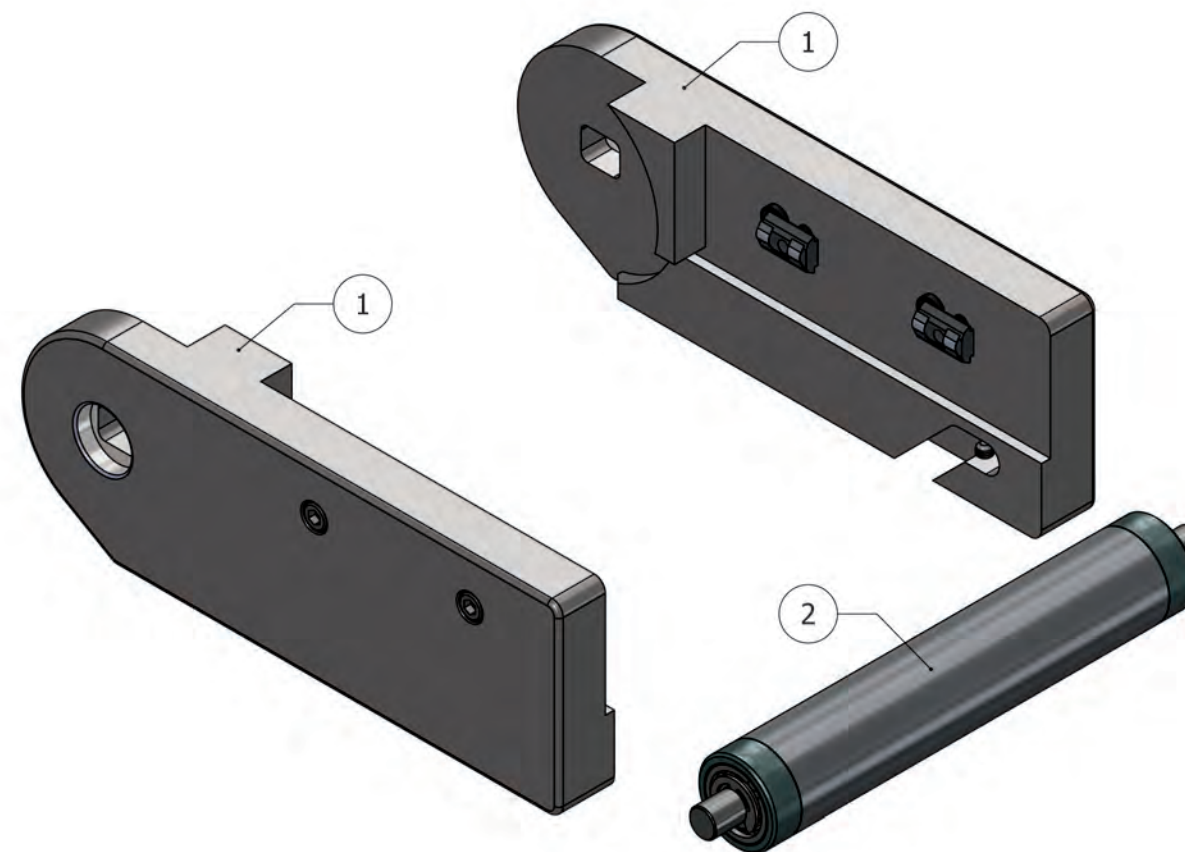
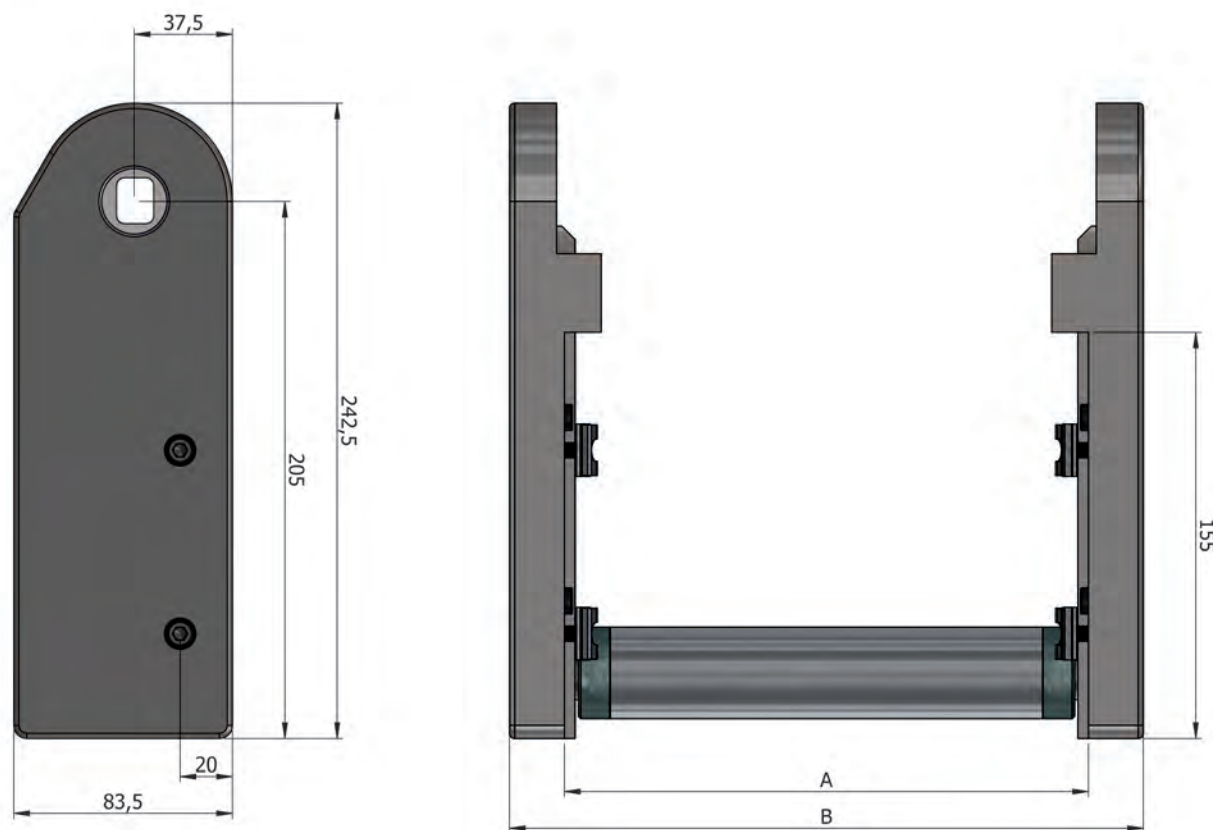
Art Nr. Pos 2	Art Nr. Pos 3	A =		
040110430100	040110140100	100 mm	3,93" inch	1
040110430200	040110140200	200 mm	7,87" inch	1
040110430300	040110140300	300 mm	11,81" inch	1
040110430400	040110140400	400 mm	15,74" inch	1
040110430500	040110140500	500 mm	19,68" inch	1
040110430600	040110140600	600 mm	23,62" inch	1

Max. Torque, Couple, Esfuerzo de torsion, Drehmoment 102Nm

Material Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Art Nr. Pos 4	A =		Material
SPA04038010	100 mm	3,93" inch	1 ABS
SPA04038020	200 mm	7,87" inch	1 ABS
SPA04038030	300 mm	11,81" inch	1 ABS
SPA04038040	400 mm	15,74" inch	1 ABS
SPA04038050	500 mm	19,68" inch	1 ABS
SPA04038060	600 mm	23,62" inch	1 ABS

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Drum head drive set
- 2 Support / tensioner roller

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
ECDR041001010200	200 mm	7,87" inch	242 mm	9,53" inch	1 set
ECDR041001010300	300 mm	11,81" inch	342 mm	13,47" inch	1 set
ECDR041001010400	400 mm	15,74" inch	442 mm	17,40" inch	1 set
ECDR041001010500	500 mm	19,68" inch	542 mm	21,34" inch	1 set
ECDR041001010600	600 mm	23,62" inch	642 mm	25,28" inch	1 set

Suitable for, Geeignet für, INTERROLL 80I / LAT TM 82.1

Convient pour, Adecuado para

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta

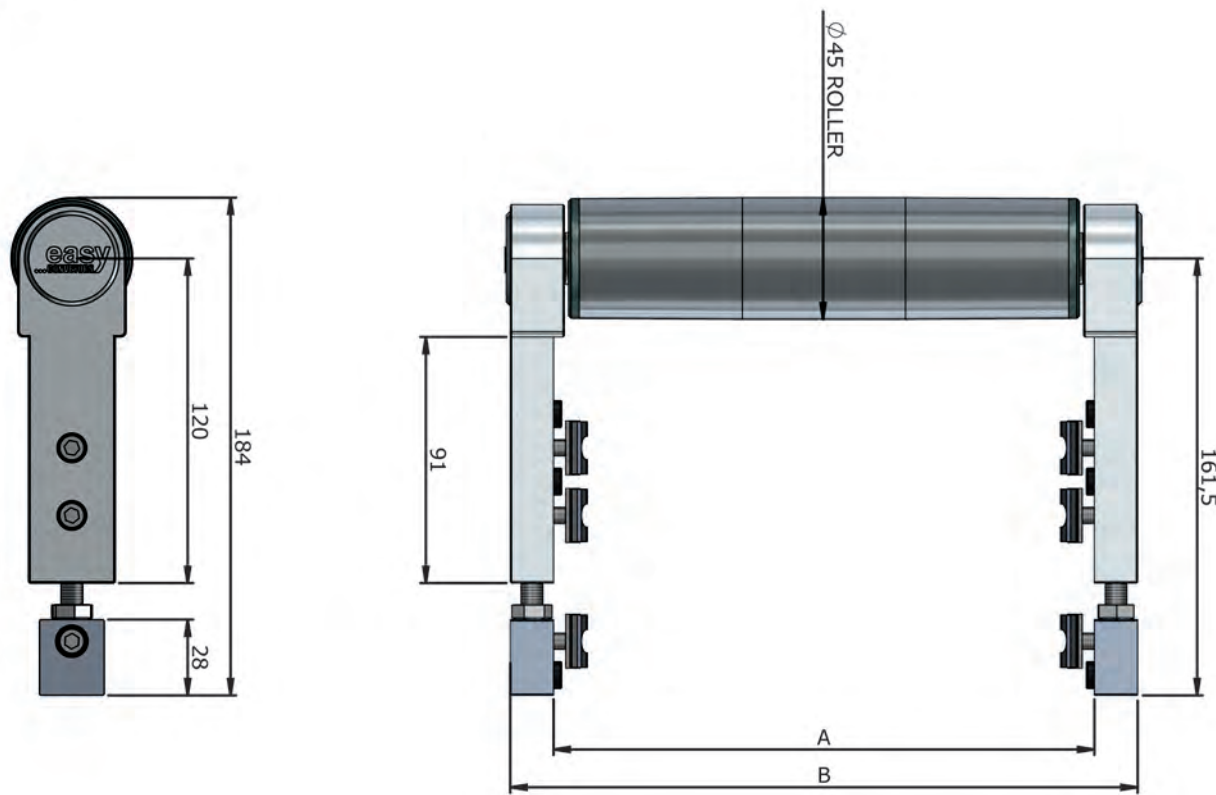


Art Nr. Pos 1	Material	
ECDR041001010000	1 set	AL

Art Nr. Pos 2	A =	
040110130200	200 mm	7,87" inch
040110130300	300 mm	11,81" inch
040110130400	400 mm	15,74" inch
040110130500	500 mm	19,68" inch
040110130600	600 mm	23,62" inch

Material
Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



1 Return set
2 Return shaft

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040104020100	100 mm	3,93" inch	136 mm	5,35" inch	1 set
EBS040104020200	200 mm	7,87" inch	236 mm	9,29" inch	1 set
EBS040104020300	300 mm	11,81" inch	336 mm	13,23" inch	1 set
EBS040104020400	400 mm	15,74" inch	436 mm	17,17" inch	1 set
EBS040104020500	500 mm	19,68" inch	536 mm	21,10" inch	1 set
EBS040104020600	600 mm	23,62" inch	636 mm	25,04" inch	1 set

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta

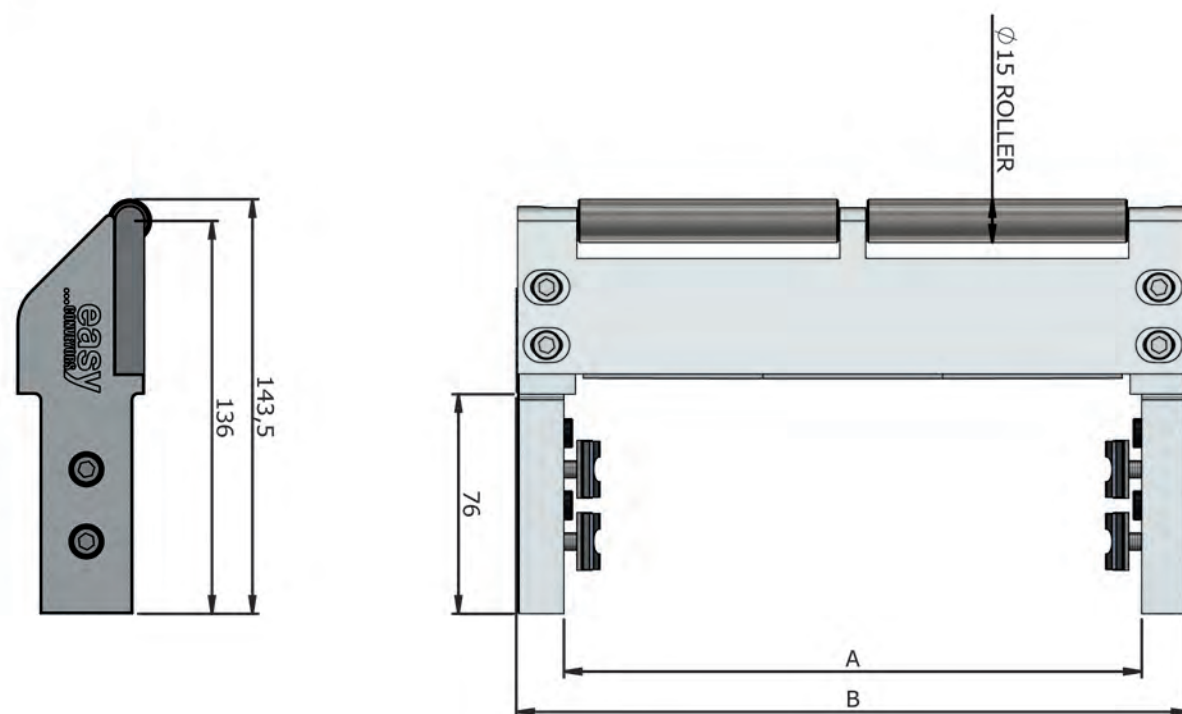


Art Nr. Pos 1		
ECA04090000S		1 set

Art Nr. Pos 2	A =		
040110080100	100 mm	3,93" inch	1
040110080200	200 mm	7,87" inch	1
040110080300	300 mm	11,81" inch	1
040110080400	400 mm	15,74" inch	1
040110080500	500 mm	19,68" inch	1
040110080600	600 mm	23,62" inch	1

Material
Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



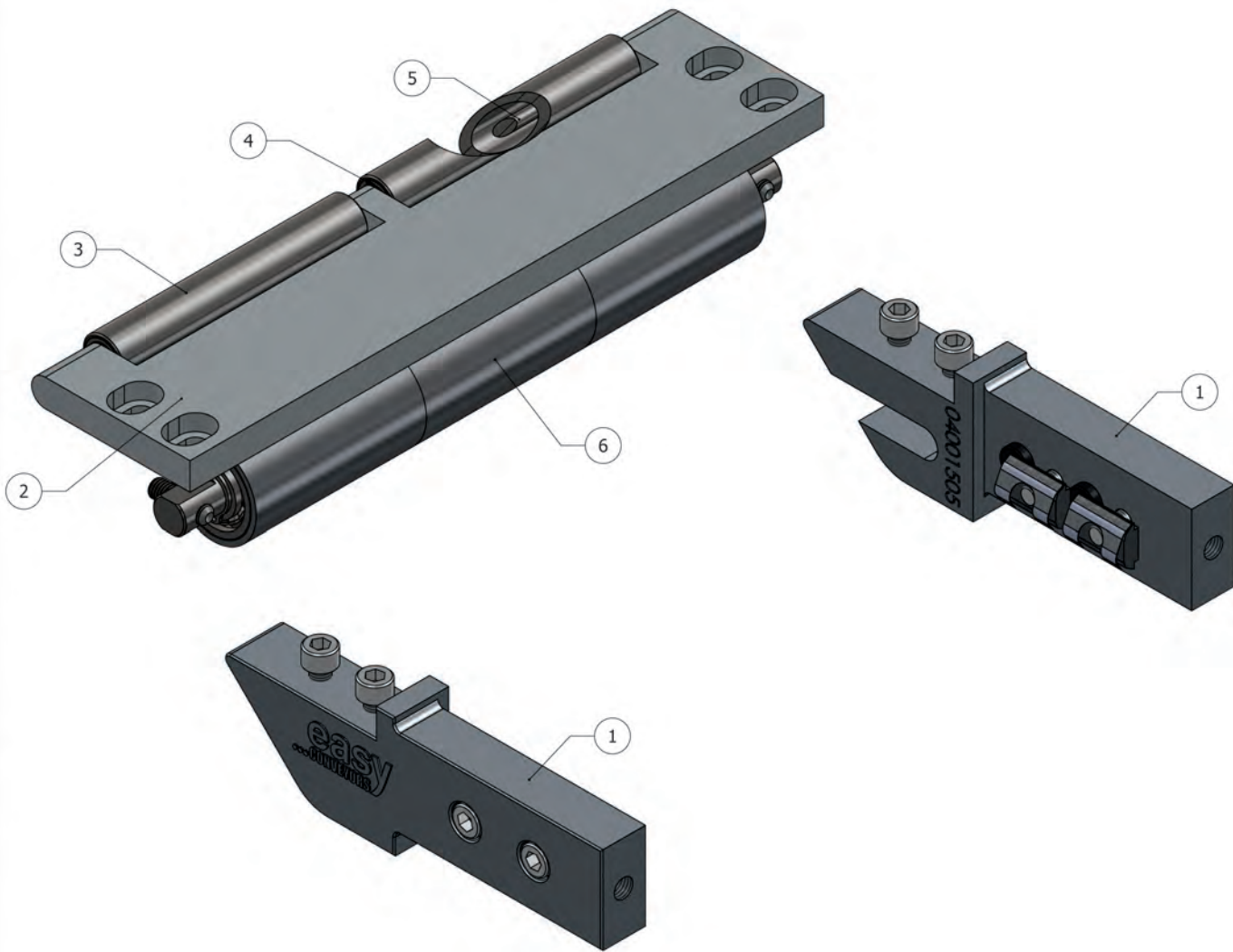
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040104030100	100 mm	3,93" inch	133 mm	5,24" inch	1 set
EBS040104030200	200 mm	7,87" inch	233 mm	9,17" inch	1 set
EBS040104030300	300 mm	11,81" inch	333 mm	13,11" inch	1 set
EBS040104030400	400 mm	15,74" inch	433 mm	17,05" inch	1 set
EBS040104030500	500 mm	19,68" inch	533 mm	20,98" inch	1 set

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Knife edge return set; general
- 2 Mounting plate knife edge
- 3 Knife edge return shaft Ø15
- 4 SHIM DIN988 0,5mm Ø4x8mm
- 5 Knife edge return shaft Ø4
- 6 Knife edge tensioner roller

Art Nr. Pos 1

ECA04091000S

1 set

Art Nr. Pos 2

A =

Material

SPA04036010	100 mm	3,93" inch	1	AL
SPA04036020	200 mm	7,87" inch	1	AL
SPA04036030	300 mm	11,81" inch	1	AL
SPA04036040	400 mm	15,74" inch	1	AL
SPA04036050	500 mm	19,68" inch	1	AL

Art Nr. Pos 3

040110150100

1

Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

Art Nr. Pos 4

BV98805004008

100

Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

Art Nr. Pos 5

A =

SPA04035010	100 mm	3,93" inch	1
SPA04035020	200 mm	7,87" inch	1
SPA04035030	300 mm	11,81" inch	1
SPA04035040	400 mm	15,74" inch	1
SPA04035050	500 mm	19,68" inch	1

Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

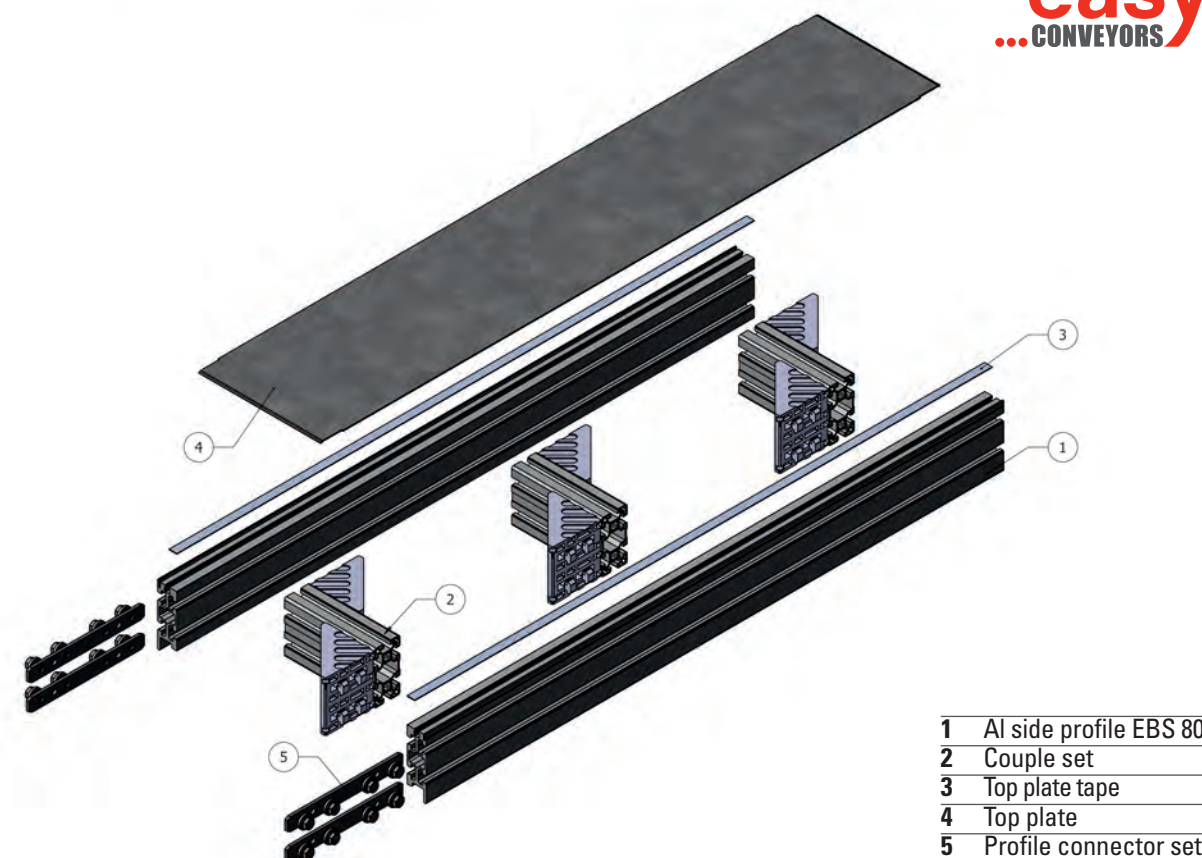
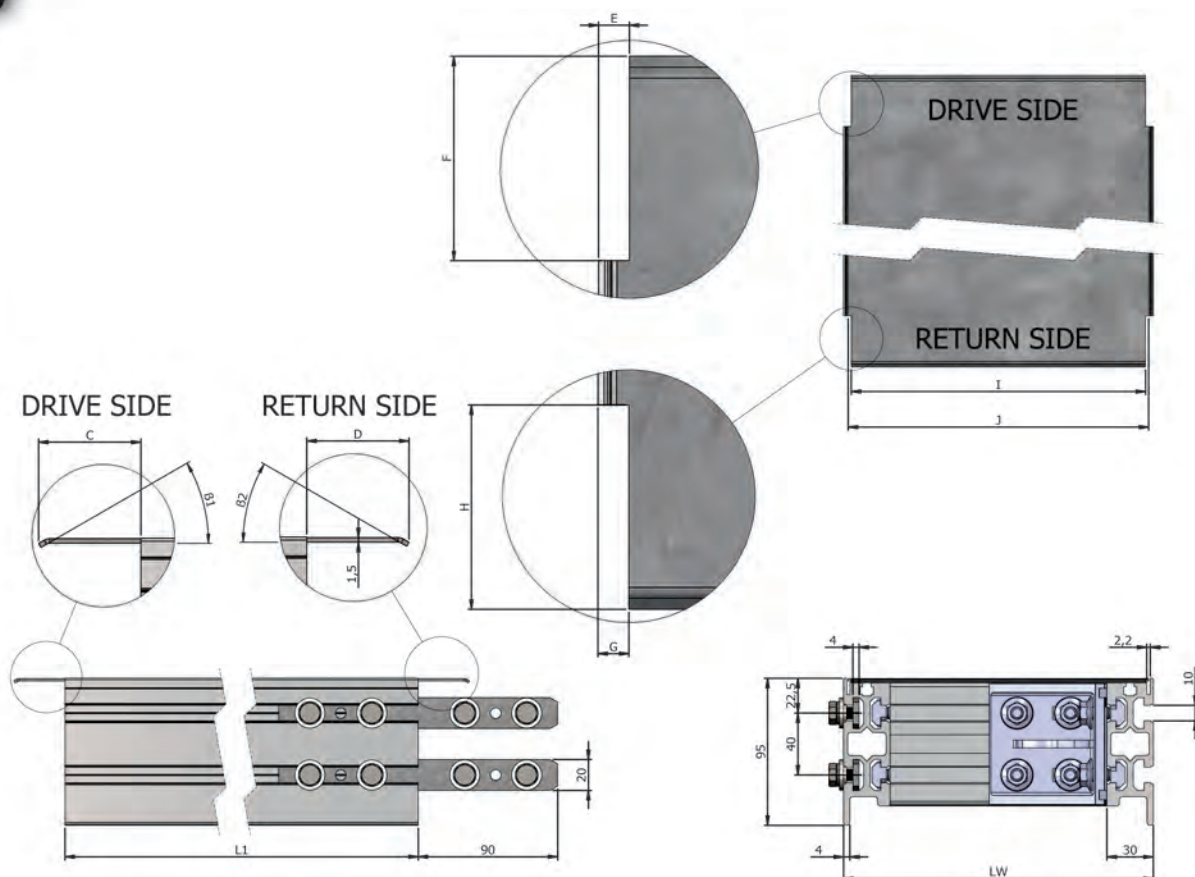
Art Nr. Pos 6

A =

040110160100	100 mm	3,93" inch	1	incl fasteners
040110160200	200 mm	7,87" inch	1	incl fasteners
040110160300	300 mm	11,81" inch	1	incl fasteners
040110160400	400 mm	15,74" inch	1	incl fasteners
040110160500	500 mm	19,68" inch	1	incl fasteners

Material Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Al side profile EBS 80
- 2 Couple set
- 3 Top plate tape
- 4 Top plate
- 5 Profile connector set

Art Nr. Pos 1	Material	
ECA08090000	L = 5600 mm / 220,46" inch	1 AL

Art Nr. Pos 2	A =		
ECA08090020	200 mm	7,87" inch	1, with 2 brackets fasteners
ECA08090040	400 mm	15,74" inch	1, with 2 brackets fasteners
ECA08090060	600 mm	23,62" inch	1, with 2 brackets fasteners
ECA08090080	800 mm	31,49" inch	1, with 2 brackets fasteners
ECA08090100	1000 mm	39,37" inch	1, with 2 brackets fasteners
ECA08090120	1200 mm	47,24" inch	1, with 2 brackets fasteners
Material	AL		

Art Nr. Pos 3	
ECA00092100	1 roll of 33 meters
Material	2 Sided tape, doppelseitigem Klebeband , Cinta de doble cara, Ruban double face adhésif

Art Nr. Pos 4	
ECA00092000	On request, Auf Anfrage, Sur demande, A petición
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado

Art Nr. Pos 5	
EMPT040705000006	2 pieces with fastener
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado

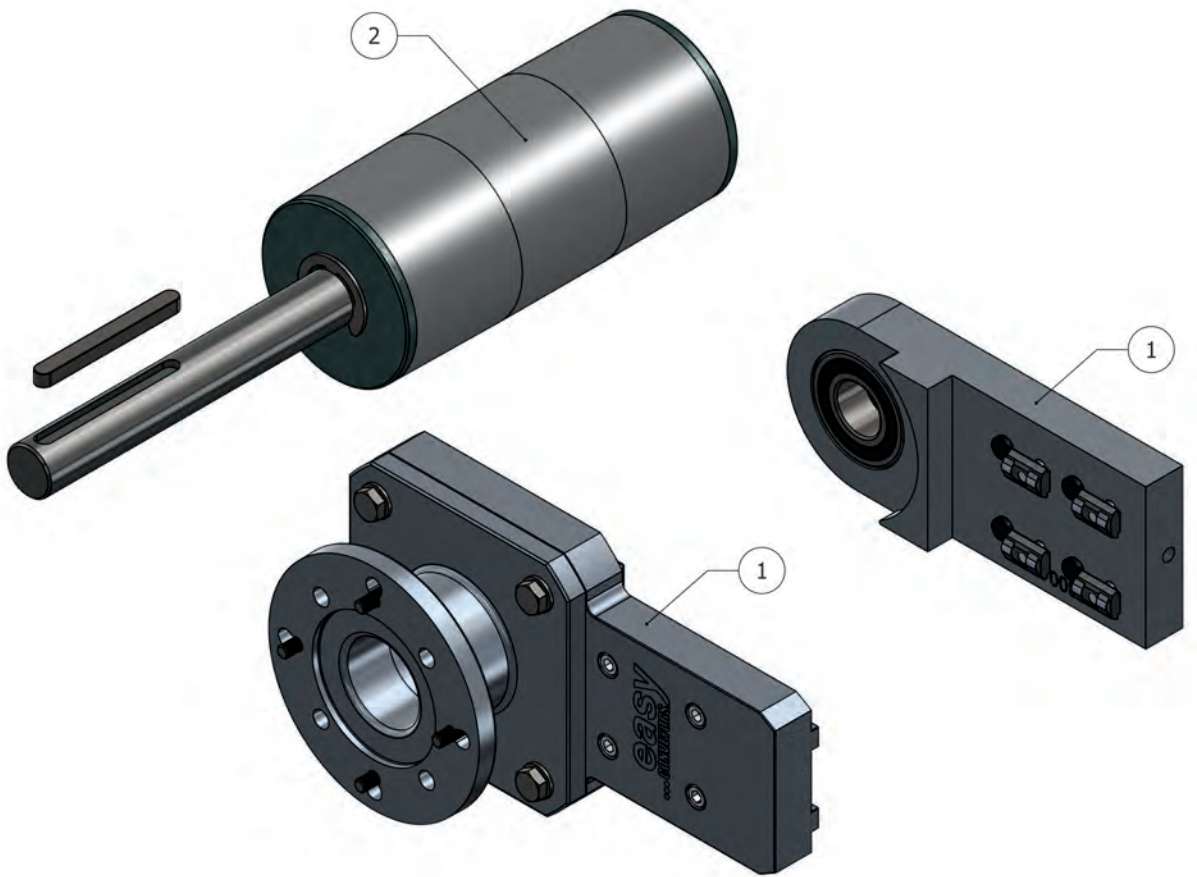
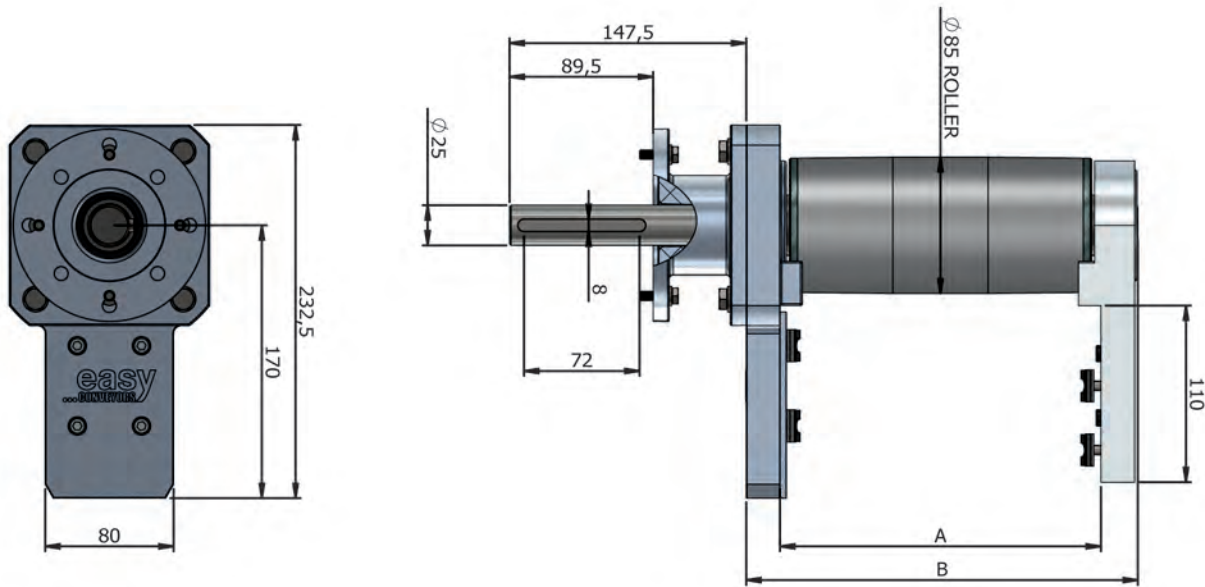
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

More technical information: See engineering online www.easy-conveyors.com

	C	D	E	F	G	H	I-return	I-drive	J	J*	B1	B2	L1
* with fixed side guiding, mit fester Seitenführung, Avec le cote de guidage fixe, Con guía lateral fija													
EBS 80 - D1	26	38,5	-	-	5	38,5	FW-10	-	FW-6	W-9	-	30°	L-110
EBS 80 - I1	26	38,5	-	-	5	38,5	FW-10	-	FW-6	W-9	-	30°	L-110
EBS 80 - M1	33	33	5	33	5	33	FW-10	FW-10	FW-6	W-9	30°	30°	L-100
ECDR 80	70	38,5	5	70	5	38,5	FW-10	FW-10	FW-6	W-9	30°	30°	L-150

Dimensions - Abmessungen - Dimensions - Dimensiones						
Standard wideness FW =	200	400	600	800	1000	1200 mm
	7,87"	15,74"	23,62"	31,49"	39,37"	47,24" inch

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



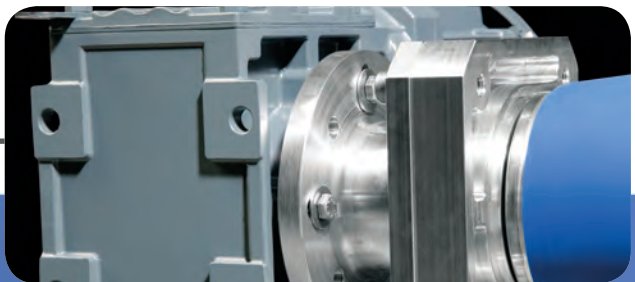
- 1 Head drive set multi; general
2 Head drive shaft multi








More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

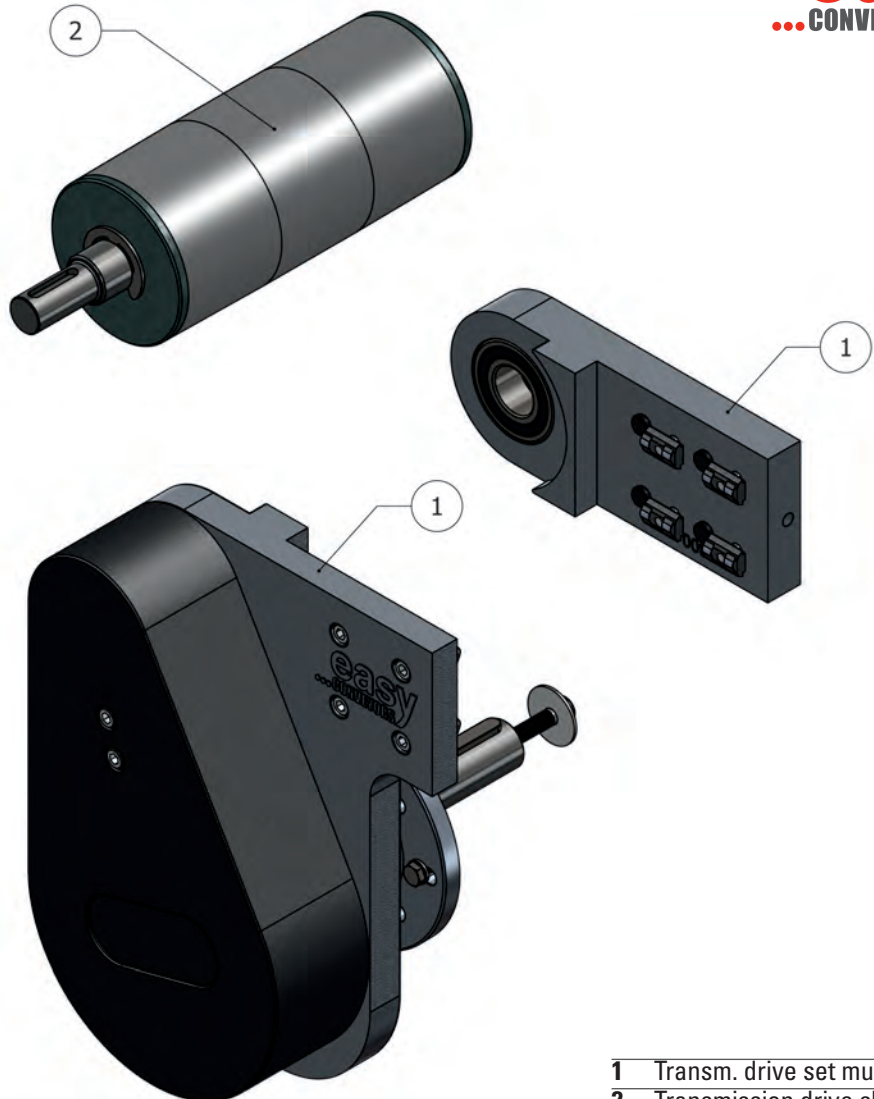
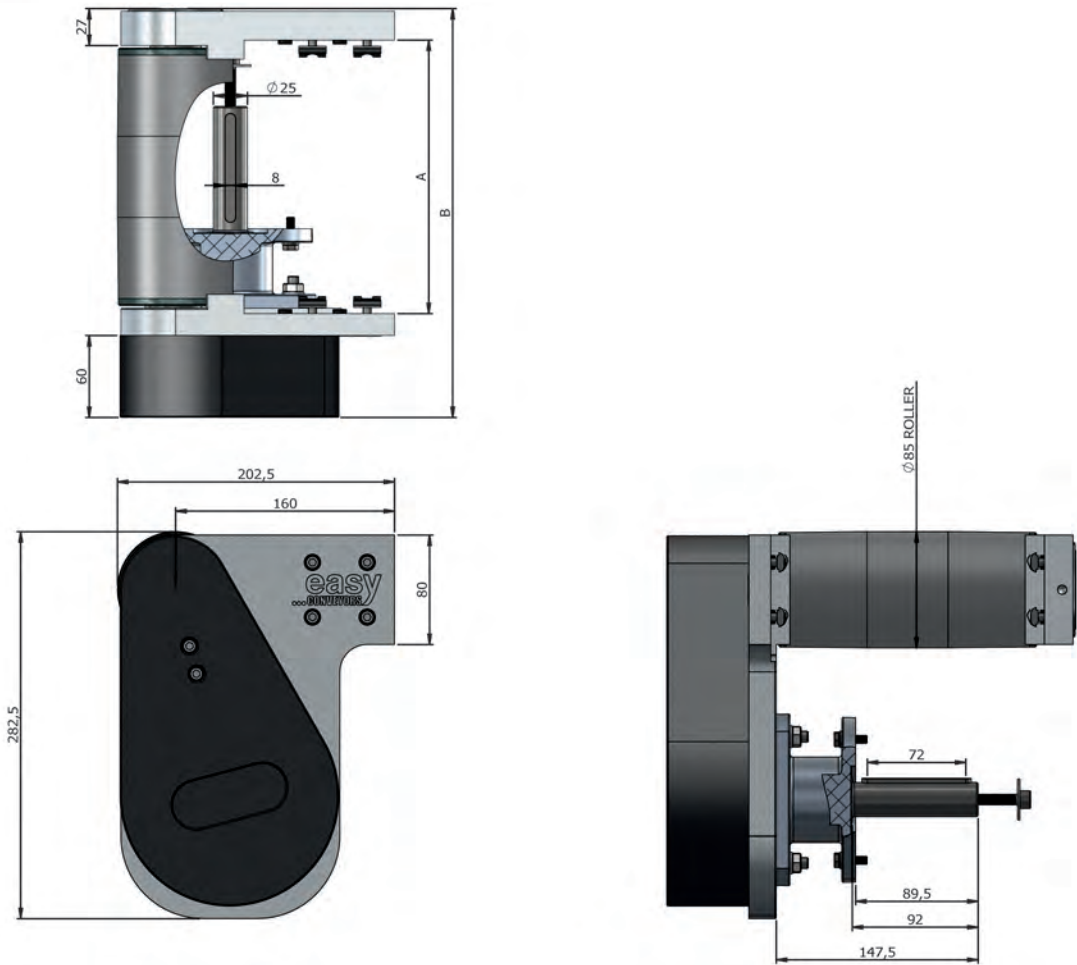
Art. Nr.	A =		B =		
EBS040101090200	200 mm	7,87" inch	245 mm	9,65" inch	1 set
EBS040101090400	400 mm	15,74" inch	445 mm	17,51" inch	1 set
EBS040101090600	600 mm	23,62" inch	645 mm	25,39" inch	1 set
EBS040101090800	800 mm	31,49" inch	845 mm	33,27" inch	1 set
EBS040101091000	1000 mm	39,37" inch	1045 mm	41,14" inch	1 set
EBS040101091200	1200 mm	47,24" inch	1245 mm	49,02" inch	1 set
Suitable for, Geeignet für, SEW-WA30; Motovario-NMRV50; Varvel-MRS50; Nord-SK 1SI 50					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1			
ECA040101030000			 1 set
Material	AL		
Art Nr. Pos 2			
		A =	
040110420200	200 mm	7,87" inch	 1
040110420400	400 mm	15,74" inch	 1
040110420600	600 mm	23,62" inch	 1
040110420800	800 mm	31,49" inch	 1
040110421000	1000 mm	39,37" inch	 1
040110421200	1200 mm	47,24" inch	 1
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			276Nm
Material	Stainless steel shaft with aluminum roller tube Welle aus Edelstahl mit Rolle aus Alu-Rohr Arbre en Acier inoxydable avec tube d'enroulement en aluminium Eje de Acero inoxidable con rodillos en tubo de aluminio		

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



1 Transm. drive set multi; left
2 Transmission drive shaft

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040102060200	200 mm	7,87" inch	299 mm	11,77" inch	1 set
EBS040102060400	400 mm	15,74" inch	499 mm	19,65" inch	1 set
EBS040102060600	600 mm	23,62" inch	699 mm	27,52" inch	1 set
EBS040102060800	800 mm	31,49" inch	899 mm	35,39" inch	1 set
EBS040102061000	1000 mm	39,37" inch	1099 mm	43,27" inch	1 set
EBS040102061200	1200 mm	47,24" inch	1299 mm	51,14" inch	1 set
Suitable for, Geeignet für, SEW-WA30; Motovario-NMRV50 ; Varvel-MRS50; Nord-SK 1SI 50					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1

ECA040102050001

1 set

Material AL & ABS Cover, AL & ABS Abdeck kappe, AL & ABS Couvrir, AL & ABS Cubrir

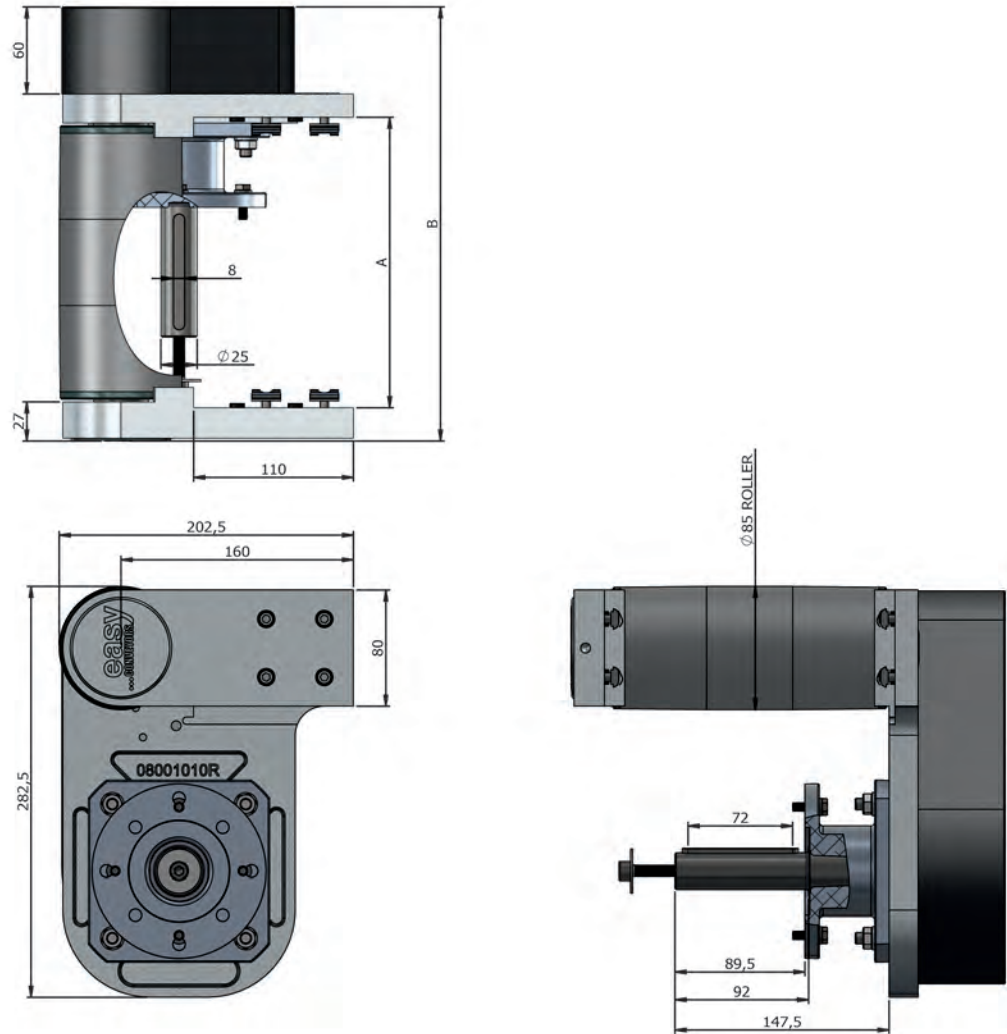
Art Nr. Pos 2

A =

040110100200	200 mm	7,87" inch	1
040110100400	400 mm	15,74" inch	1
040110100600	600 mm	23,62" inch	1
040110100800	800 mm	31,49" inch	1
040110101000	1000 mm	39,37" inch	1
040110101200	1200 mm	47,24" inch	1
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			120Nm

Material Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

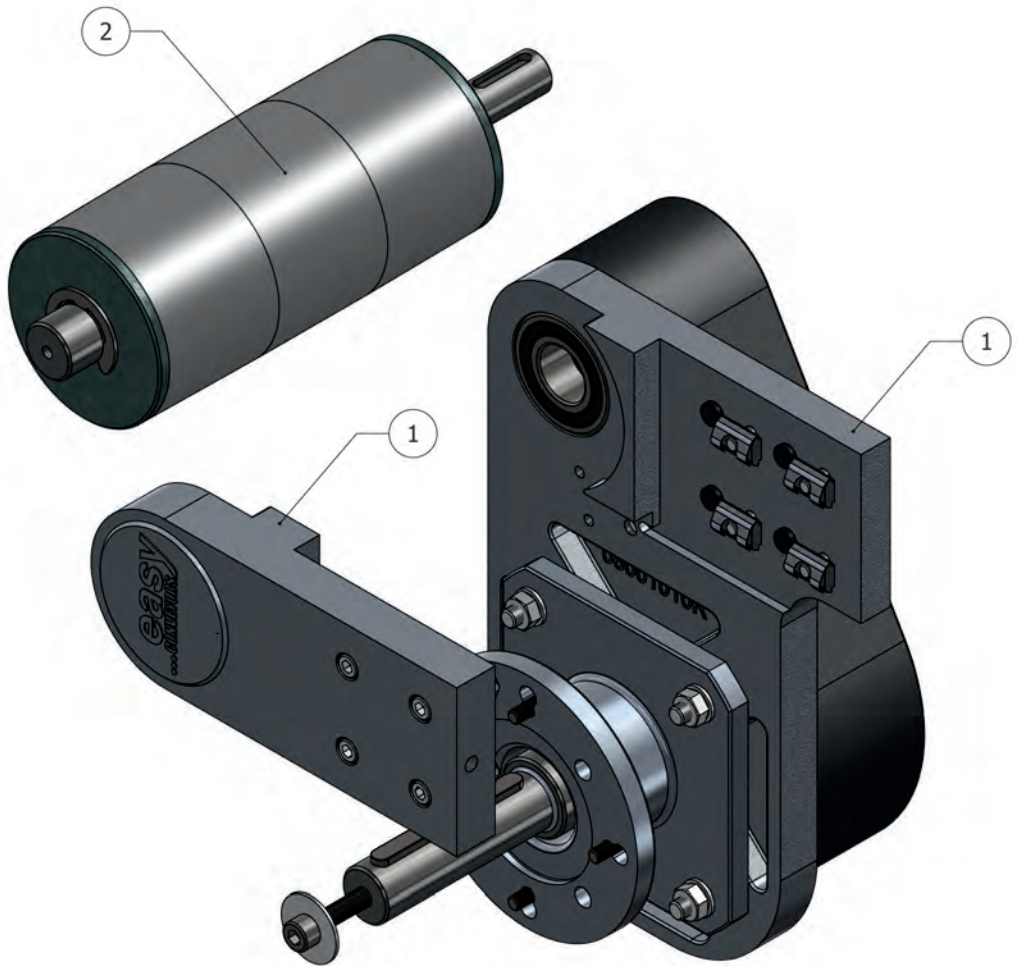


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040102050200	200 mm	7,87" inch	299 mm	11,77" inch	1 set
EBS040102050400	400 mm	15,74" inch	499 mm	19,65" inch	1 set
EBS040102050600	600 mm	23,62" inch	699 mm	27,52" inch	1 set
EBS040102050800	800 mm	31,49" inch	899 mm	35,39" inch	1 set
EBS040102051000	1000 mm	39,37" inch	1099 mm	43,27" inch	1 set
EBS040102051200	1200 mm	47,24" inch	1299 mm	51,14" inch	1 set
Suitable for, Geeignet für, SEW-WA30; Motovario-NMRV50 ; Varvel-MRS50; Nord-SK 1SI 50					
Convient pour, Adecuado para					

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Transm. drive set multi; right
- 2 Transmission drive shaft

Art Nr. Pos 1

ECA040102050000

1 set

Material AL & ABS Cover, AL & ABS Abdeck kappe, AL & ABS Couvrir, AL & ABS Cubrir

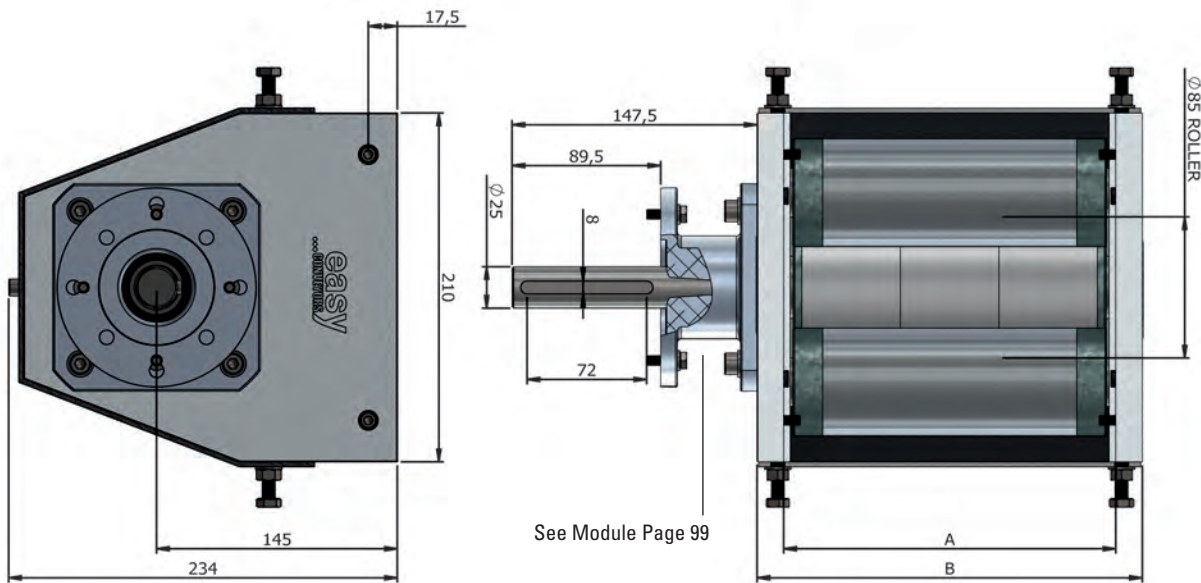
Art Nr. Pos 2

A =

040110100200	200 mm	7,87" inch	1
040110100400	400 mm	15,74" inch	1
040110100600	600 mm	23,62" inch	1
040110100800	800 mm	31,49" inch	1
040110101000	1000 mm	39,37" inch	1
040110101200	1200 mm	47,24" inch	1
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			120Nm

Material Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

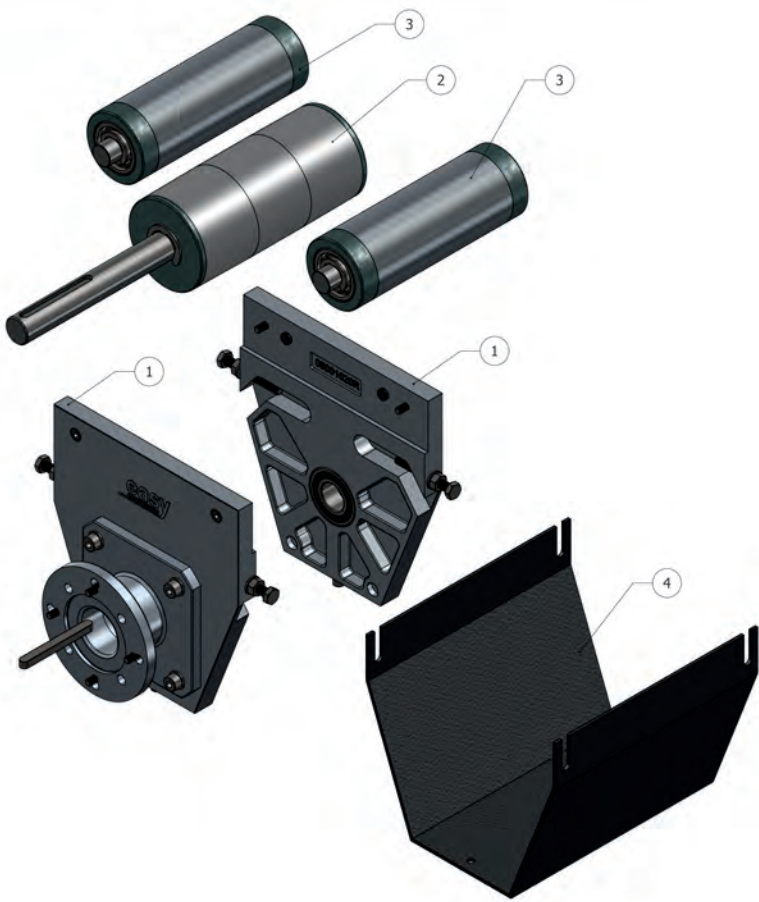


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040103100200	200 mm	7,87" inch	233 mm	9,17" inch	1 set
EBS040103100400	400 mm	15,74" inch	433 mm	17,05" inch	1 set
EBS040103100600	600 mm	23,62" inch	633 mm	24,92" inch	1 set
EBS040103100800	800 mm	31,49" inch	833 mm	32,80" inch	1 set
EBS040103101000	1000 mm	39,37" inch	1033 mm	40,67" inch	1 set
EBS040103101200	1200 mm	47,24" inch	1233 mm	48,54" inch	1 set

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Center drive set
- 2 Head drive shaft
- 3 Tentioner roller
- 4 Cover cap

Art Nr. Pos 1

ECA040103040000

1 set

Art Nr. Pos 2	Art Nr. Pos 3	A =		
040110440200	040110140200	200 mm	7,87" inch	1
040110440400	040110140400	400 mm	15,74" inch	1
040110440600	040110140600	600 mm	23,62" inch	1
040110440800	040110140800	800 mm	31,49" inch	1
040110441000	040110141000	1000 mm	39,37" inch	1
040110441200	040110141200	1200 mm	47,24" inch	1

Max. Torque, Couple, Esfuerzo de torsion, Drehmoment

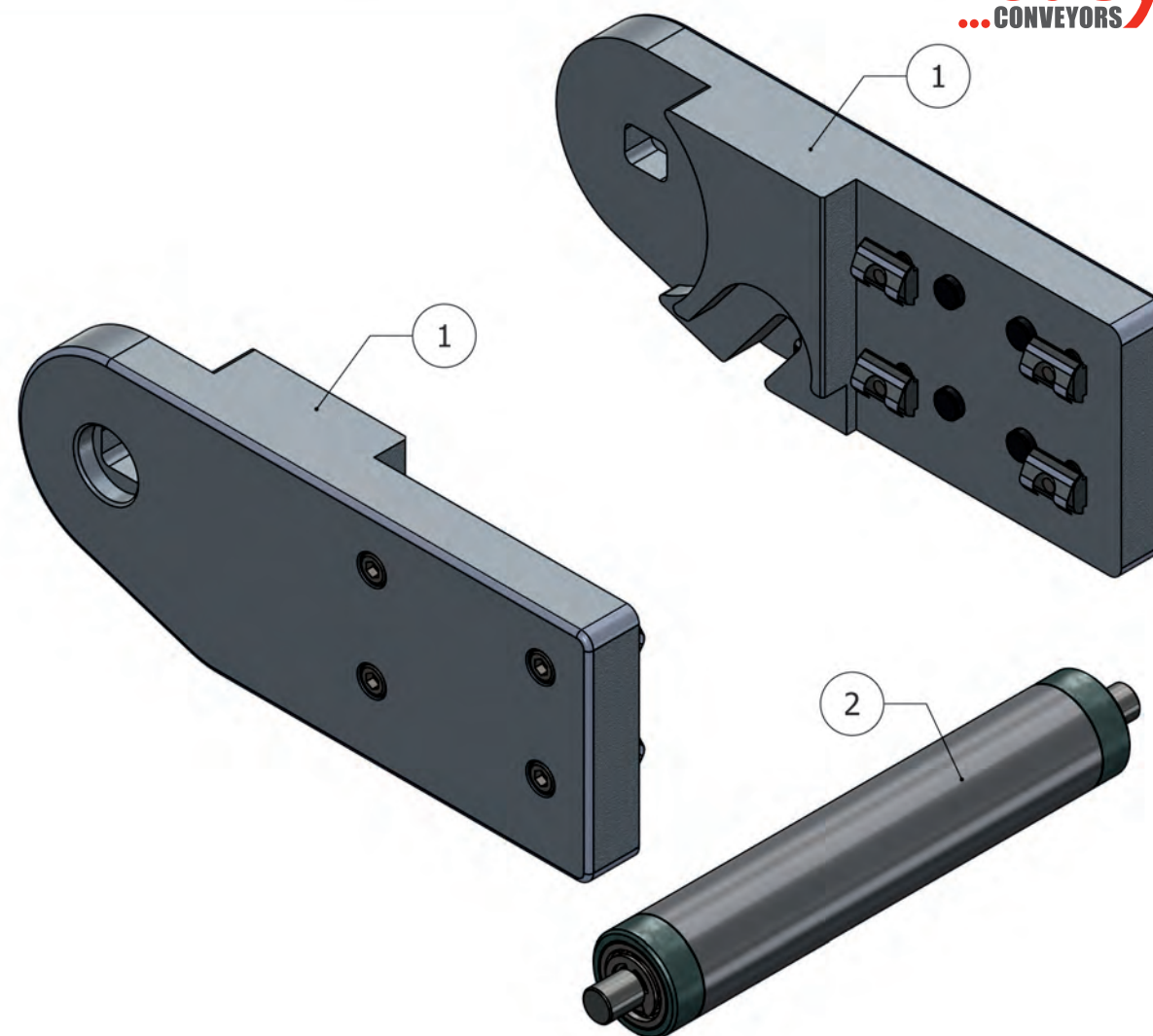
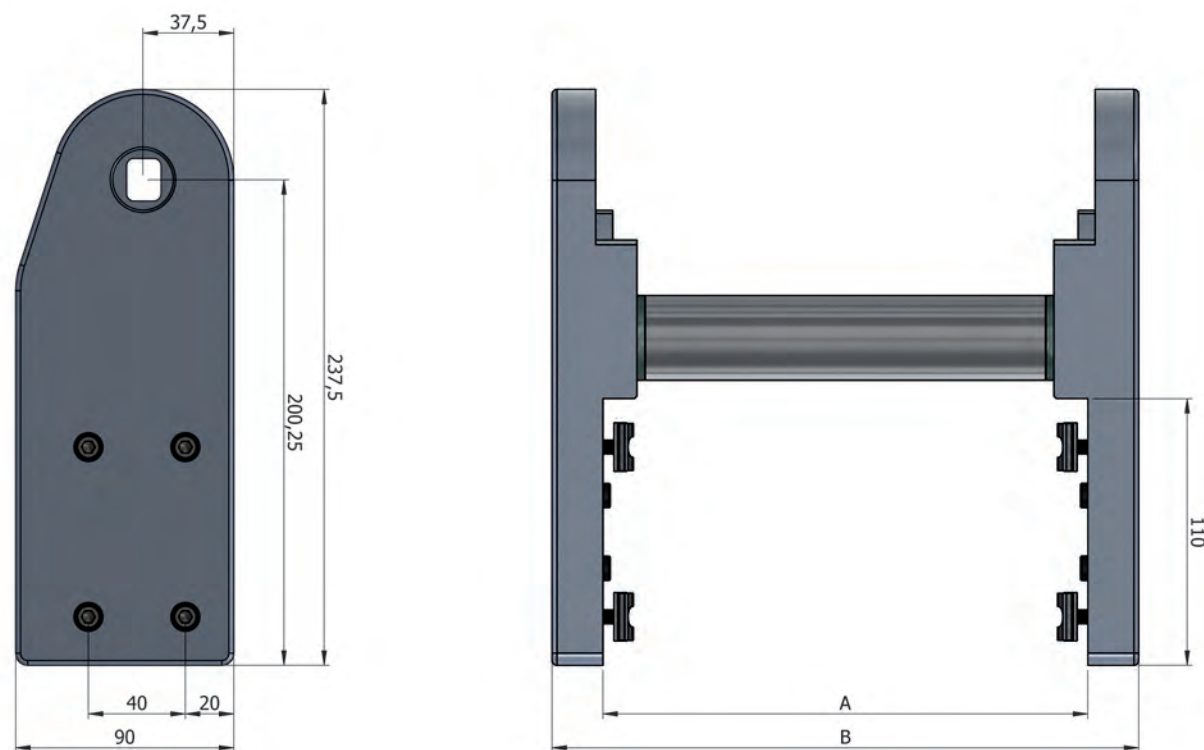
276Nm

Material

Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Art Nr. Pos 4	A =			Material
SPA08038020	200 mm	7,87" inch	1	ABS
SPA08038040	400 mm	15,74" inch	1	ABS
SPA08038060	600 mm	23,62" inch	1	ABS
SPA08038080	800 mm	31,49" inch	1	ABS
SPA08038100	1000 mm	39,37" inch	1	ABS
SPA08038120	1200 mm	47,24" inch	1	ABS

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Drum head drive set
- 2 Support / tensioner roller

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
ECDR041001020200	200 mm	7,87" inch	242 mm	9,53" inch	1 set
ECDR041001020400	400 mm	15,74" inch	442 mm	17,40" inch	1 set
ECDR041001020600	600 mm	23,62" inch	642 mm	25,28" inch	1 set
ECDR041001020800	800 mm	31,49" inch	842 mm	33,15" inch	1 set

Suitable for, Geeignet für, INTERROLL 80I / LAT TM 82.1

Convient pour, Adecuado para

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1

ECDR041001020000

1 set

Art Nr. Pos 2

040110130200

200 mm

7,87" inch

1

040110130400

400 mm

15,74" inch

1

040110130600

600 mm

23,62" inch

1

040110130800

800 mm

31,49" inch

1

Material

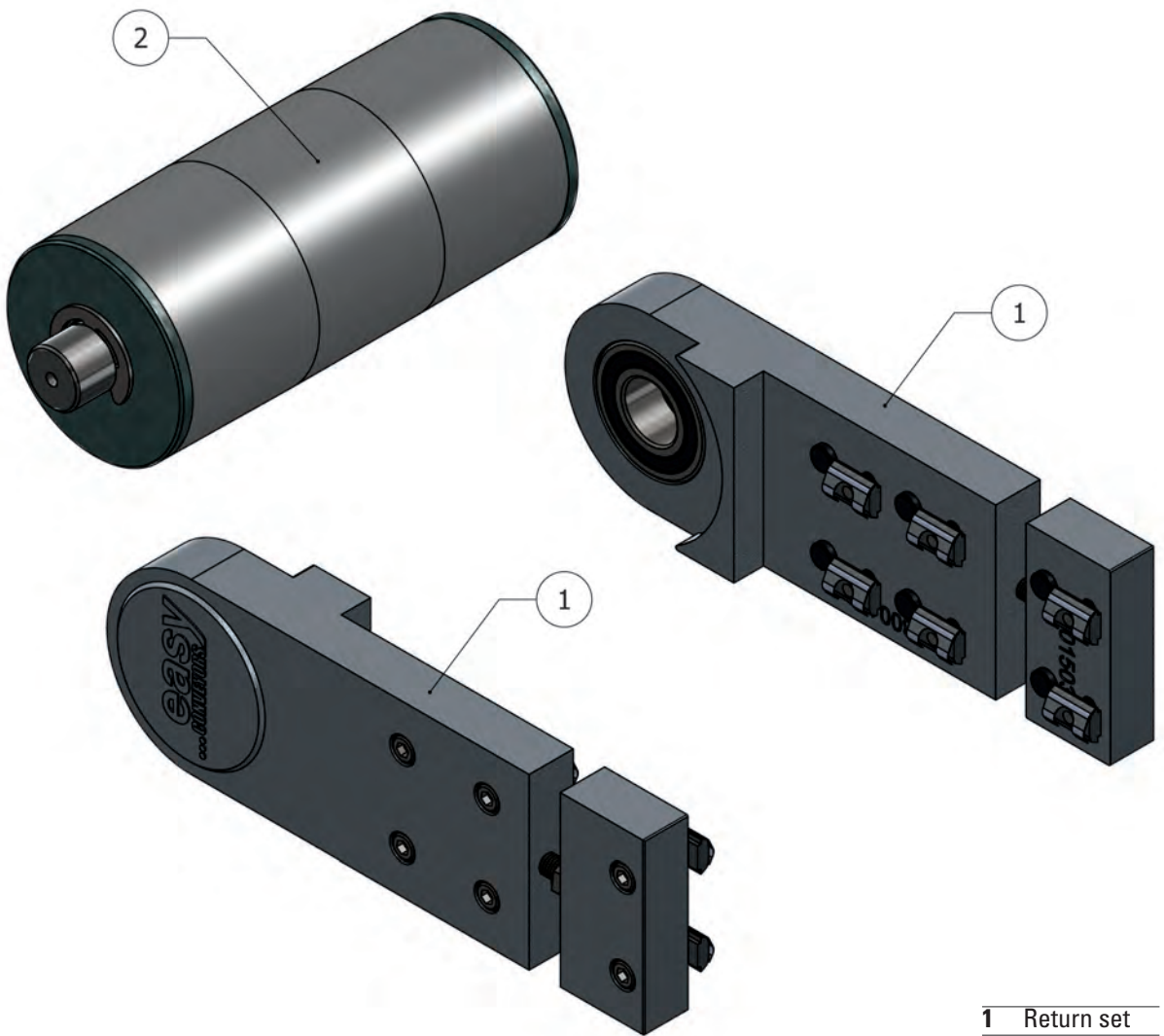
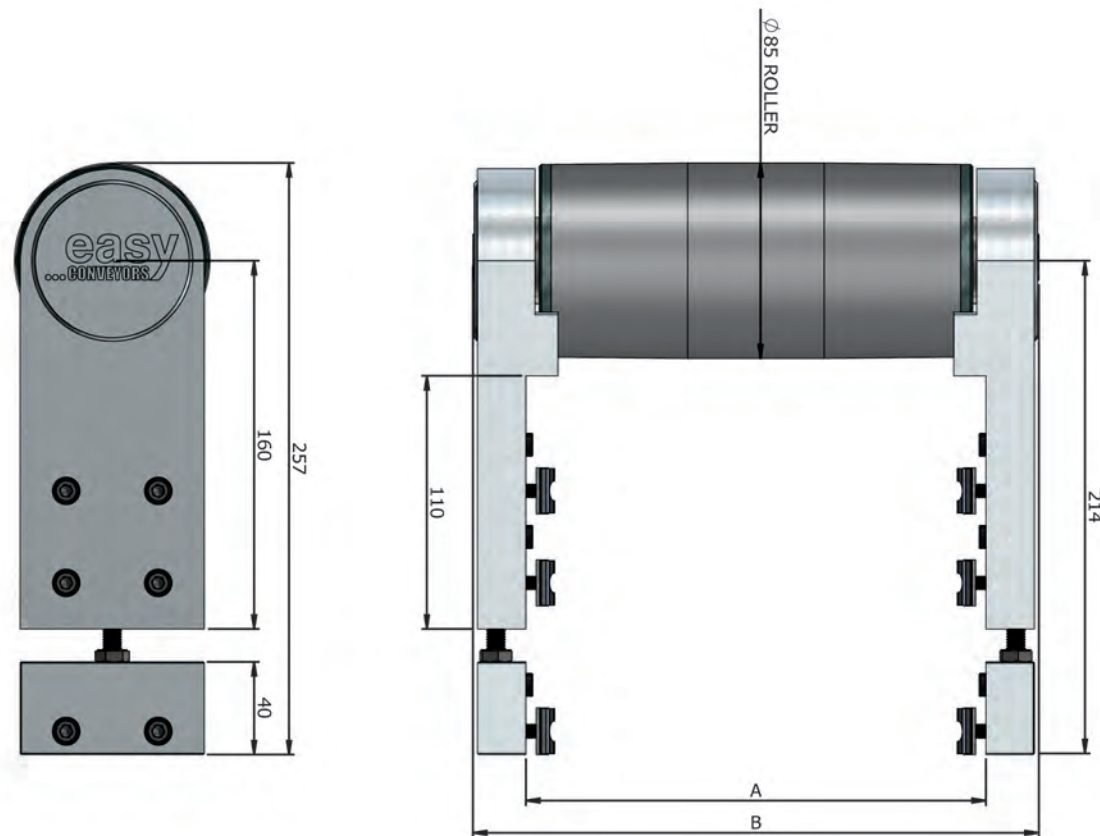
Stainless steel shaft with aluminum roller tube

Welle aus Edelstahl mit Rolle aus Alu-Rohr

Arbre en Acier inoxydable avec tube d'enroulement en aluminium

Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



1 Return set
2 Return shaft

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
EBS040104040200	200 mm	7,87" inch	246 mm	9,69" inch	1 set
EBS040104040400	400 mm	15,74" inch	446 mm	17,56" inch	1 set
EBS040104040600	600 mm	23,62" inch	646 mm	25,43" inch	1 set
EBS040104040800	800 mm	31,49" inch	846 mm	33,31" inch	1 set
EBS040104041000	1000 mm	39,37" inch	1046 mm	41,18" inch	1 set
EBS040104041200	1200 mm	47,24" inch	1246 mm	49,06" inch	1 set

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1

ECA08086000S

1 set

Art Nr. Pos 2

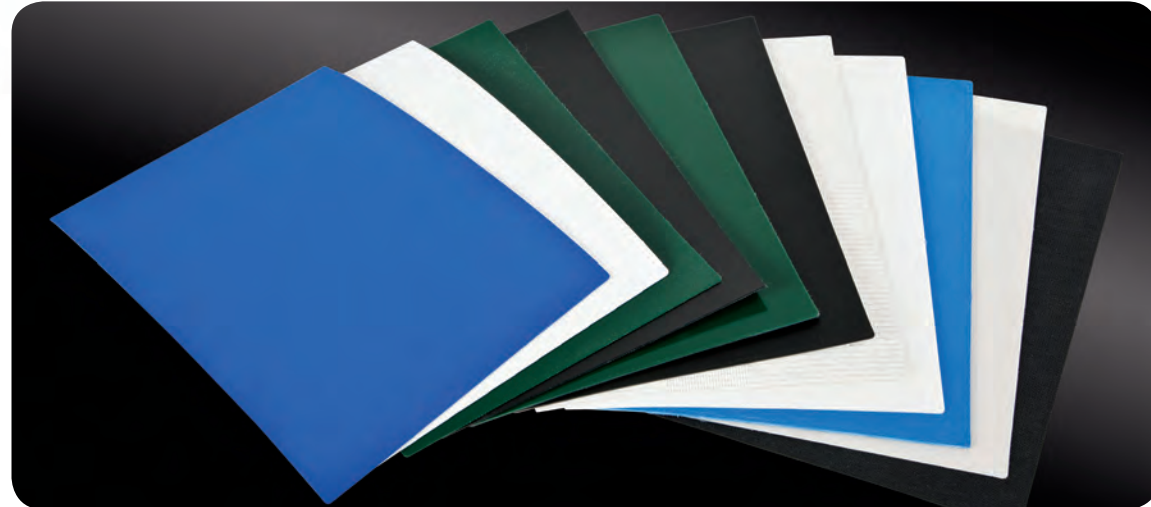
A =

040110120200	200 mm	7,87" inch	1
040110120400	400 mm	15,74" inch	1
040110120600	600 mm	23,62" inch	1
040110120800	800 mm	31,49" inch	1
040110121000	1000 mm	39,37" inch	1
040110121200	1200 mm	47,24" inch	1

Material

Stainless steel shaft with aluminum roller tube
Welle aus Edelstahl mit Rolle aus Alu-Rohr
Arbre en Acier inoxydable avec tube d'enroulement en aluminium
Eje de Acero inoxidable con rodillos en tubo de aluminio

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



				Food compliance	FDA and 2005/79/CE	Low noise fabric on driving surface	Total thickness	Weight	15	45	85	Max. admissible pull	Min. Temperature resistance	Max. Temperature resistance	Comparative coefficient of friction
							mm	kg/m²				N/mm	°C	°C	
ECA00094000	1M6 U0-V5 W	PVC	WH	x	x		1	1,1	-	x	x	6	-10	60	MF
ECA00094020	2M8 U0-V-U0	PVC	NA	x	-		1,5	1,5	-	x	x	16	-10	60	LF
ECA00094040	2MT5 U0-V3 N	PVC	BL	-	-		1,8	2	-	x	x	12	-10	60	LF
ECA00094050	2M8 U0-V5 A	PVC	GR	-	-		2	2,3	-	x	x	16	-10	60	MF
ECA00094060	2M8 U0-V5 BL	PVC	BL	x	-		2	2,3	-	x	x	16	-10	60	MF
ECA00094070	2M8 U0-V5 W	PVC	WH	x	-		2	2,3	-	x	x	16	-10	60	MF
ECA00094090	2M8 U0-V5 FM N	PVC	BL	-	-		2,1	2,3	-	x	x	16	-10	60	HF
ECA00094100	2M5 U0-U0 HP A	PU	WH	x	-		1	1	x	x	x	12	-30	100	LF
ECA00094110	2M8 U0-U2 N HC	PU	BL	-	-		1,6	1,6	x	x	x	16	-20	100	LF
ECA00094120	2M5 U0-U2 W A	PU	WH	x	-		1,3	1,5	x	x	x	12	-20	100	MF
ECA00094130	2M5 U0-U2 HP VL BLUE A	PU	BL	x	-		1,3	1,4	x	x	x	12	-30	100	MF
ECA00094140	2M5 U0-U2 HP W S A	PU	WH	x	-		1,3	1,4	x	x	x	12	-30	100	HF
ECA00094150	2M5 U0-U2 A	PU	GR	x	-		1,2	1,4	x	x	x	12	-20	100	LF
ECA00094160	SILON 25 W	SILON	WH	x	-		2,2	1,3	-	x	x	10	-20	120	LF
ECA00094170	SILON 25 HC	SILON	AN	-	-		2,5	1,6	-	x	x	10	-20	120	LF
ECA00094180	2T12 U0-U-S2	SILOCONE	TR	x	-		1,4	1,3	-	x	x	24	-30	100	HF
ECA00094190	2MT8 S0-S0	SILOCONE	NA	-	-		1,2	1,1	-	x	x	16	-40	160	LF
ECA00094200	2MT8 S0-S2	SILOCONE	TR	x	-		1,3	1,3	-	x	x	16	-40	160	HF
ECA00094210	2FG12 S0-S3	SILOCONE	WH	-			1,1	1,5	-	x	x	24	-40	250	HF

Colors: WH=White, NA=Natural, BL=Black, GR=Green, BL=Blue, AN=Anthracite, TR=Transparent

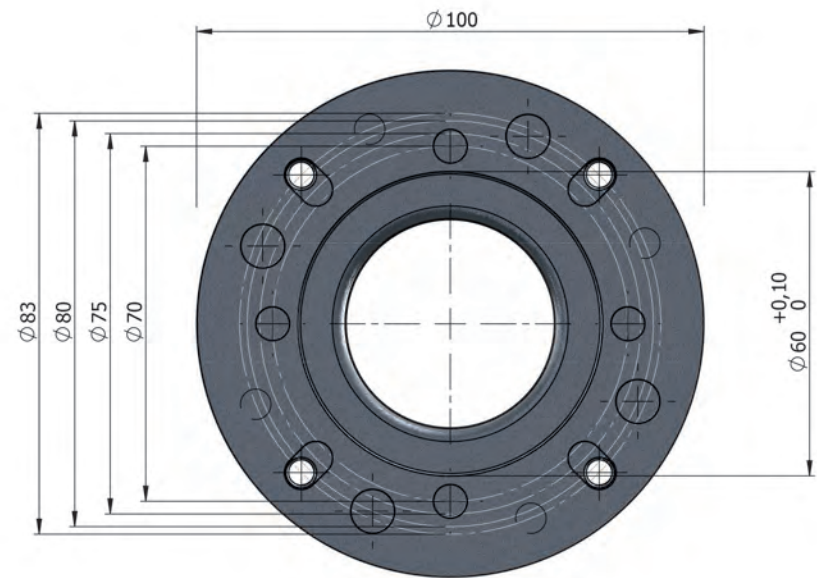


Calculation belt length

EBS 40 - D1	$L = A \times 2 + 141 \text{ mm}$
EBS 40 - D2	$L = A \times 2 + 110 \text{ mm}$
EBS 40 - I1	$L = A \times 2 + 174 \text{ mm}$
EBS 40 - I2	$L = A \times 2 + 141 \text{ mm}$
EBS 40 - M1	$L = A \times 2 + 352 \text{ mm}$
EBS 40 - M2	$L = A \times 2 + 285 \text{ mm}$
EBS 40 - M3	$L = A \times 2 + 322 \text{ mm}$
EBS 80 - D1	$L = A \times 2 + 267 \text{ mm}$
EBS 80 - I1	$L = A \times 2 + 267 \text{ mm}$
EBS 80 - M1	$L = A \times 2 + 536 \text{ mm}$
EBS 40 - M2	$L = A \times 2 + 285 \text{ mm}$
ECDR 40	$L = A \times 2 + 202 \text{ mm}$
ECDR 80	$L = A \times 2 + 262 \text{ mm}$

Pre-tensioning the belt

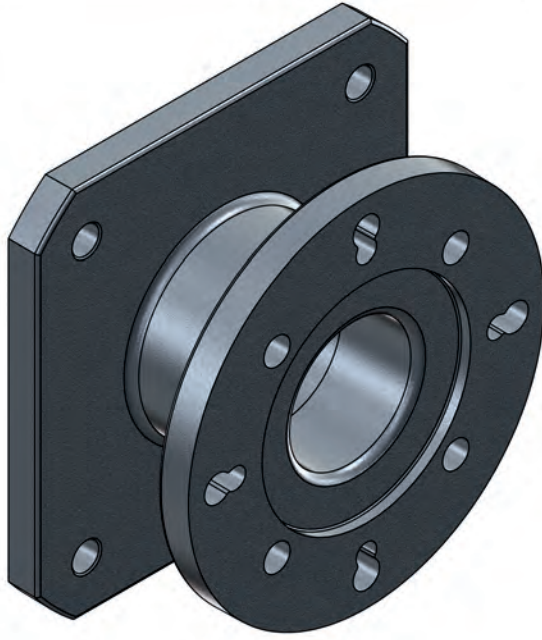
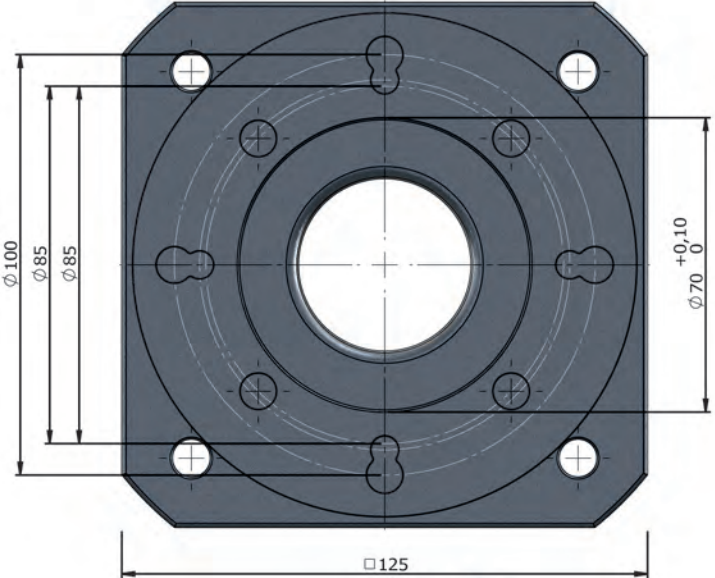
- Pre-tension the belt at least 0,2% (max. 0,8%)
Vorspannung des Riemens mindestens 0,2% (max. 0,8%)
Pré-tension de la courroie d'au moins 0,2% (max 0,8%)
Pre-tensión de la correa de al menos 0,2% (máximo 0,8%)
- Check the pre-tensioning by measuring 1000 mm and mark this on the belt (slack driving belt)
Überprüfen Sie die Vorspannung durch die Messung 1000mm und markieren diese auf das Band (slack Antriebsriemen)
Vérifier la pré-tension en mesurant 1000 mm et marquer ce sur la ceinture (la ceinturelâche conduite)
Comprobar la tensión previa mediante la medición de 1000 mm y marque esta en la banda (banda floja de conducción)
- Stretch the belt until 1002mm (max. 1008 mm) has been reached between the markings
Spannen Sie den Riemen, bis 1002 mm (max. 1008 mm) hat zwischen den Markierungen erreicht
Etirez la ceinture jusqu'à ce que 1002 mm (1008 mm max) a été conclu entre lesmarques
Estire la correa hasta 1002 mm (máx. 1008 mm) se ha alcanzado entre las marcas



More technical information: See engineering online www.easy-conveyors.com

Art Nr.	Material
040106090002	AL
Possible drives:	SEW-WA20; Motovario-NMRV40 ; Varvel-MRS40; Nord-SK 1SI 40

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta

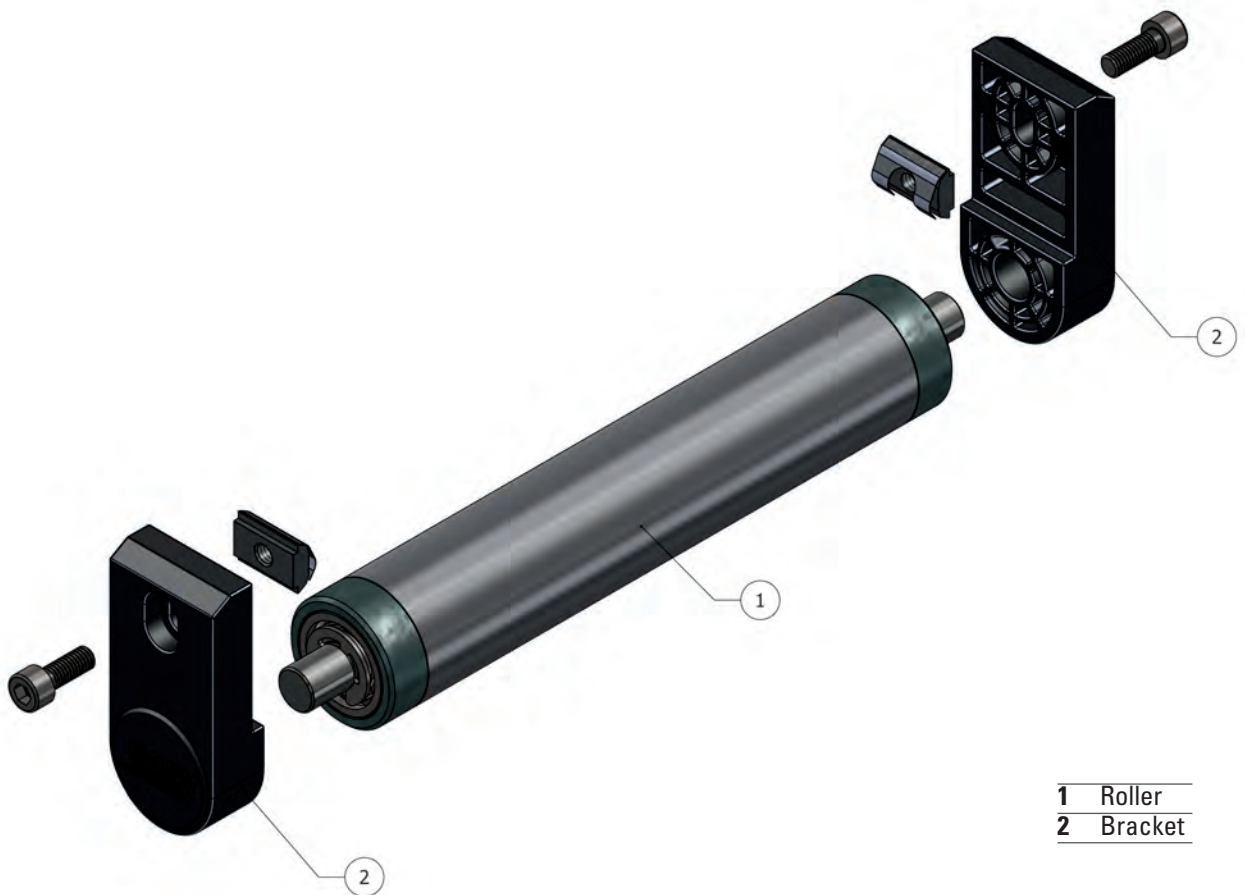
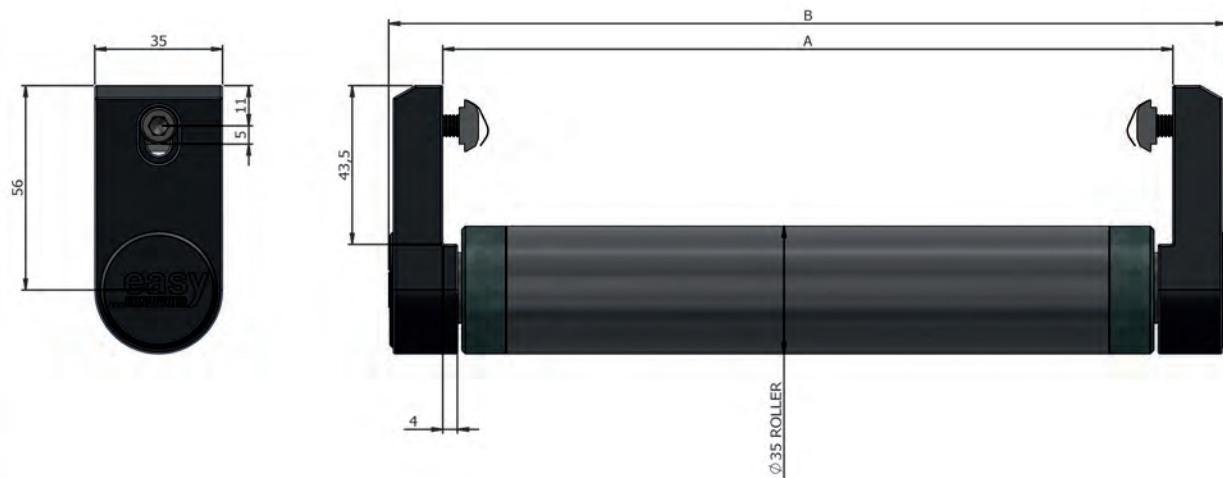


More technical information: See engineering online www.easy-conveyors.com

Art Nr.	Material
040106090003	AL
Possible drives:	SEW-WA30; Motovario-NMRV50 ; Varvel-MRS50; Nord-SK 1SI 50

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Roller
- 2 Bracket

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	A =		B =		
ECA040105040100	100 mm	3,93" inch	130 mm	5,12" inch	1 set
ECA040105040200	200 mm	7,87" inch	230 mm	9,06" inch	1 set
ECA040105040300	300 mm	11,81" inch	330 mm	12,99" inch	1 set
ECA040105040400	400 mm	15,74" inch	430 mm	16,93" inch	1 set
ECA040105040500	500 mm	19,68" inch	530 mm	20,87" inch	1 set
ECA040105040600	600 mm	23,62" inch	630 mm	24,80" inch	1 set
ECA040105040800	800 mm	31,49" inch	830 mm	32,68" inch	1 set
ECA040105041000	1000 mm	39,37" inch	1030 mm	40,55" inch	1 set
ECA040105041200	1200 mm	47,24" inch	1230 mm	48,43" inch	1 set

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta

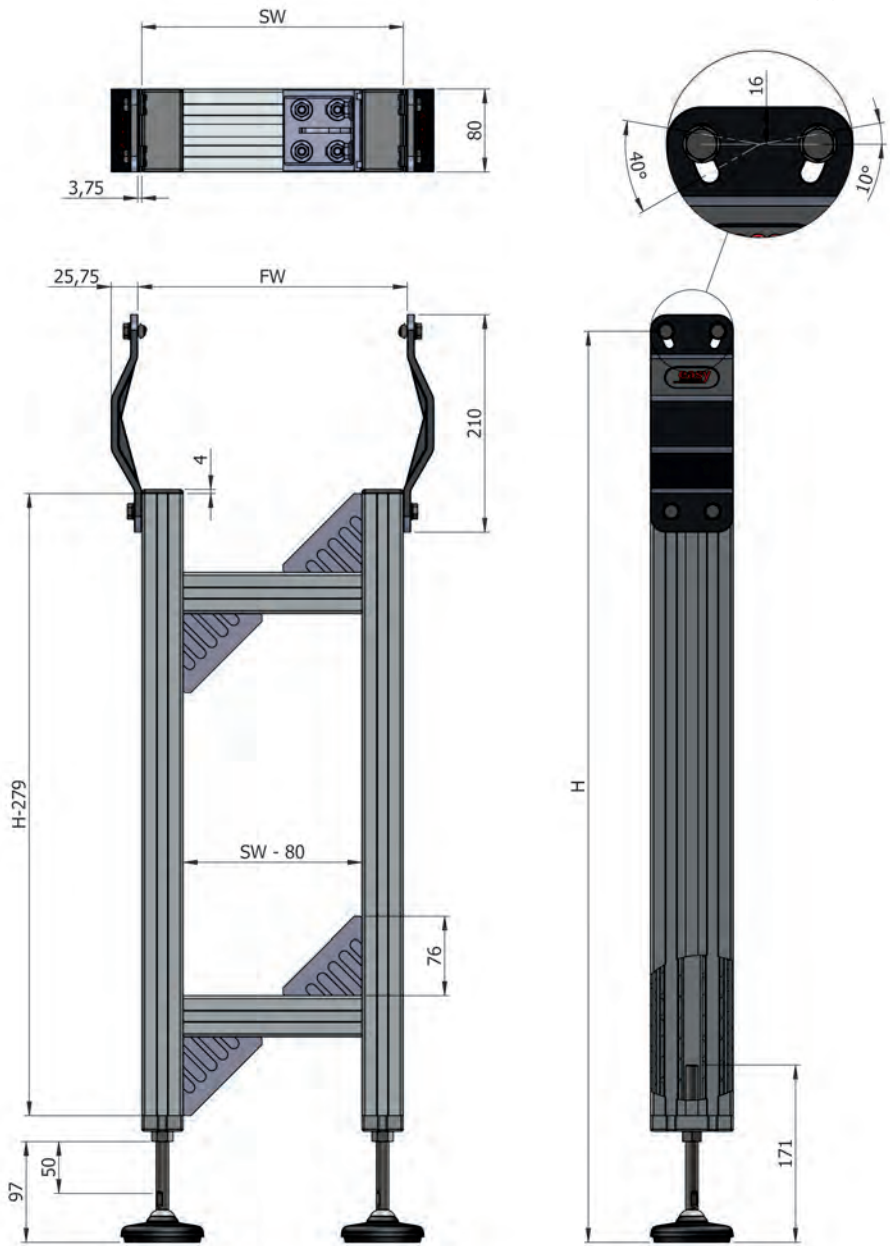


Art Nr. Pos 1	A =			Material
040110130100	100 mm	3,93" inch	1	AL
040110130200	200 mm	7,87" inch	1	AL
040110130300	300 mm	11,81" inch	1	AL
040110130400	400 mm	15,74" inch	1	AL
040110130500	500 mm	19,68" inch	1	AL
040110130600	600 mm	23,62" inch	1	AL
040110130800	800 mm	31,49" inch	1	AL
040110131000	1000 mm	39,37" inch	1	AL
040110131200	1200 mm	47,24" inch	1	AL

Material
 Stainless steel shaft with aluminum roller tube
 Welle aus Edelstahl mit Rolle aus Alu-Rohr
 Arbre en Acier inoxydable avec tube d'enroulement en aluminium
 Eje de Acero inoxidable con rodillos en tubo de aluminio

Art Nr. Pos 2		Material
040106110000	1 set	PA

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	156 mm	6,14" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

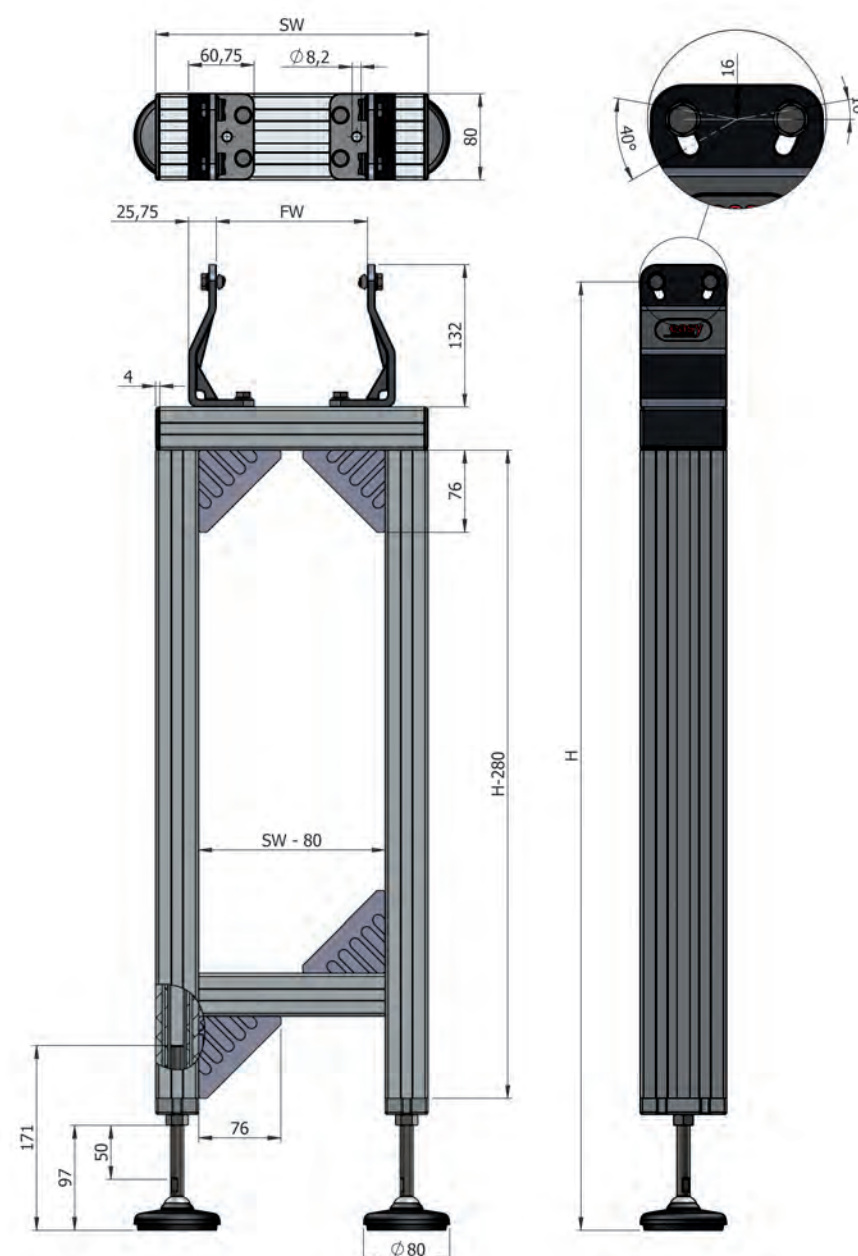
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 I support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Foot plate 40x80L
- 5 Hinged feet Ø80
- 6 Hexagon nut
- 7 Bracket 80
- 8 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808030000 I support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 4	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 5	Material	
040707020003 Hinged feet Ø80	Screw jack: Stainless steel, Foot: Synthetic plastic	1
Art Nr. Pos 6	Material	
BV093412000A2 Hexagon nut	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	100
Art Nr. Pos 7	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners
Art Nr. Pos 8	Material	
020102140000 Cap 40x80	PA FG	10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

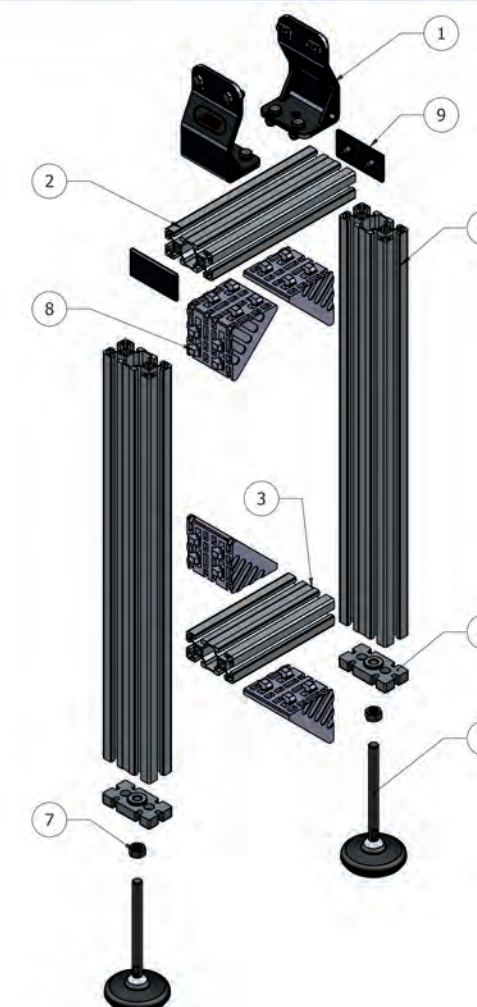


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

FW =	
SW Min =	232 mm 9,13" inch
H Max =	1200 mm 47,25" inch
Always fasten to the floor, Immer am Boden befestigen	
Siempre sujete al suelo, Toujours attacher à l'étage	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 L support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Profile 40x80L
- 5 Foot plate 40x80
- 6 Hinged feet Ø80
- 7 Hexagon nut
- 8 Bracket 80
- 9 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808020000 L support bracket	PA FG	1 set of 2 pieces, incl. fasteners

Art Nr. Pos 2 + 3 + 4	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1

Art Nr. Pos 5	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners

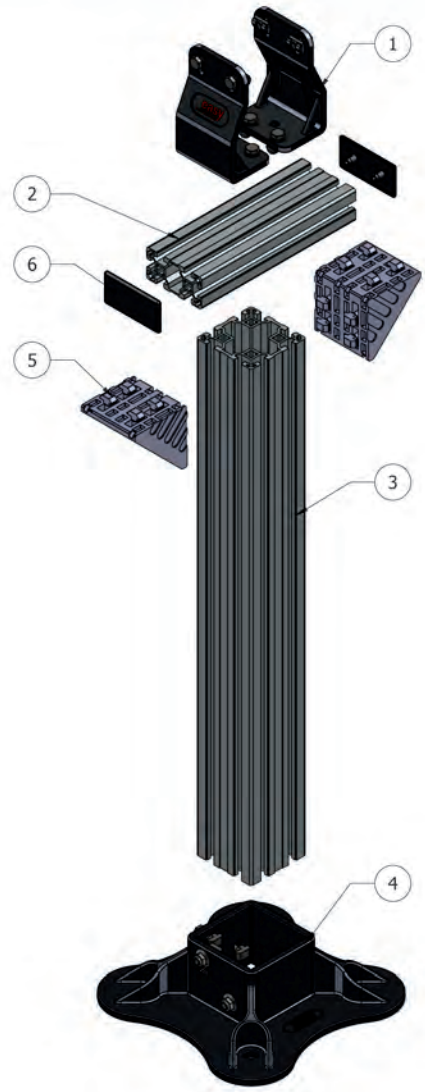
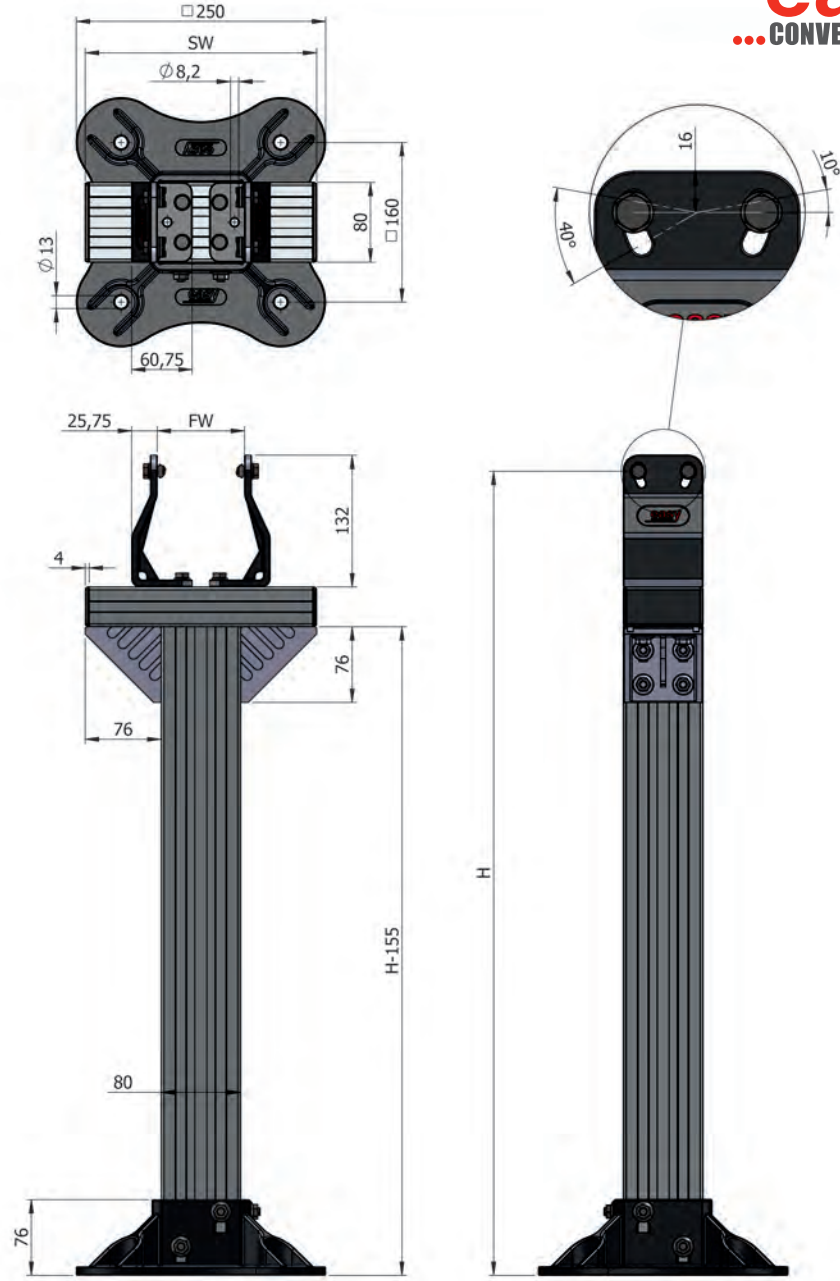
Art Nr. Pos 6	Material	
040707020003 Hinged feet Ø80	PA FG + stainless steel, PA + edelstahl PA Acier inoxydable, PA + acevo inoxidable	1

Art Nr. Pos 7	Material	
BV093412000A2 Hexagon nut	Stainless steel	100

Art Nr. Pos 8	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners

Art Nr. Pos 9	Material	
020102140000 Cap 40x80	PA FG	10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 L support bracket
- 2 Profile 40x80 L
- 3 Profile 80x80 L
- 4 Support base
- 5 Bracket 80
- 6 Cap 40x80

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones	
FW =	
SW Min =	232 mm 9,13" inch
We advise a maximum (FW) than 400 mm, Wir empfehlen eine maximale Breite von 400 mm	
Se aconseja un máximo de ancho de 400 mm, Nous vous conseillons une gamme maximale de 400 mm	
H Max =	1200 mm 47,25" inch
Always fasten to the floor, Immer am Boden befestigen	
Siempre sujete al suelo, Toujours attacher à l'étage	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040808020000	L support bracket	PA FG 1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2	Material	
020102070008	Profile 40x80L, L= 6070 mm	AL 1
Art Nr. Pos 3	Material	
020102070009	Profile 80x80L, L= 6070 mm	AL 1
Art Nr. Pos 4	Material	
ETS040808040000	Support base	AL RAL9005 1
Art Nr. Pos 5	Material	
020102160001	Bracket 80x80	AL 1 piece, incl. fasteners
Art Nr. Pos 6	Material	
020102140000	CAP 40x80	PA FG 10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

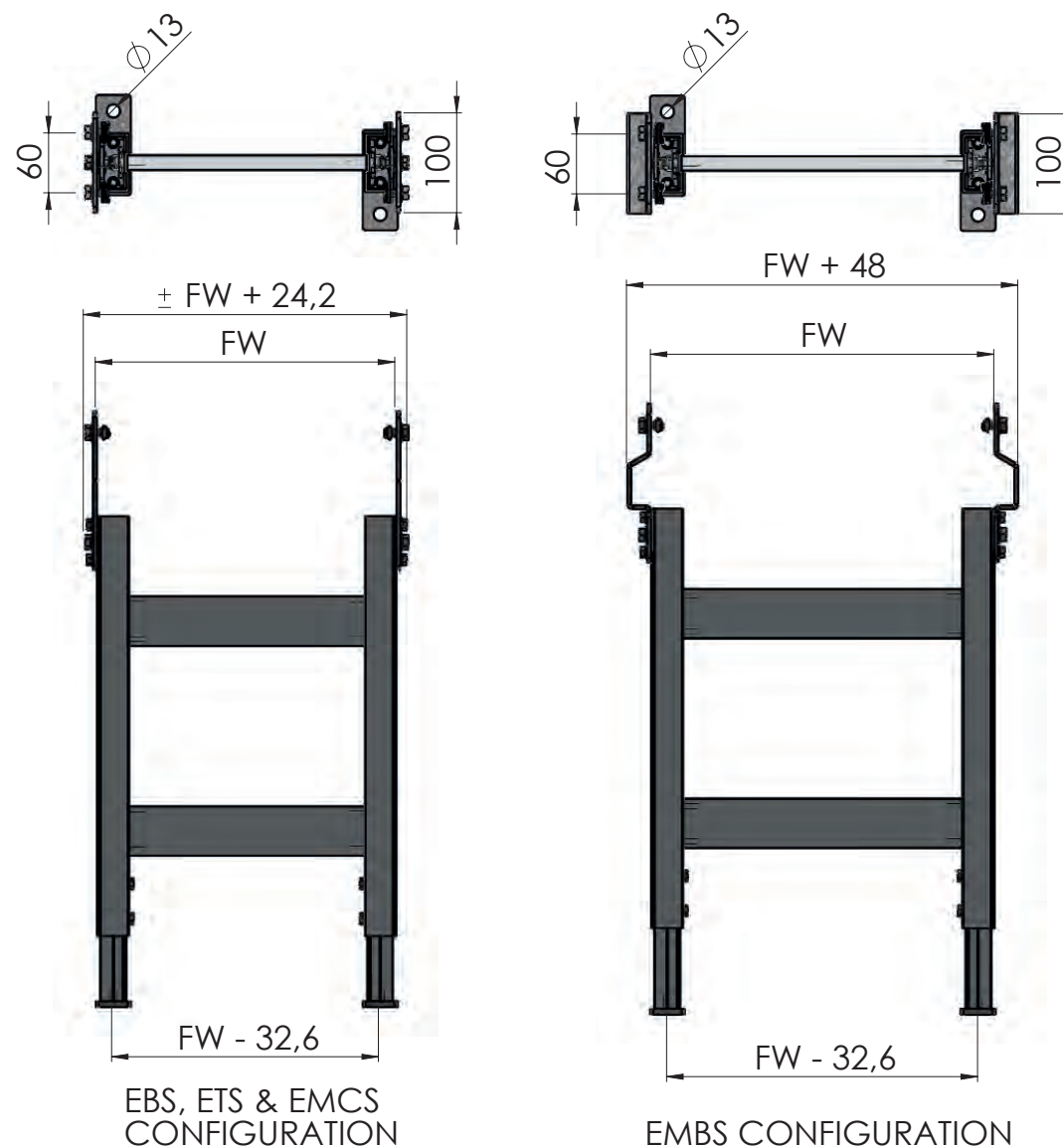
LEG SUPPORT

**EBS, EMBS, ETS AND EMCS
IN HEIGHT ADJUSTABLE**



easy
...CONVEYORS

www.easy-conveyors.com



EBS, ETS & EMCS
CONFIGURATION

EMBS CONFIGURATION

More technical information: See engineering online www.easy-conveyors.com

TECHNICAL DATA

General technical data

Max. load capacity	200 kg
Min. Adjustable Height	±325 mm
Max. Adjustable Height	±2500 mm
Number of cross members	Type 01 & 02 – 1 piece
	Type 03 & 04 – 2 pieces
	Type 05 – 3 pieces

Side Profile

Suitable side profile material	Aluminium
--------------------------------	-----------

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Type selection

Type	Conveyor System				
	EBS 40	EBS 80	ETS	EMBS	EMCS
	Adjustable Height [mm]*				
01.	325 – 400	325 – 440	355 – 430	360 – 435	335 – 470
02.	395 – 540	435 – 580	425 – 570	430 – 575	465 – 610
03.	535 – 820	575 – 860	565 – 850	570 – 855	605 – 890
04.	815 – 1380	855 – 1420	845 – 1410	850 – 1415	885 – 1450
05.	1375 – 2500	1415 – 2540	1405 – 2530	1410 – 2535	1445 – 2570

General Support Stand CONFIGURATOR

Please create the reference number with the following configurator.

1 TYPE GSS

2 Conveyor System EBS 40 | EBS 80 | ETS | EMBS | EMCS

3 System Width Enter Conveyor System Width Standard:

EBS 40	EBS 80	ETS	EMBS	EMCS
100	200	80	255	170
200	400	140	340	255
300	600	200	425	340
400	800		510	425
500	1000			510
600	1200			680
				850

Special: On request

4 Height 01 | 02 | 03 | 04 | 05

1 2 3 4
GSS - - -

ORDER EXAMPLE

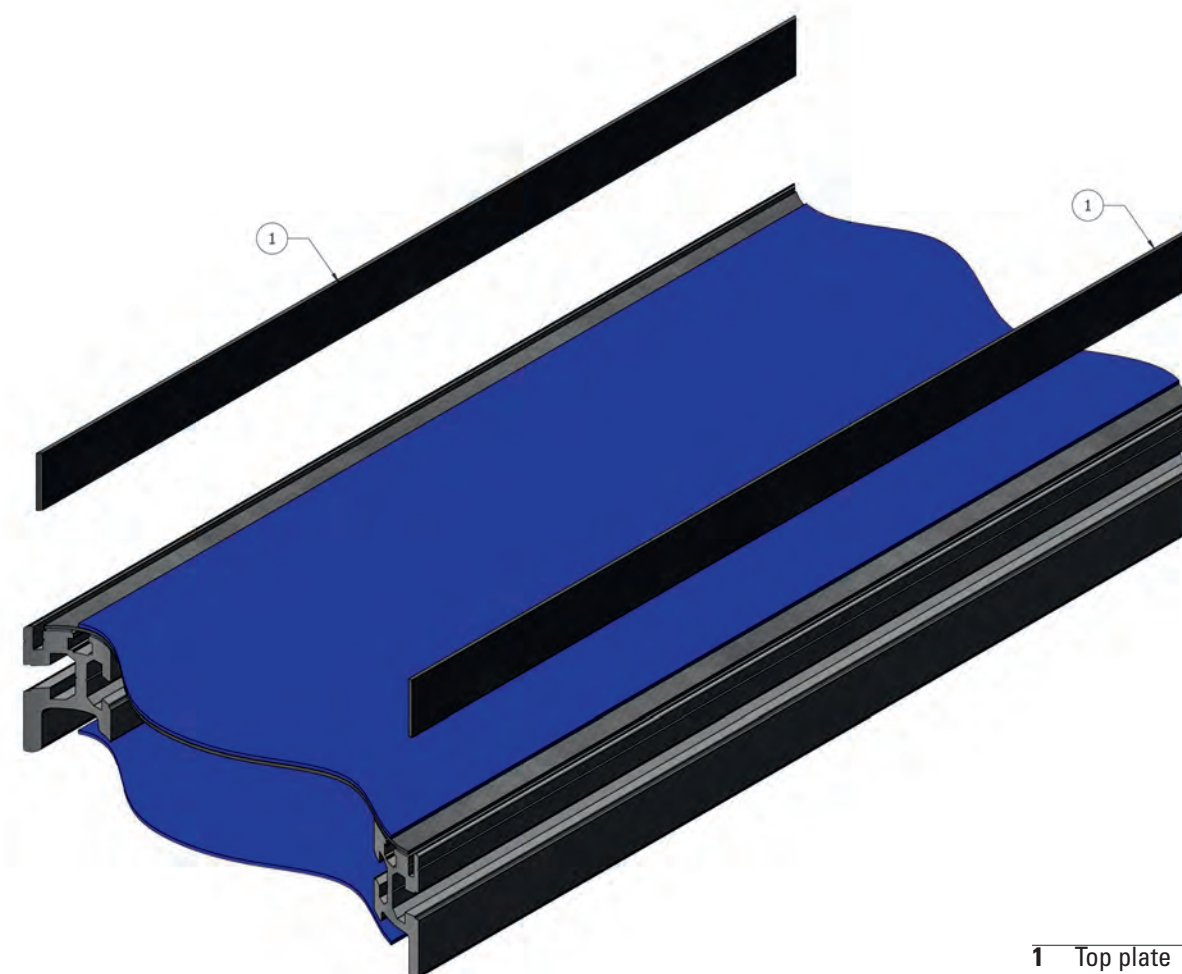
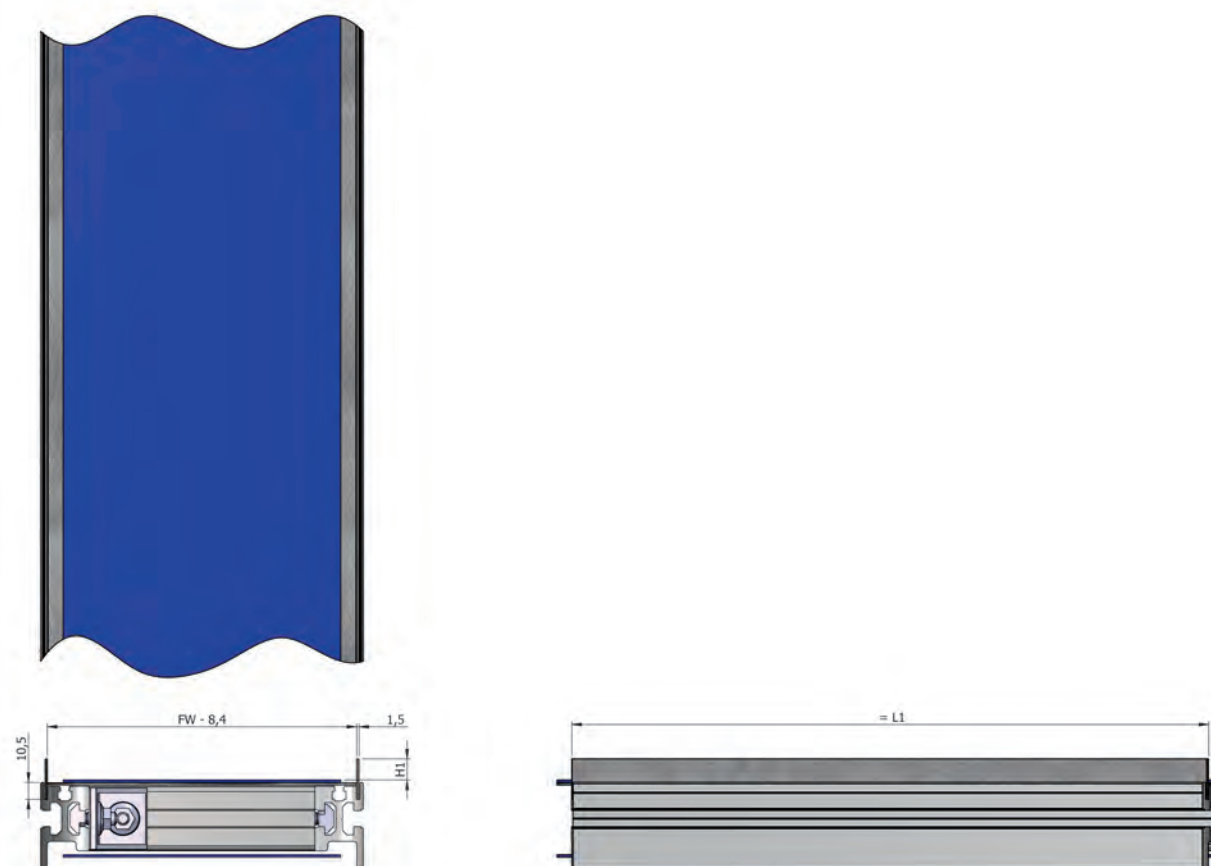
Example for a reference number:

GSS – ETS – 140 – 03

This reference number stand for a General Support Stand with the clearance for an ETS 140 conveyor type with an adjustable top of belt height between 565 mm and 850 mm.

Note:

1. Longitudinal or diagonal cross members are not included.
2. Dependable on conveyor speed, load, start/stops, etc. additional cross members noted under '1.' are not included.



1 Top plate

More technical information: See engineering online www.easy-conveyors.com

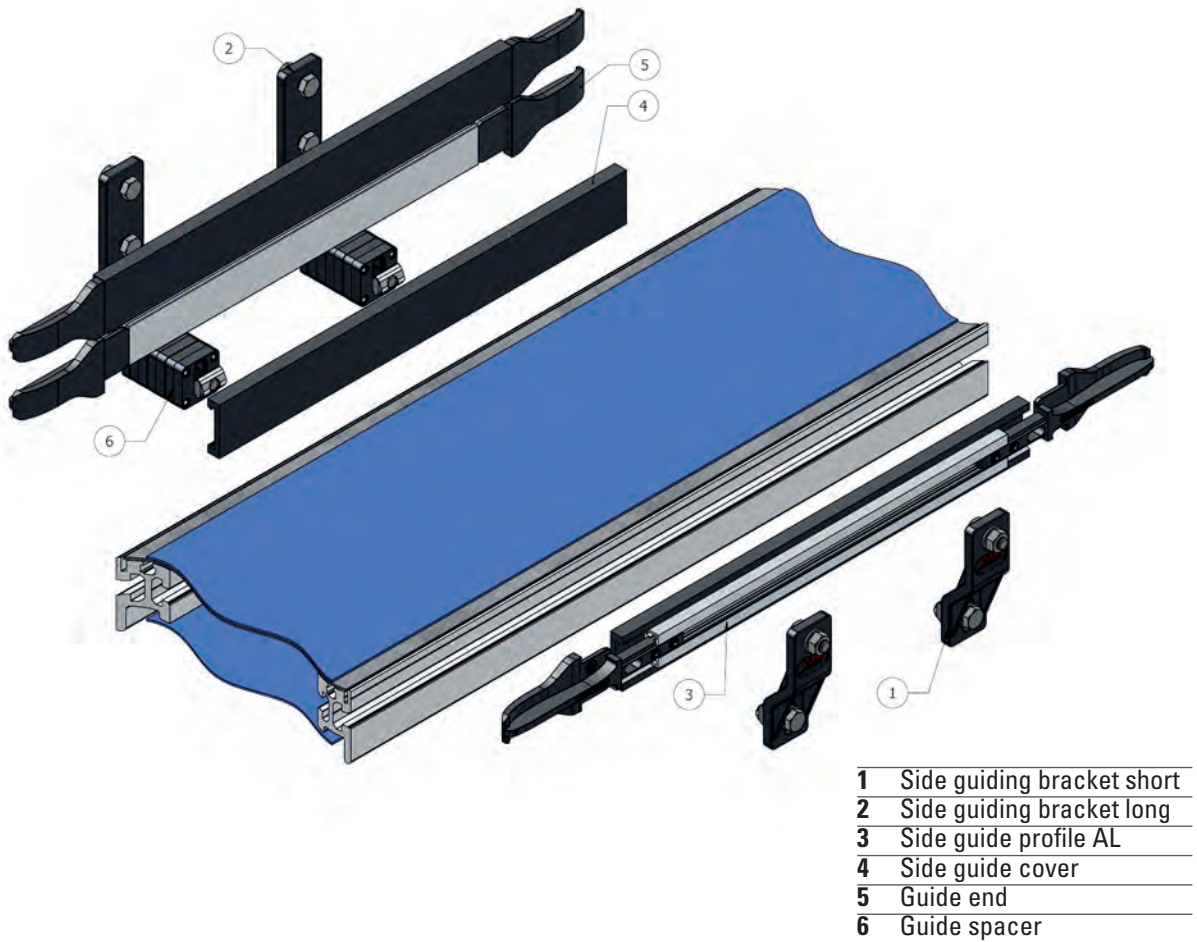
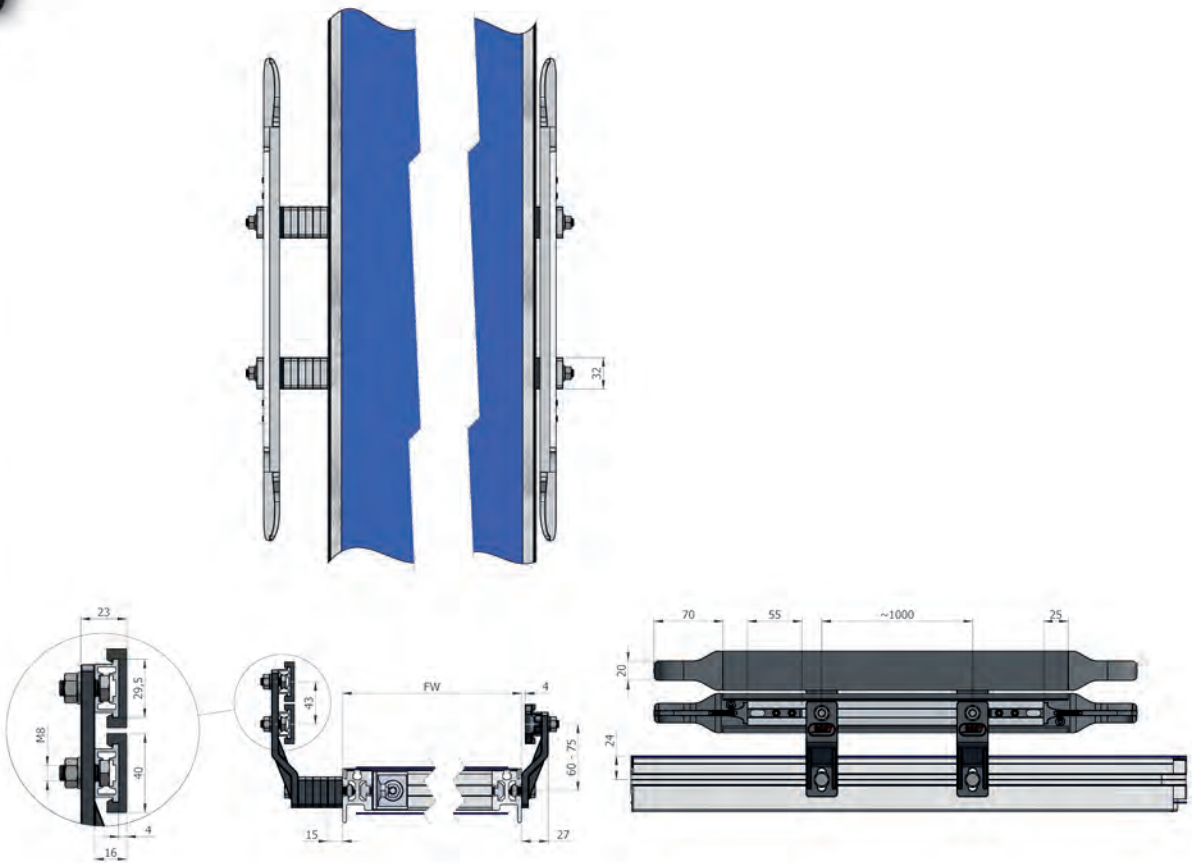
Dimensions - Abmessungen - Dimensions - Dimensiones	
H1 Max =	200 mm - 7,87" inch
For assembling you can use bolts, Zur montage können sie mit Bolzen, Pour le montage, vous pouvez utiliser des boulons, Para el montaje se puede utilizar tornillos	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1		
ECA00092000 TOP PLATE		1
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado	

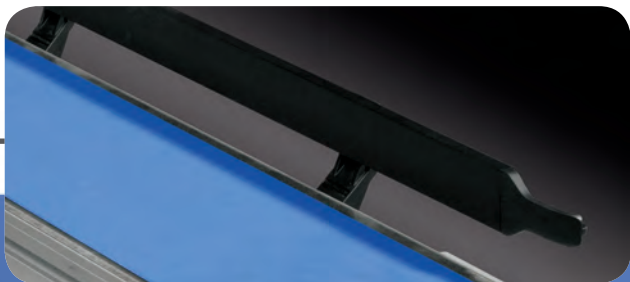
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



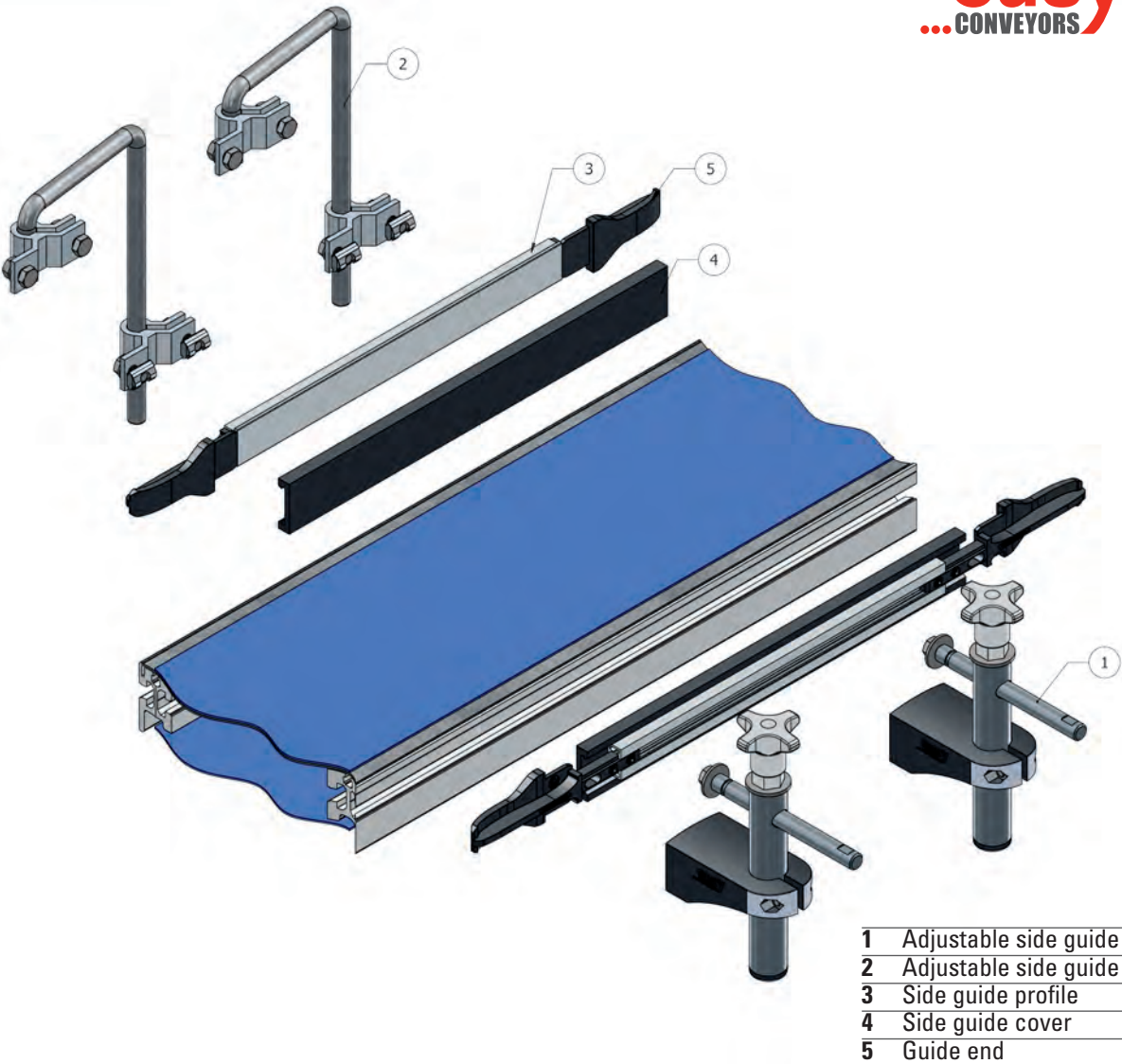
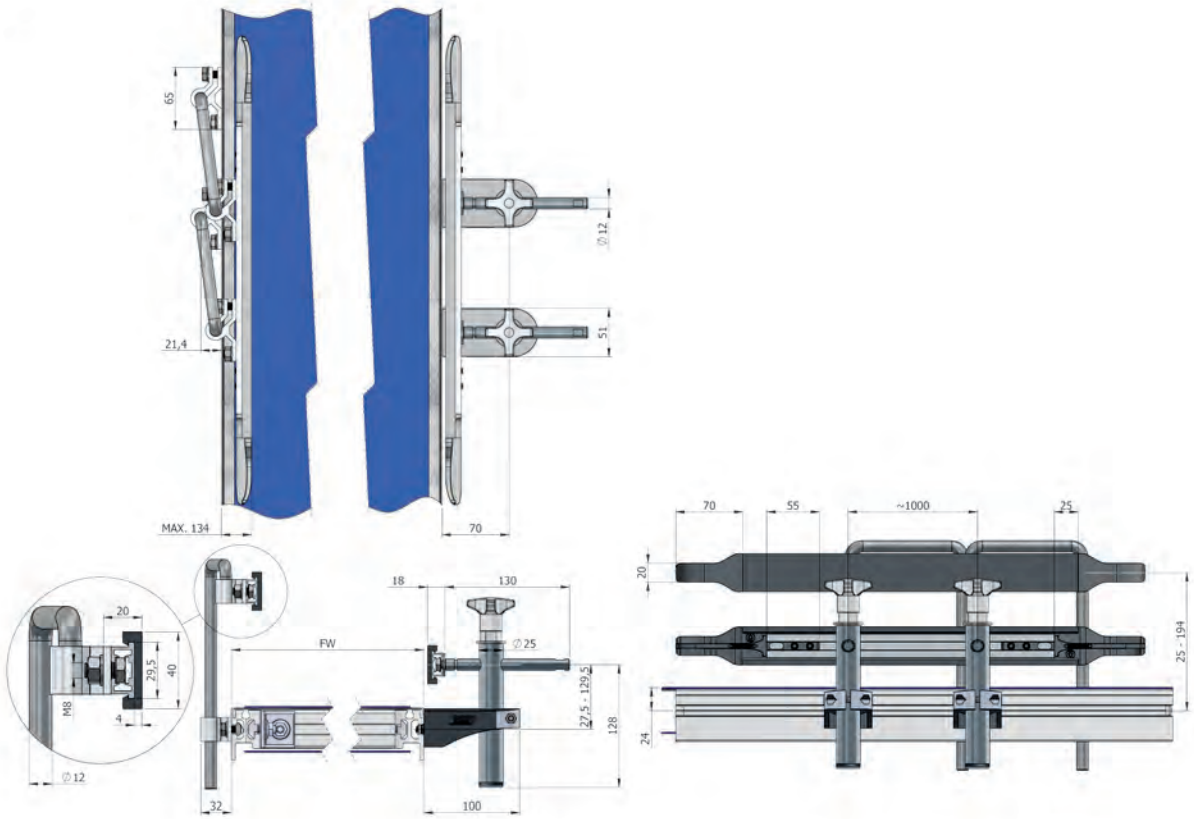
Art Nr. Pos 1	Material	
ETS040809010000	Side guiding short	PA FG
		1 piece, incl. fasteners
Art Nr. Pos 2	Material	
ETS040809020000	Side guiding long	PA FG
		1 piece, incl. fasteners
Art Nr. Pos 3	Material	
ETS040809000000	Side guide profile AL	AL
		1 piece; L=5.6mtr
Art Nr. Pos 4	Material	
ECP040103000000	Side guiding cover	PE
		1 piece; l=3mtr
Art Nr. Pos 5	Material	
ETS040809050000	Guide end 40	PA FG
		1 set of pieces, incl. fasteners
Art Nr. Pos 6	Material	
ETS040809040000	Guide spacer	PA FG
		10

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Adjustable side guide
- 2 Adjustable side guide
- 3 Side guide profile
- 4 Side guide cover
- 5 Guide end

Art Nr. Pos 1	Material
ETS040809030000 Side guide	PA FG + stainless steel, PA + edelstahl 1 piece, incl. fasteners PA Acier inoxydable, PA + acevo inoxidable

Art Nr. Pos 2	Material
ERA040409010000 Side guide	AL + steel galvanised, AL + stahl verzinkt 1 piece, incl. fasteners AL + Acier galvanisé, AL + Acero galvanizado

Art Nr. Pos 3	Material
ETS040809000000 Side guiding profile	AL 1 piece; L=5.6mtr

Art Nr. Pos 4	Material
ECP040103000000 Side guide cover	PE 1 piece; l=3mtr

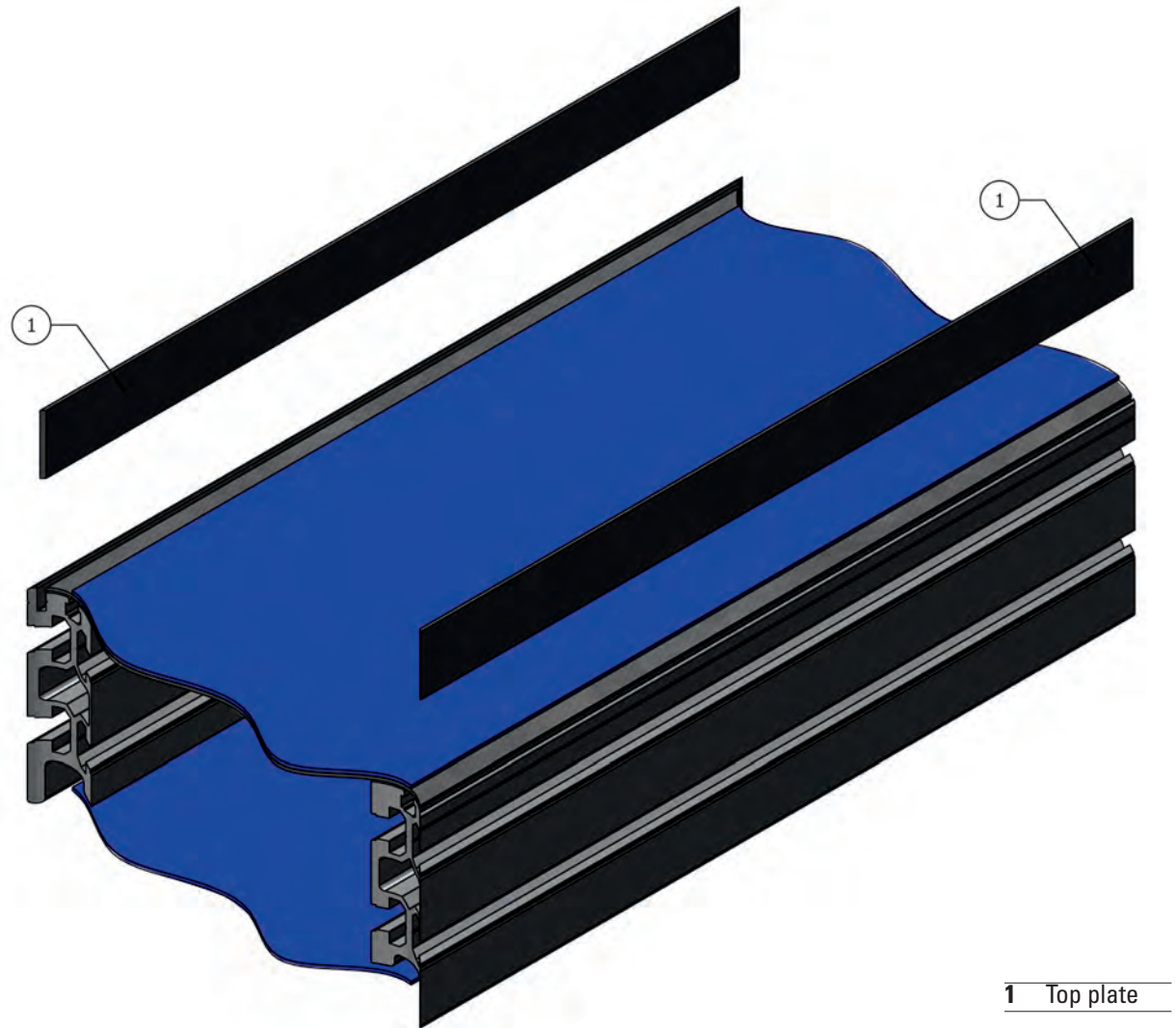
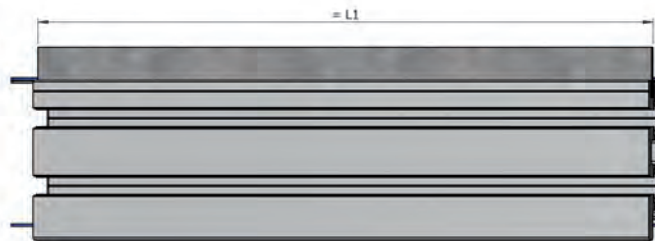
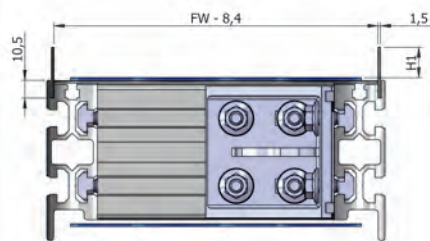
Art Nr. Pos 5	Material
ETS040809050000 Guide end 40	PA FG 1 set of pieces, incl. fasteners

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





1 Top plate

More technical information: See engineering online www.easy-conveyors.com

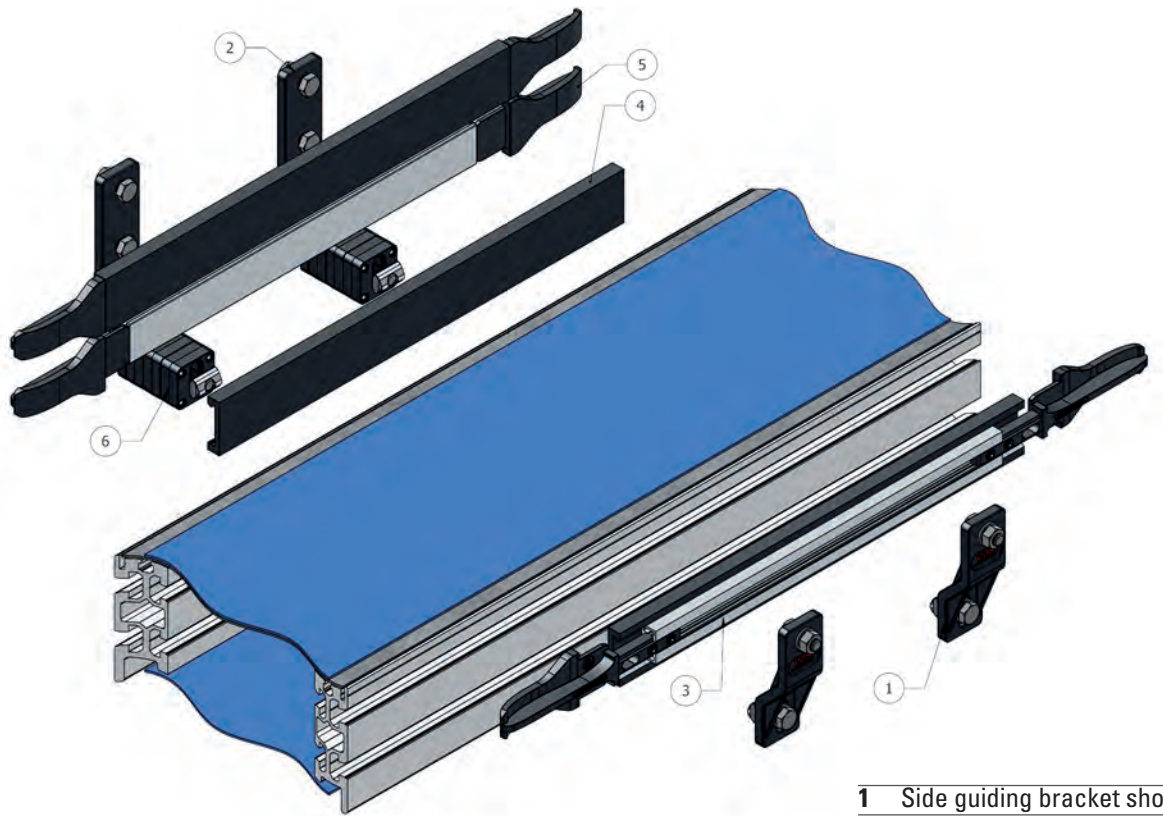
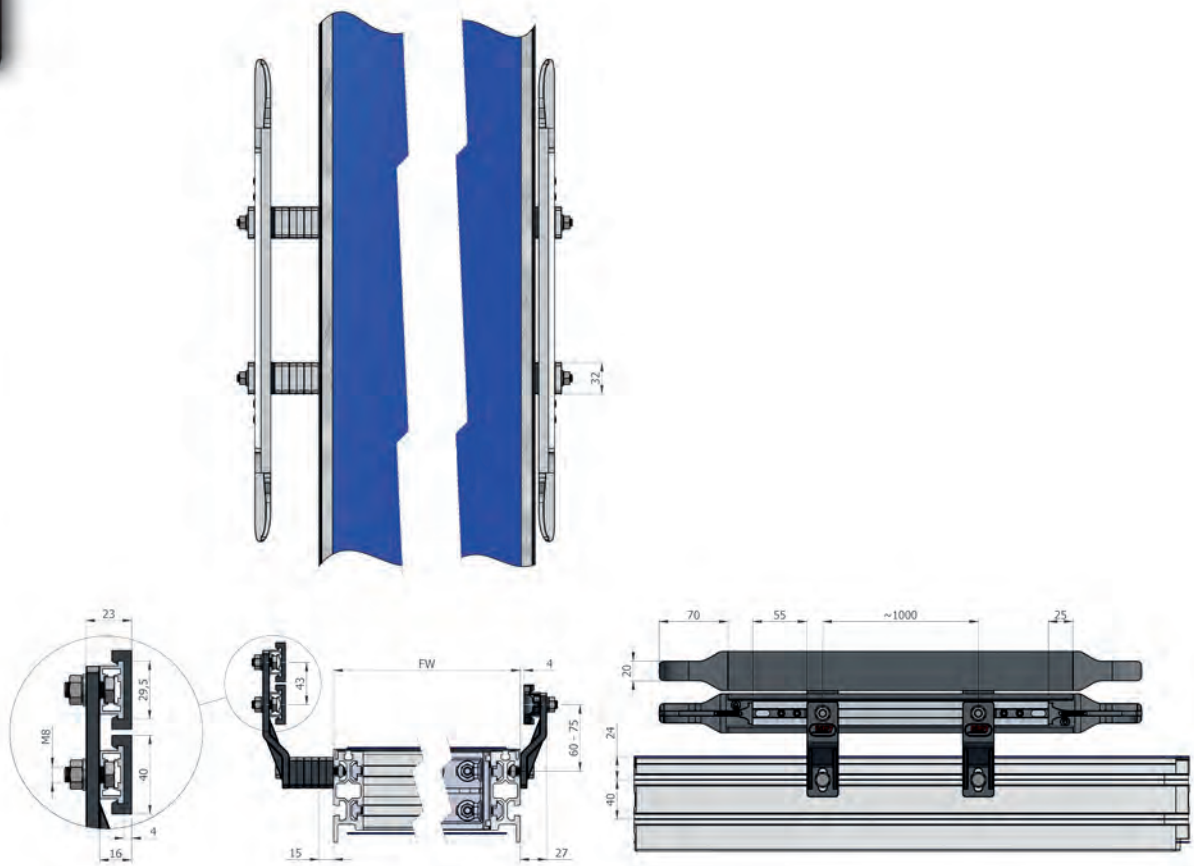
Dimensions - Abmessungen - Dimensions - Dimensiones	
H1 Max =	200 mm - 7,87" inch
For assembling you can use bolts, Zur montage können sie mit Bolzen, Pour le montage, vous pouvez utiliser des boulons, Para el montaje se puede utilizar tornillos	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ECA00092000 Top plate	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado	1

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

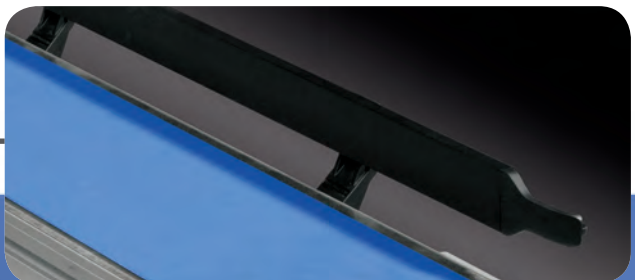


- 1 Side guiding bracket short
- 2 Side guiding bracket long
- 3 Side guide profile
- 4 Side guide strip
- 5 Guide end
- 6 Guide spacer

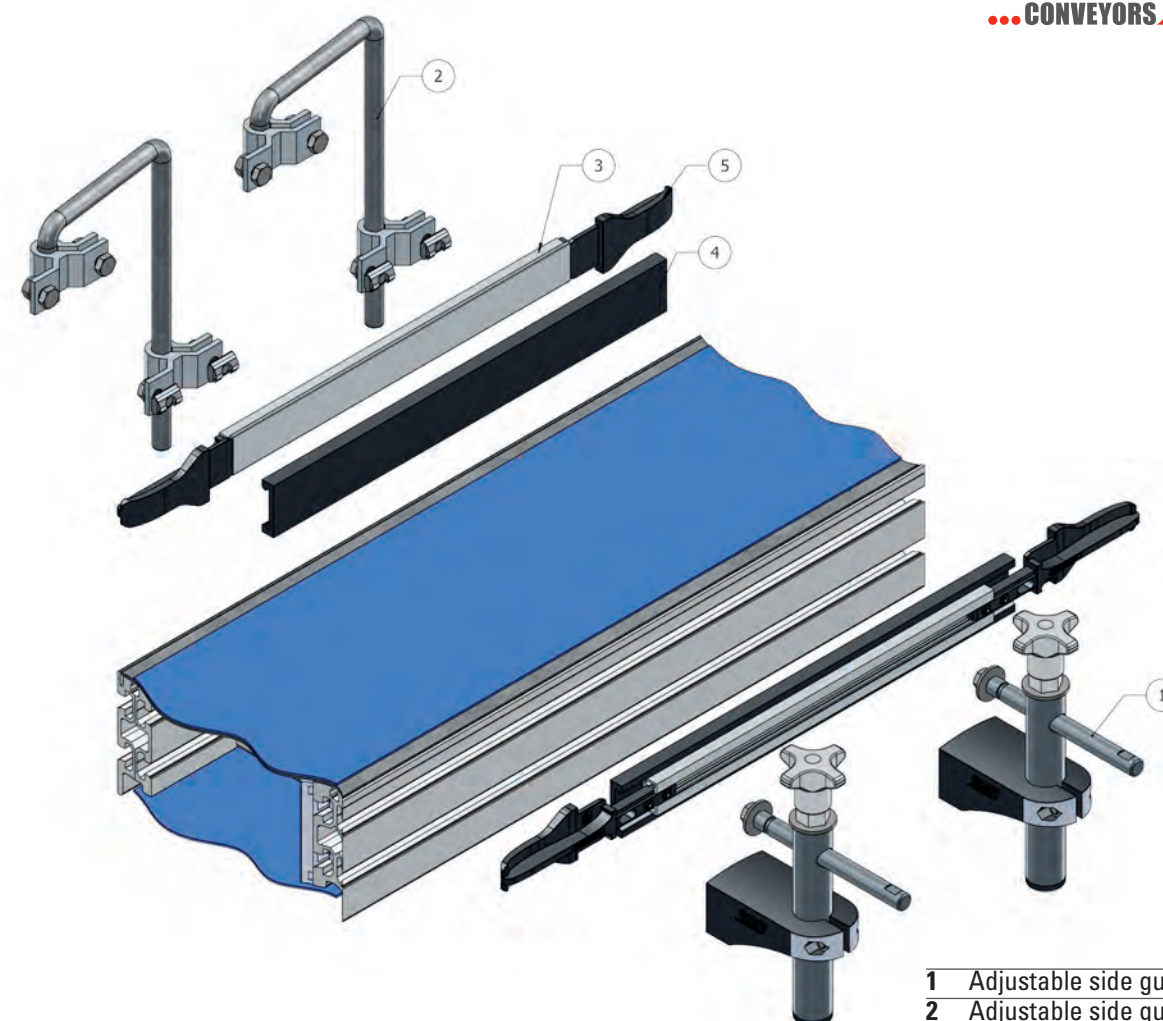
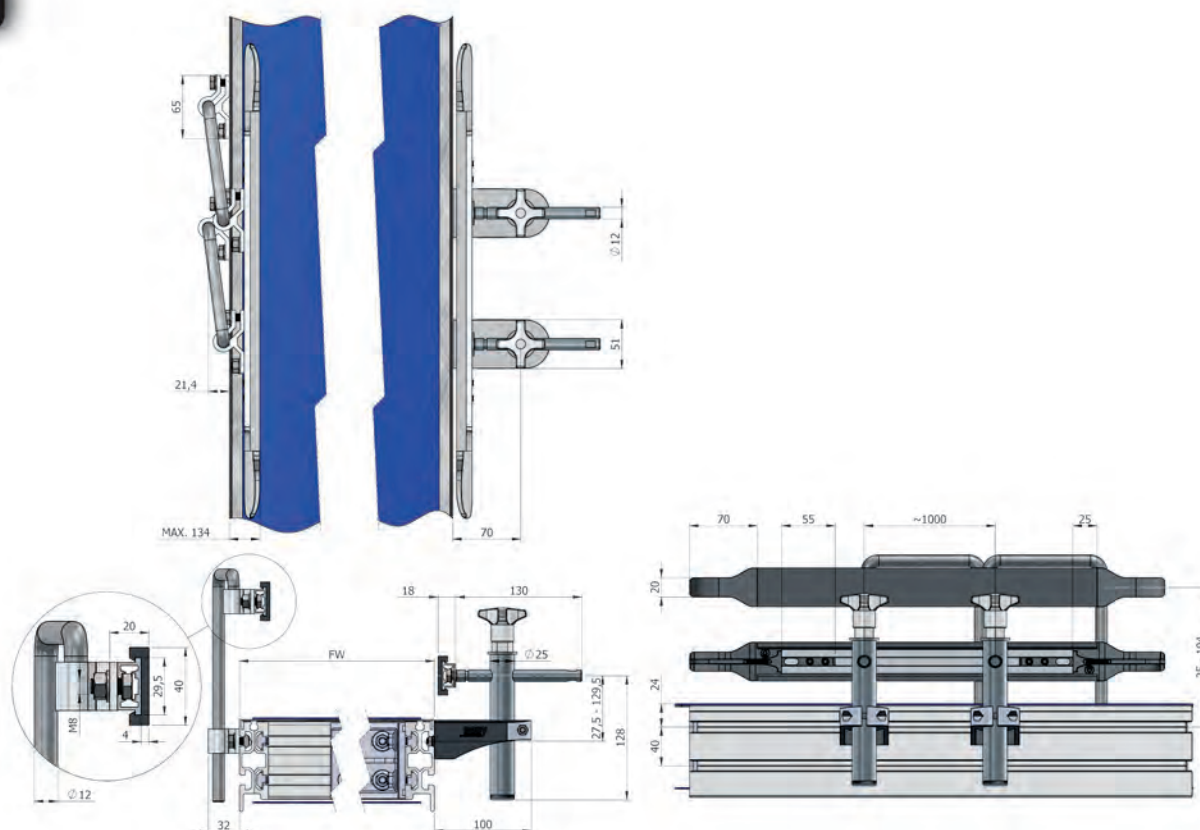
Art Nr. Pos 1	Material	
ETS040809010000	Side guiding short	PA FG 1 piece, incl. fasteners
Art Nr. Pos 2	Material	
ETS040809020000	Side guiding long	PA FG 1 piece, incl. fasteners
Art Nr. Pos 3	Material	
ETS040809000000	Side guide profile AL	AL 1 piece; L=5.6mtr
Art Nr. Pos 4	Material	
ECP040103000000	Side guiding cover	PE 1 piece; l=3mtr
Art Nr. Pos 5	Material	
ETS040809050000	Guide end 40	PA FG 1 set of pieces, incl. fasteners
Art Nr. Pos 6	Material	
ETS040809040000	Guide spacer	PA FG 10

More technical information: See engineering online www.easy-conveyors.com






Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- | | |
|---|-----------------------|
| 1 | Adjustable side guide |
| 2 | Adjustable side guide |
| 3 | Side guide profile |
| 4 | Side guide cover |
| 5 | Guide end |

Art Nr. Pos 1	Material
ETS040809030000 Side guide	PA FG + stainless steel, PA + edelstahl  1 piece, incl. fasteners PA Acier inoxyable, PA + acevo inoxidable
Art Nr. Pos 2	Material
ERA040409010000 Side guide	AL + steel galvanised, AL + stahl verzinkt  1 piece, incl. fasteners AL + Acier galvanisé, AL + Acero galvanizado
Art Nr. Pos 3	Material
ETS040809000000 Side guiding profile	AL  1 piece; L=5.6mtr
Art Nr. Pos 4	Material
ECP040103000000 Side guide cover	PE  1 piece; l=3mtr
Art Nr. Pos 5	Material
ETS040809050000 Guide end 40	PA FG  1 set of pieces, incl. fasteners

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Technical manual for the EBS conveyor systems

This technical manual has been developed to assist you with specific engineering information when a new conveyor is designed or an existing conveyor is going to be modified. Terms like TPM (Total Productive Maintenance) and SMED (Single Minute Exchange of Dies) are getting more and more important. With the right choice of belts and components you can design your conveyors to meet these principles. A large part of our program suits these principles. With this manual we intend to create some "CONVEYOR AWARENESS". As you will notice, most attention will be given to the construction details for the belts, because this is the 'moving part' in a conveyor and therefore more critical when it comes to construction details. We also emphasize on guides as together with the belts, these are in direct contact with the customer's product and therefore of utmost importance. The right choice of type, style of the side guides can make the difference between a medium and a high production efficiency of a filling line. For additional data and information about technical details of our products please refer to the component pages.

Contact us to contact your local Technical Support check our website www.easy-conveyors.com or send an email to: support@easy-conveyors.com We cannot take responsibility for imperfections, damage or injuries due to wrong conveyor design, poor installation or improper use of our products made with or without reference to the information in this manual. We appreciate your suggestions to improve this Engineering Manual.

EBS Formula

- The length of the belt conveyor (mm)
- The width of the belt conveyor (mm)
- Wanted speed (mtr/min)
- Product weight (Kg)
- Product length (mm) (in direction of transport)
- Product temperature (°C)
- Amount of products on the conveyor (pcs)
- Product to transport (bakery, food, plastic, cardboard, glass or metal)
- Incline or Decline (Yes/No) and Angle (°) (maximum is 30°)
- Environment (wet/dry)
- Start/Stop each hour (pcs/hr)
- Frequency controller (Yes or No)
- Accumulation (Yes or No)
- Amount of products to accumulate (pcs)
- Running hours per day
- Type of loading

FACTOR C₁

Smooth Drive pulley

Dry	2.1
Wet	Not a recommendation

Drive pulley with friction layer

Dry	1.5
Wet	2.1

Table 1

	Weight	Thickness	Max. admissible	Min Temp.	Max Temp.	Knife edge
BELT	(Kg/m ²)	(mm)	Pull (N/mm)(C ₂)	(°C)	(°C)	Yes/No
1M6 U0-V5 W	1,1	1,0	6	-10	60	No
2M8 U0-V-U0	1,5	1,5	16	-10	60	No
2MT5 U0-V3 N	2,0	1,8	12	-10	60	No
2M8 U0-V5 A	2,3	2,0	16	-10	60	No
2M8 U0-V5 BL	2,3	2,0	16	-10	60	No
2M8 U0-V5 W	2,3	2,0	16	-10	60	No
2M8 U0-V5 FM N	2,3	2,1	16	-10	60	No
2M5 U0-U0 HP A	1,0	1,0	12	-30	110	Yes
2M8 U0-U2 N HC	1,6	1,6	16	-20	100	Yes
2M5 U0-U2 W A	1,5	1,3	12	-20	100	Yes
2M5 U0-U2 HP VL BL A	1,4	1,3	12	-30	110	Yes
2M5 U0-U2 HP W S A	1,4	1,3	12	-30	110	Yes
2M5 U0-U2 A	1,4	1,2	12	-20	100	Yes
SILON 25 W	1,3	2,5	10	-20	120	No
SILON 25 HC	1,6	2,5	10	-20	120	No
2T12 U0-U-S2	1,3	1,4	24	-30	100	No
2MT8 S0-S0	1,1	1,2	16	-40	160	No
2MT8 S0-S2	1,3	1,3	16	-40	160	No
2FG12 S0-S3	1,5	1,1	24	-40	250	No

Table 2

FACTOR C₃

Smooth Drive pulley

Dry	80
Wet	Not a recommendation

Drive pulley with friction layer

Dry	30
Wet	50

Table 3

FACTOR C₄ Breakaway torque

0,09 kW	2,1
0,12 kW	2.4
0,18 kW	1,8
0,25 kW	1,8
0,37 kW	1,8
0,55 kW	2,1
0,75 kW	2,2
1,1 kW	2,0

Frequency controller	1,5
----------------------	-----

Table 4

	Pully Diameter	Arc of contact
BELT TYPE	(d _A)	(β)
40-D1	Ø45	180°
40-D2	Ø45	180°
40-I1	Ø65	195°
40-I2	Ø65	195°
40-M1	Ø65	205°
40-M2	Ø65	205°
40-M3	Ø65	205°
80-D1	Ø85	180°
80-I1	Ø85	180°
80-M1	Ø85	225°
ECDR 40	Ø81.5	190°
ECDR 80	Ø81.5	175°

Table 5

	Knife edge	FDA	Accumulation
BELT	Yes/No	Yes/No	Yes/No
1M6 U0-V5 W	No	No	No
2M8 U0-V-U0	No	Yes	Yes
2MT5 U0-V3 N	No	No	Yes
2M8 U0-V5 A	No	No	No
2M8 U0-V5 BL	No	Yes	No
2M8 U0-V5 W	No	Yes	No
2M8 U0-V5 FM N	No	No	No
2M5 U0-U0 HP A	Yes	Yes	Yes
2M8 U0-U2 N HC	Yes	No	Yes
2M5 U0-U2 W A	Yes	Yes	No
2M5 U0-U2 HP VL BL A	Yes	Yes	No
2M5 U0-U2 HP W S A	Yes	Yes	No
2M5 U0-U2 A	Yes	Yes	Yes
SILON 25 W	No	Yes	Yes
SILON 25 HC	No	No	Yes
2T12 U0-U-S2	No	Yes	No
2MT8 S0-S0	No	No	Yes
2MT8 S0-S2	No	Yes	No
2FG12 S0-S3	No	No	No

Table 6

	Product/	Belt/Top plate	Belt/Drive Pulley	Accumulation
FRICTION COEFFICIENT	Belt	(μ _T)	(μ _R)	(μ _{ST})
1M6 U0-V5 W	MF	0.2	0.3	0.33
2M8 U0-V-U0	LF	0.2	0.3	0.33
2MT5 U0-V3 N	LF	0.2	0.3	0.33
2M8 U0-V5 A	MF	0.2	0.3	0.33
2M8 U0-V5 BL	MF	0.2	0.3	0.33
2M8 U0-V5 W	MF	0.2	0.3	0.33
2M8 U0-V5 FM N	HF	0.2	0.3	0.33
2M5 U0-U0 HP A	LF	0.2	0.3	0.33
2M8 U0-U2 N HC	LF	0.2	0.3	0.33
2M5 U0-U2 W A	MF	0.2	0.3	0.33
2M5 U0-U2 HP VL BL A	MF	0.2	0.3	0.33
2M5 U0-U2 HP W S A	HF	0.2	0.3	0.33
2M5 U0-U2 A	LF	0.2	0.3	0.33
SILON 25 W	LF	0.2	0.3	0.5
SILON 25 HC	LF	0.2	0.3	0.5
2T12 U0-U-S2	HF	0.2	0.3	0.5
2MT8 S0-S0	LF	0.3	0.5	0.5
2MT8 S0-S2	HF	0.3	0.5	0.5
2FG12 S0-S3	HF	0.3	0.5	0.5

Table 7

Weight of roles (kg) (without drive pully)									
BELT TYPE	100	200	300	400	500	600	800	1000	1200
40-D1	0,48144	0,90116	1,32570	1,75024	2,17821	2,60347			
40-D2	0,11900	0,24561	0,37221	0,49882	0,62735				
40-I1	0,69347	1,21889	1,74914	2,27938	2,81305	3,34402			
40-I2	0,33103	0,56334	0,79565	1,02796	1,26219				
40-M1	2,55286	3,97618	5,40914	6,8421	8,28192	9,71632			
40-M2	1,82798	2,66508	3,50216	4,33926	5,1802				
40-M3	2,19042	3,32063	4,45565	5,59068	6,73106				
80-D1		2,15797		3,90237		5,684	7,4403	9,21423	10,9742
80-I1		2,15797		3,90237		5,684	7,4403	9,21423	10,9742
80-M1		6,4898		11,1464		15,8774	20,5578	25,27336	29,96098
ECDR 40		0,90116	1,32570	1,75024	2,17821	2,60347			
ECDR 80		2,15797		3,90237		5,684	7,4403		

Table 8

MOTOR SELECTION

EBS Straight

$$F_U = \mu_T * g * \left(\frac{m + m_B}{2} \right) + \mu_R * g * \left(\frac{m_B + m_R}{2} \right)$$

EBS Incline/Decline

$$F_U = \mu_T * g * \left(\frac{m + m_B}{2} \right) + \mu_R * g * \left(\frac{m_B + m_R}{2} \right) + g * m * \sin \alpha$$

EBS Accumulation (which is only possible with low friction belt and without incline or decline)

$$F_U = \mu_T * g * \left(\frac{m + m_B}{2} \right) + \mu_R * g * \left(\frac{m_B + m_R}{2} \right) + \mu_{ST} * g * m$$

$$F_1 = F_U * C_1$$

$$\frac{F_1}{b_0} \leq C_2$$

$$d_A = \frac{F_U * C_3 * 180^\circ}{b_0 * \beta}$$

$$M_N = \frac{F_U * (d_A / 2) + \text{Belt thickness}}{1000}$$

$$M_H = M_N * C_4$$

$$F_S = F_S^1 * F_S^2$$

$$RPM = \frac{\nu * 60}{\left(\frac{d_A}{2} + \text{Belt thickness} \right) * 2 * \pi}$$

$$P_A = \frac{P_M}{F_S} * \eta \quad \text{or} \quad P_A = \frac{F_U * \nu}{1000}$$

$$P_M = \frac{P_A}{\eta}$$

$$M_T = \frac{P_A * 9550}{RPM} * \eta$$

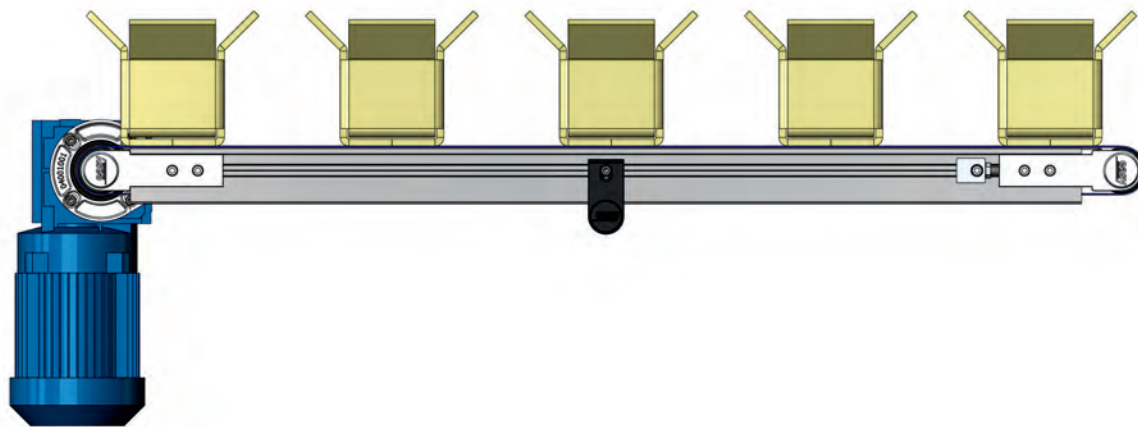
LIST OF APPLIED ABBREVIATIONS

F_1	=	Maximum Tensile force (at the drive pulley) (N)
F_S	=	Service Factor
F_U	=	Total capacitance (N)
b_0	=	Belt wide (mm)
d_A	=	Drive pulley diameter (mm)
β	=	arc of contact around the drive pulley (°)
g	=	9,81 (m/s²)
m	=	Total product mass (Kg)
M_B	=	Mass of the belt (Kg)
M_R	=	Mass of the rolls (Kg)
μ_R	=	Friction coefficient Belt/Pulley
μ_{ST}	=	Friction coefficient accumulation
μ_T	=	Friction coefficient Belt/Top plate
ν	=	Belt speed (m/s)
M_N	=	Nominal Torque (Nm)
M_H	=	Run-up Torque (Nm)
M_T	=	Motor Torque
P_A	=	Mechanical Drive Power (kW)
P_M	=	Motor Power (kW)
η	=	Efficiency
A_z	=	Amount of Accumulation
α	=	Angle for Incline or Decline (°)
R_H	=	Running hours / day
S_S	=	Start/Stops /hr
U_L	=	Uniform Load
V_L	=	Variable Load
S_L	=	Shock Load

Table 12

Example 1: Calculation EBS Straight

Conveyor system	: 40D1	Products on the system	: 20 pieces
Conveyor Length	: 5600mm	Product material	: cardboard
Conveyor width	: 200mm	Incline or Decline	: No
Belt width	: 172mm	Environment	: Dry
Belt material	: 2M8 U0-V-U0	Start/Stop	: 5/h
Wanted speed	: 20 mtr/min	Frequency controller	: Yes
Product weight	: 7 kg	Accumulation	: No
Product Length	: 200mm	Running hours per day	: 8 hr
Product Temperature	: 40°C	Type of loading	: Uniform Load



ν	= 0,33m/s	C_4	= 1,5
μ_R	= 0.3	d_A	= Ø45mm
μ_{ST}	= 0.33	m	= 140 Kg (20*7Kg)
μ_T	= 0.2	m_B	= 2,9154 Kg (11,3*0,172*1,5)
b_0	= 172mm	m_R	= 0,90116 Kg
C_1	= 2.1	β	= 180°
C_3	= 80		

EBS STRAIGHT

Total capacity

$$F_u = \mu_T * g * (m + \frac{m_B}{2}) + \mu_R * g * (\frac{m_B}{2} + m_R)$$

$$F_u = 0,2 * 9,81 * (140 + \frac{2,9154}{2}) + 0,3 * 9,81 * (\frac{2,9154}{2} + 0,90116)$$

$$F_u = 284,5 \text{ N}$$

Maximum Tensile force:

$$F_1 = F_u * C_1$$

$$F_1 = 284,5 * 2.1$$

$$F_1 = 597,5 \text{ N}$$

Control C_2 :

$$\frac{F_1}{b_0} \leq C_2$$

$$b_0$$

$$C_2 = \frac{597,5}{180}$$

$$C_2 = 3,32 \text{ N/mm} \quad 16 \text{ N/mm for 2M8 U0-V-U0}$$

Control F_{Umax} :

$$d_A = \frac{F_{Umax} * C_3 * 180^\circ}{b_0 * \beta}$$

$$45 = \frac{F_{Umax} * 80 * 180^\circ}{180 * 180^\circ}$$

$$45 = \frac{F_{Umax} * 14.400}{32.400}$$

$$F_{Umax} = \frac{1.458.000}{14.400}$$

$$F_{Umax} = 101 \text{ N}$$

$$F_u = 284,5 \text{ N}$$

System is Overload choose another type of conveyor

! The following formulas and values are no longer needed. There are only shown as an example.

Nominal Torque

$$M_N = \frac{F_u * (d_A / 2) + \text{Belt thickness}}{1000}$$

$$M_N = \frac{284,5 * (45 / 2) + 2,1}{1000}$$

$$M_N = 7,00 \text{ Nm}$$

Run-up Torque:

$$M_H = M_N * C_4$$

$$M_H = 7,00 * 1,5$$

$$M_H = 10,50 \text{ Nm}$$

$$P_A = \frac{F_u * \nu}{1000}$$

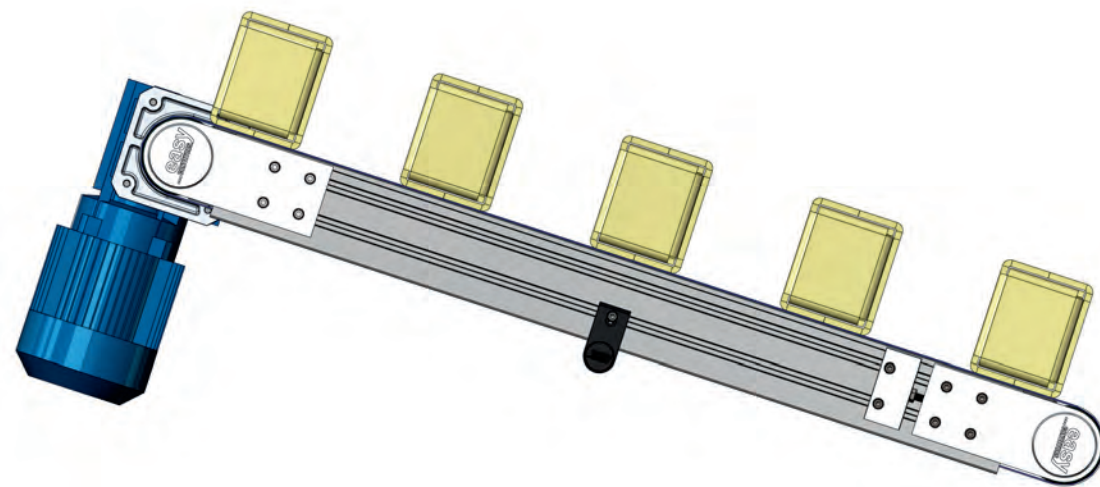
$$P_A = \frac{284,5 * 0,33}{1000}$$

$$P_A = 0.094 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW] chose, the next larger standard motor}$$

Example 2: Calculation EBS Incline

Conveyor system	: 80D1	Products on the system	: 5 pieces
Conveyor Length	: 5600mm	Product material	: Metal
Conveyor width	: 600mm	Incline	: 30°
Belt width	: 560mm	Environment	: Wet
Belt material	: 2M8 U0-V5 FM N	Start/Stop	: 20/h
Wanted speed	: 20 mtr/min	Frequency controller	: Yes
Product weight	: 16 kg	Accumulation	: No
Product Length	: 600mm	Running hours per day	: 16 hr
Product Temperature	: 5°C	Type of loading	: Uniform Load



ν	= 0,33m/s	C_4	= 1,5
μ_R	= 0.3	d_A	= Ø85mm
μ_{ST}	= 0.33	m	= 80 Kg (8*10Kg)
μ_T	= 0.2	m_B	= 14,77 Kg (11,467*0,56*2,3)
b_0	= 580mm	m_R	= 5,684 Kg
C_1	= 2.1	β	= 180°
C_3	= 50		

EBS Incline/Decline**Total capacitance**

$$F_U = \mu_T * g * \left(\frac{m + m_B}{2} \right) + \mu_R * g * \left(\frac{m_B + m_R}{2} \right) + g * m * \sin \alpha$$

$$F_U = 0,2 * 9,81 * \left(\frac{80 + 14,77}{2} \right) + 0,3 * 9,81 * \left(\frac{14,77 + 5,684}{2} \right) + 9,81 * 80 * \sin 30^\circ$$

$$F_U = 602,3 \text{ N}$$

Maximum Tensile force:

$$F_1 = F_U * C_1$$

$$F_1 = 602,3 * 2.1$$

$$F_1 = 1264,75 \text{ N}$$

Control C_2 :

$$\frac{F_1}{b_0} \leq C_2$$

$$C_2 = \frac{1264,75}{560}$$

$$C_2 = 2,26 \text{ N/mm} \leq 16 \text{ N/mm for 2M8 U0-V-U0}$$

Control F_{Umax} :

$$d_A = \frac{F_{Umax} * C_3 * 180^\circ}{b_0 * \beta}$$

$$85 = \frac{F_{Umax} * 50 * 180^\circ}{560 * 180^\circ}$$

$$85 = \frac{F_{Umax} * 9.000}{100.800}$$

$$F_{Umax} = \frac{8.568.000}{9.000}$$

$$F_{Umax} = 952 \text{ N}$$

System is OK

$$F_U = 602,3 \text{ N}$$

Nominal Torque

$$M_N = \frac{F_U * \left(\frac{d_A}{2} \right) + \text{Belt thickness}}{1000}$$

$$M_N = \frac{602,3 * \left(\frac{85}{2} \right) + 2,1}{1000}$$

$$M_N = 26,68 \text{ Nm}$$

Run-up Torque:

$$M_H = M_N * C_4$$

$$M_H = 26,68 * 1,5$$

$$M_H = 40,30 \text{ Nm}$$

$$P_A = \frac{F_U * \nu}{1000}$$

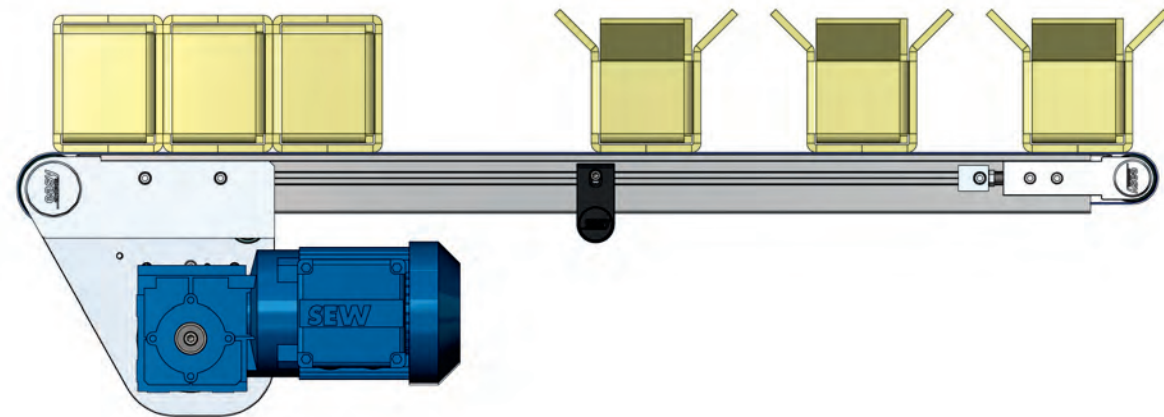
$$P_A = \frac{602,3 * 0,33}{1000}$$

$$P_A = 0.20 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW] chose, the next larger standard motor}$$

Example 3: Calculation EBS Accumulation

Conveyor system	: 4011	Products on the system	: 5 pieces
Conveyor Length	: 2500mm	Product material	: Bakery
Conveyor width	: 400mm	Environment	: Dry
Belt width	: 370mm	Start/Stop	: 120/hr
Belt material	: Silon 25 W	Frequency controller	: Yes
Speed	: 15 mtr/min	Accumulation	: Yes
Product weight	: 2,5 kg	Amount of products to accumulate: 3 pieces	
Product Length	: 200mm	Running hours per day	: 24 hr
Product Temperature	: 20°C	Type of loading	: Shock load



ν	= 0,25m/s	C_4	= 1,5
μ_R	= 0.3	d_A	= Ø65mm
μ_{ST}	= 0.5	m	= 12,5 Kg (5*2,5Kg)
μ_T	= 0.2	m_B	= 2,49 Kg (5,174*0,37*1,3)
b_0	= 370mm	m_R	= 2,28 Kg
C_1	= 2.1	β	= 195°
C_3	= 50		

EBS Accumulation (which is only possible with low friction belt and without incline or decline)**Total capacitance**

$$F_U = \mu_T * g * \left(\frac{m}{2} + \frac{m_B}{2} \right) + \mu_R * g * \left(\frac{m_B}{2} + \frac{m_R}{2} \right) + \mu_R * g * m$$

$$F_U = 0,2 * 9,81 * \left(\frac{12,5 + 2,497}{2} \right) + 0,3 * 9,81 * \left(\frac{2,53 + 2,28}{2} \right) + 0,5 * 9,81 * 7,5$$

$$F_U = 74,2 \text{ N}$$

Maximum Tensile force:

$$F_1 = F_U * C_1$$

$$F_1 = 74,2 * 1.5$$

$$F_1 = 111,3 \text{ N}$$

Control C_2 :

$$\frac{F_1}{b_0} \leq C_2$$

$$b_0$$

$$C_2 = \frac{111,3}{370}$$

$$C_2 = 0,30 \text{ N/mm} \leq 10 \text{ N/mm for Silon 25 W}$$

Control F_{Umax} :

$$d_A = \frac{F_{Umax} * C_3 * 180^\circ}{b_0 * \beta}$$

$$65 = \frac{F_{Umax} * 80 * 180^\circ}{370 * 195^\circ}$$

$$65 = \frac{F_{Umax} * 14.400}{72.150}$$

$$F_{Umax} = \frac{4.689.750}{14.400}$$

$$F_{Umax} = 326 \text{ N}$$

System is OK

$$F_U = 111,3 \text{ N}$$

Nominal Torque

$$M_N = \frac{F_U * (d_A / 2) + \text{Belt thickness}}{1000}$$

$$M_N = \frac{111,3 * (65 / 2) + 2,5}{1000}$$

$$M_N = 3,9 \text{ Nm}$$

Run-up Torque:

$$M_H = M_N * C_4$$

$$M_H = 3,9 * 1,5$$

$$M_H = 5,85 \text{ Nm}$$

$$P_A = \frac{F_U * \nu}{1000}$$

$$P_A = \frac{74,2 * 0,25}{1000}$$

$$P_A = 0.02 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW] chose, the next larger standard motor}$$

Conclusion

You can see above that the motor and also the conveyor system are selected because of the input. Also you can see that some values cause a certain overload situation for the system, motor or both.

There are a few options to prevent an overload.

- Lower the speed
- Lower the amount of product on the conveyor
- Less Start/Stops
- Less Accumulation
- Change type of loading
- Shorten the conveyor
- Choose another conveyor system
- Less running hours per day.
- Choose another transport system. (roller conveyor, mattop conveyor or tabletop conveyor)



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0.8

0.05

R1

1°

1°

0.05

8 x Ø 5 THRU ALL

M6 - 6H THRU ALL

✓ Ø 6.05 X 90°, Near Side

✓ Ø 7 X 90°, Far Side



STC. Ø 83 (varvel)

STC. Ø 80 (nord)

STC. Ø 75 (motovario)

STC. Ø 70 (SEW WA20)

4x Ø 6,5





ETS
SYSTEM

Table Top Conveyor
Kettenförderer
Conveyeur de table
Transportador de charnelas

ETS HEAD DRIVE

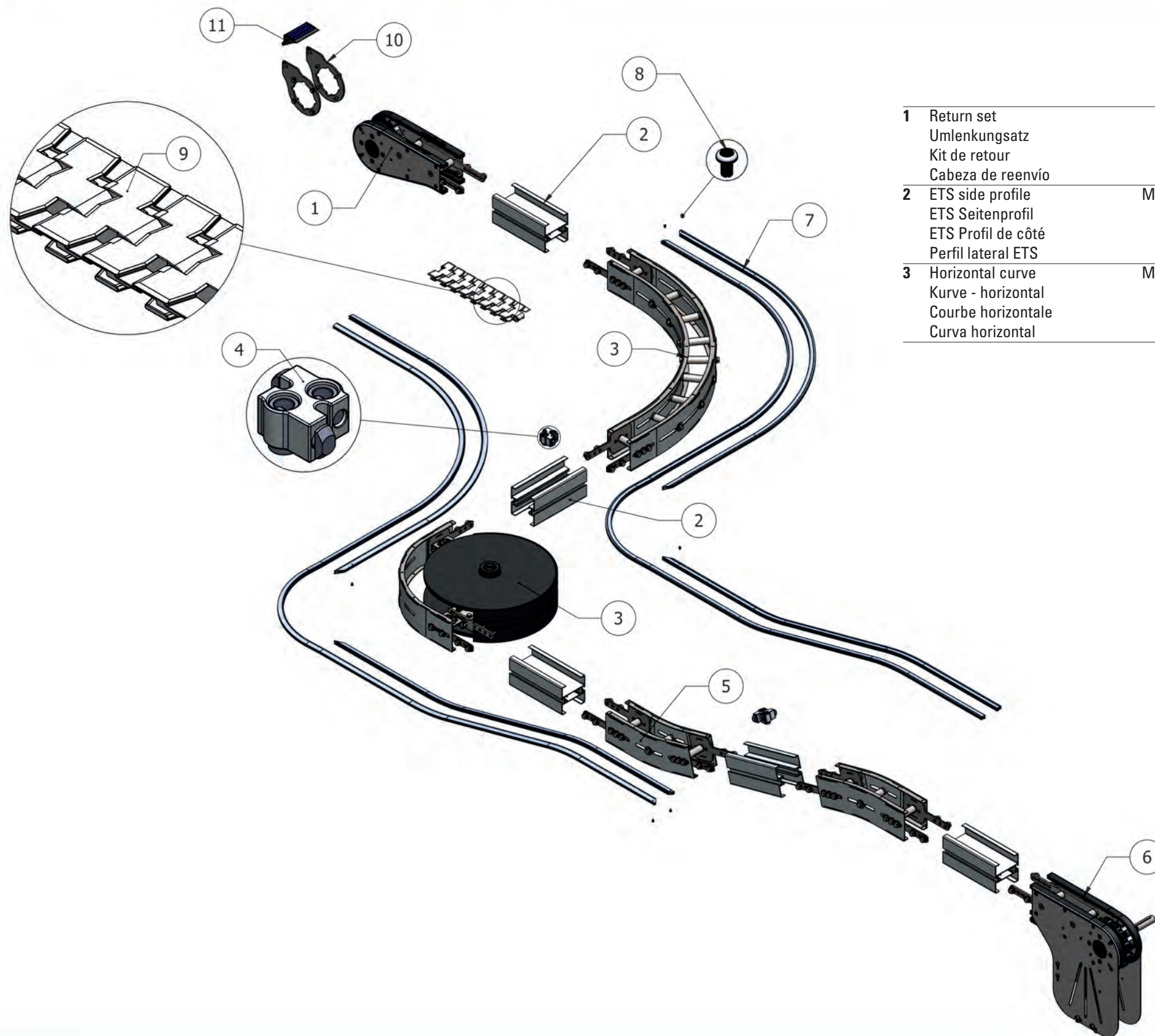
ALUMINIUM



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ETS HEAD DRIVE



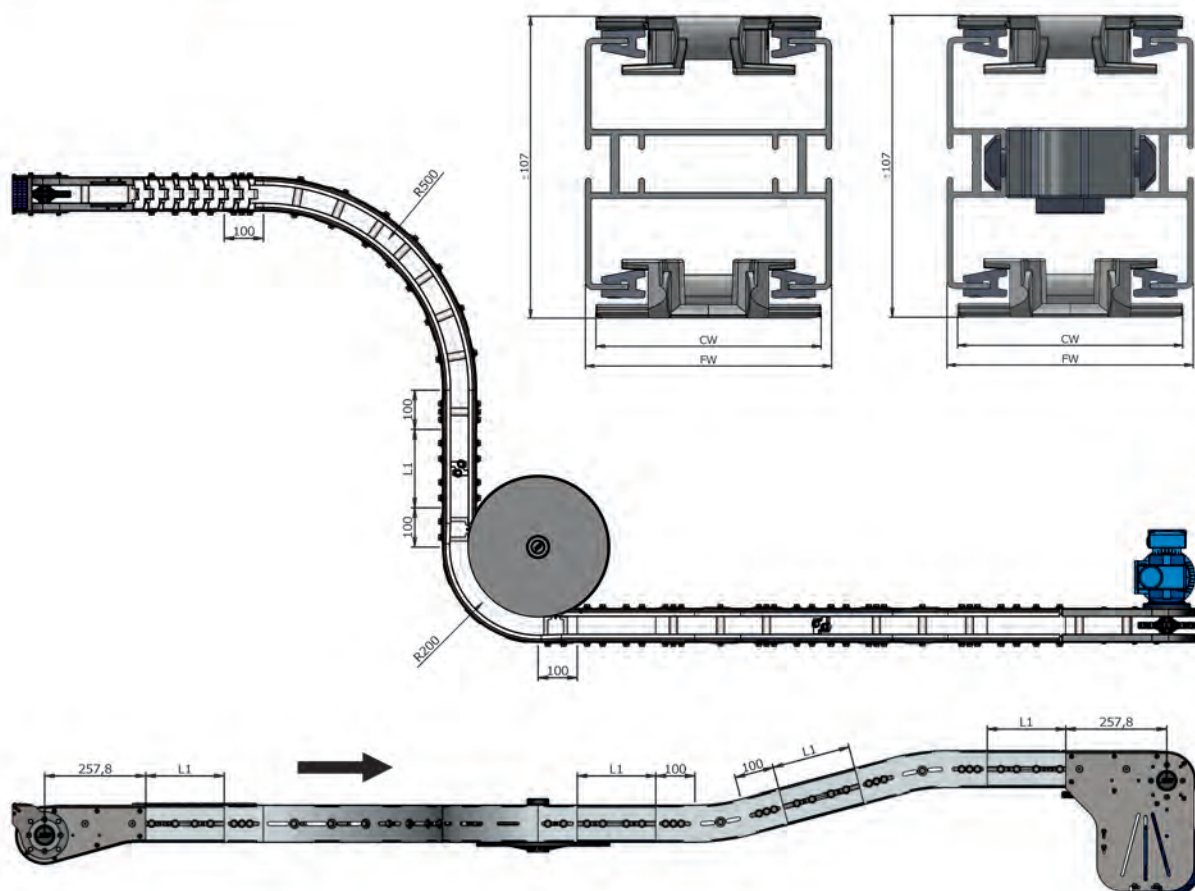
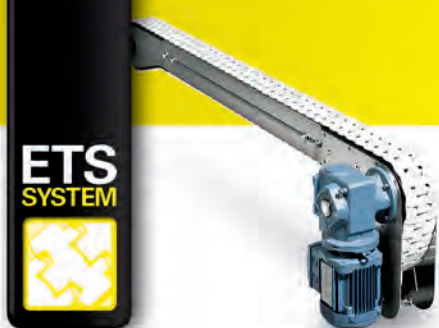
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L =	Max. total +/- 30 mtr. 98.42 Foot		
	Longer on request		
L1 =	Min. 200 mm 7,87" inch		
FW =	87,5	147,5	207,5 mm
	3,44"	5,80"	8,17" inch
CW =	80	140	200 mm
	3,14"	5,51"	7,87" inch
V ≈	Max. 45 mtr./min 148 Foot/min		
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			141 Nm
Breaking load, Bruchlast, Charge de rupture, Carga de rotura			3000N (dynamic)
Support legs, Stützen, Supports, Patas de apoyo			Module page 208-215/224-225
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral			Module page 226-229

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ETS
SYSTEM

Table Top Conveyor
Kettenförderer
Conveyeur de table
Transportador de charnelas

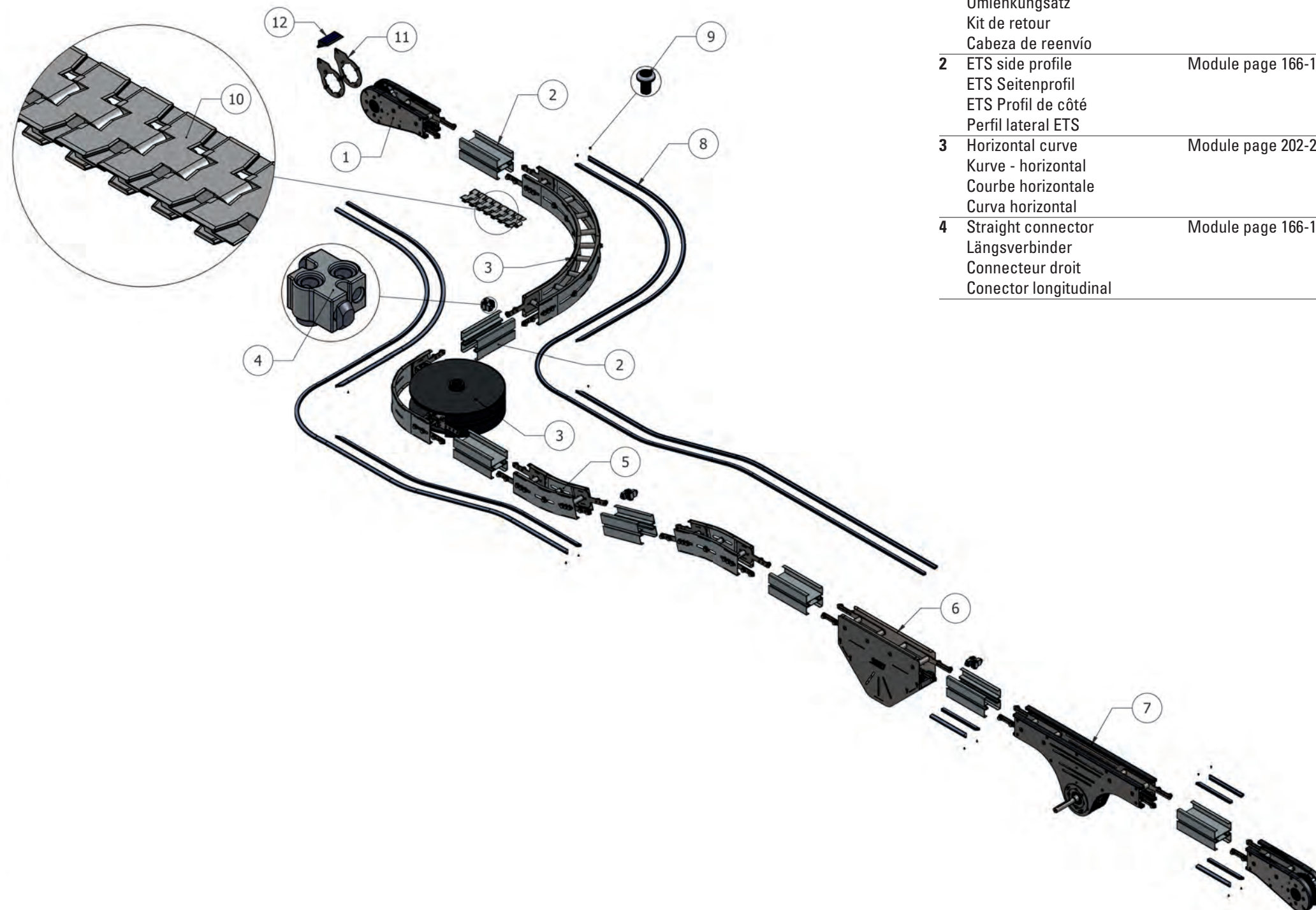
ETS CENTER DRIVE

ALUMINIUM



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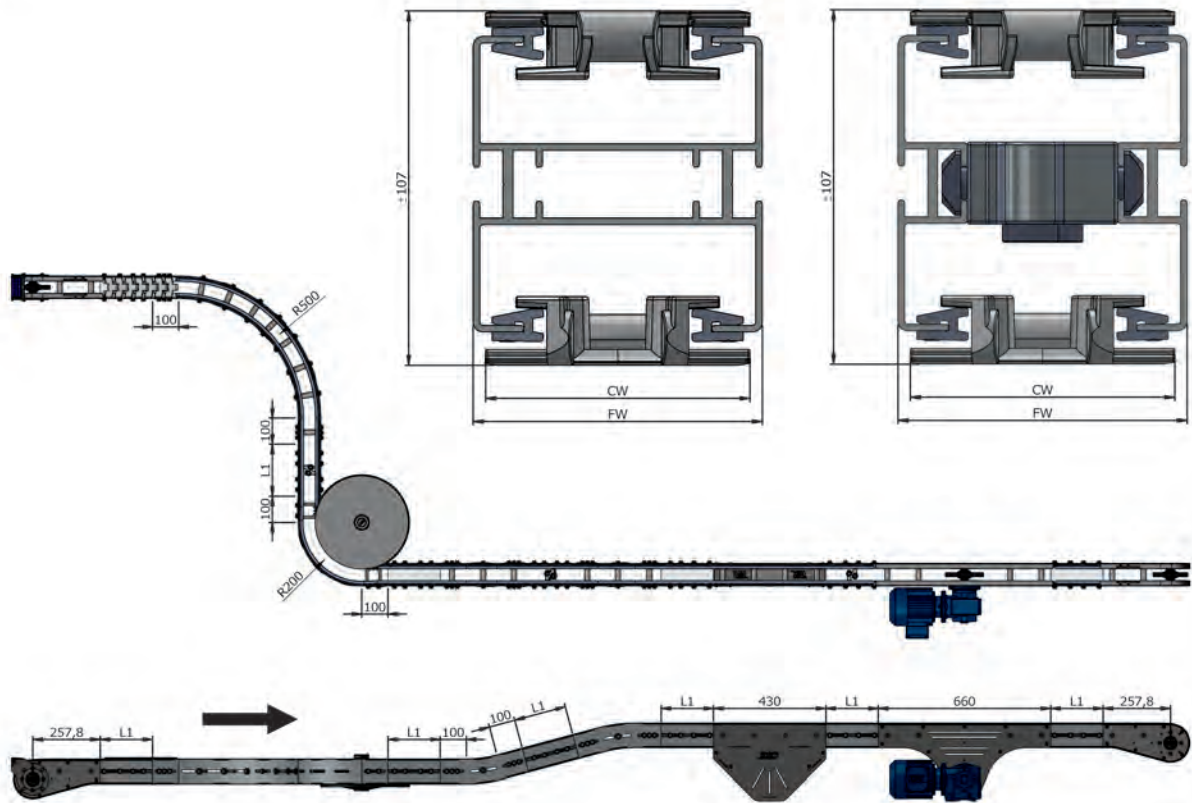


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ETS
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Transportador de charnelas

ETS CONNECTION DRIVE

ALUMINIUM

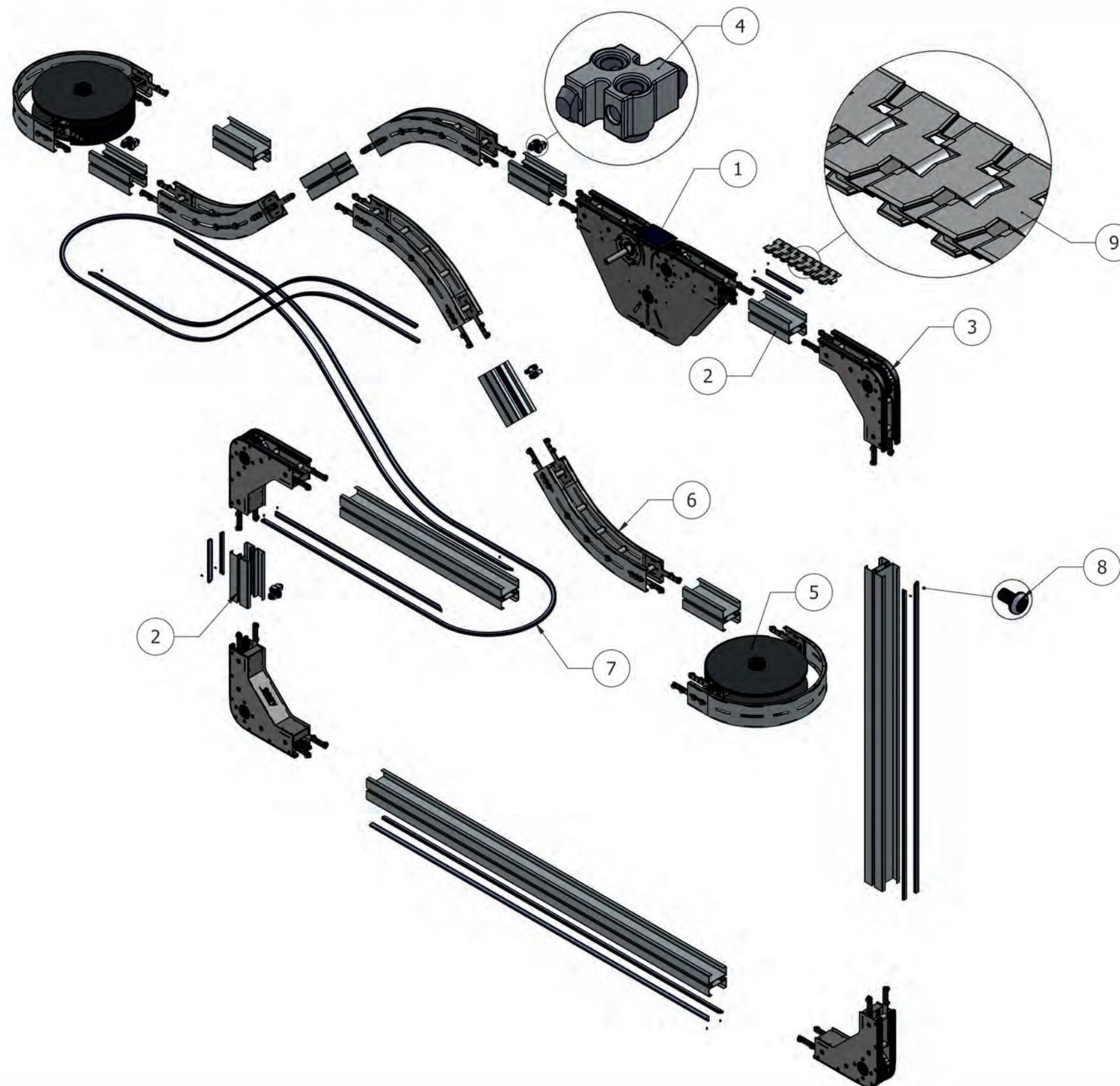


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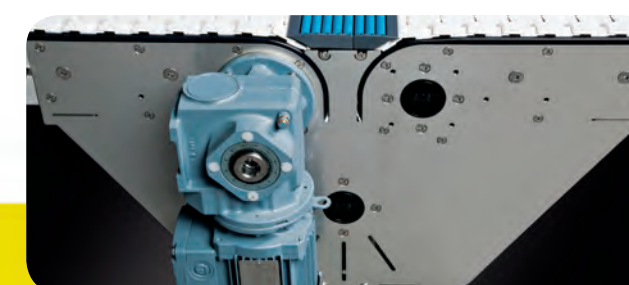
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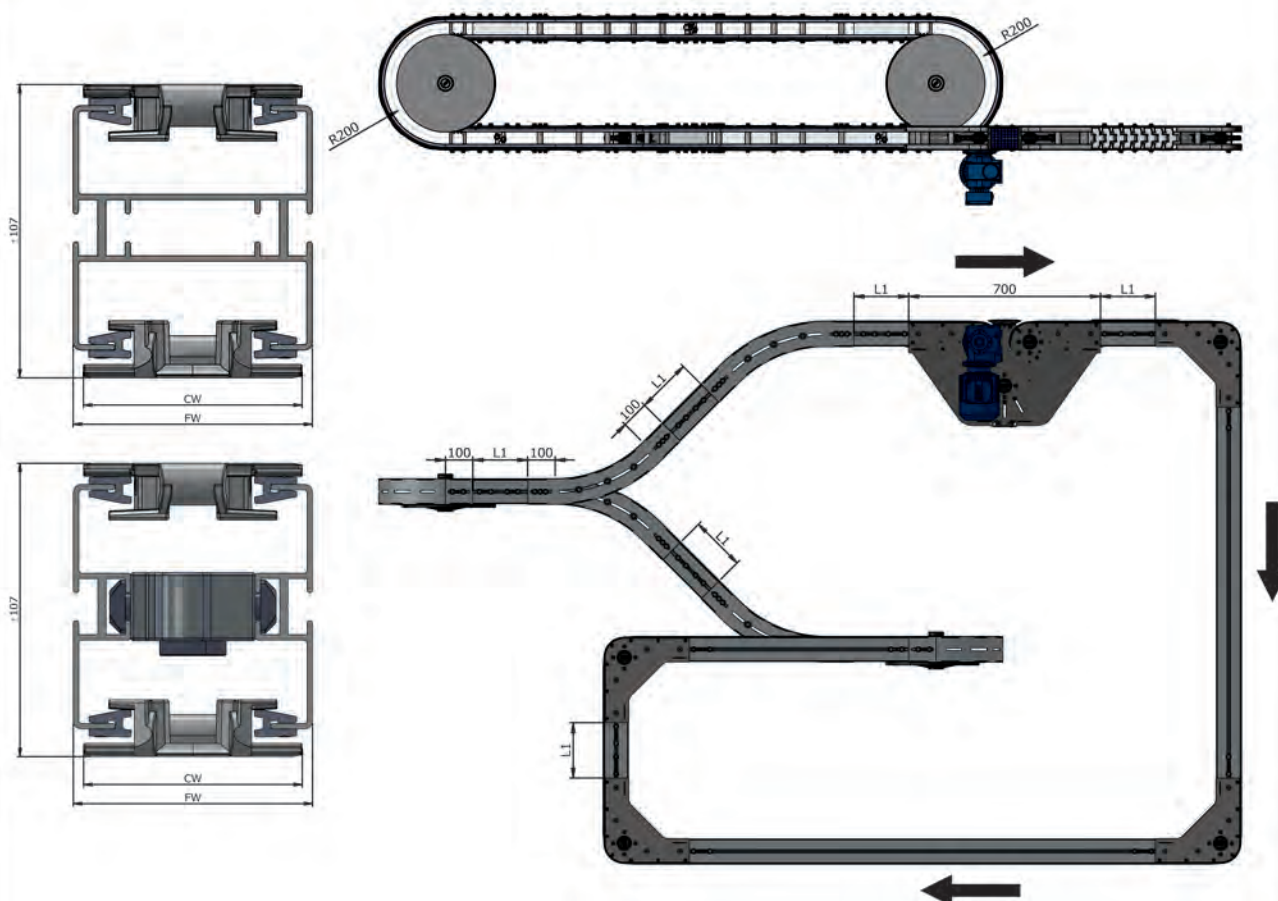
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L =	Max. total +/- 60 mtr. 196.85 Foot Longer on request		
L1 =	Min. 200 mm 7,87" inch		
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Breaking load, Bruchlast, Charge de rupture, Carga de rotura			3000N (dynamic)
Support legs, Stützen, Supports, Patas de apoyo			Module page 208-215/224-225
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral			Module page 226-229

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



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Table Top Conveyor
Kettenförderer
Conveyeur de table
Transportador de charnelas

ETS HEAD DRIVE

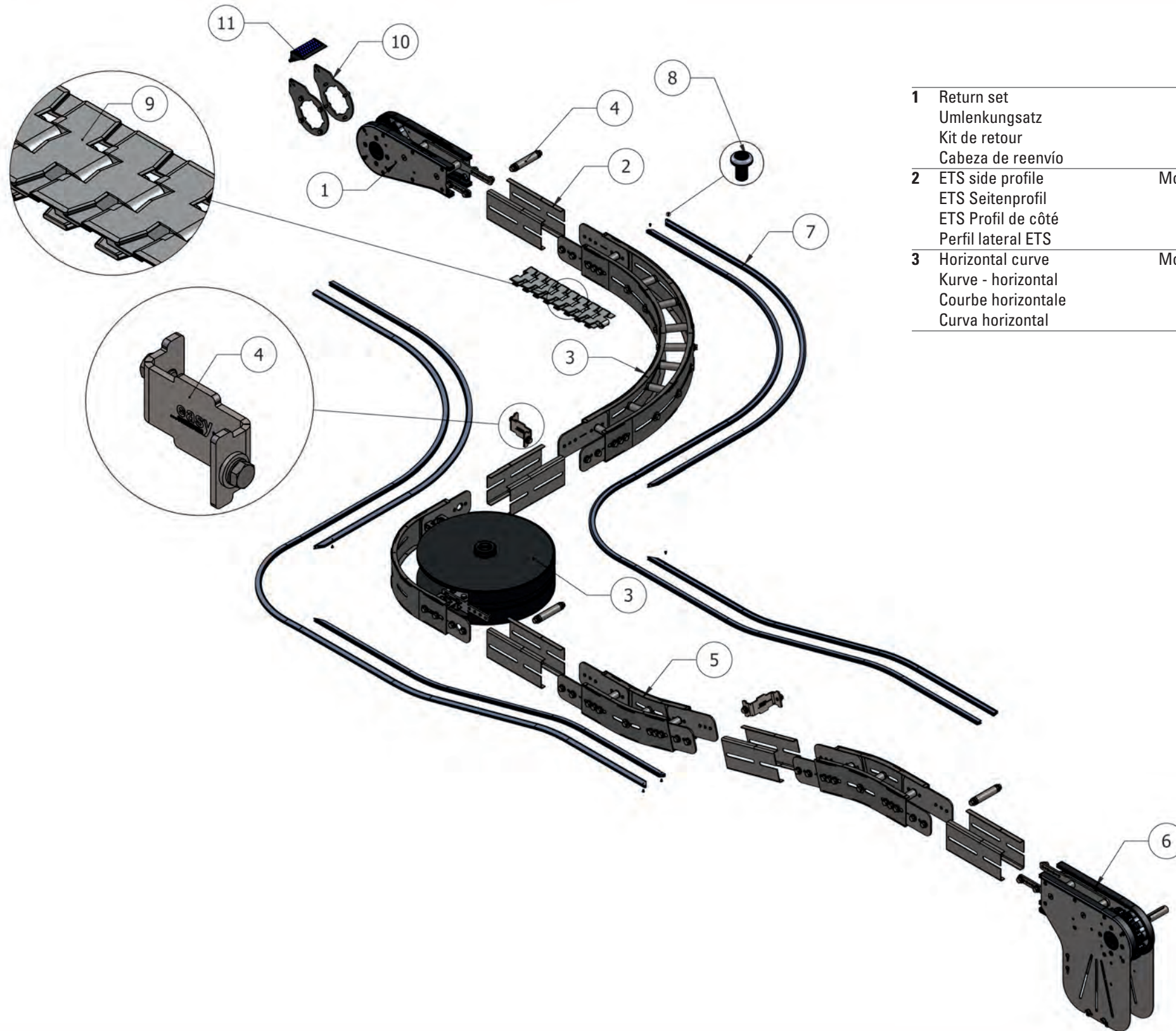
STAINLESS STEEL



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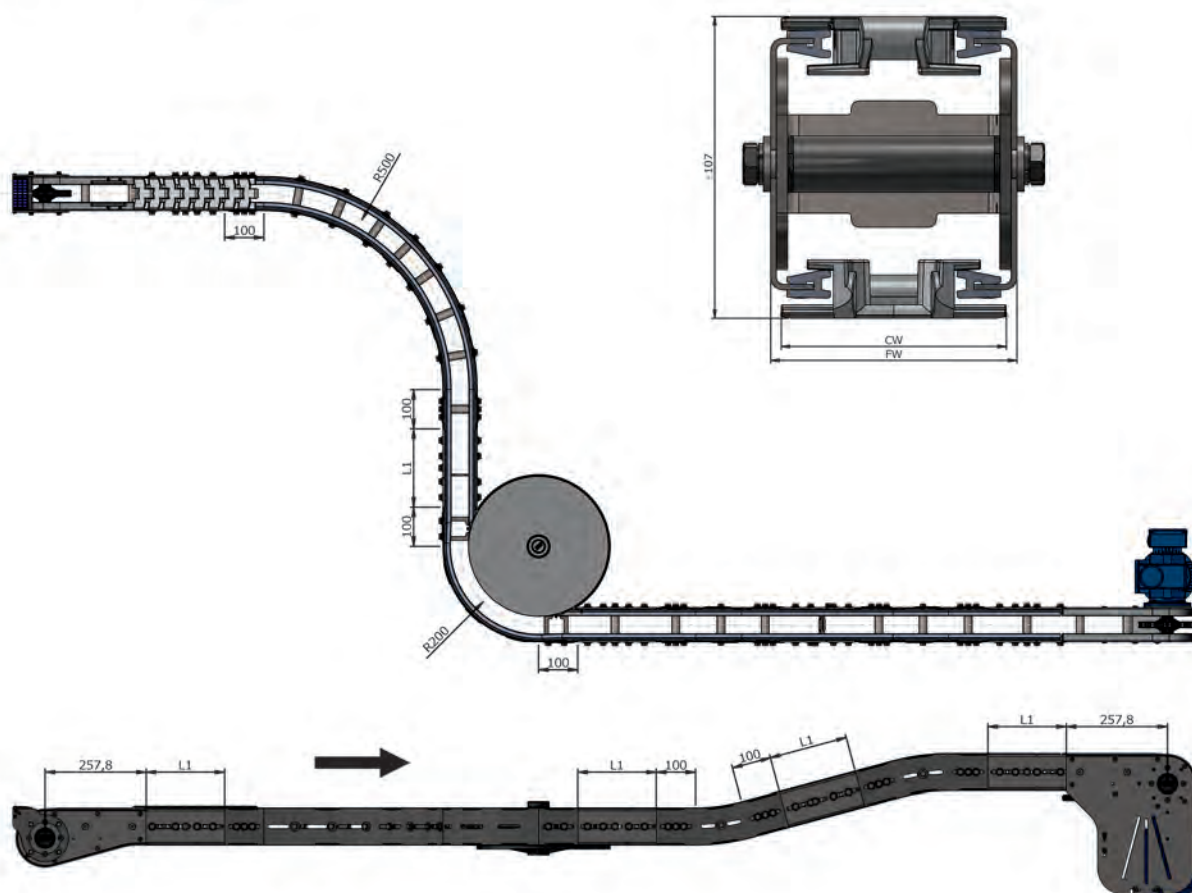
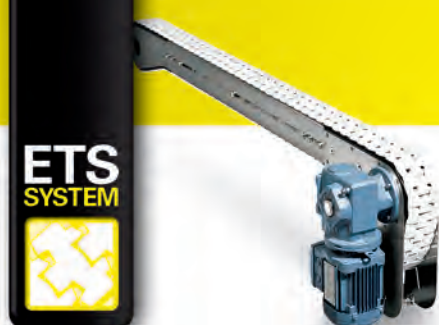
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Breaking load, Bruchlast, Charge de rupture, Carga de rotura			3000N (dynamic)
Support legs, Stützen, Supports, Patas de apoyo			Module page 216-221
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral			Module page 230-233

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ETS
SYSTEM

Table Top Conveyor
Kettenförderer
Conveyeur de table
Transportador de charnelas

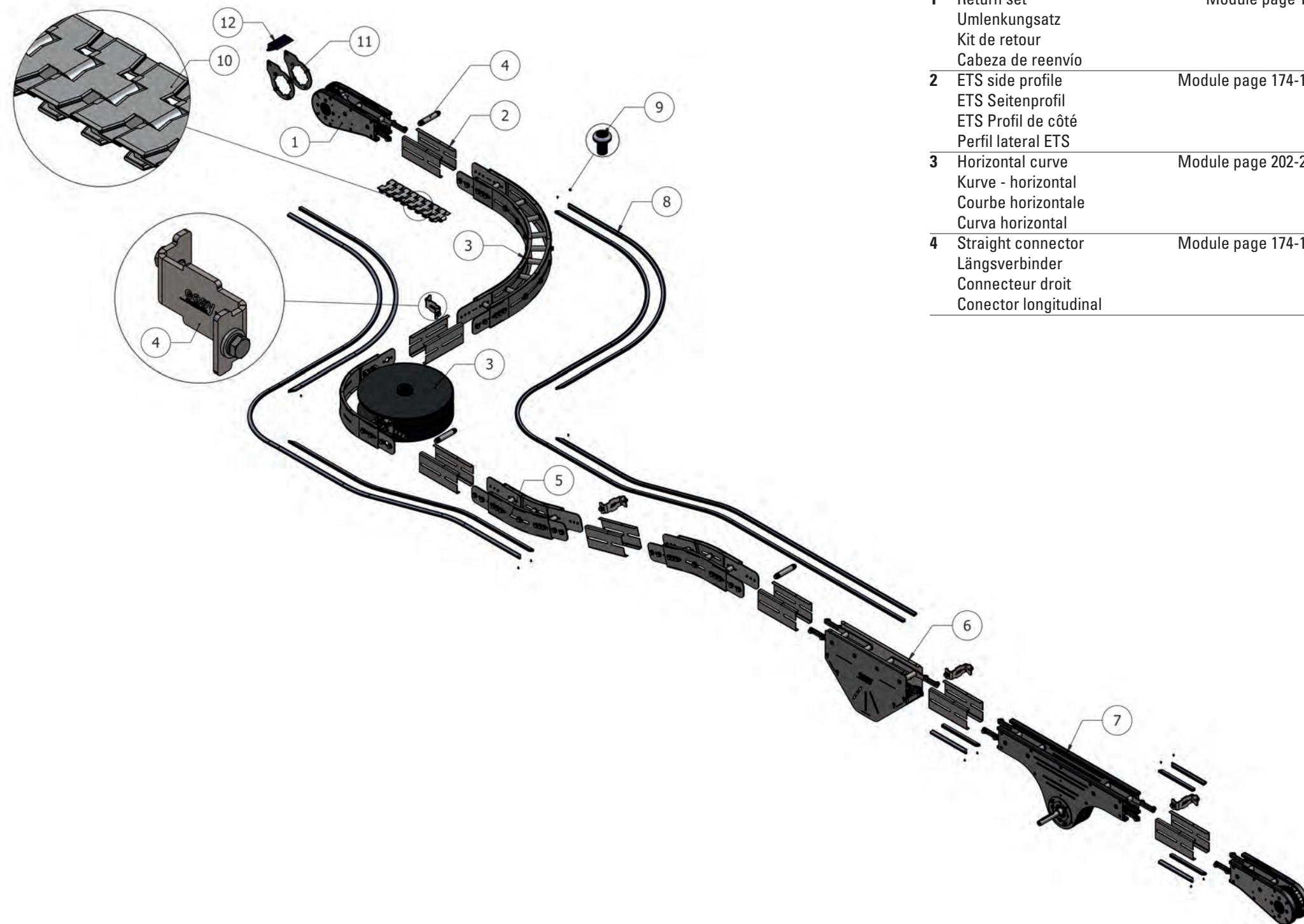
ETS CENTER DRIVE

STAINLESS STEEL



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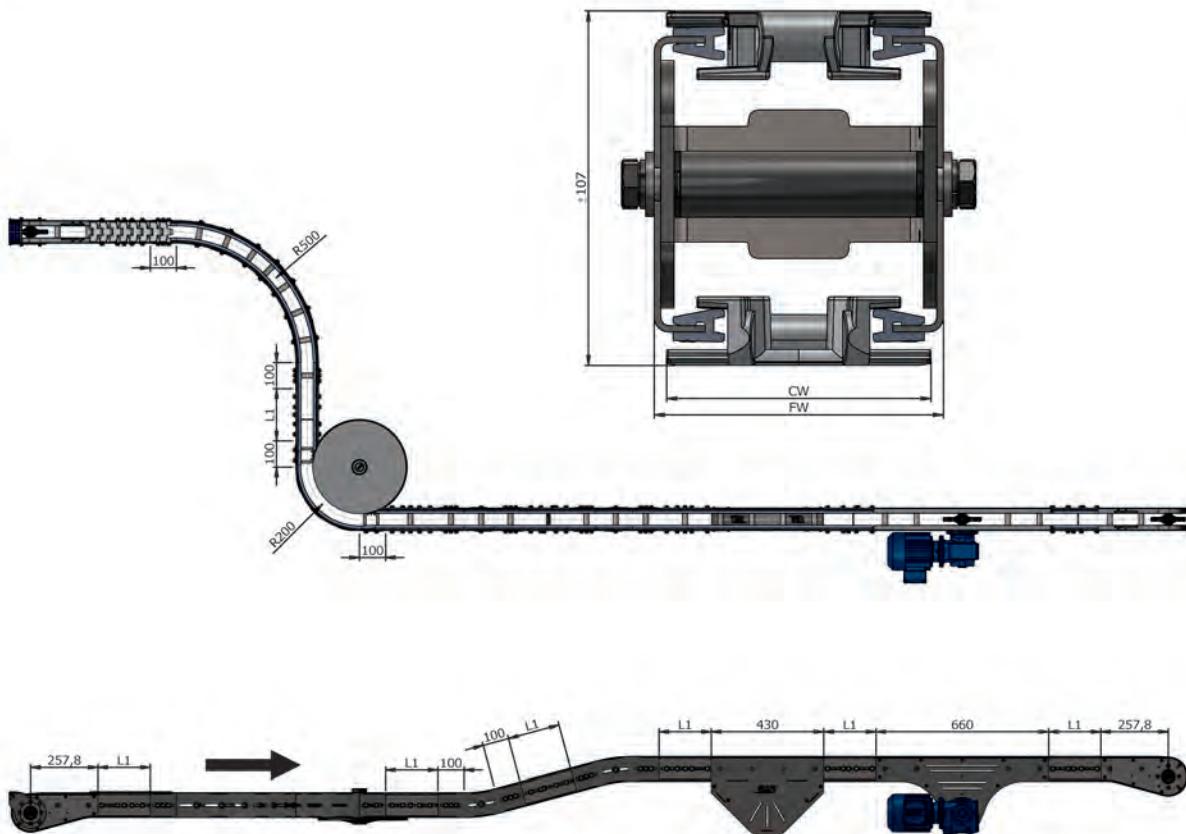
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Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



ETS
SYSTEM

Table Top Conveyor
Kettenförderer
Conveyeur de table
Transportador de charnelas

ETS CONNECTION DRIVE

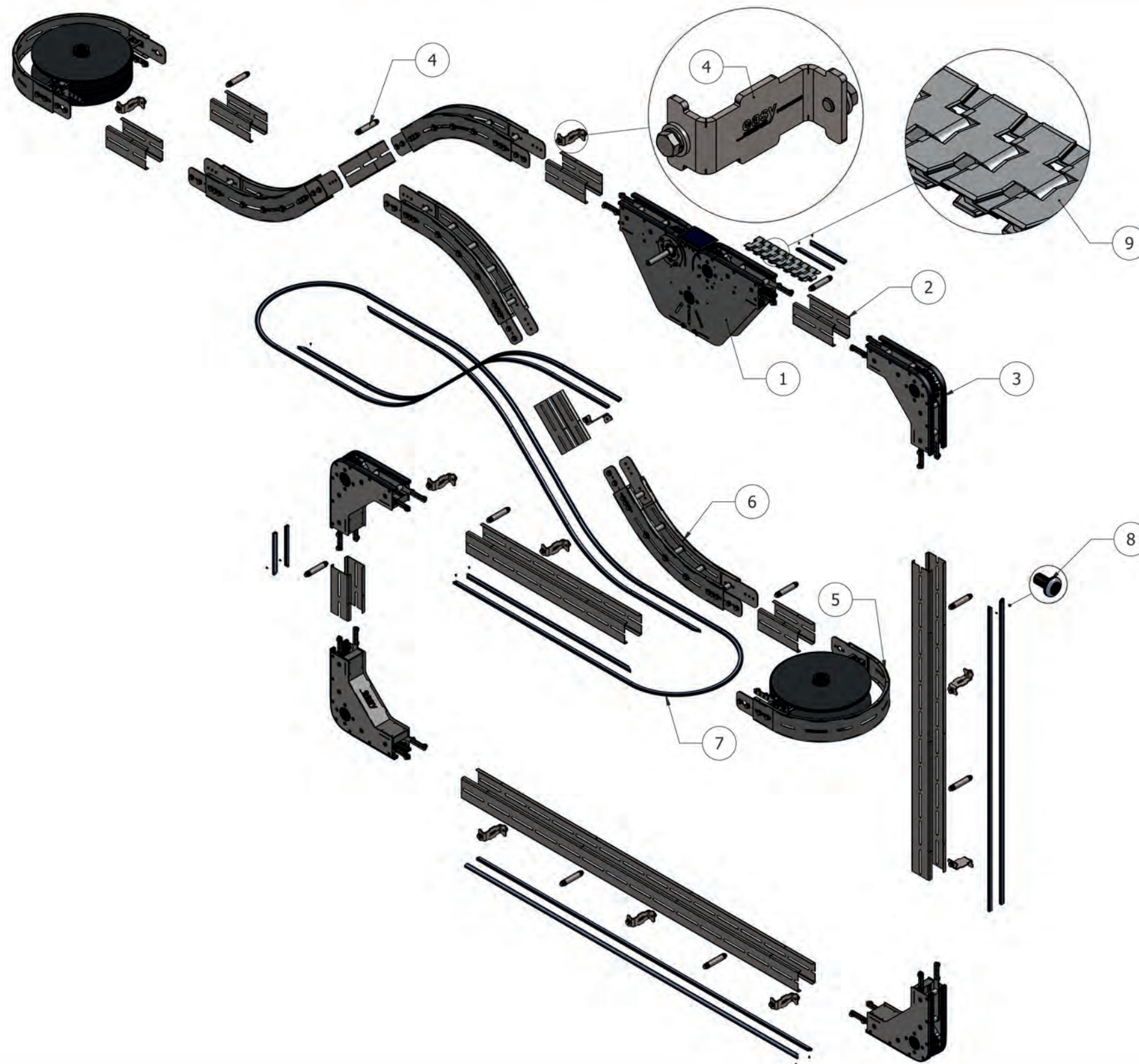
STAINLESS STEEL



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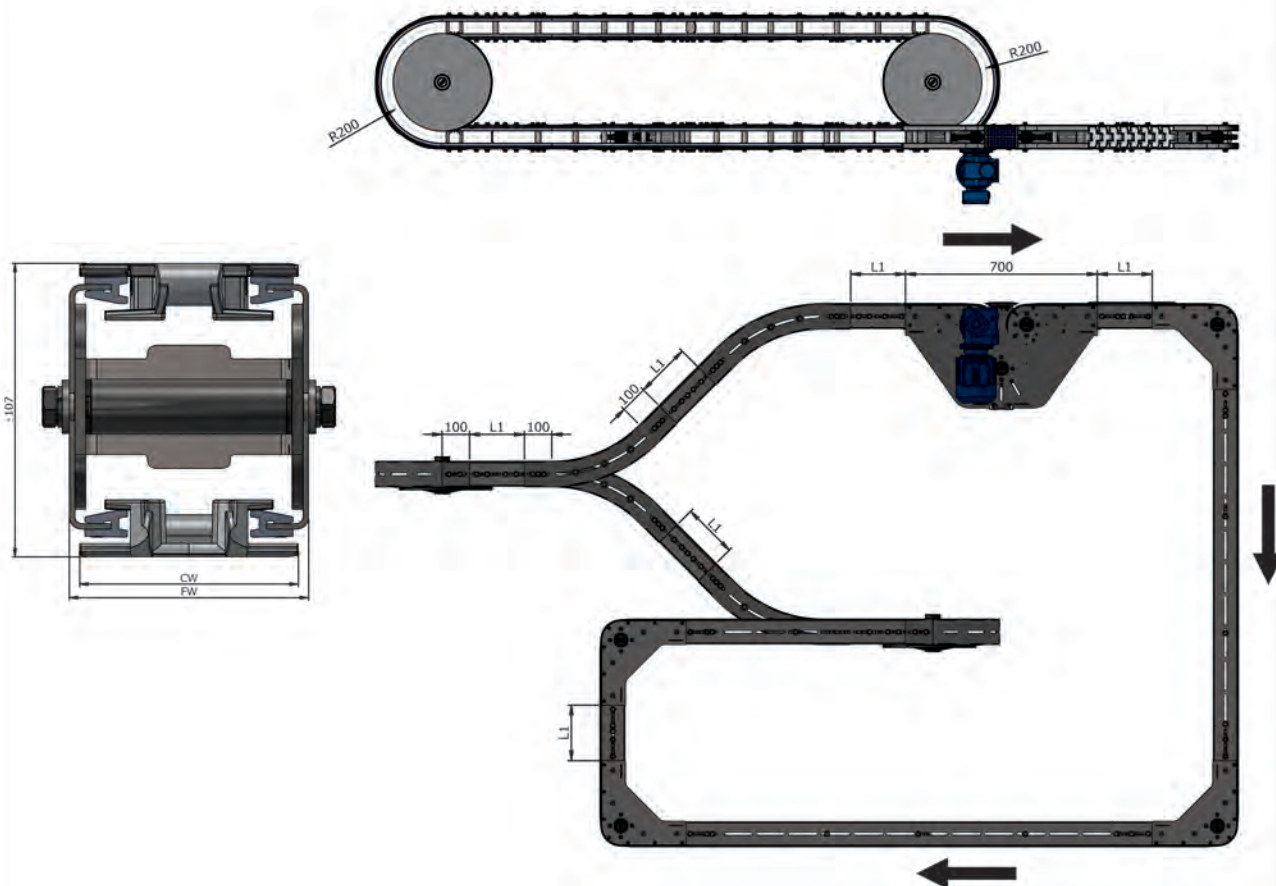
ETS CONNECTION DRIVE



easy
CONVEYORS

- | | | |
|---|--|---------------------|
| 1 | Connection drive set
Connection Antrieb
d'entraînement de connexion
Conexión de la unidad | Module page 190 |
| 2 | ETS side profile
ETS Seitenprofil
ETS Profil de côté
Perfil lateral ETS | Module page 174-179 |
| 3 | Return set 90°
Umlenkung 90°
Ensemble de retour 90°
reenvío 90°, juego | Module page 196 |
| 4 | Straight connector
Längsverbinder
Connecteur droit
Conector longitudinal | Module page 174-179 |
| 5 | Horizontal curve
Kurve - horizontal
Courbe horizontale
Curva horizontal | Module page 202-205 |
| 6 | Vertical curve
Kurve - vertikal
Courbe verticale
Curva vertical | Module page 206 |
| 7 | Slide profile
Gleitprofil
Glissez le profil
Perfil de deslizamiento | Module page 174-179 |
| 8 | Rokut rivet
Kunststoff Popnail
Popnail en plastique
Popnail plástico | Module page 174-179 |
| 9 | ETS Chain
ETS Kette
ETS chaîne
Cadena ETS | Module page 164-165 |





More technical information: See engineering online www.easy-conveyors.com

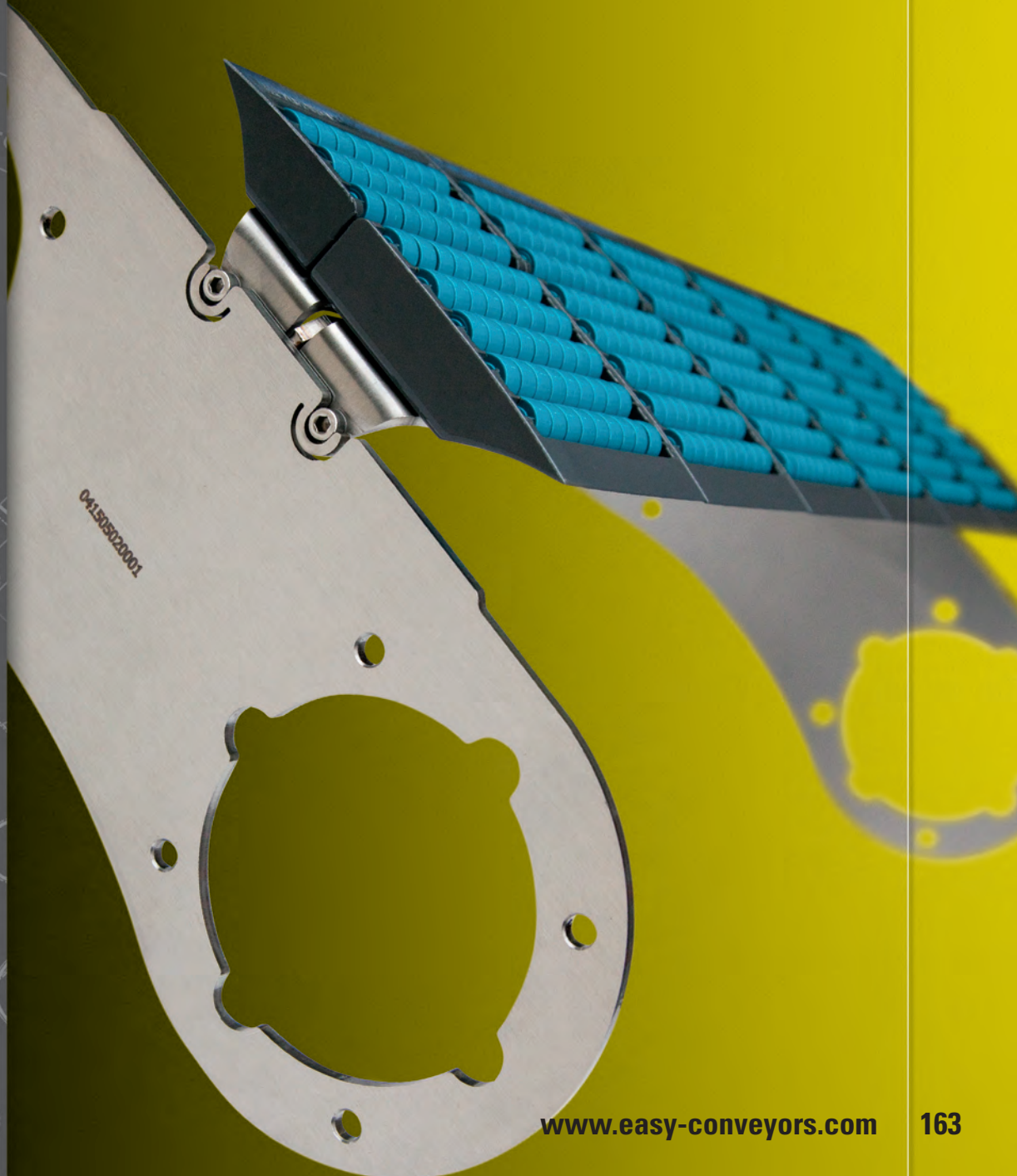
ETS CONNECTION DRIVE	Dimensions - Abmessungen - Dimensions - Dimensiones		
L =	Max. total +/- 60 mtr. 196.85 Foot		
	Longer on request		
L1 =	Min. 200 mm 7,87" inch		
FW =	87,5	147,5	207,5 mm
	3,44"	5,80"	8,17" inch
CW =	80	140	200 mm
	3,14"	5,51"	7,87" inch
V ≈	Max. 45 mtr./min 148 Foot/min		
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			141 Nm
Breaking load, Bruchlast, Charge de rupture, Carga de rotura			3000N (dynamic)
Support legs, Stützen, Supports, Patas de apoyo			Module page 216-221
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral			Module page 230-233

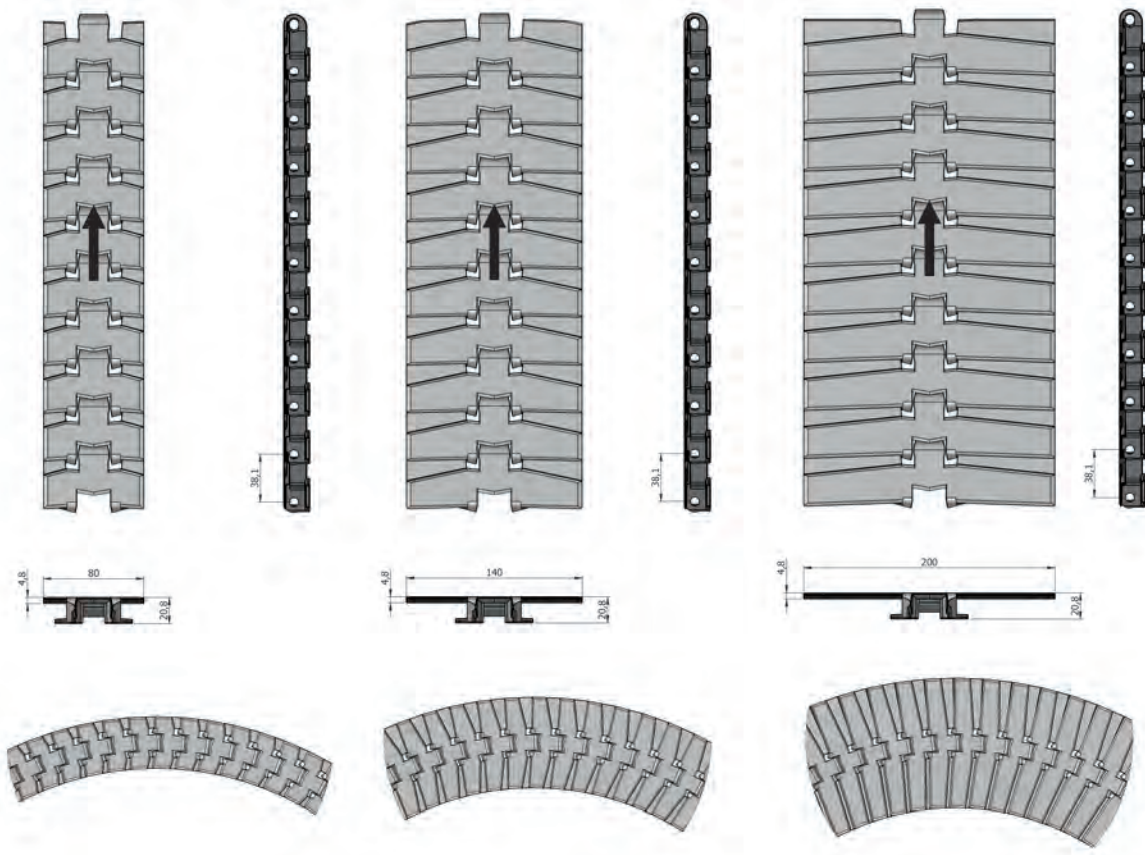
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



ETS
SYSTEM

MODULE PAGES



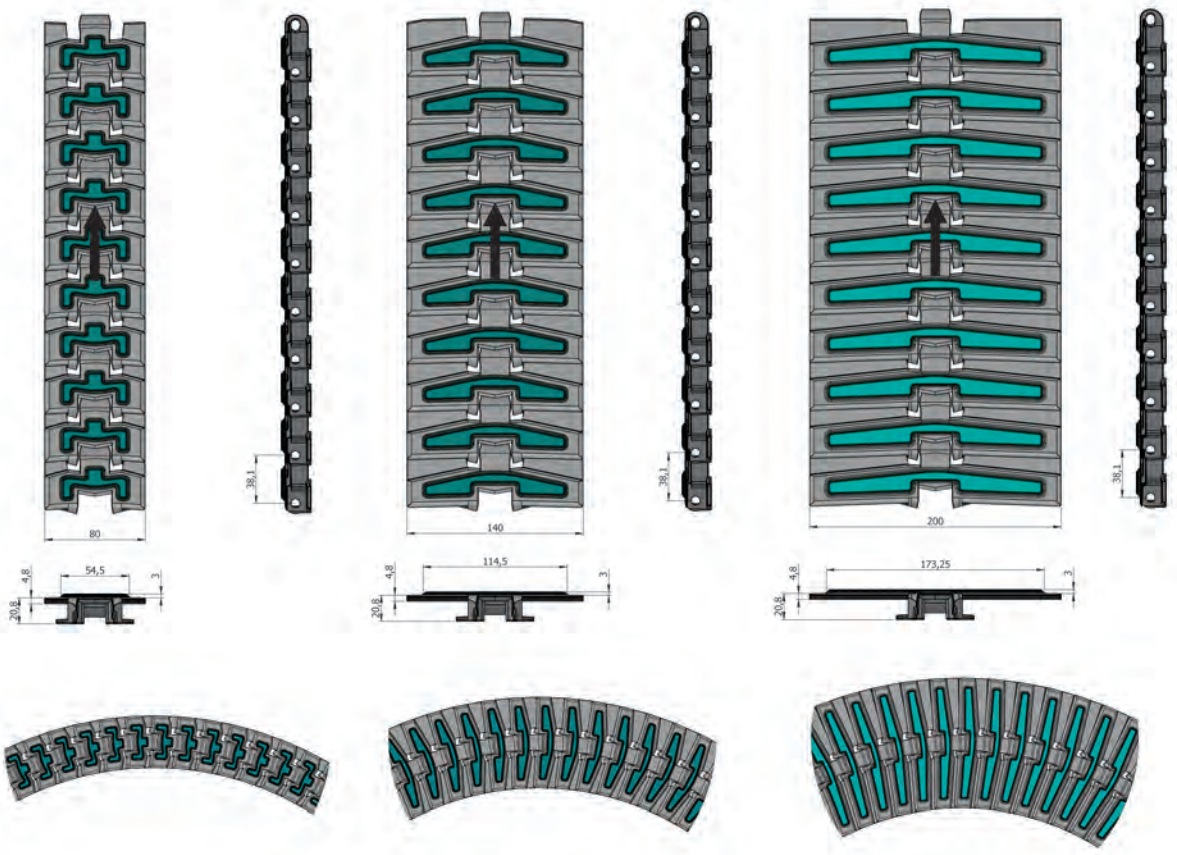


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones				
Material	LFW (low friction acetal resin), Reibungsarmer Acetal Faible coefficient de frottement acétal, Acetal de baja fricción			
Color	White, Weiß, Blanc, Blanco			
Pin Material	Austentic steel, Edelstahl, Acier inoxydable, Acero inoxidable			
Package	1 box; L=3 mtr			

BW	Code	Breaking load (static)	Weight	Radius
80	ETP040802000085	6000 N	1.05 Kg/mtr	200
140	ETP040802000140	6000 N	1.32 Kg/mtr	500
200	ETP040802000200	6000 N	1.62 Kg/mtr	500

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

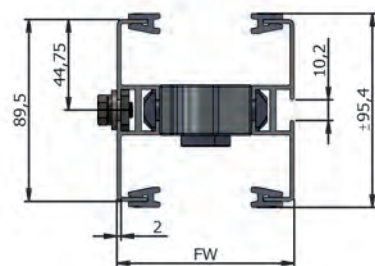
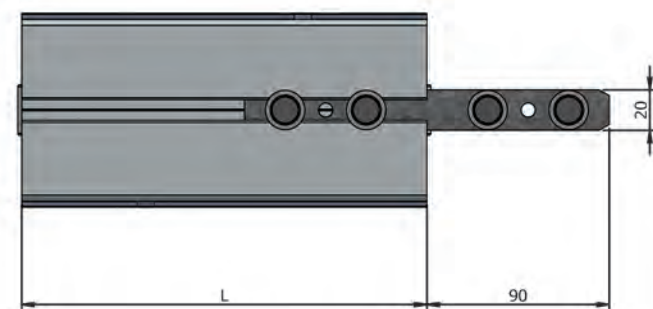
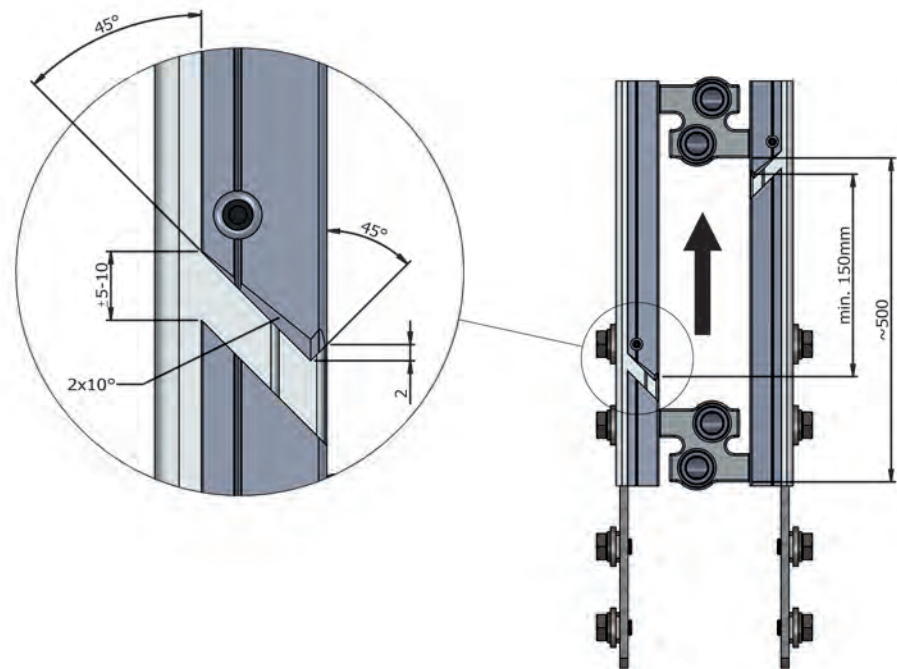
Dimensions - Abmessungen - Dimensions - Dimensiones				
Material	LFW (low friction acetal resin), Reibungsarmer Acetal Faible coefficient de frottement acétal, Acetal de baja fricción			
Color	White, Weiß, Blanc, Blanco			
Friction top	Thermoplastic rubber, Thermoplastischem Gummi Cautchouc thermoplastique, Caucho termoplástico			
Color	Blue, Blau, Bleu, Azul			
Pin Material	Austentic steel, Edelstahl, Acier inoxydable, Acero inoxidable			
Package	1 box; L=3 mtr			

BW	Code	Breaking load (static)	Weight	Radius
80	ETP040802010085	5000 N	1.15 Kg/mtr	200
140	ETP040802010140	5000 N	1.43 Kg/mtr	500
200	ETP040802010200	5000 N	1.75 Kg/mtr	500

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



See engineering online
www.easy-conveyors.com

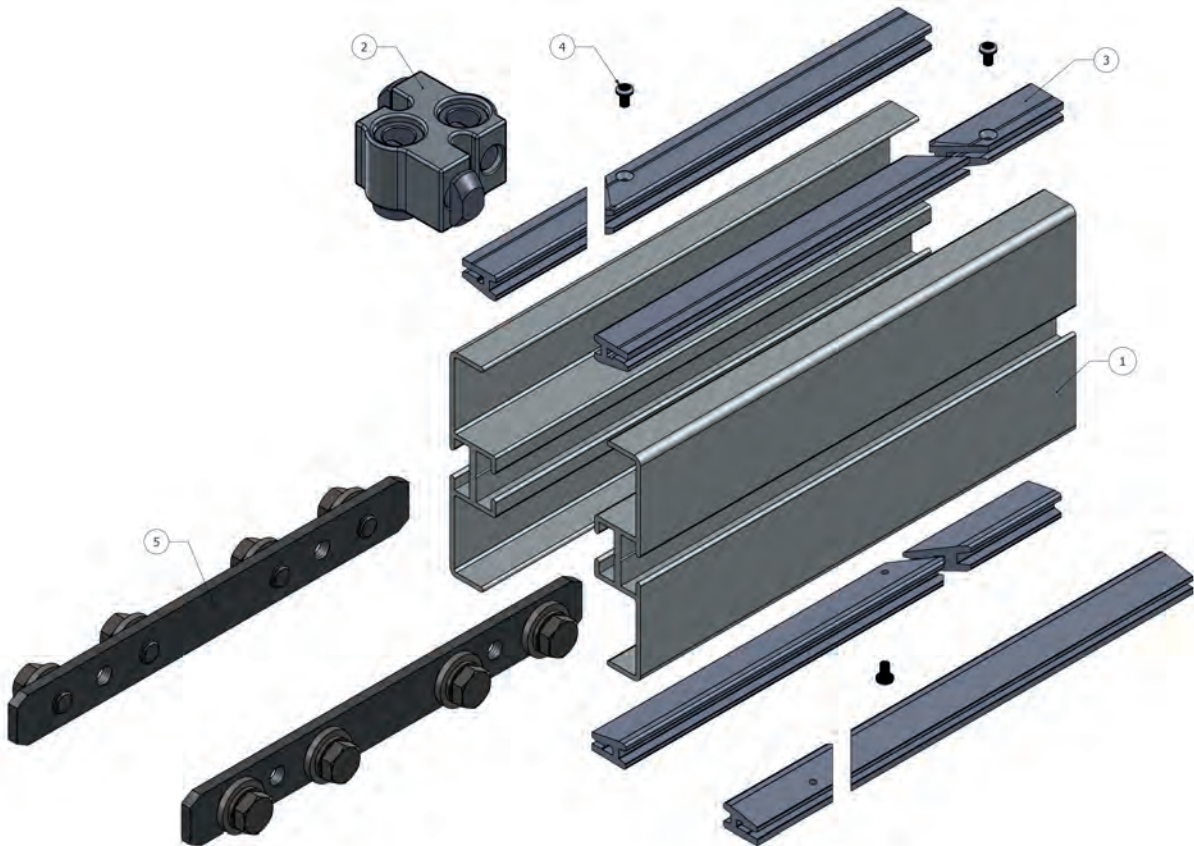


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS ALUMINIUM 80	87,5 mm	3,44" inch	5,6 mtr.	18.37 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Aluminium side profile
- 2 Straight connector
- 3 Slide profile
- 4 Rokut rivets
- 5 Profile connector set

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1	Material	L =		
ETS04080500001	AL	5.6 Mtr	18.37 Foot	1 x L

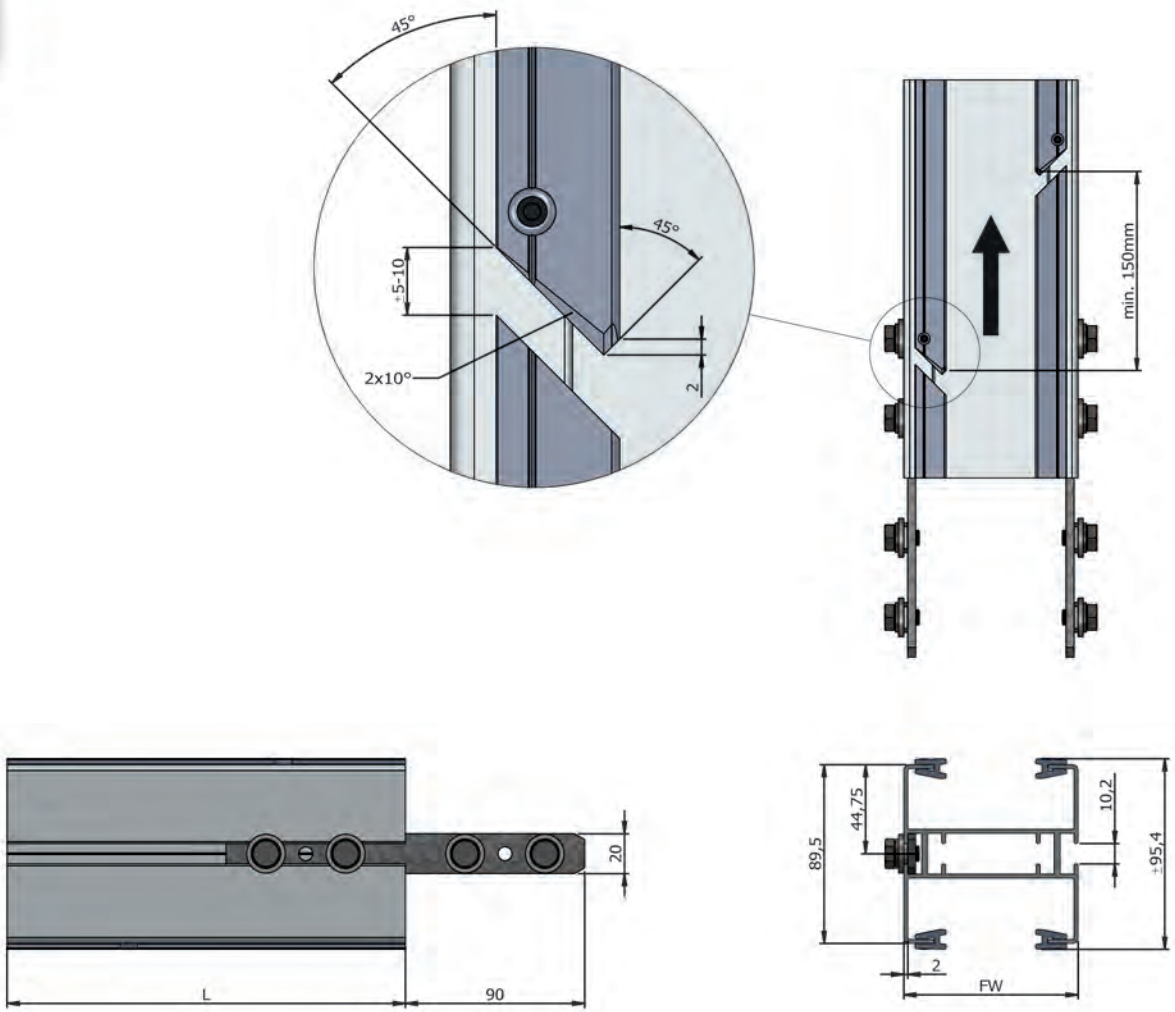
Art Nr. Pos 2	Material	L =		
ETS040805010085	AL	5.6 Mtr	18.37 Foot	10

Art Nr. Pos 3	Material	L =		
ETP040801000000	TCP Black	5.6 Mtr	18.37 Foot	10 x L
ETP040801000002	TCS Grey	5.6 Mtr	18.37 Foot	10 x L

Art Nr. Pos 4	Material			
EMPT040705000005	Nylon 6.6	3,5X1,0-5,0; NYLON-66-BLACK		250

Art Nr. Pos 5	Material			
EMPT040705000006	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado			1 set

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

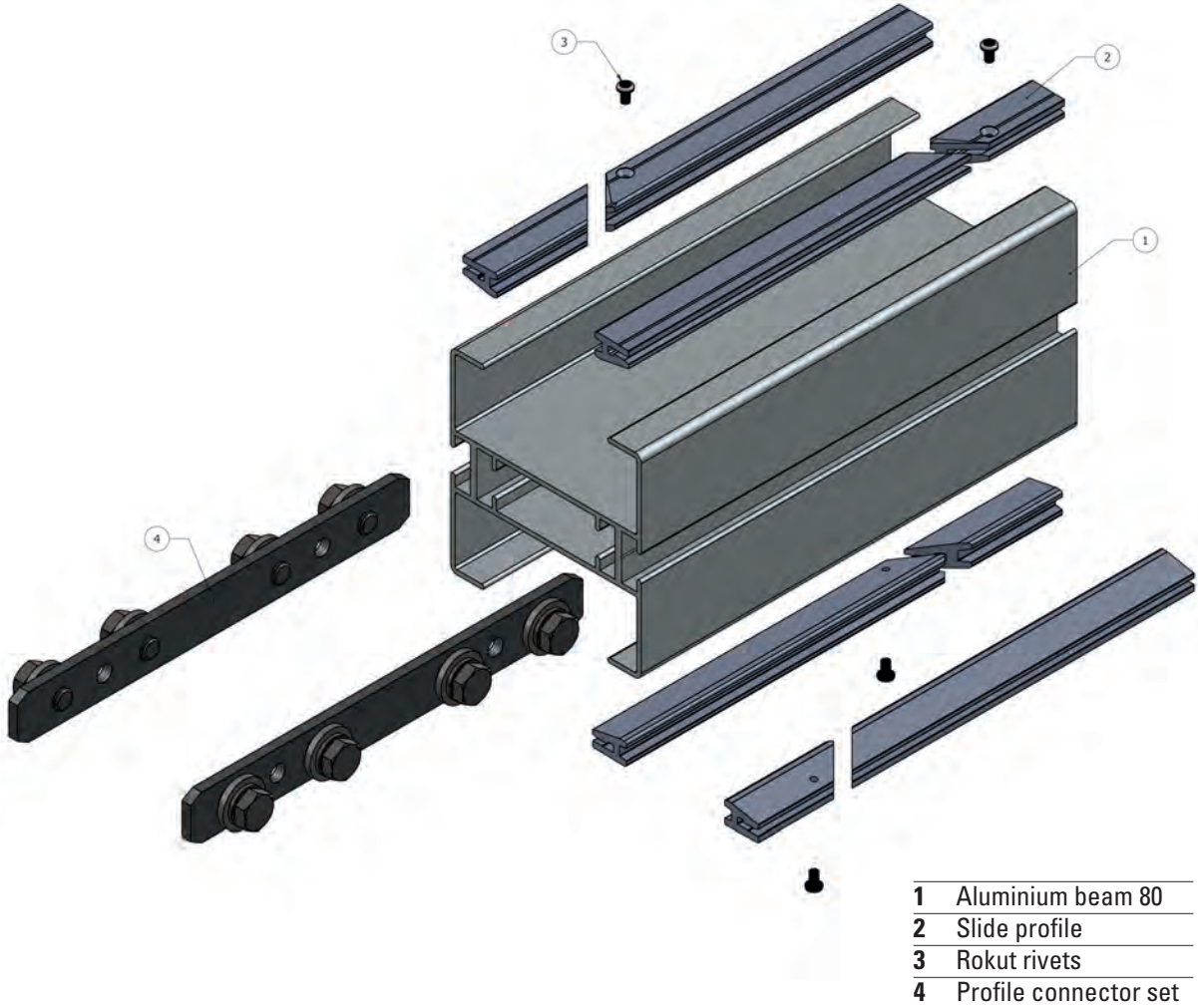


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS ALUMINIUM BEAM 80	87,5 mm	3,44" inch	5,6 mtr.	18.37 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

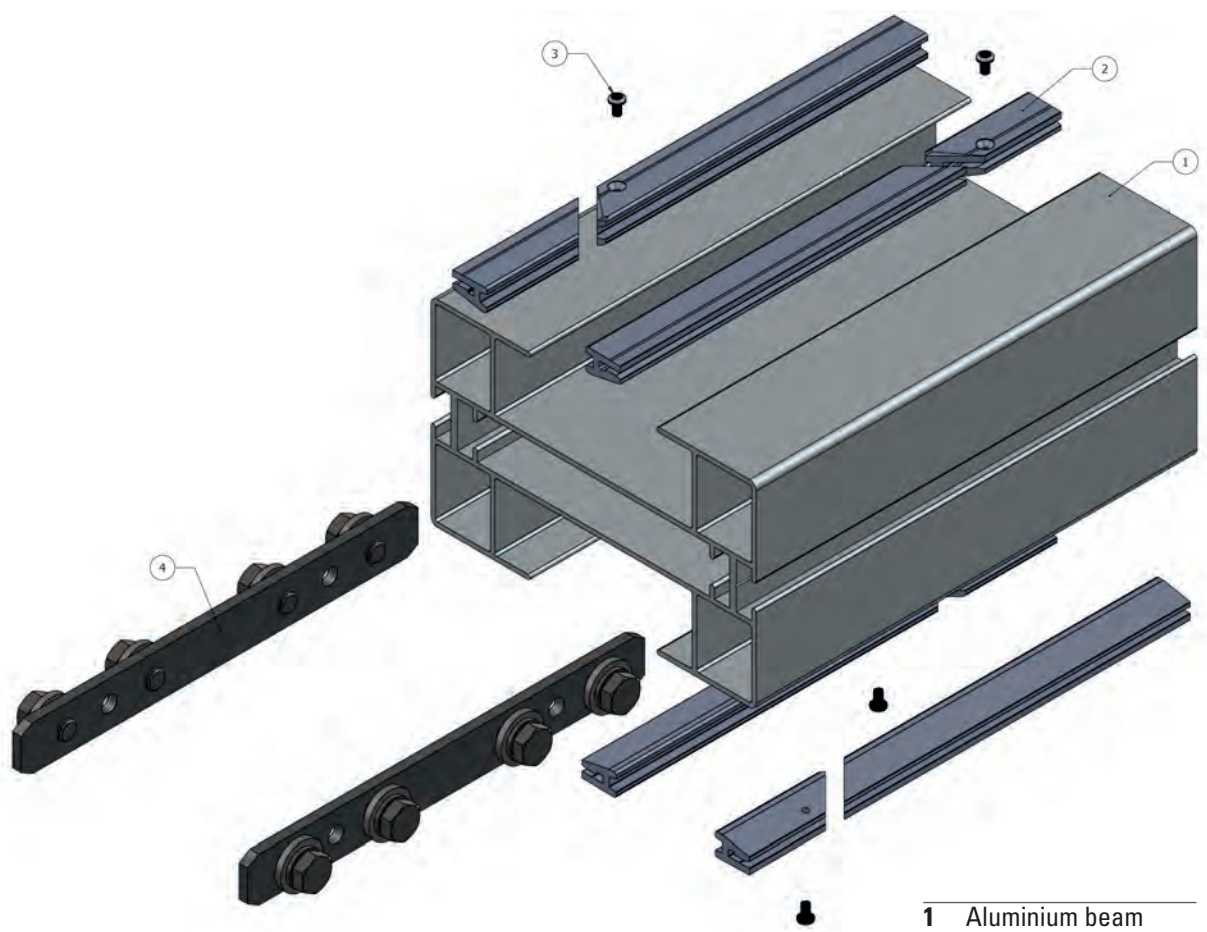
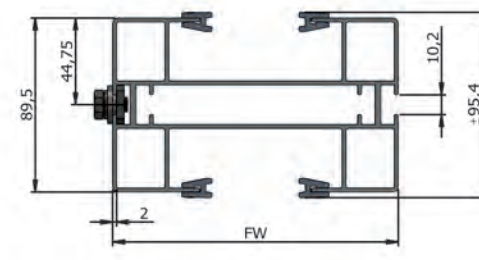
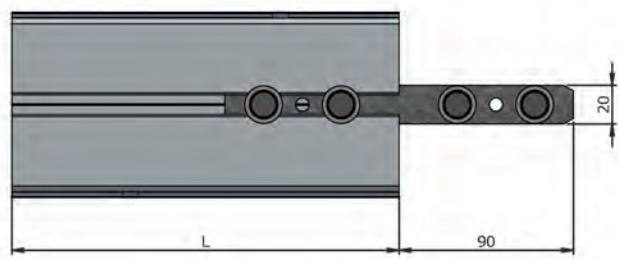
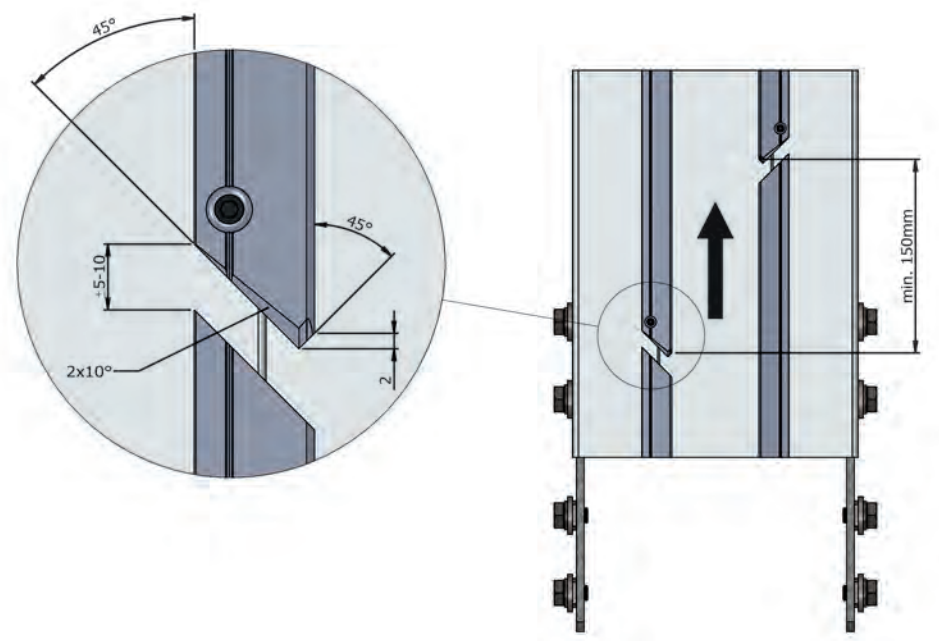
Art Nr.	Pos 1	Material	L =	
ETS04080500000		AL	5.6 Mtr	18.37 Foot 1 x L

Art Nr.	Pos 2	Material	L =	
ETP040801000000		TCP Black	5.6 Mtr	18.37 Foot 10 x L
ETP040801000002		TCS Grey	5.6 Mtr	18.37 Foot 10 x L

Art Nr.	Pos 3	Material	
EMPT040705000005		Nylon 6.6	3,5X1,0-5,0; NYLON-66-BLACK 250

Art Nr.	Pos 4	Material	
EMPT040705000006		Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado	1 set

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Aluminium beam
- 2 Slide profile
- 3 Rokut rivets
- 4 Profile connector set

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS ALUMINIUM BEAM 140	147,5 mm	5,80" inch	5,6 mtr.	18,37 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

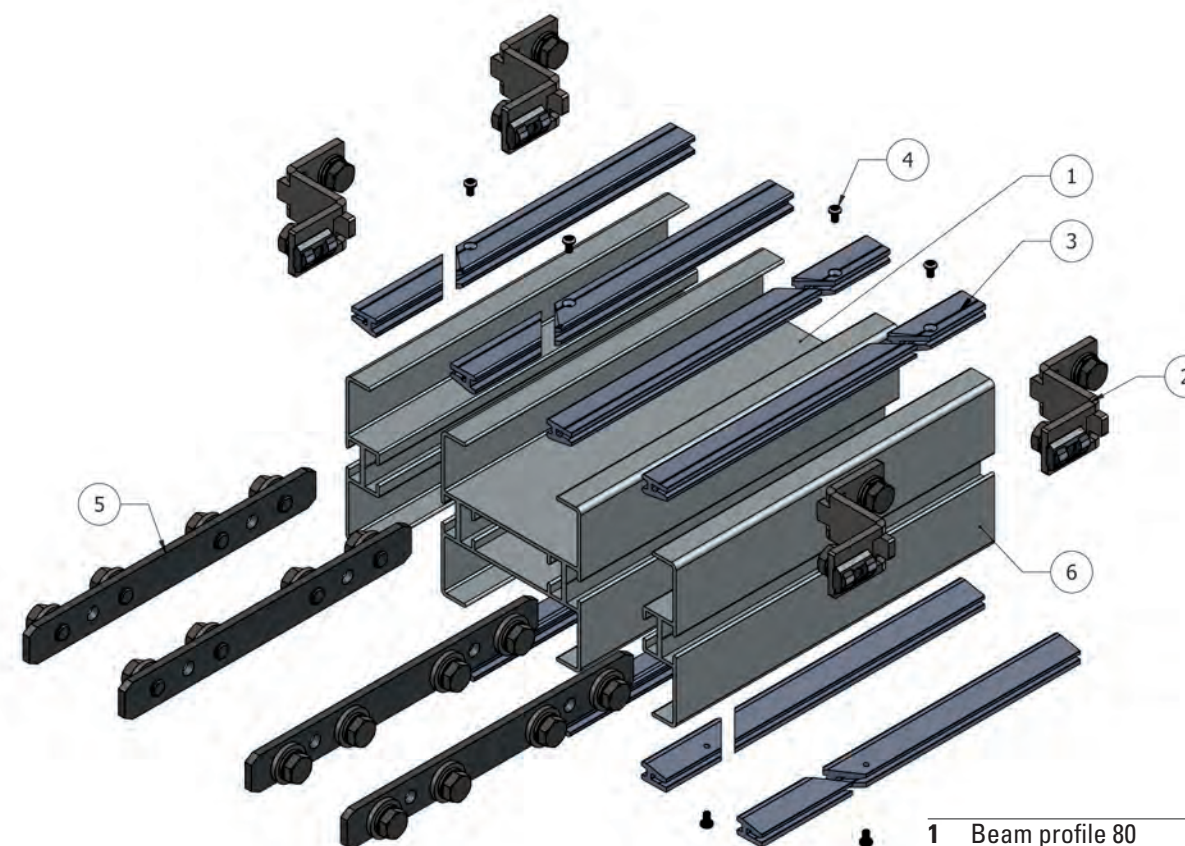
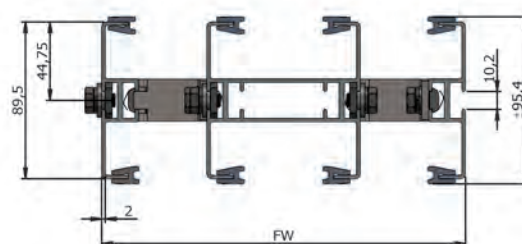
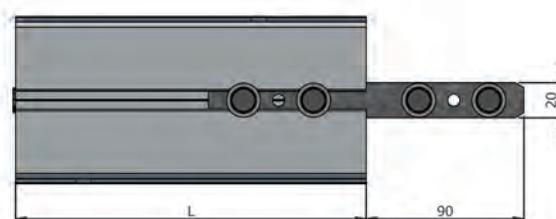
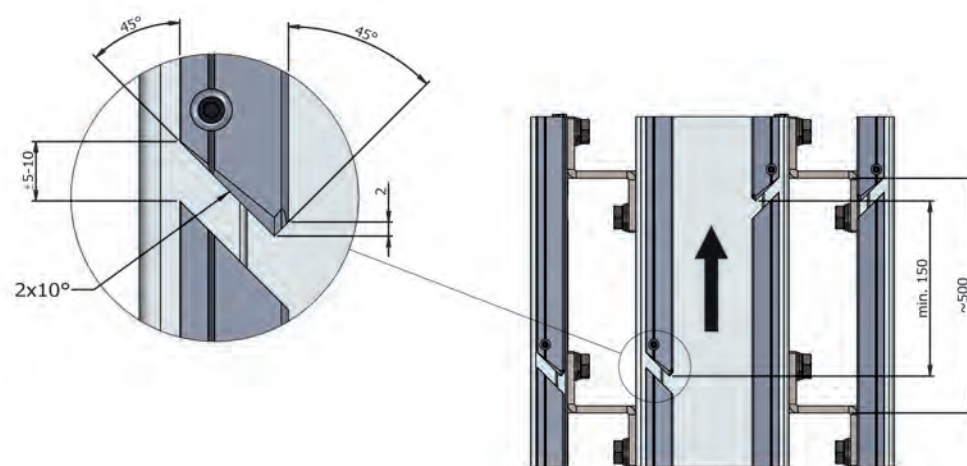
Art Nr.	Pos 1	Material	
ETS040805010000		AL	1 x L = 5,6 mtr

Art Nr.	Pos 2	Material	L =		
ETP040801000000		TCP Black	5.6 Mtr	18.37 Foot	10 x L
ETP040801000002		TCS Grey	6 Mtr	19.68 Foot	10 x L

Art Nr.	Pos 3	Material	
EMPT040705000005		Nylon 6.6	3,5X1,0-5,0; NYLON-66-BLACK 250

Art Nr.	Pos 4	Material	
EMPT040705000004		Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado	1 set

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Beam profile 80
- 2 Straight connector
- 3 Slide profile
- 4 Rokut rivets
- 5 Profile connector set
- 6 Side profile

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr.	Pos 1	Material	
ETS040905000000	AL		1 x L = 5,6 mtr

Art Nr.	Pos 2	Material	
ETS040805010200	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		10

Art Nr.	Pos 3	Material	L =	
ETP040801000000	TCP Black	5.6 Mtr	18.37 Foot	10 x L
ETP040801000002	TCS Grey	6 Mtr	19.68 Foot	10 x L

Art Nr.	Pos 4	Material	
EMPT040705000005	Nylon 6.6	3,5X1,0-5,0; NYLON-66-BLACK	250

Art Nr.	Pos 5	Material	
EMPT040705000006	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado		1 set
		For 200 wide, 2 sets needed	

Art Nr.	Pos 6	Material	
ETS040805000001	AL		1 x L = 5,6 mtr

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

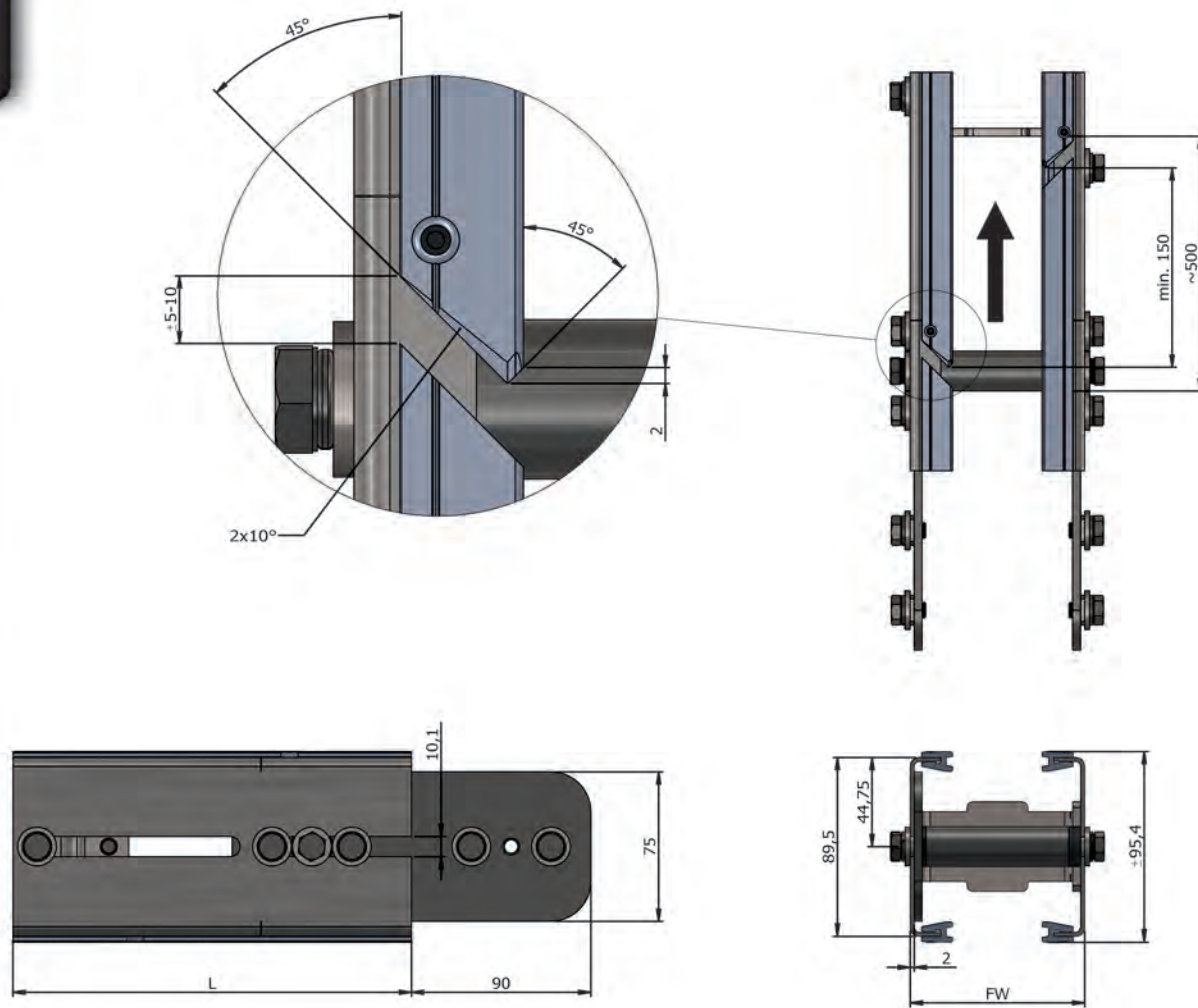
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS ALUMINIUM 200	207,5 mm	8,17" inch	5,6 mtr.	18,37 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



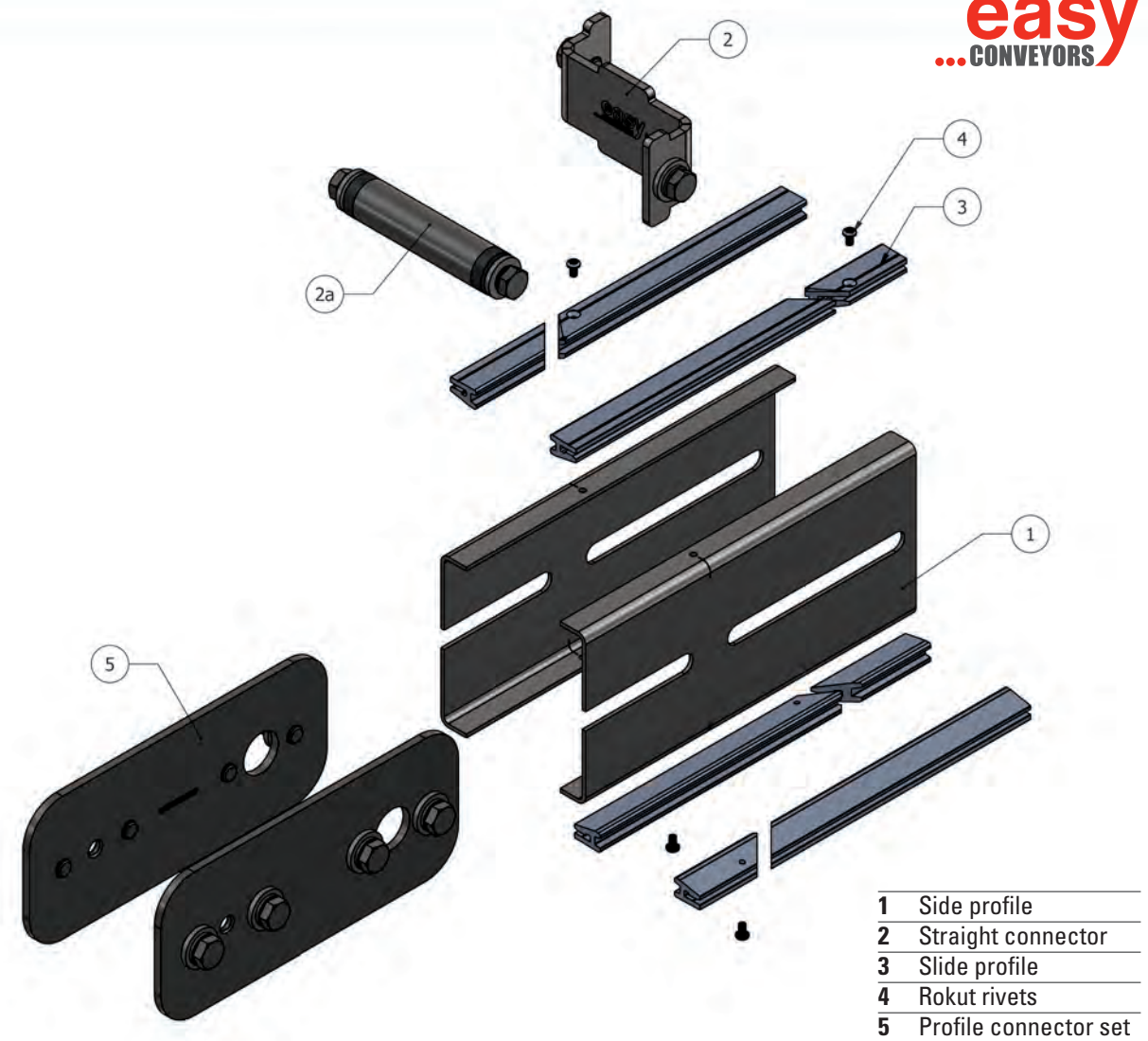


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS STAINLESS STEEL SIDE PROFILE 80	87,5 mm	3,44" inch	± 3 mtr.	± 9,8 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1	Material
ETS040905000001	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1 x L = ± 3 mtr

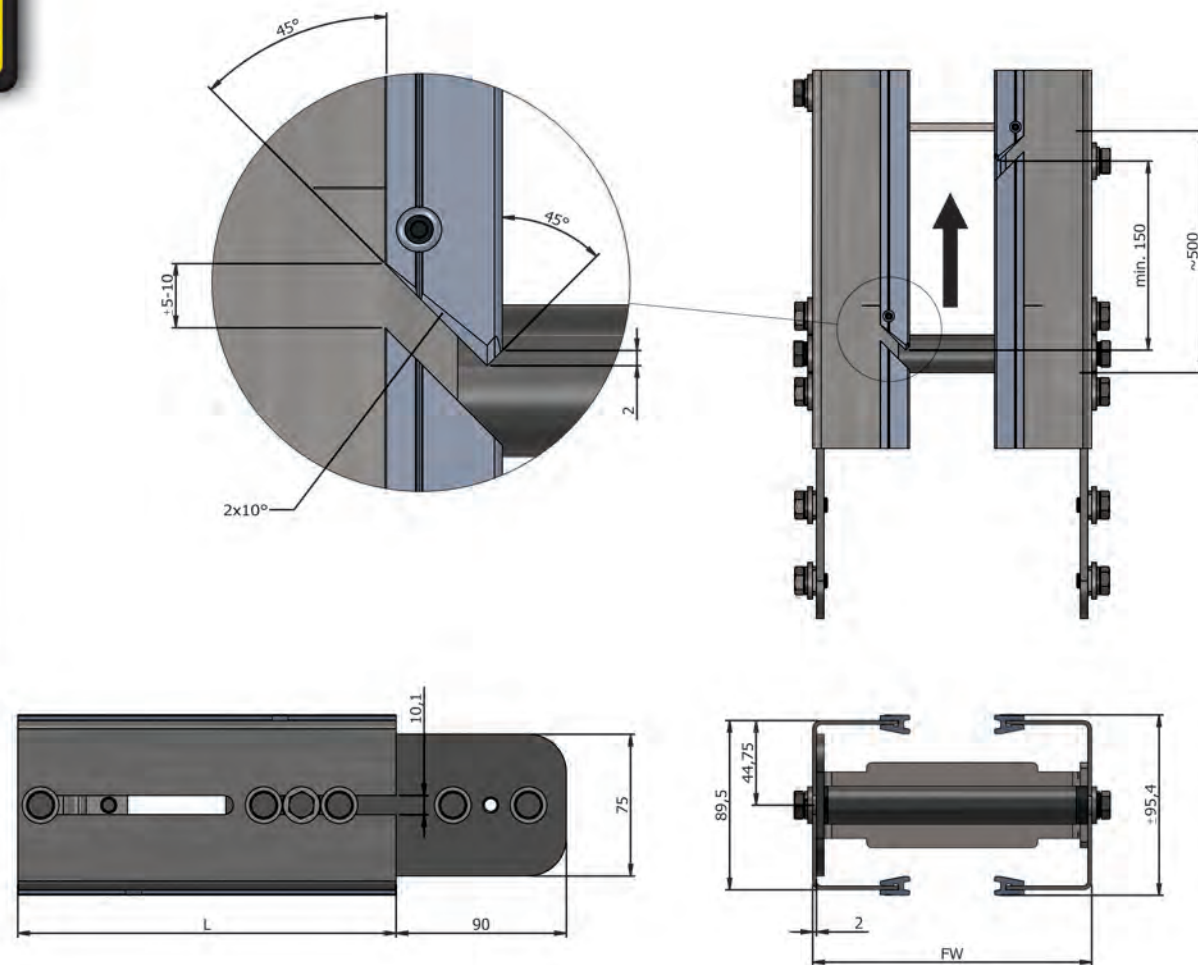
Art Nr. Pos 2 + 2a	Material
ETS0409050100085	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 10
ETS0409050200085 (2a)	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 10

Art Nr. Pos 3	Material	L =	
ETP040801000000	TCP Black	5.6 Mtr	18.37 Foot 10 x L
ETP040801000002	TCS Grey	6 Mtr	19.68 Foot 10 x L

Art Nr. Pos 4	Material
EMPT040705000005	Nylon 6.6 3,5X1,0-5,0; NYLON-66-BLACK 250

Art Nr. Pos 5	Material
EMPT040705000004	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1 set

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS STAINLESS STEEL SIDE PROFILE 140	147,5 mm	5,80" inch	± 3 mtr.	± 9,8 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1	Material
ETS040905010001	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1 x L = ± 3 mtr

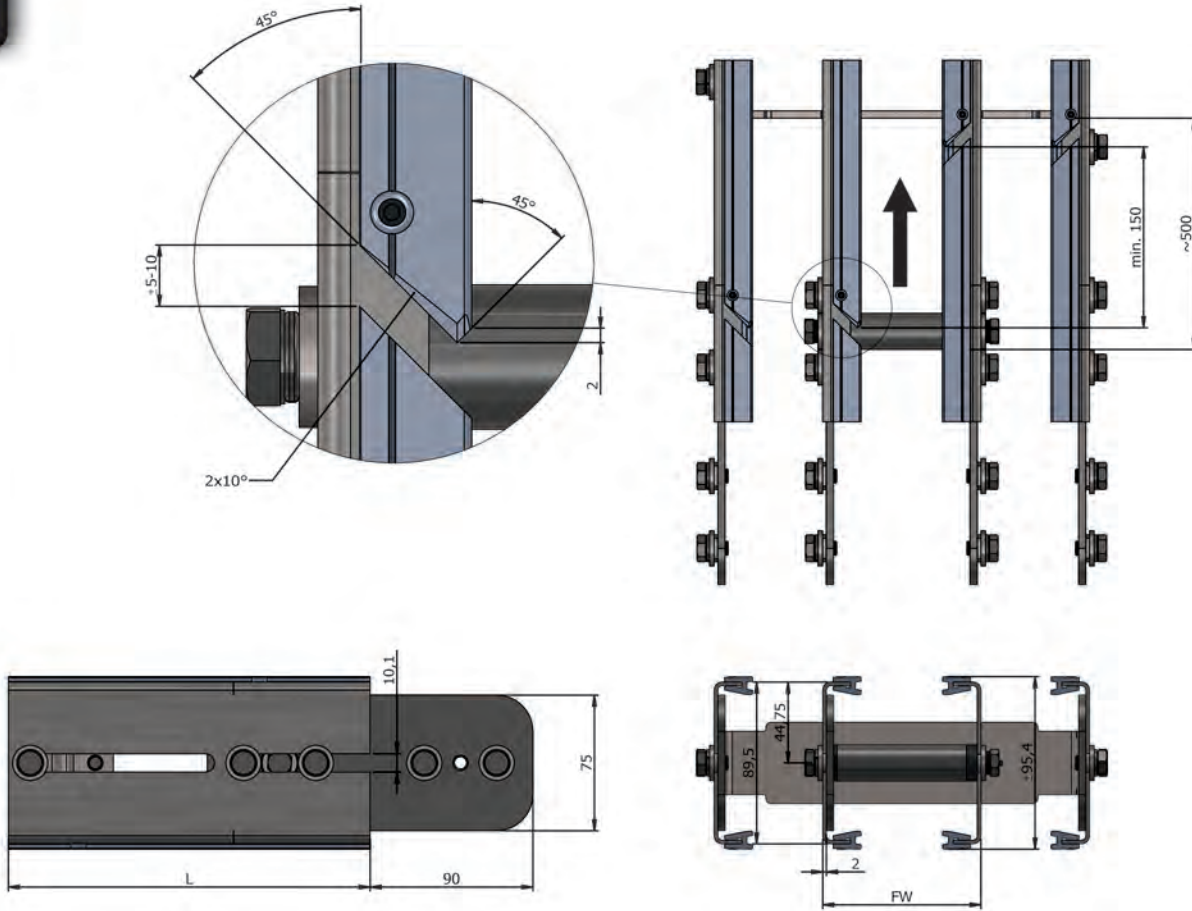
Art Nr. Pos 2 + 2a	Material
ETS040905010140	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 10
ETS040905020140 (2a)	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 10

Art Nr. Pos 3	Material	L =		
ETP040801000000	TCP Black	5.6 Mtr	18.37 Foot	10 x L
ETP040801000002	TCS Grey	6 Mtr	19.68 Foot	10 x L

Art Nr. Pos 4	Material
EMPT040705000005	Nylon 6.6 3,5X1,0-5,0; NYLON-66-BLACK 250

Art Nr. Pos 5	Material
EMPT040705000004	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1 set

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	FW =		L =	
ETS STAINLESS STEEL SIDE PROFILE 200	207,5 mm	8,17" inch	± 3 mtr.	± 9,8 Foot

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1	Material
ETS040905000001	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1 x L = ± 3 mtr

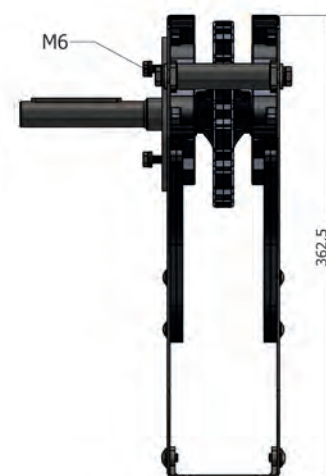
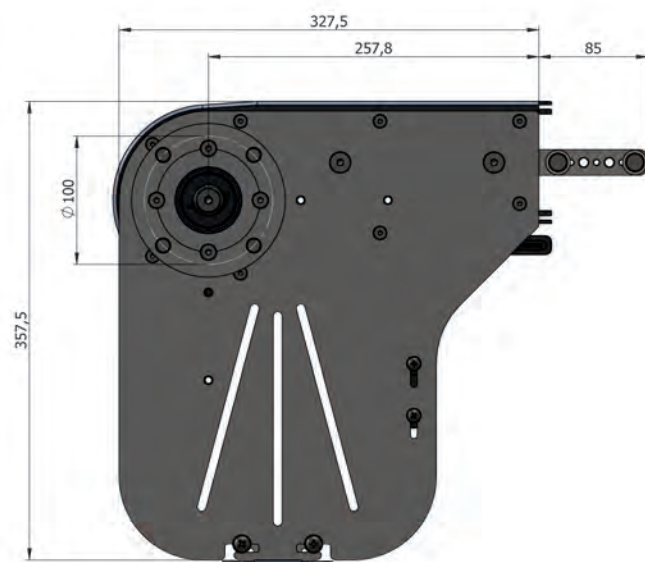
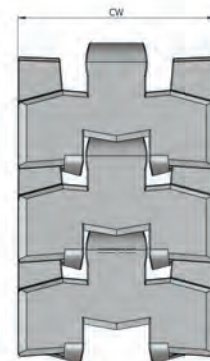
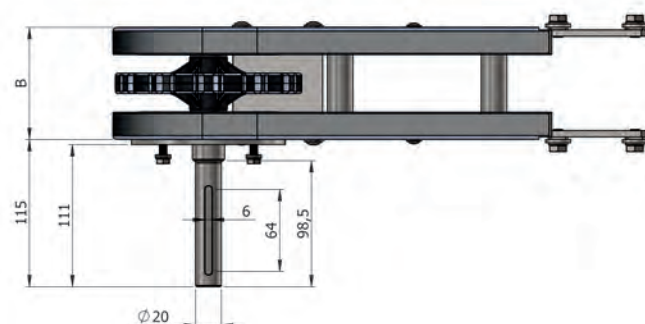
Art Nr. Pos 2 + 2a	Material
ETS040905010085	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 10
ETS040905020200 (2a)	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 10

Art Nr. Pos 3	Material	L =		
ETP040801000000	TCP Black	5.6 Mtr	18.37 Foot	10 x L
ETP040801000002	TCS Grey	6 Mtr	19.68 Foot	10 x L

Art Nr. Pos 4	Material
EMPT040705000005	Nylon 6.6 3,5X1,0-5,0; NYLON-66-BLACK 250

Art Nr. Pos 5	Material
EMPT040705000004	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1 set

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

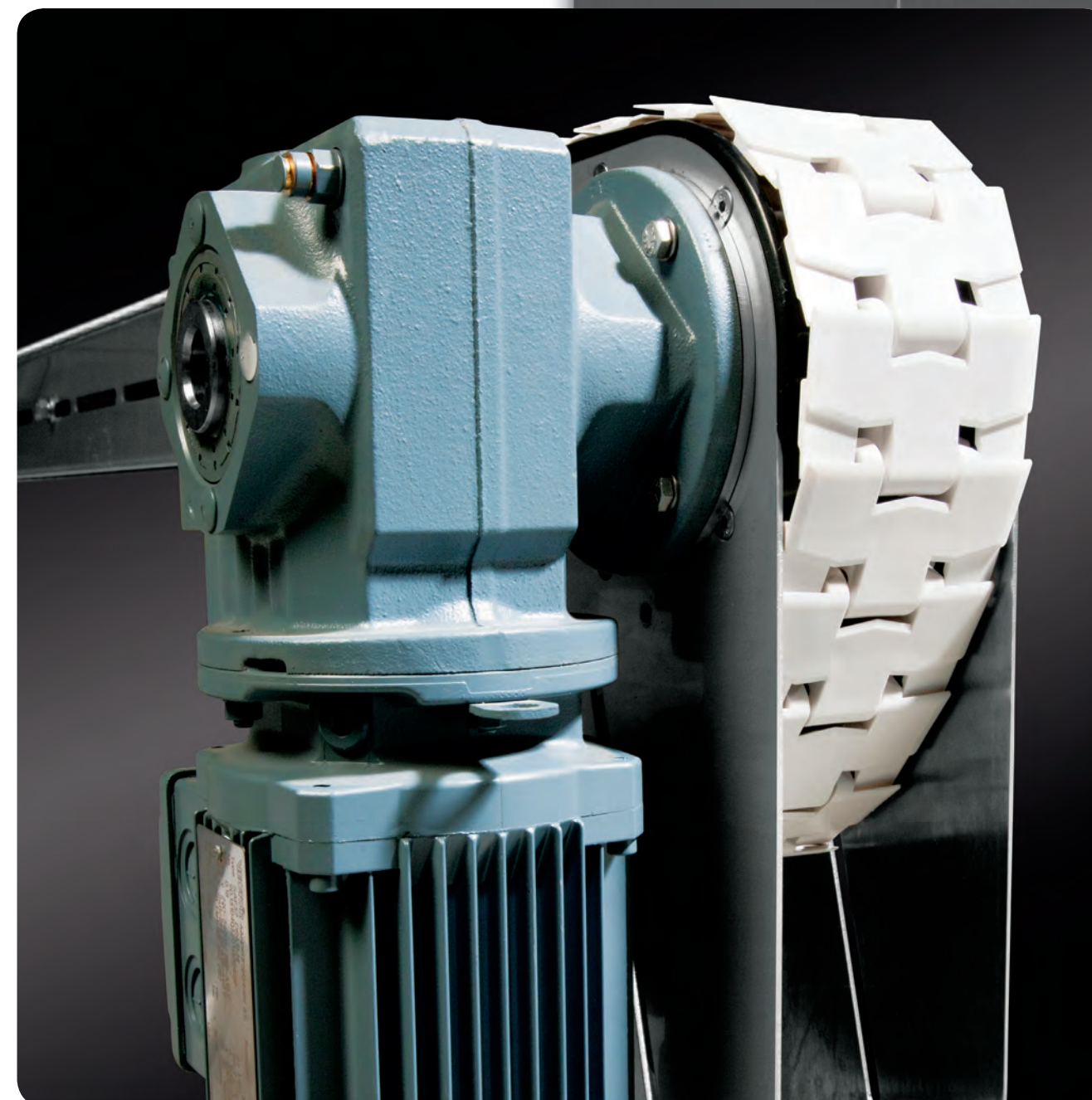


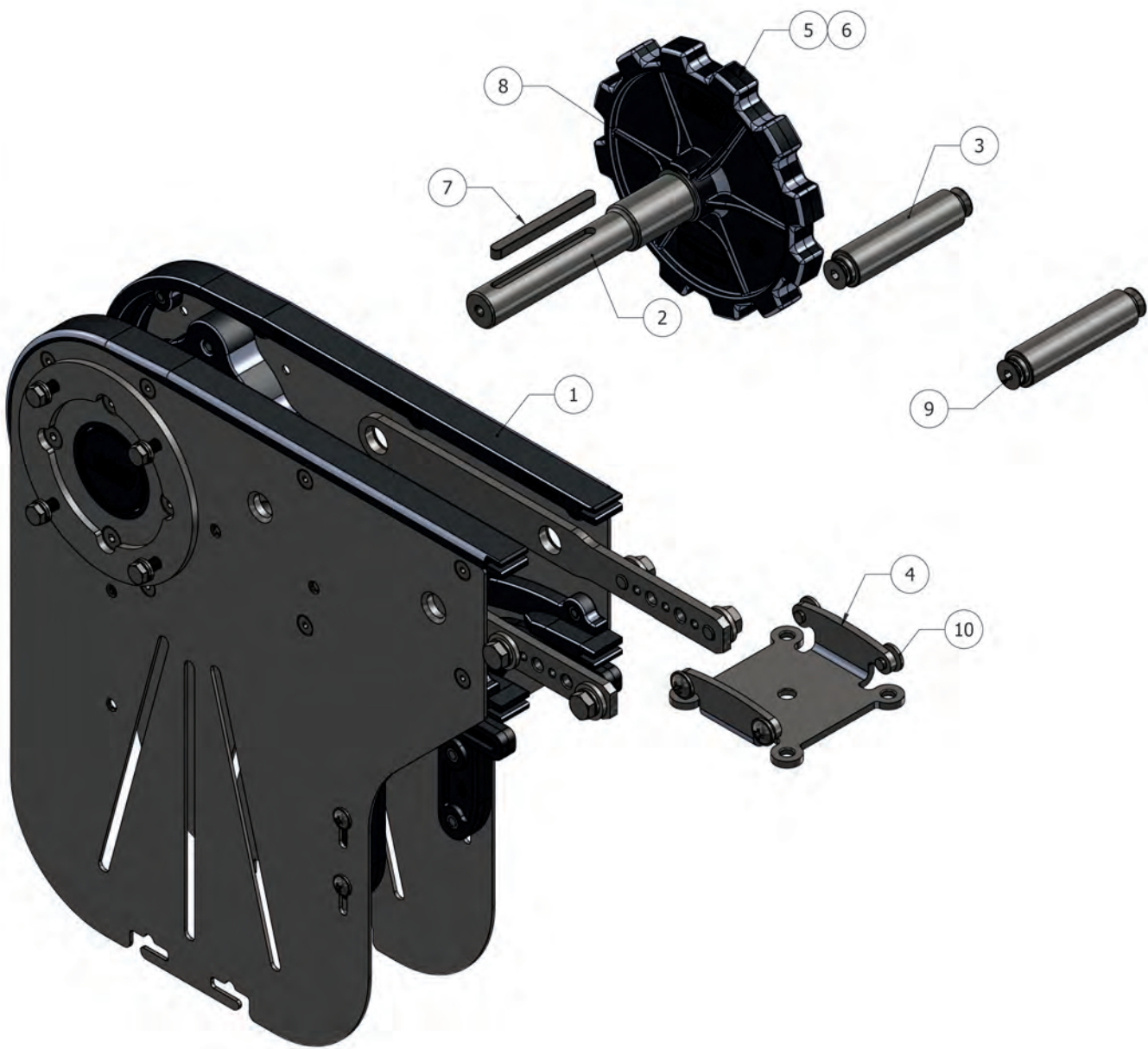
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	CW =	FW =	
ETS040801040000	ETS040901040000	80 mm	3,14" inch	87,5 mm 3,44" inch 1 set
ETS040801050000	ETS040901050000	140 mm	5,51" inch	147,5 mm 5,80" inch 1 set
ETS040801060000	ETS040901060000	200 mm	7,87" inch	207,5 mm 8,17" inch 1 set
Suitable for, Geeignet für, Convient pour, Adecuado para			SEW With flange 120	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Head drive set
- 2 Drive shaft
- 3 Drive / return unit connector
- 4 Drive support plate
- 5 Chain wheel
- 6 Parallel key
- 7 Parallel key
- 8 Retaining ring
- 9 Hexagon socket countersunk head screw
- 10 Hexagon socket button head screw

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1			
ETS040801010000	80 mm	3,14" inch	1
ETS040801020000	140 mm	5,51" inch	1
ETS040801030000	200 mm	7,87" inch	1
Material	AL		

Art Nr. Pos 1			
ETS040901010000	80 mm	3,14" inch	1
ETS040901020000	140 mm	5,51" inch	1
ETS040901030000	200 mm	7,87" inch	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6		

Art Nr. Pos 2	Art Nr. Pos 3			
040901000085	040904000085	80 mm	3,14" inch	1
040901000140	040904000140	140 mm	5,51" inch	1
040901000200	040904000200	200 mm	7,87" inch	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6			

Art Nr. Pos 4				
040905030085	80 mm	3,14" inch	1	
040905030140	140 mm	5,51" inch	1	
040905030200	200 mm	7,87" inch	1	
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6			

Art Nr. Pos 5			
040906000000	Pitch diameter Ø 147.2	Bore Ø 25 DIN 6885 key seat	1
Material	PA6		

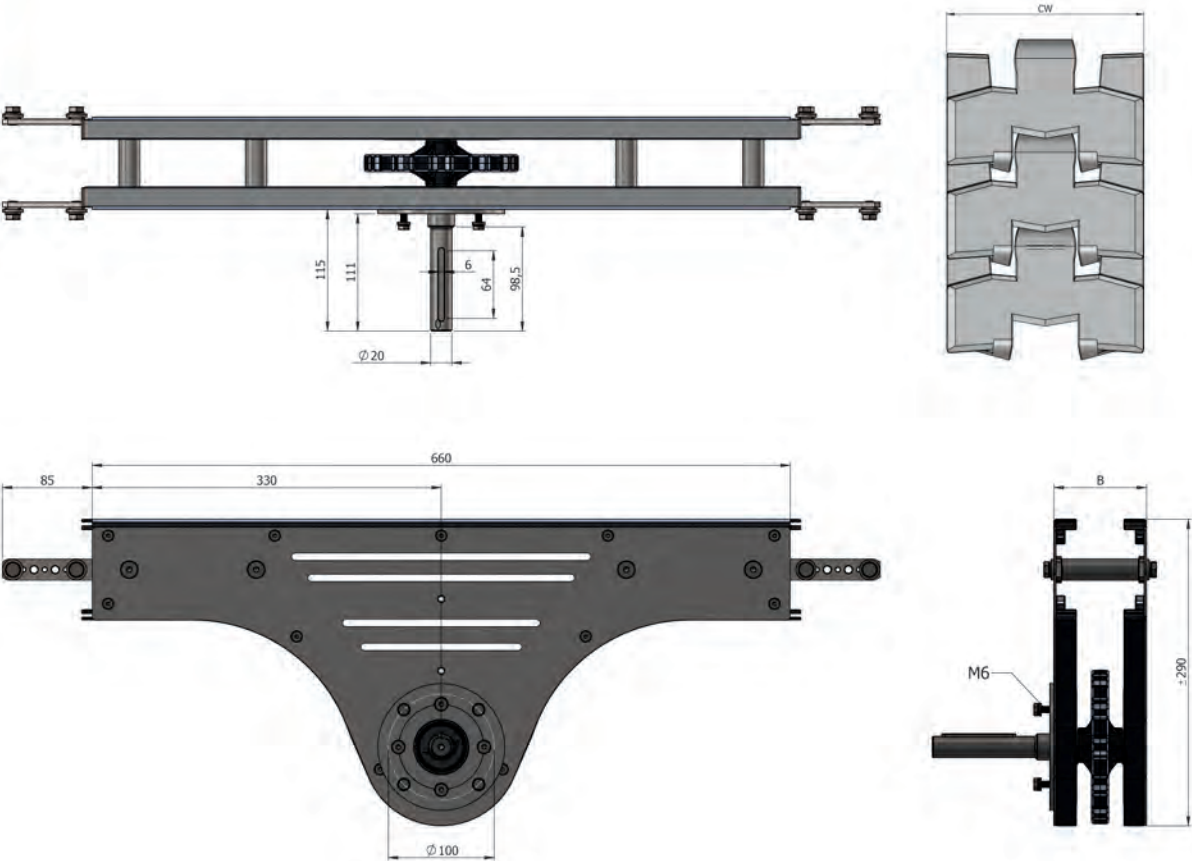
Art Nr. Pos 6	Art Nr. Pos 7		
BV688587040A4	1	BV688566070A4	100
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		

Art Nr. Pos 8	Material	
BV047125000A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	
		1

Art Nr. Pos 9	Material	
BV799108016A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	
		100



Art Nr. Pos 10	Material	
BV738006008A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	
		100

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	CW =		B =		
ETS040802040000	ETS040902040000	80 mm	3,14" inch	87,5 mm	3,44" inch	 1 set
ETS040802050000	ETS040902050000	140 mm	5,51" inch	147,5 mm	5,80" inch	 1 set
ETS040802060000	ETS040902060000	200 mm	7,87" inch	207,5 mm	8,17" inch	 1 set
Suitable for, Geeignet für, Convient pour, Adecuado para				SEW With flange 120		




Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Center drive set
- 2 Drive shaft
- 3 Drive / return unit connector
- 4 Chain wheel
- 5+6 Parallel key
- 7 Retaining ring
- 8 Hexagon socket countersunk head screw




Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1

Aluminium	Stainless steel			
ETS040802010000	ETS040902010000	80 mm	3,14" inch	 1
ETS040802020000	ETS040902020000	140 mm	5,51" inch	 1
ETS040802030000	ETS040902030000	200 mm	7,87" inch	 1
Material	Material			
Aluminium	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6			


Art Nr. Pos 2

Art Nr. Pos 3

040901000085	040904000085	80 mm	3,14" inch	 1
040901000140	040904000140	140 mm	5,51" inch	 1
040901000200	040904000200	200 mm	7,87" inch	 1
Material	Material			
	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6			

Art Nr. Pos 4

Material

040906000000	Pitch diameter Ø 147.2	Bore Ø 25 DIN 6885 key seat	 1	PA6
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Art Nr. Pos 5

Art Nr. Pos 6

Material

BV688587040A4	 1	BV688566070A4	 100	Stainless steel
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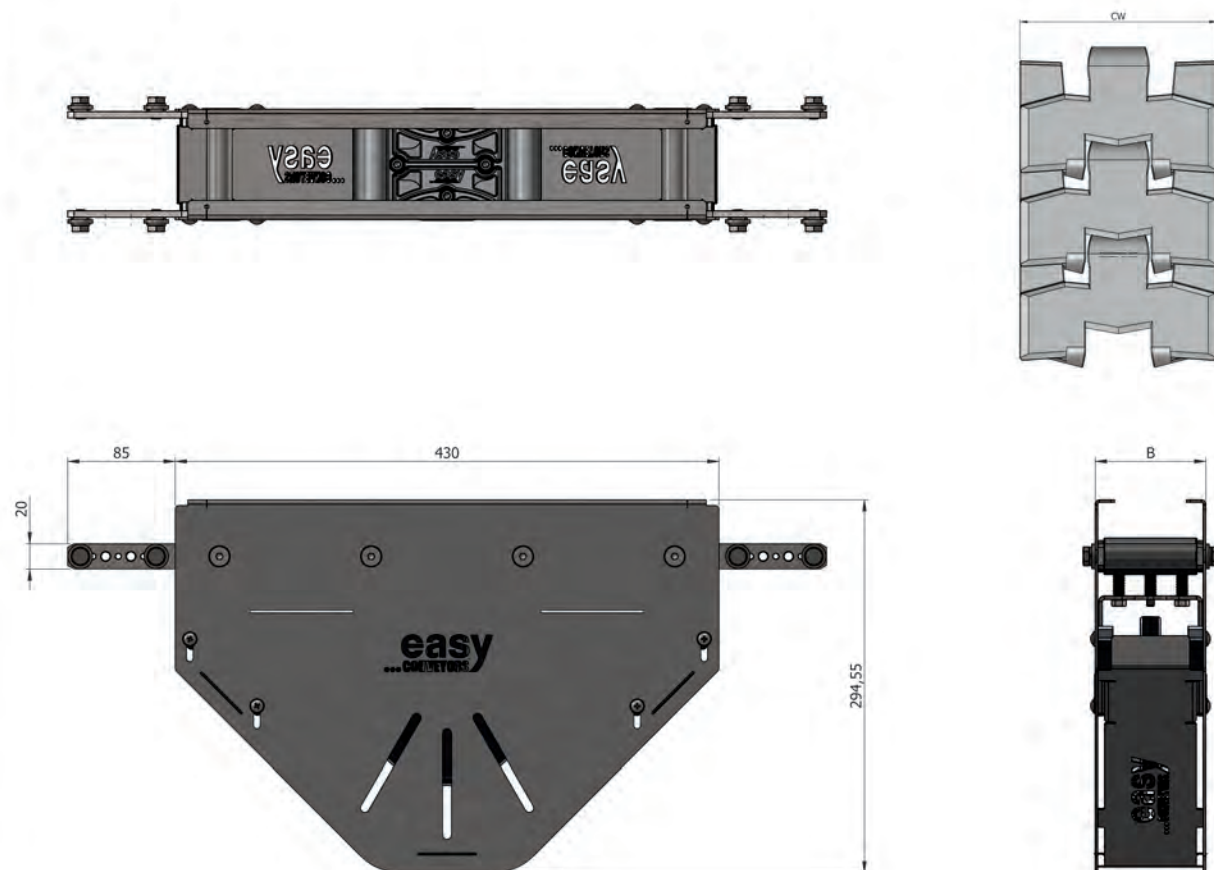
Art Nr. Pos 7

Art Nr. Pos 8

Material

BV047125000A2	 100	BV799108016A2	 100	Stainless steel
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Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



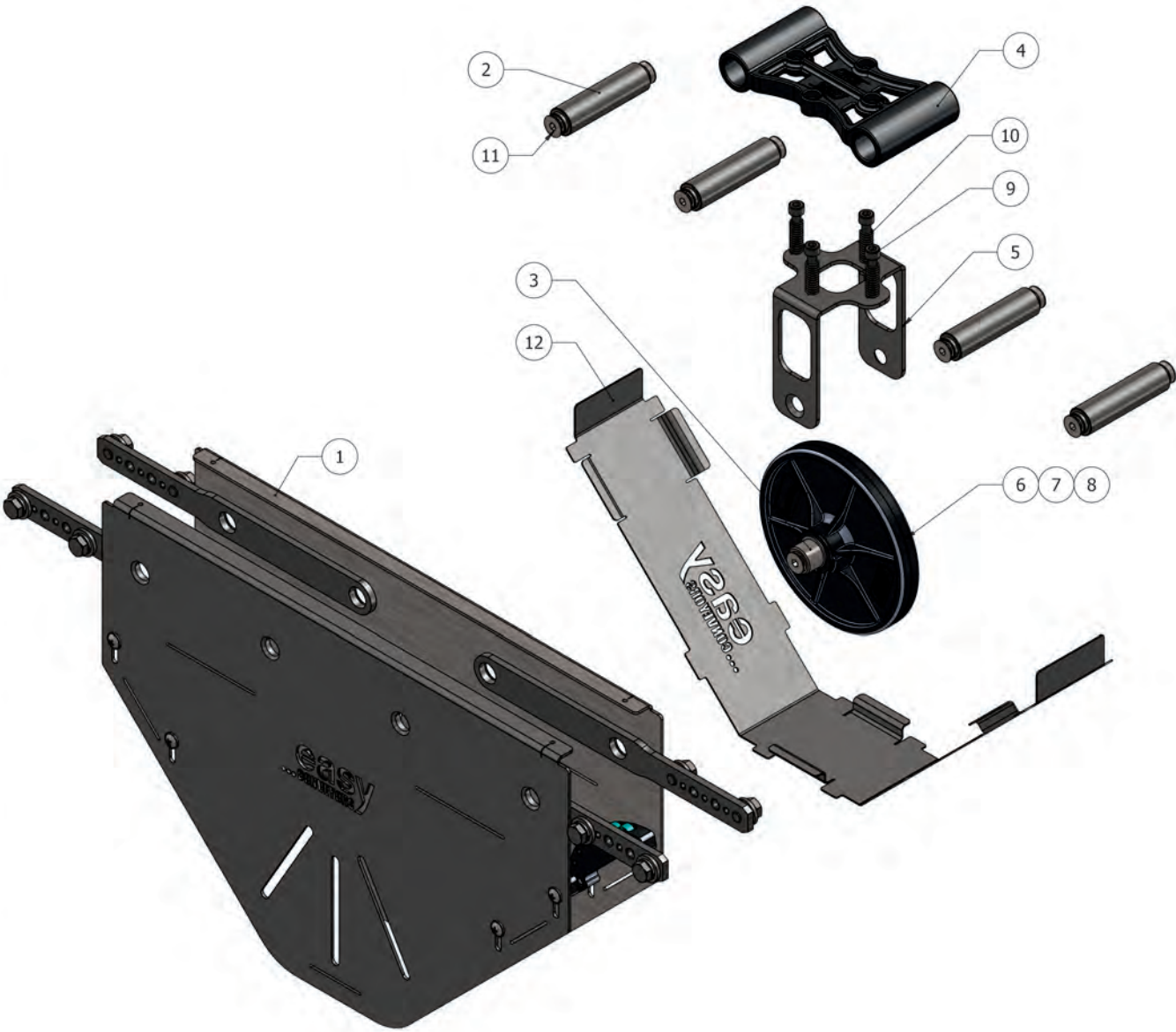
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	B =		
ETS040905040000	87,5 mm	3,44" inch	1 set
ETS040905050000	147,5 mm	5,80" inch	1 set
ETS040905060000	207,5 mm	8,17" inch	1 set

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- | | |
|----|---------------------------------------|
| 1 | ETS / EMBS Sag module |
| 2 | SAG module connector |
| 3 | Tentioner shaft |
| 4 | Tentioner holder |
| 5 | Tentioner plate |
| 6 | ETS return wheel |
| 7 | Slide bearing |
| 8 | Retaining ring |
| 9 | Hexagon socket head cap |
| 10 | Pressure ring |
| 11 | Hexagon socket countersunk head screw |
| 12 | SAG module cover |

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1		
ETS040905030000	ETS SAG Module; general	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6	

Art Nr. Pos 2		
040904000085	ETS DRIVE/RETURN UNIT CONNECTOR; 80	1
040904000140	ETS DRIVE/RETURN UNIT CONNECTOR; 140	1
040904020200	SAG MODULE CONNECTOR; 200	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 3		
040909000001	TENTIONER SHAFT	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 4		
040906000015	TENTIONER HOLDER	1
Material	POM	

Art Nr. Pos 5		
040905000012	TENTIONER PLATE	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 6		
040906000001	Diameter Ø133.1 Bore Ø25 DIN 6885 key seat	1
Material	PA6	

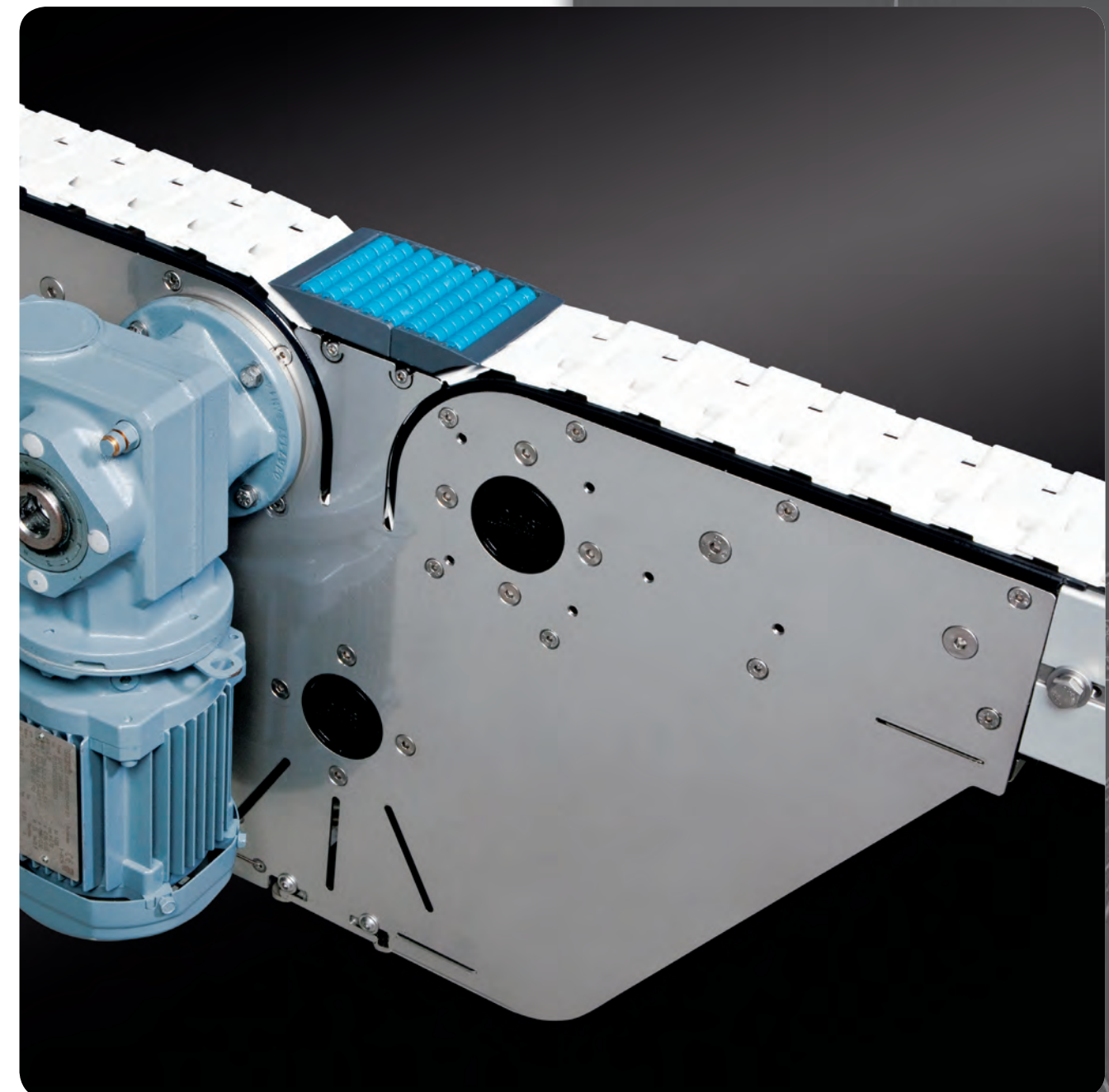
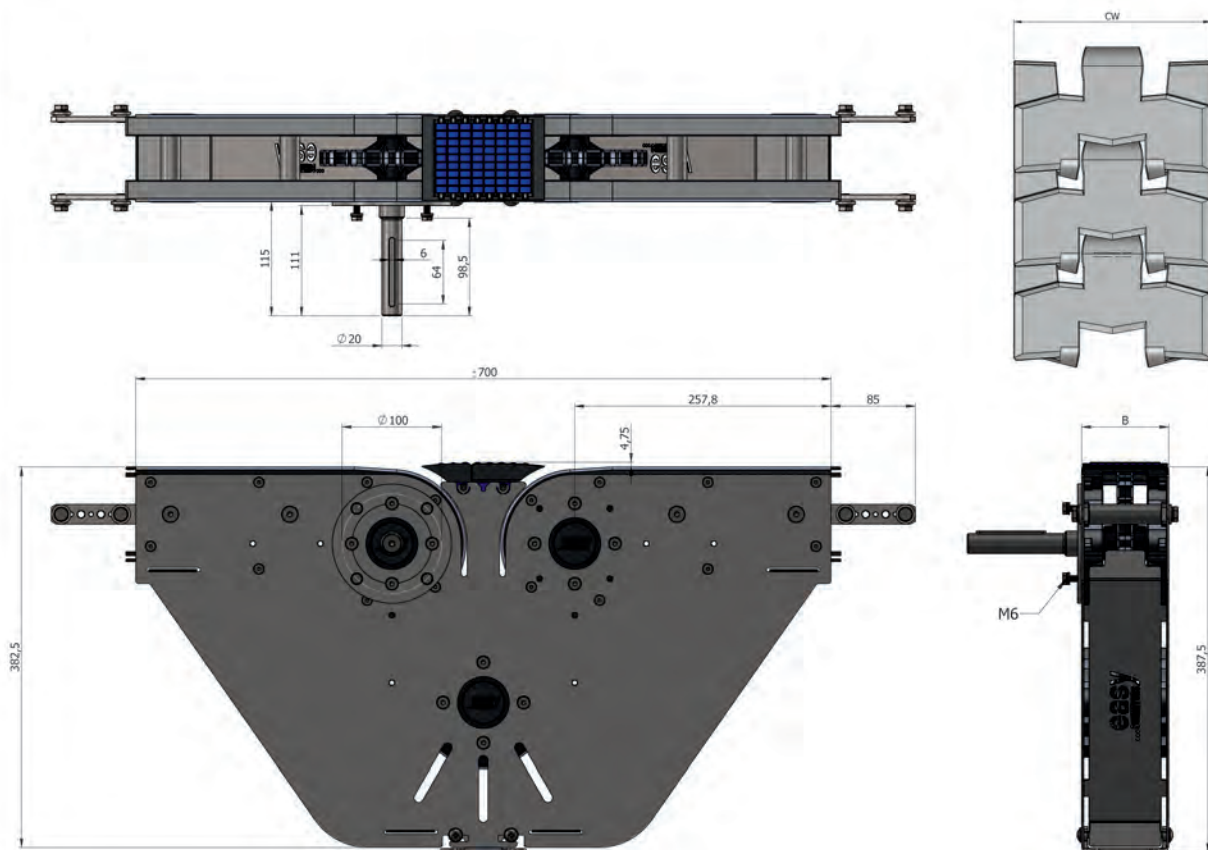
Art Nr. Pos 7		
040909000000	SLIDE BEARING; Ø20x15	1
Material	PA6	

Art Nr. Pos 8	Art Nr. Pos 9	
BV047120000A2	BV091206040A2	100
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 10	Art Nr. Pos 11	
040909020000	BV799108016A2	100
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 12		
040905042085	ETS SAG MODULE COVER; 80	1
040905042140	ETS SAG MODULE COVER; 140	1
040905042200	ETS SAG MODULE COVER; 200	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



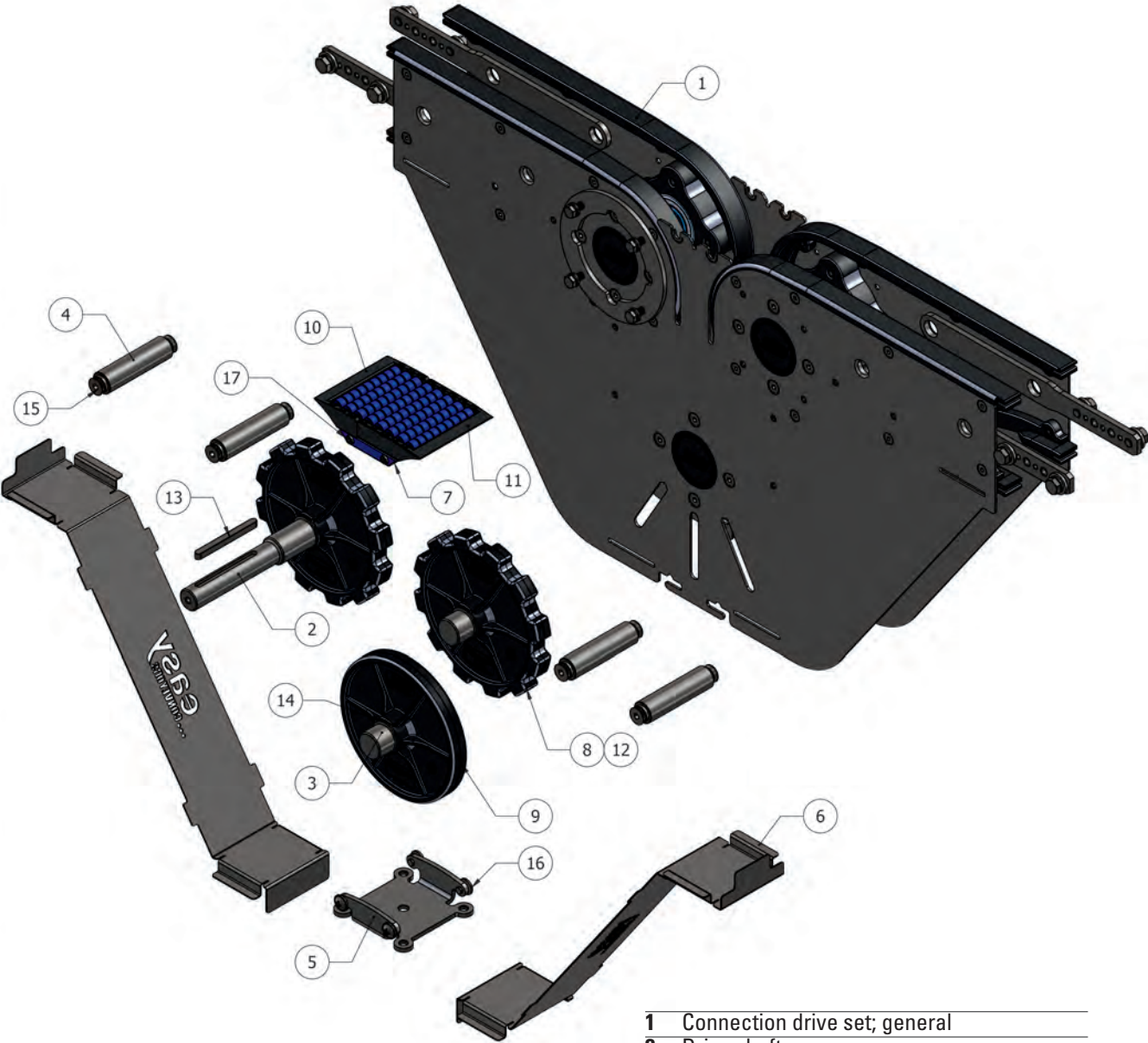
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	CW =	B =	
ETS040803040000	ETS040903040000	80 mm	3,14" inch	87,5 mm 3,44" inch 1 set
ETS040803050000	ETS040903050000	140 mm	5,51" inch	147,5 mm 5,80" inch 1 set
ETS040803060000	ETS040903060000	200 mm	7,87" inch	207,5 mm 8,17" inch 1 set
Suitable for, Geeignet für, Convient pour, Adecuado para			SEW With flange 120	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Connection drive set; general
- 2 Drive shaft
- 3 Return shaft
- 4 Drive / return unit connector
- 5 Drive support plate
- 6 Connection drive cover
- 7 Transfer plate
- 8 Chain wheel
- 9 Return wheel
- 10 Modular transfer plate with rollers
- 11 Modular transfer plate with rollers
- 12 Parallel key
- 13 Parallel key
- 14 Retaining ring
- 15 Hexagon socket countersunk head screw
- 16 Hexagon socket button head screw

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1					
ETS040803010000	ETS040903010000	80 mm	3,14" inch		1
ETS040803020000	ETS040903020000	140 mm	5,51" inch		1
ETS040803030000	ETS040903030000	200 mm	7,87" inch		1
Material		Material			
Aluminium		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6			

Art Nr. Pos 2	Art Nr. Pos 3	Art Nr. Pos 4			
040901000085	040903000085	040904000085	80 mm	3,14" inch	1
040901000140	040903000140	040904000140	140 mm	5,51" inch	1
040901000200	040903000200	040904000200	200 mm	7,87" inch	1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6			

Art Nr. Pos 5	Art Nr. Pos 6	Art Nr. Pos 7			
040905030085	040906080085	040906000011	80 mm	3,14" inch	1
040905030140	040906080140	040906060140	140 mm	5,51" inch	1
040905031200	040906080200	040906060200	200 mm	7,87" inch	1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + Pos 7: POM			

Art Nr. Pos 8			Material		
040906000000	Pitch diameter Ø 147.2	Bore Ø 25 DIN 6885 key seat	PA6		1

Art Nr. Pos 9			Material		
040906000001	Diameter Ø 133.1	Bore Ø 25 DIN 6885 key seat	PA6		1
Material		PA6			

Art Nr. Pos 10	Art Nr. Pos 11	W=	Material		
040709010002	040909010000	85	Stainless Steel, PBT, POM		1
040709010003	040909030000	115	Stainless Steel, PBT, POM		1

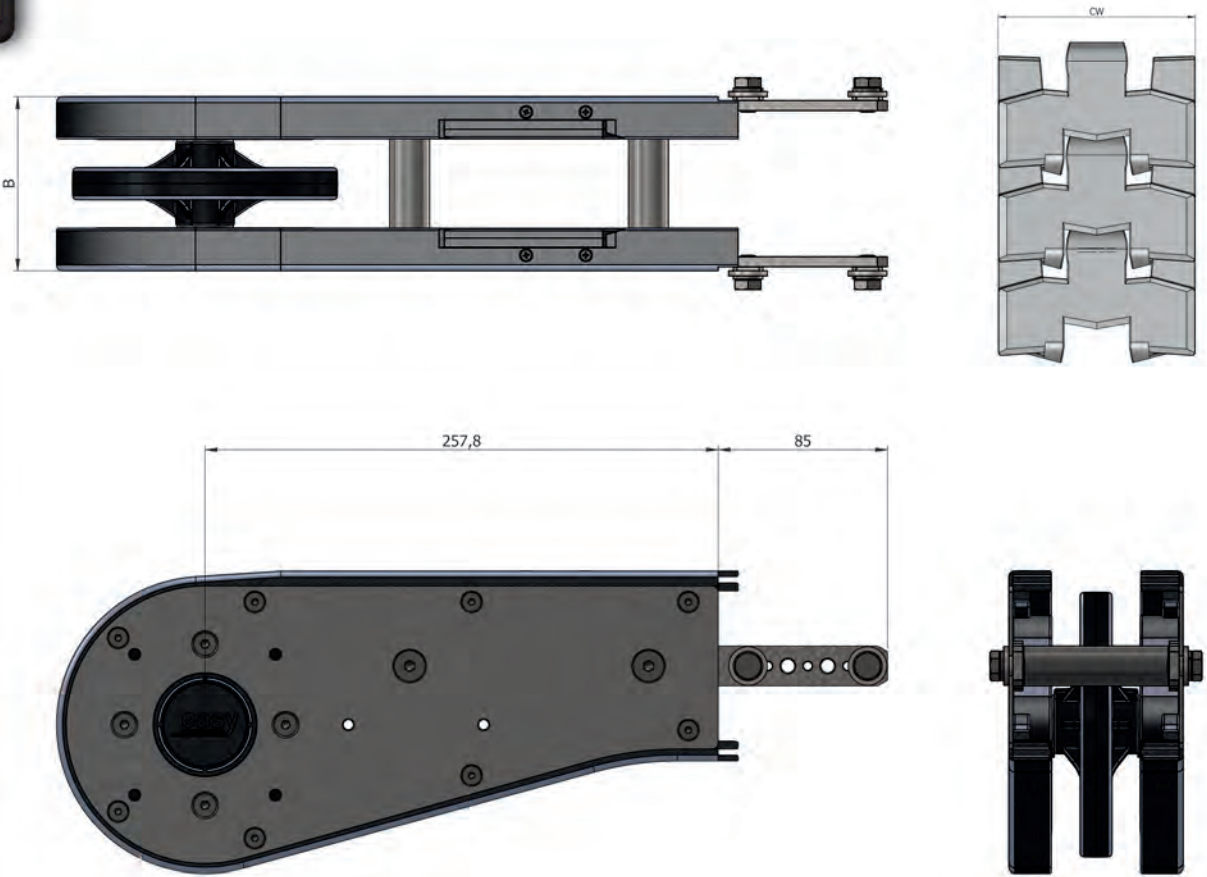
Art Nr. Pos 12		Art Nr. Pos 13			
BV688587040A4	1	BV688566070A4			100
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			

Art Nr. Pos 14	Material				
BV047125000A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1				

Art Nr. Pos 15	Material				
BV799108016A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 100				

Art Nr. Pos 16	Material				
BV738006008A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 100				

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

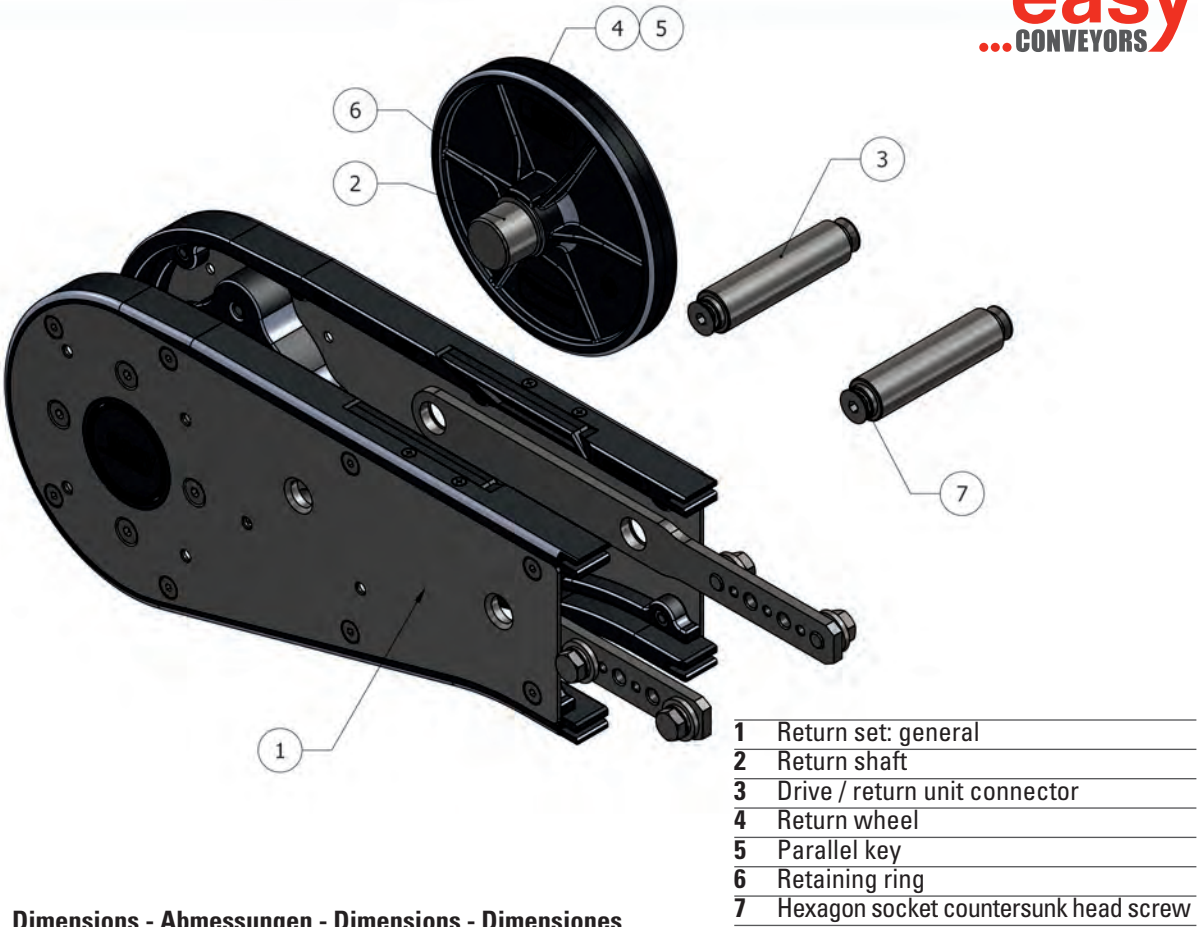
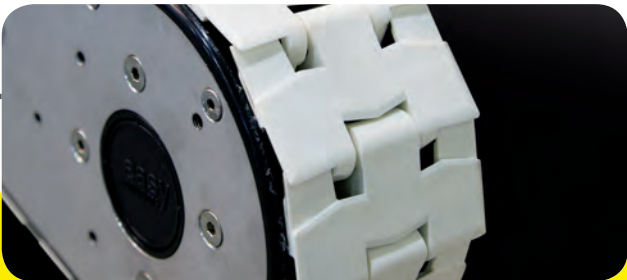


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	CW =		B =		
ETS040804040000	ETS040904040000	80 mm	3,14" inch	87,5 mm	3,44" inch	1 set
ETS040804050000	ETS040904050000	140 mm	5,51" inch	147,5 mm	5,80" inch	1 set
ETS040804060000	ETS040904060000	200 mm	7,87" inch	207,5 mm	8,17" inch	1 set
Suitable for, Geeignet für, Convient pour, Adecuado para				SEW With flange 120		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1					
Aluminium	Stainless steel				
ETS040804010000	ETS040904010000	80 mm	3,14" inch	1	
ETS040804020000	ETS040904020000	140 mm	5,51" inch	1	
ETS040804030000	ETS040904030000	200 mm	7,87" inch	1	

Material	Material
Aluminium	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6

Art Nr. Pos 2	Art Nr. Pos 3				
040903000085	040904000085	80 mm	3,14" inch	1	
040903000140	040904000140	140 mm	5,51" inch	1	
040903000200	040904000200	200 mm	7,87" inch	1	

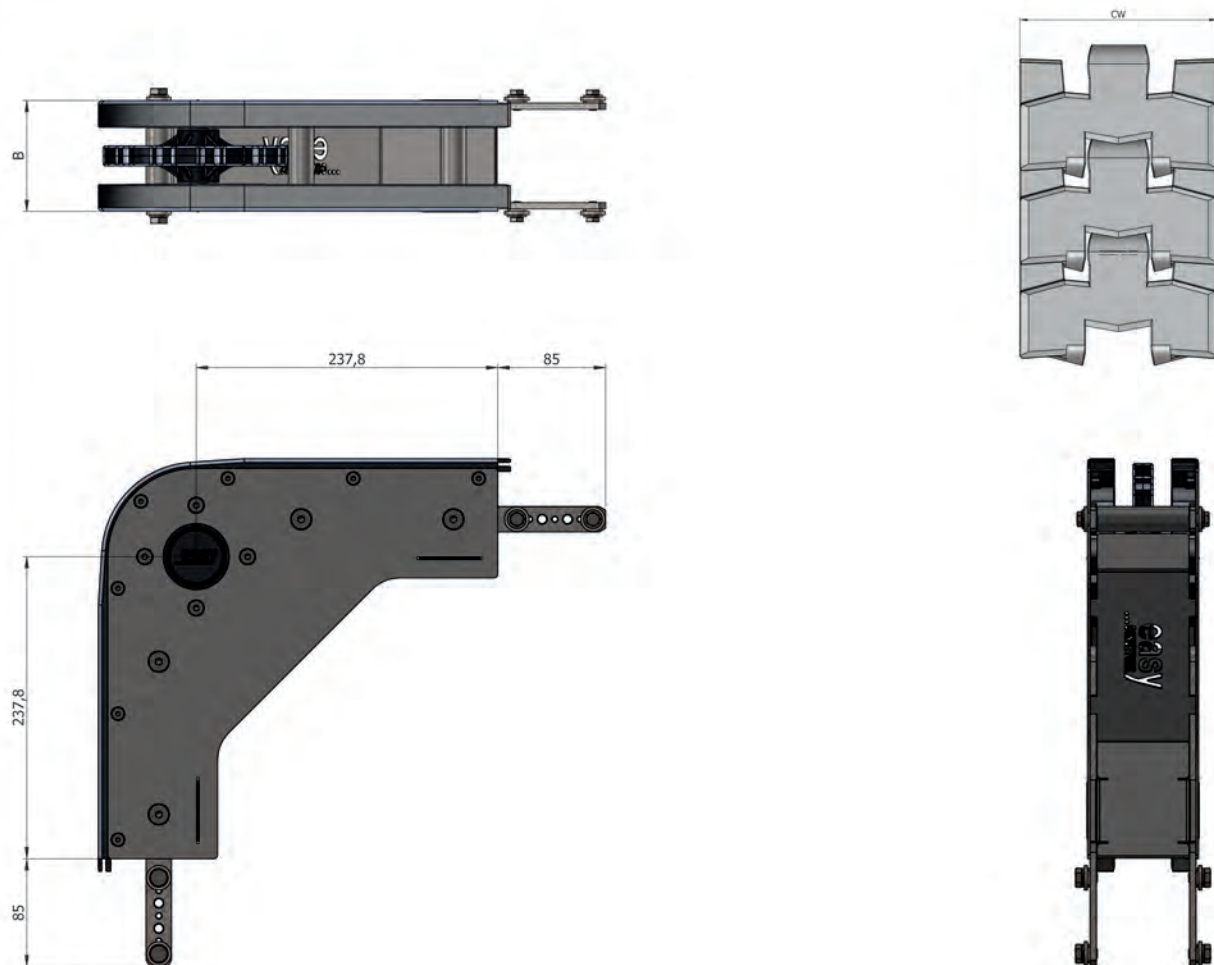
Material	Material
	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6

Art Nr. Pos 4	Material		
040906000001	Diameter Ø 133.1	Bore Ø 25 DIN 6885 key seat	1 PA6

Art Nr. Pos 5	Art Nr. Pos 6	Material
BV688587040A4	BV047125000	100 Stainless steel

Art Nr. Pos 7	Material
BV799108016A2	100 Stainless steel

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

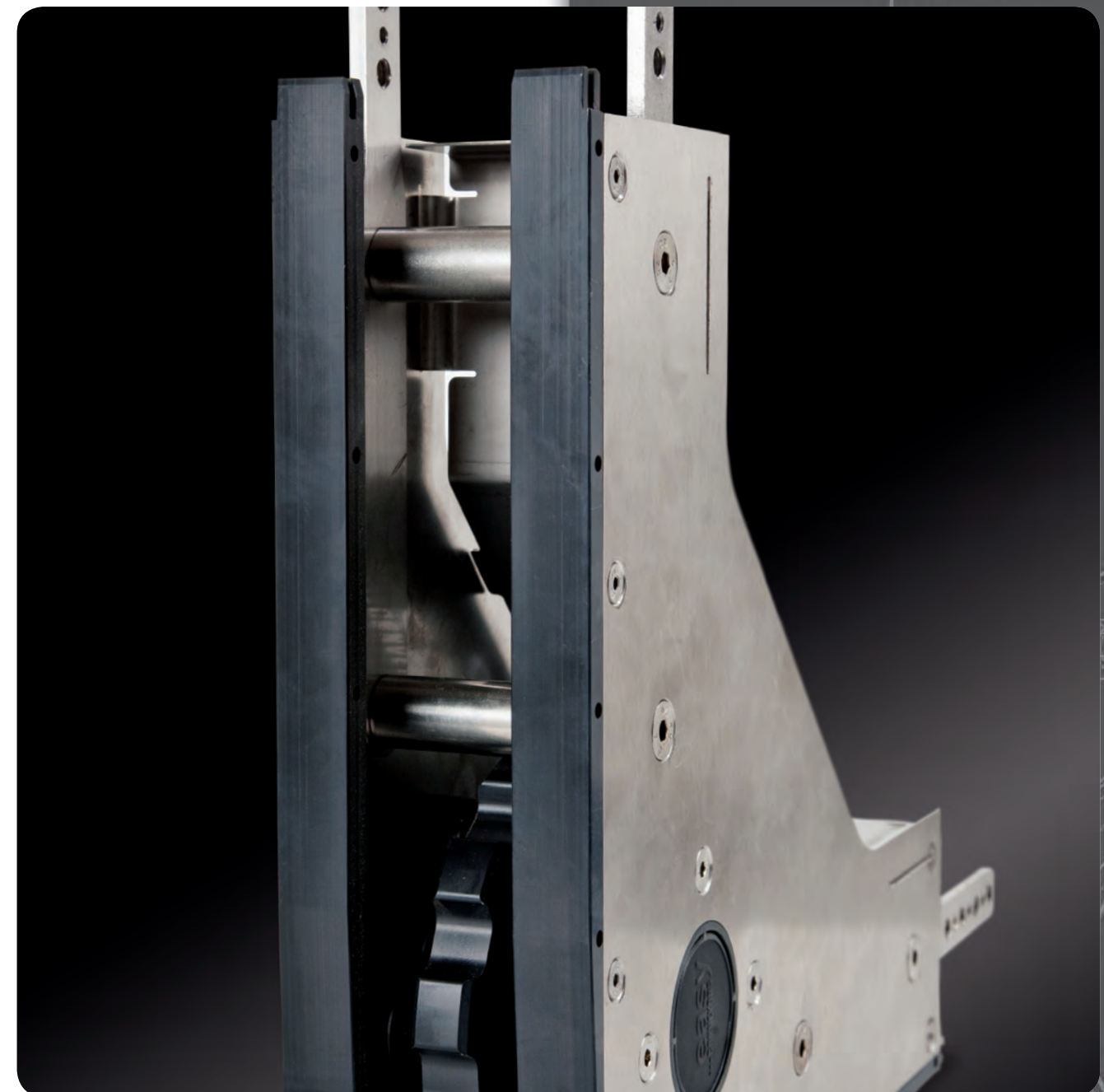


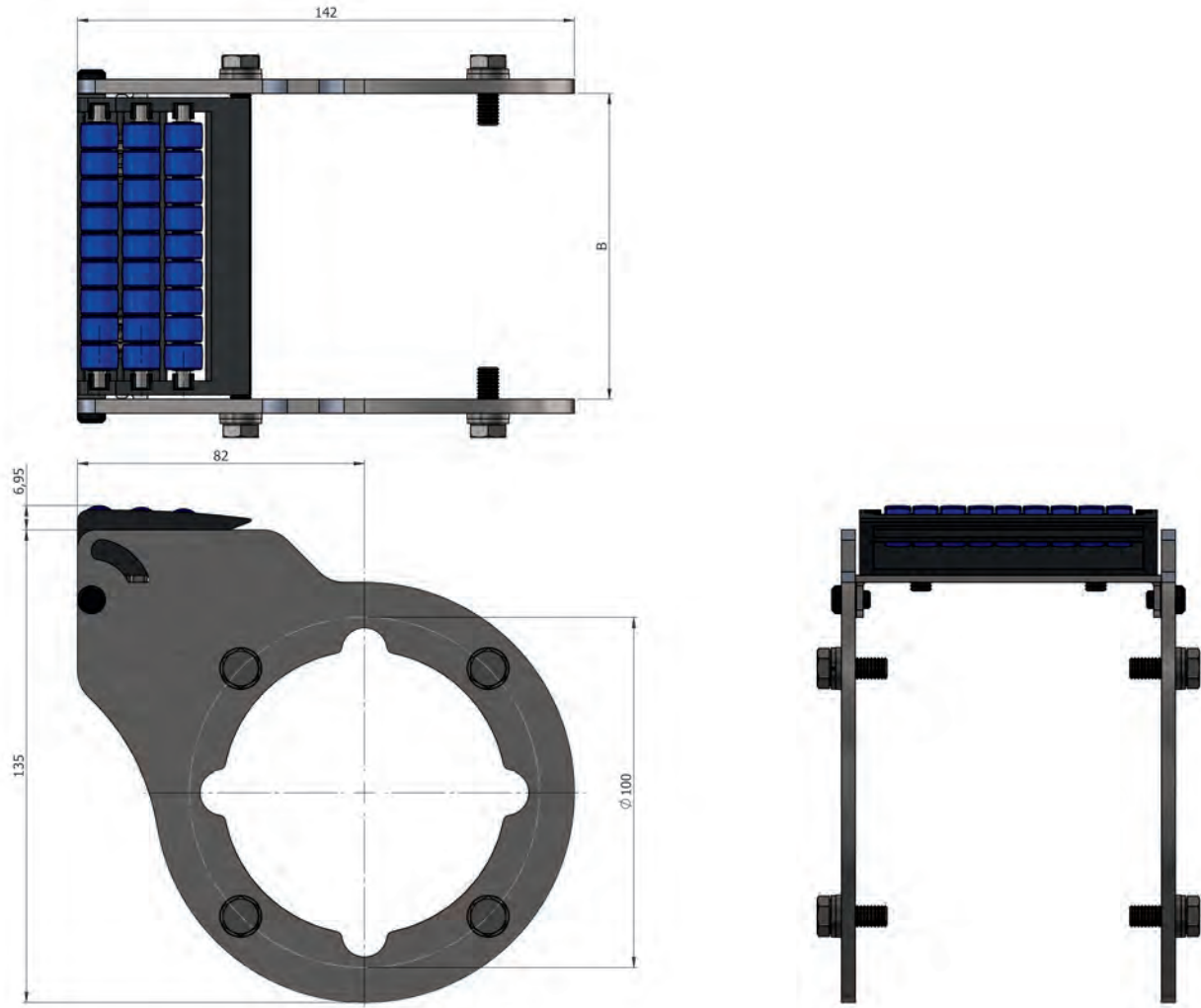
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	FW =	
ETS040807071085	ETS040907071085	87,5 mm	3,44" inch
ETS040807071140	ETS040907071140	147,5 mm	5,80" inch
ETS040807071200	ETS040907071200	207,5 mm	8,17" inch
Material	Material		
Aluminium	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





1 Transfer module double; general
2 Transfer module double

More technical information: See engineering online www.easy-conveyors.com





Dimensions - Abmessungen - Dimensions - Dimensiones

	B =
ETS TRANSFER MODULE SINGLE	WIDENESS DRIVE OR RETRUN UNIT

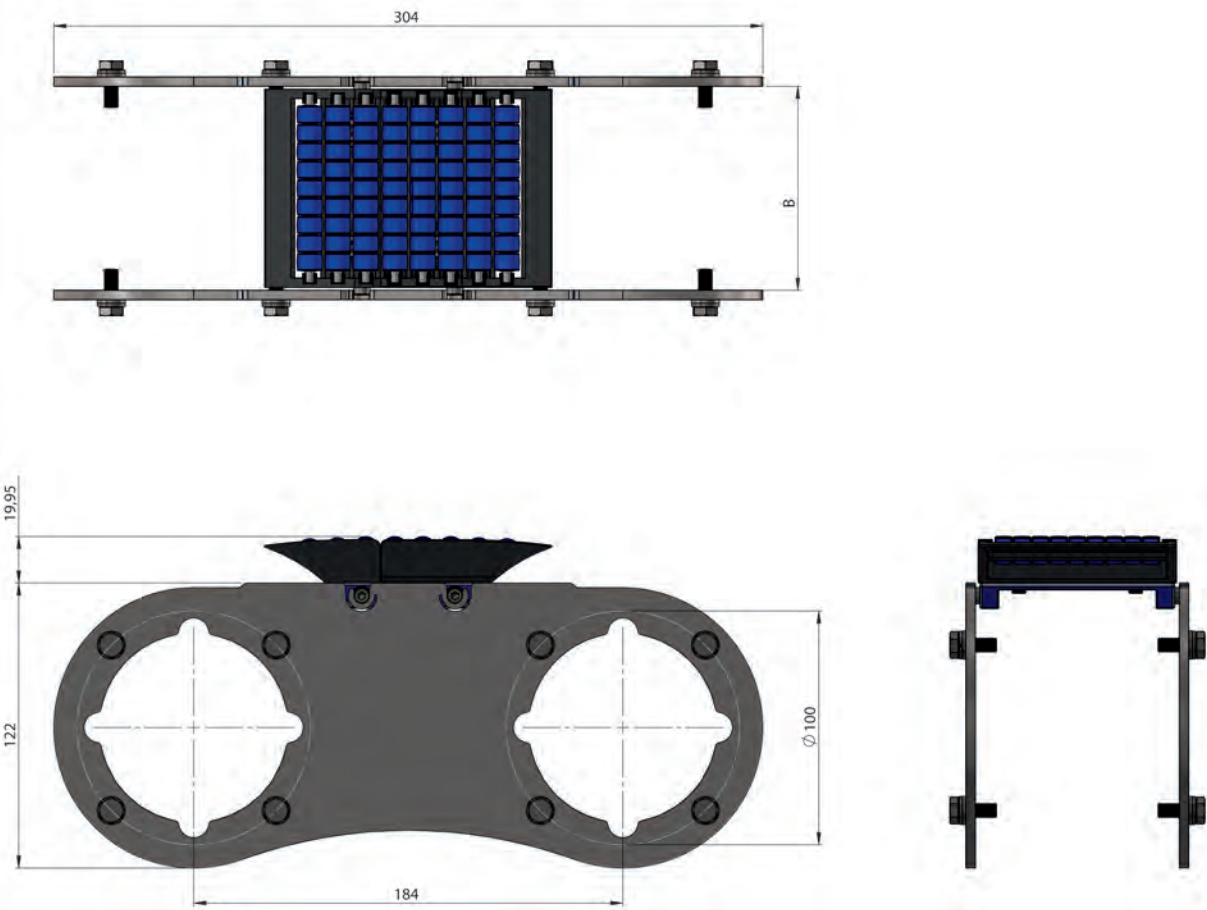
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1		
ETP040801010000	ETS TRANSFER MODULE SINGLE; GENERAL	 1 incl. fastners
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	
Art Nr. Pos 2		
ETP040801010085	ETS TRANSFER MODULE DOUBLE; 85	 1 incl. fastners
ETP040801010140	ETS TRANSFER MODULE DOUBLE; 140	 1 incl. fastners
ETP040801010200	ETS TRANSFER MODULE DOUBLE; 200	 1 incl. fastners
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable, PBT, POM	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



1 Transfer module double; general
2 Transfer module double

More technical information: See engineering online www.easy-conveyors.com





Dimensions - Abmessungen - Dimensions - Dimensiones

	B =
ETS TRANSFER MODULE DOUBLE	WIDENESS DRIVE OR RETRUN UNIT

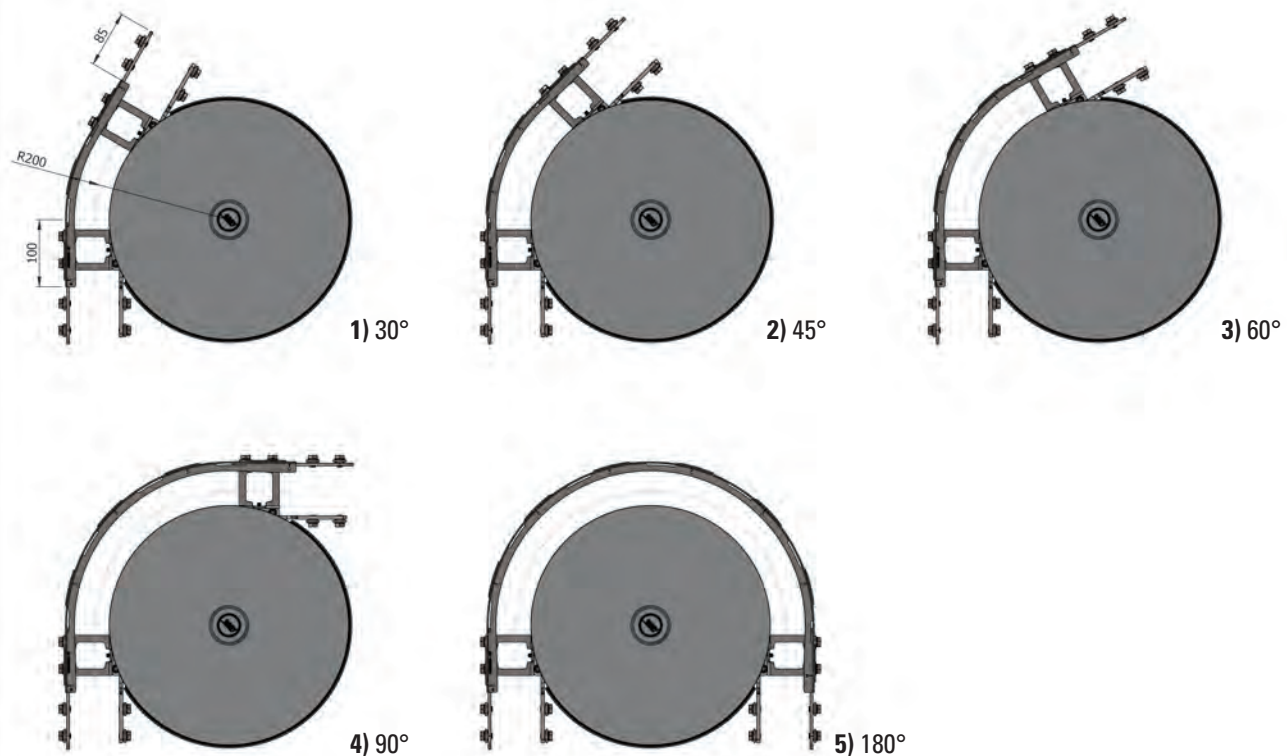
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1			
ETP040801020000	ETS TRANSFER MODULE DOUBLE; GENERAL		1 incl. fastners
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		
Art Nr. Pos 2			
ETP040801020085	ETS TRANSFER MODULE DOUBLE; 85		1 incl. fastners
ETP040801020140	ETS TRANSFER MODULE DOUBLE; 140		1 incl. fastners
ETP040801020200	ETS TRANSFER MODULE DOUBLE; 200		1 incl. fastners
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable, PBT, POM		

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

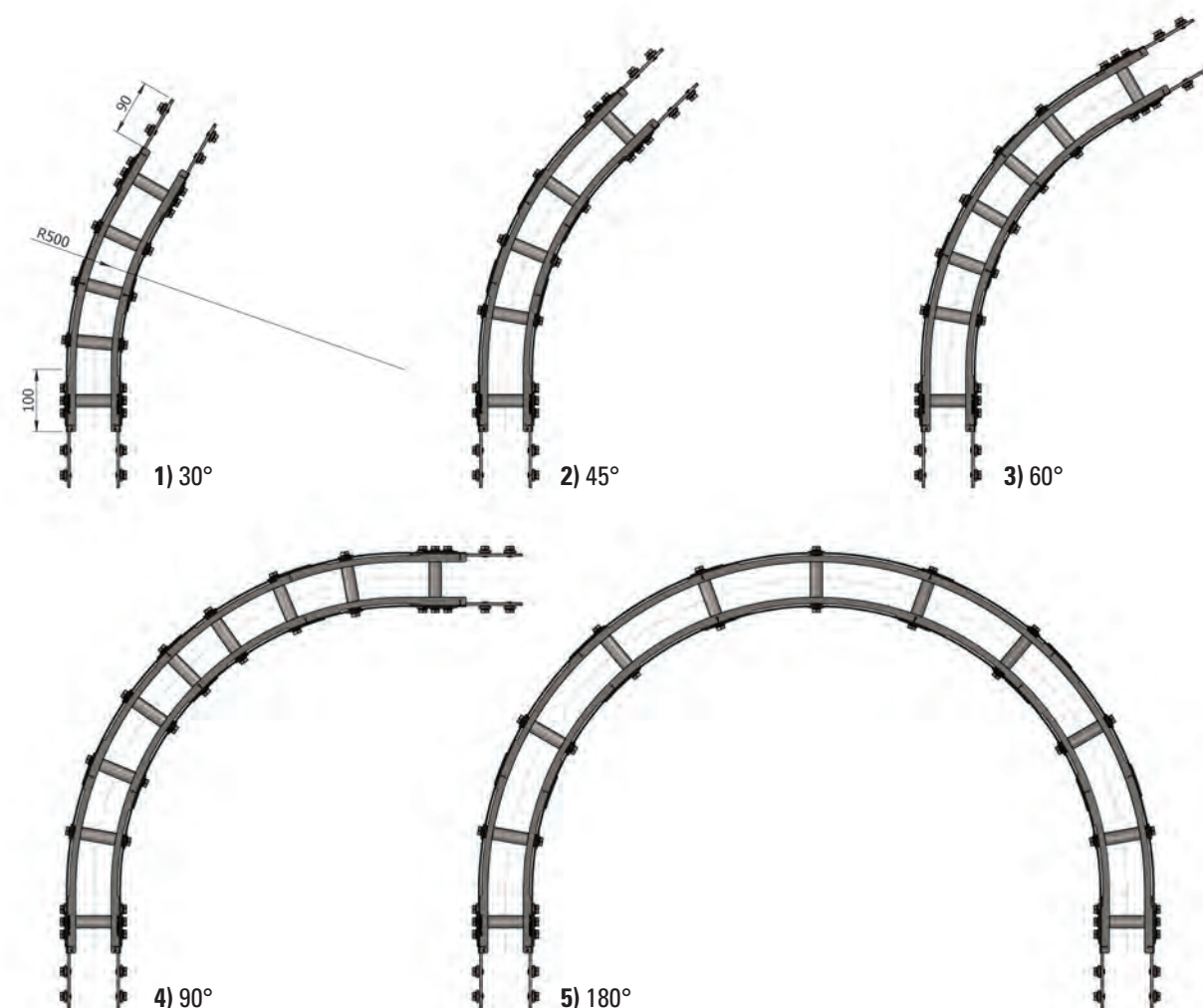
Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	FW =				
1) ETS040806010085	ETS040906010085	87,5 mm	3,44" inch	Hor. Curve 85 30°	R=200	1
2) ETS040806020085	ETS040906020085	87,5 mm	3,44" inch	Hor. Curve 85 45°	R=200	1
3) ETS040806030085	ETS040906030085	87,5 mm	3,44" inch	Hor. Curve 85 60°	R=200	1
4) ETS040806040085	ETS040906040085	87,5 mm	3,44" inch	Hor. Curve 85 90°	R=200	1
5) ETS040806050085	ETS040906050085	87,5 mm	3,44" inch	Hor. Curve 85 180°	R=200	1

Material	Material
AL + PA 6.6	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA 6.6

Material	Side plates: AL or Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	1
Material	Wheelcurve: PA	1

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	FW =				
1) ETS040806010185	ETS040906010185	87,5 mm	3,44" inch	Hor. Curve 85 30°	R=500	1
2) ETS040806020185	ETS040906020185	87,5 mm	3,44" inch	Hor. Curve 85 45°	R=500	1
3) ETS040806030185	ETS040906030185	87,5 mm	3,44" inch	Hor. Curve 85 60°	R=500	1
4) ETS040806040185	ETS040906040185	87,5 mm	3,44" inch	Hor. Curve 85 90°	R=500	1
5) ETS040806050185	ETS040906050185	87,5 mm	3,44" inch	Hor. Curve 85 180°	R=500	1

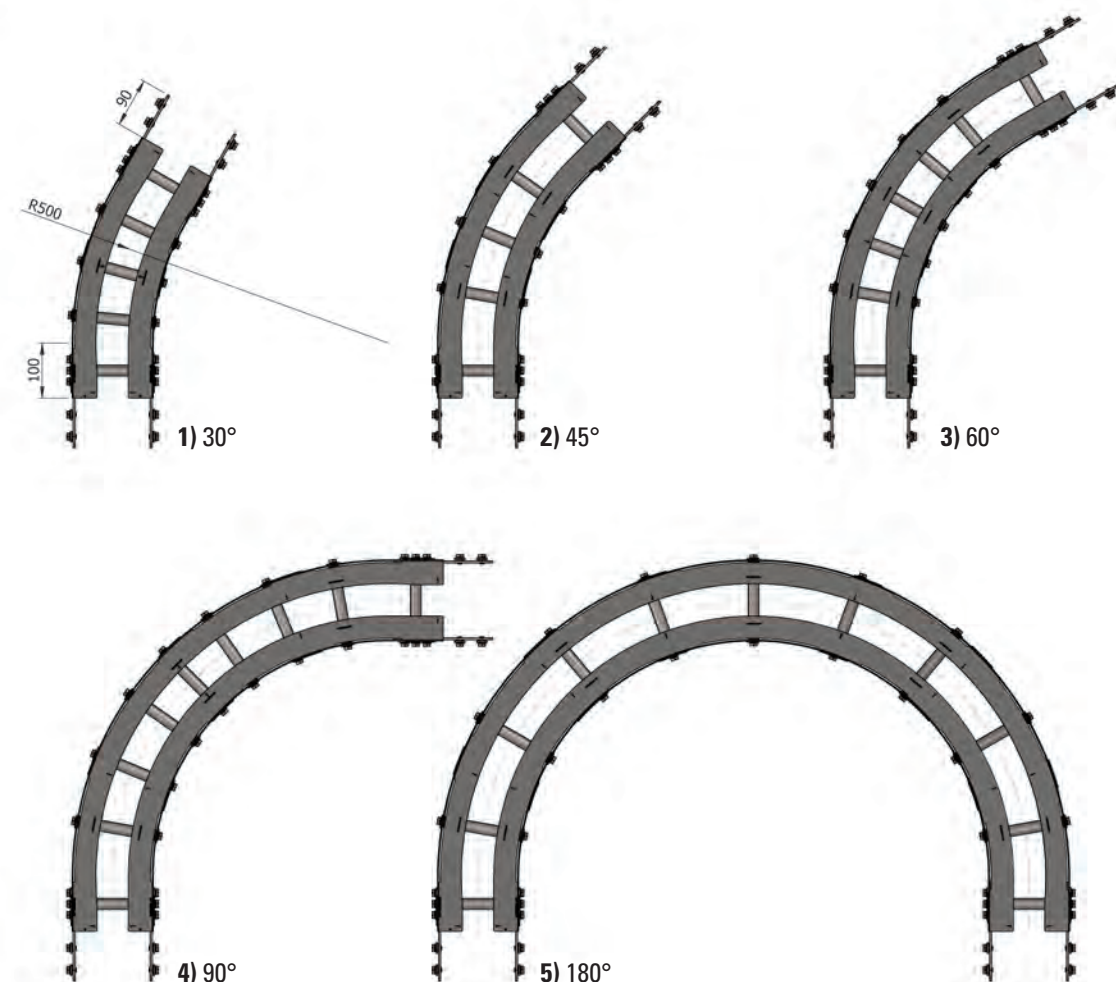
Material	Material
AL	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

Material	Side plates: AL or Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	1
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Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



See engineering online
www.easy-conveyors.com

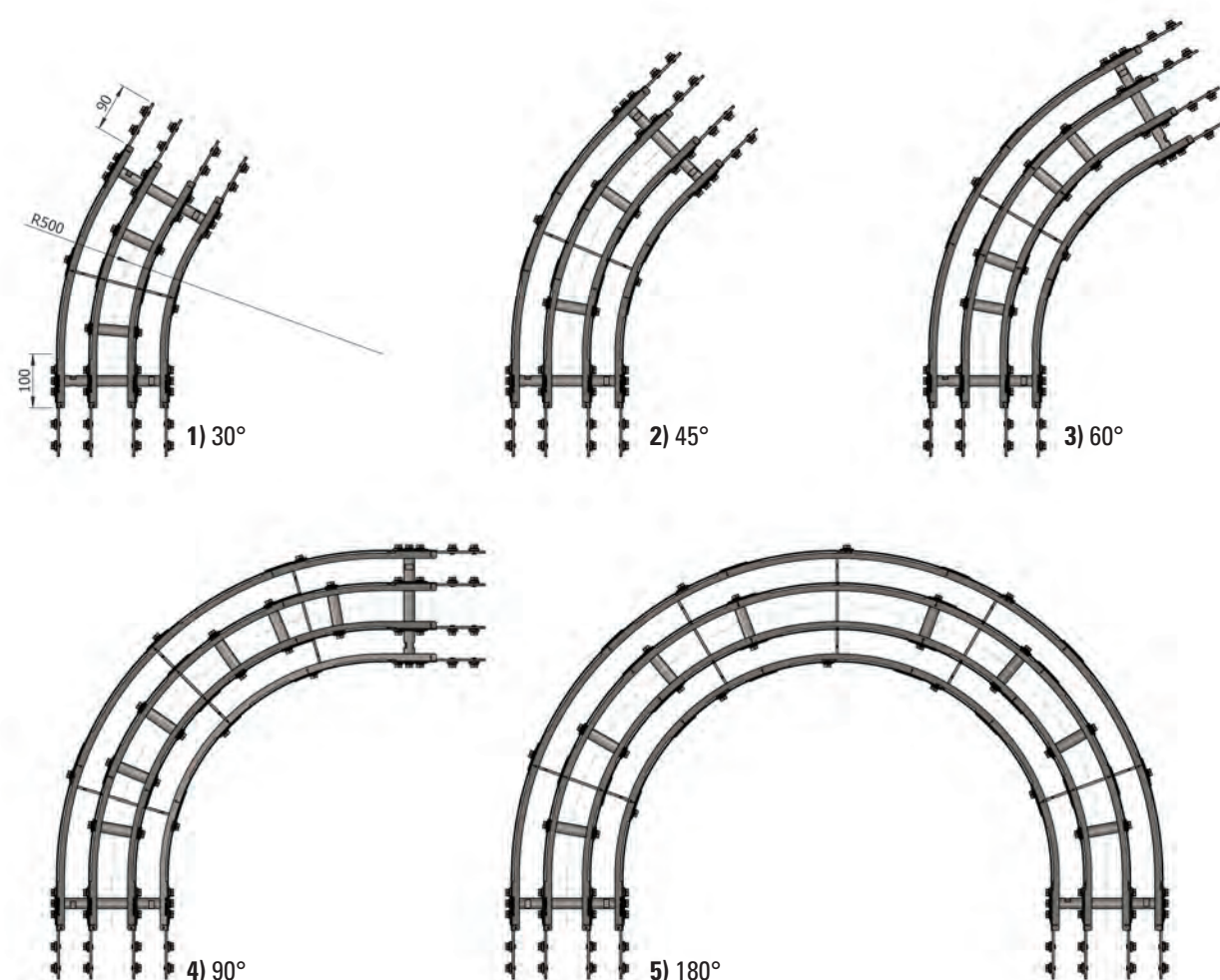
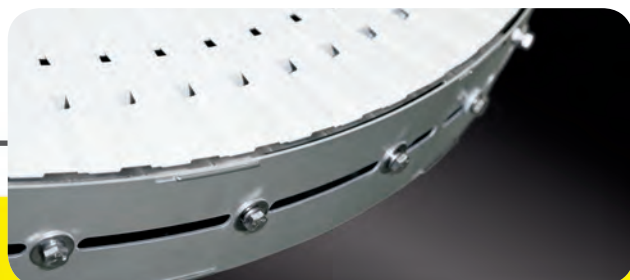


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	FW =					
1) ETS040806011140	ETS040906011140	147,5 mm	5,81" inch	Hor. Curve 140 30°	R=500	1	
2) ETS040806021140	ETS040906021140	147,5 mm	5,81" inch	Hor. Curve 140 45°	R=500	1	
3) ETS040806031140	ETS040906031140	147,5 mm	5,81" inch	Hor. Curve 140 60°	R=500	1	
4) ETS040806041140	ETS040906041140	147,5 mm	5,81" inch	Hor. Curve 140 90°	R=500	1	
5) ETS040806051140	ETS040906051140	147,5 mm	5,81" inch	Hor. Curve 140 180°	R=500	1	
Material	Material						
AL	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable						

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta

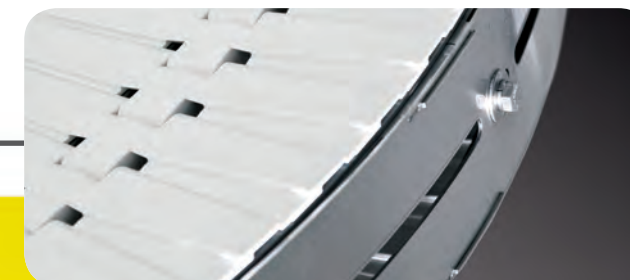


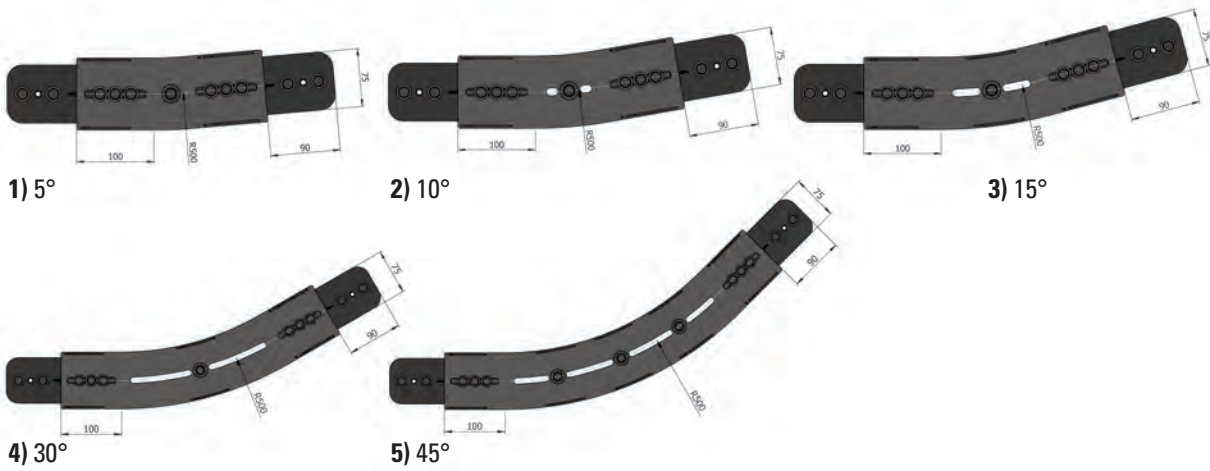
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	FW =					
1) ETS040806011200	ETS040906011200	207,5 mm	8,17" inch	Hor. Curve 200 30°	R=500	1	
2) ETS040806021200	ETS040906021200	207,5 mm	8,17" inch	Hor. Curve 200 45°	R=500	1	
3) ETS040806031200	ETS040906031200	207,5 mm	8,17" inch	Hor. Curve 200 60°	R=500	1	
4) ETS040806041200	ETS040906041200	207,5 mm	8,17" inch	Hor. Curve 200 90°	R=500	1	
5) ETS040806051200	ETS040906051200	207,5 mm	8,17" inch	Hor. Curve 200 180°	R=500	1	
Material	Material						
AL	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable						
















Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





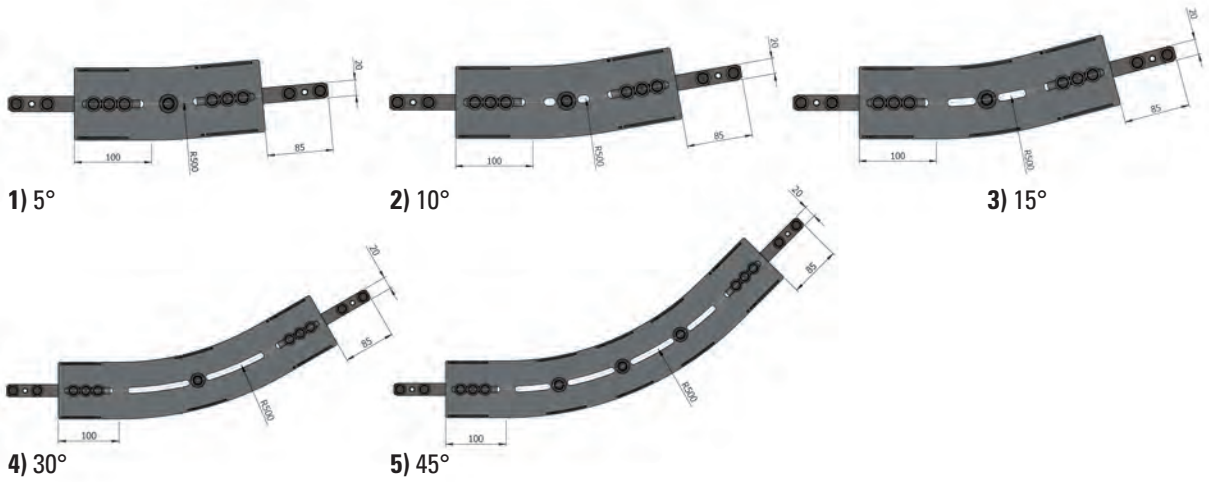
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

STAINLESS STEEL		Frame Wideness		
1) ETS040907010085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 5° R=500	 1
2) ETS040907020085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 10° R=500	 1
3) ETS040907030085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 15° R=500	 1
4) ETS040907040085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 30° R=500	 1
5) ETS040907050085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 45° R=500	 1
1) ETS040907010140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 5° R=500	 1
2) ETS040907020140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 10° R=500	 1
3) ETS040907030140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 15° R=500	 1
4) ETS040907040140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 30° R=500	 1
5) ETS040907050140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 45° R=500	 1
1) ETS040907010200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 5° R=500	 1
2) ETS040907020200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 10° R=500	 1
3) ETS040907030200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 15° R=500	 1
4) ETS040907040200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 30° R=500	 1
5) ETS040907050200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 45° R=500	 1
















Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



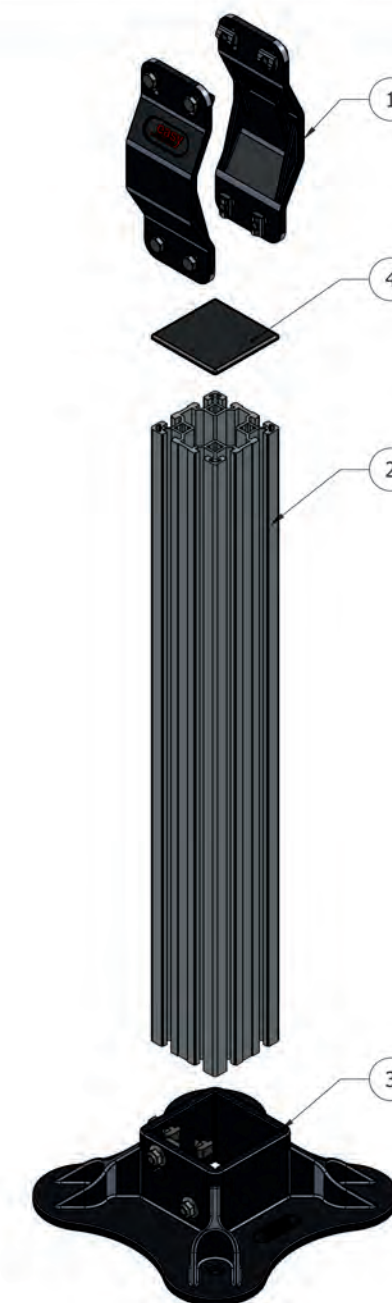
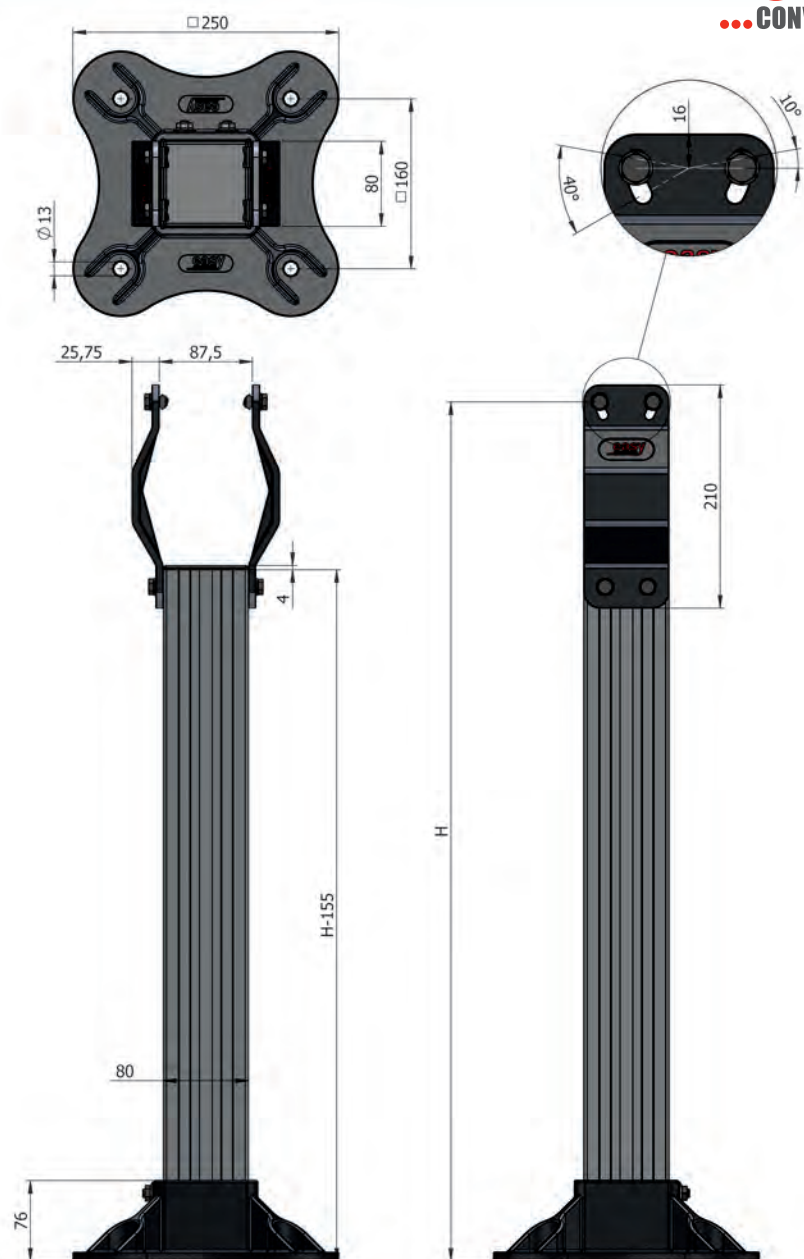
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM		Frame Wideness		
1) ETS040807010085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 5° R=500	 1
2) ETS040807020085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 10° R=500	 1
3) ETS040807030085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 15° R=500	 1
4) ETS040807040085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 30° R=500	 1
5) ETS040807050085	87,5mm	3,44" inch	ETS VER. SLIDE CURVE 85; 45° R=500	 1
1) ETS040807010140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 5° R=500	 1
2) ETS040807020140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 10° R=500	 1
3) ETS040807030140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 15° R=500	 1
4) ETS040807040140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 30° R=500	 1
5) ETS040807050140	147,5mm	5,81" inch	ETS VER. SLIDE CURVE 140; 45° R=500	 1
1) ETS040807010200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 5° R=500	 1
2) ETS040807020200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 10° R=500	 1
3) ETS040807030200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 15° R=500	 1
4) ETS040807040200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 30° R=500	 1
5) ETS040807050200	207,5mm	8,17" inch	ETS VER. SLIDE CURVE 200; 45° R=500	 1

Material AL

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta







- | | |
|---|-------------------|
| 1 | I support bracket |
| 2 | Profile 80x80L |
| 3 | Support base |
| 4 | Cap 80x80 |

More technical information: See engineering online **www.easy-conveyors.com**

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW		
SW Min =	232 mm	9,13" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

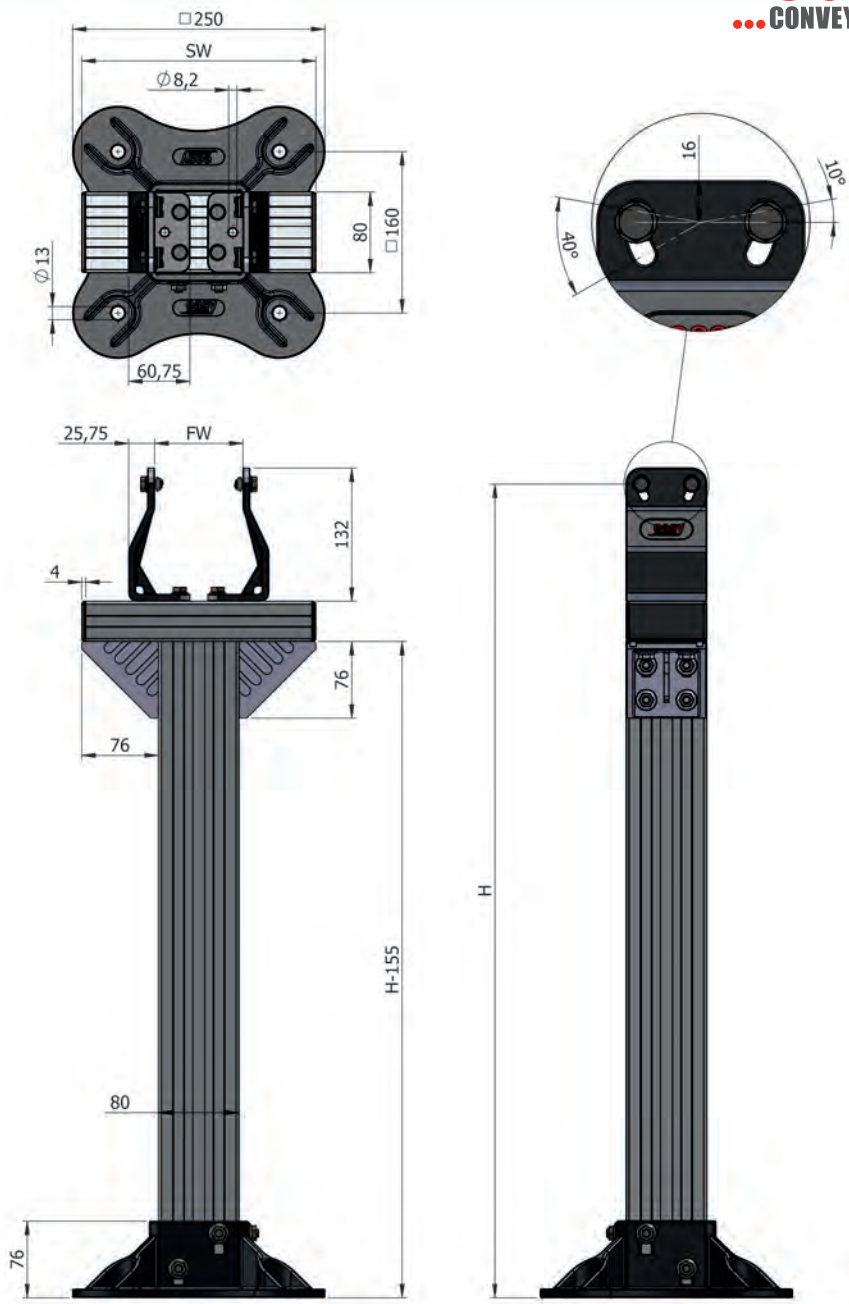
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040808030000 I support bracket	PA FG	 1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2	Material	
020102070009 Profile 40x80L, L= 6070 mm	AL	 1
Art Nr. Pos 3	Material	
ETS040808040000 Support base	AL RAL9005	 1
Art Nr. Pos 4	Material	
020102140000 CAP 80x80L	PA FG	 10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

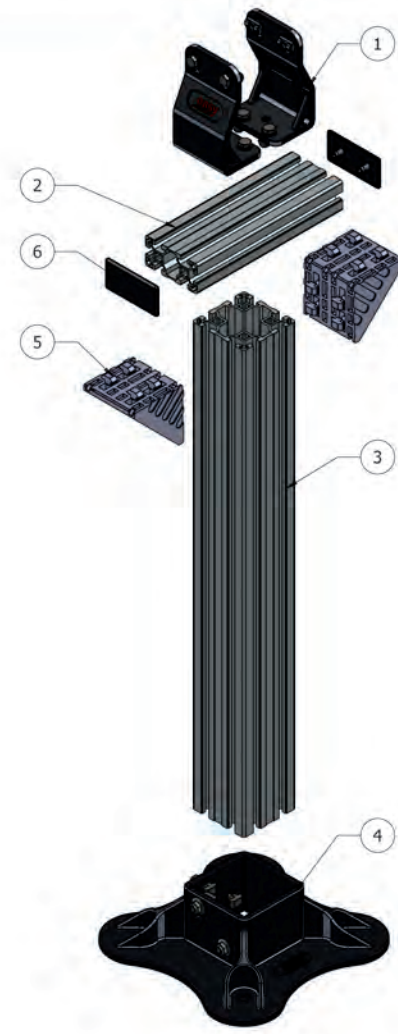
See engineering online
www.easy-conveyors.com



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones	
FW =	
SW Min =	232 mm 9,13" inch
We advise a maximum (FW) than 400 mm, Wir empfehlen eine maximale Breite von 400 mm	
Se aconseja un máximo de ancho de 400 mm, Nous vous conseillons une gamme maximale de 400 mm	
H Max =	1200 mm 47,25" inch
Always fasten to the floor, Immer am Boden befestigen	
Siempre sujete al suelo, Toujours attacher à l'étage	

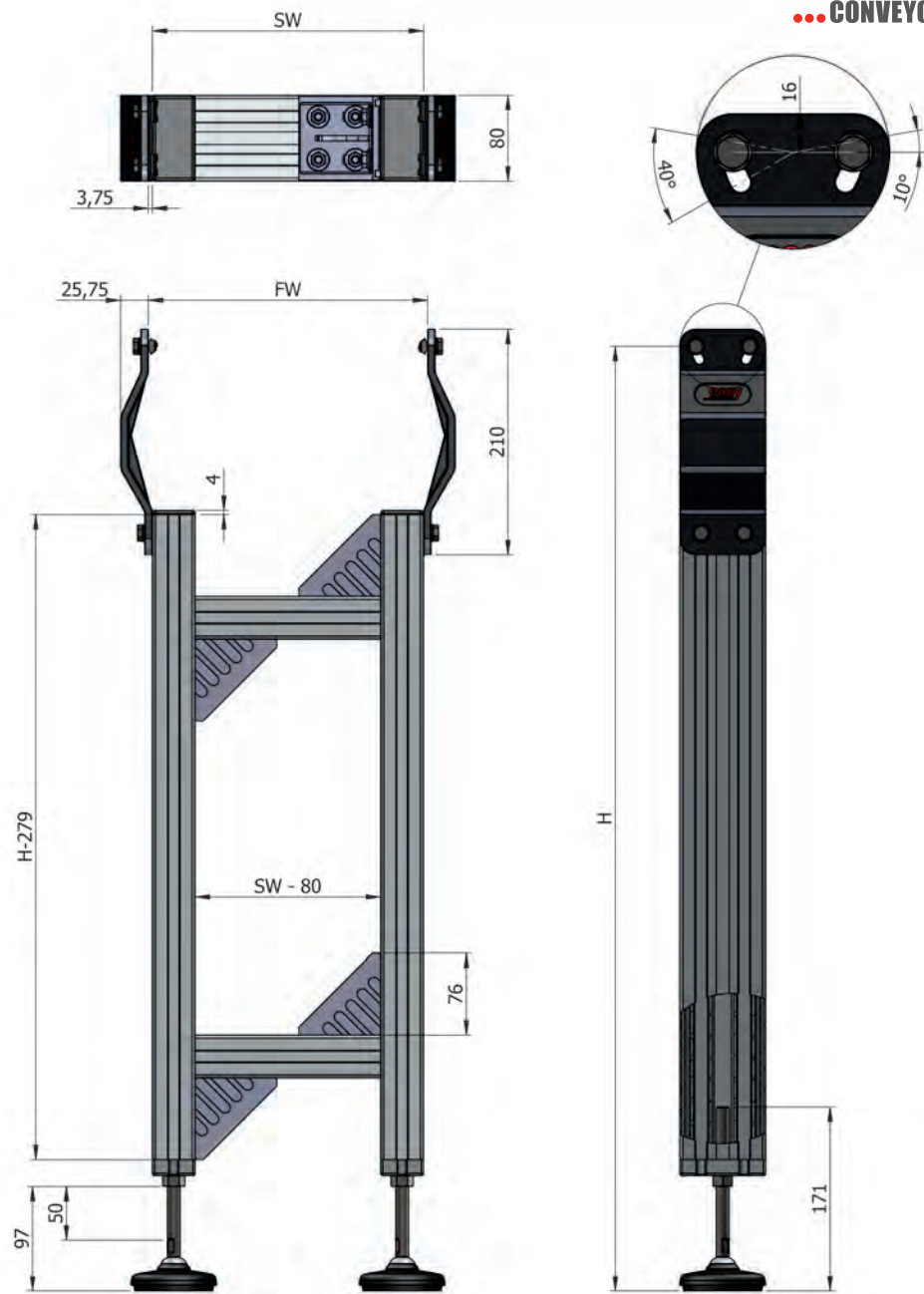
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 L support bracket
- 2 Profile 40x80 L
- 3 Profile 80x80 L
- 4 Support base
- 5 Bracket 80
- 6 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808020000	L support bracket	PA FG 1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2	Material	
020102070008	Profile 40x80L, L= 6070 mm	AL 1
Art Nr. Pos 3	Material	
020102070009	Profile 80x80L, L= 6070 mm	AL 1
Art Nr. Pos 4	Material	
ETS040808040000	Support base	AL RAL9005 1
Art Nr. Pos 5	Material	
020102160001	Bracket 80x80	AL 1 piece, incl. fasteners
Art Nr. Pos 6	Material	
020102140000	CAP 40x80	PA FG 10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	156 mm	6,14" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

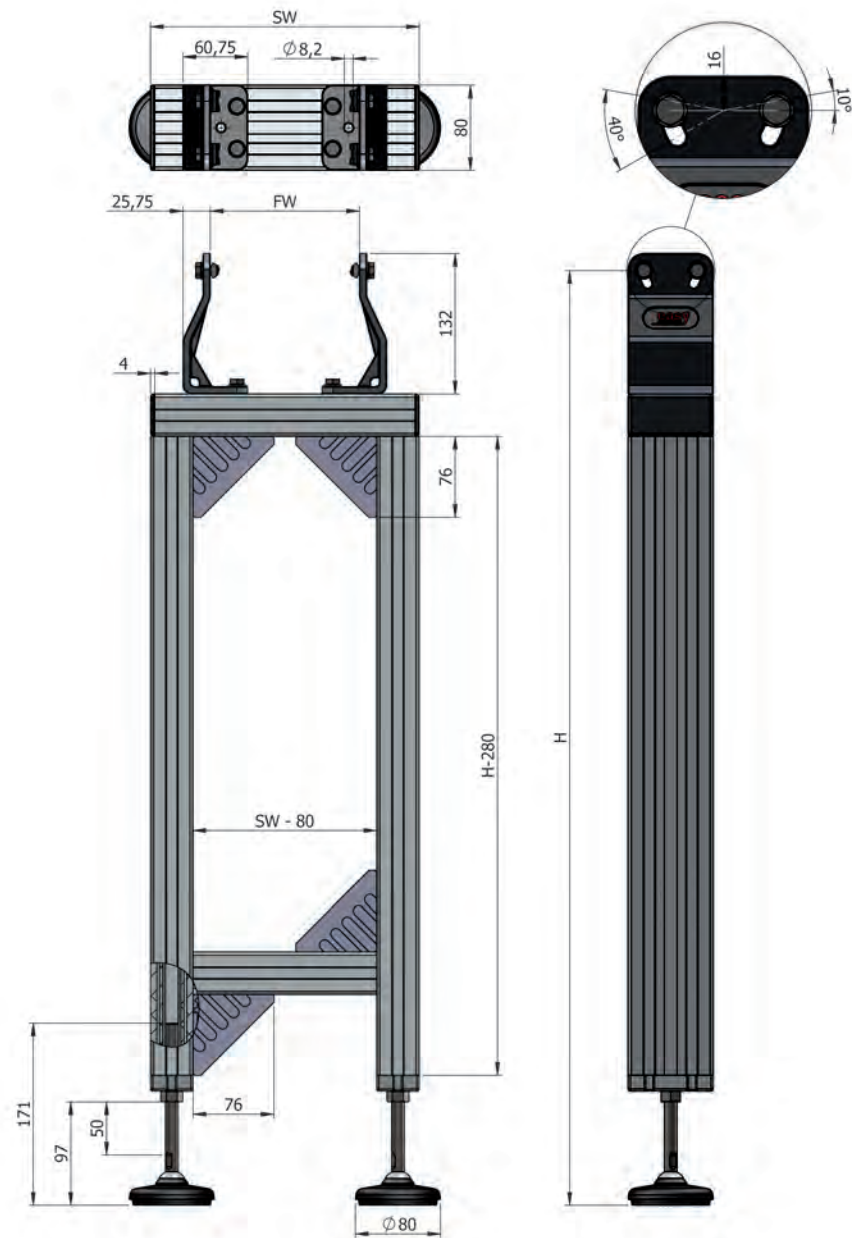
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 I support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Foot plate 40x80L
- 5 Hinged feet Ø80
- 6 Hexagon nut
- 7 Bracket 80
- 8 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808030000 I support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 4	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 5	Material	
040707020003 Hinged feet Ø80	Screw jack: Stainless steel, Foot: Synthetic plastic	1
Art Nr. Pos 6	Material	
BV093412000A2 Hexagon nut	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	100
Art Nr. Pos 7	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners
Art Nr. Pos 8	Material	
020102140000 Cap 40x80	PA FG	10

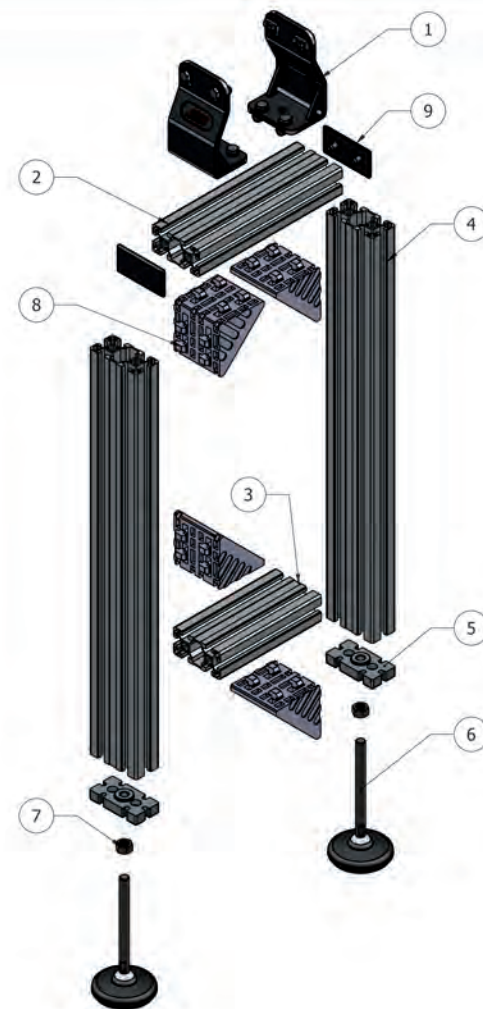
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	232 mm	9,13" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

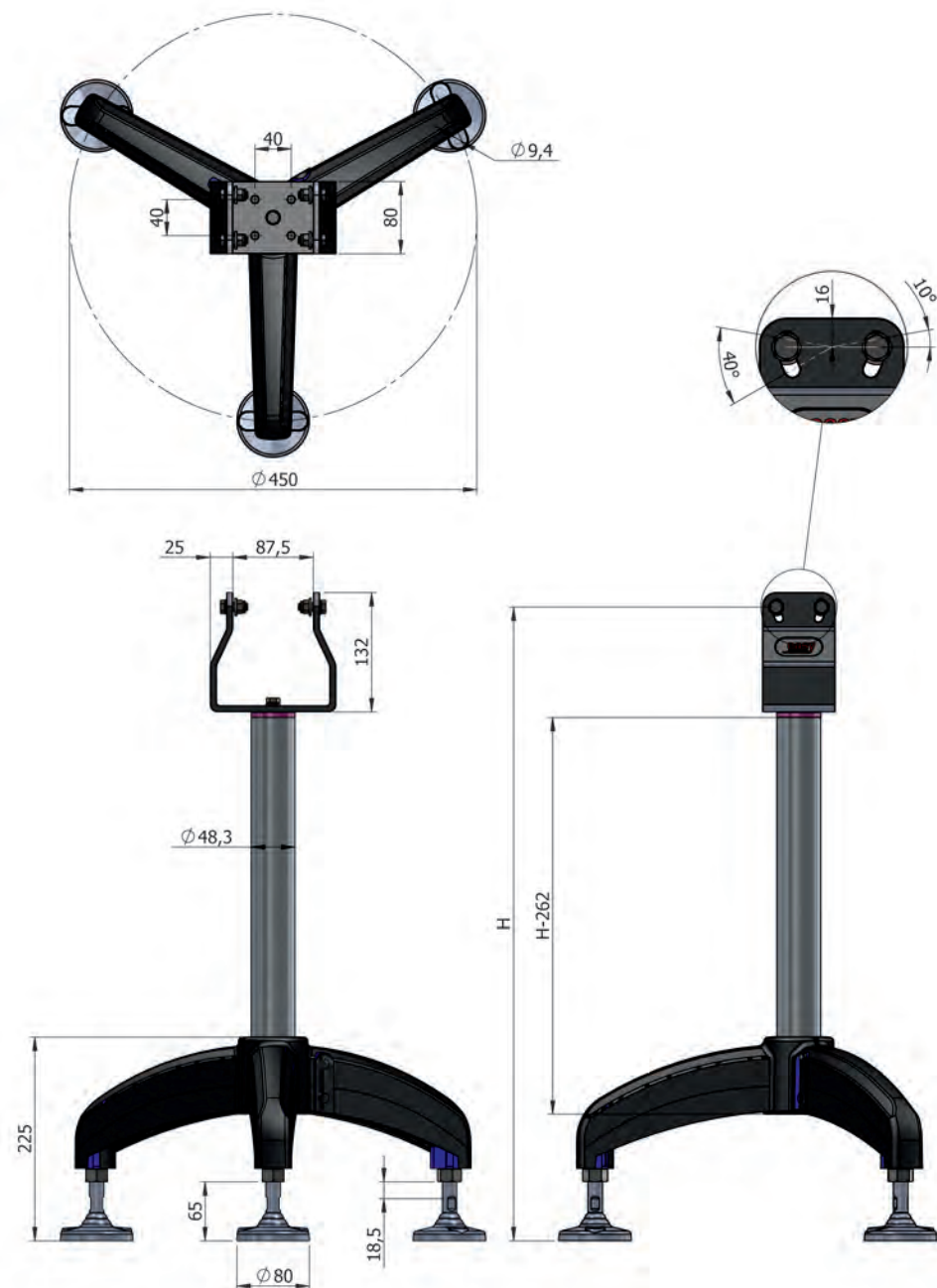
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 L support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Profile 40x80L
- 5 Foot plate 40x80
- 6 Hinged feet Ø80
- 7 Hexagon nut
- 8 Bracket 80
- 9 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808020000 L support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3 + 4	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 5	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 6	Material	
040707020003 Hinged feet Ø80	PA FG + stainless steel, PA + edelstahl PA Acier inoxydable, PA + acevo inoxidable	1
Art Nr. Pos 7	Material	
BV093412000A2 Hexagon nut	Stainless steel	100
Art Nr. Pos 8	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners
Art Nr. Pos 9	Material	
020102140000 Cap 40x80	PA FG	10

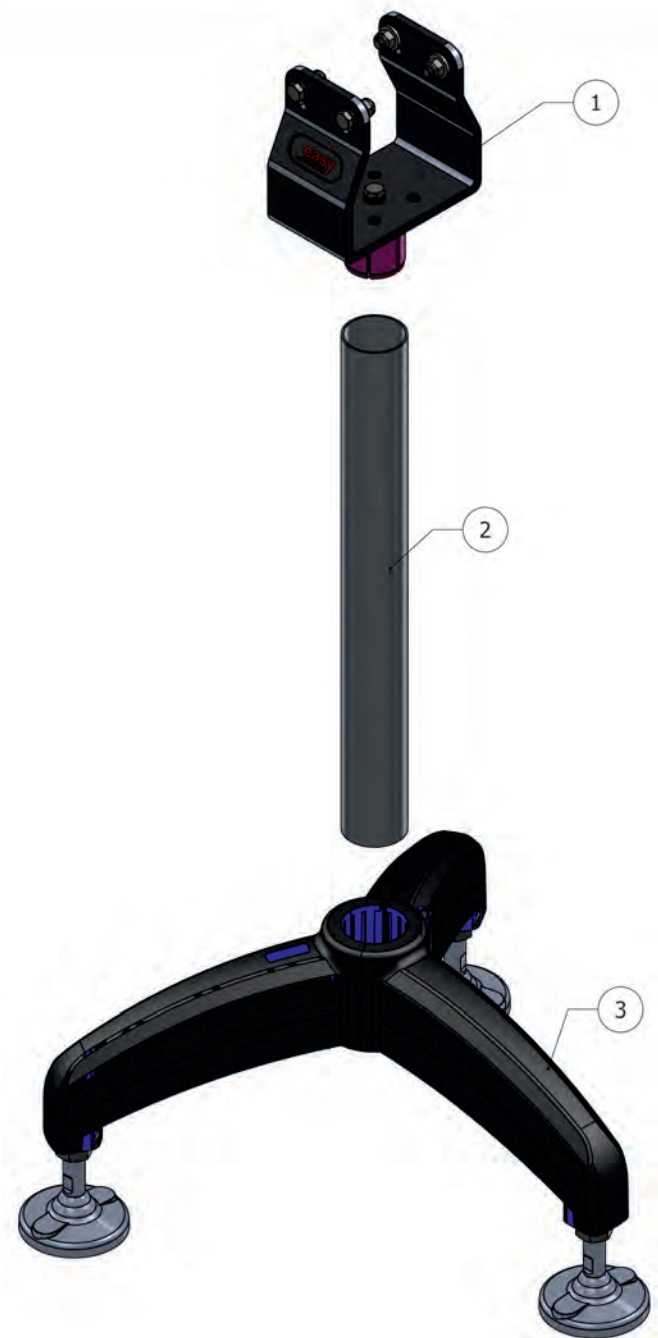
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =	87,5 mm	3,44" inch
H =	1200 mm	47,25" inch
Always fasten the hinged feet to the floor		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



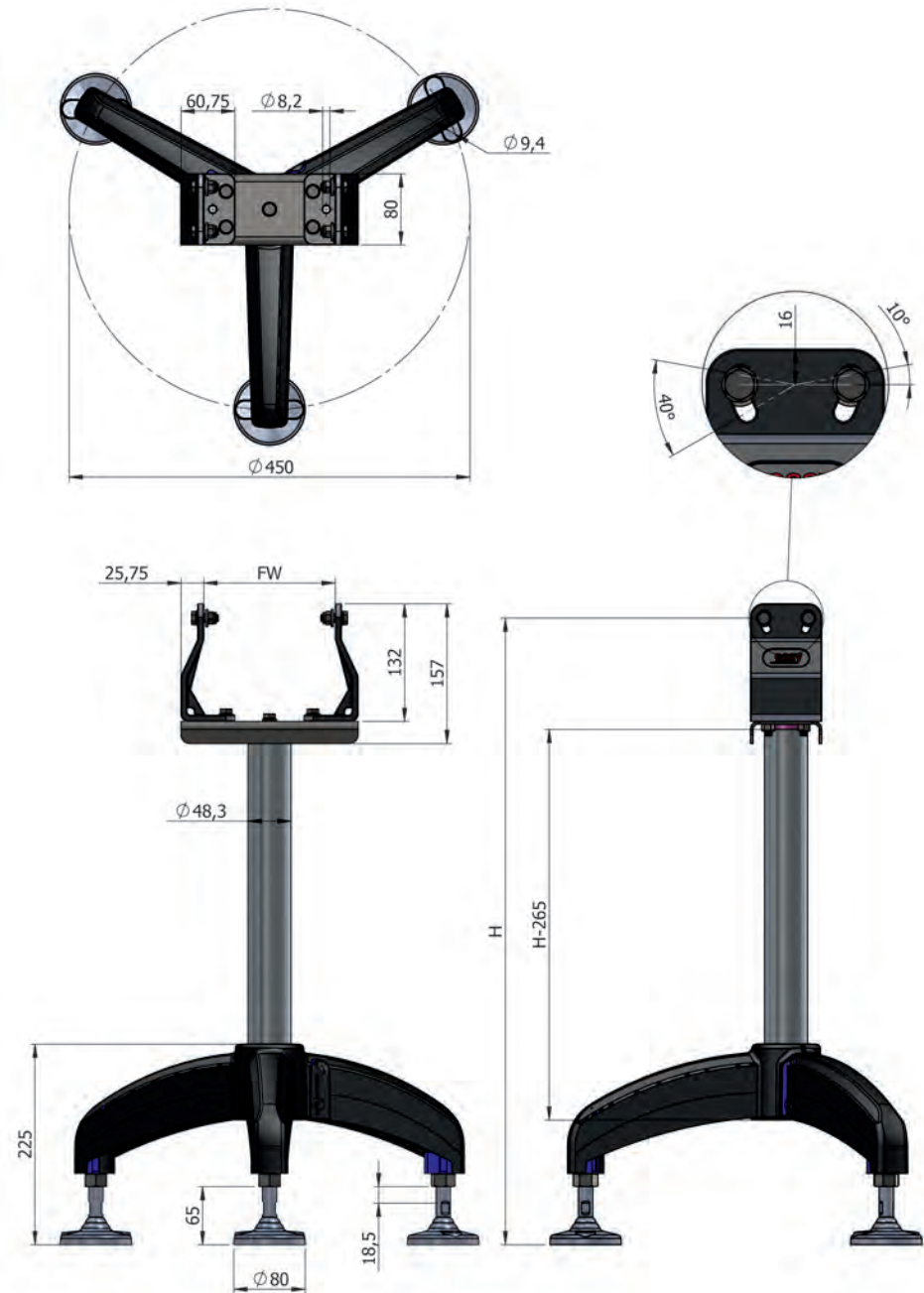
- 1 U-Bracket support
- 2 Welded round tube
- 3 Support base; tripod

Art Nr. Pos 1	Material
ETS040908010000 80 SS	PA FG, Stainless steel, Edelstahl Acier inoxydable, Acero inoxidable 1 set, incl. fasteners

Art Nr. Pos 2	Material
020102070005 48,3X1,6, L=6Mtr	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1

Art Nr. Pos 3	Material
ETS040908040000	PA FG 1 piece incl. fasteners & hinged feet, Inkl. Verbindungselemente und Gelenkfüßen, incl. attaches et les pieds articulés, incl. elementos de fijación y los pies con bisagras

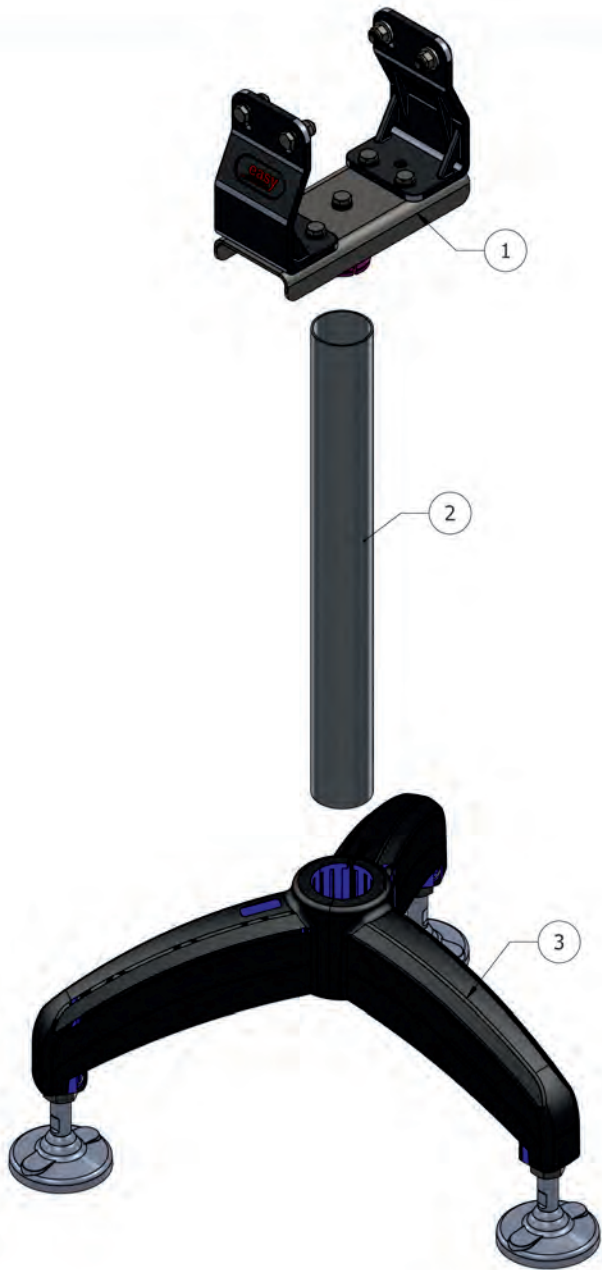
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones			
FW =	147,5	207,5 mm	
	5,80"	8,17" inch	
H =	1200 mm	47,25" inch	
	Always fasten the hinged feet to the floor		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 L-Bracket support
- 2 Welded round tube
- 3 Support base; tripod

Art Nr. Pos 1	Material
ETS040908010140 140 SS	PA FG, Stainless steel, Edelstahl Acier inoxydable, Acero inoxidable 1 set, incl. fasteners
ETS040908010200 200 SS	PA FG, Stainless steel, Edelstahl Acier inoxydable, Acero inoxidable 1 set, incl. fasteners

Art Nr. Pos 2	Material
020102070005 48,3X1,6, L=6Mtr	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable 1

Art Nr. Pos 3	Material
ETS040908040000	PA FG 1 piece incl. fasteners & hinged feet, Inkl. Verbindungselemente und Gelenkfüßen, incl. attaches et les pieds articulés, incl. elementos de fijación y los pies con bisagras

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 L-Bracket support
- 2 Welded round tube
- 3 Support base; bipod
- 4 Connection joint

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones			
FW Min =	230 mm	9,06" inch	
H Max =	1200 mm	47,25" inch	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040908020000	PA FG	1 set of 2 pieces, incl. fasteners

Art Nr. Pos 2	Material	
020102070005 48,3X1,6, L=6Mtr	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	1

Art Nr. Pos 3	Material	
ETS040908040001	PA FG	1 piece
incl. fasteners & hinged feet, Inkl. Verbindungselemente und Gelenkfüßen, incl. attaches et les pieds articulés, incl. elementos de fijación y los pies con bisagras		

Art Nr. Pos 4	Material	
ETS040907040002 Connection joint Ø48,3	PA FG	1 piece, incl. fasteners

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



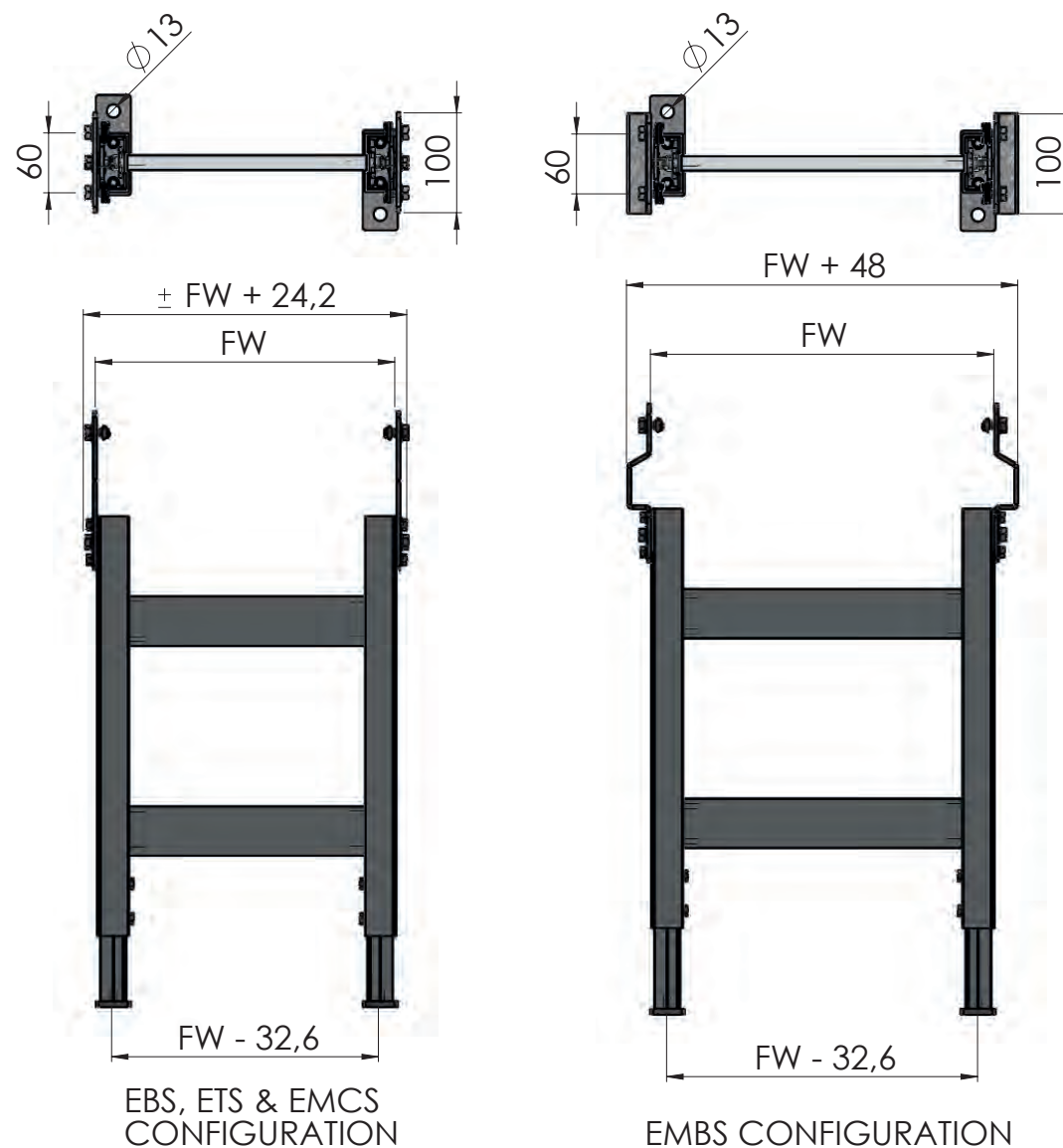
LEG SUPPORT

EBS, EMBS, ETS AND EMCS
IN HEIGHT ADJUSTABLE



easy
...CONVEYORS

www.easy-conveyors.com



More technical information: See engineering online www.easy-conveyors.com

TECHNICAL DATA

General technical data

Max. load capacity	200 kg
Min. Adjustable Height	±325 mm
Max. Adjustable Height	±2500 mm
Number of cross members	Type 01 & 02 – 1 piece
	Type 03 & 04 – 2 pieces
	Type 05 – 3 pieces

Side Profile

Suitable side profile material	Aluminium
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Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Type selection

Type	Conveyor System				
	EBS 40	EBS 80	ETS	EMBS	EMCS
	Adjustable Height [mm]*				
01.	325 – 400	325 – 440	355 – 430	360 – 435	335 – 470
02.	395 – 540	435 – 580	425 – 570	430 – 575	465 – 610
03.	535 – 820	575 – 860	565 – 850	570 – 855	605 – 890
04.	815 – 1380	855 – 1420	845 – 1410	850 – 1415	885 – 1450
05.	1375 – 2500	1415 – 2540	1405 – 2530	1410 – 2535	1445 – 2570

General Support Stand CONFIGURATOR

Please create the reference number with the following configurator.

1 TYPE GSS

2 Conveyor System EBS 40 | EBS 80 | ETS | EMBS | EMCS

3 System Width Enter Conveyor System Width Standard:

EBS 40	EBS 80	ETS	EMBS	EMCS
100	200	80	255	170
200	400	140	340	255
300	600	200	425	340
400	800		510	425
500	1000			510
600	1200			680
				850

Special: On request

4 Height 01 | 02 | 03 | 04 | 05

1 2 3 4
GSS - - -

ORDER EXAMPLE

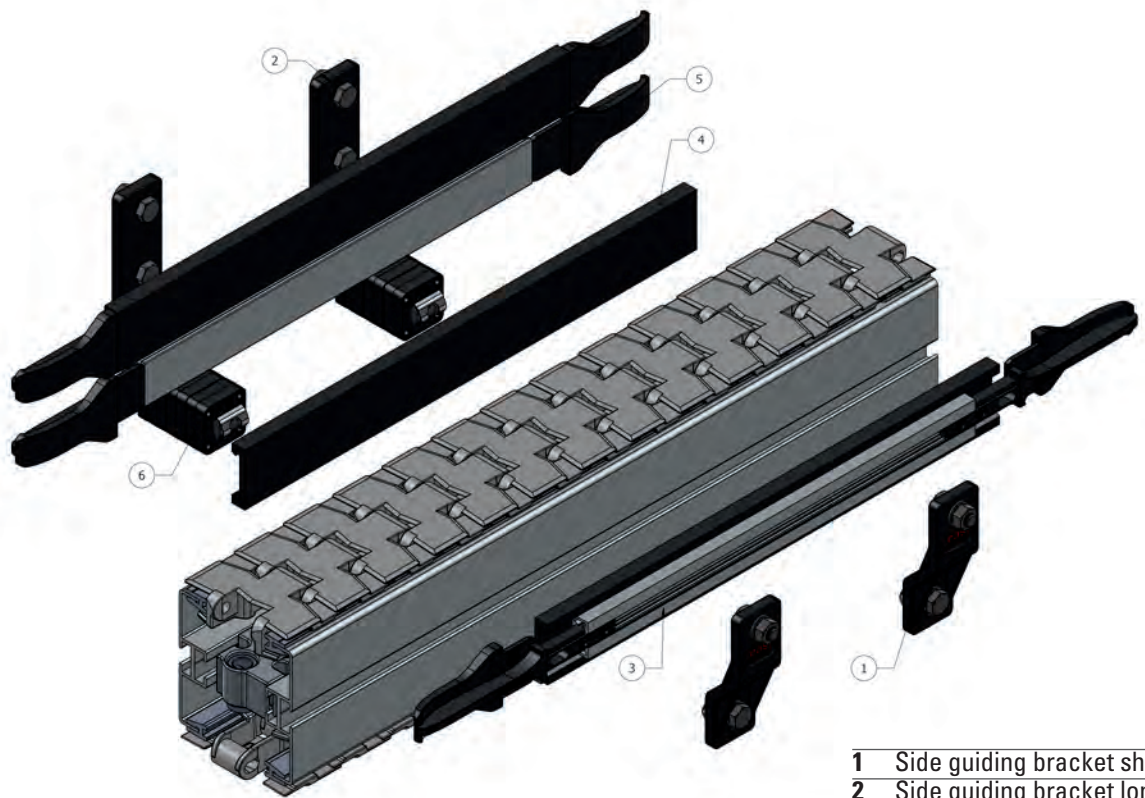
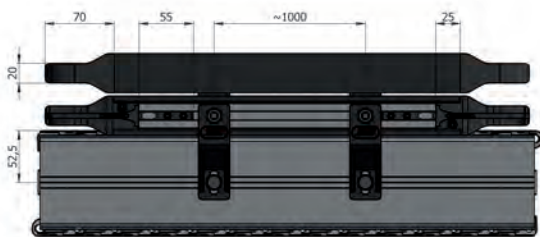
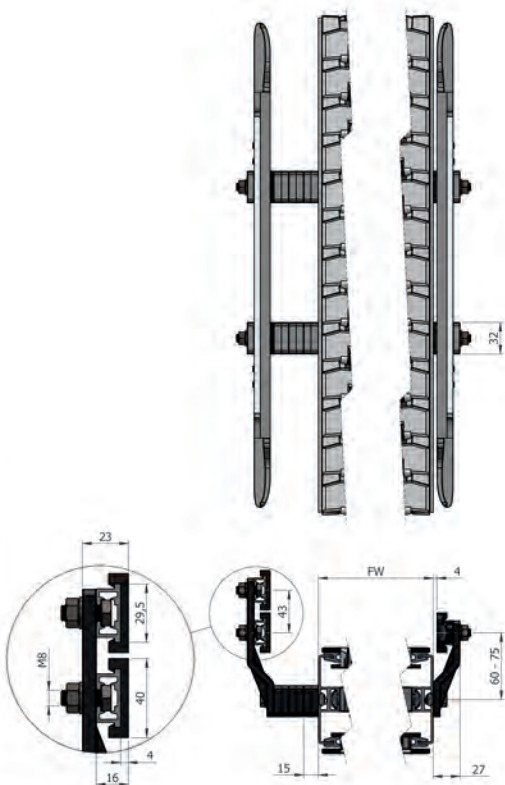
Example for a reference number:

GSS – ETS – 140 – 03

This reference number stand for a General Support Stand with the clearance for an ETS 140 conveyor type with an adjustable top of belt height between 565 mm and 850 mm.

Note:

1. Longitudinal or diagonal cross members are not included.
2. Dependable on conveyor speed, load, start/stops, etc. additional cross members noted under '1.' are not included.



- 1 Side guiding bracket short
- 2 Side guiding bracket long
- 3 Side guide profile AL
- 4 Side guide cover
- 5 Guide end
- 6 Guide spacer

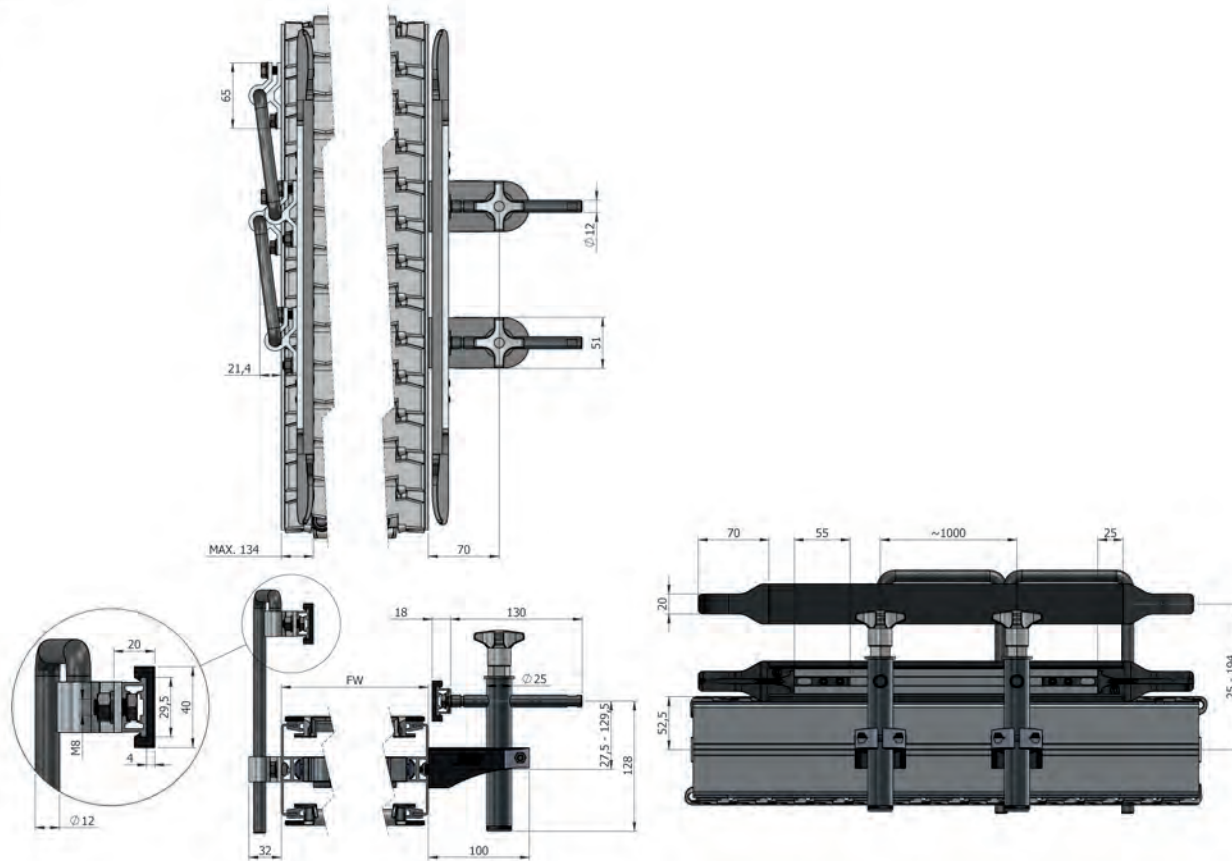
Art Nr. Pos 1	Material	
ETS040809010000	Side guiding short	PA FG 1 piece, incl. fasteners
Art Nr. Pos 2	Material	
ETS040809020000	Side guiding long	PA FG 1 piece, incl. fasteners
Art Nr. Pos 3	Material	
ETS040809000000	Side guide profile AL	AL 1 piece; L=5.6mtr
Art Nr. Pos 4	Material	
ECP040103000000	Side guiding cover	PE 1 piece; l=3mtr
Art Nr. Pos 5	Material	
ETS040809050000	Guide end 40	PA FG 1 set of pieces, incl. fasteners
Art Nr. Pos 6	Material	
ETS040809040000	Guide spacer	PA FG 10






More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



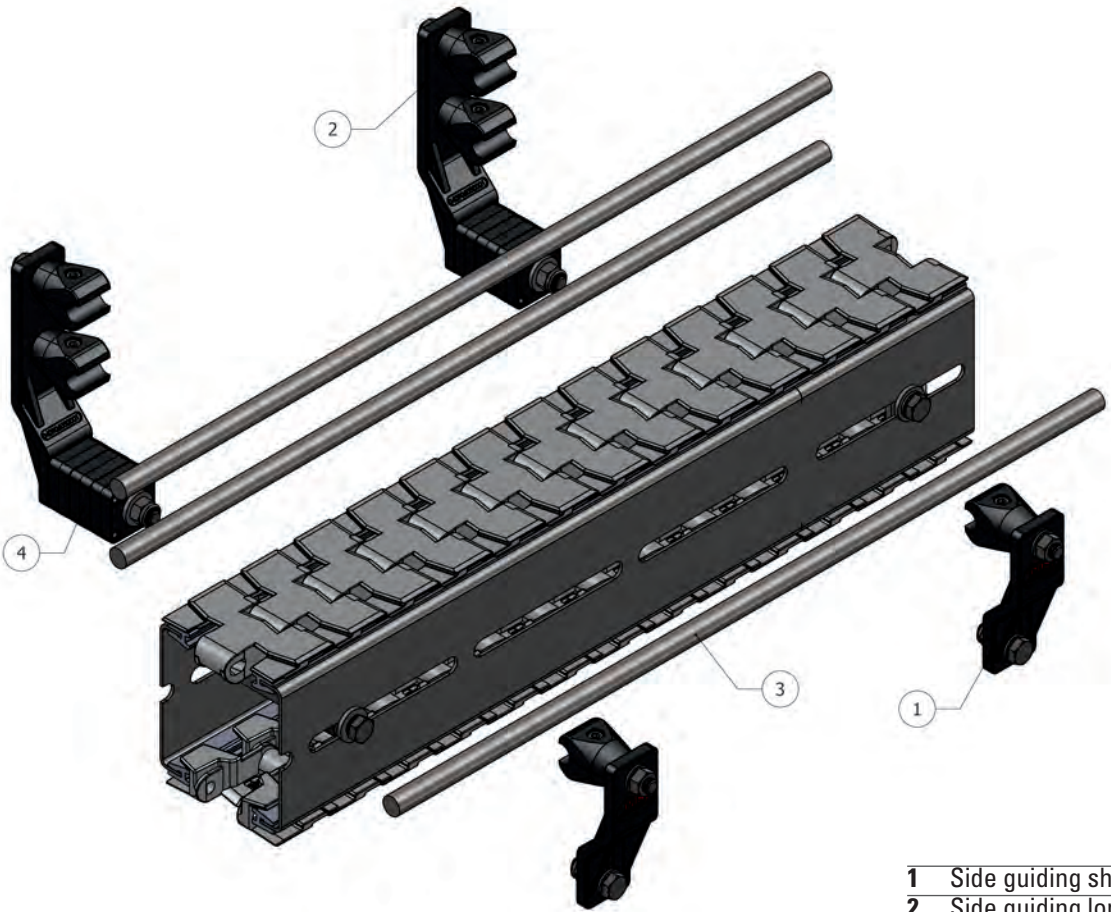
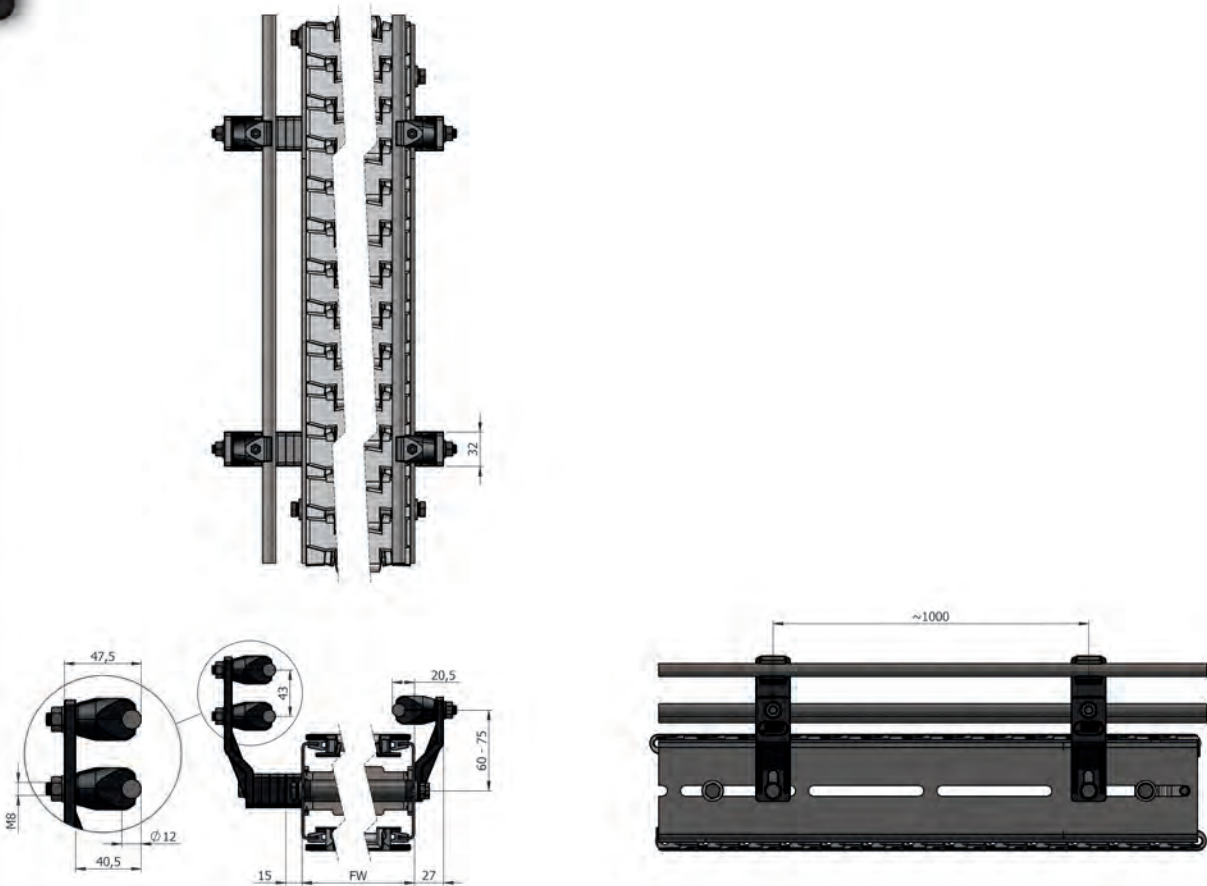
Art Nr. Pos 1	Material
ETS040809030000 Side guide	PA FG + stainless steel, PA + edelstahl  1 piece, incl. fasteners PA Acier inoxyable, PA + acevo inoxidable
Art Nr. Pos 2	Material
ERA040409010000 Side guide	AL + steel galvanised, AL + stahl verzinkt  1 piece, incl. fasteners AL + Acier galvanisé, AL + Acero galvanizado
Art Nr. Pos 3	Material
ETS040809000000 Side guiding profile	AL  1 piece; L=5.6mtr
Art Nr. Pos 4	Material
ECP040103000000 Side guide cover	PE  1 piece; l=3mtr
Art Nr. Pos 5	Material
ETS040809050000 Guide end 40	PA FG  1 set of pieces, incl. fasteners

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

More technical information: See engineering online **www.easy-conveyors.com**

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Side guiding short
- 2 Side guiding long
- 3 Side guide profile Ø12
- 4 Guide spacer

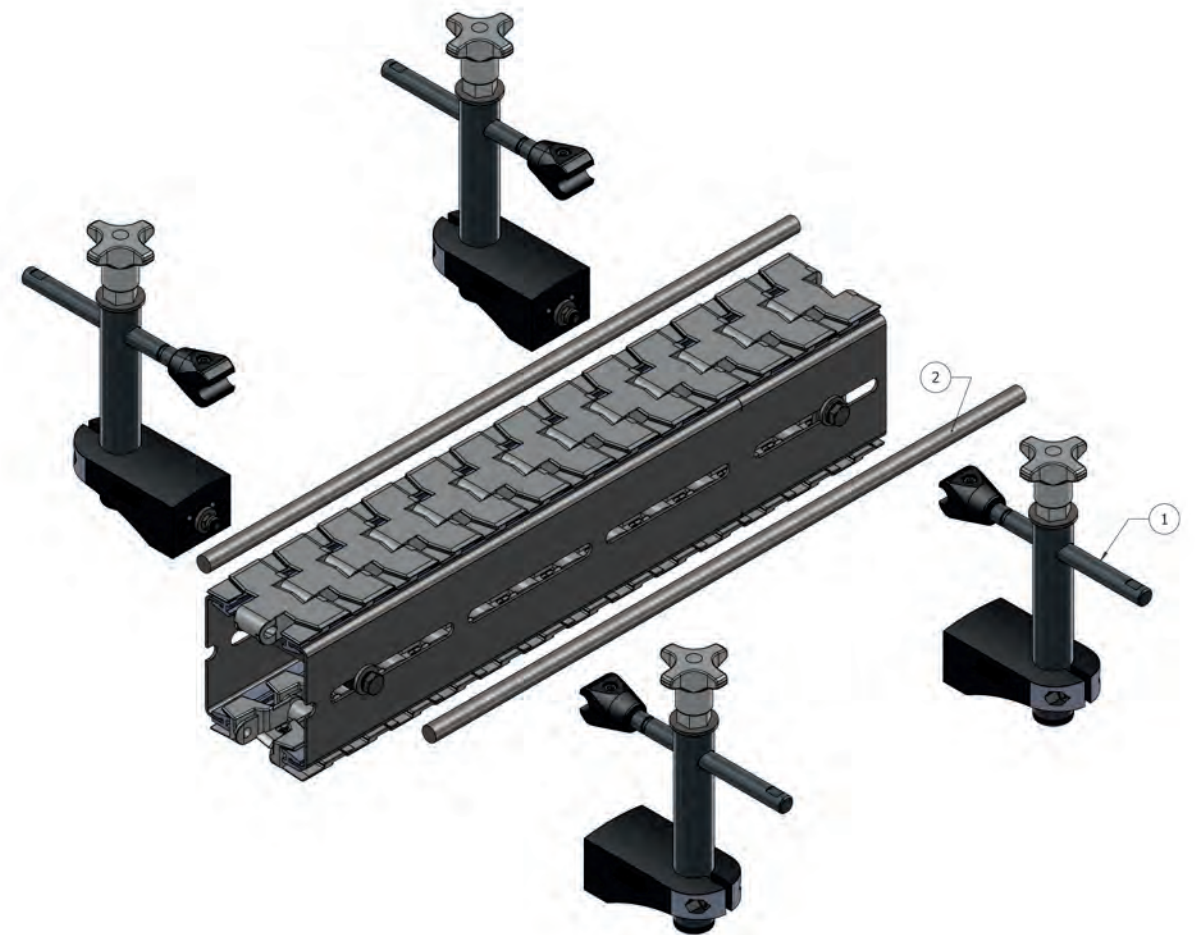
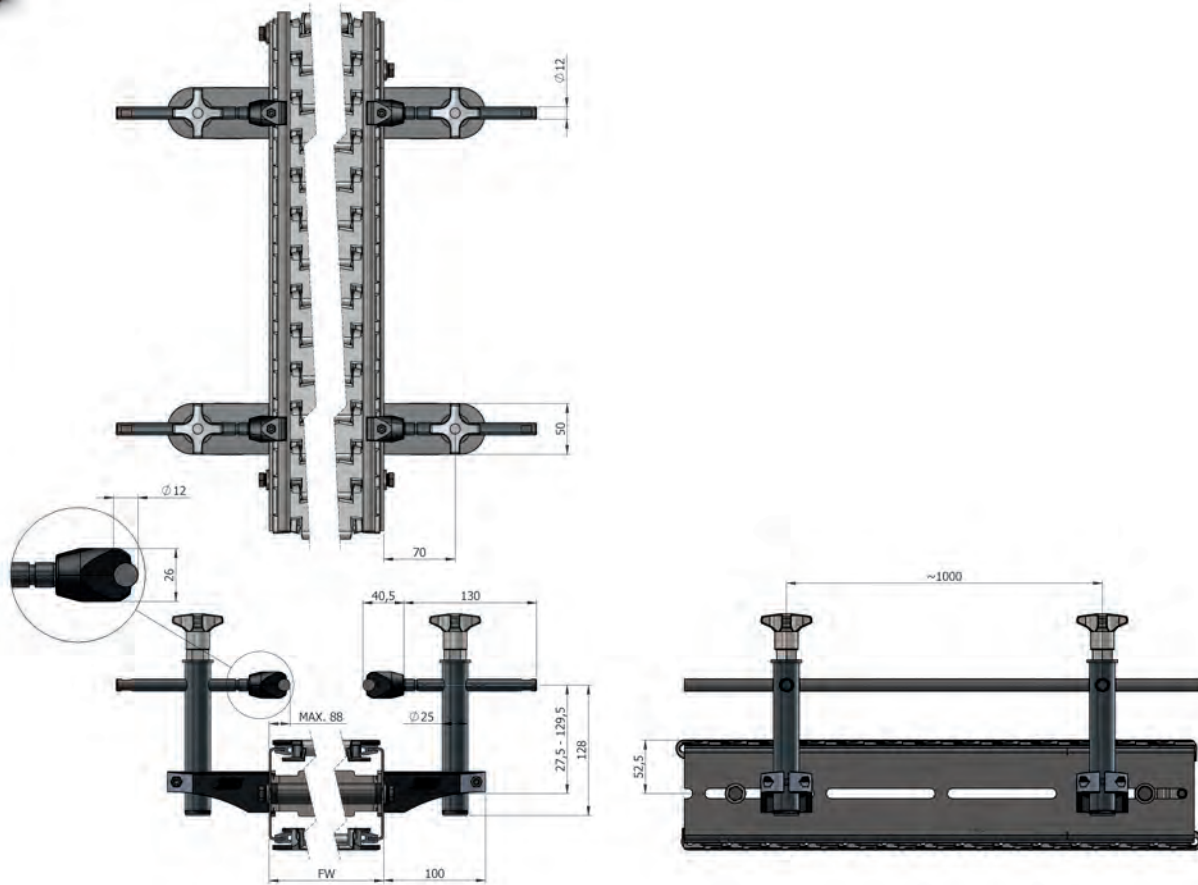
Art Nr. Pos 1		Material	
ETS040909010000 Short version		PA FG	1 piece, incl. fasteners
Art Nr. Pos 2		Material	
ETS040909020000 Long version		PA FG	1 piece, incl. fasteners
Art Nr. Pos 3		Material	
ETS040909000000 Ø12		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	1 piece; L=3meter
Art Nr. Pos 4		Material	
ETS040809040000 Spacer		PA FG	10

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta





- | | |
|---|---------------|
| 1 | Side guiding |
| 2 | Guide profile |

More technical information: See engineering online **www.easy-conveyors.com**

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material
ETS040909030000 Adjustable	Bracket: PA FG, knob: PA FG / NPB  1 piece, incl. fasteners Tube/shaft: Stainless steel, Finishing cap: LDPE
Art Nr. Pos 2	Material
ETS040909000000 Ø12	Stainless steel  1 piece, L=3mtr

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

Quality and Service

When you are looking for a quality conveyor component, look at Easy Conveyors. We put our Leadership on the line for you. Our complete range of products combines stainless steel, carbon steel, aluminum and engineered plastics to achieve reliability, superior performance and a compact of design. We hope you will now take a moment to look through this comprehensive manual. Then, when you are ready to discuss your needs with the nearest Easy Conveyors representative, please consult the back cover of this catalog for further details about our sales network. We are able and eager to assist you setting up a smooth running line. The components you want, when and how you want them. Easy Conveyors is ready and able to satisfy your needs with quick answers and delivery of standard or custom made products. Our customers around the world know that the shortest distance between a problem and its solution is to call us: innovations, research, engineering and production are always under a strict control to improve our service and products.

Technical manual for the ETS conveyor systems

This technical manual has been developed to assist you with specific engineering information when a new conveyor is designed as well as when an existing conveyor is going to be modified. Terms like TPM (Total Productive Maintenance) and SMED (Single Minute Exchange of Dies) are getting more and more important. With the right choice of chains and components you can design your conveyors to meet these principles. A large part of our program suits these principles. With this manual we intend to create some "CONVEYOR AWARENESS". As you will notice, most attention will be given to the construction details for the modular belt or chain, because this is the 'moving part' in a conveyor and therefore more critical when it comes to construction details. We also emphasize on guides as together with the belts, these are in direct contact with the customer's product and therefore of utmost importance. The right choice of type, style of the side guides can make the difference between a medium and a high production efficiency of a filling line.

For additional data and information about technical details of our products please refer to:

- Conveyor Belts catalogue
- Conveyor Roller catalogue
- Conveyor Chain catalogue
- Conveyor Support catalogue
- Conveyor Side guiding catalogue

Contact us To contact your local Technical Support check our website www.easy-conveyors.com or send an email to: support@easy-conveyors.com We cannot take responsibility for imperfections, damage or injuries due to wrong conveyor design, poor installation or improper use of our products made with or without reference to the information in this manual. We appreciate your suggestions to improve this Engineering Manual.

Selecting the size

A product's center of gravity, its inherent stability and its contours determine whether it is suited for transport on a mat top, table top, belt or roller conveyor system. The size of the conveyor system is selected according to the conveyed products, dimensions and weight. The maximum product width depends on its shape and the position of its center of gravity.

ETS designs

The EMBS & ETS version in aluminum is an economic solution for many transport tasks. Open profiles prevent large amounts of contaminants from accumulating in the system and are especially easy to clean. The stainless steel version is used in areas that require wet cleaning or the use of acidic or alkaline cleaning agents to comply with stringent hygiene rules, as for primary packaging in the food industry.

Notes for system layout

- Using a capture drive is related to short lightly loaded conveyor systems. This type of construction means the belt is tightened and tensioned by adjustment at one or both shafts. This conveyor system can be used in a reversing operation. It is important to be aware of temperature fluctuations when using this type of construction. In the event of low temperatures, the belt will contract significantly. At high temperatures the belt will expand, which could result in poor or even complete lack of engagement from the sprockets on the drive wheels.
- Using "sag" modules relates to longer and more heavily loaded conveyor systems. The first "sag" module must be placed after the drive unit. This ensures continuous positive engagement from the sprockets on the drive wheel. Another advantage is that it is possible to accommodate any belt contraction/expansion.
- Using a center drive is similar to the conveyor system with the "sag" modules. The only exception is that it can be used in a reversing operation. However, it cannot handle the same heavy loads!
- There is a limit on the maximum weight of the transported product and the maximum length of the conveyors due to the permissible belt tensile force.
- Belt width from > 340 must have an additional support profile for section loads >10kg/m
- The maximum width of a transported product depends on the position of its center of mass and the lateral guides.
- When using a conveyor with cleats for vertical transport, the maximum weight of a single product is limited by the strength of the cleats.
- Accumulation operation is not possible with static friction belt or cleated belt.
- Pay attention that the slide rails and section profiles are clean when assembling the system. Metal shavings or dust are highly abrasive and cause an extreme amount of wear!
- Avoid accumulation before and in the curves.
- Accumulation must never occur at the drive wheels.
- Depending on the system's construction and the product being conveyed, certain places pose a risk of pinching / crushing. Appropriate safety devices must be provided in the operating area, as required. Also observe the notes in the assembly instructions which can be found in the download section at <http://www.easy-conveyors.com>
- Avoid conveying materials with a temperature higher than 60°C
- The maximum pulling force of the ETS chain is 3000 N / m. In practice this means that the curve is the critical part when it comes to force. It also means that after the curve a pretty long straight section can be built without having to much force on out belt. A curve can better be close to the return unit then near to the drive unit. If there is an option, you can take this to consideration.

Conveyor length

Conveyor length depends on

- Chain/belt type
- Lubrication
- Product
- Load
- Etc.

Operating temperatures

Dry : -40°C to + 80°C

wet : 0°C to + 65°C

Type	Max. advisable length [m]
Plastic chains, side flexing	22 - 30mtr

These are indicative figures. In any case it is recommended to double check the conveyor length by calculating the resulting chain pull.

A phenomenon called slip stick effect occurs unpredictably. It depends on speed, load, construction and lubrication. Pulsating dynamic forces are the result and affect the service life of all components of a conveyor. More importantly it influences product handling in a negative way. Long conveyors should be avoided in such cases.

Long conveyors result in high chain load, which affects many components of the conveyor and their wear life.

Conveyor speed

Maximum speed in m/min

Type	Max. advisable length [m]		
	Dry	Water	Water & Soap
Plastic chains, side flexing	45	80	115

Under abrasive or high load conditions the maximum speed is reduced. Higher speed causes higher wear in any case. For higher wear resistant materials contact our technical support.

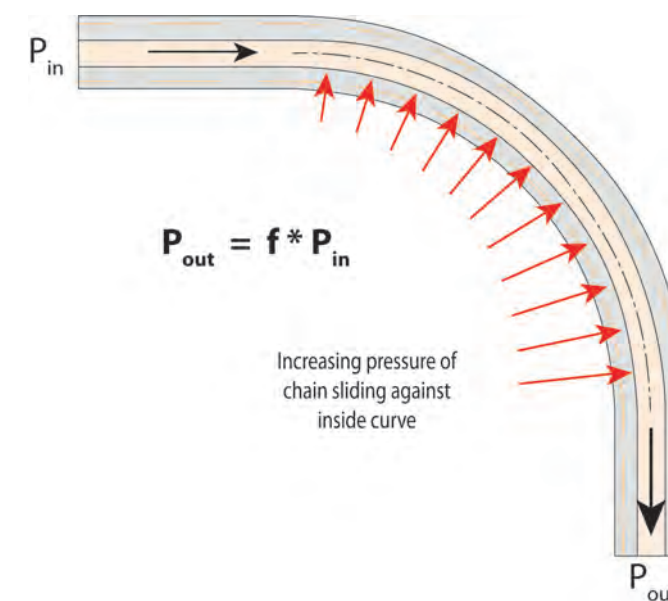
Curve systems

A chain has to be kept in a curve to avoid the chain to jump up from the curve.

Especially with instable products and a multiple strand situation The Tab has a disadvantage: the link is lifting somewhat in the curve creating a 'step' between the individual strands:

Load on curves

When designing a layout, the curves tend to be the limiting factor. The curve adds significantly to the chain pull. The chain pull at the end of the curve is the curve factor times the chain pull at the beginning of the curve. The curve factor 'f' is depending on the angle of the curve and the friction between chain and curve (for further calculations we refer to our calculation program):



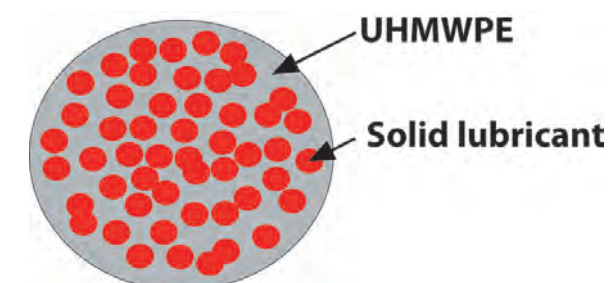
Because of this curve factor it's generally better to position a curve close to the idler end rather than close to the drive end. Then the curve adds relatively less chain pull.

In general we recommend to keep the total curve angle in a conveyor below 180°.

The pressure on the inside of the curve increases through the curve and together with the speed of the chain it generates heat. The maximum allowable Pressure and Velocity (speed) together is called PV limit. This is an important factor next to the max allowable chain pull. The generated heat will warm up the curve material and when it gets too warm, it will become softer and wears out fast.

To maximize the PV limit, Easy Conveyors uses a special material:

TCS:



- TCS is a unique compound of UHMWPE and a solid lubricant.
- TCS drastically reduces the coefficient of friction whilst maintaining the characteristics of UHMWPE.
- TCS also has a better thermal conductivity compared to UHMWPE.



WEAR STRIPS

Construction:

There are different ways of supporting a chain or belt with wear strips:

- Parallel support => this way is as default for our systems;
- Heavy duty support => in case of heavy load and/or high impact;

Make sure the wear strip is chamfered at the entry side and that there's enough space between the lengths of wear strip to absorb thermal expansion:

Thermal expansion TCP: 10-15 mm/m +10 °C (K)

Thermal expansion TCS: 0.10-0.15 mm/m / °C

Heavy duty support: In case of heavy loads or high impact, it's advisable to support the belt. Bear in mind that a heavy duty support can also easily collect dust and dirt. Make sure abrasives can leave the system.

Selection of wear strip material:

Wear strip material	Plastic chains & belts	
	Dry	Lubricated
TCS	recommended	possible
TCP	possible	possible

Temperature limits of wear strip materials must be considered.

TCS

- UHMWPE with built in dry lubricant
- Offers even lower coefficient of friction and less noise emission than standard UHMWPE
- Basic material properties are similar to UHMWPE

TCP

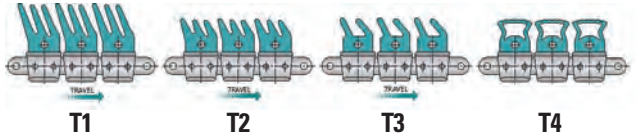
- To be used in slightly abrasive conditions
- Absorption of humidity to be considered

APPLICATIONS

Gripper chains

- Chain tracks must be adjusted parallel. The tolerance for the parallel adjustment of the tracks is < 2mm. Incorrect adjustment can lead to overloading and a high wear of gripper-flights as well as of the basic roller chain.

- Gripper ribs must be oriented backwards relative to the running direction of the chain, as shown in the picture.



- The control system of the conveyor must assure that no backline pressure is created in order to avoid damage at gripper chains.

- The clearance between the chain tracks must be adjustable. Gripping forces must be adjusted according to the product. General rule: as tight as necessary, as loose as possible. The product must be removable by hand.

- A tensioning system is necessary. Tension should just take away the play out of the chain.

- Touching products must be avoided – particularly in curving sections. The gap between the products must be big enough.

- Lubrication helps to extend the service life of the chains as well as of the chain guides.

- EXTRA style curves with the stainless steel strip will significantly elongate the service life of the curves.

- Both chain strands must run at the same speed. Any speed differential causes damage at the chain and possibly also at the product. One central drive is recommended.

Selection of gripper version:

T1: soft containers, e.g. empty PET bottles, empty cans, non pressurized containers.

T2: solid containers, e.g. glass bottles, pressurized containers.

T3: containers with non-cylindrical shape.

T4: small containers.

APPLICATIONS

Static electricity

Anti Static (AS) chain and belt material has the following properties: Surface resistivity: $10^5 \Omega/\text{sq}$ (According to IEC60093 test method) Volume resistivity: $10^3 \Omega\text{m}$

In order to avoid sparks:

- It must be assured on site that the electric charge is dissipated to the ground.
- Wear strips must be conductive and grounded.
- Sprockets and idler wheels must be conductive and grounded.

For further information regarding use of our AS chains in hazardous areas please contact our Technical Support.

Noise reduction

- Use plastic chains/belts instead of steel chains.
- When designing a layout use multiple strand or wider belt running at a lower speed rather than single strand or narrow belt running at higher speed.
- Avoid chain/belt colliding with conveyor parts.
- Reduce speed differentials and thus product impact.
- Adjust sprockets/idlers according to our recommendation in the catalogue
- Use materials with optimized sliding properties (e.g. TCS wear strips, product guides and curves).
- Apply lubrication.

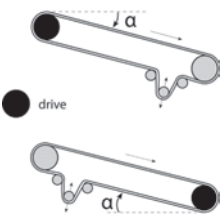
Inclined and declined conveyors

Maximum angles to avoid product sliding down on the chain

Chain type	Lubricated	Dry
Plastic chains/belt	2.5°	4.5°
Rubber top chains plastic	12 / 15°	15 / 20°

Pollution on the chain as well as on the product surface influences the maximum angles negatively.

Declines:

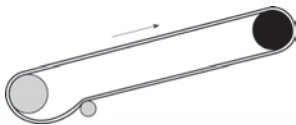


$\tan(\alpha) > \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.

$\tan(\alpha) < \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.

Dynamic tensioner is in both cases recommended.

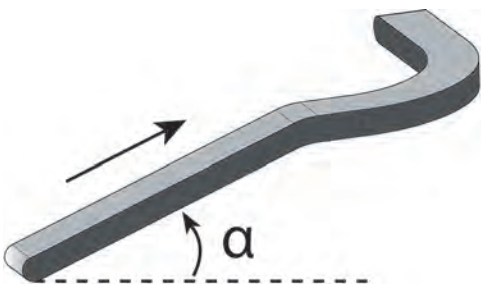
Inclines:



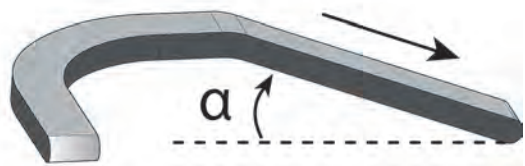
Drive is normally located at the upper end. Soft start/stop is recommended.

Curve construction in combination with inclines/declines:

ETS Side flexing chain can be used in inclined/declined conveyors only under the following restrictions:



Incline is possible
before curve



Incline is possible
after curve

Otherwise the chain could be lifted out.

Accumulation

Accumulation of products results in increased load on the chain as well as in increased wear on chain/belt and product.

Cleaning:

The cleaning regime needs to be re-evaluated when going away from wet lubrication because:

- Wet lubricant has also cleaning effect
- More dedicated cleaning is required f.e. where product loss occurred

Product quality:

The type and quality of the material has an influence on the behavior on the conveyors like:

- Quality of PET
- Quality of Cans
- Quality of Glass

- Raw material	- Steel/ aluminum	- Raw material; origin
- Colorants	- Painted or varnished	- New or returnable
- Blockers	- Design	- Design
- Other additives	- Material thickness	- Surface finish of bottle
- Design/ settings of machine		

Process:

When designing a layout please bear in mind that the line is going to run without wet lubrication. Think about:

- Wider conveyors -> slower speed
- Longer inliners/outliners
- Shorter buffer sections [?] Back Line Pressure
- Optimized line controls
- Larger radius curves

Mechanical:

Some small mechanical issues on conveyors that seem not to create problems need to be addressed when going away from wet lubrication. Make sure that the chains/belts are running completely free (without obstruction). Some points of attention:

- TCS wear strips and curves with built-in lubricant can replace the wet lubrication to a certain extent.
- Perfect alignment of different sections.
- Smooth transfers of wear strips.
- Stable and straight side guides at right position.
- Positioning of sprockets and idlers.
- Smooth transfer straight into curve.

Factor H:

The most important factor is the Human Factor: the people that are dealing with the line.

- How do the local people deal with the line?
- Who's responsible?
- How are the contracts made?
- 'Mind set' change when reducing lubrication!
- Never mix products! -> f.e. teflon spray in combination with dry lubricant creates high friction

So, is Dry Lubricant a good idea?

- Yes, in a good number of cases it brings interesting advantages.
- But be aware of the down side to get the full benefit!

Completely dry may be better?

- In certain areas of the bottling line and certain products: yes
- Depalletiser + outfeed conveyors
- Labeling, coding and packaging areas
- Cans and PET and even glass
- Beware of abrasives & chemicals

Product handling Forces due to acceleration:

The force necessary to accelerate the chain and products is calculated by:

$$F = M * a$$

F = force in [N]

M = mass of chain and product in [kg]

a = acceleration in [m/s²]

This extra force is working not only on the chain but also on the bearings, the drive unit and the structure. Frequent start-stops create an extra fatigue load on the chain and thus shorten the life time of the chain. In the calculation there's a factor included depending on number of start-stops per hour. Soft starts or frequency controllers are always advisable. Not only for the life time of the chain but also for smoother product handling and avoiding problems at start-up with products particularly unstable.

Maximum acceleration:

The max acceleration force on a product to be able to 'take along' the product with the chain is depending on the friction between product and chain. Maximum acceleration a_{max} can be calculated with:

$$a_{max} = \frac{F_{max}}{M} = \frac{W * \mu}{M} = \frac{M * g * \mu}{M} = g * \mu$$

W = weight of product in [N]

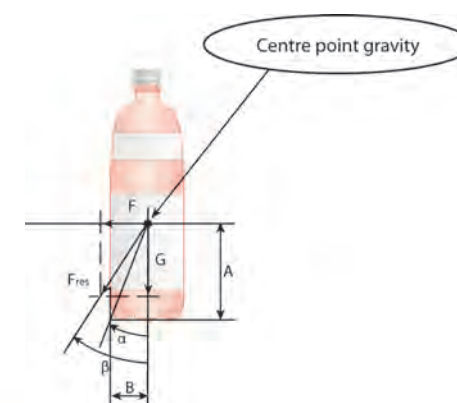
M = weight of product in [kg]

μ = coefficient of friction between chain and product

g = gravitational acceleration = 9.81 m/s²

Maximum force on products to avoid tip page:

The maximum acceleration without products falling over is depending on the shape (position of centre of gravity), the weight and the material of the product. This is for instance also important when the product is being conveyed onto a dead plate. See below sketch:



G = weight product

F = horizontal force on product

F_{res} = horizontal force on product

The force F is the force due to acceleration or deceleration of the product ($F=M*a$), or due to a different cause like other bottles or a side guide. The bottle will tip over when the angle β is larger than angle α . Angle α is determined by the diameter of the foot print of the product ($B= \frac{1}{2} * \text{diameter}$) and the height of the centre point of gravity ($=A$). Angle β is determined by the horizontal force on the bottle ($= F$) relative to the weight of the bottle ($= G$).

The max force F is found by following formula:

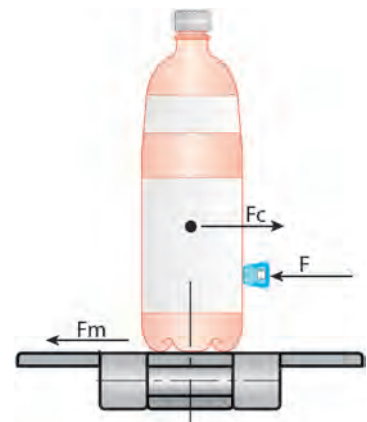
$$\frac{F_{\max}}{G} = \frac{B}{A} \rightarrow F_{\max} = G * \frac{B}{A} \quad \text{or} \quad \begin{array}{l} \mu < \frac{B}{A} \rightarrow \text{OK} \\ \mu > \frac{B}{A} \rightarrow \text{not OK} \end{array}$$

MSV= maximum speed variation

$$MSV = \sqrt{2 * g (\sqrt{H^2 + B^2} - H)}$$

Centrifugal forces:

When a product is being conveyed through a curve there's a centrifugal force working on the product. This force on the product is compensated by the friction between chain and product and by a side guide.



The centrifugal force is calculated with:

$$F_c = \frac{M * v^2}{r}$$

M= weight of the product

v = speed

r = centre radius of the curve

Friction force between chain and product is calculated with:

$$F_m = M * g * \mu$$

g = gravitational acceleration

μ = coefficient of friction between chain and product.

The minimum force F that needs to be generated by the side guide is:

$$F = F_c - F_m = M * \left[\frac{v^2}{r} - g * \mu \right]$$

Pressure of accumulating products:

When a product is standing still (e.g. against a stopper or guide), the chain running underneath the product creates a force on the product equal to the weight of the product multiplied by the coefficient of friction between chain and product. Each following product is pushing with the same force against the next product, so the resulting force is proportional to the total weight of products upstream.

$$F_a = W_a * L_a * \mu$$

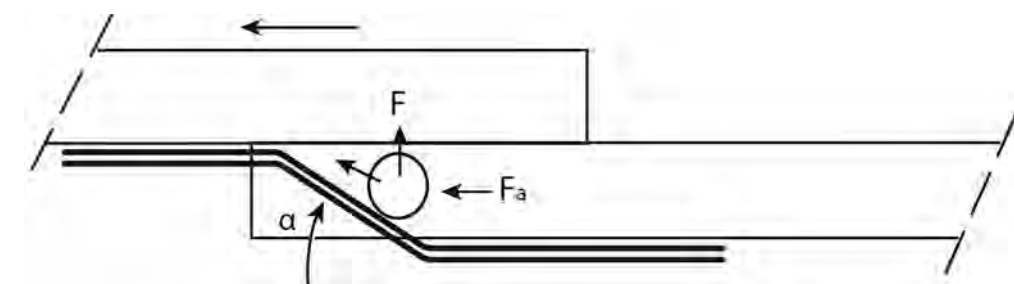
Fa = accumulation force

Wa = weight of the accumulating products in Kg/m.

La = length of accumulation in m

μ = coefficient of friction between chain and product.

Side transfer action:



Pushing the product sideward creates a force F on the product against the side guide

$$F = F_a * \sin(\alpha) = W_a * L_a * \mu * \sin(\alpha)$$

(see explanation of symbols above)

Nowadays cans and bottles are becoming thinner and thinner. At the same time more and more installations are running with less or no lubrication and are so increasing the coefficient of friction.

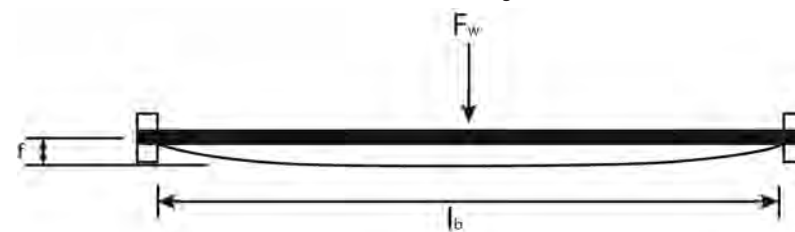
That's why it's important to take also these forces on the products into consideration. In the above mentioned formula the angle α plays an important role in a smooth transfer and reduced forces on the products. This angle should be kept as small as possible.

Shaft size:

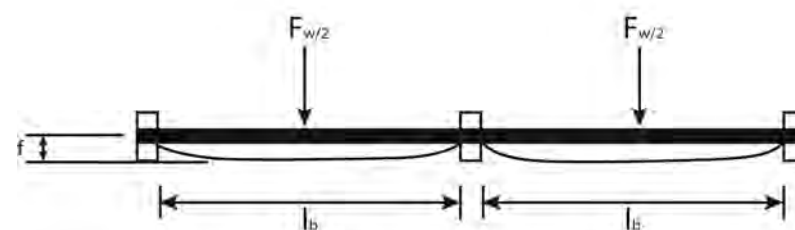
The shaft must fulfill the following conditions:

- max shaft deflection under full load (F_w). f_{max} is 2.5 mm. If the calculated shaft deflection exceeds this max value, select a bigger shaft size.
- Torque at max load must be below critical value

Shaft deflection can be calculated with following formula:



$$f = 0.013 * F_w * \frac{l_b^3}{E * I} \quad [\text{mm}]$$



$$f = \frac{1}{370} * F_w * \frac{l_b^3}{E * I} \quad [\text{mm}]$$

For uni-directional head drive $F_w = T_s$

For bi-directional centre drive $F_w = 2 * T_s$

For uni-directional pusher drives $F_w = 2.2 * T_s$

Shaft size [mm]	Inertia [mm ⁴]
Ø20	7850
Ø25	19170

Shaft material	Modulus of elasticity E [N/mm ²]	Shearing strenght [N/mm ²]
Stainless steel (low strength)	195000	60

The torque on the shaft is calculated with:

$$T_{max} = F_w * \frac{d_p}{2} * 10^{-3} \quad [\text{Nm}]$$

T_{max} = maximum torque
 T_{adm} = admissible torque

$$T_{adm} = \eta_{adm} * \frac{d_w^3}{5000} \quad [\text{Nm}]$$

η_{adm} = admissible shearing strength [N/mm²]

for max. admissible shearing strength see table below:

Maximum allowable torque	
Shaft diam. [mm]	Stainless steel [Nm]
Ø20	141
Ø25	276

Bearings:

Relubrication is depending on the operating conditions. Dust, load, humidity, temperature, vibrations: all affect the relubrication interval. Below table show indicative values for relubrication intervals. Please note that all our bearing are pre-greased in the factory. These is no need for immediate re-greasing. Furthermore, regreasing should be done in small amounts and with care.

Use conditions	Temperature	Re-lubrication period
Clean	up to 50°C	1-2 years
Clean	50 ÷ 70 °C	4 -8 months
Clean	70 ÷ 100 °C	1 - 3 months
Dirty	up to 70°C	2 - 8 week
Dirty	70 ÷ 100 °C	2 - 4 week
Humid + wet	-	1 - 2 week

Standard PIN Material

Special reinforced acetal resin.

Benefits:

- Suitable for metal detectors
- Easy disposal of chains after use

Plastic belt materials

Low Friction Acetal Resin

This material is commonly used in the market and offers an improved co-efficient of friction. It is also suitable for use in high speed applications.

Color: White

This material is FDA (Food and Drug Administration) approved for direct contact with food.

Rubber materials

TPR

TPR is used for ETS chains and EMBS belts and for some gripper chains. TPR is a SEBS type rubber, which assures an optimum bonding on the plastic base material.

Storage of plastic chains and belts

- Materials of our plastic chains and belts offer best stability and resistance against environmental effects at appropriate storage:
 - in the original packaging,
 - without environmental radiation / UV light,
 - dry- in a non aggressive environment - a temperature between 5°C and 35°C
- First IN, First OUT.
 - We have applied that procedure in our logistic department.
 - We recommend this procedure to any external warehouse.
- Do not stack pallets or other heavy goods on top of chain packs. Chains inside the packs might get damaged.
- Do not stack chain packs higher than the original stacking height – as dispatched from our shipping department.

Coefficients of friction

Below listed coefficients can be used as a guideline. Dependent on environmental and application requirements (temperatures, lubricant, material combinations, dirt/debris, product and chain/belt surfaces, etc.) the coefficients are subject to variation.

Coefficient of friction between chain and wearstrip:

Friction coefficient Chain/Slide rail (μ_s)						
	Dry/normal	Rough	Dirty	Water	Water & Soap	Oil
Straight sections TCP	0,2	0,4	0,5	0,16	0,10	0,10
Straight sections TCS	0,18	0,35	0,45	0,14	0,10	0,10
Head drive unit	0,3	0,40	0,50	0,24	0,15	0,15
Return unit	0,3	0,40	0,50	0,24	0,15	0,15
Center drive unit	1,0	1,35	1,70	0,8	0,5	0,5
Connection drive unit	0,6	0,80	1,0	0,48	0,3	0,3

Coefficient of friction between chain and product (μ_{ST}):

Lubrication	Product material					
	Paper carton	Metal (steel)	Aluminum	Plastics incl, PET	Glass (return)	New glass, ceramics
Dry	0,28	0,25	0,25	0,21	0,24	0,20
Water		0,20	0,18	0,16	0,18	0,15
Water & Soap		0,15	0,14	0,13	0,14	0,12

Chemical resistance

Data shown in the table was taken from laboratory tests performed on unstrained samples and are merely indicative, Chemical resistance under normal working conditions can depend on various factors, such as stress and temperature, concentration of the chemical agent and duration of its effects, Valid for ambient temperature (21°C)

Chemical agent	METALS										PLASTICS					RUBBERS										
	EXTRA	AISI 304	AISI 316	OT.NI	POM	PBT	PP	PA	PE	EPDM	NBR	SEBS	VITON													
	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %													
Acetic Acid	5	☆	20	☆	100	☆		O	5	●	10	☆	40	☆	10	●	10	☆	25	☆		●	25	O	20	●
Acetone		☆	25	☆		☆		☆		O		O		☆	100	☆		☆		☆		●		O		●
Acrylonitrile														☆	100	☆				☆		●		O		●
Aluminium chloride				O		10	O							O	10	☆				☆		☆		☆		☆
Aluminium sulphate					SA		☆							☆	10	☆		☆		☆		☆		☆		SA
Amyl alcohol				☆		☆						☆		☆	10	☆		☆		☆				☆		☆
Ammonia		☆	100	☆				●		☆		O	30	☆	10	☆		☆		☆		O		O		O
Ammonium chloride				O		☆						O	10	☆	10	☆		☆		☆		☆		☆		SA
Aniline		☆		☆		☆								☆	100	O	3	☆		●		●		●		☆
Barium chloride				O	SA		☆							☆	10	☆				☆		☆		☆		☆
Beer		☆		☆		☆		☆						☆		☆		☆		☆		☆		☆		☆
Benzene		☆	70	O		☆				☆		●		☆				O		●			●			
Benzoic acid			100	☆	SA		☆					☆	SA	☆	SA	O				●		☆		●		☆
Benzol				☆		☆		☆		☆		☆		O	100	☆		O		●		●		●		O
Boric acid			O	SA		☆		☆				10	☆	SA	☆	10	☆	SA	☆	☆		☆		☆		SA
Brine	10	●		O		☆						☆		O		O		☆		☆				O		
Butter				☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		O		☆
Butyl acetate						☆						O		O	100	☆				O				O		●
Butyl alcohol				☆										O	100	☆				☆		O		☆		☆
Butyl glycole						☆								☆	100	☆				☆				☆		
Calcium chloride		●		O		☆		☆				☆	50	☆	10	☆	SA	☆		☆		☆		☆		SA
Carbon sulphide				☆		☆				☆				☆	100	☆				●			●			☆
Carbon tetrachloride			10	☆				☆		☆				●		☆					●		●			☆
Chlorine water		●		●		O				●		●		●				●	3	O			3	O		
Chloroform		O	10	☆			☆		●		●			O	100	●		●		●		●		●		☆
Chromic acid			25	☆		50	O				O				1	O			50	O		●		50	●	50
Citric acid	10	☆		☆	SA		☆	●		O	10	☆	10	☆	10	O		☆		☆		☆		☆		SA
Cyclohexane						☆						☆		☆	100	☆				●		☆		●		☆
Cycloexanol						☆						☆		☆	100	☆				●		☆		O		☆
Decalin						☆						O		O		☆				●		O		●		●
Dioxane						☆						☆		O		☆				O		●		●		
Distilled water		☆	10	☆		☆		☆		☆		☆		☆		☆		☆		☆				☆		●
Ethyl acetate				O		☆						O		☆	100	☆						●				O
Ethyl alcohol				☆					☆				96		96	☆						O				
Ethyl chloride				☆				O						●	100	☆		O				O				●
Ethyl ether						☆						☆		☆	100	☆										☆
Ferric chloride				O		☆					10	☆		☆	10	☆				☆		☆		☆		SA
Food fats		☆	100	☆		☆			☆		☆					☆		☆		O		☆		O		☆
Food oils		☆		☆		☆			☆					☆		☆		☆				☆				☆
Formaldehyde		☆		☆		☆		☆		☆		☆	40	☆	30	☆		O		O		O		O		40
Formic acid	2	O		●	100	☆		☆	10	●		O			10	●	10	●		☆		●		☆		●
Freon 12				☆								☆				☆						☆				☆
Fresh water		☆		☆		☆				☆		☆		☆		☆		☆		☆		☆		☆		☆
Fruit juice		☆		O		☆				☆		☆		☆		☆		☆		☆		☆		☆		☆
Gasoline		☆		☆		☆		O				O		O		☆		O		●		O		●		☆
Glycerine		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆
Hydrochloric acid		●		●		●		O	35	●	20	O		30	☆		●	35	☆	15	☆		O	15	☆	37
Hydrofluoric acid				●		●								40	☆		●	70	☆			●				48
Hydrogen peroxide	3	☆		☆	100	☆										●			30	O		●	30	●	90	☆
Isopropyl alcohol						☆						☆		☆		☆				☆				O		☆
Lactic acid		O				☆		●		☆	10	☆		20	☆		☆		☆		O		☆		O	☆
Linseed oil				☆		☆				☆		☆		☆		☆		☆		O		☆		●		

Chemical agent	METALS										PLASTICS					RUBBERS			
	EXTRA	AISI 304	AISI 316	OT.NI	POM	PBT	PP	PA	PE	EPDM	NBR	SEBS	VITON						
	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %						
Magnesium chloride			O	☆				☆	☆	☆		☆	☆	☆	SA	☆			
Methyl acetate			O	☆				O	☆	☆		O	●	●		●			
Methyl alcohol		80	☆	☆	☆	☆		●	●	☆	☆	☆	O	☆		O			
Methylene chloride			O	☆	☆		●	●	O	☆		O	●	●		O			
Milk		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	O	☆	☆	☆	☆			
Mineral oil			☆	☆			☆	☆	☆	☆	☆	●	☆	●		☆			
Nitric acid	25	O	65	☆			☆		☆	●	O		10	●		70	☆		
Nitrobenzene				☆				☆	☆	O		●	●		O	O			
Oleic acid		O		☆	☆	☆		☆	☆	☆	☆	O	●	O	●	O			
Oxalic acid			65	☆	☆			10	☆	☆	O		O	O	O	☆			
Paraffin				☆			☆	☆		☆		O		●					
Petroleum			☆	☆	☆	☆	☆	☆	☆	●		●		☆	●	☆			
Petroleum ether			☆	☆	☆	☆	☆	O	☆	☆	☆	●		●	●	☆			
Phenol			☆	☆			●	☆	●			O		●	O	☆			
Phosphoric acid	25	O	●	☆	●	●	●	☆	●	☆	☆	☆	20	O	☆	85	☆		
Potassium bichromate				SA				O	☆	O		☆		O	O	SA	☆		
Potassium bromite				☆				☆	☆	☆	☆	☆		☆	☆	☆	☆		
Potassium hydroxide		☆	50		☆		●	●	☆	☆	☆	☆		O	☆		☆		
Potassium permanganate				☆	☆			☆	☆	●		10	☆	●	10	O	☆		
Sea water		●	☆	☆	☆	☆	O	☆	☆	☆	☆	☆	☆	☆	O		☆		
Silicone oil				☆				☆	☆	☆	☆	☆		☆	☆	☆	☆		
Silver nitrate			O	☆					☆	☆	☆			O		☆	☆		
Sodium carbonate		☆	100	☆	SA	☆		☆	10	☆	☆	☆	☆	☆	☆		☆		
Sodium chloride		O		O	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	SA	☆		
Sodium hydroxide	40	☆		☆	60	☆		10	●		☆		☆	O		☆			
Sodium hypochlorite				●	SA	O	●	10	O	☆		☆	10	☆	●	10	O	5	☆
Sodium silicate			100	☆	☆					☆		☆		☆	☆	☆	☆		
Sodium sulphate			100	☆	☆					☆		O		☆	☆	☆	☆		
Soft drinks				☆	☆		☆		☆	☆	☆	☆		☆	☆	☆	☆		
Suds				☆	☆		☆	10	☆	☆	☆	☆		☆	☆	☆	☆		
Sulphuric acid		●		●	O	☆	●	2	☆	☆	●	O	50	☆	●	50	O	95	☆
Tartaric acid		☆	50	☆	☆		●	O	50	☆	☆	☆	☆	O	☆		☆	☆	
Tetrahydrofuran					☆			☆		O	☆		●		●	●	●		
Tetralin				●	☆			☆		●	☆		●		●	●	☆		
Tincture of iodine				O	☆	●			☆	●	☆	☆	O		●	O	☆		
Toluol		☆			☆			☆	☆	☆	☆		●		●	●	●	O	
Transformer oil		☆			☆			☆	O	☆			●		☆	●	☆		
Trichloroethylene				●	100	☆		●		O	O		●		●	●	☆		
Triethanolamin					☆			☆	☆	☆	☆		O		●	O	●		
Turpentine		☆		☆			●	☆				●	●			●			
Vaseline					☆			☆			☆	O	●		☆	●		☆	
Vegetable juice		☆		☆	☆		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆		
Vegetable oils		☆		☆	☆		☆	●	☆	☆	☆	☆	O			O	☆		
Vinegar		☆		☆	100	☆	☆	10	☆	☆	☆	☆	25	☆	O	25	O	●	
Water and soap		☆		☆	☆		☆	☆	☆	☆	☆	☆	☆		☆	☆	☆	☆	
Whisky		☆		☆	☆	☆	☆	☆	☆	☆	☆		☆		☆	☆	☆	☆	
Wine		☆		☆	☆	☆	☆	☆	☆	☆	☆	O	☆		☆	☆	☆	☆	
Xilol		☆		☆	☆		O	●	☆	●	☆	☆	●		●	●	●	☆	

ABBREVIATION
C = concentration
SA = saturated

☆ = good resistance
● = insufficient resistance (not recommended)

○ = fairly good resistance depending on use conditions
blank spaces = no tests performed

Parameters affecting wear rate

Operating conditions:

- Load
- Speed
- Number of starts per hour- No soft start/frequency inverter controlled drive
- Product accumulation
- Lubrication
- Water quality
 - Concentration of chlorines
 - Water hardness
 - Contaminations
 - Discontinuous water supply
- Lubricant
 - Suitability/performance
 - Dosing
 - Efficiency of nozzles

Cleaning:

- Cleaning agent
 - Frequency
 - Intensity
 - Rinsing
 - Concentration
 - Temperature
- Chemical attack

Environment:

- Temperature
- Humidity
- Wear increasing media/abrasives
- Corrosion
- Cleanliness- Soil e.g, from construction work

Conveyor components:

- Material quality
- Construction
- Dimensional accuracy of
 - Wear strips
 - Sprockets
 - Idlers
 - Return rollers
 - Shaft alignment

Conveyor construction:

- Choice of chain/belt
- Suitability of selected chain/belt for the application
- Mounting of wear strips
 - Flatness
 - Chamfers
 - Raised portions
 - Expansion compensation gaps

Changed/modified conditions:

- Modification of conveyor or its parts/components
 - Maintenance
 - Overhaul

Cleaning instructions

Cleaning is necessary to:

- minimize dirt and debris built up
- keep bacteriological situation under control
- elongate service life of chains/belts
- ensure smooth running of chain/belt for optimum product stability
- prevent crashes due to f,e, glass debris
- prevent malfunction due to sticky residues
- keep friction low

Frequency:

As a rule of thumb we say that cleaning the line once every week is sufficient,

Of course in practice depending on the circumstances this can be more frequent (f,e, during product changes in case of product loss or other pollution) or less frequent in a relatively clean environment,

In the direct surrounding of the filler cleaning will be more frequent anyway, Depending also on the bacteriological situation it may be necessary to clean at least once a day or once every shift,

Also chemicals coming f,e, from a pasteurizer may ask for more frequent cleaning to prevent the chemicals from affecting the chain/belt materials,

In a can line where aluminum cans are filled, there's the aluminum oxide that has to be kept under control, This can occur also far away from filler-pasteurizer, where the line is running dry, When the cans are accelerating on an inliner the remaining drops will fall down with the aluminum oxide on the chain causing a highly abrasive sludge to built up on the inliner, Therefore it may be necessary to clean more frequent also further down the line due to 'local' circumstances,

Method:

Important for an optimum service life of the chains and belts is a general inspection on the conveyors already during operation, Listen for strange –rattling or squeaking- noises, Check transfer plates, return rollers, bearings, etc, Make sure the chain/belt is still running free without extra load or obstruction, Often the service life of a chain/belt is reduced for mechanical reasons that can be sorted easily,

When cleaning we advice to go thru following steps:

1. Check for foreign parts on the conveyor, Check also the return part,
2. Rinse with warm (max 60°) or cold water thoroughly while chain/belt is running,
3. Use mild (PH-5-9) detergent according to suppliers instructions,
4. If necessary clean mechanically (brush) when pollution is hard to remove,
5. Rinse thoroughly with warm (max 60°) or cold water, Make sure all detergent is rinsed off while chain/belt is running,
6. Final mechanical check that chain/belt is running free and without obstruction, During this process it's important not to forget to clean in between carry and return section and underneath where the return support system is,

Especially with plastic chains/belts the detergent in use needs to be checked for compatibility with the plastic materials of the chain/belt,

General:

As obvious as it seems, cleaning is important! Since nowadays pressure on production rates and production costs are getting higher and higher, companies tend to look at cleaning when trying to cut costs,

Less time and resources are available while at the same time the capacity of the lines (and thus pollution and product loss) has to go up,

When companies are setting up a cleaning regime they tend to focus on the individual machines (mainly filler and surrounding) and not so much on the conveyors, Therefore we want to promote 'CONVEYOR AWARENESS' in this respect,

Dry versus wet:

When a wet lubricant is in use (water & soap) product loss is normally flushed off by the water & soap, Often the soap also has a 'cleaning function' built in, But wet circumstances also attract dust and dirt and wet circumstances will increase the growth of bacteria, When a line is standing still during a stop or during the

weekend without cleaning, the lubricant will dry in which may cause pollution and changing sliding characteristics of the chains/belt after several times,

Under dry circumstances the conveyors generally remain cleaner, But product loss needs to be cleaned to avoid functional problems of the line,

Therefore functionally speaking wet lubrication is more safe but requires just as well regular cleaning and is a high cost factor,

All together with the present state of conveyor technology it is possible to run a major part of a glass, can or a PET line dry taken into consideration that a regular cleaning regime is in place,

Inspection procedure

1. Inspect chains for unusual wear patterns or damage,
2. Look for excessive gaps between chain flights,
3. Check conveying surface for Flatness, bent or broken Flights,
4. Inspect hold-down tabs or beveled sliding surfaces for excessive wear,
5. Review chain catenary sag for proper amount,
6. If take-ups are used, check that take-up tension is not excessive, Do not preload chain,

7. Check all idlers, rollers, turn discs and sprockets for freedom of rotation,
8. Examine sprockets for excessive wear,
9. Look for debris build up in sprocket tooth pockets,
10. Check for excessive guide ring wear,
11. Check all wear strips and fasteners for excessive wear,
12. Check all transfer points, dead plates, turn tables, turn discs and sprockets for proper elevation and alignment,
13. Review function of lubrication system,
14. Inspect general cleanliness of conveyor system,

Installation procedure

1. Check all sprockets, idlers, turn discs and rollers for proper elevation and alignment with regard to the conveyor tracks,
2. Check all wear strips (carrying and return), dead plates, dividers and transfers mechanism for proper location, elevation, spacing and Flatness,
3. Check all fasteners for proper tightness (torque), Fasteners used on wear strips and dead plates must have recessed heads,
4. Check all conveyor splice points for proper elevation, alignment and fastening,
5. Inspect conveyor system for obstructions by pulling a short section of chain (1 meter) through the entire conveyor,

6. Check lubrication system (if present),
7. Install conveyor chain, assuring that the following has been done:
 - A Check for correct direction of chain travel,
 - B Assemble chain in 3 meters sections and avoid twisting or damaging the chain,
 - C Connect chain sections on the conveyor, Make sure that the connecting pins are not protruding,
 - D Adjust chain catenary (sag) to the proper elevation, Note: readjustment is usually necessary after a certain operating time,
8. Insure that lubricant is evenly dispersed through conveyor system,
9. Start up conveyor by jogging and/or using short running periods before loading the system, Be alert to unusual noises or actions, If a problem should occur, refer to the trouble shooting guide,

Replacement criteria

- Chains must be replaced when:
- The chain starts to jump on the sprocket due to elongation, This may start to happen at 3% elongation or more,
 - The thickness of the plate has been reduced by 50%,
 - The surface becomes uneven or scratched causing stability problems,
 - The hinge is worn to an extend that the pins protrude

Belts must be replaced when:

- The belt starts to jump on the sprocket due to elongation, This may start to happen at 3% elongation or more,
- The thickness of the module has been reduced by 1 mm from the top and from the bottom,
- The surface becomes uneven or scratched causing stability problems,

When replacing chains/belts, it is recommended to replace wear strips and sprockets/idlers as well, Sprockets and Idlers must be replaced when:

- teeth are worn flat
- chain/ belt does not release well
- teeth are damaged
- bore of idler is worn out and idler starts to oscillate
- hub or keyway are damaged
- new chain/ belt is installed

Wear strip must be replaced when:

- thickness is reduced by 50% and stability problems occur
- dirt or debris is embedded
- Fixing rivets protrude.

Layout procedure for a ETS conveyor system

Task definition:

Determine number and position of the work steps, calculate the available space.



Plan rough system layout:

Lengths, segments, curves, slopes (sketch)



Product-specific data:

Determine conveyed material data:

Dimensions, mass, friction figures, antistatic environment needed?



Production-specific data:

Determine conveyor parameters: Speed, conveyed material spacing and cycle, number of start-up operations/h, accumulation section



Detailed system layout planning:

Accumulation sections, product interchange points

► www.easy-conveyor.com



Chain tensile force calculation F

► Examples 1-2, page 254 – page 258



$F < F_{\text{permissible}}$ (page 257 & 260):

YES

NO ►



$F \ll F_{\text{permissible}}$ (oversized) ►

NO

YES ►



Check drive torque:

$$\frac{M \cdot 2}{\varnothing TK} \geq F$$

OK?

YES

NO ►



Needed data

- The length and/or width of the belt conveyor (mm)
- The width of the belt (mm)
- Wanted speed (mtr/min)
- Product weight (Kg)
- Product length (mm) [!] (in direction of transport)
- Amount of products on the conveyor (pcs)
- Product to transport (bakery, food, plastic, cardboard, glass or metal)
- Slide profile (TCP / TCS)
- State of contact surfaces between slide rail/chain -(dry normal -dirty -rough/Water/Water & Soap/Oil)
- State of contact surfaces between goods/chain (dry/water/water & soap)
- Ambient temperature (°C)
- Start/Stop each hour (pcs/hr)
- Frequency controller (Yes or No)
- Accumulation (Yes or No)
- Amount of products to accumulate (pcs)
- Running hours per day
- Type of loading

Weight (q_k)		Actual lenght (L_k)	Straight lenght (L_s)
(kg/m ²)	Drive / return units	(mtr)	Drive / return units (mtr)
1,05	ETS80 FLAT TOP Return unit	0,777	Return unit 0,34
3,2	ETS80 ROLLER		
1,15	ETS80 FRICTION Drive unit	0,984	Drive unit 0,347
1,62	ETS200 FLAT TOP Straight section	2 x L _i	
1,75	ETS200 FRICTION		

Belt length Hor. Curves (mm)

(two side)

ETS HORIZONTAL CURVE; 30° R200	609,33
ETS HORIZONTAL CURVE; 45° R200	714
ETS HORIZONTAL CURVE; 60° R200	818,66
ETS HORIZONTAL CURVE; 90° R200	1028
ETS HORIZONTAL CURVE; 180° R200	1656
ETS HORIZONTAL CURVE; 30° R500	923,33
ETS HORIZONTAL CURVE; 45° R500	1185
ETS HORIZONTAL CURVE; 60° R500	1446,66
ETS HORIZONTAL CURVE; 90° R500	1970
ETS HORIZONTAL CURVE; 180° R500	3540

Belt length Vert. Curves (mm) Degrees (β)

(two side)

ETS VERT. SLIDE CURVE; 5° R=500	487,22
ETS VERT. SLIDE CURVE; 10° R=500	574,14
ETS VERT. SLIDE CURVE; 15° R=500	661,67
ETS VERT. SLIDE CURVE; 30° R=500	923,34
ETS VERT. SLIDE CURVE; 45° R=500	11
ETS VERT. SLIDE CURVE; 60° R=500	1446,67
ETS VERT. SLIDE CURVE; 90° R=500	1970

Friction forces occur in curves (μ_R)

0° (Straight sections)	1,0
------------------------	-----

Curve angle (vertical)

5°	1,03
10°	1,05
15°	1,05
30°	1,10
45°	1,20

WHEEL Curve angle (horizontal)

30°	1,05
45°	1,05
60°	1,075
90°	1,10
180°	1,15

SLIDE Curve angle (horizontal)

30°	1,2
45°	1,3
60°	1,4
90°	1,6
180°	2,2

Application factor C_1

Approach procedures /h Application factor

0 – 1	1,0
2 – 10	0,83
11 – 30	0,71
> 30	0,62

Breaking force (max -40°C / +80°C) C_2

Temperature °C Breaking force factor

0	1,12
20	1,0
40	0,96
60	0,92

Factor C_3 Breakaway torque

Temperature °C Breaking force factor

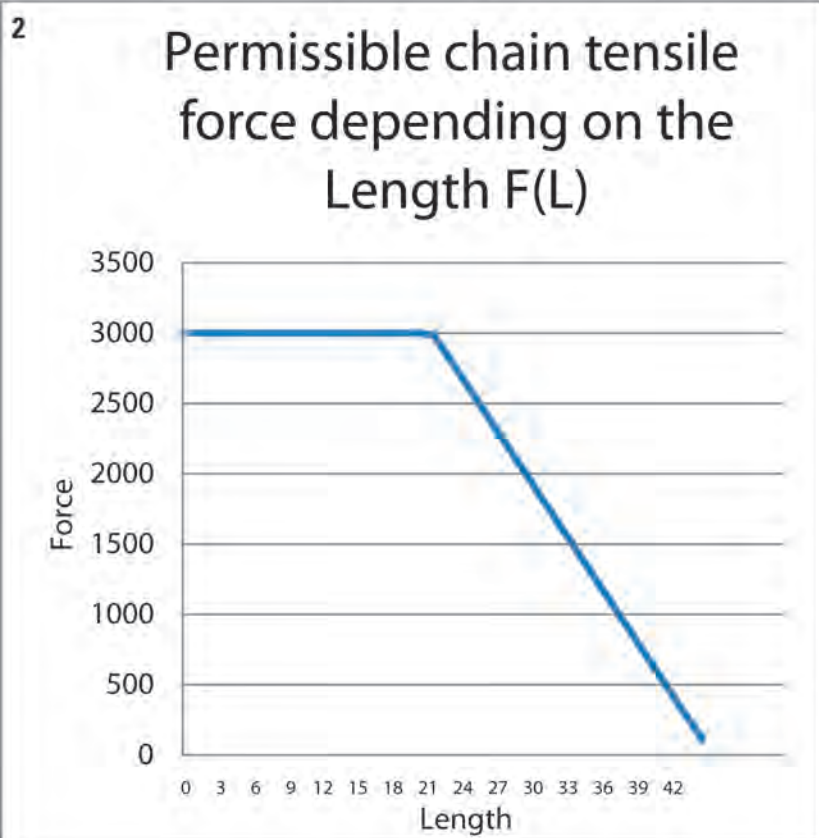
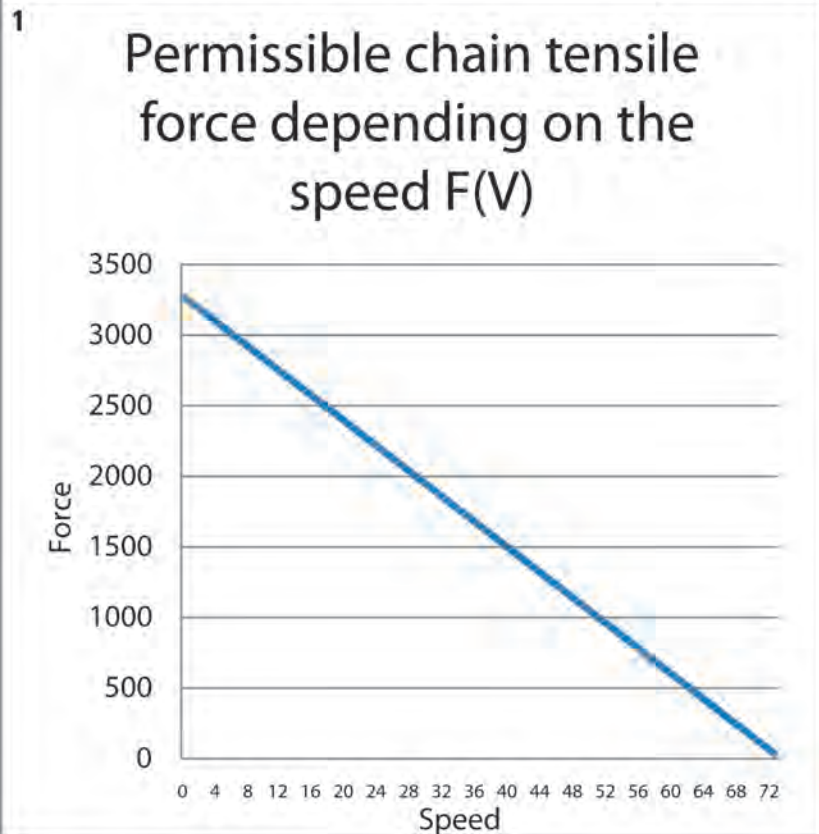
0,09 kW	2,1
0,12 kW	2,4
0,18 kW	1,8
0,25 kW	1,8
0,37 kW	1,8
0,55 kW	2,1
0,75 kW	2,2
1,1 kW	2,0

Frequency controller 1,5

The permissible chain tensile force depends on the conveying speed as well as the ambient and operating conditions.

If the calculated chain tensile force exceeds the permissible amount, you can:

- divide the section into various chain conveyors.
- alter the system layout, e.g. by shorten the section.
- shorten the accumulation sections.
- reduce the speed.



MOTOR SELECTION

The drive torque of the selected gear motor must be greater than the calculated required drive torque.

There are the following options to reduce the required drive torque:

- reduce the chain tensile force (F).
- reduce the speed (v) and use a gear motor with a higher drive torque.
- change the operating conditions (e. g. the ambient temperature)

Procedure for both calculations:

- Divide the conveyor section into segments. Segment 1 starts at the traction stand (e.g. at the return unit, at the connecting drive outlet), the last segment ends at the drive unit. The division is made according to operating mode (conveying operation / accumulation operation). When using horizontal or vertical curves the segment ends after the curve.
- Calculate the individual segments in ascending order. The chain tensile force of the current segment will enter the calculation of the following segment as a counter force. The result of the last segment is the required chain tensile force to operate the conveyor.
- The tensile force resulting from the chain return can generally be overlooked.

Exceptions:

- The conveyor contains more than 2 curves.
- The section load of the goods is lower than that of the chain (round trip): $qF \leq 2 \cdot qK$

In these cases, the first segment begins at the head drive outlet.

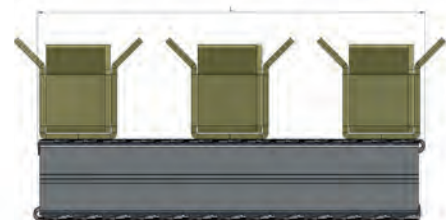
For all calculations

$$Q_{Fi} = \frac{M_i \cdot g}{L_i}$$

ETS Straight

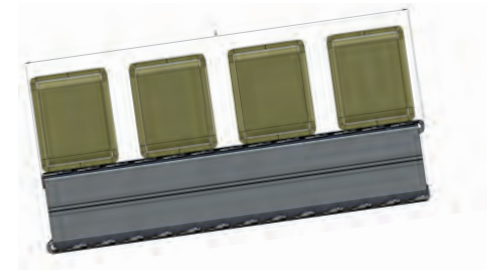
$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot \mu_T + (L_K - L_i) \cdot qK \cdot \mu_T] \cdot \mu_R$$

$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot \mu_T] \cdot \mu_R \text{ (connection drive)}$$



ETS Incline/Decline

$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot (\mu_T \cdot \cos\beta + \sin\beta) + (L_K - L_i) \cdot qK \cdot (\mu_T \cdot \cos\beta - \sin\beta)] \cdot \mu_R$$



ETS Accumulation (is not possible when using a friction or a cleated belt)

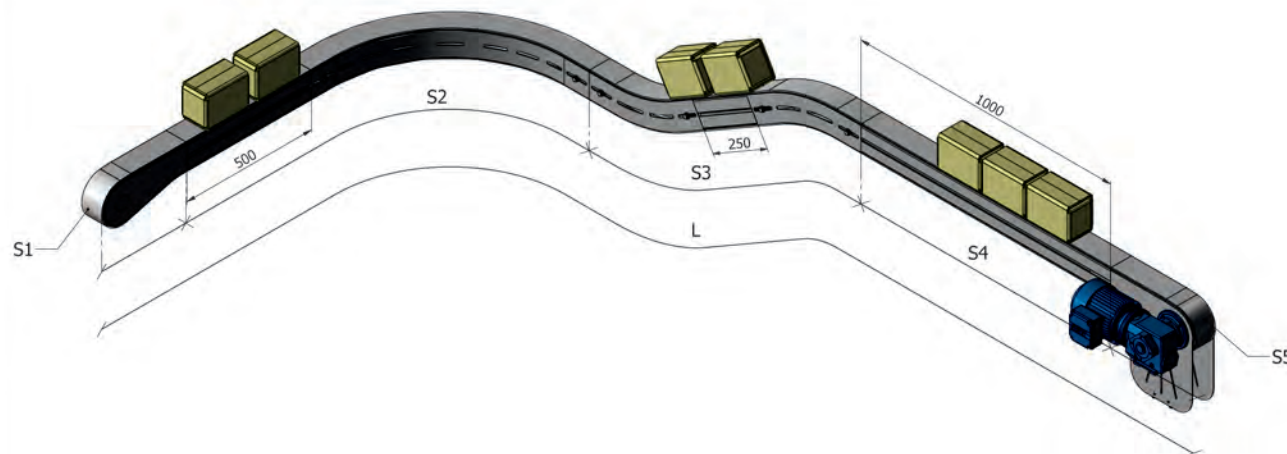
$$F_i = [F_{i-0} + L_i \cdot \{ (Q_K + Q_{Fi}) \cdot \mu_T + Q_{Fi} \cdot \mu_{ST} \} + (L_K - L_i) \cdot Q_K \cdot \mu_T] \cdot \mu_R$$

$$F_i = [F_{i-0} + L_i \cdot \{ (Q_K + Q_{Fi}) \cdot \mu_T + Q_{Fi} \cdot \mu_{ST} \}] \cdot \mu_R \text{ (connection drive)}$$



LIST OF APPLIED ABBREVIATIONS

F	= Chain Tensile force (at the drive pulley) (N)	M _H	= Run-up Torque (Nm)
F _{perm.}	= Permissible load capacity	M _i	= Total product mass (Kg)
F _i	= Chain tensile force of individual segments (N)	M _N	= Nominal Torque (Nm)
g	= 9,81 (m/s ²)	M _T	= Motor Torque (Nm)
μ _R	= Friction forces occur in curves	v	= Belt speed (mtr/min)
μ _{ST}	= Friction coefficient Product/Chain	A _Z	= Amount of Accumulation
μ _T	= Friction coefficient Chain/Slide rail	f _B	= Service Factor
L	= Conveyor section length (mtr)	P _A	= Mechanical Drive Power (kW)
L _i	= Segment length (mtr)	P _M	= Motor Power (kW)
L _K	= Actual chain length (mtr)	R _H	= Running hours / day
L _S	= Chain length straight (mtr)	S _L	= Shock Load
Q _{Fi}	= Section load of conveyed material on segment L _i (N/mtr)	S _S	= Start/Stops /hr
Q _K	= Weight of the belt (N/mtr)	U _L	= Uniform Load
β	= Angle for Incline or Decline (°)	V _L	= Variable Load
		η	= Efficiency (%)

**Example 1: Calculation ETS Incline**

Conveyor system	ETS Aluminum
Chain width	80mm
Wanted speed	20 mtr/min
Pitch diameter	Ø147.3mm
Product weight	10 kg
Product Length	175mm
Product material	Cardboard
Conveyor length L	6,232mtr
Chain section load Q_k	11,28 N/m (1,15*9.81)
Slide rail	TCP
State of contact surfaces μ_{ST}	Dry
State of contact surfaces μ_T	Dry - Normal
Ambient temperature	30°C
Start/Stop	5/h
Frequency controller	Yes
Accumulation on Section 3	Yes
Amount of products to accumulate	3 pieces
Running hours per day	16 hr
Type of loading : Uniform Load Permissible load capacity	2366N (see table 1 or 2 page 251)

ETS SECTION 1

L_i = Segment length (mtr)	: 0,34
L_K = Actual chain length (mtr)	: 0,777
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,3

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{0 * 9,81}{0,34} \quad q_{Fi} = 0$$

ETS Section 1

$$F_1 = [F_{i-0} + \{L_i * (Q_k + Q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_k * \mu_T\}] * \mu_R$$

$$F_1 = [0,0 + \{0,34 * (11,28 + 0) * 0,3\} + \{(0,777 - 0,34) * 11,28 * 0,3\}] * 1,0$$

$$F_1 = [0,0 + \{0,34 * 3,384\} + 1,479] * 1,0$$

$$F_1 = [0,0 + 1,151 + 1,479] * 1,0$$

$$F_1 \approx 2,63 \text{ N}$$

ETS SECTION 2

L_i = Segment length (mtr)	: 0,986 ((Slide Curve 90° 1 side) + 1 * 0.5mtr)
L_K = Actual chain length (mtr)	: 1,972 ((Slide Curve 90° 2 side) + 2 * 0.5mtr)
μ_R = Friction forces occur in curves	: 1,60 (Slide curve 90°)
μ_T = Friction coefficient Chain/Slide rail	: 0,3
M_i = Total product mass (Kg)	: 20 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{20 * 9,81}{0,986} \quad q_{Fi} = 199 \text{ N/m}$$

ETS Section 2

$$F_2 = [F_{i-0} + \{L_i * (Q_k + Q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_k * \mu_T\}] * \mu_R$$

$$F_2 = [2,63 + \{0,986 * (11,28 + 199) * 0,2\} + \{(1,97 - 0,986) * 11,28 * 0,2\}] * 1,60$$

$$F_2 = [2,63 + \{0,986 * 42,056\} + 2,22] * 1,60$$

$$F_2 = [2,63 + 52,04 + 2,22] * 1,60$$

$$F_2 \approx 74,12 \text{ N}$$

ETS SECTION 3

L_i = Segment length (mtr)	: 1,17 ((Vert. Curve 30° 1 side) + 1 * 0.25mtr)
L_K = Actual chain length (mtr)	: 2,35 ((Vert. Curve 30° 2 side) + 2 * 0.25mtr)
μ_R = Friction forces occur in curves	: 1,10 (Vert. slide curve 30°)
μ_T = Friction coefficient Chain/Slide rail	: 0,2
M_i = Total product mass (Kg)	: 20 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{20 * 9,81}{1,17} \quad q_{Fi} = 167,70 \text{ N/m}$$

ETS Section 3

$$F_3 = [F_{i-2} + \{L_i * (Q_K + Q_{Fi}) * (\mu_T * \cos\beta + \sin\beta)\} + \{(L_K - L_i) * Q_K * (\mu_T * \cos\beta - \sin\beta)\}] * \mu_R$$

$$F_3 = [74,12 + \{1,17 * (11,28 + 167,70) * (0,2 * 0,866 + 0,5)\} + \{(2,35 - 1,17) * 11,28 * (0,2 * 0,866 - 0,5)\}] * 1,10$$

$$F_3 = [74,12 + \{1,17 * 178,98 * 0,67 + \{13,20 * -0,33\}\}] * 1,10$$

$$F_3 = [74,12 + 140,30 - 4,36] * 1,10$$

$$F_3 \approx 231,07 \text{ N}$$

ETS SECTION 4

L_i = Segment length (mtr)	: 1,0 (Straight section)
L_K = Actual chain length (mtr)	: 2,0 (Straight section * 2)
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,2
M_i = Total product mass (Kg)	: 60 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{60 * 9,81}{1} \quad q_{Fi} = 588,6 \text{ N/m}$$

Accumulation

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{60 * 9,81}{0,525} \quad q_{Fi} = 1121,14 \text{ N/m}$$

ETS Section 4

$$F_4 = [F_{i-3} + \{L_i * (Q_K + Q_{Fi}) * \mu_T + Q_{Fi} * \mu_{ST}\} + \{(L_K - L_i) * Q_K * \mu_T\}] * \mu_R$$

$$F_4 = [231,07 + \{1,0 * (11,28 + 588,6) * 0,2 + 1121,14 * 0,28\} + \{(2,0 - 1,0) * 11,28 * 0,2\}] * 1,0$$

$$F_4 = [231,07 + \{1,0 * 120 + 313,92\} + 2,26] * 1,0$$

$$F_4 = [231,07 + 433,92 + 2,26] * 1,0$$

$$F_4 \approx 667,25 \text{ N}$$

ETS SECTION 5

L_i = Segment length (mtr) L_i	: 0,34
L_K = Actual chain length (mtr)	: 0,777
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,3

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{0 * 9,81}{0,34} \quad q_{Fi} = 0$$

ETS Section 5

$$F_5 = [F_{i-4} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_K * \mu_T\}] * \mu_R$$

$$F_5 = [667,25 + \{0,347 * (11,28 + 0) * 0,3\} + \{(0,984 - 0,347) * 11,28 * 0,3\}] * 1,0$$

$$F_5 = [667,25 + \{0,347 * 3,384\} + 2,16] * 1,0$$

$$F_5 = [667,25 + 1,17 + 2,16] * 1,0$$

$$F_5 \approx 670,60 \text{ N}$$

$$F_{max} = F_{perm.} * C_1 * C_2$$

$$F_{max} = 2366 * 0,83 * 1,0$$

$$F_{max} \approx 1964 \text{ N} \quad F = 670,60 \text{ N}$$

System is OK

$$M_N = \frac{F * (d_A / 2)}{1000}$$

$$M_N = \frac{670,60 * (147,3 / 2)}{1000}$$

$$M_N \approx 49,39 \text{ Nm}$$

Run-up Torque

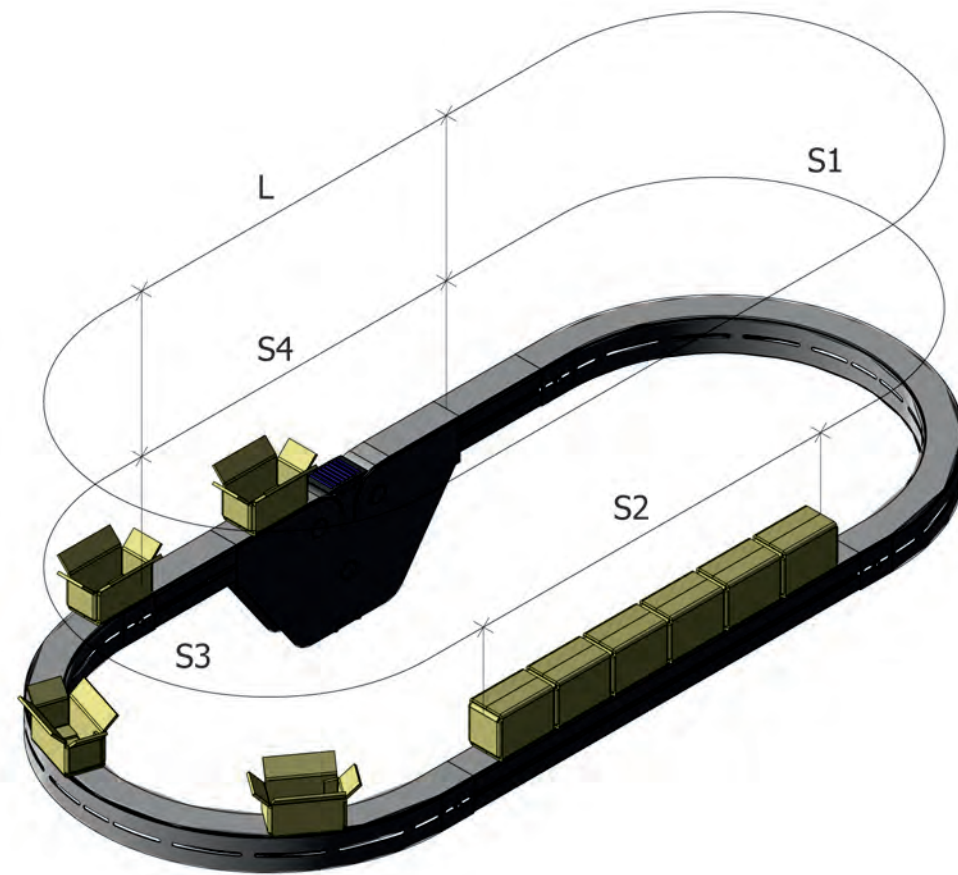
$$M_H = M_N * C_3 \quad P_A = \frac{F_U * v}{1000} \quad P_A = \frac{670,60 * 0,33}{1000}$$

$$M_H = 49,39 * 1,5$$

$$M_H \approx 74,10 \text{ Nm}$$

$$P_A = 0,22 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW] chose, the next larger standard motor}$$

**Example 2: Calculation ETS Connection drive**

Conveyor system	ETS Aluminum
Belt width	140mm
Wanted speed	15 mtr/min (0,25 mtr/sec)
Pitch diameter	Ø147.3mm
Product weight	5 kg
Product Length	175mm
Product material	Cardboard
Conveyor length L	6,6mtr
Chain section load Q_k	12,95 N/m (1.32*9.81)
Slide rail	TCS
State of contact surfaces μ_{st}	Dry
State of contact surfaces μ_T	Dry - Normal
Ambient temperature	45°C
Start/Stop	30/h
Frequency controller	Yes
Accumulation on Section 2	Yes
Amount of products to accumulate	6 pieces
Running hours per day	8 hr
Type of loading : Uniform Load Permissible load capacity	2591N (see table 1 or 2 page 251)

ETS SECTION 1

L_i = Segment length (mtr)	: 1,97 ((slide Curve 180° 1 side) + 0.2mtr)
μ_R = Friction forces occur in curves	: 2,2 (Slide curve 180°)
μ_T = Friction coefficient Chain/Slide rail	: 0,18

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{0 * 9,81}{1,97} \quad q_{Fi} = 0$$

ETS Section 1

$$F_1 = [F_{i-0} + \{L_i * (Q_k + Q_{Fi}) * \mu_T\}] * \mu_R$$

$$F_1 = [0 + \{1,97 * (12,95 + 0) * 0,18\}] * 2,2$$

$$F_1 = [0 + 4,60] * 2,2$$

$$F_1 \approx 10,10 \text{ N}$$

ETS SECTION 2

L_i = Segment length (mtr)	: 1,1 (Straight section)
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,18
M_i = Total product mass (Kg)	: 25 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{25 * 9,81}{1,1} \quad q_{Fi} = 267,55 \text{ N/m}$$

Accumulation

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{25 * 9,81}{1,05} \quad q_{Fi} = 280,3 \text{ N/m}$$

ETS Section 2

$$F_2 = [F_{i-1} + \{L_i * (Q_k + Q_{Fi}) * \mu_T + Q_{Fi} * \mu_{st}\}] * \mu_R$$

$$F_2 = [10,10 + \{1,1 * (12,95 + 267,55) * 0,18 + 280,3 * 0,28\}] * 1,0$$

$$F_2 = [10,10 + 55,54 + 78,48] * 1,0$$

$$F_2 \approx 144,12 \text{ N}$$

ETS SECTION 3

L_i = Segment length (mtr)	: 1,77 (Slide Curve 180° 1 side)
μ_R = Friction forces occur in curves	: 2,2 (Slide curve 180°)
μ_T = Friction coefficient Chain/Slide rail	: 0,18
M_i = Total product mass (Kg)	: 10 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{10 * 9,81}{1,77} \quad q_{Fi} = 83,14 \text{ N/m}$$

ETS Section 3

$$F_3 = [F_{i-2} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\}] * \mu_R$$

$$F_3 = [144,12 + \{1,77 * (12,95 + 83,14) * 0,18\}] * 2,2$$

$$F_3 = [144,12 + 30,61] * 2,2$$

$$F_3 \approx 384,42 \text{ N}$$

ETS SECTION 4

L_i = Segment length (mtr) Li	: 1,545 (Drive unit 1,345mtr + 0.2mtr)
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,6
M_i = Total product mass (Kg)	: 5 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{5 * 9,81}{1,545} \quad q_{Fi} = 31,75 \text{ N/m}$$

ETS Section 4

$$F_4 = [F_{i-3} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\}] * \mu_R$$

$$F_4 = [384,42 + \{1,545 * (12,95 + 31,75) * 0,6\}] * 1,0$$

$$F_4 = [384,42 + 41,44] * 1,0$$

$$F_4 \approx 425,86 \text{ N}$$

$$F_{max} = F_{perm.} * C_1 * C_2$$

$$F_{max} = 2591 * 0,71 * 0,96$$

$$F_{max} \approx 1766 \text{ N} \quad F = 425,86 \text{ N}$$

System is OK

$$M_N = \frac{F * (d_A / 2)}{1000}$$

$$M_N = \frac{425,86 * (147,3 / 2)}{1000}$$

$$M_N \approx 31,37 \text{ Nm}$$

Run-up Torque

$$M_H = M_N * C_3 \quad P_A = \frac{F_U * v}{1000} \quad P_A = \frac{425,86 * 0,25}{1000}$$

$$M_H = 31,37 * 1,5$$

$$M_H \approx 47,05 \text{ Nm}$$

$$P_A = 0,11 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW]} \text{ chose, the next larger standard motor}$$

Conclusion

You can see above that the motor and also the conveyor system are selected because of the input. Also you can see that some values cause a certain overload situation for the system, motor or both.

There are a few options to prevent an overload.

- Lower the speed
- Lower the amount of product on the conveyor
- Less Start/Stops
- Less Accumulation
- Change type of loading
- Shorten the conveyor
- Choose another conveyor system
- Less running hours per day.
- Choose another transport system. (roller conveyor, mattop conveyor or tabletop conveyor)

Chain/belt jumps on sprocket

Possible causes	Remedy
Chain/belt is elongated e.g. due to wear or overloaded	Replace chain/belt and sprocket. Check other components as well. Eliminate cause of overload.
Improper catenary sag	Check dimensions and adjust
Sprocket is worn	Replace sprocket
Wrong sprocket type	Install correct sprocket
Misaligned sprocket	Check and adjust
Improper sprocket position	Check and adjust position

Chain/belt does not release well

Possible causes	Remedy
Incorrect sprocket dimension or type	Check and replace sprocket
Sticky residue	Clean chain/sprocket or renew
Improper catenary sag	Check dimensions and adjust

Slip stick operation

Possible causes	Remedy
Slip stick	Use lubrication Reduce chain/belt tension by shortening the conveyor
Return roller diameter too small	Install larger rollers
Chain/belt catches the conveyor	Remove obstructions. Check return part as well
Improper catenary sag	Check dimension and adjust

Damaged chain hinges

Possible causes	Remedy
Overloading	Eliminate cause of overloading Check sprockets and other components Replace chain/belt Replace components if necessary
Blocking and obstructions	Check the complete conveyor
Exceeding the minimum backflex radius	Check conveyor construction
Too small radius for side flexing chain	Check minimum radius of chain and adjust accordingly

Elongation

Possible causes	Remedy
Overloading	Eliminate cause of overloading Check sprockets and other components Replace chain/belt Replace components if necessary
Wear from dirt in hinges	Improve cleaning or Use HB pins

Rapid curve wear

Possible causes	Remedy
Overheating	Use EXTRA curve or Nolu-S
Embedded abrasives	Replace curve

Chain drifts sideways on sprockets

Possible causes	Remedy
Bad shaft/sprocket alignment	Adjust or use collars
Conveyors is not level	Adjust

Cracked hinge eyes

Possible causes	Remedy
Stress-corrosion caused by incompatible chemicals	Check chemicals compatibility with chain/belt material Use appropriate chemicals

Chains for magnetic system releases from curve

Possible causes	Remedy
Worn curve	Replace curver
Improper chamfering of the infeed or other obstructions	Check and adjust/rework
No soft start-up	Install frequency inverter drives
Curve not mounted level	Check and adjust

Corroded steel chain

Possible causes	Remedy
Incompatible combination of chain material and chemicals	Use only compatible chemicals
May occur even with stainless steel	Consider higher graded material

Excessive chain/belt wear

Possible causes	Remedy
Pollution	Improve cleaning
Failing lubrication	Check lubrication system Contact lubricant supplier
Obstructions	Check all sections
Debris in return part	Clean conveyor Install roller with larger diameter

Sprockets don't slide on shaft when belt extends due to temperature increase

Possible causes	Remedy
Pollution	Improve cleaning
Axial fixing incorrect	Re-adjust axial fixing according to temperature situation
Wrong bore tolerance	Replace by sprockets with PLUS tolerance

Rapid wear on sprockets

Possible causes	Remedy
Abrasive conditions	Improve cleaning Use steel sprockets

Please contact technical support
at any time in case of doubt.



PRODUCT LEAFLETS

Aluminium	EMBS HEAD DRIVE	Page 275
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0.8

0.05

R1

1°

1°

0.05

8 x \varnothing 5 THRU ALL
M6 - 6H THRU ALL

- ✓ \varnothing 6.05 X 90°, Near Side
- ✓ \varnothing 7 X 90°, Far Side



STC. \varnothing 83 (varvel)

STC. \varnothing 80 (nord)

STC. \varnothing 75 (motovario)

STC. \varnothing 70 (SEW WA20)

4x \varnothing 6,5



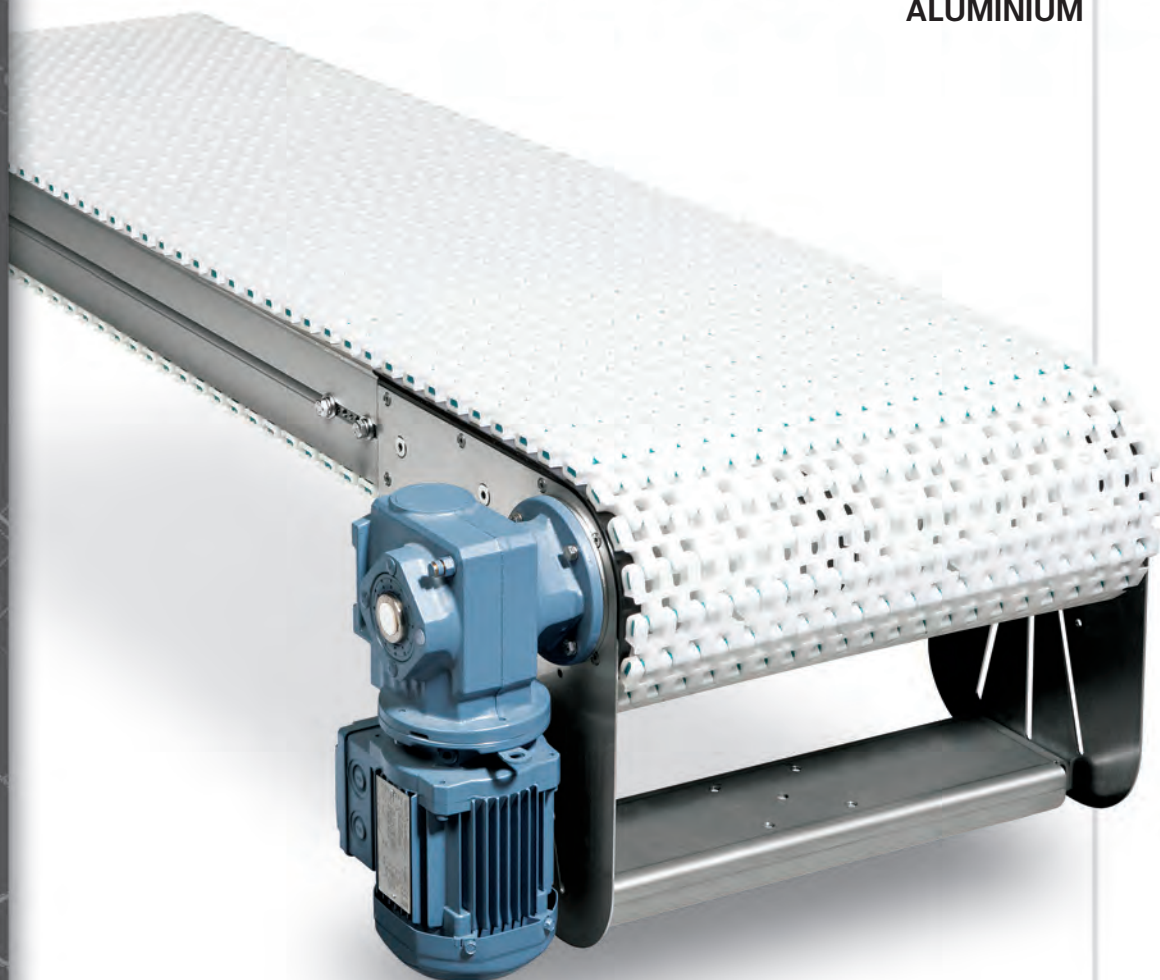


EMBS
SYSTEM

Mat Top Conveyor
Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

EMBS HEAD DRIVE

ALUMINIUM

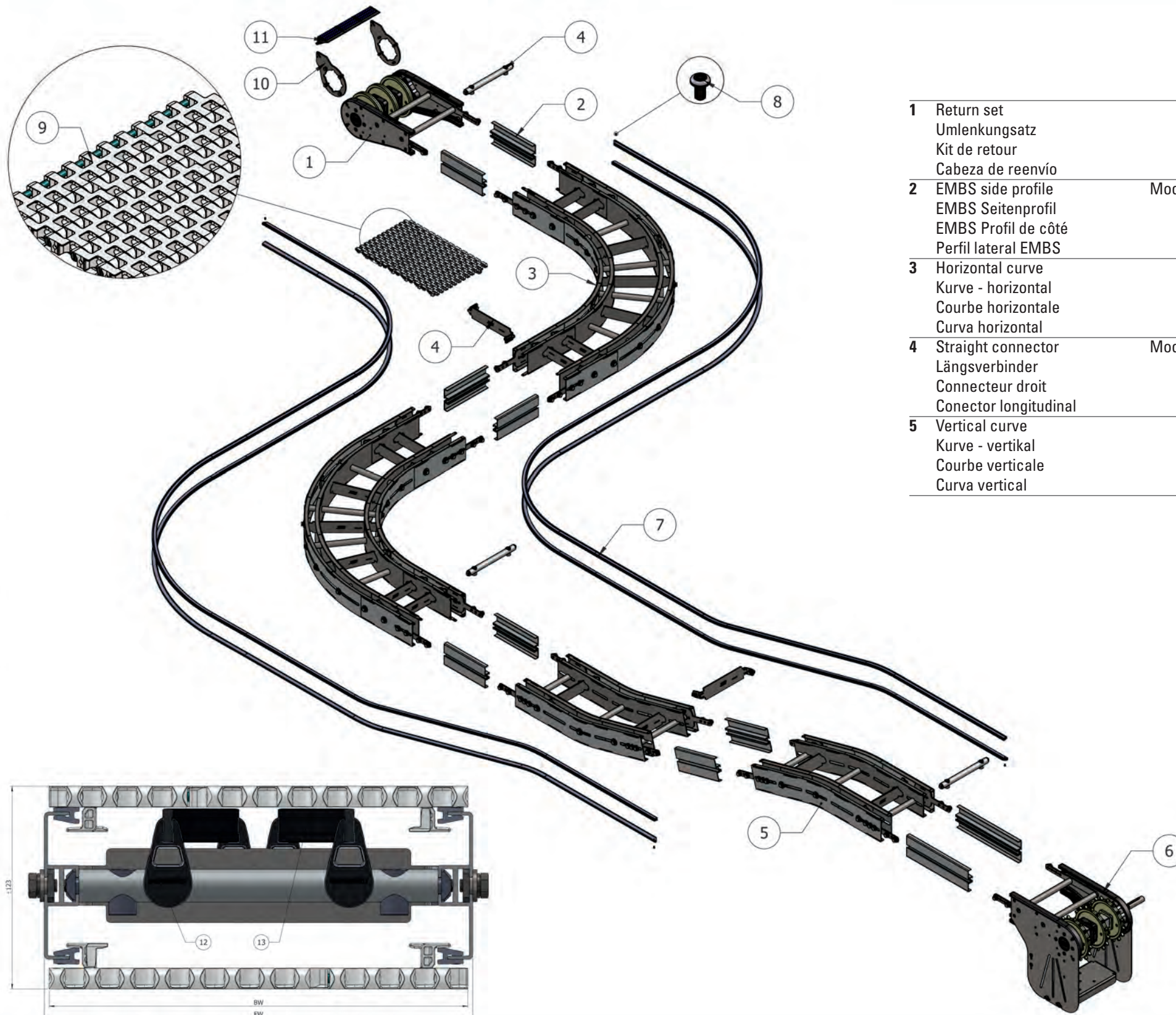


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EMBS HEAD DRIVE

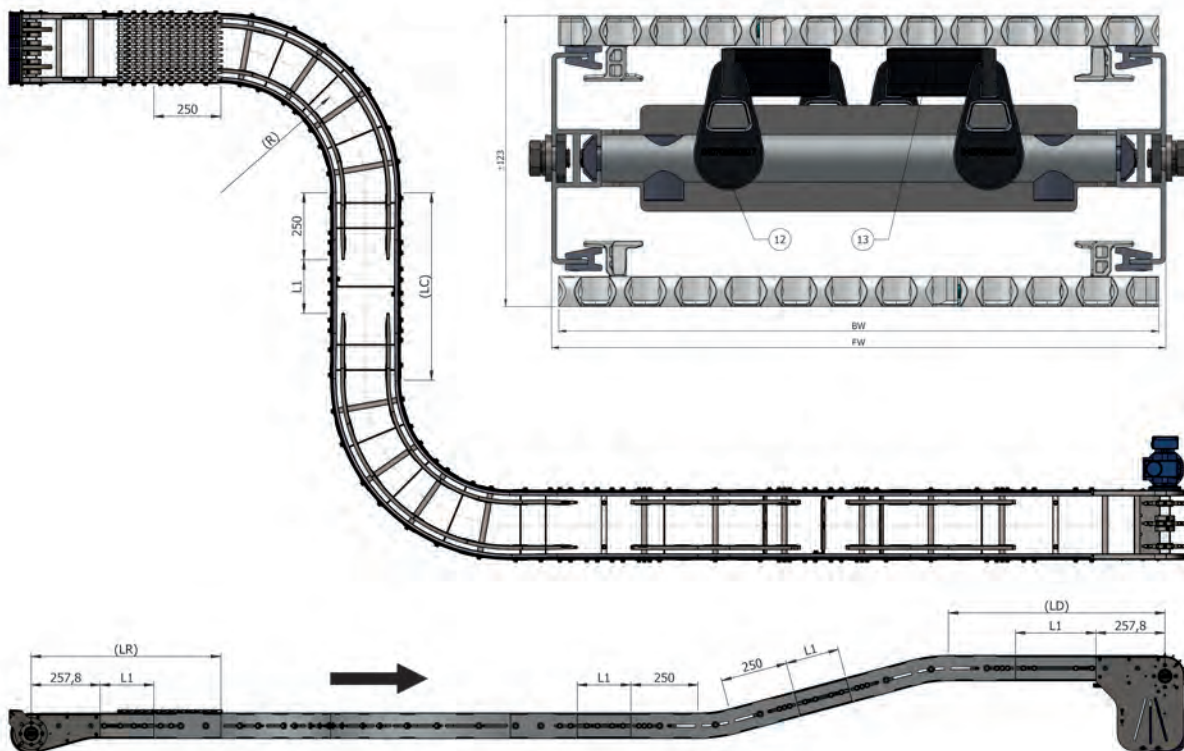
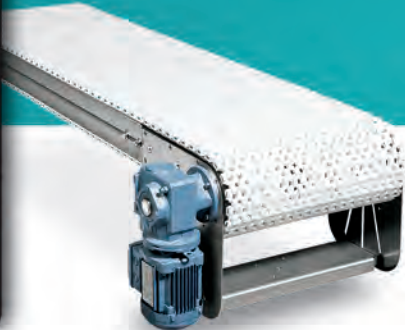


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2	EMBS side profile EMBS Seitenprofil EMBS Profil de côté Perfil lateral EMBS	Module page 300-301
3	Horizontal curve Kurve - horizontal Courbe horizontale Curva horizontal	Module page 336
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 300-301
5	Vertical curve Kurve - vertikal Courbe verticale Curva vertical	Module page 338



6	Head drive set Kopfantrieb - Satz Ensemble Entraînement Direct Cabeza de tracción, juego	Module page 306-310
7	Slide profile Gleitprofil Glissez le profil Perfil de deslizamiento	Module page 300-301
8	Rokut rivet Kunststoff Popnail Popnail en plastique Popnail plástico	Module page 300-301
9	EMBS Chain EMBS Kette EMBS chaîne Cadena EMBS	Module page 304-305
10	Transfer module Transfer-Modul Module de transfer Módulo de transferencia	Module page 332-335
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12	Heavy duty clips Schwerlast clip Clip lourds Clip de servicio reforzado	Module page 300-301
13	Heavy duty profile Schwerlast profile Voir le profile lourds Perfil para cargo pesoda	Module page 300-301





More technical information: See engineering online www.easy-conveyors.com

ETS HEAD DRIVE	Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	Max. total +/- 22 mtr. 72.17 Foot			Longer on request
L1 =	Min. 200 mm 7,87" inch			
LR =	1 x BW - Min. 500mm 19,68" inch			
LC =	1.5 x BW			
LD =	1 x BW - Min. 800mm 31,49" inch			
FW =	260	344	429	513 mm
	10,23"	13,54"	16,89"	20,19" inch
BW =	255	340	425	510 mm
	10,04"	13,58"	16,73"	20,07" inch
R =	255=540, 340=750, 425=900, 510=1100 mm			
	10,04"=21,26", 13,58"=29,52", 16,73"=35,43", 20,07"=43,3" inch			
V ≈	Max. 45 mtr./min 148 Foot/min			
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment				141 Nm
Breaking load, Bruchlast, Charge de rupture, Carga de rotura				30.000 N/mtr (dynamic)
Support legs, Stützen, Supports, Patas de apoyo				Module page 342-347/352-353
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral				Module page 354-357
! POS 12 -13 When BW = 425/ 13,58" & 510/ 20,07" or Product Weight >10kg.				

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



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EMBS CENTER DRIVE

ALUMINIUM



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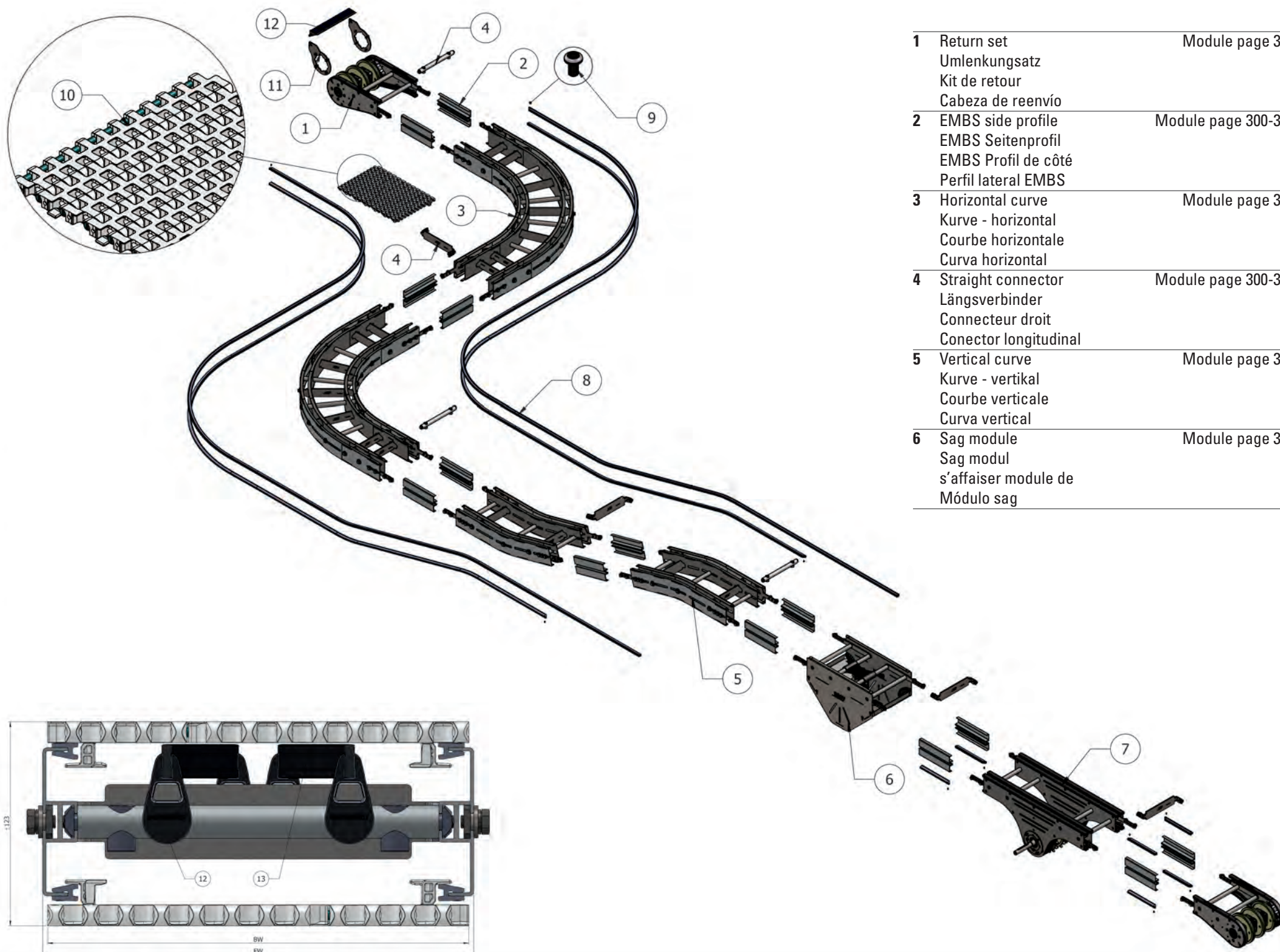
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EMBS CENTER DRIVE



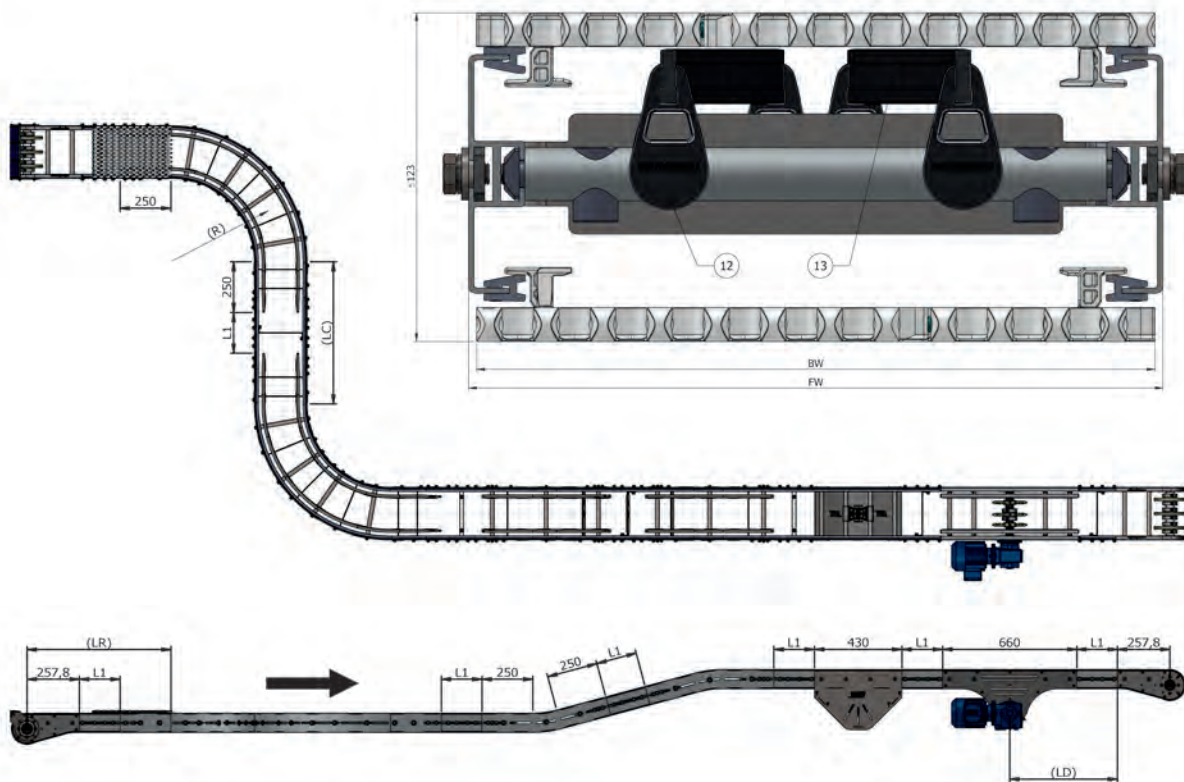
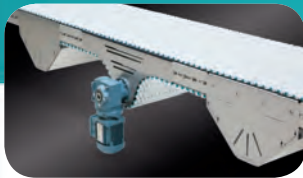
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5	Vertical curve Kurve - vertikal Courbe verticale Curva vertical	Module page 338
6	Sag module Sag modul s'affaisser module de Módulo sag	Module page 318

7	Center drive set Mittiger Antrieb - Satz Ensemble Entraînement Intermédiaire Accionamiento central, juego	Module page 314
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12	Heavy duty clips Schwerlast clip Clip lourds Clip de servicio reforzado	Module page 300-301
13	Heavy duty profile Schwerlast profile Voir le profile lourds Perfil para cargo pesoda	Module page 300-301





More technical information: See engineering online www.easy-conveyors.com

ETS CENTER DRIVE	Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	Max. total +/- 22 mtr. 72.17 Foot			Longer on request
L1 =	Min. 200 mm 7,87" inch			
LR =	1 x BW - Min. 500mm 19,68" inch			
LC =	1.5 x BW			
LD =	1 x BW - Min. 800mm 31,49" inch			
FW =	260	344	429	513 mm
	10,23"	13,54"	16,89"	20,19" inch
BW =	255	340	425	510 mm
	10,04"	13,58"	16,73"	20,07" inch
R =	255=540, 340=750, 425=900, 510=1100 mm			
	10,04"=21,26", 13,58"=29,52", 16,73"=35,43", 20,07"=43,3" inch			
V ≈	Max. 45 mtr./min 148 Foot/min			
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment				141 Nm
Breaking load, Bruchlast, Charge de rupture, Carga de rotura				30.000 N/mtr (dynamic)
Support legs, Stützen, Supports, Patas de apoyo				Module page 342-347/352-353
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral				Module page 354-357
! POS 12 -13				When BW = 425/ 13,58" & 510/ 20,07" or Product Weight >10kg.

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EMBS
SYSTEM

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Convoyeur à tapis haut
Transportador de banda articulada

EMBS CONNECTION DRIVE

ALUMINIUM

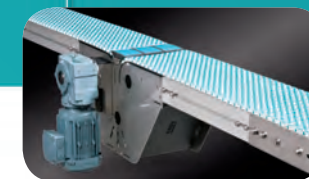


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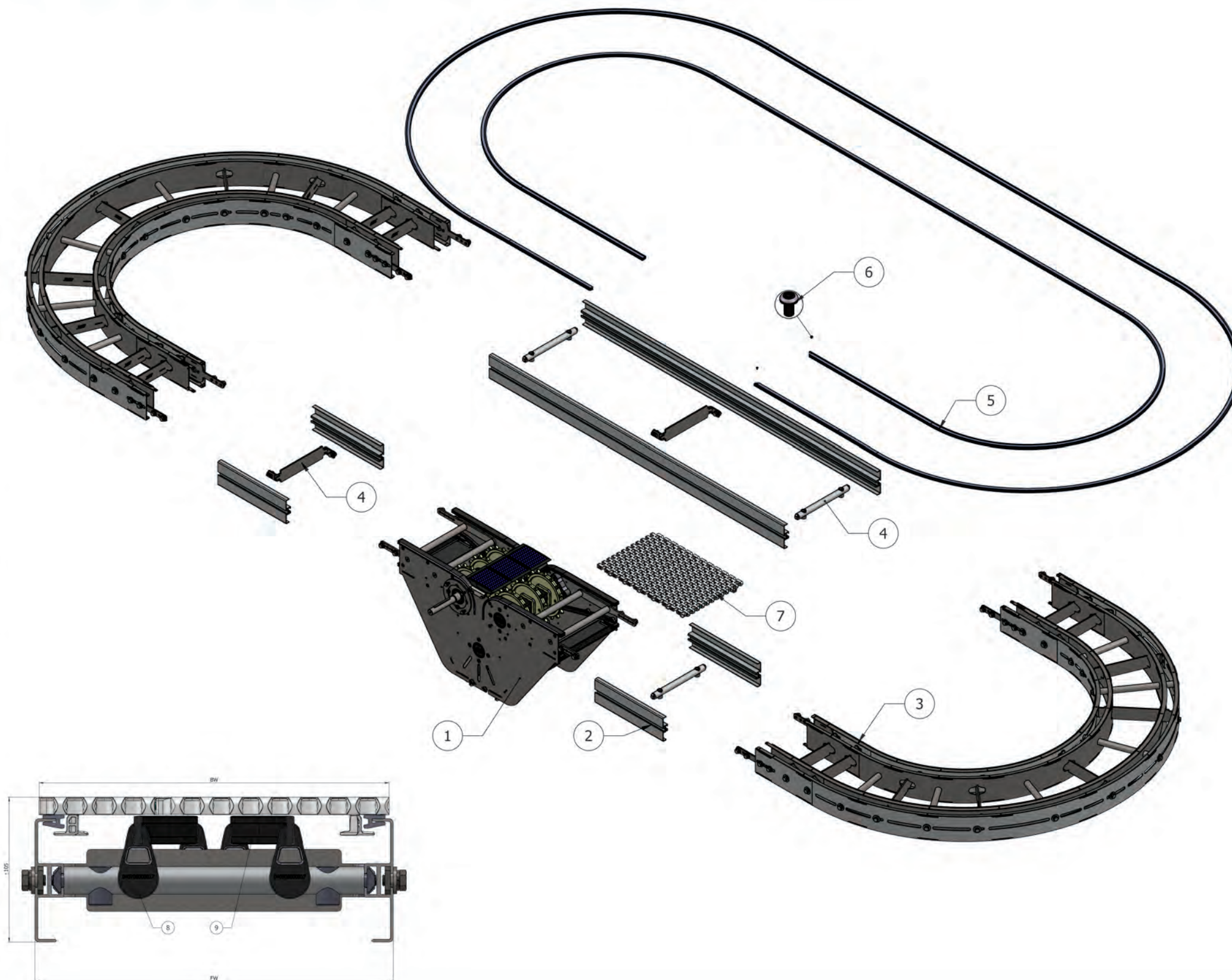
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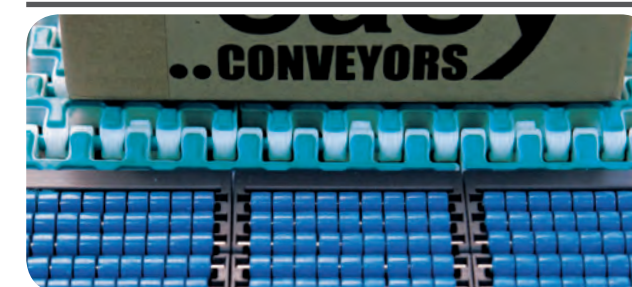
EMBS CONNECTION DRIVE

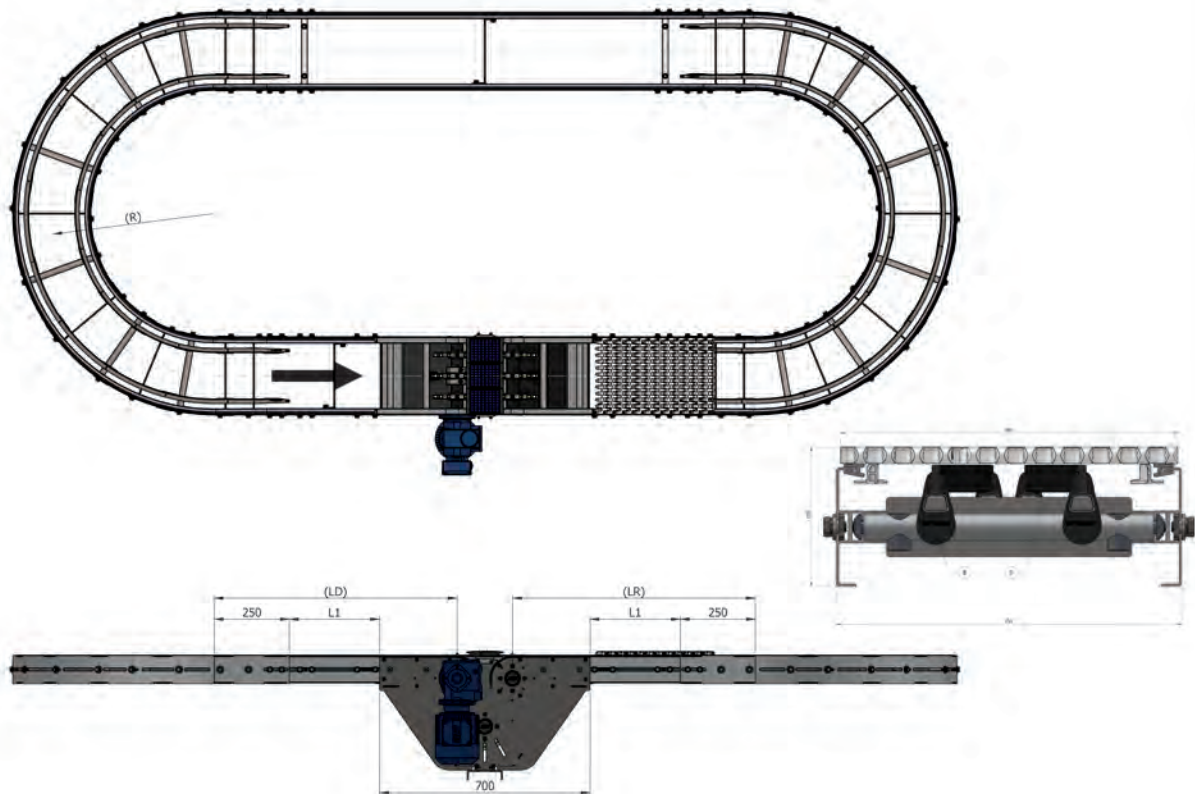
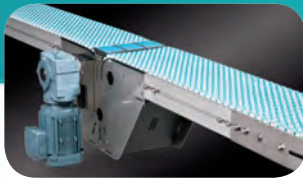


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|---|---|---------------------|
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Entraînement de raccord
Conexión de la unidad | Module page 322-329 |
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EMBS Seitenprofil
EMBS Profil de côté
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| 3 | Horizontal curve
Kurve - horizontal
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| 5 | Slide profile
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Clip de servicio reforzado | Module page 300-301 |
| 9 | Heavy duty profile
Schwerlast profile
Voir le profile lourds
Perfil para cargo pesoda | Module page 300-301 |





More technical information: See engineering online www.easy-conveyors.com

ETS CONNECTION DRIVE		Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	Max. total +/- 44 mtr. 144.35 Foot				Longer on request
L1 =	Min. 200 mm 7,87" inch				
LR =	1 x BW - Min. 500mm 19,68" inch				
LC =	1.5 x BW				
LD =	1 x BW - Min. 800mm 31,49" inch				
FW =	260	344	429	513 mm	
	10,23"	13,54"	16,89"	20,19" inch	
BW =	255	340	425	510 mm	
	10,04"	13,58"	16,73"	20,07" inch	
R =	255=540, 340=750, 425=900, 510=1100 mm				
	10,04"=21,26", 13,58"=29,52", 16,73"=35,43", 20,07"=43,3" inch				
V ≈	Max. 45 mtr./min 148 Foot/min				
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment					141 Nm
Breaking load, Bruchlast, Charge de rupture, Carga de rotura					30.000 N/mtr (dynamic)
Support legs, Stützen, Supports, Patas de apoyo					Module page 342-347/352-353
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral					Module page 354-357
! POS 8 -9		When BW = 425/ 13,58" & 510/ 20,07" or Product Weight >10kg.			

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EMBS
SYSTEM

Mat Top Conveyor
Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

EMBS HEAD DRIVE

STAINLESS STEEL

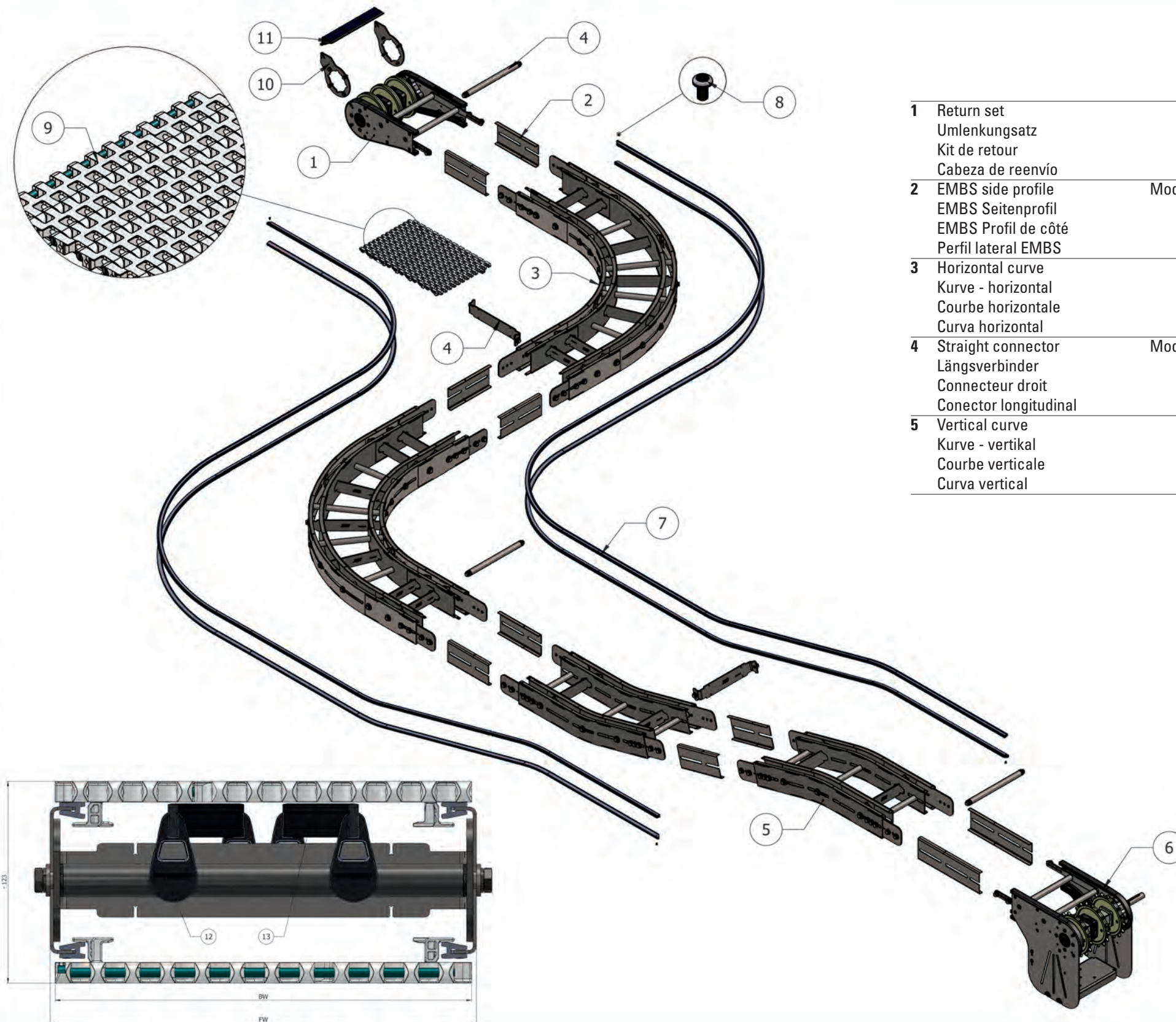


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EMBS HEAD DRIVE



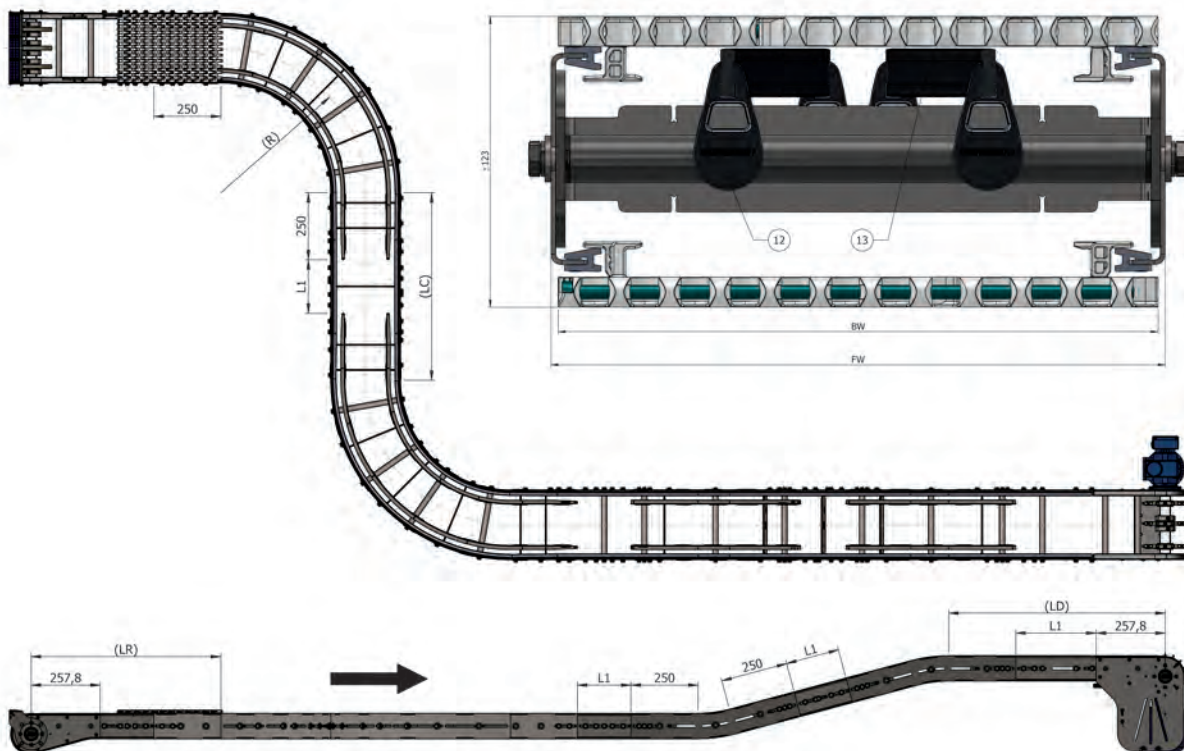
1	Return set Umlenkungsatz Kit de retour Cabeza de reenvío	Module page 330
2	EMBS side profile EMBS Seitenprofil EMBS Profil de côté Perfil lateral EMBS	Module page 302-303
3	Horizontal curve Kurve - horizontal Courbe horizontale Curva horizontal	Module page 337
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 302-303
5	Vertical curve Kurve - vertikal Courbe verticale Curva vertical	Module page 340



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6	Head drive set Kopfantrieb - Satz Ensemble Entraînement Direct Cabeza de tracción, juego	Module page 306-310
7	Slide profile Gleitprofil Glissez le profil Perfil de deslizamiento	Module page 302-303
8	Rokut rivet Kunststoff Popnail Popnail en plastique Popnail plástico	Module page 302-303
9	EMBS Chain EMBS Kette EMBS chaîne Cadena EMBS	Module page 304-305
10	Transfer module Transfer-Modul Module de transfer Módulo de transferencia	Module page 332-335
11	Transfer plate Transferplatte Plaque de transfer Transferencia placa	Module page 332-335
12	Heavy duty clips Schwerlast clip Clip lourds Clip de servicio reforzado	Module page 302-303
13	Heavy duty profile Schwerlast profile Voir le profile lourds Perfil para cargo pesoda	Module page 302-303





More technical information: See engineering online www.easy-conveyors.com

ETS HEAD DRIVE	Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	Max. total +/- 30 mtr. 98.42 Foot			Longer on request
L1 =	Min. 200 mm 7,87" inch			
LR =	1 x BW - Min. 500mm 19,68" inch			
LC =	1.5 x BW			
LD =	1 x BW - Min. 800mm 31,49" inch			
FW =	260	344	429	513 mm
	10,23"	13,54"	16,89"	20,19" inch
BW =	255	340	425	510 mm
	10,04"	13,58"	16,73"	20,07" inch
R =	255=540, 340=750, 425=900, 510=1100 mm			
	10,04"=21,26", 13,58"=29,52", 16,73"=35,43", 20,07"=43,3" inch			
V ≈	Max. 45 mtr./min 148 Foot/min			
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment				141 Nm
Breaking load, Bruchlast, Charge de rupture, Carga de rotura				30.000 N/mtr (dynamic)
Support legs, Stützen, Supports, Patas de apoyo				Module page 348-349
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral				Module page 358-361
! POS 12 -13				
When BW = 425/ 13,58" & 510/ 20,07" or Product Weight >10kg.				

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EMBS
SYSTEM

Mat Top Conveyor
Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

EMBS CENTER DRIVE

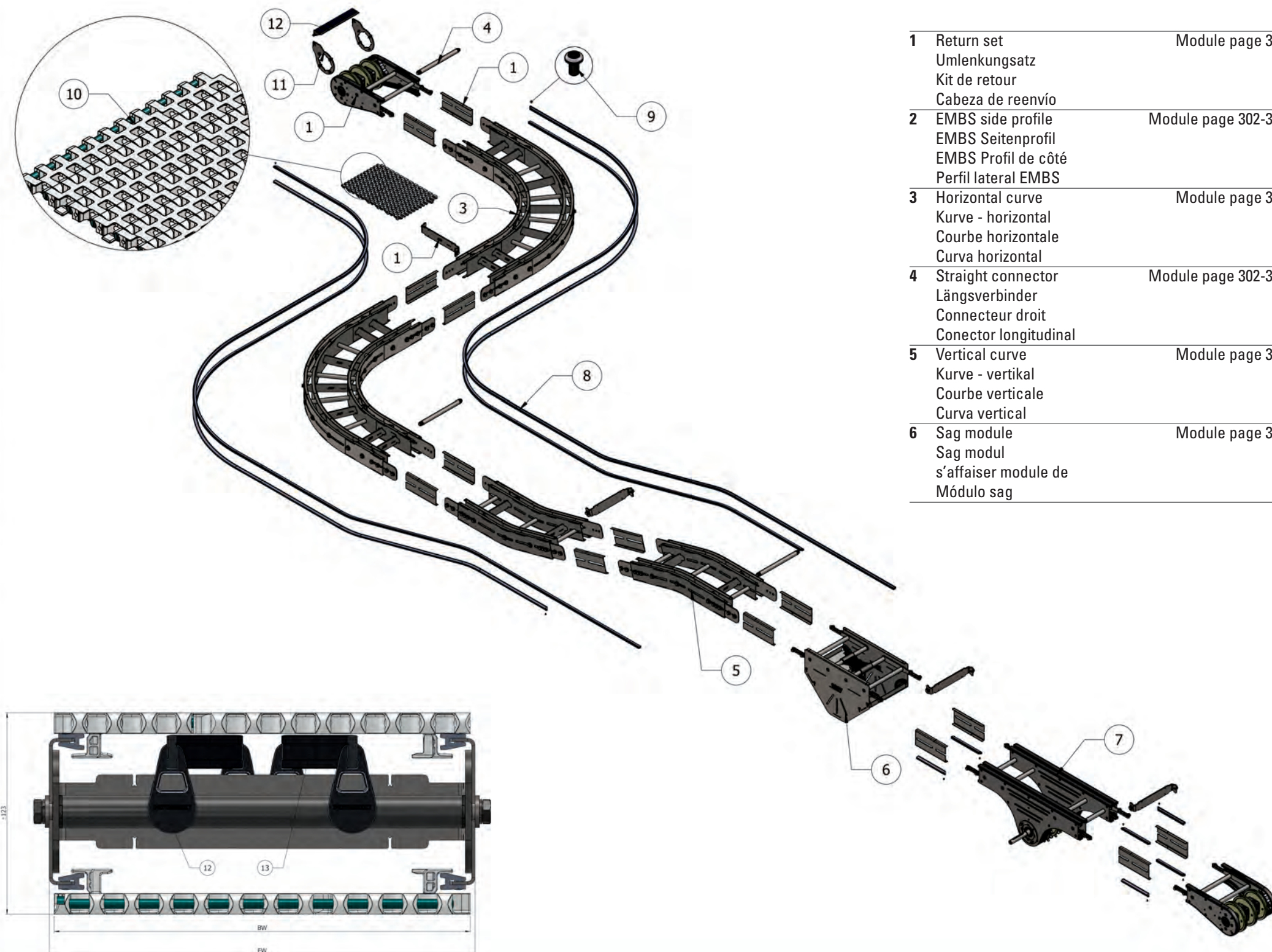
STAINLESS STEEL



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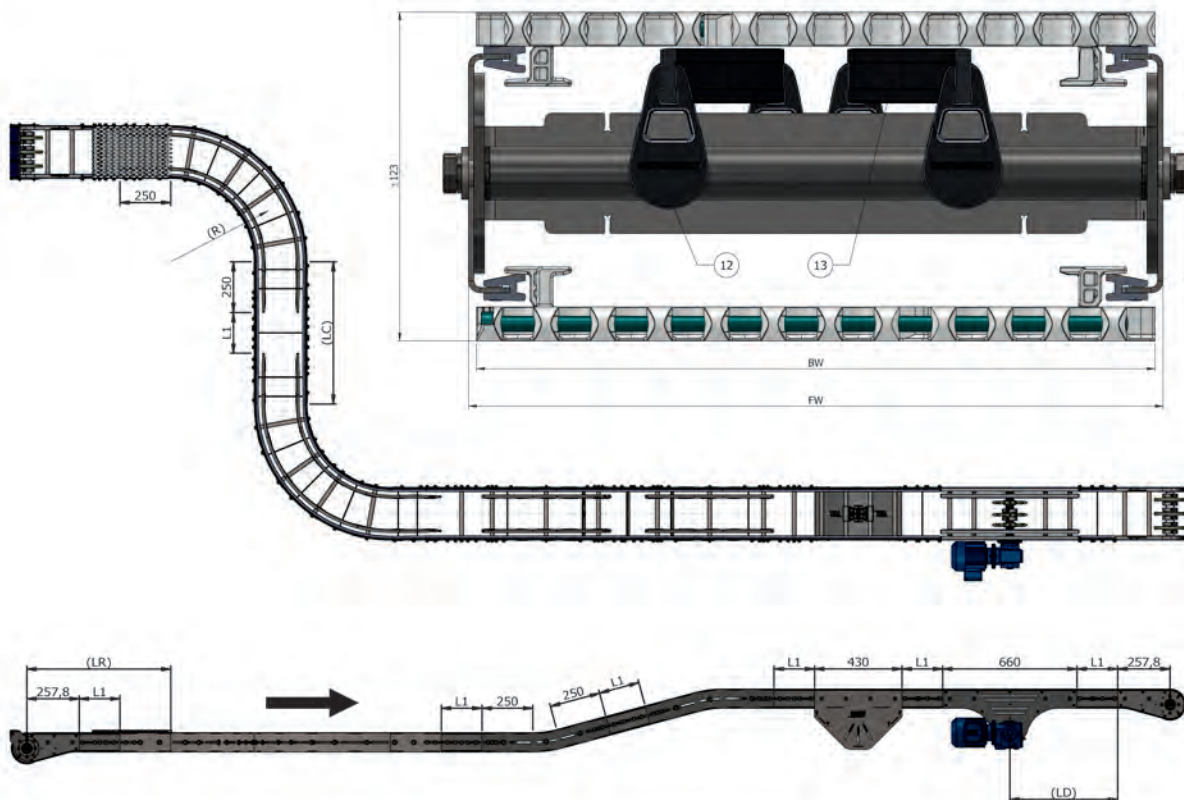
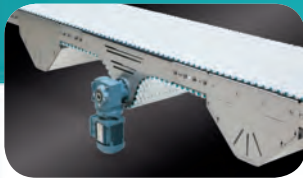
EMBS CENTER DRIVE



1	Return set Umlenkungsatz Kit de retour Cabeza de reenvío	Module page 330
2	EMBS side profile EMBS Seitenprofil EMBS Profil de côté Perfil lateral EMBS	Module page 302-303
3	Horizontal curve Kurve - horizontal Courbe horizontale Curva horizontal	Module page 337
4	Straight connector Längsverbinder Connecteur droit Conector longitudinal	Module page 302-303
5	Vertical curve Kurve - vertikal Courbe verticale Curva vertical	Module page 340
6	Sag module Sag modul s'affaiser module de Módulo sag	Module page 318

7	Center drive set Mittiger Antrieb - Satz Ensemble Entraînement Intermédiaire Accionamiento central, juego	Module page 314
8	Slide profile Gleitprofil Glissez le profil Perfil de deslizamiento	Module page 302-303
9	Rokut rivet Kunststoff Popnail Popnail en plastique Popnail plástico	Module page 302-303
10	EMBS Chain EMBS Kette EMBS chaîne Cadena EMBS	Module page 304-305
10	Transfer module Transfer-Modul Module de transfer Módulo de transferencia	Module page 332-335
11	Transfer plate Transferplatte Plaque de transfer Transferencia placa	Module page 332-335
12	Heavy duty clips Schwerlast clip Clip lourds Clip de servicio reforzado	Module page 302-303
13	Heavy duty profile Schwerlast profile Voir le profile lourds Perfil para cargo pesoda	Module page 302-303





More technical information: See engineering online www.easy-conveyors.com

ETS CENTER DRIVE	Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	Max. total +/- 30 mtr. 98.42 Foot			Longer on request
L1 =	Min. 200 mm 7,87" inch			
LR =	1 x BW - Min. 500mm 19,68" inch			
LC =	1.5 x BW			
LD =	1 x BW - Min. 800mm 31,49" inch			
FW =	260	344	429	513 mm
	10,23"	13,54"	16,89"	20,19" inch
BW =	255	340	425	510 mm
	10,04"	13,58"	16,73"	20,07" inch
R =	255=540, 340=750, 425=900, 510=1100 mm			
	10,04"=21,26", 13,58"=29,52", 16,73"=35,43", 20,07"=43,3" inch			
V ≈	Max. 45 mtr./min 148 Foot/min			
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment			141 Nm	
Breaking load, Bruchlast, Charge de rupture, Carga de rotura			30.000 N/mtr (straight) 2.500 N (curve)	
Support legs, Stützen, Supports, Patas de apoyo			Module page 348-349	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral			Module page 358-361	
! POS 12 -13 When BW = 425/ 13,58" & 510/ 20,07" or Product Weight >10kg.				

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

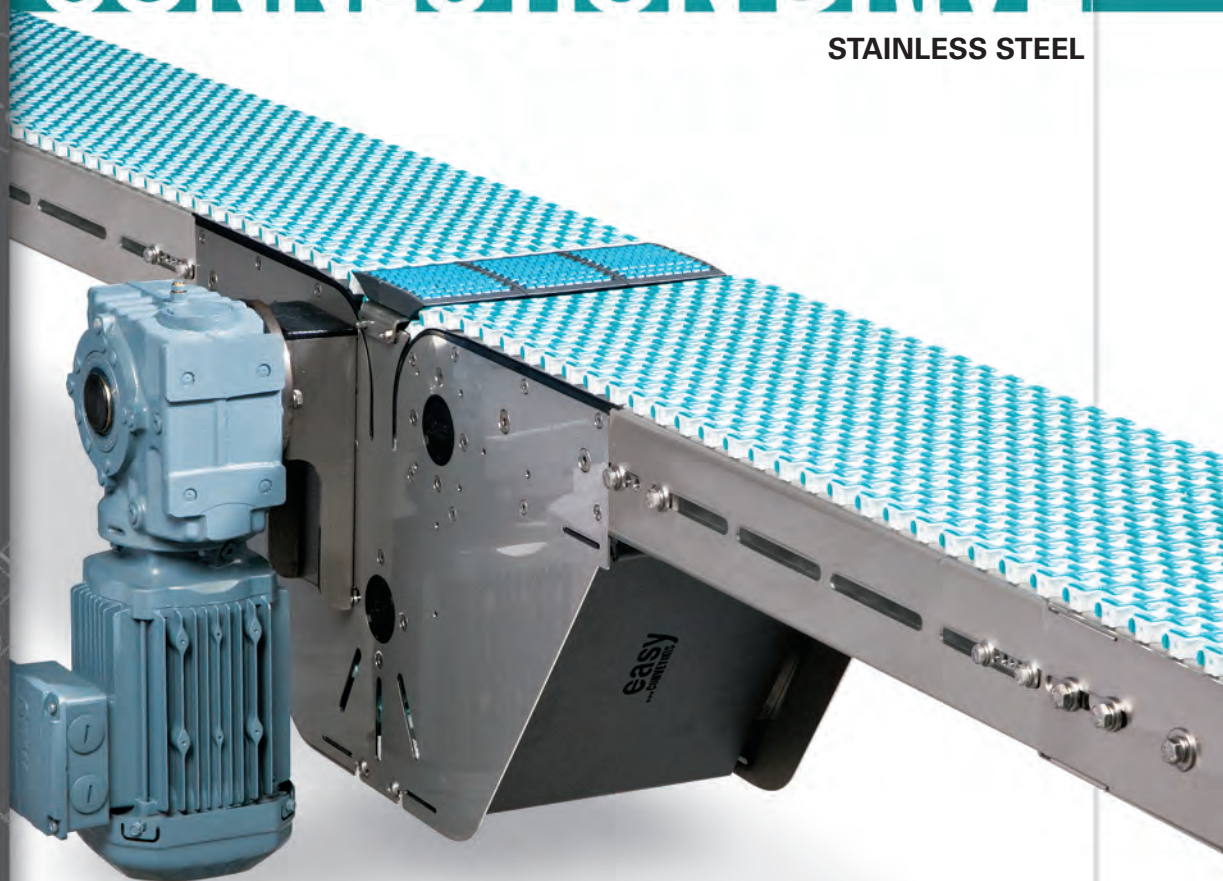


EMBS
SYSTEM

Mat Top Conveyor
Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

EMBS CONNECTION DRIVE

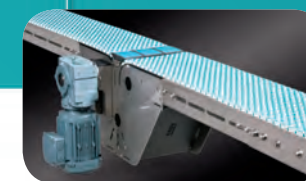
STAINLESS STEEL



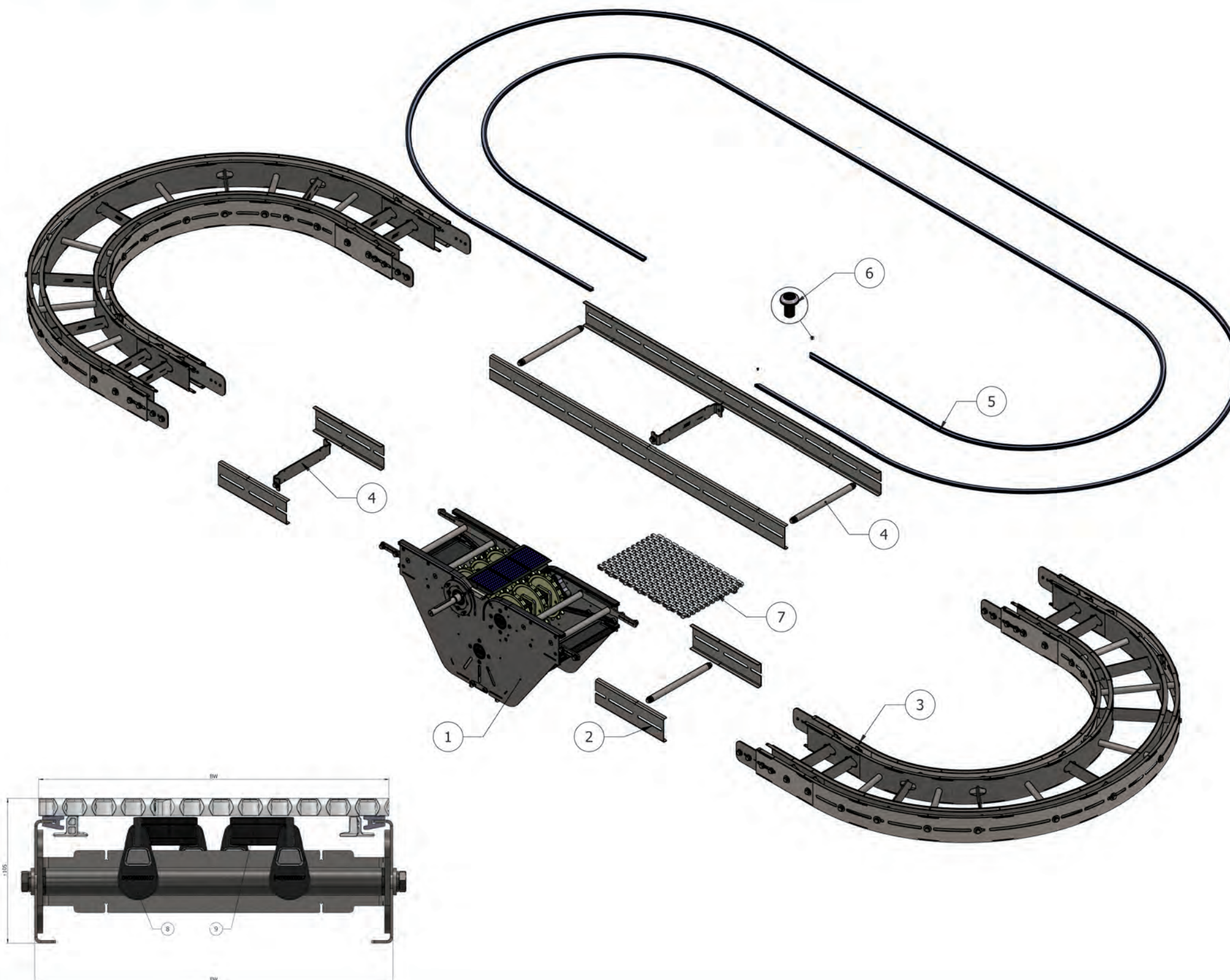
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EMBS CONNECTION DRIVE

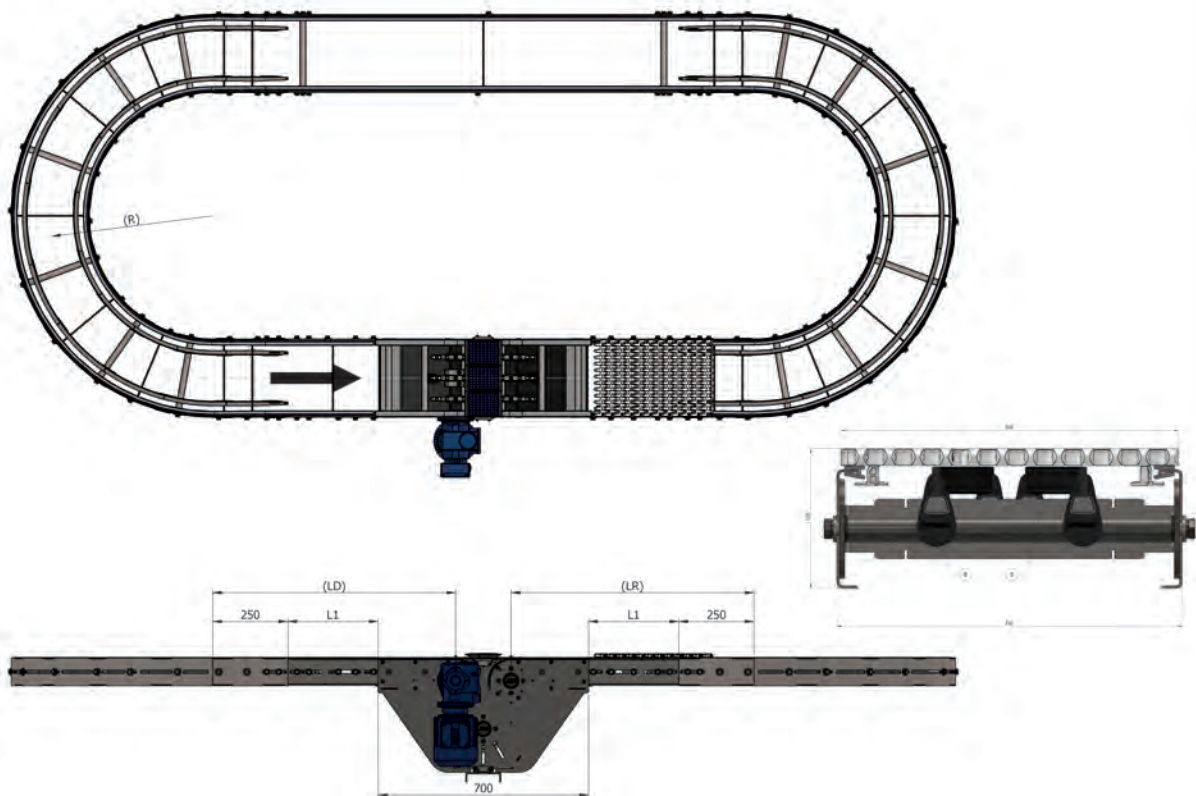
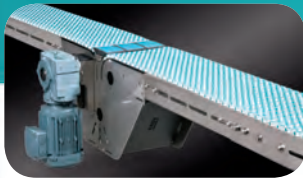


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- | | | |
|---|---|---------------------|
| 1 | Connection drive set
Verbindungs Antrieb
Entraînement de raccord
Conexión de la unidad | Module page 322-329 |
| 2 | EMBS side profile
EMBS Seitenprofil
EMBS Profil de côté
Perfil lateral EMBS | Module page 302-303 |
| 3 | Horizontal curve
Kurve - horizontal
Courbe horizontale
Curva horizontal | Module page 337 |
| 4 | Straight connector
Längsverbinder
Connecteur droit
Conector longitudinal | Module page 302-303 |
| 5 | Slide profile
Gleitprofil
Glissez le profil
Perfil de deslizamiento | Module page 302-303 |
| 6 | Rokut rivet
Kunststoff Popnail
Popnail en plastique
Popnail plástico | Module page 302-303 |
| 7 | EMBS Chain
EMBS Kette
EMBS chaîne
Cadena EMBS | Module page 304-305 |
| 8 | Heavy duty clips
Schwerlast clip
Clip lourds
Clip de servicio reforzado | Module page 302-303 |
| 9 | Heavy duty profile
Schwerlast profile
Voir le profile lourds
Perfil para cargo pesoda | Module page 302-303 |





More technical information: See engineering online www.easy-conveyors.com

ETS CONNECTION DRIVE		Dimensions - Abmessungen - Dimensions - Dimensiones			
L =	Max. total +/- 60 mtr. 2362 Foot				Longer on request
L1 =	Min. 200 mm 7,87" inch				
LR =	1 x BW - Min. 500mm 19,68" inch				
LC =	1.5 x BW				
LD =	1 x BW - Min. 800mm 31,49" inch				
FW =	260	344	429	513 mm	
	10,23"	13,54"	16,89"	20,19" inch	
BW =	255	340	425	510 mm	
	10,04"	13,58"	16,73"	20,07" inch	
R =	255=540, 340=750, 425=900, 510=1100 mm				
	10,04"=21,26", 13,58"=29,52", 16,73"=35,43", 20,07"=43,3" inch				
V ≈	Max. 45 mtr./min 148 Foot/min				
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment				141 Nm	
Breaking load, Bruchlast, Charge de rupture, Carga de rotura				30.000 N/mtr (straight) 2.500 N (curve)	
Support legs, Stützen, Supports, Patas de apoyo				Module page 348-349	
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral				Module page 358-361	
! POS 8 -9		When BW = 425/ 13,58" & 510/ 20,07" or Product Weight >10kg.			

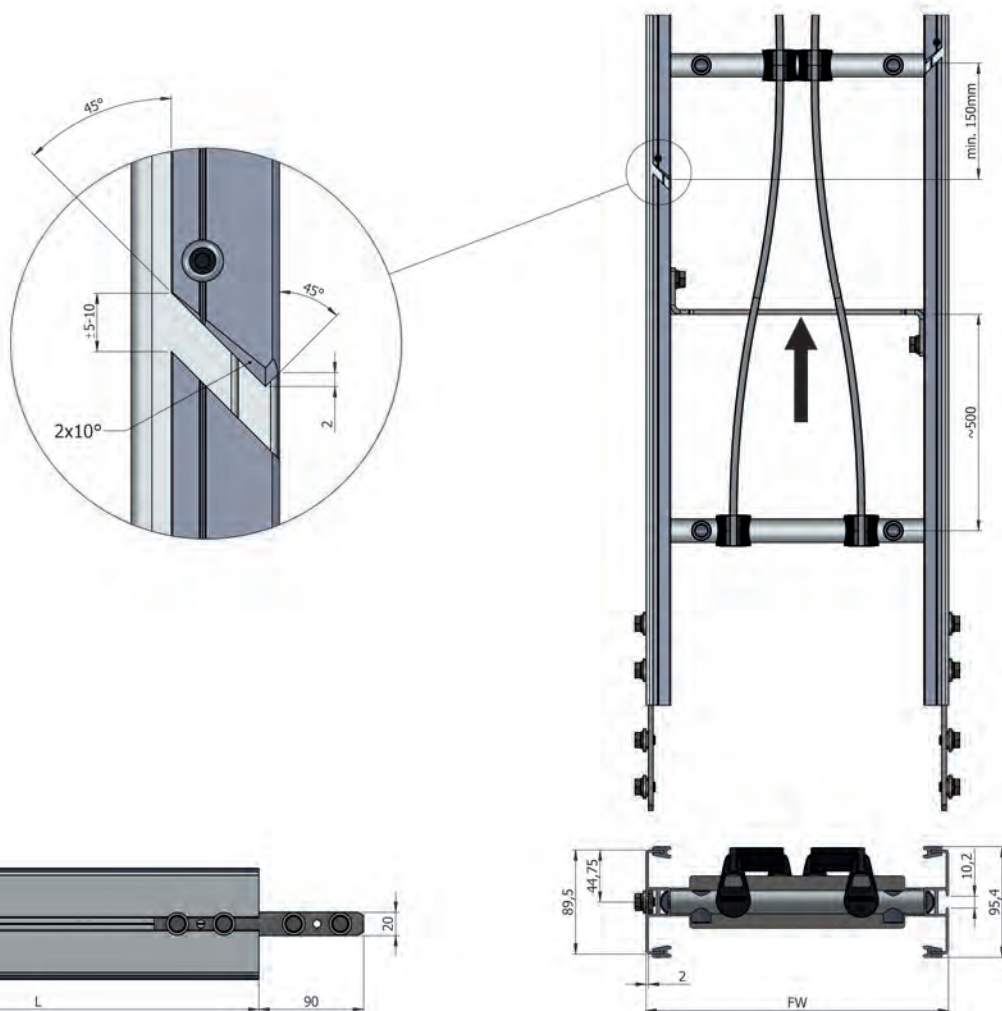
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EMBS SYSTEM

MODULE PAGES





- 1 Aluminium side profile
- 2 Connector Ø20x5
- 3 Straight connector
- 4 Slide profile
- 5 Rokut rivets
- 6 Heavy duty clips
- 7 Heavy duty profile
- 8 Profile connector set

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1	L =		
ETS040805000001	5,6 Mtr.	18,37 Foot	1 (L)
Material	AL		

Art Nr. Pos 2	Art Nr. Pos 3	FW =		
Connector Ø20x5	Straight connector			
EMBS041405010255	EMBS041405030255	260 mm	10,23" inch	10
EMBS041405010340	EMBS041405030340	344 mm	13,54" inch	10
EMBS041405010425	EMBS041405030425	429 mm	16,89" inch	10
EMBS041405010510	EMBS041405030510	513 mm	20,19" inch	10
Material	AL; Steel, galvanized, Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado			

Art Nr. Pos 4	L =		
ETP040801000000	ETS SLIDE PROFILE; TCP BLACK	5.6 Mtr	18,37 Foot 10 (L)
ETP040801000002	ETS SLIDE PROFILE; TCS GREY	6 Mtr	19,69 Foot 10 (L)

Art Nr. Pos 5	Material	
EMPT040705000005	Nylon 6.6	250

Art Nr. Pos 6	Material	
EMPT040705000003	PA 6	25

Art Nr. Pos 7	Material	
EMPT040705000002	PE	Roll = 30 Mtr. 98,43 Foot

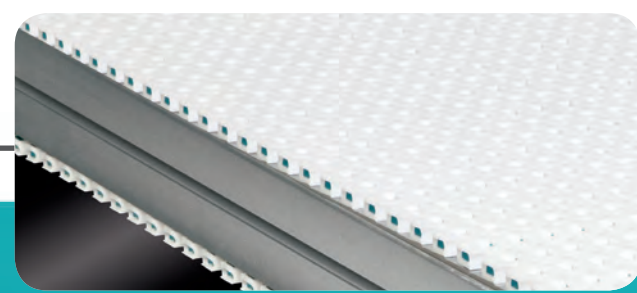
Art Nr. Pos 8	Material	
EMPT040705000004	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado	2 pieces with fastener

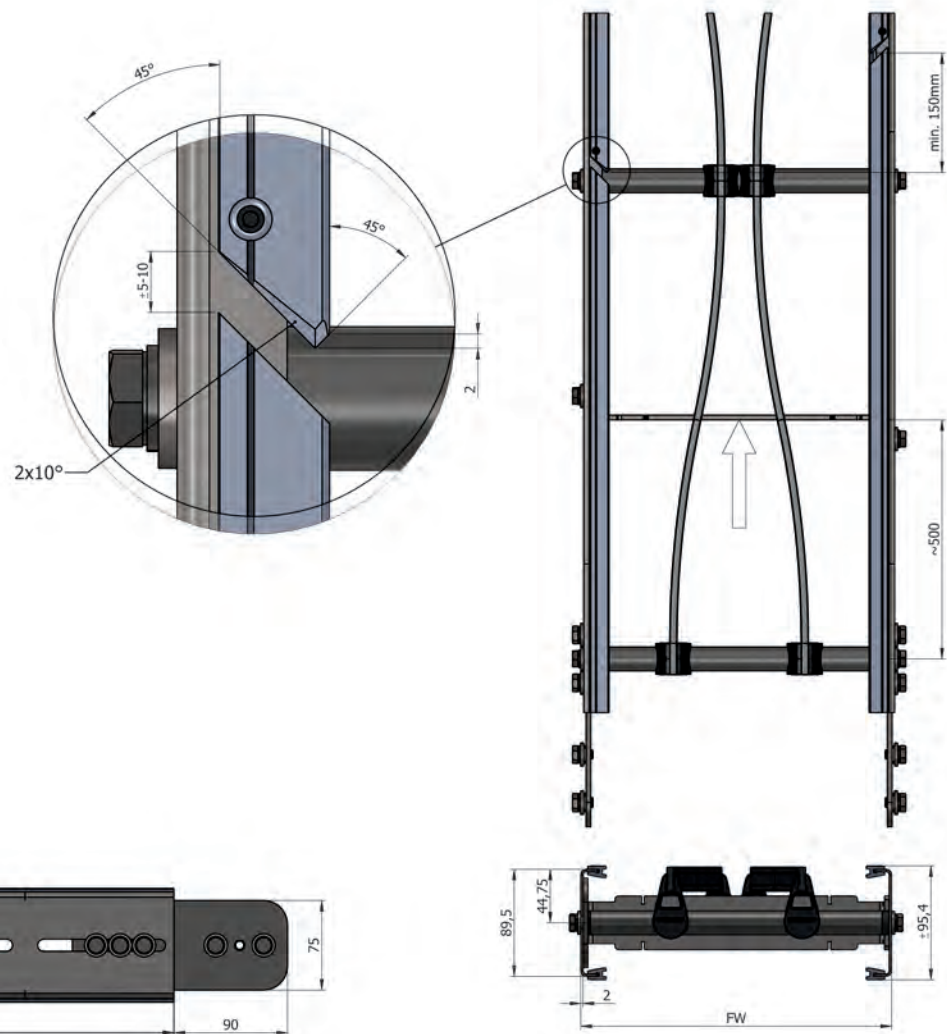
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones				
Standard Lenght L =	5,6 Mtr. 18.37 Foot			
FW =	260 10,23"	344 13,54"	429 16,89"	513 mm 20.19" inch

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta





- 1 Stainless side profile
- 2 Connector Ø20x5
- 3 Straight connector
- 4 Slide profile
- 5 Rokut rivets
- 6 Heavy duty clips
- 7 Heavy duty profile
- 8 Profile connector set

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1	L =		
ETS040905000001	3 Mtr.	9,84 Foot	1 (L)
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		

Art Nr. Pos 2	Art Nr. Pos 3	FW =		
Connector Ø20x5	Straight connector			
EMBS041505010255	EMBS041505030255	260 mm	10,23" inch	10
EMBS041505010340	EMBS041505030340	344 mm	13,54" inch	10
EMBS041505010425	EMBS041505030425	429 mm	16,89" inch	10
EMBS041505010510	EMBS041505030510	513 mm	20,19" inch	10
Material	Stainless steel; PA			

Art Nr. Pos 4	L =			
ETP040801000000	ETS SLIDE PROFILE; TCP BLACK	5.6 Mtr	18,37 Foot	10 (L)
ETP040801000002	ETS SLIDE PROFILE; TCS GREY	6 Mtr	19,69 Foot	10 (L)

Art Nr. Pos 5	Material	
EMPT040705000005	Nylon 6.6	250

Art Nr. Pos 6	Material	
EMPT040705000003	PA 6	25

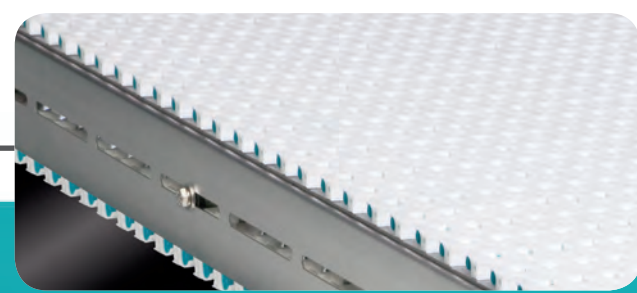
Art Nr. Pos 7	Material	
EMPT040705000002	PE	Roll = 30 Mtr. 98,43 Foot

Art Nr. Pos 8	Material	
EMPT040705000006	Stainless steel, Edelstahl, Aluminium	2 pieces with fastener

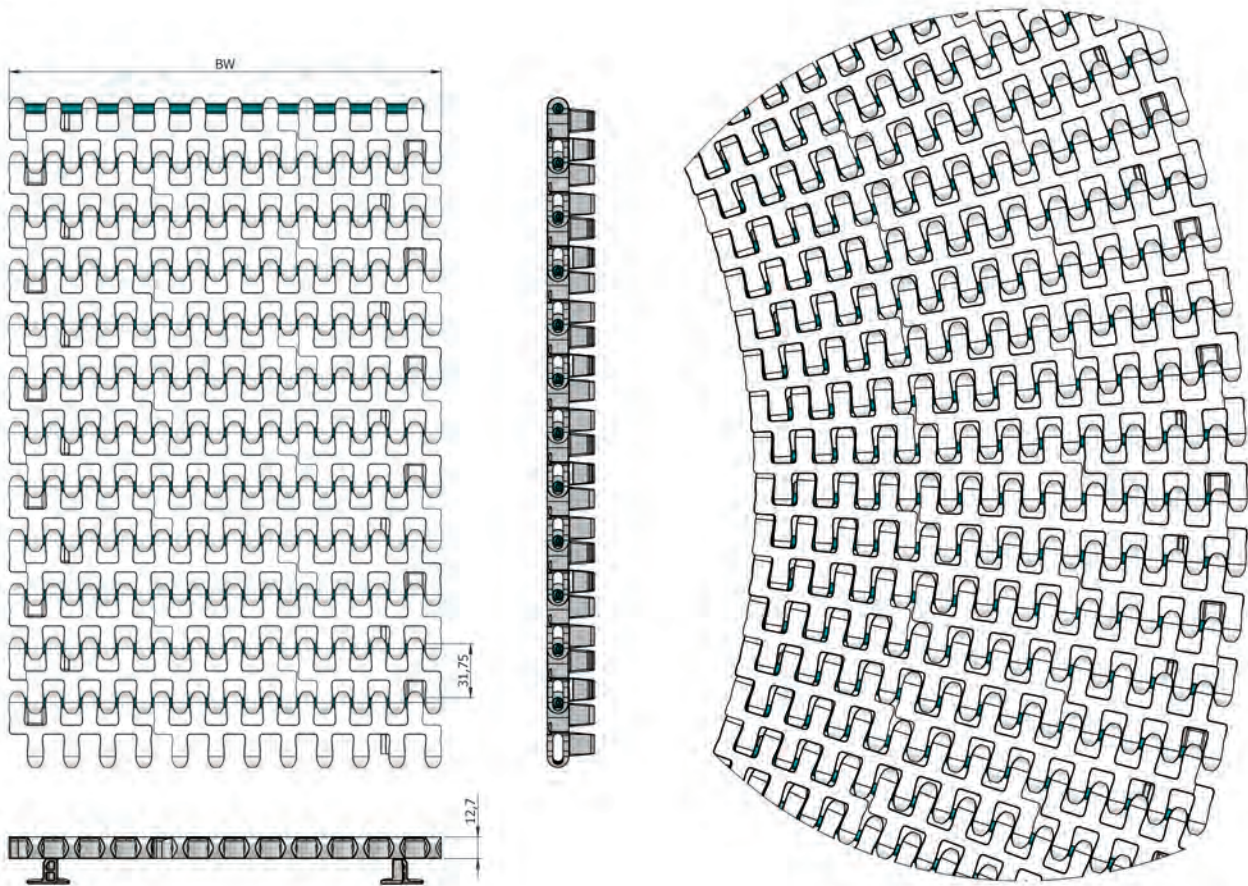
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones				
Standard Lenght L =	3 Mtr. 9,84 Foot			
FW =	260 10,23"	344 13,54"	429 16,89"	513 mm 20.19" inch

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



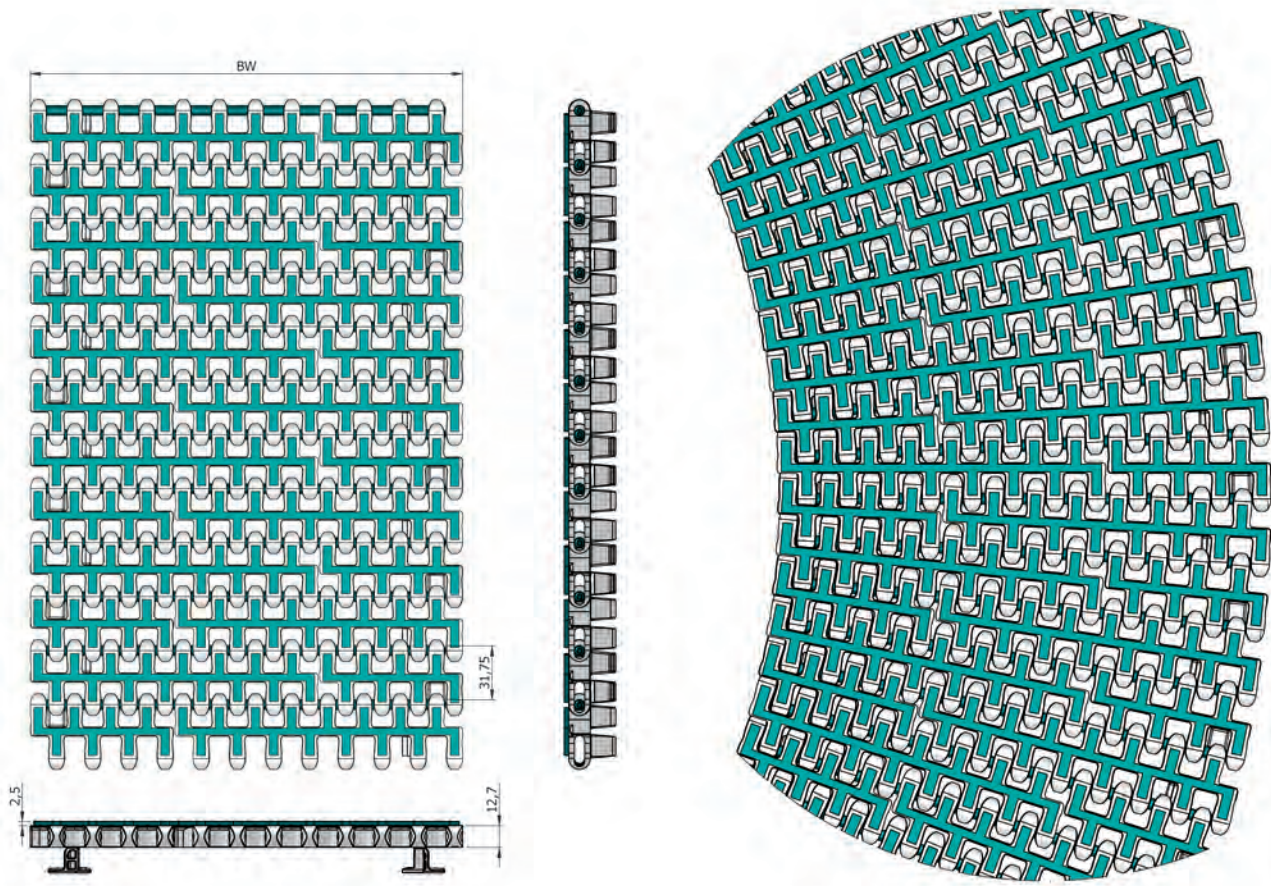
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones				
Material	LFW (low friction acetal resin), Reibungsarmer Acetal Faible coefficient de frottement acétal, Acetal de baja fricción			
Color	Natural, Natur, Naturel, Natural			
Package	1 box; L=1,5 mtr			
BW	Code	Max. load capacity		Weight
		Straight	Curve	
255	EMBP041408000255	30.000 N/mtr	2.500 N	2,25 kg/mtr
340	EMBP041408000340	30.000 N/mtr	2.500 N	2,99 kg/mtr
425	EMBP041408000425	30.000 N/mtr	2.500 N	3,74 kg/mtr
510	EMBP041408000510	30.000 N/mtr	2.500 N	4,50 kg/mtr

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



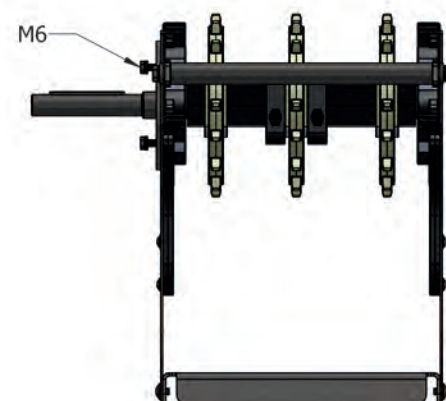
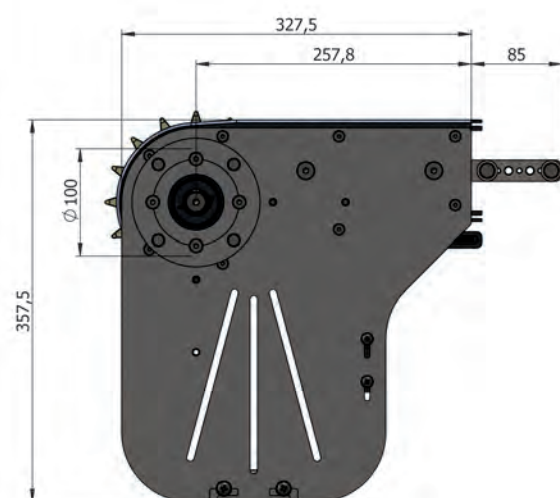
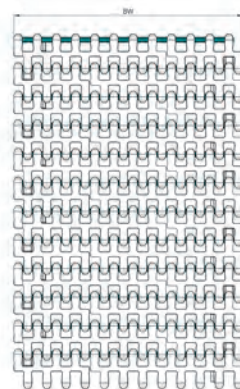
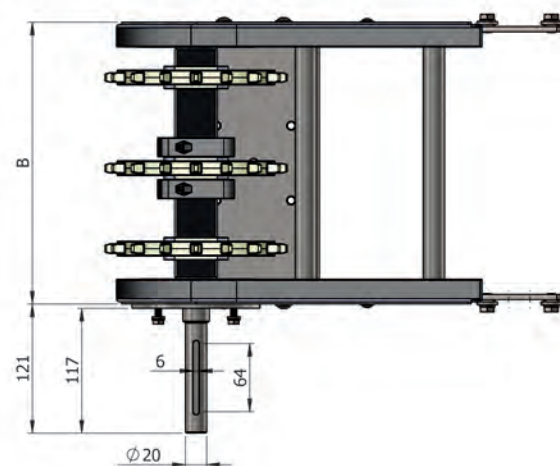
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones				
Material	LFW (low friction acetal resin), Reibungsarmer Acetal Faible coefficient de frottement acétal, Acetal de baja fricción			
Color	Blue, Blau, Bleu, Azul			
Friction top	Thermoplastic rubber, Thermoplastischem Gummi Cautchouc thermoplastique, Caucho termoplástico			
Package	1 box; L=1,5 mtr			
BW	Code	Max. load capacity		Weight
		Straight	Curve	
255	EMBP041408010255	30.000 N/mtr	2.500 N	2,27 kg/mtr
340	EMBP041408010340	30.000 N/mtr	2.500 N	3,00 kg/mtr
425	EMBP041408010425	30.000 N/mtr	2.500 N	3,76 kg/mtr
510	EMBP041408010510	30.000 N/mtr	2.500 N	4,70 kg/mtr

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta







See engineering online
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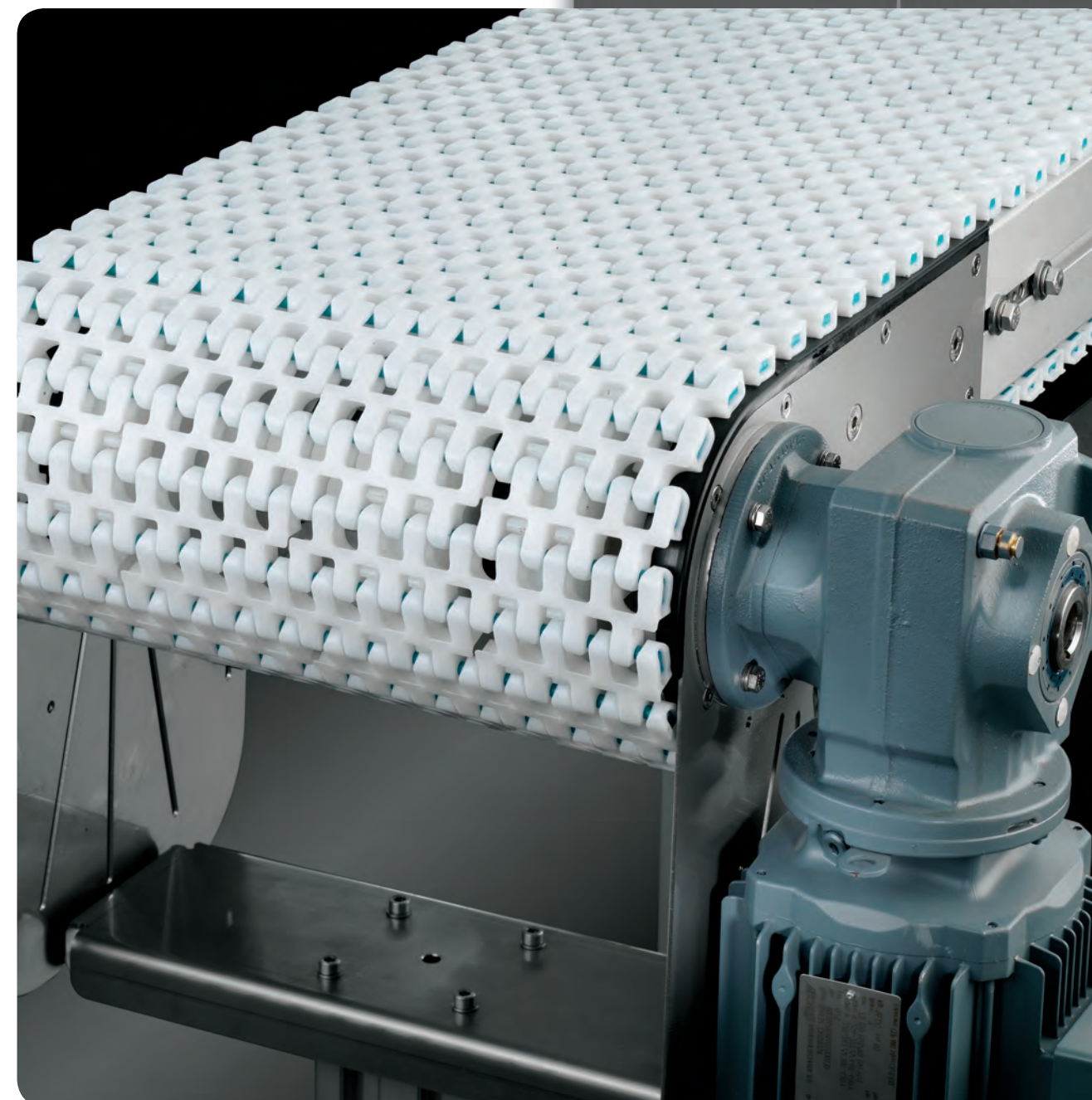


More technical information: See engineering online **www.easy-conveyors.com**

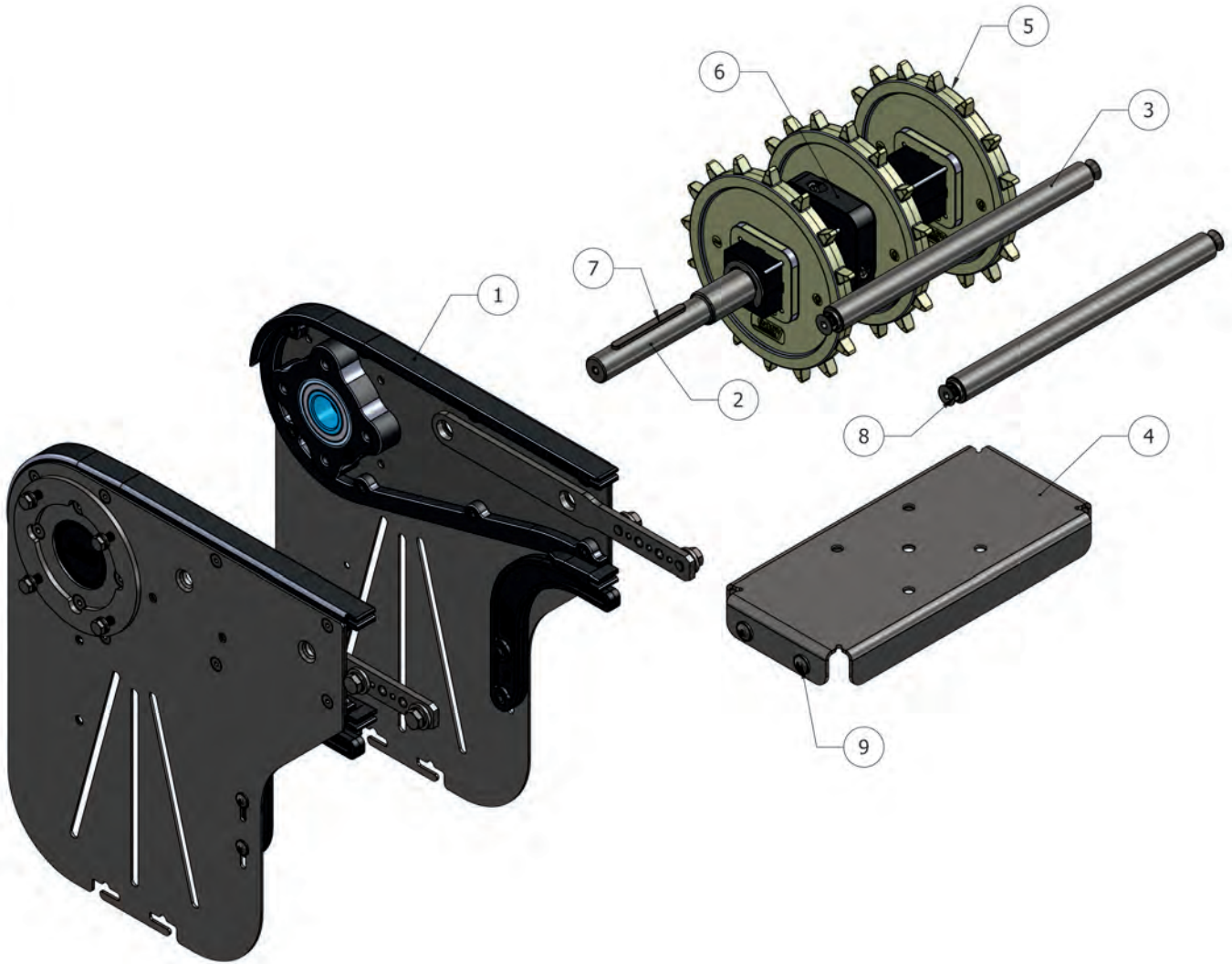
Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =		BW =		
EMBS041401020255	EMBS041501020255	264 mm	10,23" inch	255 mm	10,04" inch	 1
EMBS041401020340	EMBS041501020340	348 mm	13,54" inch	340 mm	13,38" inch	 1
EMBS041401020425	EMBS041501020425	433 mm	16,89" inch	425 mm	16,73" inch	 1
EMBS041401020510	EMBS041501020510	517 mm	20,19" inch	510 mm	20,07" inch	 1
Suitable for, Geeignet für, Convient pour, Adequado para						SEW With flange 120

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



See engineering online
www.easy-conveyors.com



- 1 Head drive set; general
- 2 Drive shaft
- 3 Drive / return unit connector
- 4 Drive support plate
- 5 Chain wheel
- 6 Split shaft collar
- 7 Parallel key
- 8 Hexagon socket countersunk head screw
- 9 Hexagon socket button head screw

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1				
Aluminium	Stainless steel			1
EMBS041401000000	EMBS041501000000			1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6		

Art Nr. Pos 2				
Aluminium	Stainless steel			
041408010255	041508010255	255 mm	10,04" inch	1
041408010340	041508010340	340 mm	13,39" inch	1
041408010425	041508010425	425 mm	16,73" inch	1
041408010510	041508010510	510 mm	20,07" inch	1
Material		Material		
Stainless steel shaft,		Stainless steel shaft,		
Aluminium tube		Plastic tube		
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment		141Nm		

Art Nr. Pos 3		Art Nr. Pos 4		
Aluminium	Stainless steel			
041504000255	041505030255	255 mm	10,04" inch	1
041504000340	041505030340	340 mm	13,39" inch	1
041504000425	041505030425	425 mm	16,73" inch	1
041504000510	041505030510	510 mm	20,07" inch	1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		

Art Nr. Pos 5				
041506000000	Pitch diameter Ø169.7	Bore Square 40		1
Material		POM		

Art Nr. Pos 6		Material	
040706000018	PA FG		10

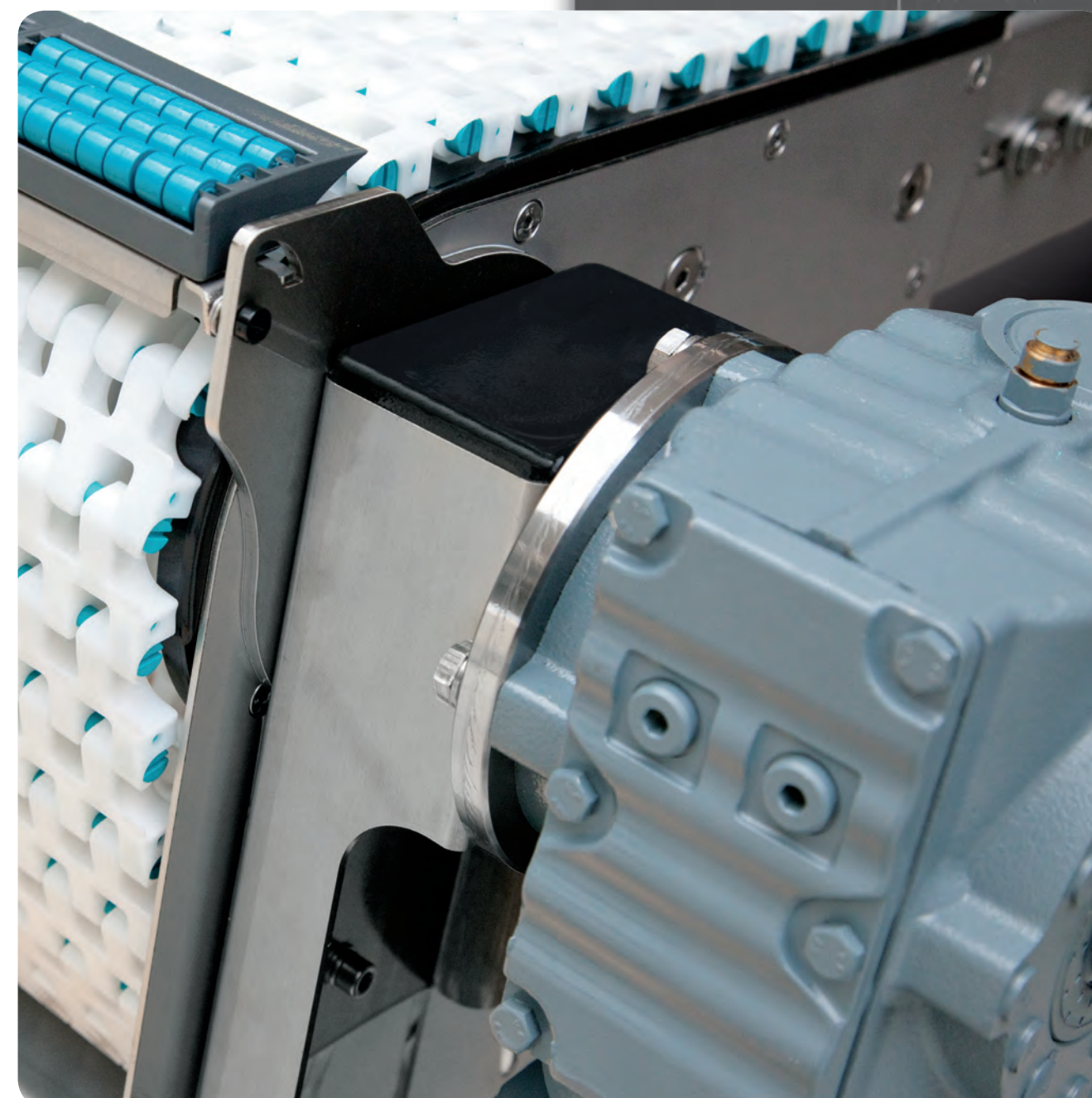
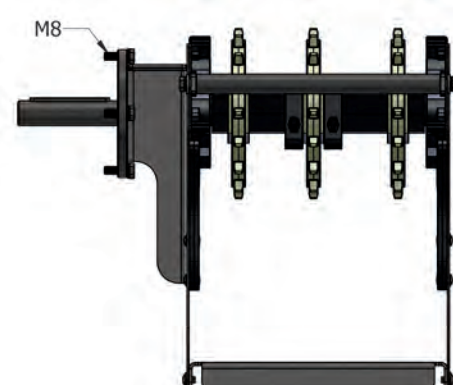
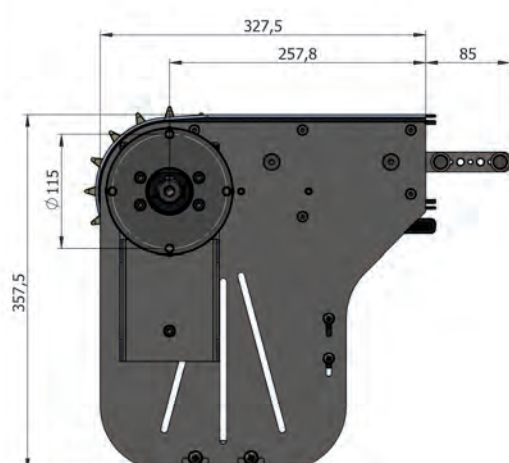
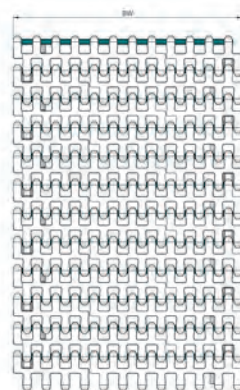
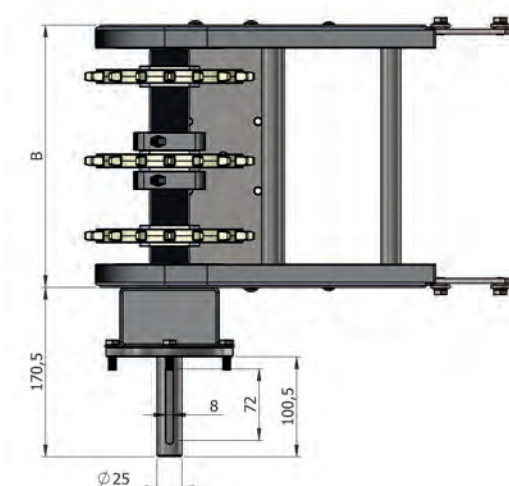
Art Nr. Pos 7		Material	
BV688566070A4	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		100

Art Nr. Pos 8		Material	
BV799108016A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		100

Art Nr. Pos 9		Material	
BV738006008A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		100

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

- Used when the Torque ≥ 141 Nm
- Verwendet wenn da Dreh moment ≥ 141 Nm
- Utilisé lorsque le couple est ≥ 141 Nm
- Se utiliza cuando el par es ≥ 141 Nm



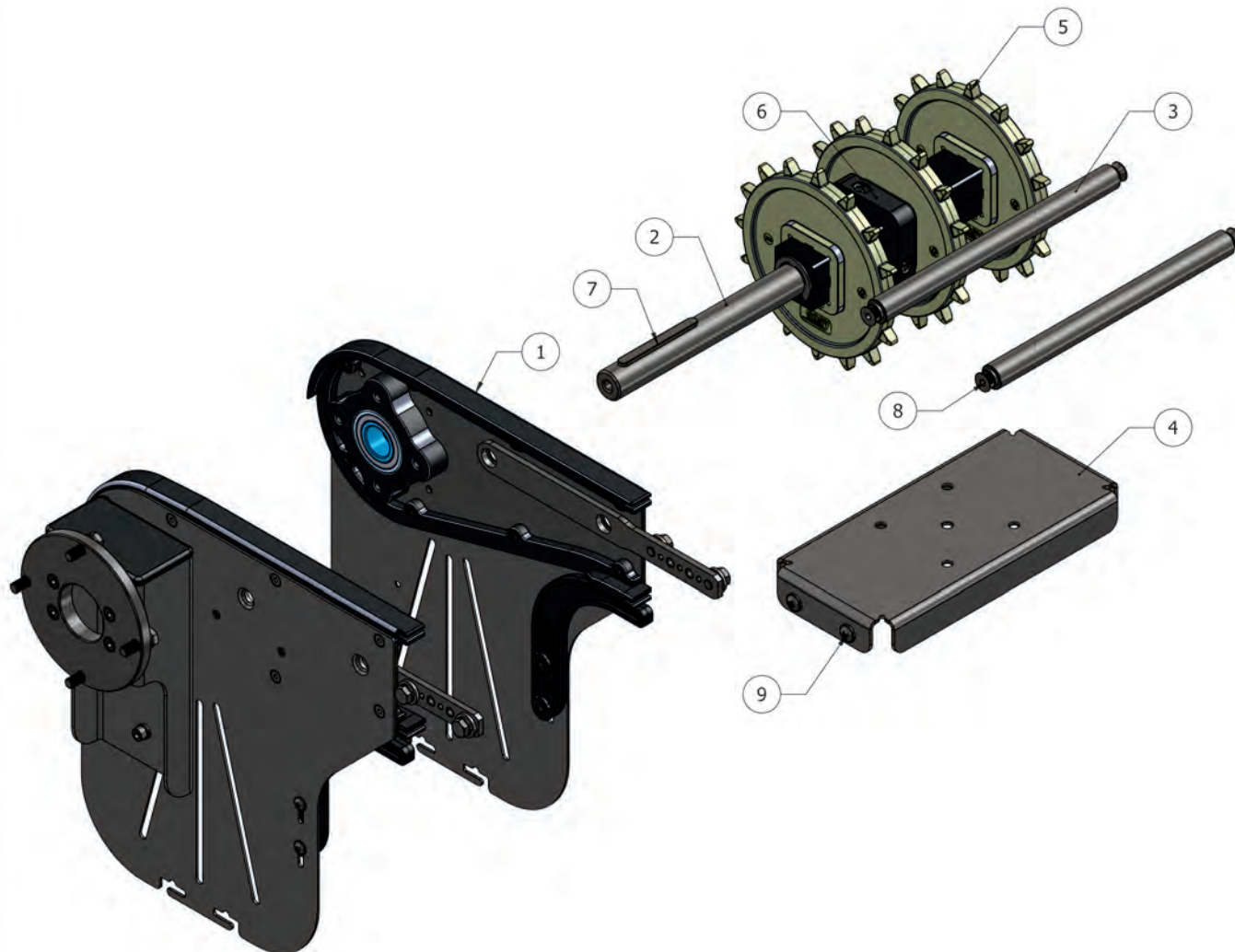
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =	BW =
EMBS041401030255	EMBS041501030255	264 mm 10,23" inch	255 mm 10,04" inch
EMBS041401030340	EMBS041501030340	348 mm 13,54" inch	340 mm 13,38" inch
EMBS041401030425	EMBS041501030425	433 mm 16,89" inch	425 mm 16,73" inch
EMBS041401030510	EMBS041501030510	517 mm 20,19" inch	510 mm 20,07" inch
Suitable for, Geeignet für, Convient pour, Adecuado para			SEW SA47

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Head drive set; general
- 2 Drive shaft
- 3 Drive / return unit connector
- 4 Drive support plate
- 5 Chain wheel
- 6 Split shaft collar
- 7 Parallel key
- 8 Hexagon socket countersunk head screw
- 9 Hexagon socket button head screw

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1				
Aluminium	Stainless steel			1
EMBS041401010000	EMBS041501010000			1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6			

Art Nr. Pos 2				
041408011255	041508011255	255 mm	10,04" inch	1
041408011340	041508011340	340 mm	13,39" inch	1
041408011425	041508011425	425 mm	16,73" inch	1
041408011510	041508011510	510 mm	20,07" inch	1
Material	Material			
Stainless steel shaft,	Stainless steel shaft,			
Aluminium tube	Plastic tube			
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment	276Nm			

Art Nr. Pos 3	Art Nr. Pos 4			
041504000255	041505030255	255 mm	10,04" inch	1
041504000340	041505030340	340 mm	13,39" inch	1
041504000425	041505030425	425 mm	16,73" inch	1
041504000510	041505030510	510 mm	20,07" inch	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			

Art Nr. Pos 5				
041506000000	Pitch diameter Ø169.7	Bore Square 40		1
Material	POM			

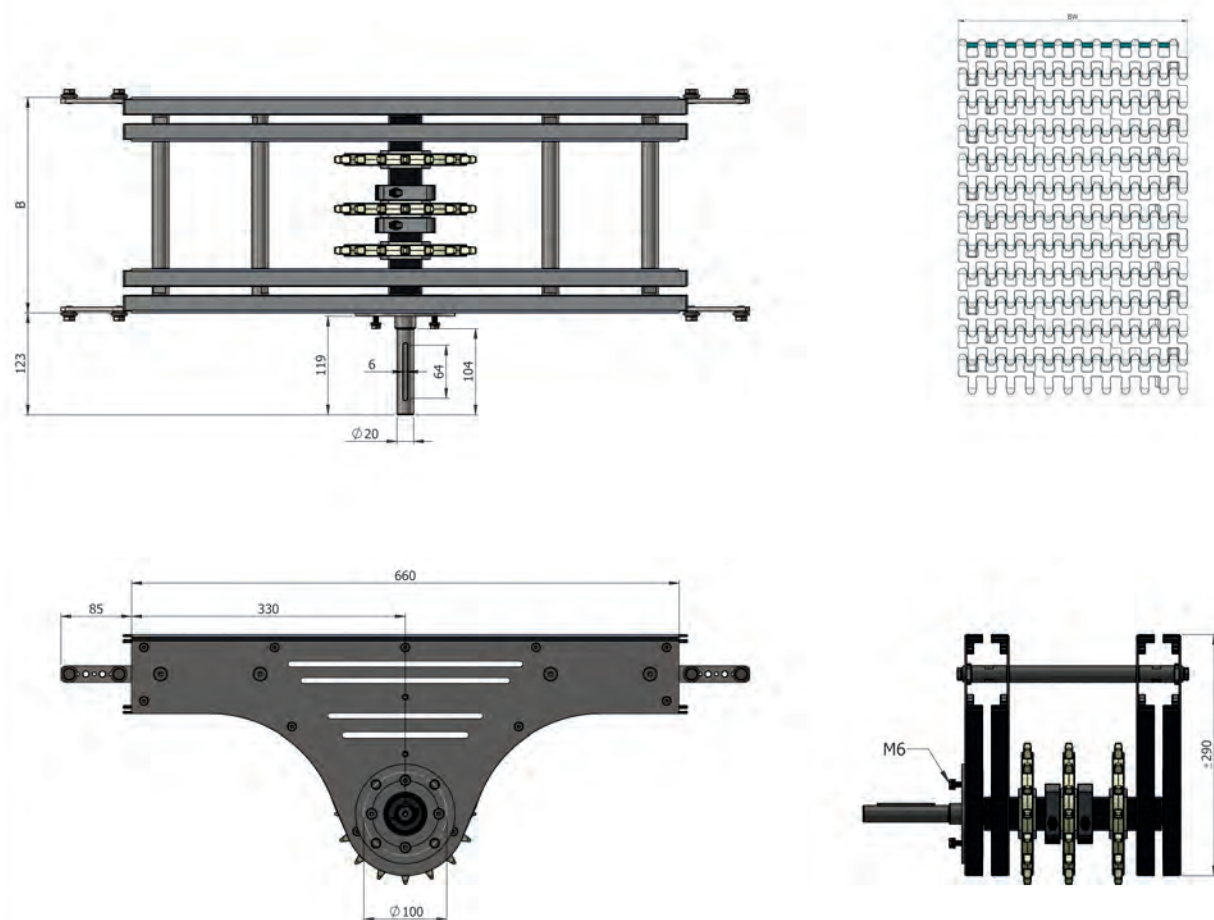
Art Nr. Pos 6	Material			
040706000018	PA FG			10

Art Nr. Pos 7	Material			
BV688587080A4	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			100

Art Nr. Pos 8	Material			
BV799108016A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			100

Art Nr. Pos 9	Material			
BV738006008A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			100

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

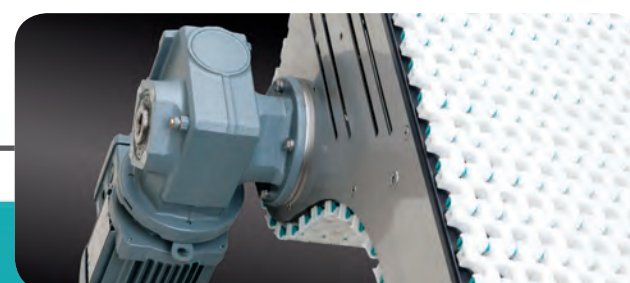


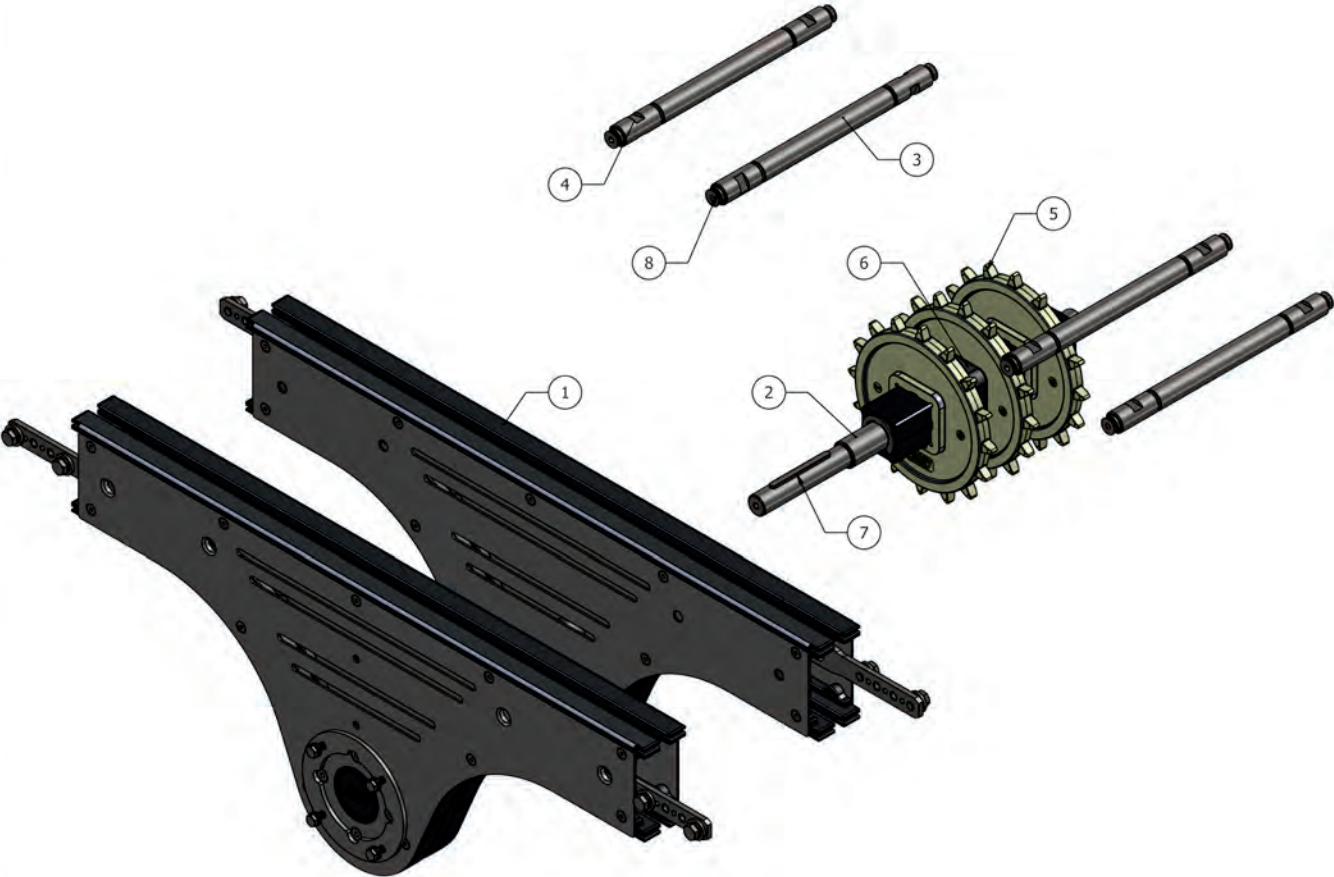
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =	BW =
EMBS041402020255	EMBS041502020255	260 mm 10,23" inch	255 mm 10,04" inch
EMBS041402020340	EMBS041502020340	344 mm 13,54" inch	340 mm 13,38" inch
EMBS041402020425	EMBS041502020425	429 mm 16,89" inch	425 mm 16,73" inch
EMBS041402020510	EMBS041502020510	513 mm 20,19" inch	510 mm 20,07" inch
Suitable for, Geeignet für, Convient pour, Adecuado para		SEW With flange 120	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Center drive set; general
- 2 Drive shaft
- 3 Center unit connector
- 4 Center unit connector
- 5 Chain wheel
- 6 Split shaft collar
- 7 Parallel key
- 8 Hexagon socket button head screw

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1				
Aluminium	Stainless steel			
EMBS041402000000	EMBS041502000000			1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6		

Art Nr. Pos 2				
041408010255	041508010255	255 mm	10,04" inch	1
041408010340	041508010340	340 mm	13,39" inch	1
041408010424	041508010424	425 mm	16,73" inch	1
041408010510	041508010510	510 mm	20,07" inch	1
Material		Material		
Stainless steel shaft,		Stainless steel shaft,		
Aluminium tube		Plastic tube		
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment		141Nm		

Art Nr. Pos 3		Art Nr. Pos 4		
041504010255	041504010000	255 mm	10,04" inch	1
041504010340		340 mm	13,39" inch	1
041504010425		425 mm	16,73" inch	1
041504010510		510 mm	20,07" inch	1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		

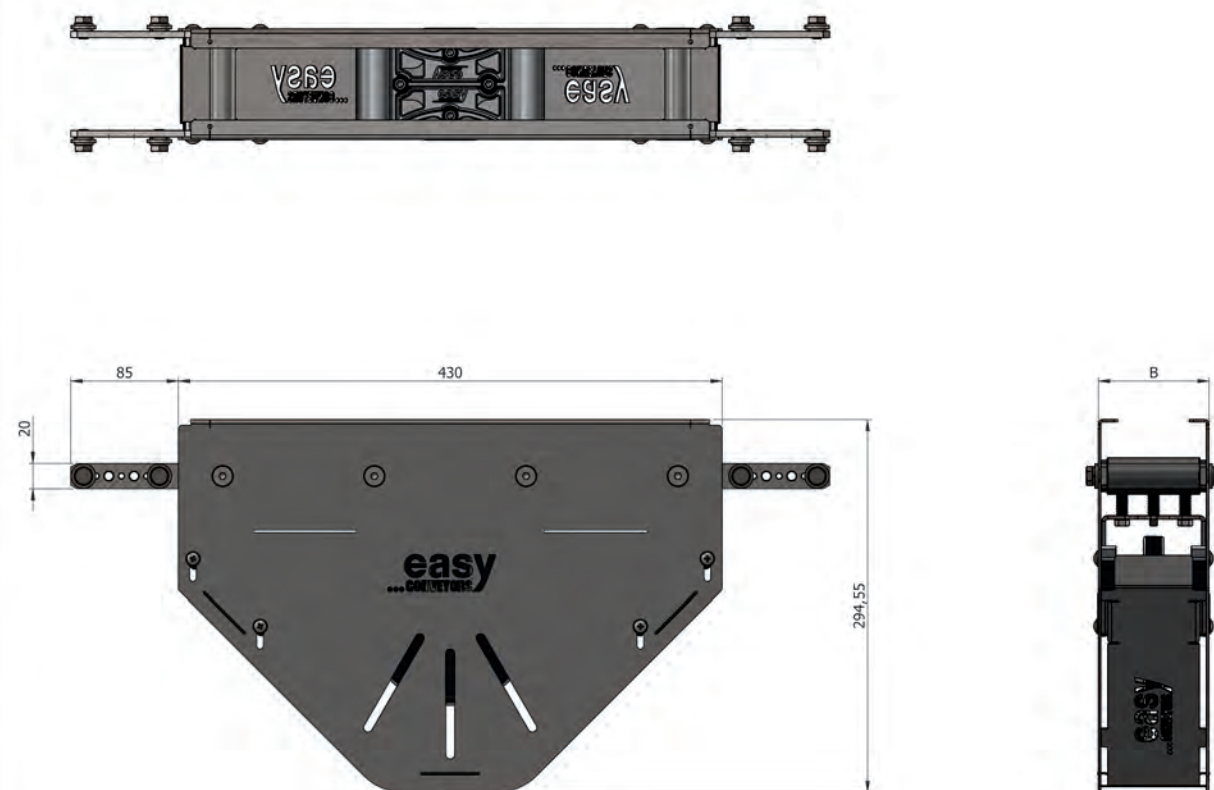
Art Nr. Pos 5			
041506000000	Pitch diameter Ø169.7	Bore Square 40	1
Material		POM	

Art Nr. Pos 6		Material	
BV688587040A4	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		100

Art Nr. Pos 7		Material	
040706000018	PA FG		10

Art Nr. Pos 8		Material	
BV688566070A4	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		100

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

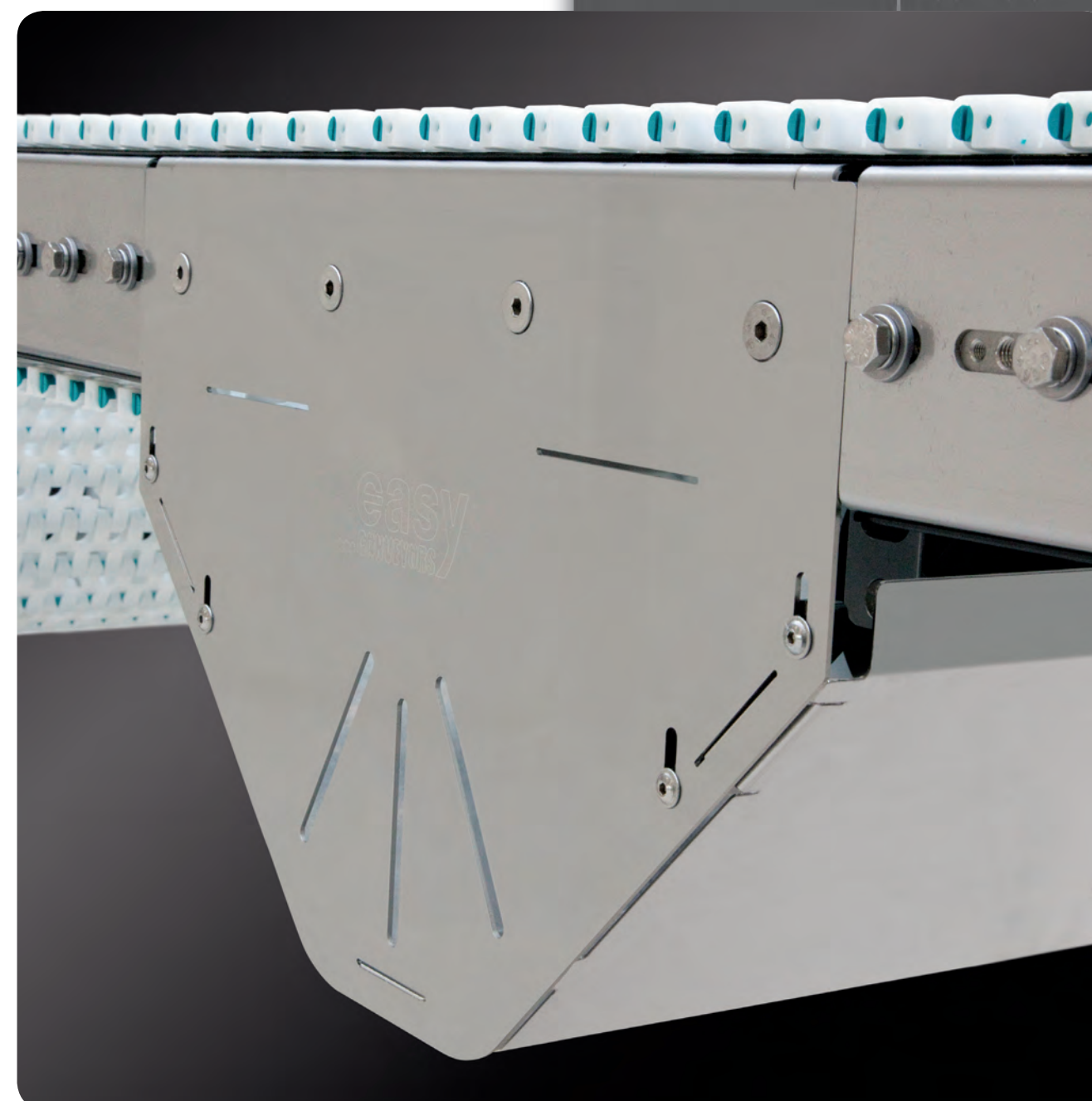


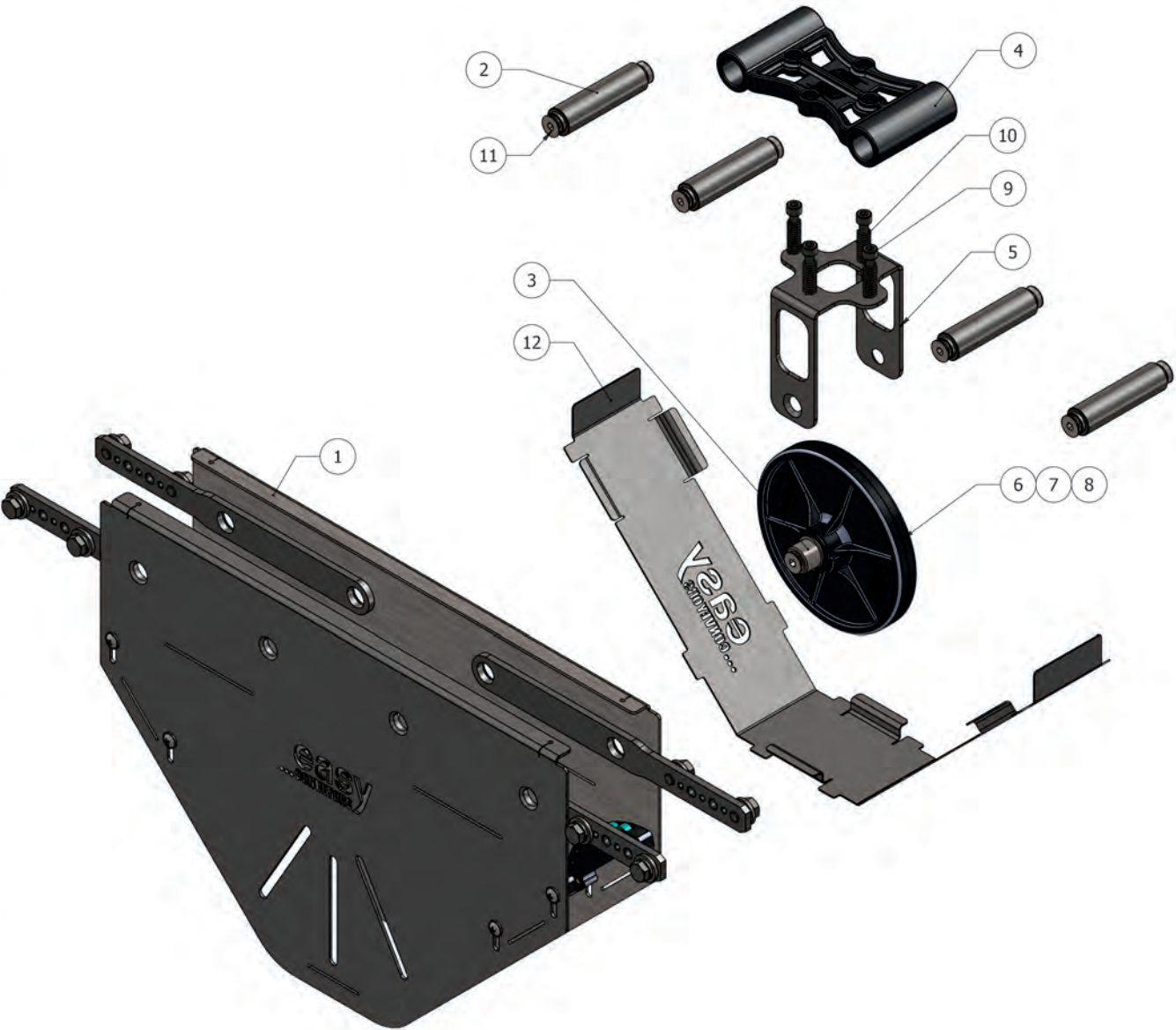
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	B =		
EMBS041505050255	264 mm	10,23" inch	1
EMBS041505050340	348 mm	13,54" inch	1
EMBS041505050425	433 mm	16,89" inch	1
EMBS041505050510	517 mm	20,19" inch	1

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 EMBS Sag module
- 2 SAG module connector
- 3 Tentioner shaft
- 4 Tentioner holder
- 5 Tentioner plate
- 6 ETS return wheel
- 7 Slide bearing
- 8 Retaining ring
- 9 Hexagon socket head cap
- 10 Pressure ring
- 11 Hexagon socket countersunk head screw
- 12 SAG module cover

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1		
EMBS041505040000		1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6	

Art Nr. Pos 2		
041504000255	EMBS DRIVE/RETURN UNIT CONNECTOR; 255	1
041504000340	EMBS DRIVE/RETURN UNIT CONNECTOR; 340	1
041504000425	EMBS DRIVE/RETURN UNIT CONNECTOR; 425	1
041504000510	EMBS DRIVE/RETURN UNIT CONNECTOR; 510	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 3		
040909000001	TENTIONER SHAFT	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 4		
040906000015	TENTIONER HOLDER	1
Material	POM	

Art Nr. Pos 5		
040905000012	TENTIONER PLATE	1
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 6		
040906000001	Diameter Ø133.1 Bore Ø25 DIN 6885 key seat	1
Material	PA6	

Art Nr. Pos 7		
040909000000	SLIDE BEARING; Ø20x15	1
Material	PA6	

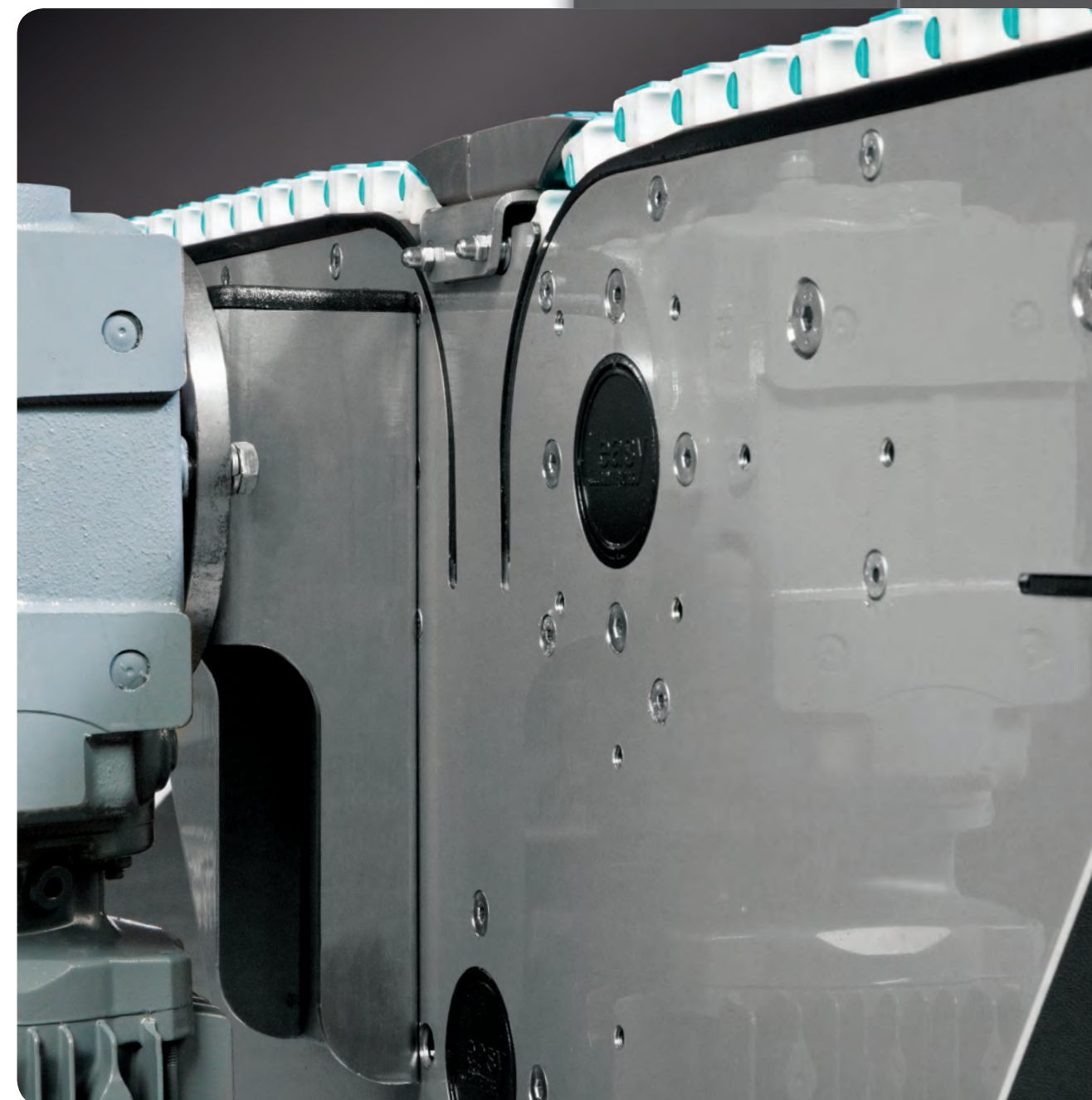
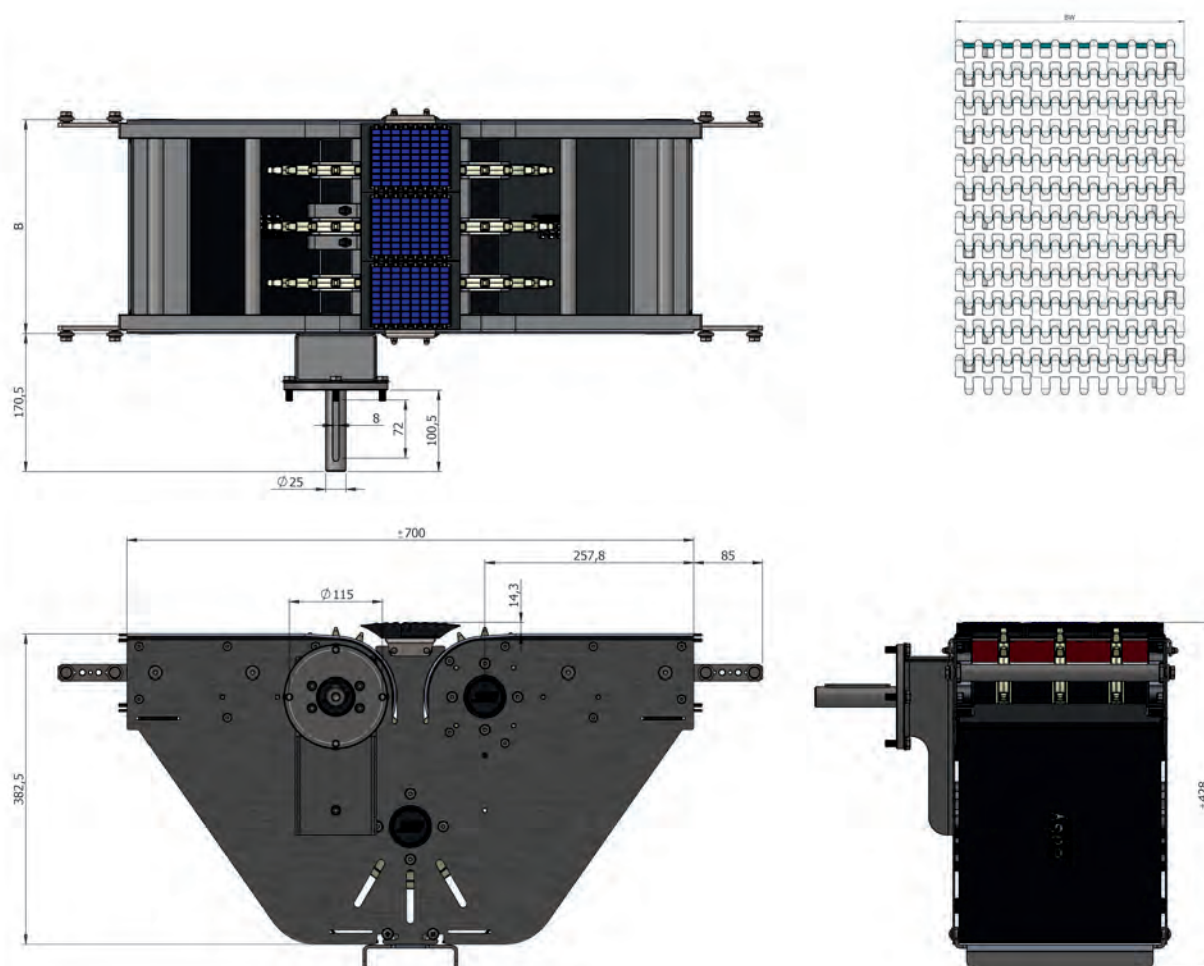
Art Nr. Pos 8	Art Nr. Pos 9	
BV047120000A2	BV091206040A2	100
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 10	Art Nr. Pos 11	
040909020000	BV799108016A2	100
Material	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	

Art Nr. Pos 12		Material	
041505042255	EMBS SAG MODULE COVER; 255	Stainless steel	1
041505042340	EMBS SAG MODULE COVER; 340	Stainless steel	1
041505042425	EMBS SAG MODULE COVER; 425	Stainless steel	1
041505042510	EMBS SAG MODULE COVER; 510	Stainless steel	1

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

- Used when the Torque ≥ 141 Nm
- Verwendet wenn da Dreh moment ≥ 141 Nm
- Utilisé lorsque le couple est ≥ 141 Nm
- Se utiliza cuando el par es ≥ 141 Nm

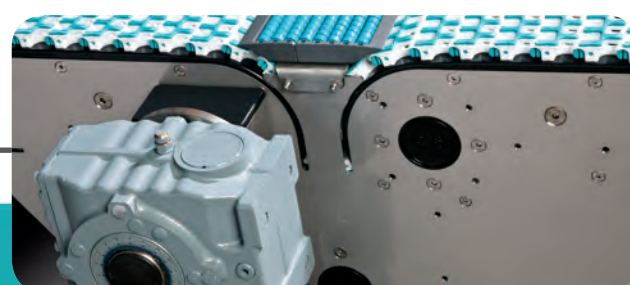


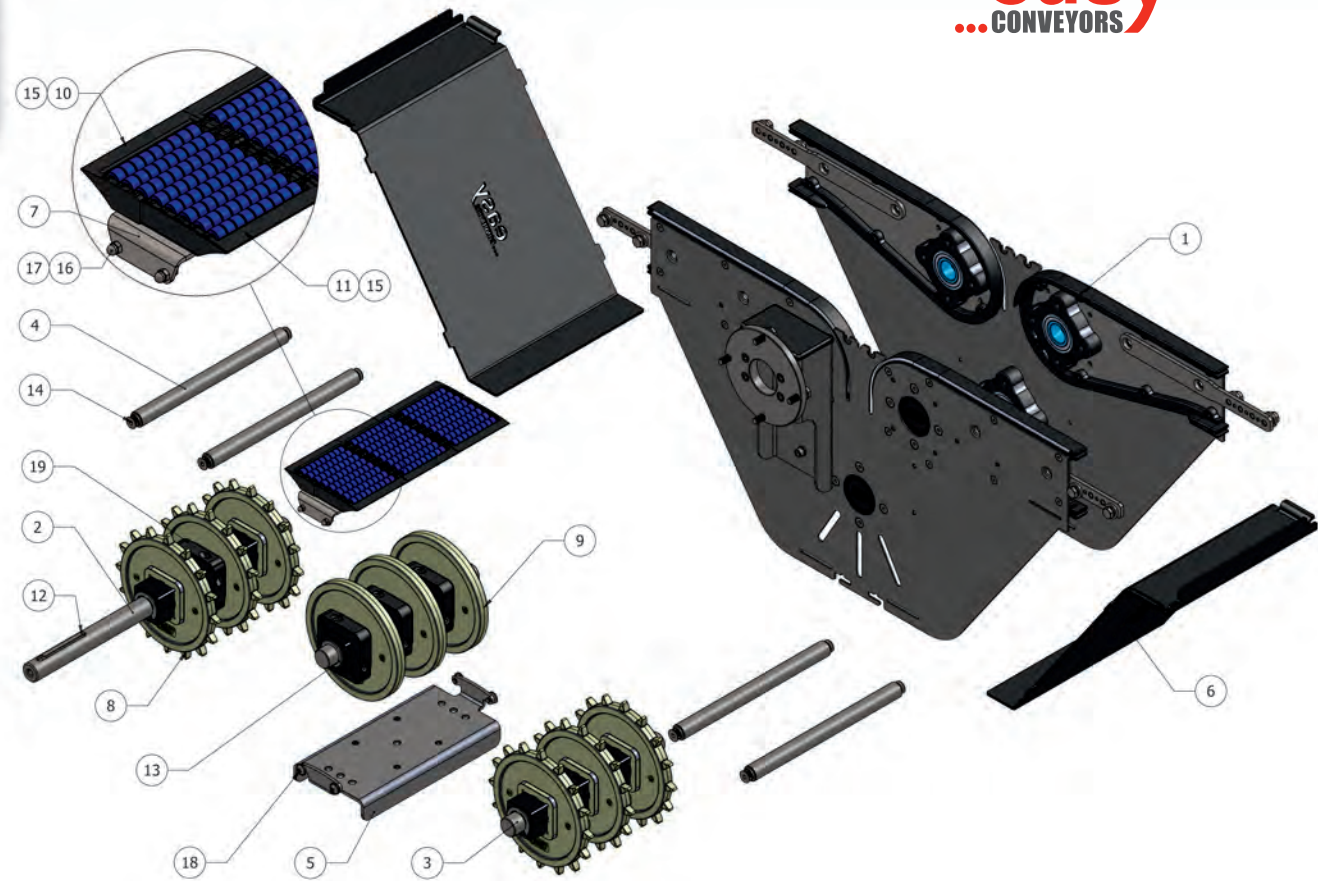
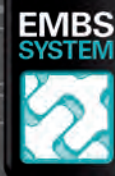
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =	BW =	
EMBS041403030255	EMBS041503030255	264 mm	10,23" inch	255 mm 10,04" inch 1
EMBS041403030340	EMBS041503030340	348 mm	13,54" inch	340 mm 13,38" inch 1
EMBS041403030425	EMBS041503030425	433 mm	16,89" inch	425 mm 16,73" inch 1
EMBS041403030510	EMBS041503030510	517 mm	20,19" inch	510 mm 20,07" inch 1
Suitable for, Geeignet für, Convient pour, Adecuado para			SEW SA47	

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Connection drive set; general
- 2 Drive shaft
- 3 Return shaft
- 4 Drive / return unit connector
- 5 Drive support plate
- 6 Connection drive cover
- 7 Transfer plate
- 8 Chain wheel
- 9 Return wheel

- 10 Modular transfer plate with rollers
- 11 Modular transfer plate with rollers
- 12 Parallel key
- 13 Shim ring
- 14 Hexagon socket countersunk head screw
- 15 Hexagon socket thin head cap
- 16 Hexagon socket head screw
- 17 Hexagon domed cap nut
- 18 Hexagon socket button head screw
- 19 Split shaft collar

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1				
Aluminium	Stainless steel			
EMBS041403010000	EMBS041503010000			1
Material				
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6				

Art Nr. Pos 2				
Aluminium	Stainless steel			
041408011255	041508011255	255 mm	10,04" inch	1
041408011340	041508011340	340 mm	13,39" inch	1
041408011425	041508011425	425 mm	16,73" inch	1
041408011510	041508011510	510 mm	20,07" inch	1
Material				
Stainless steel shaft, Stainless steel shaft,				
Aluminium tube Plastic tube				
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment		276Nm		

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 3				
Aluminium	Stainless steel			
041408030255	041508030255	255 mm	10,04" inch	1
041408030340	041508030340	340 mm	13,39" inch	1
041408030425	041508030425	425 mm	16,73" inch	1
041408030510	041508030510	510 mm	20,07" inch	1
Material				
Stainless steel shaft, Stainless steel shaft,				
Aluminium tube Plastic tube				

Art Nr. Pos 4	Art Nr. Pos 5	Art Nr. Pos 6	Art Nr. Pos 7		
041504000255	041505090255	041506050255	041508040255	255	1
041504000340	041505090340	041506050340	041508040340	340	1
041504000425	041505090425	041506050425	041508040425	425	1
041504000510	041505090510	041506050510	041508040510	510	1
Material					
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + Pos 6: ABS					

Art Nr. Pos 8			Material	
041506000000	Pitch diameter Ø169.7	Bore square 40	POM	1

Art Nr. Pos 9			Material	
041506000001	Pitch diameter Ø154.5	Bore square 40	POM	1

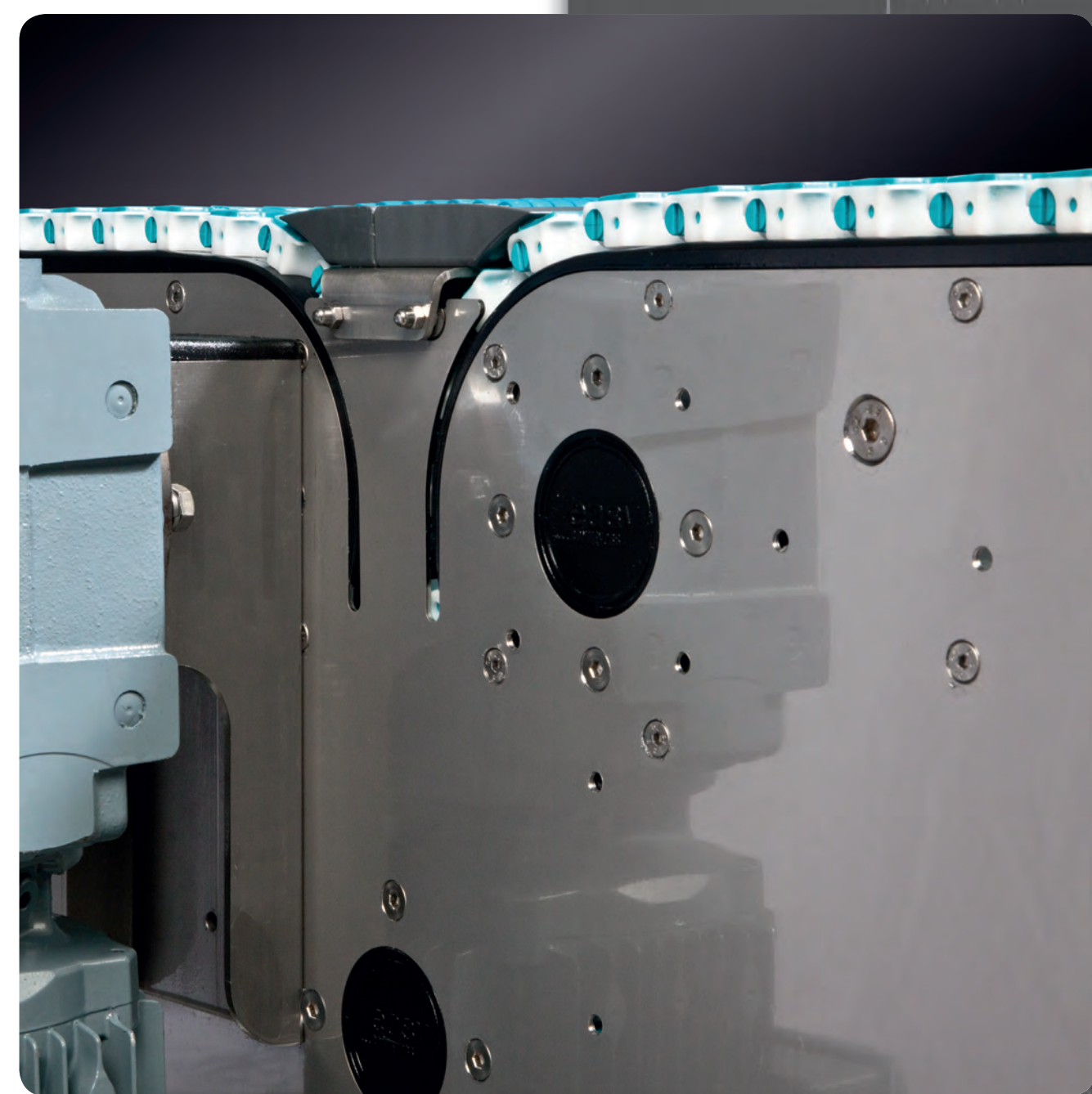
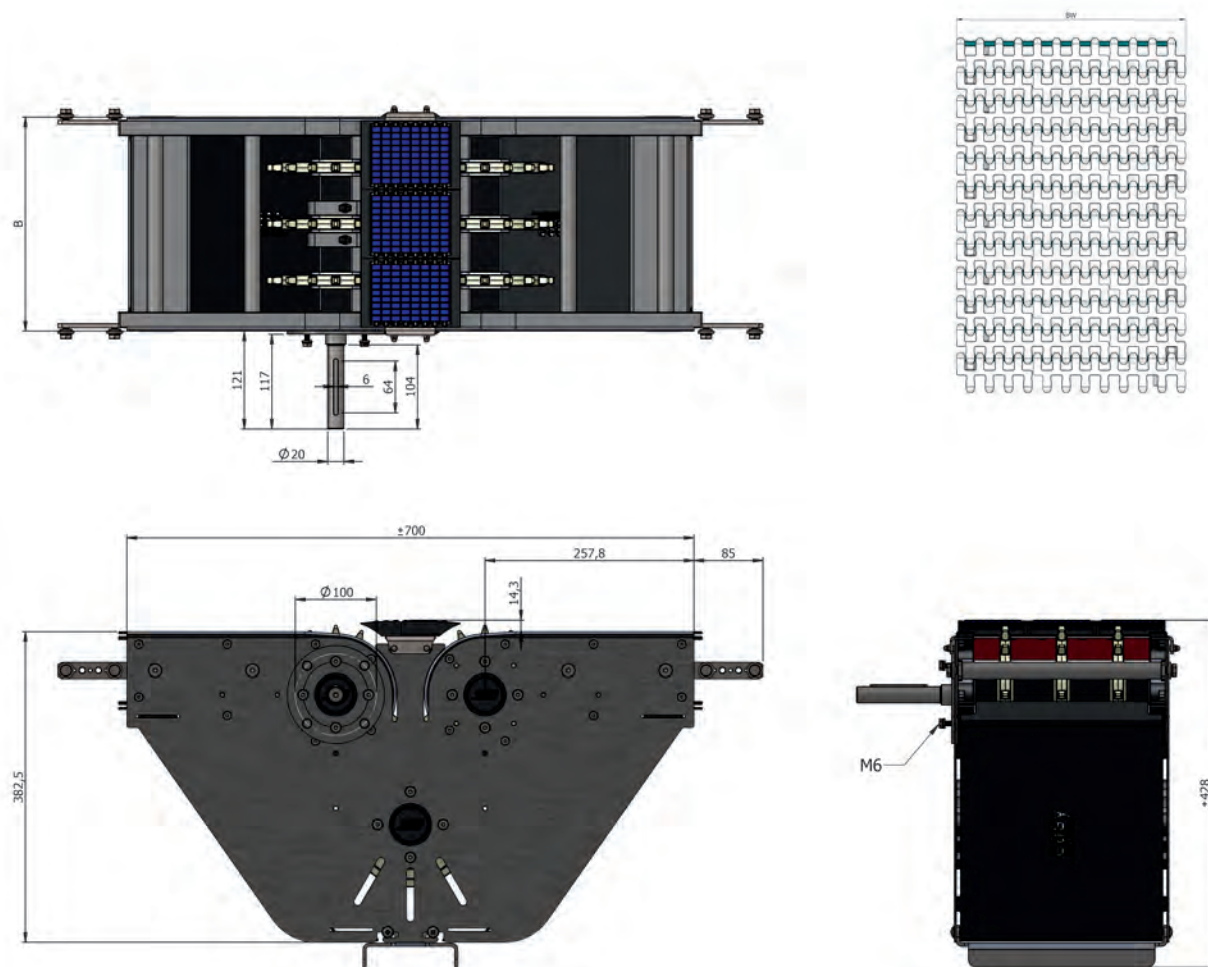
Art Nr. Pos 10	Art Nr. Pos 11	W=	Material	
040709010002	040909010000	85	Stainless Steel, PBT, POM	1

Art Nr. Pos 12	Art Nr. Pos 13	Art Nr. Pos 14	Art Nr. Pos 15	
BV688587080A4	BV988253520A2	BV799108016A2	BV738006008A2	100
Material				
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable				

Art Nr. Pos 16	Art Nr. Pos 17	Art Nr. Pos 18	
BV091204008A2	BV15870004A2	BV738006008A2	100
Material			
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			

Art Nr. Pos 19		Material	
040706000018		PA FG	10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



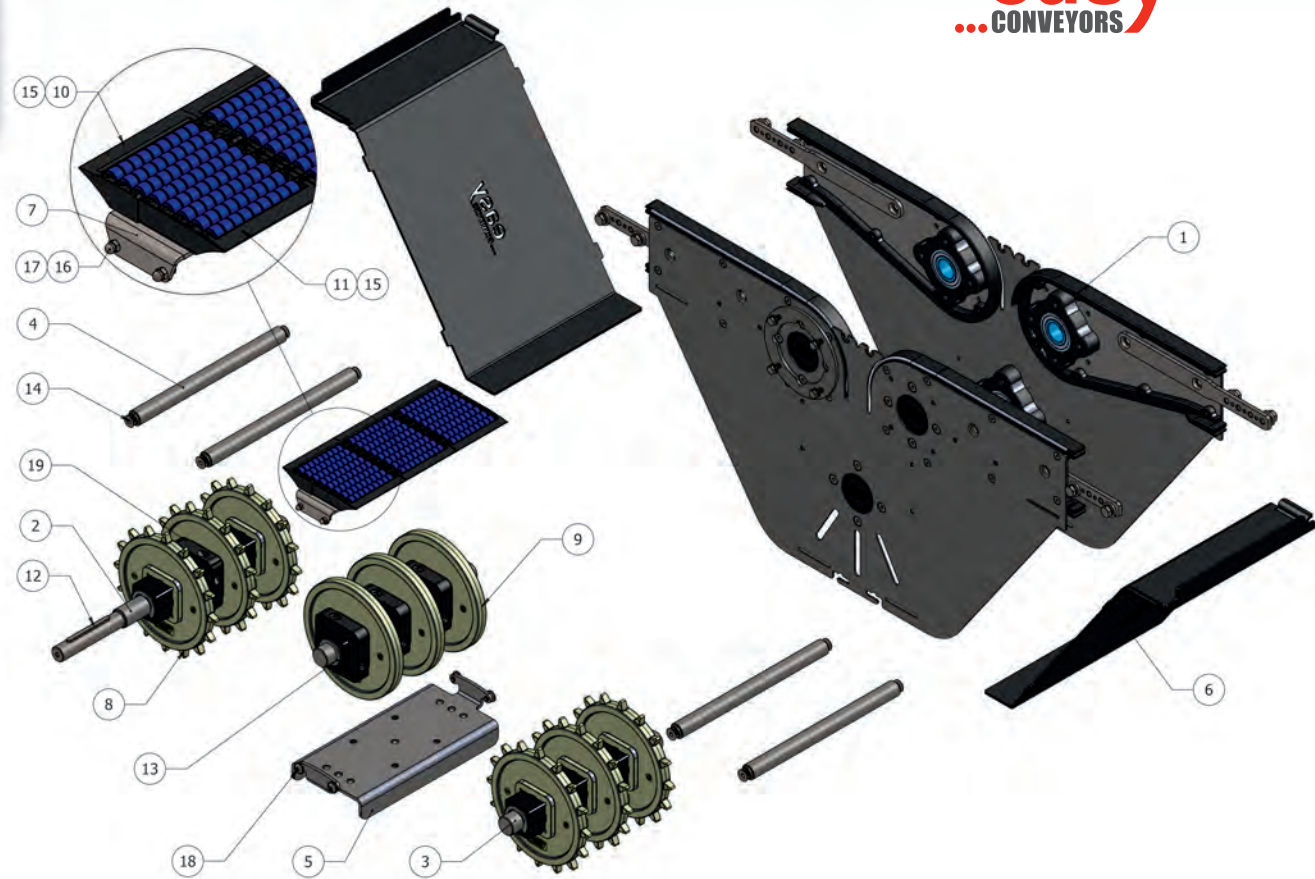
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =	BW =	
EMBS041403020255	EMBS041503020255	264 mm	10,23" inch	255 mm 10,04" inch 1
EMBS041403020340	EMBS041503020340	348 mm	13,54" inch	340 mm 13,38" inch 1
EMBS041403020425	EMBS041503020425	433 mm	16,89" inch	425 mm 16,73" inch 1
EMBS041403020510	EMBS041503020510	517 mm	20,19" inch	510 mm 20,07" inch 1
Suitable for, Geeignet für, Convient pour, Adecuado para		SEW With flange 120		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Connection drive set; general
- 2 Drive shaft
- 3 Return shaft
- 4 Drive / return unit connector
- 5 Drive support plate
- 6 Connection drive cover
- 7 Transfer plate
- 8 Chain wheel
- 9 Return wheel

- 10 Modular transfer plate with rollers
- 11 Modular transfer plate with rollers
- 12 Parallel key
- 13 Shim ring
- 14 Hexagon socket countersunk head screw
- 15 Hexagon socket thin head cap
- 16 Hexagon socket head screw
- 17 Hexagon domed cap nut
- 18 Hexagon socket button head screw
- 19 Split shaft collar

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1				
Aluminium	Stainless steel			
EMBS041403000000	EMBS041503000000			1
Material				
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + PA6.6				

Art Nr. Pos 2				
Aluminium	Stainless steel			
041408010255	041508010255	255 mm	10,04" inch	1
041408010340	041508010340	340 mm	13,39" inch	1
041408010425	041508010425	425 mm	16,73" inch	1
041408010510	041508010510	510 mm	20,07" inch	1
Material				
Stainless steel shaft, Stainless steel shaft,				
Aluminium tube Plastic tube				
Max. Torque, Couple, Esfuerzo de torsion, Drehmoment		141Nm		

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 3				
Aluminium	Stainless steel			
041408030255	041508030255	255 mm	10,04" inch	1
041408030340	041508030340	340 mm	13,39" inch	1
041408030425	041508030425	425 mm	16,73" inch	1
041408030510	041508030510	510 mm	20,07" inch	1
Material				
Stainless steel shaft, Stainless steel shaft,				
Aluminium tube Plastic tube				

Art Nr. Pos 4	Art Nr. Pos 5	Art Nr. Pos 6	Art Nr. Pos 7		
041504000255	041505090255	041506050255	041508040255	255	1
041504000340	041505090340	041506050340	041508040340	340	1
041504000425	041505090425	041506050425	041508040425	425	1
041504000510	041505090510	041506050510	041508040510	510	1
Material					
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable + Pos 6: ABS					

Art Nr. Pos 8			Material	
041506000000	Pitch diameter Ø169.7	Bore square 40	POM	1

Art Nr. Pos 9			Material	
041506000001	Pitch diameter Ø154.5	Bore square 40	POM	1

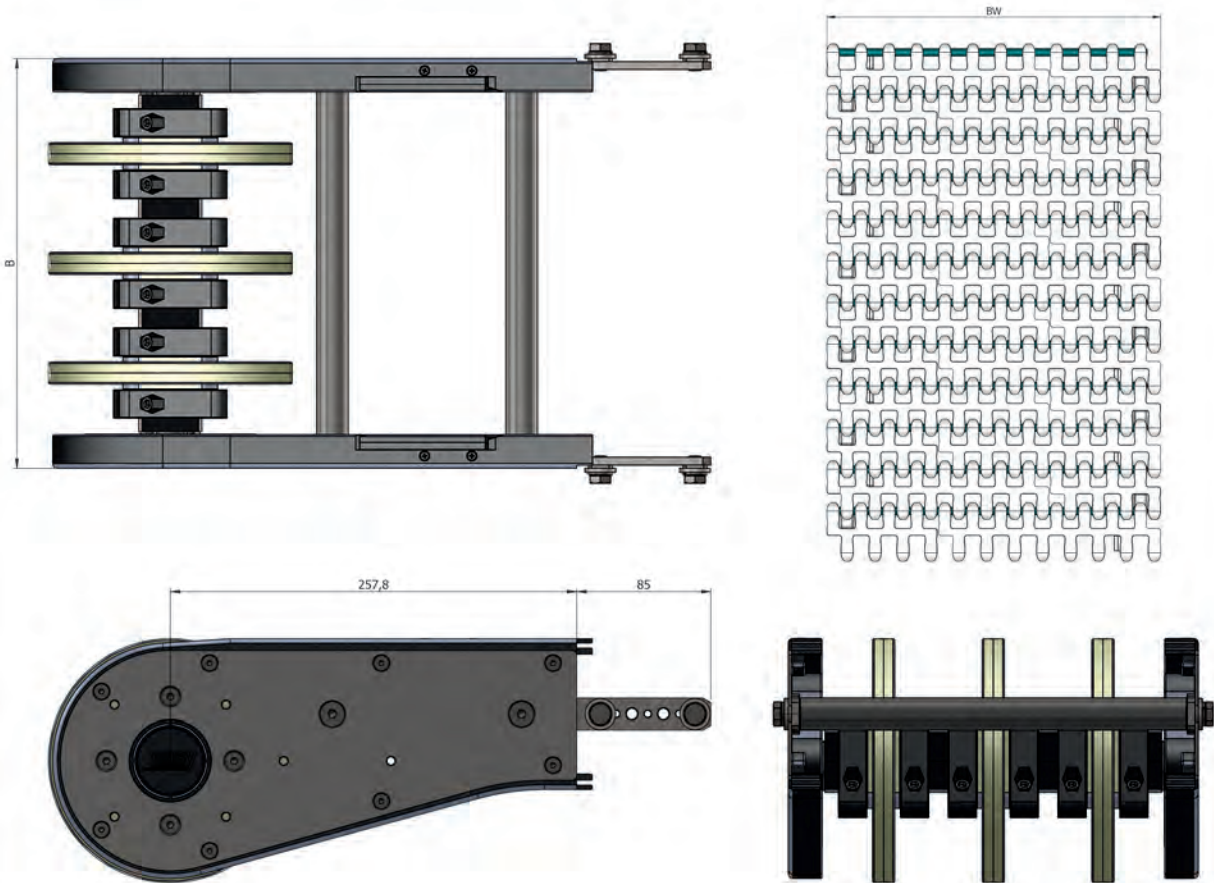
Art Nr. Pos 10	Art Nr. Pos 11	W=	Material	
040709010002	040909010000	85	Stainless Steel, PBT, POM	1

Art Nr. Pos 12	Art Nr. Pos 13	Art Nr. Pos 14	Art Nr. Pos 15	
BV688566070A4	BV988253520A2	BV799108016A2	BV738006008A2	100
Material				
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable				

Art Nr. Pos 16	Art Nr. Pos 17	Art Nr. Pos 18	
BV091204008A2	BV15870004A2	BV738006008A2	100
Material			
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			

Art Nr. Pos 19		Material	
040706000018		PA FG	10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 ETS Return set; general
- 2 Return shaft
- 3 Drive / return unit connector
- 4 Return wheel
- 5 Split shaft collar
- 6 Hexagon socket countersunk head screw

Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1		
Aluminium	Stainless steel	
ETS040804010000	ETS040904010000	1 piece, incl. fasteners
Material Stainless steel, Edelstahl, acier inoxydable, acero inoxidable, PA6, PP; incl. bearings 2205 2RS		

Art Nr. Pos 2			
Aluminium	Stainless steel		
041408030255	041508030255	EMBS RETURN SHAFT; 255	1
041408030340	041508030340	EMBS RETURN SHAFT; 340	1
041408030425	041508030425	EMBS RETURN SHAFT; 425	1
041408030510	041508030510	EMBS RETURN SHAFT; 510	1
Material Stainless steel, Edelstahl, acier inoxydable, acero inoxidable + Aluminium or plastic tube			

Art Nr. Pos 3		Material
041504000255	EMBS DRIVE/RETURN UNIT CONNECTOR; 255	1
041504000340	EMBS DRIVE/RETURN UNIT CONNECTOR; 340	1
041504000425	EMBS DRIVE/RETURN UNIT CONNECTOR; 425	1
041504000510	EMBS DRIVE/RETURN UNIT CONNECTOR; 510	1
Material Stainless steel, Edelstahl, acier inoxydable, acero inoxidable		

Art Nr. Pos 4	Material
041506000001 Ø154,5 Bore Square 40	POM 1

Art Nr. Pos 5	Material
040706000018 Split shaft collar	PA FG 10

Art Nr. Pos 6	Material
BV799108016A2 M8x16 DIN7991 A2	Stainless steel 100

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

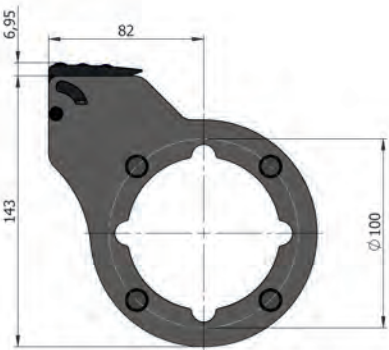
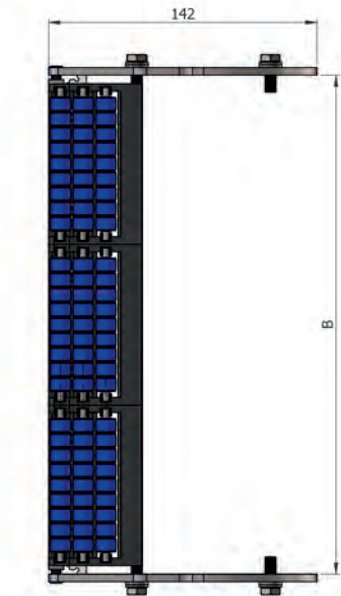
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =		BW =		
EMBS041404010255	EMBS041504010255	260 mm	10,23" inch	255 mm	10,04" inch	1
EMBS041404010340	EMBS041504010340	344 mm	13,54" inch	340 mm	13,38" inch	1
EMBS041404010425	EMBS041504010425	429 mm	16,89" inch	425 mm	16,73" inch	1
EMBS041404010510	EMBS041504010510	513 mm	20,19" inch	510 mm	20,07" inch	1

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





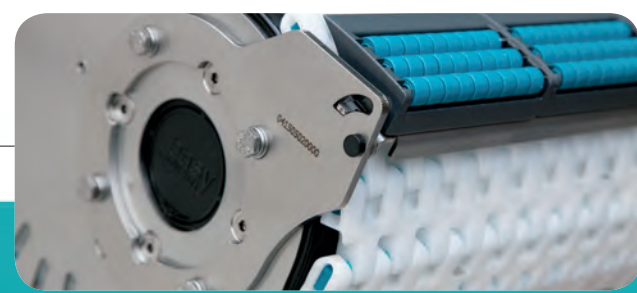
- 1 Transfer module single; general
- 2 Transfer module single

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	B =
EMBS TRANSFER MODULE SINGLE	WIDENESS DRIVE OR RETRUN UNIT

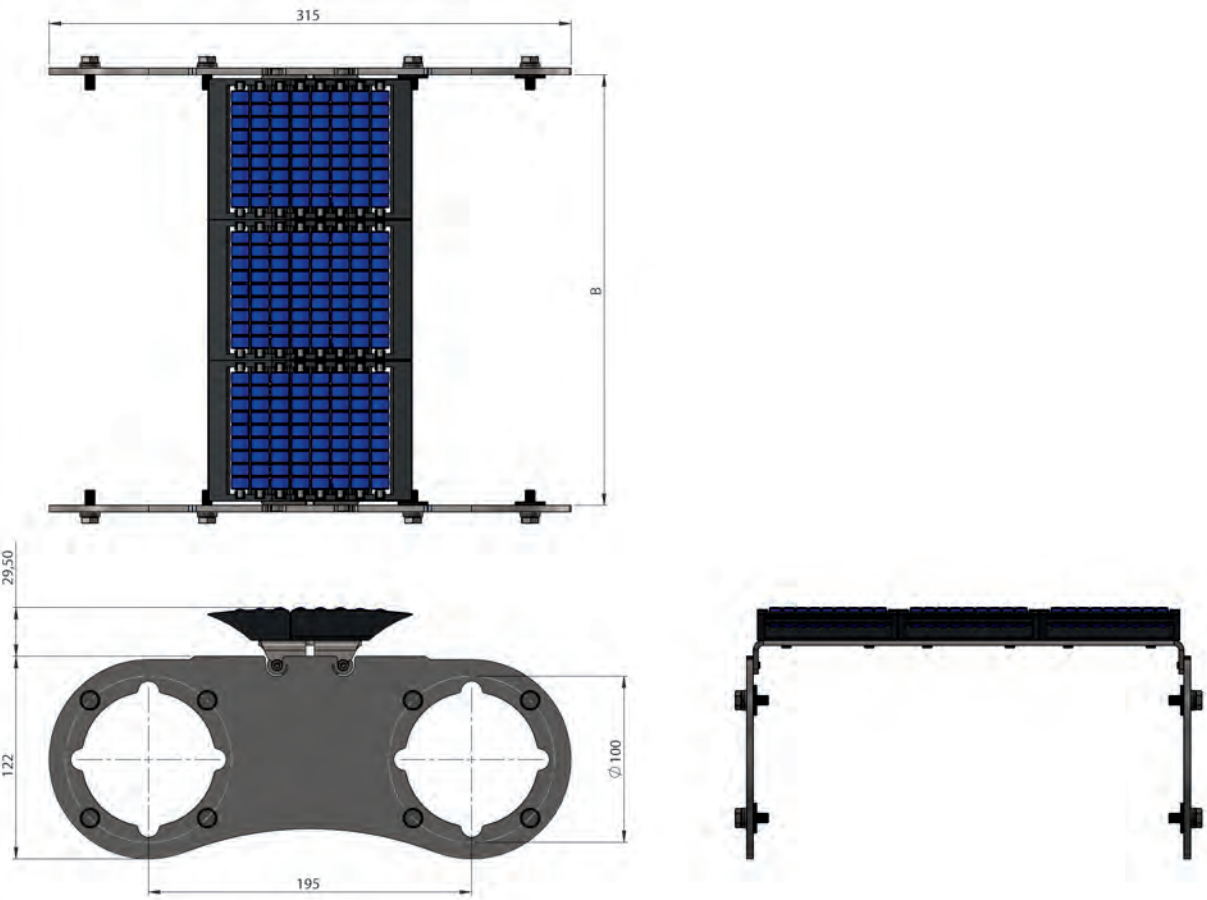
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones

Art Nr. Pos 1		
EMBP041501040000	EMBS TRANSFER MODULE SINGLE; GENERAL	1 incl. fastners
Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		
Art Nr. Pos 2		
EMBP041501040255	EMBS TRANSFER MODULE SINGLE; 255	1 incl. fastners
EMBP041501040340	EMBS TRANSFER MODULE SINGLE; 340	1 incl. fastners
EMBP041501040425	EMBS TRANSFER MODULE SINGLE; 425	1 incl. fastners
EMBP041501040510	EMBS TRANSFER MODULE SINGLE; 510	1 incl. fastners
Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable, PBT, POM		

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



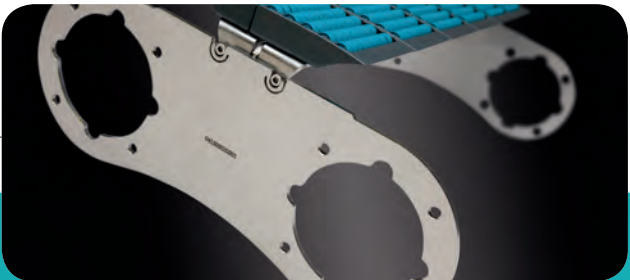
- 1 Transfer module double; general
2 Transfer module double

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

	B =
EMBS TRANSFER MODULE DOUBLE	WIDENESS DRIVE OR RETRUN UNIT

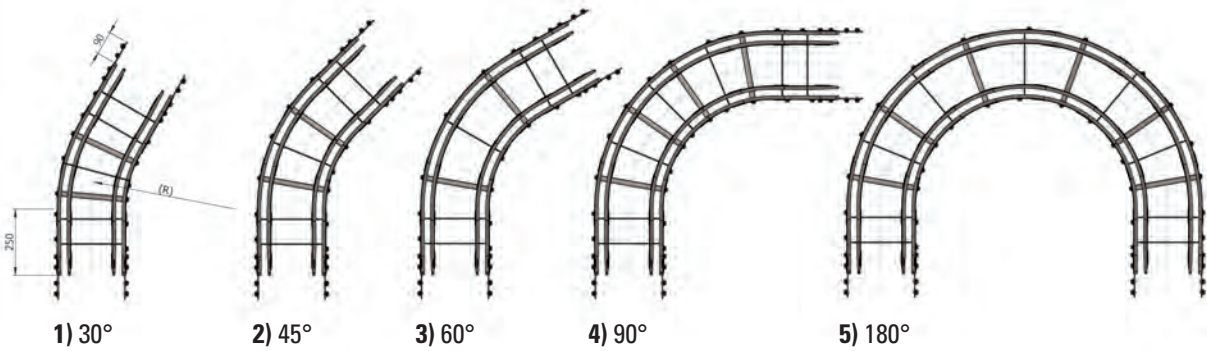
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Dimensions - Abmessungen - Dimensions - Dimensiones



















Art Nr. Pos 1		
EMBP041501050000	EMBS TRANSFER MODULE DOUBLE; GENERAL	1 incl. fastners
Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		
Art Nr. Pos 2		
EMBP041501050255	EMBS TRANSFER MODULE DOUBLE; 255	1 incl. fastners
EMBP041501050340	EMBS TRANSFER MODULE DOUBLE; 340	1 incl. fastners
EMBP041501050425	EMBS TRANSFER MODULE DOUBLE; 425	1 incl. fastners
EMBP041501050510	EMBS TRANSFER MODULE DOUBLE; 510	1 incl. fastners
Material Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable, PBT, POM		

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

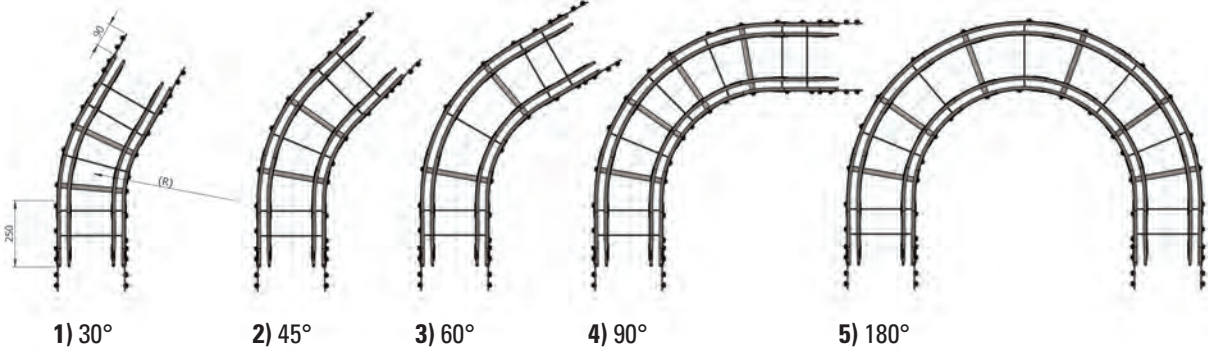


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones



















ALUMINIUM		FW =			
1) EMBS041406010255	260 mm	10,23" inch	Hor. Curve 255 30°	R=540	 1
1) EMBS041406010340	344 mm	13,54" inch	Hor. Curve 340 30°	R=750	 1
1) EMBS041406010425	429 mm	16,80" inch	Hor. Curve 425 30°	R=900	 1
1) EMBS041406010510	513 mm	20.19" inch	Hor. Curve 510 30°	R=1100	 1
2) EMBS041406020255	260 mm	10,23" inch	Hor. Curve 255 45°	R=540	 1
2) EMBS041406020340	344 mm	13,54" inch	Hor. Curve 340 45°	R=750	 1
2) EMBS041406020425	429 mm	16,80" inch	Hor. Curve 425 45°	R=900	 1
2) EMBS041406020510	513 mm	20.19" inch	Hor. Curve 510 45°	R=1100	 1
3) EMBS041406030255	260 mm	10,23" inch	Hor. Curve 255 60°	R=540	 1
3) EMBS041406030340	344 mm	13,54" inch	Hor. Curve 340 60°	R=750	 1
3) EMBS041406030425	429 mm	16,80" inch	Hor. Curve 425 60°	R=900	 1
3) EMBS041406030510	513 mm	20.19" inch	Hor. Curve 510 60°	R=1100	 1
4) EMBS041406040255	260 mm	10,23" inch	Hor. Curve 255 90°	R=540	 1
4) EMBS041406040340	344 mm	13,54" inch	Hor. Curve 340 90°	R=750	 1
4) EMBS041406040425	429 mm	16,80" inch	Hor. Curve 425 90°	R=900	 1
4) EMBS041406040510	513 mm	20.19" inch	Hor. Curve 510 90°	R=1100	 1
5) EMBS041406050255	260 mm	10,23" inch	Hor. Curve 255 180°	R=540	 1
5) EMBS041406050340	344 mm	13,54" inch	Hor. Curve 340 180°	R=750	 1
Material		AL			

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta

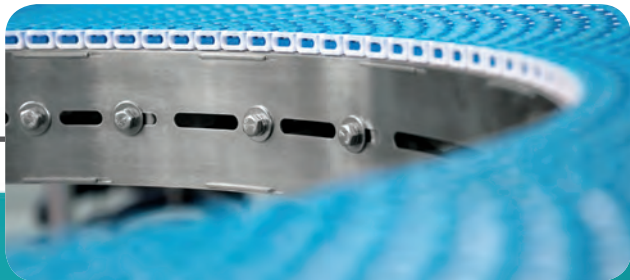


More technical information: See engineering online www.easy-conveyors.com

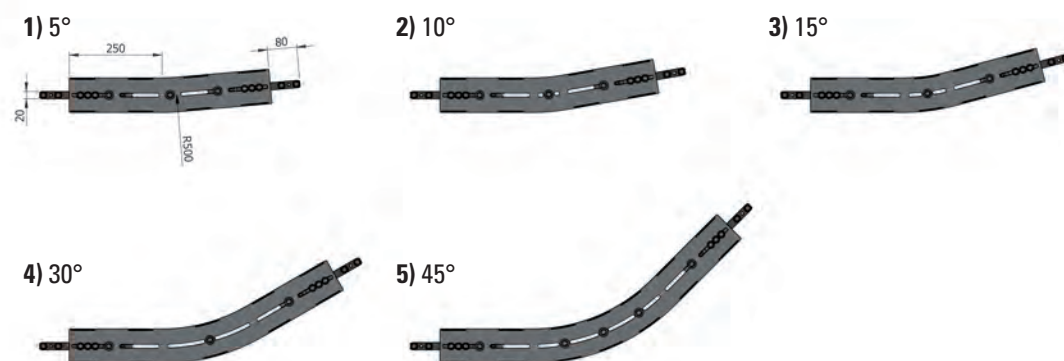
Dimensions - Abmessungen - Dimensions - Dimensiones

STAINLESS STEEL		FW =			
1) EMBS041506010255	260 mm	10,23" inch	Hor. Curve 255 30°	R=540	 1
1) EMBS041506010340	344 mm	13,54" inch	Hor. Curve 340 30°	R=750	 1
1) EMBS041506010425	429 mm	16,80" inch	Hor. Curve 425 30°	R=900	 1
1) EMBS041506010510	513 mm	20.19" inch	Hor. Curve 510 30°	R=1100	 1
2) EMBS041506020255	260 mm	10,23" inch	Hor. Curve 255 45°	R=540	 1
2) EMBS041506020340	344 mm	13,54" inch	Hor. Curve 340 45°	R=750	 1
2) EMBS041506020425	429 mm	16,80" inch	Hor. Curve 425 45°	R=900	 1
2) EMBS041506020510	513 mm	20.19" inch	Hor. Curve 510 45°	R=1100	 1
3) EMBS041506030255	260 mm	10,23" inch	Hor. Curve 255 60°	R=540	 1
3) EMBS041506030340	344 mm	13,54" inch	Hor. Curve 340 60°	R=750	 1
3) EMBS041506030425	429 mm	16,80" inch	Hor. Curve 425 60°	R=900	 1
3) EMBS041506030510	513 mm	20.19" inch	Hor. Curve 510 60°	R=1100	 1
4) EMBS041506040255	260 mm	10,23" inch	Hor. Curve 255 90°	R=540	 1
4) EMBS041506040340	344 mm	13,54" inch	Hor. Curve 340 90°	R=750	 1
4) EMBS041506040425	429 mm	16,80" inch	Hor. Curve 425 90°	R=900	 1
4) EMBS041506040510	513 mm	20.19" inch	Hor. Curve 510 90°	R=1100	 1
5) EMBS041506050255	260 mm	10,23" inch	Hor. Curve 255 180°	R=540	 1
5) EMBS041506050340	344 mm	13,54" inch	Hor. Curve 340 180°	R=750	 1
Material		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable			

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



See engineering online
www.easy-conveyors.com



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	FW =				
1) EMBS041407010255	260 mm	10,23" inch	Vertical Curve 255 5°	R=500	1
1) EMBS041407010340	344 mm	13,54" inch	Vertical Curve 340 5°	R=500	1
1) EMBS041407010425	429 mm	16,80" inch	Vertical Curve 425 5°	R=500	1
1) EMBS041407010510	513 mm	20,19" inch	Vertical Curve 510 5°	R=500	1
2) EMBS041407020255	260 mm	10,23" inch	Vertical Curve 255 10°	R=500	1
2) EMBS041407020340	344 mm	13,54" inch	Vertical Curve 340 10°	R=500	1
2) EMBS041407020425	429 mm	16,80" inch	Vertical Curve 425 10°	R=500	1
2) EMBS041407020510	513 mm	20,19" inch	Vertical Curve 510 10°	R=500	1
3) EMBS041407030255	260 mm	10,23" inch	Vertical Curve 255 15°	R=500	1
3) EMBS041407030340	344 mm	13,54" inch	Vertical Curve 340 15°	R=500	1
3) EMBS041407030425	429 mm	16,80" inch	Vertical Curve 425 15°	R=500	1
3) EMBS041407030510	513 mm	20,19" inch	Vertical Curve 510 15°	R=500	1
4) EMBS041407040255	260 mm	10,23" inch	Vertical Curve 255 30°	R=500	1
4) EMBS041407040340	344 mm	13,54" inch	Vertical Curve 340 30°	R=500	1
4) EMBS041407040425	429 mm	16,80" inch	Vertical Curve 425 30°	R=500	1
4) EMBS041407040510	513 mm	20,19" inch	Vertical Curve 510 30°	R=500	1
5) EMBS041407050255	260 mm	10,23" inch	Vertical Curve 255 45°	R=500	1
5) EMBS041407050340	344 mm	13,54" inch	Vertical Curve 340 45°	R=500	1
5) EMBS041407050425	429 mm	16,80" inch	Vertical Curve 425 45°	R=500	1
5) EMBS041407050510	513 mm	20,19" inch	Vertical Curve 510 45°	R=500	1
Material	AL				

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





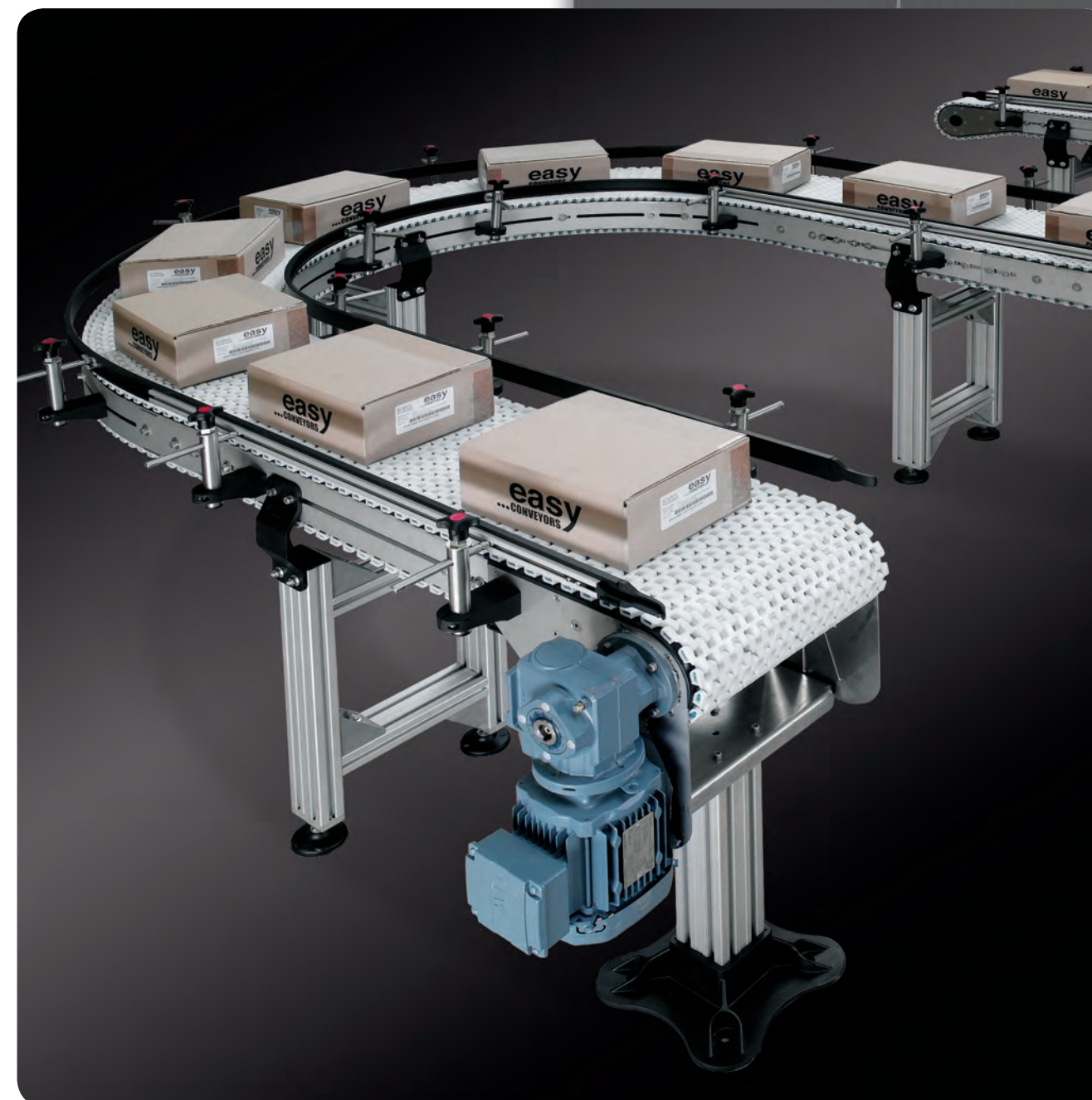
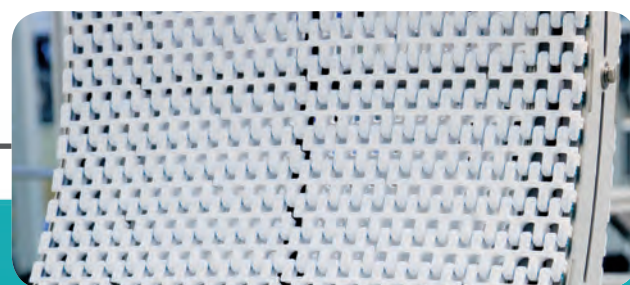
More technical information: See engineering online www.easy-conveyors.com

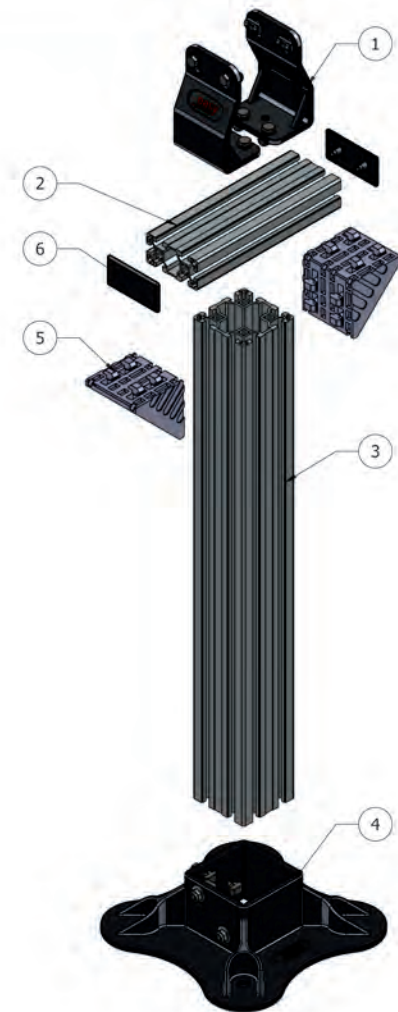
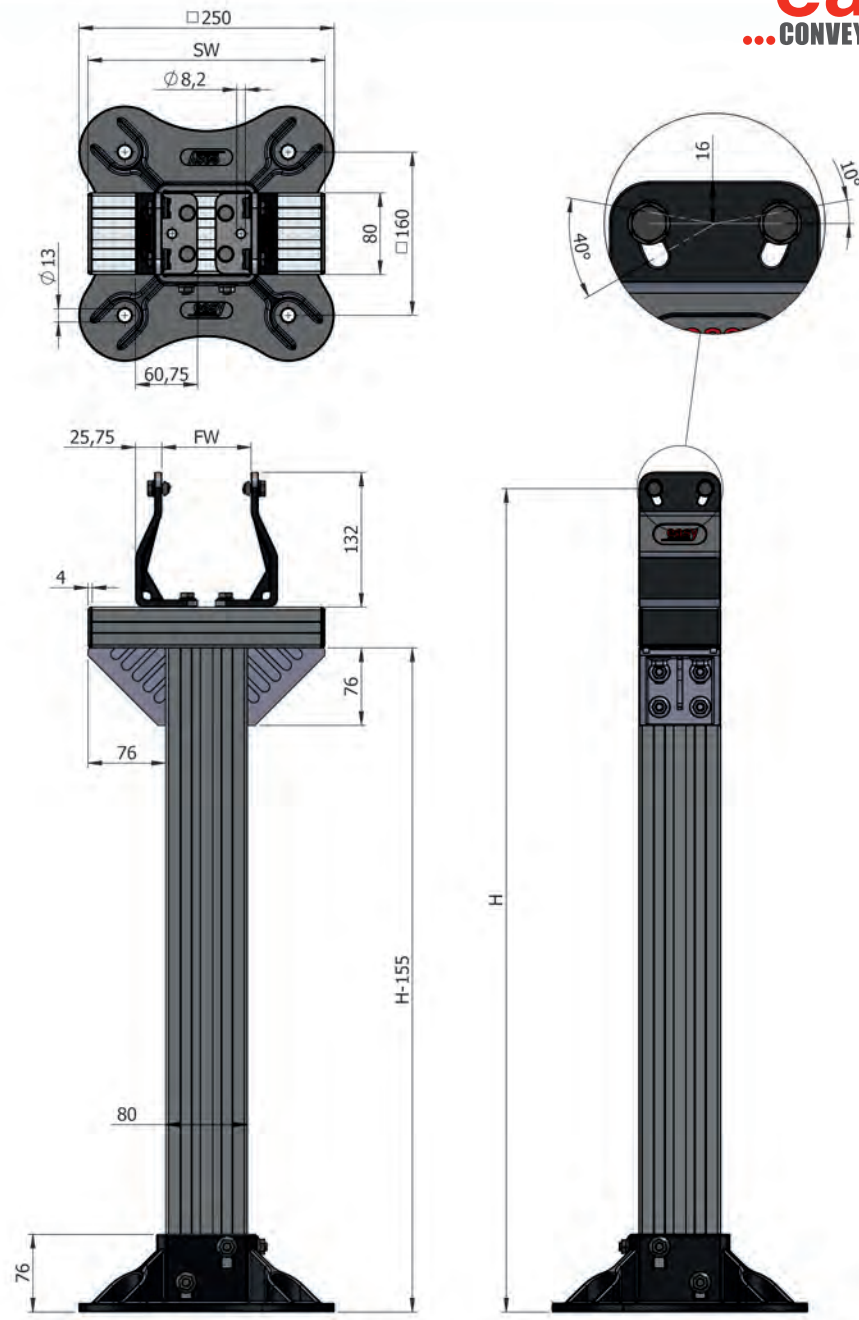
Dimensions - Abmessungen - Dimensions - Dimensiones

STAINLESS STEEL		FW =					
1) EMBS041507010255	260 mm	10,23" inch	Vertical Curve 255 5°	R=500		1	
1) EMBS041507010340	344 mm	13,54" inch	Vertical Curve 340 5°	R=500		1	
1) EMBS041507010425	429 mm	16,80" inch	Vertical Curve 425 5°	R=500		1	
1) EMBS041507010510	513 mm	20,19" inch	Vertical Curve 510 5°	R=500		1	
2) EMBS041507020255	260 mm	10,23" inch	Vertical Curve 255 10°	R=500		1	
2) EMBS041507020340	344 mm	13,54" inch	Vertical Curve 340 10°	R=500		1	
2) EMBS041507020425	429 mm	16,80" inch	Vertical Curve 425 10°	R=500		1	
2) EMBS041507020510	513 mm	20,19" inch	Vertical Curve 510 10°	R=500		1	
3) EMBS041507030255	260 mm	10,23" inch	Vertical Curve 255 15°	R=500		1	
3) EMBS041507030340	344 mm	13,54" inch	Vertical Curve 340 15°	R=500		1	
3) EMBS041507030425	429 mm	16,80" inch	Vertical Curve 425 15°	R=500		1	
3) EMBS041507030510	513 mm	20,19" inch	Vertical Curve 510 15°	R=500		1	
4) EMBS041507040255	260 mm	10,23" inch	Vertical Curve 255 30°	R=500		1	
4) EMBS041507040340	344 mm	13,54" inch	Vertical Curve 340 30°	R=500		1	
4) EMBS041507040425	429 mm	16,80" inch	Vertical Curve 425 30°	R=500		1	
4) EMBS041507040510	513 mm	20,19" inch	Vertical Curve 510 30°	R=500		1	
5) EMBS041507050255	260 mm	10,23" inch	Vertical Curve 255 45°	R=500		1	
5) EMBS041507050340	344 mm	13,54" inch	Vertical Curve 340 45°	R=500		1	
5) EMBS041507050425	429 mm	16,80" inch	Vertical Curve 425 45°	R=500		1	
5) EMBS041507050510	513 mm	20,19" inch	Vertical Curve 510 45°	R=500		1	

Material Side plates: Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



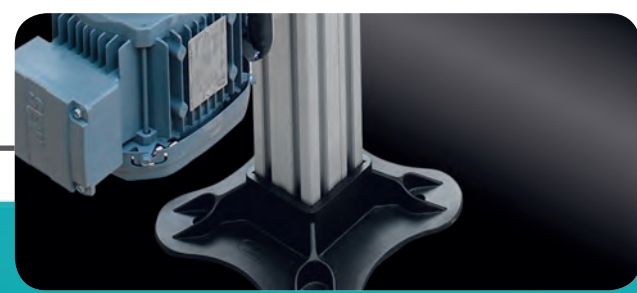


- 1 L support bracket
- 2 Profile 40x80 L
- 3 Profile 80x80 L
- 4 Support base
- 5 Bracket 80
- 6 Cap 40x80

More technical information: See engineering online www.easy-conveyors.com

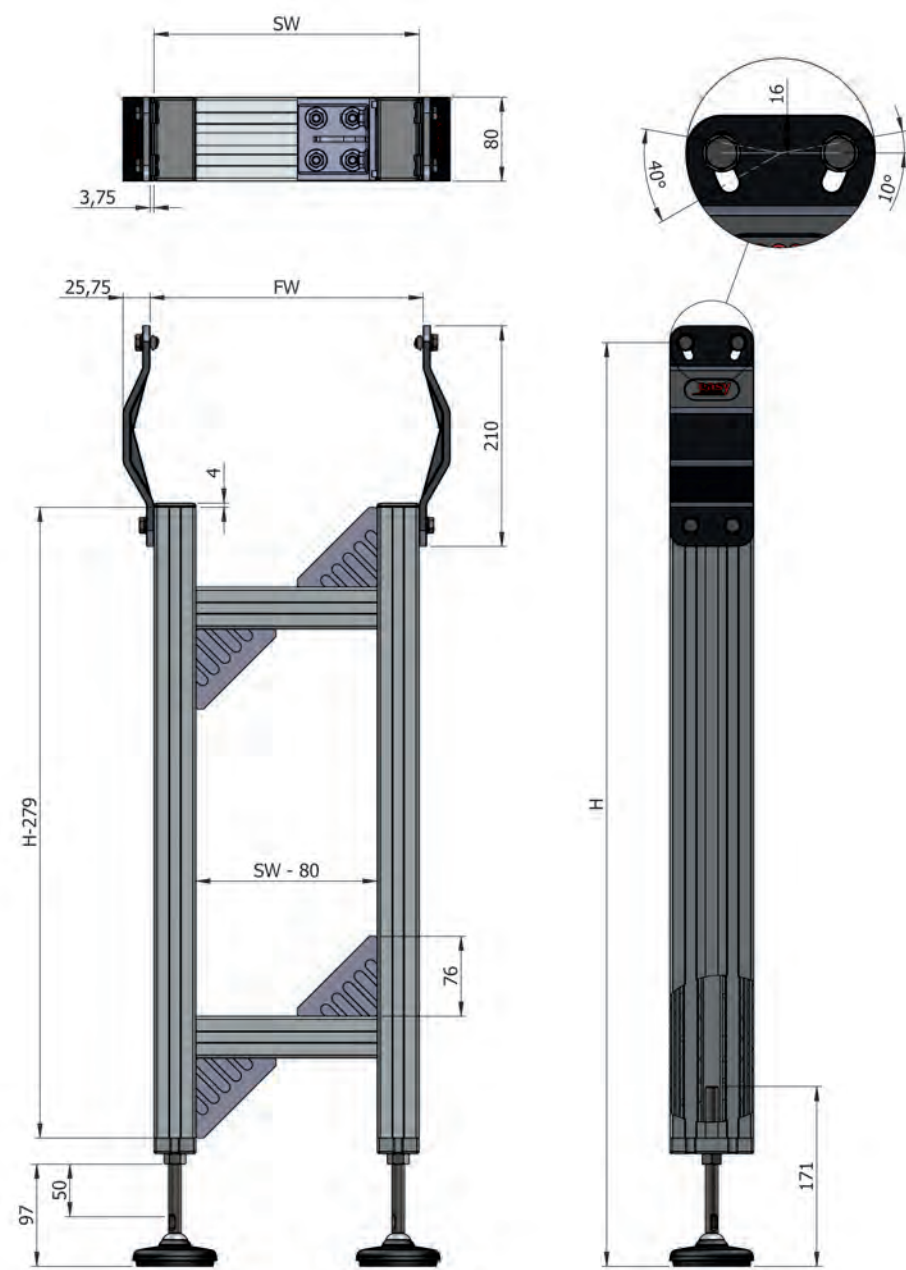
Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	232 mm	9,13" inch
We advise a maximum (FW) than 400 mm, Wir empfehlen eine maximale Breite von 400 mm		
Se aconseja un máximo de ancho de 400 mm, Nous vous conseillons une gamme maximale de 400 mm		
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040808020000	L support bracket	PA FG 1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2	Material	
020102070008	Profile 40x80L, L= 6070 mm	AL 1
Art Nr. Pos 3	Material	
020102070009	Profile 80x80L, L= 6070 mm	AL 1
Art Nr. Pos 4	Material	
ETS040808040000	Support base	AL RAL9005 1
Art Nr. Pos 5	Material	
020102160001	Bracket 80x80	AL 1 piece, incl. fasteners
Art Nr. Pos 6	Material	
020102140000	CAP 40x80	PA FG 10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	156 mm	6,14" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

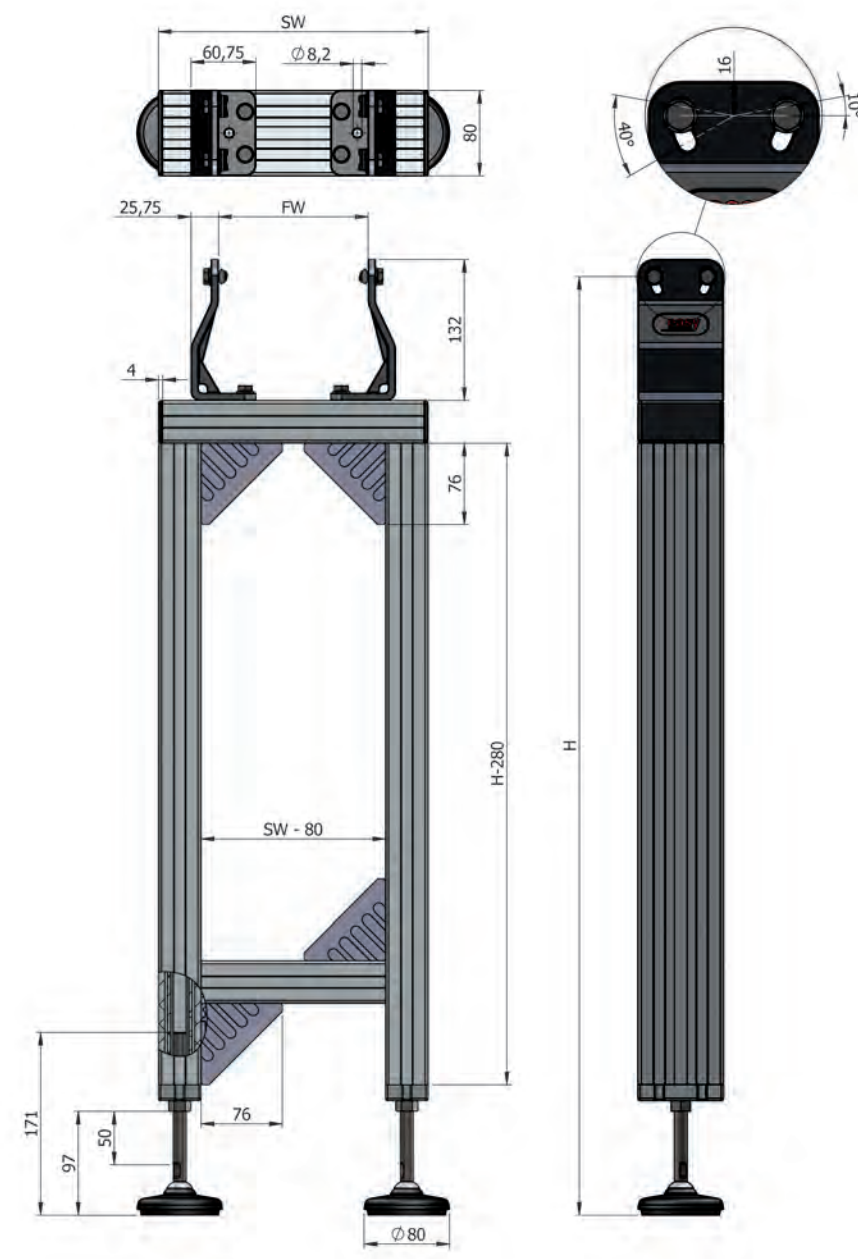
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 I support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Foot plate 40x80L
- 5 Hinged feet Ø80
- 6 Hexagon nut
- 7 Bracket 80
- 8 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808030000 I support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 4	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 5	Material	
040707020003 Hinged feet Ø80	Screw jack: Stainless steel, Foot: Synthetic plastic	1
Art Nr. Pos 6	Material	
BV093412000A2 Hexagon nut	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	100
Art Nr. Pos 7	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners
Art Nr. Pos 8	Material	
020102140000 Cap 40x80	PA FG	10

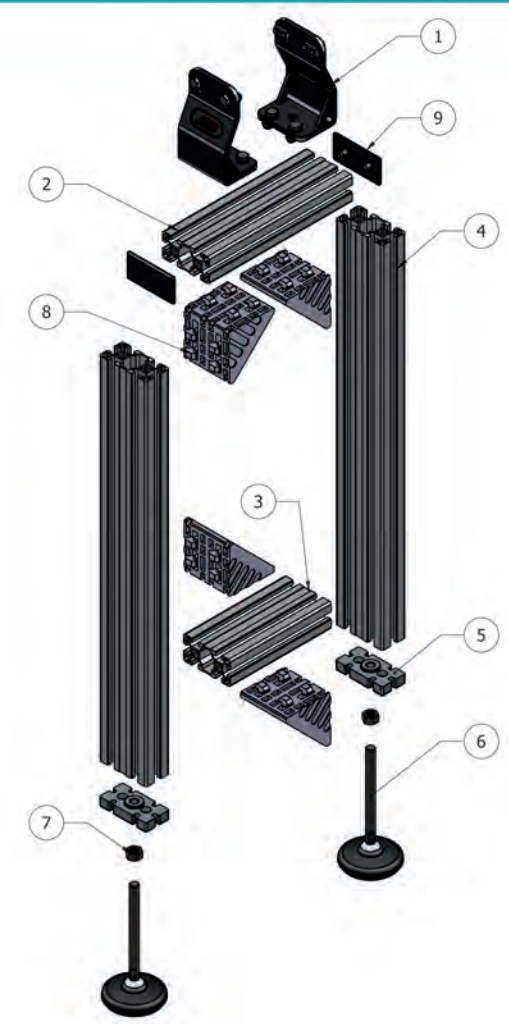
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	232 mm	9,13" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 L support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Profile 40x80L
- 5 Foot plate 40x80
- 6 Hinged feet Ø80
- 7 Hexagon nut
- 8 Bracket 80
- 9 Cap 40x80

Art Nr. Pos	Material	
ETS040808020000	L support bracket	PA FG 1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3 + 4	Material	
020102070008	Profile 40x80L, L= 6070 mm	AL 1
Art Nr. Pos 5	Material	
020102150000	Foot plate 40x80L	AL 1 piece, incl. fasteners
Art Nr. Pos 6	Material	
040707020003	Hinged feet Ø80	PA FG + stainless steel, PA + edelstahl 1 PA Acier inoxydable, PA + acevo inoxidable
Art Nr. Pos 7	Material	
BV093412000A2	Hexagon nut	Stainless steel 100
Art Nr. Pos 8	Material	
020102160001	Bracket 80	AL 1 piece, incl. fasteners
Art Nr. Pos 9	Material	
020102140000	Cap 40x80	PA FG 10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 L-Bracket support
- 2 Welded round tube
- 3 Support base; bipod
- 4 Connection joint

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW = minimum	230 mm	9,06" inch
H =	1200 mm	47,25" inch
Always fasten the hinged feet to the floor		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040908020000	PA FG	1 set of 2 pieces, incl. fasteners

Art Nr. Pos 2	Material	
020102070005 48,3X1,6, L=6Mtr	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	1

Art Nr. Pos 3	Material	
ETS040908040001	PA FG	1 piece, incl. fasteners & hinged feet

Art Nr. Pos 4	Material	
ETS040907040002 Connection joint $\phi 48,3$	PA FG	1 piece, incl. fasteners

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



EMBS
SYSTEM

Mat Top Conveyor
Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

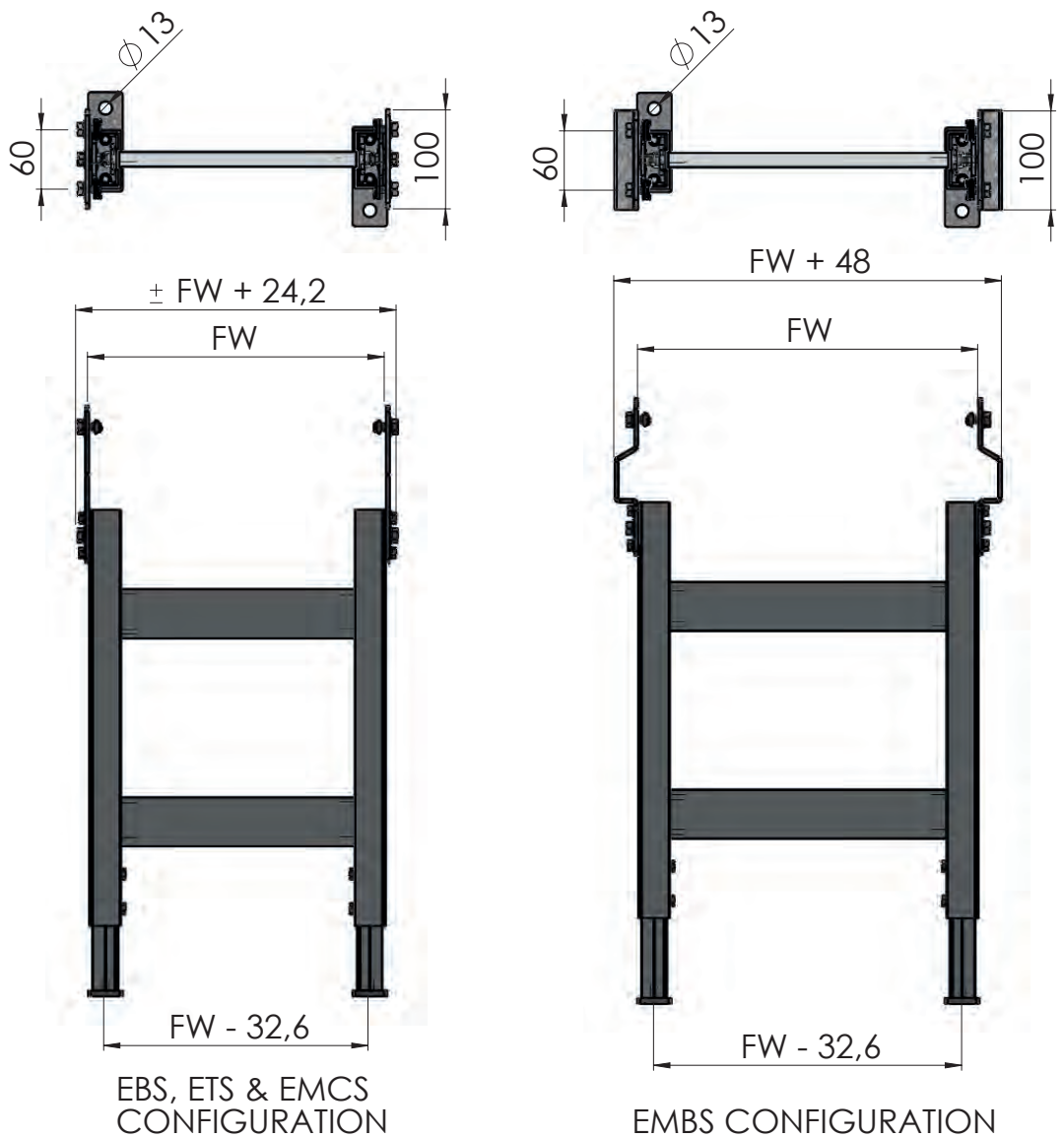
LEG SUPPORT

EBS, EMBS, ETS AND EMCS
IN HEIGHT ADJUSTABLE



easy
...CONVEYORS

www.easy-conveyors.com



More technical information: See engineering online www.easy-conveyors.com

TECHNICAL DATA

General technical data

Max. load capacity	200 kg
Min. Adjustable Height	±325 mm
Max. Adjustable Height	±2500 mm
Number of cross members	Type 01 & 02 – 1 piece
	Type 03 & 04 – 2 pieces
	Type 05 – 3 pieces

Side Profile

Suitable side profile material	Aluminium
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Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Type selection

Type	Conveyor System				
	EBS 40	EBS 80	ETS	EMBS	EMCS
	Adjustable Height [mm]*				
01.	325 – 400	325 – 440	355 – 430	360 – 435	335 – 470
02.	395 – 540	435 – 580	425 – 570	430 – 575	465 – 610
03.	535 – 820	575 – 860	565 – 850	570 – 855	605 – 890
04.	815 – 1380	855 – 1420	845 – 1410	850 – 1415	885 – 1450
05.	1375 – 2500	1415 – 2540	1405 – 2530	1410 – 2535	1445 – 2570

General Support Stand CONFIGURATOR

Please create the reference number with the following configurator.

1 TYPE GSS

2 Conveyor System EBS 40 | EBS 80 | ETS | EMBS | EMCS

3 System Width Enter Conveyor System Width Standard:

EBS 40	EBS 80	ETS	EMBS	EMCS
100	200	80	255	170
200	400	140	340	255
300	600	200	425	340
400	800		510	425
500	1000			510
600	1200			680
				850

Special: On request

4 Height 01 | 02 | 03 | 04 | 05

1 2 3 4
GSS - - -

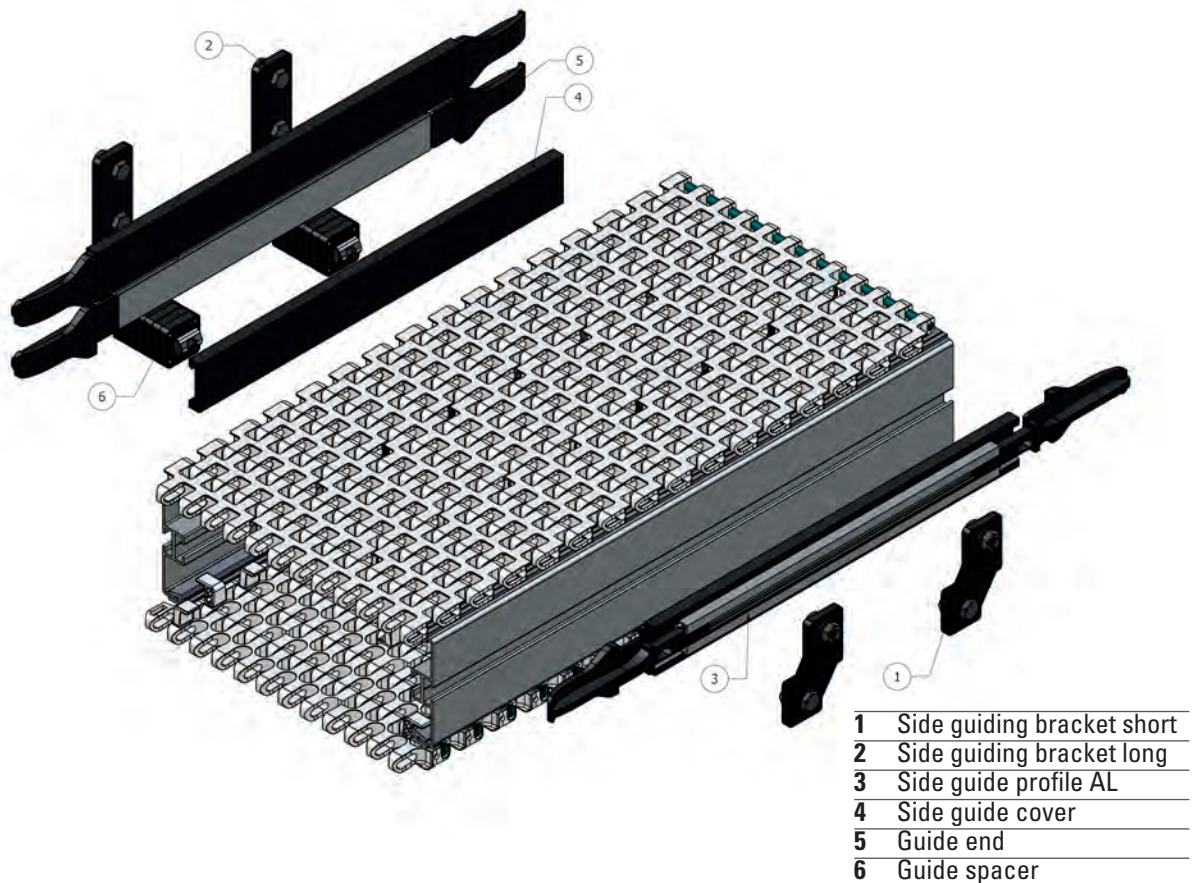
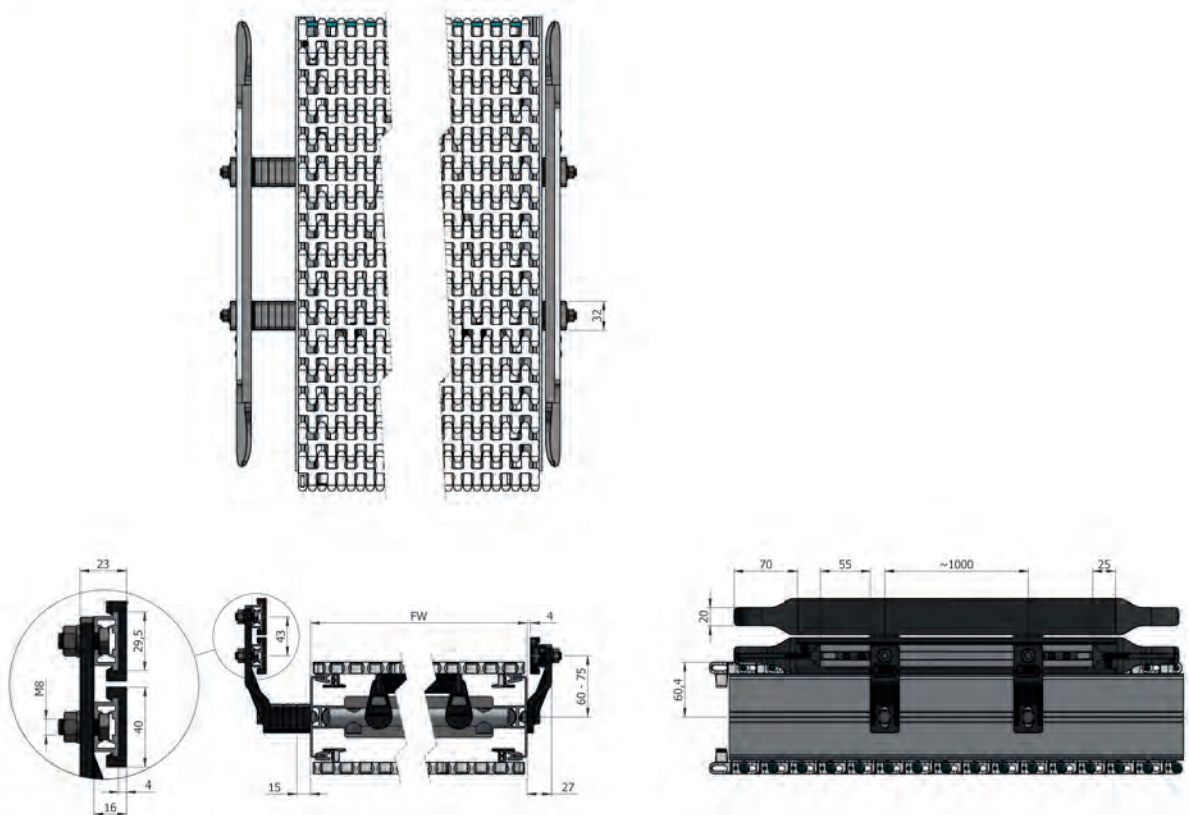
ORDER EXAMPLE

Example for a reference number:
GSS – ETS – 140 – 03

This reference number stand for a General Support Stand with the clearance for an ETS 140 conveyor type with an adjustable top of belt height between 565 mm and 850 mm.

Note:

1. Longitudinal or diagonal cross members are not included.
2. Dependable on conveyor speed, load, start/stops, etc. additional cross members noted under '1.' are not included.



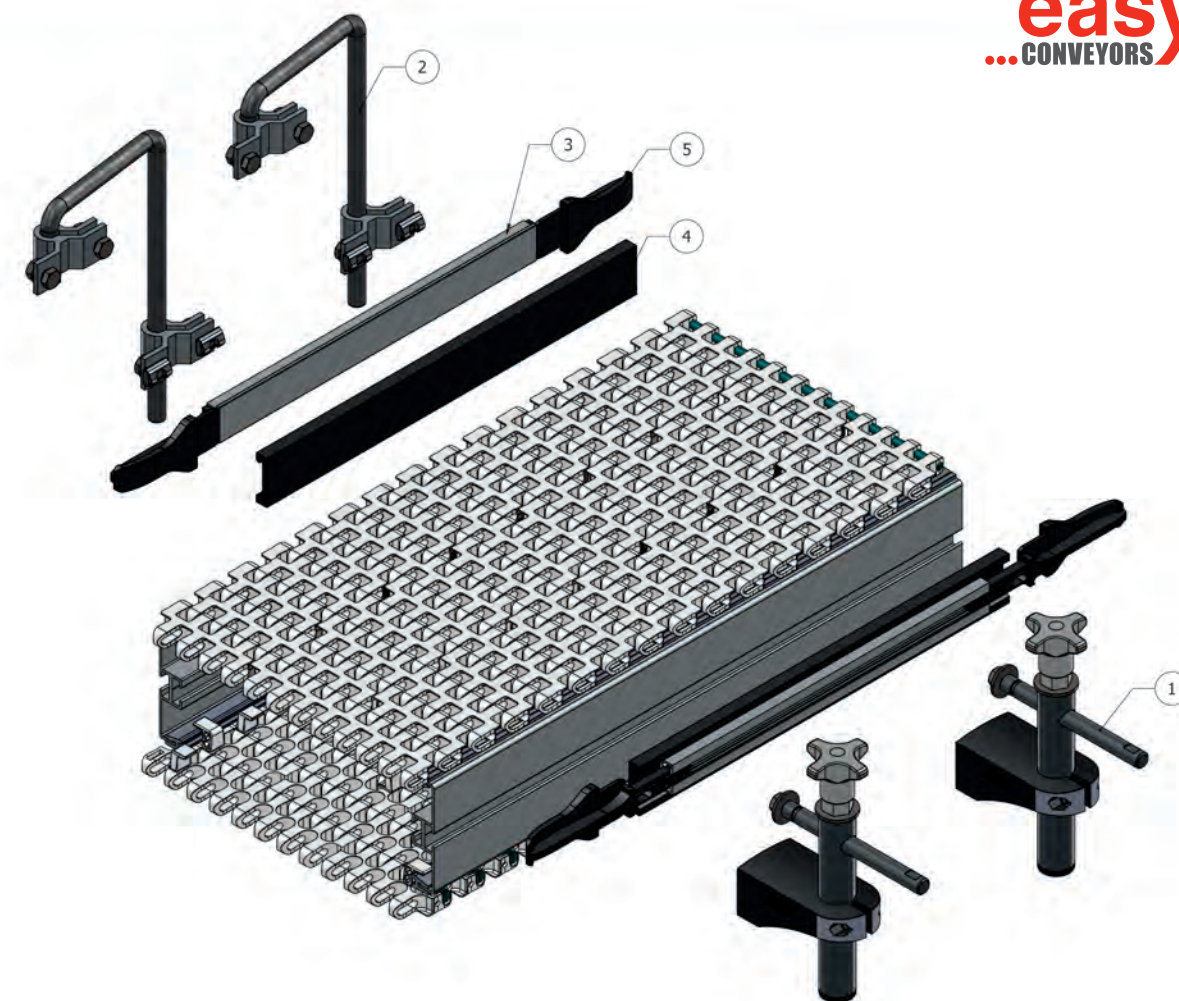
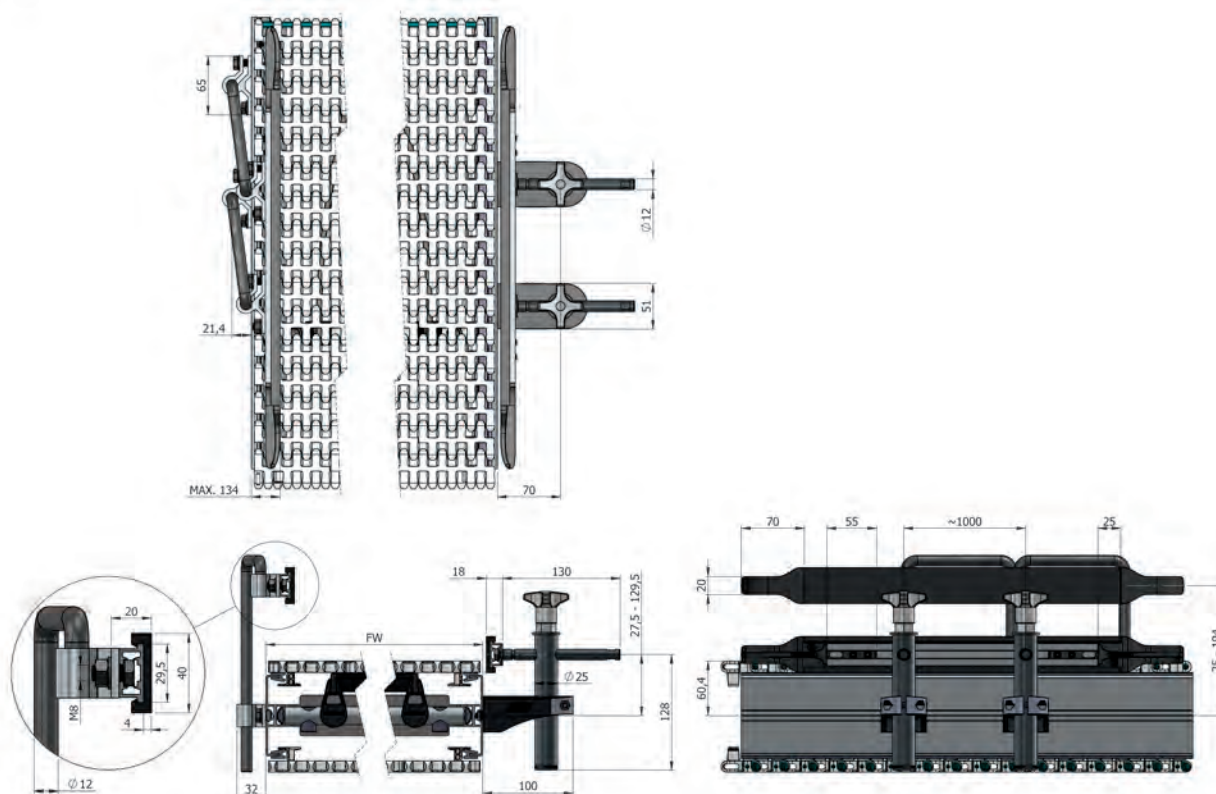
Art Nr. Pos 1	Material	
ETS040809010000	Side guiding short	PA FG 1 piece, incl. fasteners
Art Nr. Pos 2	Material	
ETS040809020000	Side guiding long	PA FG 1 piece, incl. fasteners
Art Nr. Pos 3	Material	
ETS040809000000	Side guide profile AL	AL 1 piece; L=5.6mtr
Art Nr. Pos 4	Material	
ECP040103000000	Side guiding cover	PE 1 piece; l=3mtr
Art Nr. Pos 5	Material	
ETS040809050000	Guide end 40	PA FG 1 set of pieces, incl. fasteners
Art Nr. Pos 6	Material	
ETS040809040000	Guide spacer	PA FG 10

More technical information: See engineering online www.easy-conveyors.com






Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



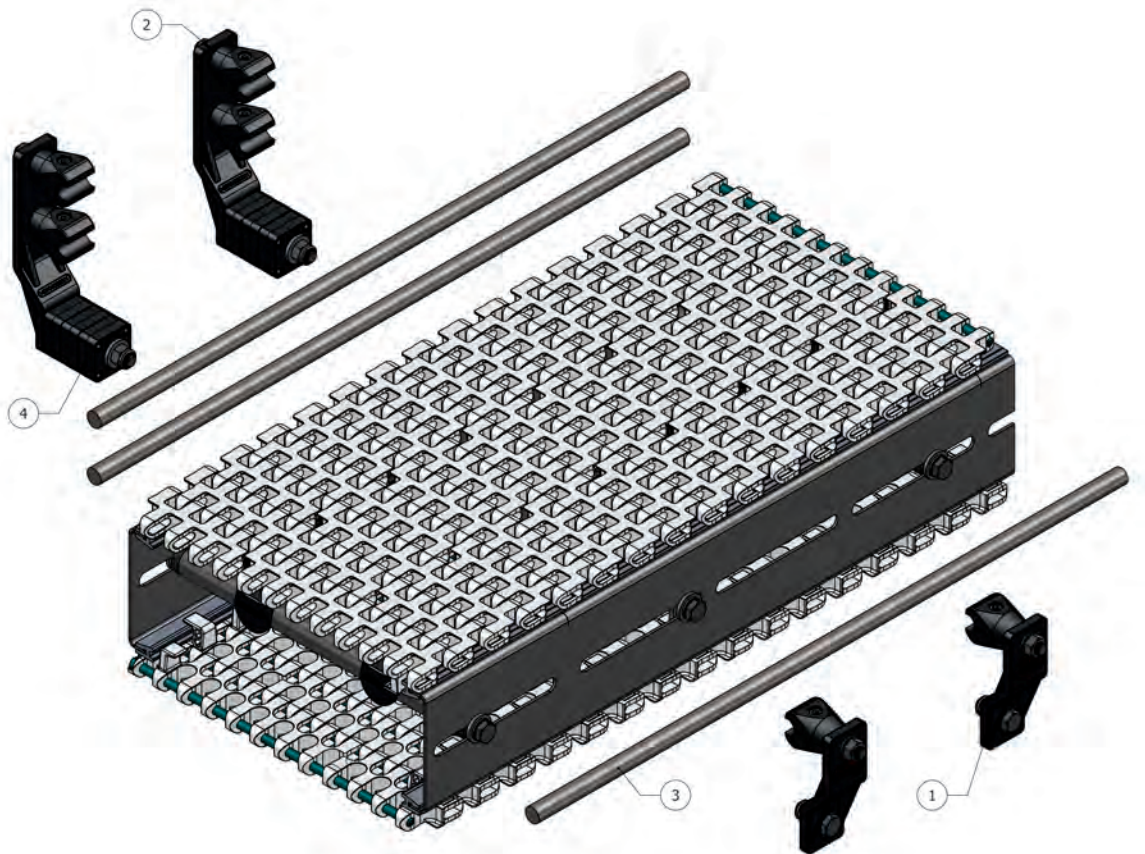
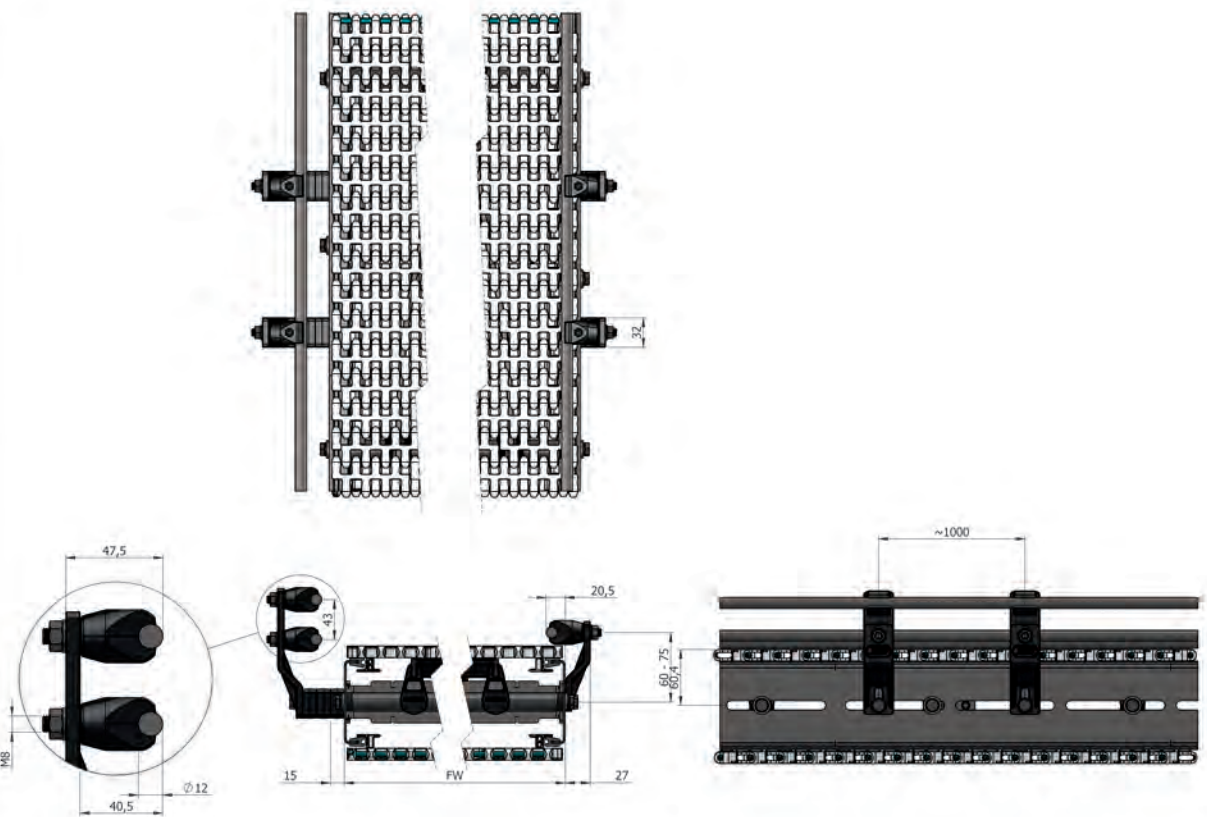
- | | |
|---|-----------------------|
| 1 | Adjustable side guide |
| 2 | Adjustable side guide |
| 3 | Side guide profile |
| 4 | Side guide cover |
| 5 | Guide end |

Art Nr. Pos 1	Material
ETS040809030000 Side guide	PA FG + stainless steel, PA + edelstahl  1 piece, incl. fasteners PA Acier inoxyable, PA + acevo inoxidable
Art Nr. Pos 2	Material
ERA040409010000 Side guide	AL + steel galvanised, AL + stahl verzinkt  1 piece, incl. fasteners AL + Acier galvanisé, AL + Acero galvanizado
Art Nr. Pos 3	Material
ETS040809000000 Side guiding profile	AL  1 piece; L=5.6mtr
Art Nr. Pos 4	Material
ECP040103000000 Side guide cover	PE  1 piece; l=3mtr
Art Nr. Pos 5	Material
ETS040809050000 Guide end 40	PA FG  1 set of pieces, incl. fasteners

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Side guiding short
- 2 Side guiding long
- 3 Side guide profile Ø12
- 4 Guide spacer

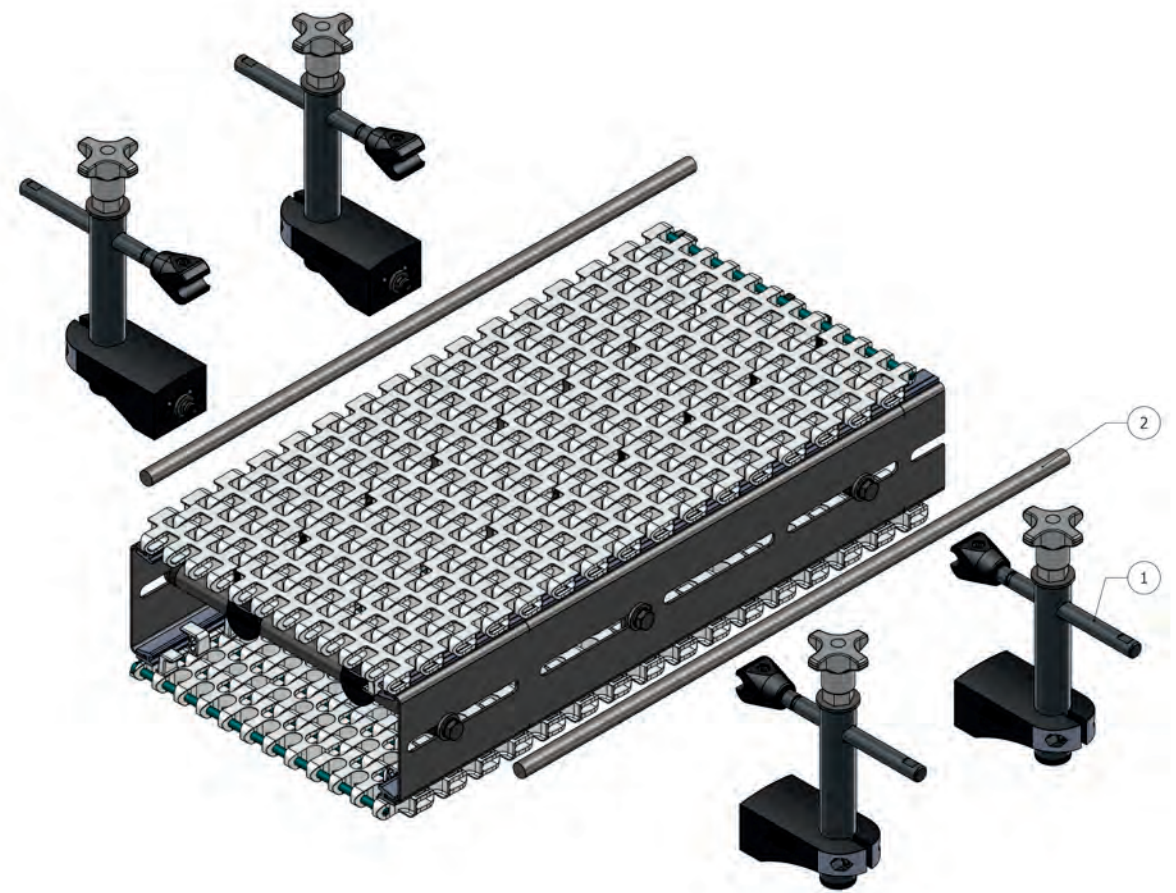
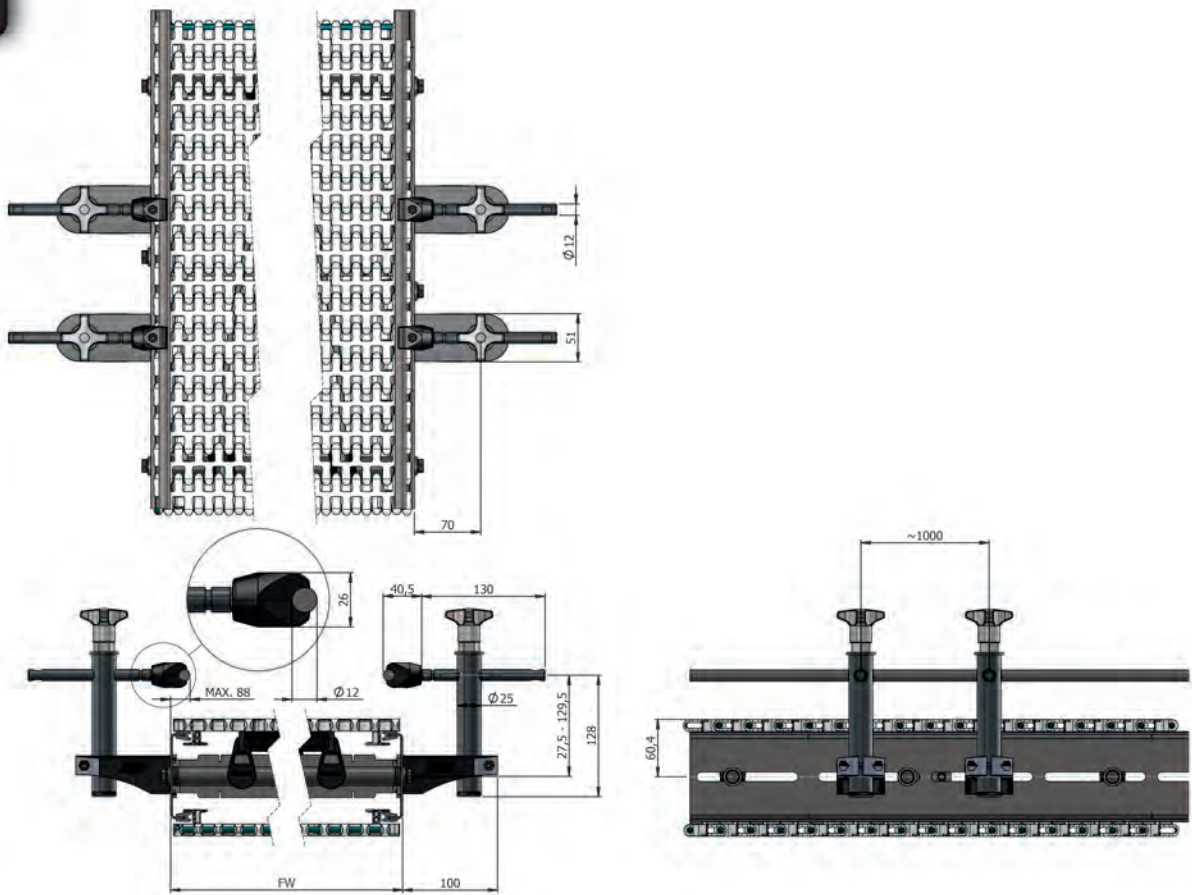
Art Nr. Pos 1		Material	
ETS040909010000 Short version		PA FG	1 piece, incl. fasteners
Art Nr. Pos 2		Material	
ETS040909020000 Long version		PA FG	1 piece, incl. fasteners
Art Nr. Pos 3		Material	
ETS040909000000 Ø12		Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	1 piece; L=3meter
Art Nr. Pos 4		Material	
ETS040809040000 Spacer		PA FG	10
Art Nr. Pos 5		Material	
ETS040809050000 Guide end 40		PA FG	1 set of pieces, incl. fasteners

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Side guiding
- 2 Guide profile

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material
ETS040909030000 Adjustable	Bracket: PA FG, knob: PA FG / NPB 1 piece, incl. fasteners Tube/shaft: Stainless steel, Finishing cap: LDPE

Art Nr. Pos 2	Material
ETS040909000000 Ø12	Stainless steel, Edelstahl, 1 piece, L=3mtr Acier inoxydable, Acero inoxidable

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



Quality and Service

When you are looking for a quality conveyor component, look at Easy Conveyors. We put our Leadership on the line for you. Our complete range of products combines stainless steel, carbon steel, aluminum and engineered plastics to achieve reliability, superior performance and a compact of design. We hope you will now take a moment to look through this comprehensive manual. Then, when you are ready to discuss your needs with the nearest Easy Conveyors representative, please consult the back cover of this catalog for further details about our sales network. We are able and eager to assist you setting up a smooth running line. The components you want, when and how you want them. Easy Conveyors is ready and able to satisfy your needs with quick answers and delivery of standard or custom made products. Our customers around the world know that the shortest distance between a problem and its solution is to call us: innovations, research, engineering and production are always under a strict control to improve our service and products.

Technical manual for the EMBS conveyor systems

This technical manual has been developed to assist you with specific engineering information when a new conveyor is designed as well as when an existing conveyor is going to be modified. Terms like TPM (Total Productive Maintenance) and SMED (Single Minute Exchange of Dies) are getting more and more important. With the right choice of chains and components you can design your conveyors to meet these principles. A large part of our program suits these principles. With this manual we intend to create some "CONVEYOR AWARENESS". As you will notice, most attention will be given to the construction details for the modular belt or chain, because this is the 'moving part' in a conveyor and therefore more critical when it comes to construction details. We also emphasize on guides as together with the belts, these are in direct contact with the customer's product and therefore of utmost importance. The right choice of type, style of the side guides can make the difference between a medium and a high production efficiency of a filling line.

For additional data and information about technical details of our products please refer to:

- Conveyor Belts catalogue
- Conveyor Roller catalogue
- Conveyor Chain catalogue
- Conveyor Support catalogue
- Conveyor Side guiding catalogue

Contact us To contact your local Technical Support check our website www.easy-conveyors.com or send an email to: support@easy-conveyors.com We cannot take responsibility for imperfections, damage or injuries due to wrong conveyor design, poor installation or improper use of our products made with or without reference to the information in this manual. We appreciate your suggestions to improve this Engineering Manual.

Selecting the size

A product's center of gravity, its inherent stability and its contours determine whether it is suited for transport on a mat top, table top, belt or roller conveyor system. The size of the conveyor system is selected according to the conveyed products, dimensions and weight. The maximum product width depends on its shape and the position of its center of gravity.

EMBS designs

The EMBS & ETS version in aluminum is an economic solution for many transport tasks. Open profiles prevent large amounts of contaminants from accumulating in the system and are especially easy to clean. The stainless steel version is used in areas that require wet cleaning or the use of acidic or alkaline cleaning agents to comply with stringent hygiene rules, as for primary packaging in the food industry.

Notes for system layout

- Using a capture drive is related to short lightly loaded conveyor systems. This type of construction means the belt is tightened and tensioned by adjustment at one or both shafts. This conveyor system can be used in a reversing operation. It is important to be aware of temperature fluctuations when using this type of construction. In the event of low temperatures, the belt will contract significantly. At high temperatures the belt will expand, which could result in poor or even complete lack of engagement from the sprockets on the drive wheels.
- Using "sag" modules relates to longer and more heavily loaded conveyor systems. The first "sag" module must be placed after the drive unit. This ensures continuous positive engagement from the sprockets on the drive wheel. Another advantage is that it is possible to accommodate any belt contraction/expansion.
- Using a center drive is similar to the conveyor system with the "sag" modules. The only exception is that it can be used in a reversing operation. However, it cannot handle the same heavy loads!
- There is a limit on the maximum weight of the transported product and the maximum length of the conveyors due to the permissible belt tensile force.
- Belt width from > 340 must have an additional support profile for section loads >10kg/m
- The maximum width of a transported product depends on the position of its center of mass and the lateral guides.
- When using a conveyor with cleats for vertical transport, the maximum weight of a single product is limited by the strength of the cleats.
- Accumulation operation is not possible with static friction belt or cleated belt.
- Pay attention that the slide rails and section profiles are clean when assembling the system. Metal shavings or dust are highly abrasive and cause an extreme amount of wear!
- Avoid accumulation before and in the curves.
- Accumulation must never occur at the drive wheels.
- Depending on the system's construction and the product being conveyed, certain places pose a risk of pinching / crushing. Appropriate safety devices must be provided in the operating area, as required. Also observe the notes in the assembly instructions which can be found in the download section at <http://www.easy-conveyors.com>
- Avoid conveying materials with a temperature higher than 60°C
- When placing or removing links it's critical that the sequence of tabs will be followed. So make sure that tabs are not behind or further away from each other.
- The maximum pulling force of the EMBS belt on the straight is 30,000 N / m (this is Newton per meter width of the belt) and in the curves 2500N. The pulling force in the curve is independent of the width, because here in particular the outer hinges have to handle the tension. In practice this means that the curve is the critical part when it comes to force. It also means that after the curve a pretty long straight section can be built without having to much force on out belt. A curve can better be close to the return unit then near to the drive unit. If there is an option, you can take this to consideration.

**Conveyor length**

Conveyor length depends on

- Chain/belt type
- Lubrication
- Product
- Load
- Etc.

Operating temperatures

Dry : -40°C to + 80°C

wet : 0°C to + 65°

Type	Max. advisable length [m]
Plastic chains, side flexing	22 - 30mtr

These are indicative figures. In any case it is recommended to double check the conveyor length by calculating the resulting chain pull.

A phenomenon called slip stick effect occurs unpredictably. It depends on speed, load, construction and lubrication. Pulsating dynamic forces are the result and affect the service life of all components of a conveyor. More importantly it influences product handling in a negative way. Long conveyors should be avoided in such cases.

Long conveyors result in high chain load, which affects many components of the conveyor and their wear life.

Conveyor speed

Maximum speed in m/min

Type	Dry	Water	Water & Soap
Plastic chains, side flexing	45	80	115

Under abrasive or high load conditions the maximum speed is reduced. Higher speed causes higher wear in any case. For higher wear resistant materials contact our technical support.

Sprocket position for belts

Nominal belt width	Recommended number of sprockets/ idler wheels
255	3
340	4
425	5
510	6

Fix only one sprocket (centre sprocket), if the belt is running without positioners or any other lateral guide.

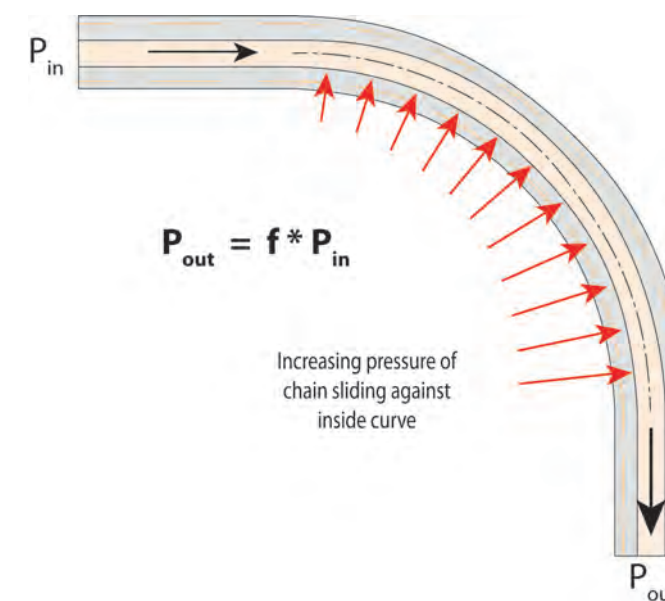
Curve systems

A chain has to be kept in a curve to avoid the chain to jump up from the curve.

Especially with instable products and a multiple strand situation The Tab has a disadvantage: the link is lifting somewhat in the curve creating a 'step' between the individual strands:

Load on curves

When designing a layout, the curves tend to be the limiting factor. The curve adds significantly to the chain pull. The chain pull at the end of the curve is the curve factor times the chain pull at the beginning of the curve. The curve factor 'f' is depending on the angle of the curve and the friction between chain and curve (for further calculations we refer to our calculation program):

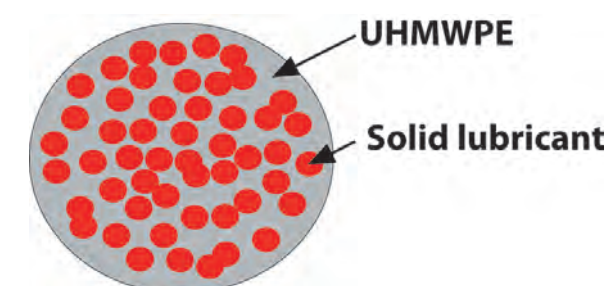


Because of this curve factor it's generally better to position a curve close to the idler end rather than close to the drive end. Then the curve adds relatively less chain pull.

In general we recommend to keep the total curve angle in a conveyor below 180°.

The pressure on the inside of the curve increases through the curve and together with the speed of the chain it generates heat. The maximum allowable Pressure and Velocity (speed) together is called PV limit. This is an important factor next to the max allowable chain pull. The generated heat will warm up the curve material and when it gets too warm, it will become softer and wears out fast.

To maximize the PV limit, Easy Conveyors uses a special material:

TCS:

- TCS is a unique compound of UHMWPE and a solid lubricant.
- TCS drastically reduces the coefficient of friction whilst maintaining the characteristics of UHMWPE.
- TCS also has a better thermal conductivity compared to UHMWPE.

WEAR STRIPS**Construction:**

There are different ways of supporting a chain or belt with wear strips:

- Parallel support => this way is as default for our systems;
- Heavy duty support => in case of heavy load and/or high impact;

Make sure the wear strip is chamfered at the entry side and that there's enough space between the lengths of wear strip to absorb thermal expansion:

Thermal expansion TCP: 10-15 mm/m +10 °C (K)

Thermal expansion TCS: 0.10-0.15 mm/m / °C

Heavy duty support: In case of heavy loads or high impact, it's advisable to support the belt. Bear in mind that a heavy duty support can also easily collect dust and dirt. Make sure abrasives can leave the system.

Selection of wear strip material:

Wear strip material	Plastic chains & belts	
	Dry	Lubricated
TCS	recommended	possible
TCP	possible	possible

Temperature limits of wear strip materials must be considered.

TCS

- UHMWPE with built in dry lubricant
- Offers even lower coefficient of friction and less noise emission than standard UHMWPE
- Basic material properties are similar to UHMWPE

TCP

- To be used in slightly abrasive conditions
- Absorption of humidity to be considered

APPLICATIONS**Static electricity**

Anti Static (AS) chain and belt material has the following properties: Surface resistivity: $10^5 \Omega/\text{sq}$ (According to IEC60093 test method) Volume resistivity: $10^3 \Omega\text{m}$

In order to avoid sparks:

- It must be assured on site that the electric charge is dissipated to the ground.
- Wear strips must be conductive and grounded.
- Sprockets and idler wheels must be conductive and grounded.

For further information regarding use of our AS chains in hazardous areas please contact our Technical Support.

Noise reduction

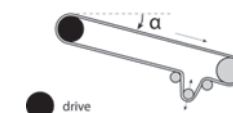
- Use plastic chains/belts instead of steel chains.
- When designing a layout use multiple strand or wider belt running at a lower speed rather than single strand or narrow belt running at higher speed.
- Avoid chain/belt colliding with conveyor parts.
- Reduce speed differentials and thus product impact.
- Adjust sprockets/idlers according to our recommendation in the catalogue
- Use materials with optimized sliding properties (e.g. TCS wear strips, product guides and curves).
- Apply lubrication.

Inclined and declined conveyors

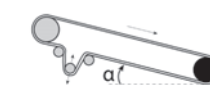
Maximum angles to avoid product sliding down on the chain

Chain type	Lubricated	Dry
Plastic chains/belt	2.5°	4.5°
Rubber top chains plastic	12 / 15°	15 / 20°

Pollution on the chain as well as on the product surface influences the maximum angles negatively.

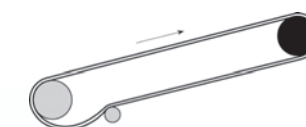
Declines:

$\tan(\alpha) > \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.



$\tan(\alpha) < \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.

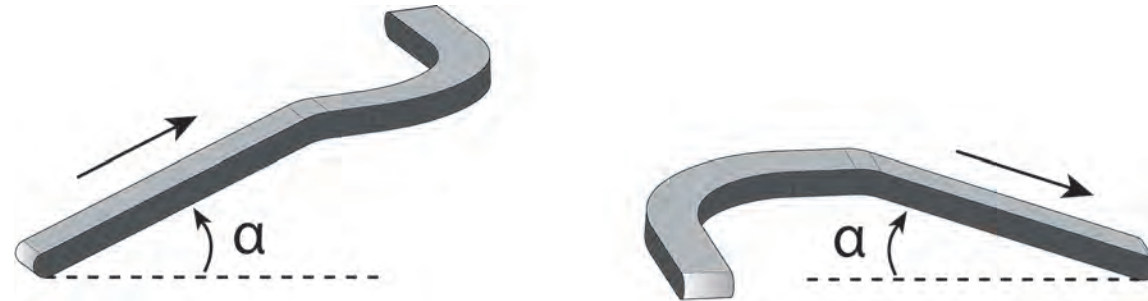
Dynamic tensioner is in both cases recommended.

Inclines:

Drive is normally located at the upper end. Soft start/stop is recommended.

Curve construction in combination with inclines/declines:

EMBS Side flexing chain can be used in inclined/declined conveyors only under the following restrictions:



Incline is possible
before curve

Incline is possible
after curve

Otherwise the chain could be lifted out.

Accumulation

Accumulation of products results in increased load on the chain as well as in increased wear on chain/belt and product.

Cleaning:

The cleaning regime needs to be re-evaluated when going away from wet lubrication because:

- Wet lubricant has also cleaning effect
- More dedicated cleaning is required f.e. where product loss occurred

Product quality:

The type and quality of the material has an influence on the behavior on the conveyors like:

- Quality of PET
- Quality of Cans
- Quality of Glass

- Raw material	- Steel/ aluminum	- Raw material; origin
- Colorants	- Painted or varnished	- New or returnable
- Blockers	- Design	- Design
- Other additives	- Material thickness	- Surface finish of bottle
- Design/ settings of machine		

Process:

When designing a layout please bear in mind that the line is going to run without wet lubrication. Think about:

- Wider conveyors -> slower speed
- Longer inliners/outliners
- Shorter buffer sections [?] Back Line Pressure
- Optimized line controls
- Larger radius curves

Mechanical:

Some small mechanical issues on conveyors that seem not to create problems need to be addressed when going away from wet lubrication. Make sure that the chains/belts are running completely free (without obstruction). Some points of attention:

- TCS wear strips and curves with built-in lubricant can replace the wet lubrication to a certain extent.
- Perfect alignment of different sections.
- Smooth transfers of wear strips.
- Stable and straight side guides at right position.
- Positioning of sprockets and idlers.
- Smooth transfer straight into curve.

Factor H:

The most important factor is the Human Factor: the people that are dealing with the line.

- How do the local people deal with the line?
- Who's responsible?
- How are the contracts made?
- 'Mind set' change when reducing lubrication!
- Never mix products! -> f.e. teflon spray in combination with dry lubricant creates high friction

So, is Dry Lubricant a good idea?

- Yes, in a good number of cases it brings interesting advantages.
- But be aware of the down side to get the full benefit!

Completely dry may be better?

- In certain areas of the bottling line and certain products: yes
- Depalletiser + outfeed conveyors
- Labeling, coding and packaging areas
- Cans and PET and even glass
- Beware of abrasives & chemicals

**EMBS Calculation information:**

Easy Modular Belt is a used design to convey packs and boxes. In most applications the load on the belt can be relatively high because:

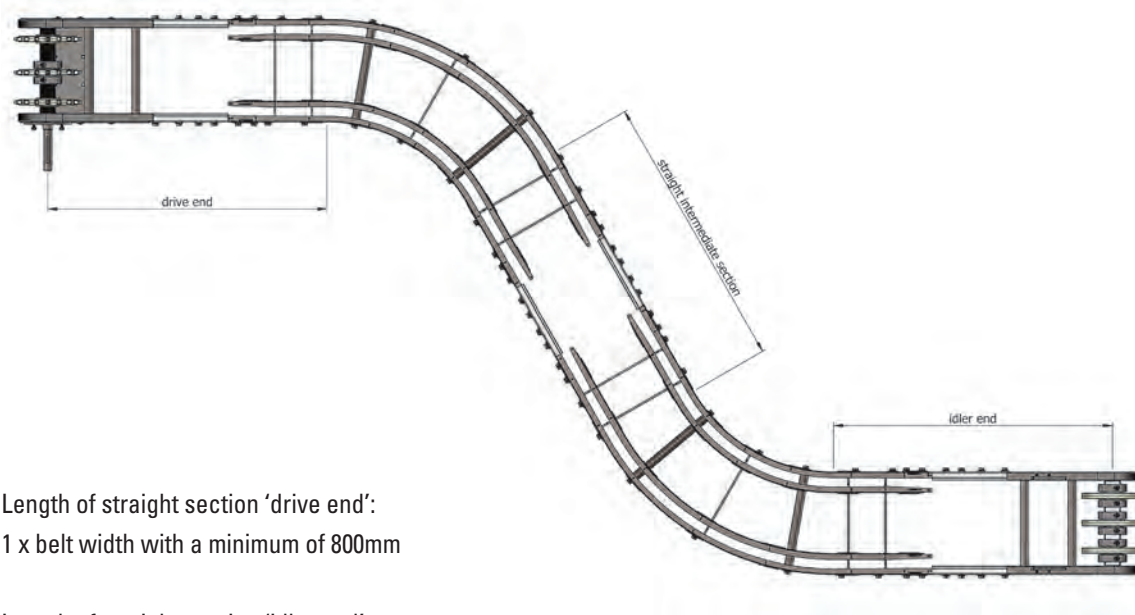
- The products are heavy
- There is usually no lubrication
- Many times the belts has to make a 180° turn
- In the curve there is only a limited part of the belt (only the outer part) that is pulling.

Therefore it is very important that every application of a side flexing belt is calculated prior to fixing the final layout of the line. Our Technical Support department will be glad to assist you with the calculations.

Conveyor layout:

When you are implementing a conveyor with a side flexing belt in a layout, there are several things to consider. If possible we recommend positioning the curve close to the idler end rather than close to the drive side. This will reduce the forces on the belt in the curve. Once the belt is on the straight section between the last curve and the drive end, there usually is no problem to add some length to the conveyor. On the straight section the strength of the belt is quite high.

We have some recommendations regarding the minimum straight section before, after and in between curves. See following illustration.



Length of straight section 'drive end':
1 x belt width with a minimum of 800mm

Length of straight section 'idler end':
1 x belt width with a minimum of 500mm

Length of straight intermediate section for S-curves: Minimum 1.5 x belt width

Sprocket positions and supporting wheels:

Since these belts are not symmetrical to the middle axis, please note that the precise sprocket position also depends on the running direction of the belt. The right position for both directions is given in the sketches below.

Note: Precise position of the sprockets must be determined during the installation to obtain optimum alignment.

EMBS series:

Example 255 mm wide:

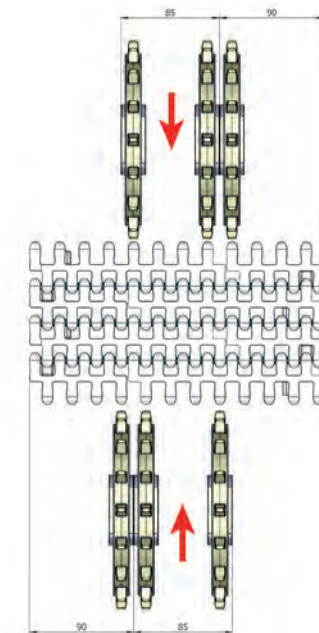
3 sprockets

Centre distance 85

First sprocket located at 80/90 mm from the edge.

Sprockets can be located over the whole width of the belt between the TABs.

↓↑ Indicates running direction.



Recommended number of sprockets and idler wheels, summary:

EMBS	
255	3
340	4
425	5
510	6

Sprocket engagement and installation:

Sprockets engage on the curved end of the hinges. The teeth of the sprocket must push behind the connecting pin of the chain (see picture). That is important for the installation of sprockets.

**Fixed and floating sprockets:**

It is recommended to fix the sprocket which is located closest to the outside track of the curving belt. The other sprockets can be floating.

Product handling Forces due to acceleration:

The force necessary to accelerate the chain and products is calculated by:

$$F = M * a$$

F = force in [N]

M = mass of chain and product in [kg]

a = acceleration in [m/s²]

This extra force is working not only on the chain but also on the bearings, the drive unit and the structure. Frequent start-stops create an extra fatigue load on the chain and thus shorten the life time of the chain. In the calculation there's a factor included depending on number of start-stops per hour. Soft starts or frequency controllers are always advisable. Not only for the life time of the chain but also for smoother product handling and avoiding problems at start-up with products particularly unstable.

Maximum acceleration:

The max acceleration force on a product to be able to 'take along' the product with the chain is depending on the friction between product and chain. Maximum acceleration a_{max} can be calculated with:

$$a_{max} = \frac{F_{max}}{M} = \frac{W * \mu}{M} = \frac{M * g * \mu}{M} = g * \mu$$

W = weight of product in [N]

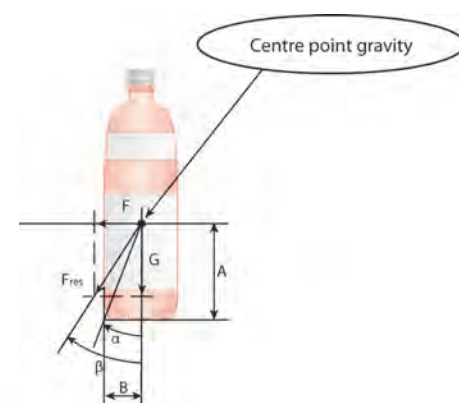
M = weight of product in [kg]

μ = coefficient of friction between chain and product

g = gravitational acceleration = 9.81 m/s²

Maximum force on products to avoid tip page:

The maximum acceleration without products falling over is depending on the shape (position of centre of gravity), the weight and the material of the product. This is for instance also important when the product is being conveyed onto a dead plate. See below sketch:



G = weight product

F = horizontal force on product

F_{res} = horizontal force on product

The force F is the force due to acceleration or deceleration of the product (F=M*a), or due to a different cause like other bottles or a side guide. The bottle will tip over when the angle β is larger than angle α. Angle α is determined by the diameter of the foot print of the product (B= ½ * diameter) and the height of the centre point of gravity (=A).

Angle β is determined by the horizontal force on the bottle (= F) relative to the weight of the bottle (= G).

The max force F is found by following formula:

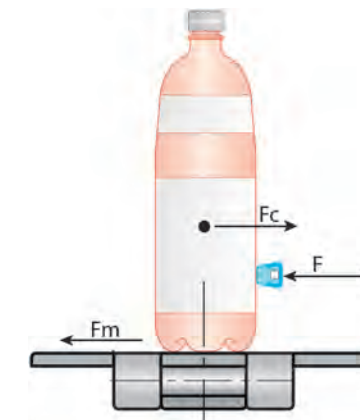
$$\frac{F_{max}}{G} = \frac{B}{A} \rightarrow F_{max} = G * \frac{B}{A} \quad \text{or} \quad \begin{array}{l} \mu < \frac{B}{A} \rightarrow \text{OK} \\ \mu > \frac{B}{A} \rightarrow \text{not OK} \end{array}$$

MSV= maximum speed variation

$$MSV = \sqrt{2 * g * (\sqrt{H^2 + B^2} - H)}$$

Centrifugal forces:

When a product is being conveyed through a curve there's a centrifugal force working on the product. This force on the product is compensated by the friction between chain and product and by a side guide.



The centrifugal force is calculated with:

$$F_c = \frac{M * v^2}{r}$$

M= weight of the product

v = speed

r = centre radius of the curve

Friction force between chain and product is calculated with:

$$F_m = M * g * \mu$$

g = gravitational acceleration

μ = coefficient of friction between chain and product.

The minimum force F that needs to be generated by the side guide is:

$$F = F_c - F_m = M * \left[\frac{v^2}{r} - g * \mu \right]$$

Pressure of accumulating products:

When a product is standing still (e.g. against a stopper or guide), the chain running underneath the product creates a force on the product equal to the weight of the product multiplied by the coefficient of friction between chain and product. Each following product is pushing with the same force against the next product, so the resulting force is proportional to the total weight of products upstream.

$$F_a = W_a * L_a * \mu$$

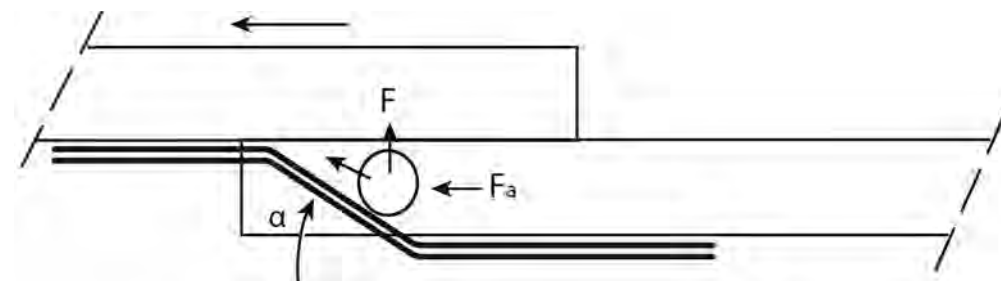
Fa = accumulation force

Wa = weight of the accumulating products in Kg/m.

La = length of accumulation in m

μ = coefficient of friction between chain and product.

Side transfer action:



Pushing the product sideward creates a force F on the product against the side guide

$$F = F_a * \sin(\alpha) = W_a * L_a * \mu * \sin(\alpha)$$

(see explanation of symbols above)

Nowadays cans and bottles are becoming thinner and thinner. At the same time more and more installations are running with less or no lubrication and are so increasing the coefficient of friction.

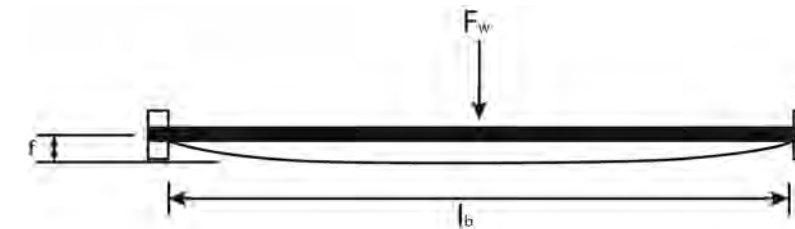
That's why it's important to take also these forces on the products into consideration. In the above mentioned formula the angle α plays an important role in a smooth transfer and reduced forces on the products. This angle should be kept as small as possible.

Shaft size:

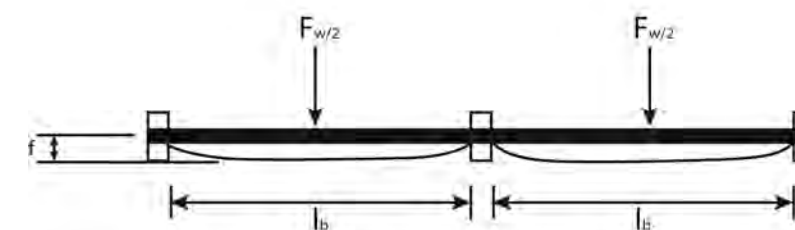
The shaft must fulfill the following conditions:

- max shaft deflection under full load (Fw). fmax is 2.5 mm. If the calculated shaft deflection exceeds this max value, select a bigger shaft size.
- Torque at max load must be below critical value

Shaft deflection can be calculated with following formula:



$$f = 0.013 * F_w * \frac{l_b^3}{E * I} \text{ [mm]}$$



$$f = \frac{1}{370} * F_w * \frac{l_b^3}{E * I} \text{ [mm]}$$

For uni-directional head drive Fw = Ts

For bi-directional centre drive Fw = 2 * Ts

For uni-directional pusher drives Fw = 2.2 * Ts

Shaft size [mm]	Inertia [mm4]
Ø20	7850
Ø25	19170

Shaft material	Modulus of elasticity E [N/mm2]	Shearing strenght [N/mm2]
Stainless steel (low strength)	195000	60

The torque on the shaft is calculated with:

$$T_{\max} = F_w \cdot \frac{d_p}{2} \cdot 10^{-3} \quad [\text{Nm}]$$

T_{\max} = maximum torque
 T_{adm} = admissible torque

$$T_{\text{adm}} = \eta_{\text{adm}} \cdot \frac{d_w^3}{5000} \quad [\text{Nm}]$$

η_{adm} = admissible shearing strength [N/mm²]

for max. admissible shearing strength see table below:

Maximum allowable torque	
Shaft diam. [mm]	Stainless steel [Nm]
Ø20	141
Ø25	276

Bearings:

Relubrication is depending on the operating conditions. Dust, load, humidity, temperature, vibrations: all affect the relubrication interval. Below table show indicative values for relubrication intervals. Please note that all our bearing are pre-greased in the factory. There is no need for immediate re-greasing. Furthermore, regreasing should be done in small amounts and with care.

Use conditions	Temperature	Re-lubrication period
Clean	up to 50°C	1-2 years
Clean	50 ÷ 70 °C	4 -8 months
Clean	70 ÷ 100 °C	1 - 3 months
Dirty	up to 70°C	2 - 8 week
Dirty	70 ÷ 100 °C	2 - 4 week
Humid + wet	-	1 - 2 week

Standard PIN Material

Special reinforced acetal resin.

Benefits:

- Suitable for metal detectors
- Easy disposal of chains after use

Plasticbeltmaterials

Low Friction Acetal Resin

This material is commonly used in the market and offers an improved co-efficient of friction. It is also suitable for use in high speed applications.

Color: White

This material is FDA (Food and Drug Administration) approved for direct contact with food.

Rubber materials

TPR

TPR is used for ETS chains and EMBS belts and for some gripper chains. TPR is a SEBS type rubber, which assures an optimum bonding on the plastic base material.

Storage of plastic chains and belts

- Materials of our plastic chains and belts offer best stability and resistance against environmental effects at appropriate storage:
 - in the original packaging,
 - without environmental radiation / UV light,
 - dry- in a non aggressive environment - a temperature between 5°C and 35°C

- First IN, First OUT.

We have applied that procedure in our logistic department.

We recommend this procedure to any external warehouse.

- Do not stack pallets or other heavy goods on top of chain packs. Chains inside the packs might get damaged.
- Do not stack chain packs higher than the original stacking height – as dispatched from our shipping department.

Coefficients of friction

Below listed coefficients can be used as a guideline. Dependent on environmental and application requirements (temperatures, lubricant, material combinations, dirt/debris, product and chain/belt surfaces, etc.) the coefficients are subject to variation.

Coefficient of friction between chain and wearstrip:

Friction coefficient Chain/Slide rail (μ_r)						
	Dry/normal	Rough	Dirty	Water	Water & Soap	Oil
Straight sections TCP	0,2	0,4	0,5	0,16	0,10	0,10
Straight sections TCS	0,18	0,35	0,45	0,14	0,10	0,10
Head drive unit	0,3	0,40	0,50	0,24	0,15	0,15
Return unit	0,3	0,40	0,50	0,24	0,15	0,15
Center drive unit	1,0	1,35	1,70	0,8	0,5	0,5
Connection drive unit	0,6	0,80	1,0	0,48	0,3	0,3

Coefficient of friction between chain and product (μ_{ST}):

Lubrication	Product material					
	Paper carton	Metal (steel)	Aluminum	Plastics incl. PET	Glass (return)	New glass, ceramics
Dry	0,28	0,25	0,25	0,21	0,24	0,20
Water		0,20	0,18	0,16	0,18	0,15
Water & Soap		0,15	0,14	0,13	0,14	0,12



Data shown in the table was taken from laboratory tests performed on unstrained samples and are merely indicative, Chemical resistance under normal working conditions can depend on various factors, such as stress and temperature, concentration of the chemical agent and duration of its effects, Valid for ambient temperature (21°C)

Chemical agent	METALS										PLASTICS					RUBBERS										
	EXTRA	AISI 304	AISI 316	OT.NI	POM	PBT	PP	PA	PE	EPDM	NBR	SEBS	VITON													
	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %													
Acetic Acid	5	☆	20	☆	100	☆		O	5	●	10	☆	40	☆	10	●	10	☆	25	☆		●	25	O	20	●
Acetone		☆	25	☆		☆		☆		O		O		☆	100	☆		☆		☆		●		O		●
Acrylonitrile														☆	100	☆				☆		●		O		●
Aluminium chloride				O		10	O							O	10	☆				☆		☆		☆		☆
Aluminium sulphate					SA		☆							☆	10	☆		☆		☆		☆		☆		SA
Amyl alcohol				☆		☆						☆		☆	10	☆		☆		☆				☆		☆
Ammonia		☆	100	☆				●		☆		O	30	☆	10	☆		☆		☆		O		O		O
Ammonium chloride				O		☆						O	10	☆	10	☆		☆		☆		☆		☆		SA
Aniline		☆		☆		☆								☆	100	O	3	☆		●		●		●		☆
Barium chloride				O	SA		☆							☆	10	☆				☆		☆		☆		☆
Beer		☆		☆		☆		☆						☆		☆		☆		☆		☆		☆		☆
Benzene		☆	70	O		☆				☆		●		☆				O		●			●			
Benzoic acid			100	☆	SA		☆					☆	SA	☆	SA	O				●		☆		●		☆
Benzol				☆		☆		☆		☆		☆		O	100	☆		O		●		●		●		O
Boric acid			O	SA		☆		☆				10	☆	SA	☆	10	☆	SA	☆	☆		☆		☆		SA
Brine	10	●		O		☆						☆		O		O		☆		☆				O		
Butter				☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		O		☆
Butyl acetate						☆						O		O	100	☆				O				O		●
Butyl alcohol				☆										O	100	☆				☆		O		☆		☆
Butyl glycole						☆								☆	100	☆				☆				☆		
Calcium chloride		●		O		☆		☆				☆	50	☆	10	☆	SA	☆		☆		☆		☆		SA
Carbon sulphide				☆		☆				☆				☆	100	☆				●			●		●	
Carbon tetrachloride			10	☆				☆		☆				●		☆				●		●		●		☆
Chlorine water		●		●		O				●		●		●				●	3	O			3	O		
Chloroform		O	10	☆			☆		●		●			O	100	●		●		●		●		●		☆
Chromic acid			25	☆		50	O				O				1	O			50	O		●		50	●	50
Citric acid	10	☆		☆	SA		☆	●		O	10	☆	10	☆	10	O		☆		☆		☆		☆		SA
Cyclohexane						☆						☆		☆	100	☆				●		☆		●		☆
Cycloexanol						☆						☆		☆	100	☆				●		☆		O		☆
Decalin						☆						O		O		☆				●		O		●		●
Dioxane						☆						☆		O		☆				O		●		●		
Distilled water		☆	10	☆		☆		☆		☆		☆		☆		☆		☆		☆				☆		●
Ethyl acetate				O		☆						O		☆	100	☆						●				O
Ethyl alcohol				☆					☆				96		96	☆						O				
Ethyl chloride				☆				O						●	100	☆		O				O				●
Ethyl ether						☆						☆		☆	100	☆										☆
Ferric chloride				O		☆					10	☆		☆	10	☆				☆		☆		☆		SA
Food fats		☆	100	☆		☆			☆		☆					☆		☆		O		☆		O		☆
Food oils		☆		☆		☆			☆					☆		☆		☆				☆				☆
Formaldehyde		☆		☆		☆		☆		☆		☆	40	☆	30	☆		O		O		O		O		40
Formic acid	2	O		●	100	☆		☆	10	●		O			10	●	10	●		☆		●		☆		●
Freon 12				☆								☆				☆						☆				☆
Fresh water		☆		☆		☆				☆		☆		☆		☆		☆		☆		☆		☆		☆
Fruit juice		☆		O		☆				☆		☆		☆		☆		☆		☆		☆		☆		☆
Gasoline		☆		☆		☆		O				O		O		☆		O		●		O		●		☆
Glycerine		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆
Hydrochloric acid		●		●		●		O	35	●	20	O		30	☆		●	35	☆	15	☆		O	15	☆	37
Hydrofluoric acid				●		●								40	☆		●	70	☆			●				48
Hydrogen peroxide	3	☆		☆	100	☆										●			30	O		●	30	●	90	☆
Isopropyl alcohol						☆						☆		☆		☆				☆				O		☆
Lactic acid		O				☆		●		☆	10	☆		20	☆		☆		☆		O		☆		O	☆
Linseed oil				☆		☆				☆		☆		☆		☆		☆		O		☆		●		

Chemical agent	METALS					PLASTICS					RUBBERS				
	EXTRA	AISI 304	AISI 316	OT.NI	POM	PBT	PP	PA	PE	EPDM	NBR	SEBS	VITON		
	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %		
Magnesium chloride			○	☆			☆	☆	☆		☆	☆	☆	SA	☆
Methyl acetate			○	☆			○	☆	☆		○	●	●		●
Methyl alcohol		80	☆	☆	☆	☆	☆	☆	☆		☆	○	☆		○
Methylene chloride		○	○	☆		●	●	○	☆	○	●	●	●		○
Milk		☆	☆	☆	☆	☆	☆	☆	☆	☆	○	☆	☆		☆
Mineral oil			☆	☆		☆	☆	☆	☆	☆	●	☆	●		☆
Nitric acid	25	○	65	☆		☆		☆	●	○		10	●		70
Nitrobenzene				☆			☆	☆	○		●	●	○		○
Oleic acid		○	☆	☆	☆		☆	☆	☆	○	●	○	●		○
Oxalic acid			65	☆	☆			10	☆	☆	○	○	○	○	☆
Paraffin				☆		☆	☆			☆	○		●		
Petroleum			☆	☆	☆	☆	☆	☆	☆	●	●		☆	●	☆
Petroleum ether			☆	☆	☆	☆	○	☆	☆		●		●	●	☆
Phenol			☆	☆			●	☆	●		○		●	○	☆
Phosphoric acid	25	○	●	☆	●	●	●	☆	●	☆	☆	20	○	☆	85
Potassium bichromate				SA			○	☆	○		☆		○	○	SA
Potassium bromite				☆			☆	☆	☆		☆		☆	☆	☆
Potassium hydroxide		☆	50	☆	☆	●	●	☆	☆	☆	☆		○	☆	☆
Potassium permanganate			☆	☆			☆	☆	●		10	☆	●	10	○
Sea water		●	☆	☆	☆	○	☆	☆	☆	☆	☆	☆	☆	○	☆
Silicone oil				☆			☆	☆	☆		☆	☆	☆	☆	☆
Silver nitrate			○	☆				☆	☆			○			☆
Sodium carbonate		☆	100	☆	SA	☆	10	☆	☆	☆	☆	☆	☆	☆	☆
Sodium chloride		○	○	☆	☆	☆		☆	☆	☆	☆	☆	☆	☆	SA
Sodium hydroxide	40	☆	☆	60	☆		10	●	☆		☆	○		☆	
Sodium hypochlorite			●	SA	○	●	10	○	☆	☆	10	☆	●	10	○
Sodium silicate			100	☆	☆				☆		☆	☆	☆	☆	☆
Sodium sulphate			100	☆	☆				☆		○	☆	☆	☆	☆
Soft drinks			☆	☆		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Suds			☆	☆		☆	10	☆	☆	☆	☆	☆	☆	☆	☆
Sulphuric acid		●	●	○	☆	●	2	☆	☆	●	○	50	☆	●	50
Tartaric acid		☆	50	☆	●	○	50	☆	☆	☆	☆	○	☆	○	95
Tetrahydrofuran				☆			☆	○	☆		●	●	●	●	●
Tetralin			●	☆			☆	●	☆		●	●	●	●	☆
Tincture of iodine			○	☆	●			☆	●	☆	○	●	○	○	☆
Toluol		☆		☆			☆	☆	☆		●	●	●	●	○
Transformer oil		☆		☆			☆	○	☆		●	☆	●	●	☆
Trichloroethylene			●	100	☆		●	○	○		●	●	●	●	☆
Triethanolamin				☆			☆	☆	☆		○	●	○	○	●
Turpentine		☆	☆	☆		●	☆			●	●		●		
Vaseline				☆			☆		☆	○	●		☆	●	☆
Vegetable juice		☆	☆	☆		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Vegetable oils		☆	☆	☆		☆	●	☆	☆	☆	○	☆	○	○	☆
Vinegar		☆	☆	100	☆	☆	10	☆	☆	☆	☆	25	☆	○	25
Water and soap		☆	☆	☆		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Whisky		☆	☆	☆	☆	☆	☆	☆	☆		☆	☆	☆	☆	☆
Wine		☆	☆	☆	☆	☆	☆	☆	☆	○	☆	☆	☆	☆	☆
Xilol		☆	☆	☆	○	●	☆	●	☆	☆	●	●	●	●	☆

ABBREVIATION

C = concentration
SA = saturated

☆ = good resistance
● = insufficient resistance (not recommended)

○ = fairly good resistance depending on use conditions
blank spaces = no tests performed



Parameters affecting wear rate

Operating conditions:

- Load
- Speed
- Number of starts per hour- No soft start/frequency inverter controlled drive
- Product accumulation
- Lubrication
- Water quality
 - Concentration of chlorines
 - Water hardness
 - Contaminations
 - Discontinuous water supply
- Lubricant
 - Suitability/performance
 - Dosing
 - Efficiency of nozzles

Cleaning:

- Cleaning agent
 - Frequency
 - Intensity
 - Rinsing
 - Concentration
 - Temperature
- Chemical attack

Environment:

- Temperature
- Humidity
- Wear increasing media/abrasives
- Corrosion
- Cleanliness- Soil e.g, from construction work

Conveyor components:

- Material quality
- Construction
- Dimensional accuracy of
 - Wear strips
 - Sprockets
 - Idlers
 - Return rollers
 - Shaft alignment

Conveyor construction:

- Choice of chain/belt
- Suitability of selected chain/belt for the application
- Mounting of wear strips
 - Flatness
 - Chamfers
 - Raised portions
 - Expansion compensation gaps

Changed/modified conditions:

- Modification of conveyor or its parts/components
 - Maintenance
 - Overhaul

Cleaning instructions

Cleaning is necessary to:

- minimize dirt and debris built up
- keep bacteriological situation under control
- elongate service life of chains/belts
- ensure smooth running of chain/belt for optimum product stability
- prevent crashes due to f,e, glass debris
- prevent malfunction due to sticky residues
- keep friction low

Frequency:

As a rule of thumb we say that cleaning the line once every week is sufficient,

Of course in practice depending on the circumstances this can be more frequent (f,e, during product changes in case of product loss or other pollution) or less frequent in a relatively clean environment,

In the direct surrounding of the filler cleaning will be more frequent anyway, Depending also on the bacteriological situation it may be necessary to clean at least once a day or once every shift,

Also chemicals coming f,e, from a pasteurizer may ask for more frequent cleaning to prevent the chemicals from affecting the chain/belt materials,

In a can line where aluminum cans are filled, there's the aluminum oxide that has to be kept under control, This can occur also far away from filler-pasteurizer, where the line is running dry, When the cans are accelerating on an inliner the remaining drops will fall down with the aluminum oxide on the chain causing a highly abrasive sludge to built up on the inliner, Therefore it may be necessary to clean more frequent also further down the line due to 'local' circumstances,

Method:

Important for an optimum service life of the chains and belts is a general inspection on the conveyors already during operation, Listen for strange –rattling or squeaking- noises, Check transfer plates, return rollers, bearings, etc, Make sure the chain/belt is still running free without extra load or obstruction, Often the service life of a chain/belt is reduced for mechanical reasons that can be sorted easily,

When cleaning we advice to go thru following steps:

1. Check for foreign parts on the conveyor, Check also the return part,
2. Rinse with warm (max 60°) or cold water thoroughly while chain/belt is running,
3. Use mild (PH-5-9) detergent according to suppliers instructions,
4. If necessary clean mechanically (brush) when pollution is hard to remove,
5. Rinse thoroughly with warm (max 60°) or cold water, Make sure all detergent is rinsed off while chain/belt is running,
6. Final mechanical check that chain/belt is running free and without obstruction, During this process it's important not to forget to clean in between carry and return section and underneath where the return support system is,

Especially with plastic chains/belts the detergent in use needs to be checked for compatibility with the plastic materials of the chain/belt,

General:

As obvious as it seems, cleaning is important! Since nowadays pressure on production rates and production costs are getting higher and higher, companies tend to look at cleaning when trying to cut costs,

Less time and resources are available while at the same time the capacity of the lines (and thus pollution and product loss) has to go up,

When companies are setting up a cleaning regime they tend to focus on the individual machines (mainly filler and surrounding) and not so much on the conveyors, Therefore we want to promote 'CONVEYOR AWARENESS' in this respect,

Dry versus wet:

When a wet lubricant is in use (water & soap) product loss is normally flushed off by the water & soap, Often the soap also has a 'cleaning function' built in, But wet circumstances also attract dust and dirt and wet circumstances will increase the growth of bacteria, When a line is standing still during a stop or during the

weekend without cleaning, the lubricant will dry in which may cause pollution and changing sliding characteristics of the chains/belt after several times,

Under dry circumstances the conveyors generally remain cleaner, But product loss needs to be cleaned to avoid functional problems of the line,

Therefore functionally speaking wet lubrication is more safe but requires just as well regular cleaning and is a high cost factor,

All together with the present state of conveyor technology it is possible to run a major part of a glass, can or a PET line dry taken into consideration that a regular cleaning regime is in place,

Inspection procedure

1. Inspect chains for unusual wear patterns or damage,
2. Look for excessive gaps between chain flights,
3. Check conveying surface for Flatness, bent or broken Flights,
4. Inspect hold-down tabs or beveled sliding surfaces for excessive wear,
5. Review chain catenary sag for proper amount,
6. If take-ups are used, check that take-up tension is not excessive, Do not preload chain,



7. Check all idlers, rollers, turn discs and sprockets for freedom of rotation,
8. Examine sprockets for excessive wear,
9. Look for debris build up in sprocket tooth pockets,
10. Check for excessive guide ring wear,
11. Check all wear strips and fasteners for excessive wear,
12. Check all transfer points, dead plates, turn tables, turn discs and sprockets for proper elevation and alignment,
13. Review function of lubrication system,
14. Inspect general cleanliness of conveyor system,

Installation procedure

1. Check all sprockets, idlers, turn discs and rollers for proper elevation and alignment with regard to the conveyor tracks,
2. Check all wear strips (carrying and return), dead plates, dividers and transfers mechanism for proper location, elevation, spacing and Flatness,
3. Check all fasteners for proper tightness (torque), Fasteners used on wear strips and dead plates must have recessed heads,
4. Check all conveyor splice points for proper elevation, alignment and fastening,
5. Inspect conveyor system for obstructions by pulling a short section of chain (1 meter) through the entire conveyor,

6. Check lubrication system (if present),
7. Install conveyor chain, assuring that the following has been done:
 - A Check for correct direction of chain travel,
 - B Assemble chain in 3 meters sections and avoid twisting or damaging the chain,
 - C Connect chain sections on the conveyor, Make sure that the connecting pins are not protruding,
 - D Adjust chain catenary (sag) to the proper elevation, Note: readjustment is usually necessary after a certain operating time,
8. Insure that lubricant is evenly dispersed through conveyor system,
9. Start up conveyor by jogging and/or using short running periods before loading the system, Be alert to unusual noises or actions, If a problem should occur, refer to the trouble shooting guide,

Replacement criteria

- Chains must be replaced when:
- The chain starts to jump on the sprocket due to elongation, This may start to happen at 3% elongation or more,
 - The thickness of the plate has been reduced by 50%,
 - The surface becomes uneven or scratched causing stability problems,
 - The hinge is worn to an extend that the pins protrude

Belts must be replaced when:

- The belt starts to jump on the sprocket due to elongation, This may start to happen at 3% elongation or more,
- The thickness of the module has been reduced by 1 mm from the top and from the bottom,
- The surface becomes uneven or scratched causing stability problems,

When replacing chains/belts, it is recommended to replace wear strips and sprockets/idlers as well, Sprockets and Idlers must be replaced when:

- teeth are worn flat
- chain/ belt does not release well
- teeth are damaged
- bore of idler is worn out and idler starts to oscillate
- hub or keyway are damaged
- new chain/ belt is installed

Wear strip must be replaced when:

- thickness is reduced by 50% and stability problems occur
- dirt or debris is embedded
- Fixing rivets protrude.

Layout procedure for a EMBS conveyor system

Task definition:

Determine number and position of the work steps, calculate the available space.



Plan rough system layout:

Lengths, segments, curves, slopes (sketch)



Product-specific data:

Determine conveyed material data:

Dimensions, mass, friction figures, antistatic environment needed?



Production-specific data:

Determine conveyor parameters: Speed, conveyed material spacing and cycle, number of start-up operations/h, accumulation section



Detailed system layout planning:

Accumulation sections, product interchange points

► www.easy-conveyor.com



Chain tensile force calculation F

► Examples 1-2, page 390-39



$F < F_{\text{permissible}}$ (page 390 & 394):

YES

NO ►



$F \ll F_{\text{permissible}}$ (oversized) ►

NO

YES ►



Check drive torque:

$$\frac{M \cdot 2}{\varnothing TK} \geq F$$

OK?

YES

NO ►



**Needed data**

- The length and/or width of the belt conveyor (mm)
- The width of the belt (mm)
- Wanted speed (mtr/min)
- Product weight (Kg)
- Product length (mm) [!] (in direction of transport)
- Amount of products on the conveyor (pcs)
- Product to transport (bakery, food, plastic, cardboard, glass or metal)
- Slide profile (TCP / TCS)
- State of contact surfaces between slide rail/chain -(dry normal -dirty -rough/Water/Water & Soap/Oil)
- State of contact surfaces between goods/chain (dry/water/water & soap)
- Ambient temperature (°C)
- Start/Stop each hour (pcs/hr)
- Frequency controller (Yes or No)
- Accumulation (Yes or No)
- Amount of products to accumulate (pcs)
- Running hours per day
- Type of loading

Weight (q_k)		Actual lenght (L_k)		Straight lenght (L_s)	
(kg/m)	Drive / return units	(mtr)	Drive / return units	(mtr)	
8,8	Return unit	0,777	Return unit	0,34	
	Drive unit	0,984	Drive unit	0,347	
	Straight section	2 x L			

Belt length Hor. Curves (mm)

(two side)

EMBS HORIZONTAL CURVE 255; 30° R540	1699,00
EMBS HORIZONTAL CURVE 255; 45° R540	2048,51
EMBS HORIZONTAL CURVE 255; 60° R540	2398,00
EMBS HORIZONTAL CURVE 255; 90° R540	3097,00
EMBS HORIZONTAL CURVE 255; 180° R540	5194,00

EMBS HORIZONTAL CURVE 340; 30° R750	1963,42
EMBS HORIZONTAL CURVE 340; 45° R750	2445,13
EMBS HORIZONTAL CURVE 340; 60° R750	2926,84
EMBS HORIZONTAL CURVE 340; 90° R750	3890,27
EMBS HORIZONTAL CURVE 340; 180° R750	6780,53

EMBS HORIZONTAL CURVE 425; 30° R900	2165,00
EMBS HORIZONTAL CURVE 425; 45° R900	2747,51
EMBS HORIZONTAL CURVE 425; 60° R900	3330,01
EMBS HORIZONTAL CURVE 425; 90° R900	4495,02

EMBS HORIZONTAL CURVE 510; 30° R1100	2418,95
EMBS HORIZONTAL CURVE 510; 45° R1100	3128,43
EMBS HORIZONTAL CURVE 510; 60° R1100	3837,91
EMBS HORIZONTAL CURVE 510; 90° R1100	5256,86

Belt length Vert. Curves (mm) Degrees (β)

(two side)

EMBS VERT. SLIDE CURVE; 5° R=500	1087.22
EMBS VERT. SLIDE CURVE; 10° R=500	1174.44
EMBS VERT. SLIDE CURVE; 15° R=500	1261.66
EMBS VERT. SLIDE CURVE; 30° R=500	1523.33
EMBS VERT. SLIDE CURVE; 45° R=500	1785

Friction forces occur in curves (μ_R)

0° (Straight sections)	1,0
------------------------	-----

Curve angle (vertical)

5°	1,03
10°	1,05
15°	1,05
30°	1,10
45°	1,20

SLIDE Curve angle (horizontal)

30°	1,2
45°	1,3
60°	1,4
90°	1,6
180°	2,2



Application factor C ₁	
Approach procedures /h	Application factor
0 – 1	1,0
2 – 10	0,83
11 – 30	0,71
> 30	0,62

Breaking force (max -40°C / +80°C) C ₂	
Temperature °C	Breaking force factor
0	1,12
20	1,0
40	0,96
60	0,92

Factor C ₃ Breakaway torque	
Temperature °C	Breaking force factor
0,09 kW	2,1
0,12 kW	2,4
0,18 kW	1,8
0,25 kW	1,8
0,37 kW	1,8
0,55 kW	2,1
0,75 kW	2,2
1,1 kW	2,0
Frequency controller	1,5

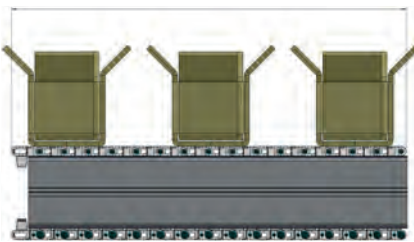
MOTOR SELECTION

For all calculations

$$Q_{Fi} = \frac{M_i \cdot g}{L_i}$$

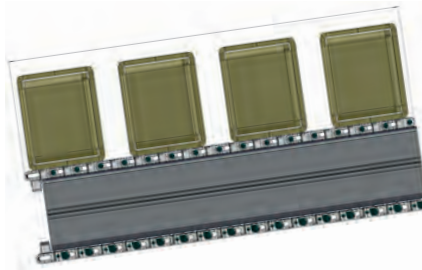
EMBS Straight

$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot \mu_T + (L_K - L_i) \cdot q_K \cdot \mu_T] \cdot \mu_R$$



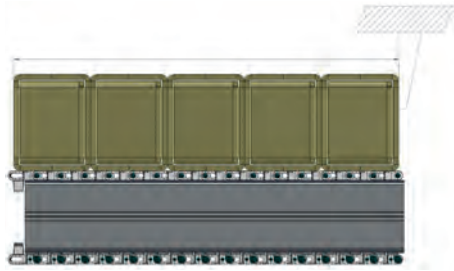
EMBS Incline/Decline

$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot (\mu_T \cdot \cos\beta + \sin\beta) + (L_K - L_i) \cdot q_K \cdot (\mu_T \cdot \cos\beta - \sin\beta) \cdot \mu_T] \cdot \mu_R$$



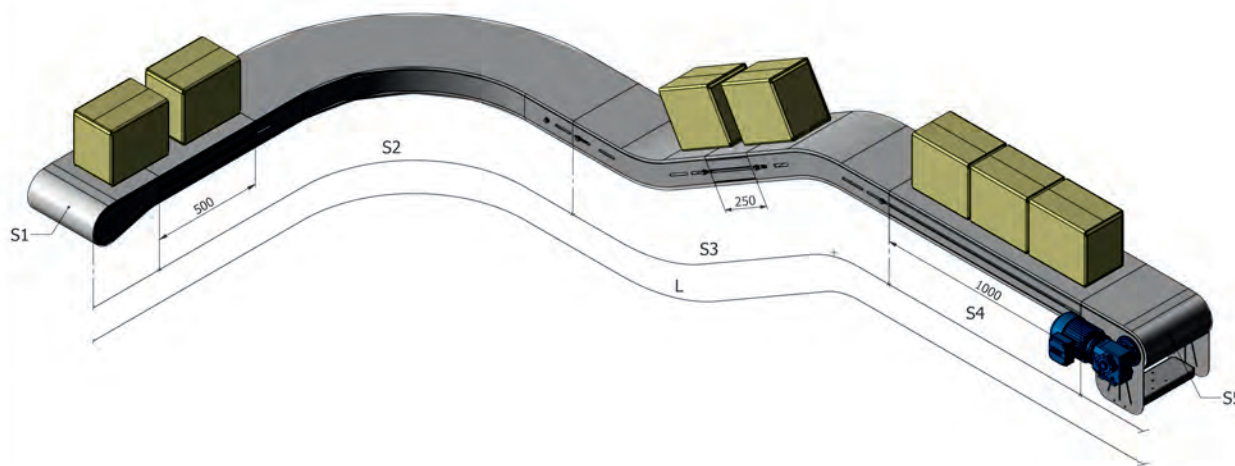
EMBS Accumulation (is not possible when using a friction or a cleated belt)

$$F_i = [F_{i-0} + L_i \cdot \{ (Q_K + Q_{Fi}) \cdot \mu_T + Q_{Fi} \cdot \mu_{ST} \} + (L_K - L_i) \cdot q_K \cdot \mu_T] \cdot \mu_R$$



LIST OF APPLIED ABBREVIATIONS

F = Chain Tensile force (at the drive pulley) (N)	M _H = Run-up Torque (Nm)
F _{perm.} = Permissible load capacity	M _i = Total product mass (Kg)
F _i = Chain tensile force of individual segments (N)	M _N = Nominal Torque (Nm)
g = 9,81 (m/s ²)	M _T = Motor Torque (Nm)
μ _R = Friction forces occur in curves	v = Belt speed (mtr/min)
μ _{ST} = Friction coefficient Product/Chain	A _Z = Amount of Accumulation
μ _T = Friction coefficient Chain/Slide rail	f _B = Service Factor
L = Conveyor section length (mtr)	P _A = Mechanical Drive Power (kW)
L _i = Segment length (mtr)	P _M = Motor Power (kW)
L _K = Actual chain length (mtr)	R _H = Running hours / day
L _S = Chain length straight (mtr)	S _L = Shock Load
Q _{Fi} = Section load of conveyed material on segment L _i (N/mtr)	S _S = Start/Stops /hr
Q _K = Weight of the belt (N/mtr)	U _L = Uniform Load
β = Angle for Incline or Decline (°)	V _L = Variable Load
	η = Efficiency (%)

**Example 1: Calculation EMBS Incline**

Wanted speed	: 20 mtr/min (0,33 mtr/sec)
Pitch diameter	: 169.7mm
Product weight	: 10 kg
Product Length	: 305mm
Product material	: Cardboard
Conveyor length L	: 5,824mtr
Chain section load Q_k	: 29,35 N/m (8.8*0.340*9.81)
Slide rail	: TCP
State of contact surfaces μ_{ST}	: Dry
State of contact surfaces μ_T	: Dry - Normal
Ambient temperature	: 30°C
Start/Stop	: 5/h
Frequency controller	: Yes
Accumulation on Section 3	: Yes
Amount of products to accumulate	: 3 pieces
Running hours per day	: 16 hr
Type of loading	: Uniform Load
Permissible load capacity	: 10.200N (30.000 * 0,340)

EMBS SECTION 1

L_i = Segment length (mtr)	: 0,34
L_K = Actual chain length (mtr)	: 0,777
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,3

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{0 * 9,81}{0,34} \quad q_{Fi} = 0$$

EMBS Section 1

$$F_1 = [F_{i-0} + \{L_i * (Q_k + q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_k * \mu_T\}] * \mu_R$$

$$F_1 = [0,0 + \{0,34 * (29,35 + 0) * 0,3\} + \{(0,777 - 0,34) * 29,35 * 0,3\}] * 1,0$$

$$F_1 = [0,0 + \{0,34 * 8,805\} + 3,848] * 1,0$$

$$F_1 = [0,0 + 2,9937 + 3,848] * 1,0$$

$$F_1 \approx 6,84 \text{ N}$$

EMBS SECTION 2

L_i = Segment length (mtr)	: 2,18 ((Curve 340-90° 1 side) + 1 * 0.5mtr)
L_K = Actual chain length (mtr)	: 4,36 ((Curve 340-90° 2 side) + 2 * 0.5mtr)
μ_R = Friction forces occur in curves	: 1,60 (Slide curve 90°)
μ_T = Friction coefficient Chain/Slide rail	: 0,3
M_i = Total product mass (Kg)	: 20 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{20 * 9,81}{2,18} \quad q_{Fi} = 90 \text{ N/m}$$

EMBS Section 2

$$F_2 = [F_{i-0} + \{L_i * (Q_k + q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_k * \mu_T\}] * \mu_R$$

$$F_2 = [6,84 + \{2,18 * (29,35 + 90) * 0,2\} + \{(4,36 - 2,18) * 29,35 * 0,2\}] * 1,60$$

$$F_2 = [6,84 + \{2,18 * 23,87\} + 12,80] * 1,60$$

$$F_2 = [6,84 + 52,04 + 12,80] * 1,60$$

$$F_2 \approx 114,70 \text{ N}$$

(Max. 2500N in a curve section!)

**EMBS SECTION 3**

L_i = Segment length (mtr)	: 1,77 ((Vert. Curve 340-30° 1 side) + 1 * 0.25mtr)
L_K = Actual chain length (mtr)	: 3,55 ((Vert. Curve 340-30° 2 side) + 2 * 0.25mtr)
μ_R = Friction forces occur in curves	: 1,10 (Vert. slide curve 30°)
μ_T = Friction coefficient Chain/Slide rail	: 0,2
M_i = Total product mass (Kg)	: 20 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{20 * 9,81}{1,77} \quad q_{Fi} = 110,85 \text{ N/m}$$

EMBS Section 3

$$F_3 = [F_{i-2} + \{L_i * (Q_K + Q_{Fi}) * (\mu_T * \cos\beta + \sin\beta)\} + \{(L_K - L_i) * Q_K * (\mu_T * \cos\beta - \sin\beta)\}] * \mu_R$$

$$F_3 = [110,85 + \{1,77 * (29,35 + 110,85) * (0,2 * 0,866 + 0,5)\} + \{(3,55 - 1,77) * 29,35 * (0,2 * 0,866 - 0,5)\}] * \mu_R$$

$$F_3 = [110,85 + \{1,77 * 140,2 * 0,67 + \{52,24 * -0,33\}\}] * 1,10$$

$$F_3 = [110,85 + 166,26 - 17,24] * 1,10$$

$$F_3 \approx 285,86 \text{ N}$$

EMBS SECTION 4

L_i = Segment length (mtr)	: 1,0 (Straight section)
L_K = Actual chain length (mtr)	: 2,0 (Straight section * 2)
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,2
M_i = Total product mass (Kg)	: 60 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{60 * 9,81}{1} \quad q_{Fi} = 588,6 \text{ N/m}$$

Accumulation

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{60 * 9,81}{0,915} \quad q_{Fi} = 643,28 \text{ N/m}$$

EMBS Section 4

$$F_4 = [F_{i-3} + \{L_i * (Q_K + Q_{Fi}) * \mu_T + Q_{Fi} * \mu_{ST}\} + \{(L_K - L_i) * Q_K * \mu_T\}] * \mu_R$$

$$F_4 = [285,86 + \{1,0 * (29,35 + 588,6) * 0,2 + 643,28 * 0,28\} + \{(2,0 - 1,0) * 29,35 * 0,2\}] * 1,0$$

$$F_4 = [285,86 + \{1,0 * 123,6 + 180,12\} + 5,87] * 1,0$$

$$F_4 = [285,86 + 303,72 + 5,87] * 1,0$$

$$F_4 \approx 595,45 \text{ N}$$

EMBS SECTION 5

L_i = Segment length (mtr) L_i	: 0,34
L_K = Actual chain length (mtr)	: 0,777
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,3

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{0 * 9,81}{0,34} \quad q_{Fi} = 0$$

EMBS Section 5

$$F_5 = [F_{i-4} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_K * \mu_T\}] * \mu_R$$

$$F_5 = [595,45 + \{0,347 * (29,35 + 0) * 0,3\} + \{(0,984 - 0,347) * 29,35 * 0,3\}] * 1,0$$

$$F_5 = [595,45 + \{0,347 * 8,81\} + 5,61] * 1,0$$

$$F_5 = [595,45 + 3,06 + 5,61] * 1,0$$

$$F_5 \approx 604,12 \text{ N}$$

$$F_{max} = F_{perm.} * C_1 * C_2$$

$$F_{max} = 10.200 * 0,83 * 1,0$$

$$F_{max} \approx 8465 \text{ N} \quad F = 604,12 \text{ N}$$

System is OK

$$M_N = \frac{F * (d_A / 2)}{1000}$$

$$M_N = \frac{604,12 * (169,7 / 2)}{1000}$$

$$M_N \approx 51,26 \text{ Nm}$$

Run-up Torque

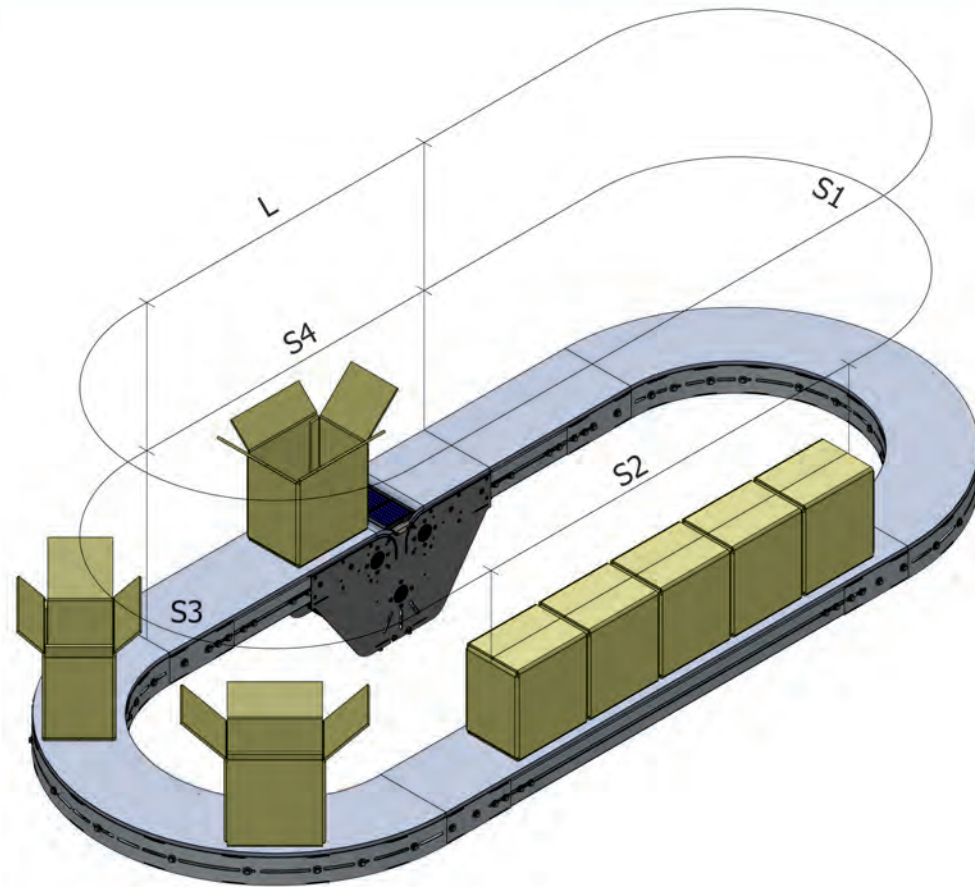
$$M_H = M_N * C_3 \quad P_A = \frac{F_U * v}{1000} \quad P_A = \frac{604,12 * 0,33}{1000}$$

$$M_H = 51,26 * 1,5$$

$$M_H \approx 76,90 \text{ Nm}$$

$$P_A = 0.20 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW] chose, the next larger standard motor}$$


Example 2: Calculation EMBS Connection drive

Conveyor system	: EMBS Aluminum
Belt width	: 250mm
Wanted speed	: 15 mtr/min (0,25 mtr/sec)
Pitch diameter	: Ø169.7mm
Product weight	: 5 kg
Product Length	: 279.5mm
Product material	: Cardboard
Conveyor length L	: 7,1mtr
Chain section load Q_k	: 21,58 N/m (8.8*0.250*9.81)
Slide rail	: TCS
State of contact surfaces μ_{st}	: Dry
State of contact surfaces μ_T	: Dry - Normal
Ambient temperature	: 45°C
Start/Stop	: 30/h
Frequency controller	: Yes
Accumulation on Section 2	: Yes
Amount of products to accumulate	: 5 pieces
Running hours per day	: 8 hr
Type of loading	: Uniform Load
Permissible load capacity	: 7500N (30.000 * 0,250))

EMBS SECTION 1

L_i = Segment length (mtr)	: 2,5 ((Curve 250-180° 1 side) + 0.3mtr)
μ_R = Friction forces occur in curves	: 2,2 (Slide curve 180°)
μ_T = Friction coefficient Chain/Slide rail	: 0,18

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{0 * 9,81}{2,5} \quad q_{Fi} = 0$$

EMBS Section 1

$$F_1 = [F_{i-0} + \{L_i * (Q_k + Q_{Fi}) * \mu_T\}] * \mu_R$$

$$F_1 = [0 + \{2,5 * (21,58 + 0) * 0,18\}] * 2,2$$

$$F_1 = [0,0 + \{0,34 * 8,805\} + 3,848] * 1,15$$

$$F_1 = [0 + 9,711] * 2,2$$

$$F_1 \approx 21,36 \text{ N}$$

(Max. 2500N in a curve section!)

EMBS SECTION 2

L_i = Segment length (mtr)	: 1,397 (Straight section)
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,18
M_i = Total product mass (Kg)	: 25 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{25 * 9,81}{1,397} \quad q_{Fi} = 175,6 \text{ N/m}$$

Accumulation

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{25 * 9,81}{1,397} \quad q_{Fi} = 175,6 \text{ N/m}$$

EMBS Section 2

$$F_2 = [F_{i-1} + \{L_i * (Q_k + Q_{Fi}) * \mu_T + Q_{Fi} * \mu_{st}\}] * \mu_R$$

$$F_2 = [21,36 + \{1,397 * (21,58 + 175,6) * 0,18 + 175,6 * 0,28\}] * 1,0$$

$$F_2 = [21,36 + 49,58 + 49,17] * 1,0$$

$$F_2 \approx 120,11 \text{ N}$$

**EMBS SECTION 3**

L_i = Segment length (mtr)	: 2,05 ((Curve 250-180° 1 side) - 0.153mtr)
μ_R = Friction forces occur in curves	: 2,2 (Slide curve 180°)
μ_T = Friction coefficient Chain/Slide rail	: 0,18
M_i = Total product mass (Kg)	: 10 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{10 * 9,81}{2,05} \quad q_{Fi} = 47,85 \text{ N/m}$$

EMBS Section 3

$$F_3 = [F_{i-2} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\}] * \mu_R$$

$$F_3 = [120,11 + \{2,05 * (21,58 + 47,85) * 0,18\}] * 2,2$$

$$F_3 = [120,11 + 25,52] * 2,2$$

$$F_3 \approx 320,40 \text{ N}$$

(Max. 2500N in a curve section!)

EMBS SECTION 4

L_i = Segment length (mtr) L_i	: 1,645 (Drive unit 1,34461mtr + 0.3mtr)
μ_R = Friction forces occur in curves	: 1,0
μ_T = Friction coefficient Chain/Slide rail	: 0,6
M_i = Total product mass (Kg)	: 5 Kg

$$q_{Fi} = \frac{M_i * g}{L_i} \quad q_{Fi} = \frac{5 * 9,81}{1,654} \quad q_{Fi} = 29,82 \text{ N/m}$$

EMBS Section 4

$$F_4 = [F_{i-3} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\}] * \mu_R$$

$$F_4 = [320,40 + \{1,645 * (21,58 + 29,82) * 0,6\}] * 1,0$$

$$F_4 = [320,40 + 50,73] * 1,0$$

$$F_4 \approx 371,13 \text{ N}$$

$$F_{max} = F_{perm.} * C_1 * C_2$$

$$F_{max} = 7500 * 0,71 * 0,96$$

$$F_{max} \approx 5112 \text{ N} \quad F = 371,13 \text{ N}$$

System is OK

$$M_N = \frac{F * (d_A / 2)}{1000}$$

$$M_N = \frac{371,13 * (169,7 / 2)}{1000}$$

$$M_N \approx 31,50 \text{ Nm}$$

Run-up Torque

$$M_N = M_N * C_3 \quad P_A = \frac{F_u * v}{1000} \quad P_A = \frac{371,13 * 0,25}{1000}$$

$$M_N = 31,50 * 1,5$$

$$M_H \approx 47,24 \text{ Nm}$$

$$P_A = 0,09 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW]} \text{ chose, the next larger standard motor}$$

Conclusion

You can see above that the motor and also the conveyor system are selected because of the input. Also you can see that some values cause a certain overload situation for the system, motor or both.

There are a few options to prevent an overload.

- Lower the speed
- Lower the amount of product on the conveyor
- Less Start/Stops
- Less Accumulation
- Change type of loading
- Shorten the conveyor
- Choose another conveyor system
- Less running hours per day.
- Choose another transport system. (roller conveyor, mattop conveyor or tabletop conveyor)

Chain/belt jumps on sprocket

Possible causes	Remedy
Chain/belt is elongated e.g. due to wear or overloaded	Replace chain/belt and sprocket. Check other components as well. Eliminate cause of overload.
Improper catenary sag	Check dimensions and adjust
Sprocket is worn	Replace sprocket
Wrong sprocket type	Install correct sprocket
Misaligned sprocket	Check and adjust
Improper sprocket position	Check and adjust position

Chain/belt does not release well

Possible causes	Remedy
Incorrect sprocket dimension or type	Check and replace sprocket
Sticky residue	Clean chain/sprocket or renew
Improper catenary sag	Check dimensions and adjust

Slip stick operation

Possible causes	Remedy
Slip stick	Use lubrication Reduce chain/belt tension by shortening the conveyor
Return roller diameter too small	Install larger rollers
Chain/belt catches the conveyor	Remove obstructions. Check return part as well
Improper catenary sag	Check dimension and adjust

Damaged chain hinges

Possible causes	Remedy
Overloading	Eliminate cause of overloading Check sprockets and other components Replace chain/belt Replace components if necessary
Blocking and obstructions	Check the complete conveyor
Exceeding the minimum backflex radius	Check conveyor construction
Too small radius for side flexing chain	Check minimum radius of chain and adjust accordingly

Elongation

Possible causes	Remedy
Overloading	Eliminate cause of overloading Check sprockets and other components Replace chain/belt Replace components if necessary
Wear from dirt in hinges	Improve cleaning or Use HB pins

Rapid curve wear

Possible causes	Remedy
Overheating	Use EXTRA curve or Nolu-S
Embedded abrasives	Replace curve

Chain drifts sideways on sprockets

Possible causes	Remedy
Bad shaft/sprocket alignment	Adjust or use collars
Conveyors is not level	Adjust

Cracked hinge eyes

Possible causes	Remedy
Stress-corrosion caused by incompatible chemicals	Check chemicals compatibility with chain/belt material Use appropriate chemicals

Chains for magnetic system releases from curve

Possible causes	Remedy
Worn curve	Replace curver
Improper chamfering of the infeed or other obstructions	Check and adjust/rework
No soft start-up	Install frequency inverter drives
Curve not mounted level	Check and adjust

Corroded steel chain

Possible causes	Remedy
Incompatible combination of chain material and chemicals	Use only compatible chemicals
May occur even with stainless steel	Consider higher graded material

Excessive chain/belt wear

Possible causes	Remedy
Pollution	Improve cleaning
Failing lubrication	Check lubrication system Contact lubricant supplier
Obstructions	Check all sections
Debris in return part	Clean conveyor Install roller with larger diameter

Sprockets don't slide on shaft when belt extends due to temperature increase

Possible causes	Remedy
Pollution	Improve cleaning
Axial fixing incorrect	Re-adjust axial fixing according to temperature situation
Wrong bore tolerance	Replace by sprockets with PLUS tolerance

Rapid wear on sprockets

Possible causes	Remedy
Abrasive conditions	Improve cleaning Use steel sprockets

Please contact technical support
at any time in case of doubt.



PRODUCT LEAFLETS

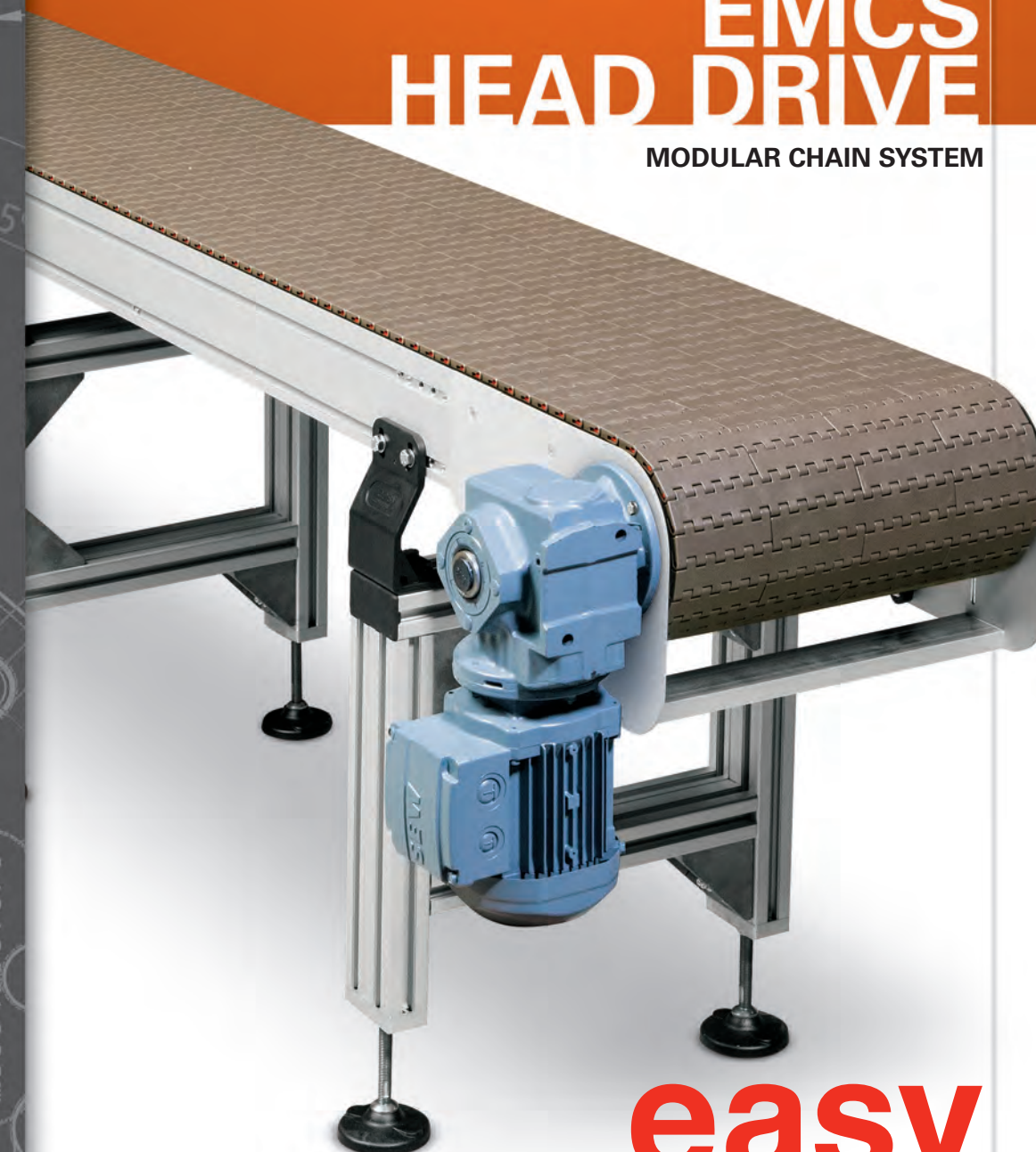
Modular chain	EMCS HEAD DRIVE	Page 403
MODULE PAGES		
	EMCS FRAME	Page 408
	EMCS HEAD DRIVE UNIT SAF37	Page 412
	EMCS HEAD DRIVE UNIT SA47	Page 416
	EMCS RETURN UNIT	Page 420
	EMCS FLAT-TOP MATERIAL	Page 422
	EMCS FRICTION-TOP MATERIAL	Page 423
	L SUPPORT LEGS ALUMINIUM	Page 424
	I2 SUPPORT LEGS ALUMINIUM	Page 426
	L2 SUPPORT LEGS ALUMINIUM	Page 428
	HEIGHT ADJUSTABLE LEG SUPPORT	Page 431
	EMCS SIDE PROFILE; FIXED	Page 434
	EMCS SIDE PROFILE; ADJUST	Page 436
	EMCS TECHNICAL MANUAL	Page 438





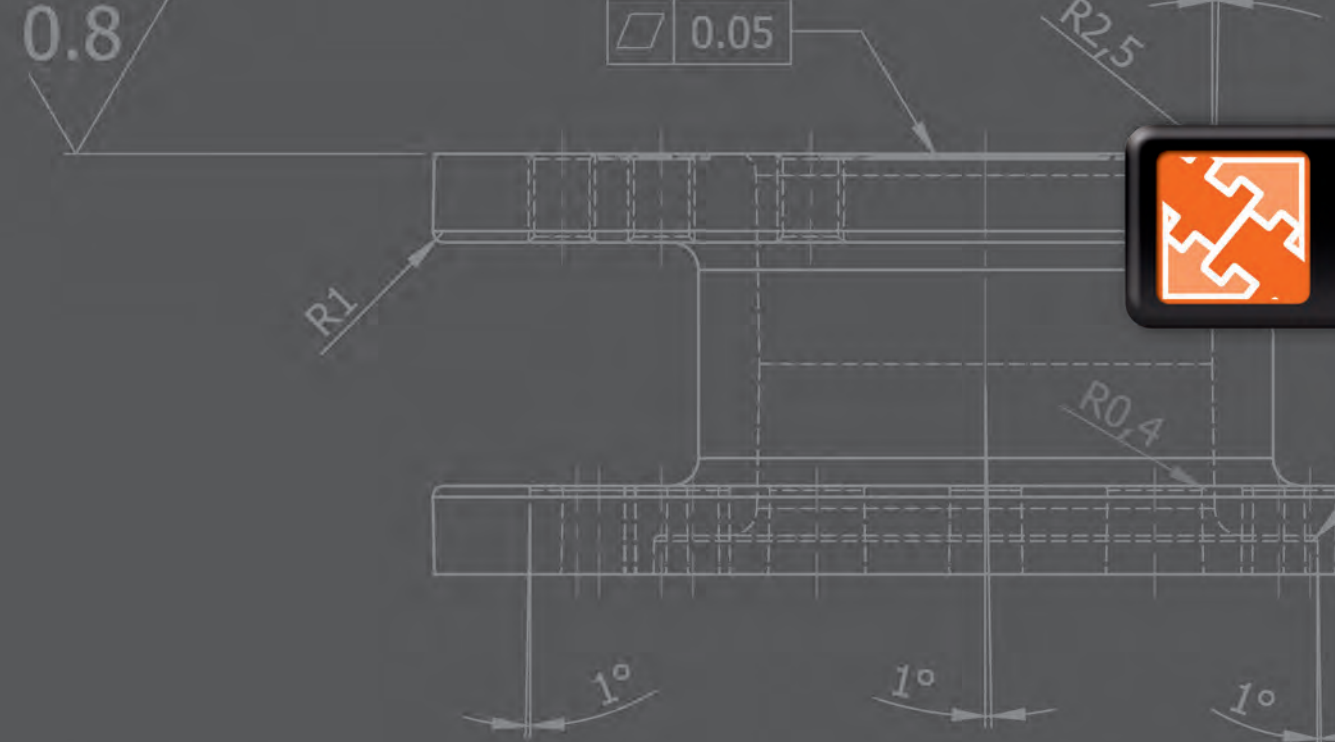
EMCS HEAD DRIVE

MODULAR CHAIN SYSTEM

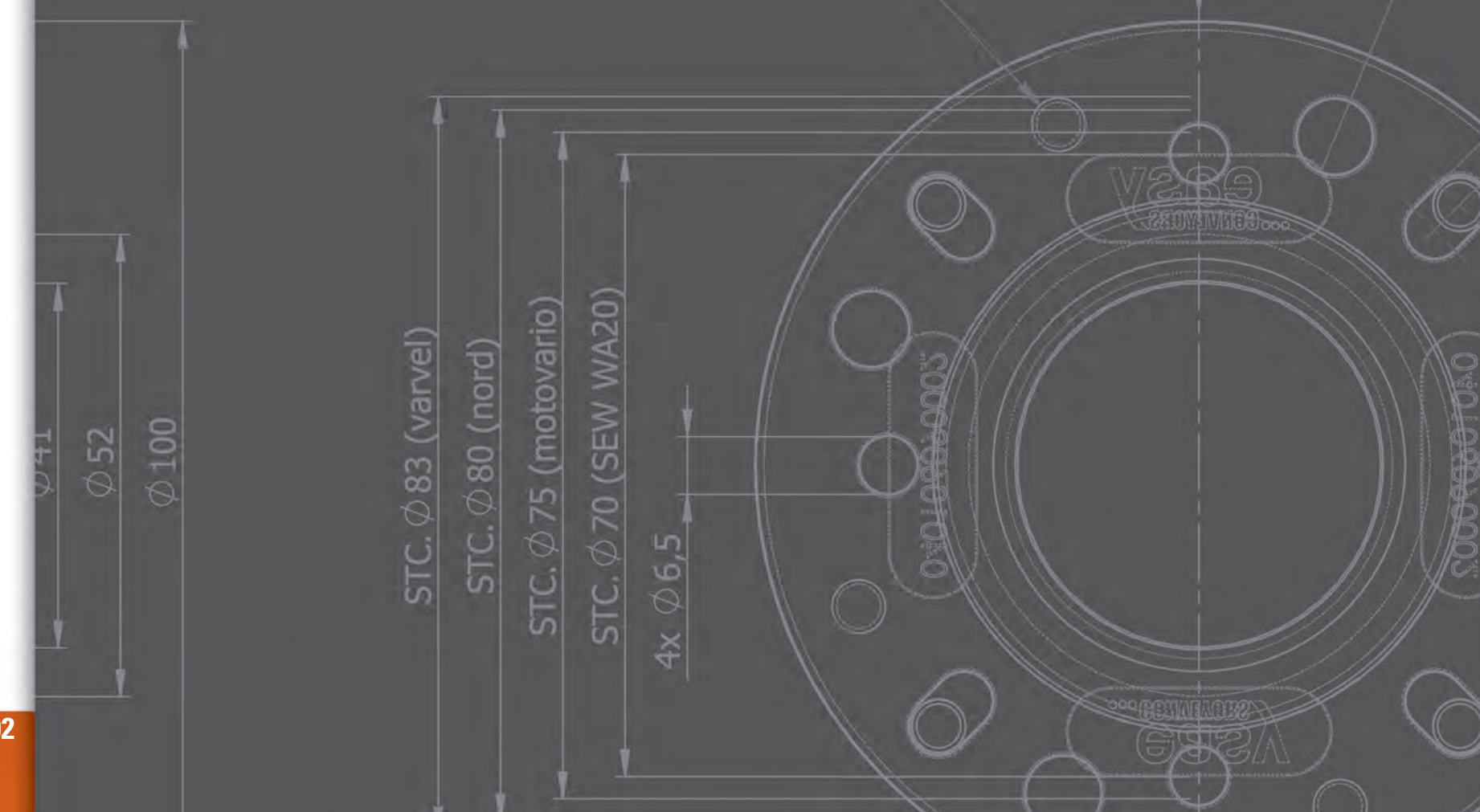


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8 x Ø 5 THRU ALL
M6 - 6H THRU ALL
✓ Ø 6.05 X 90°, Near Side
✓ Ø 7 X 90°, Far Side



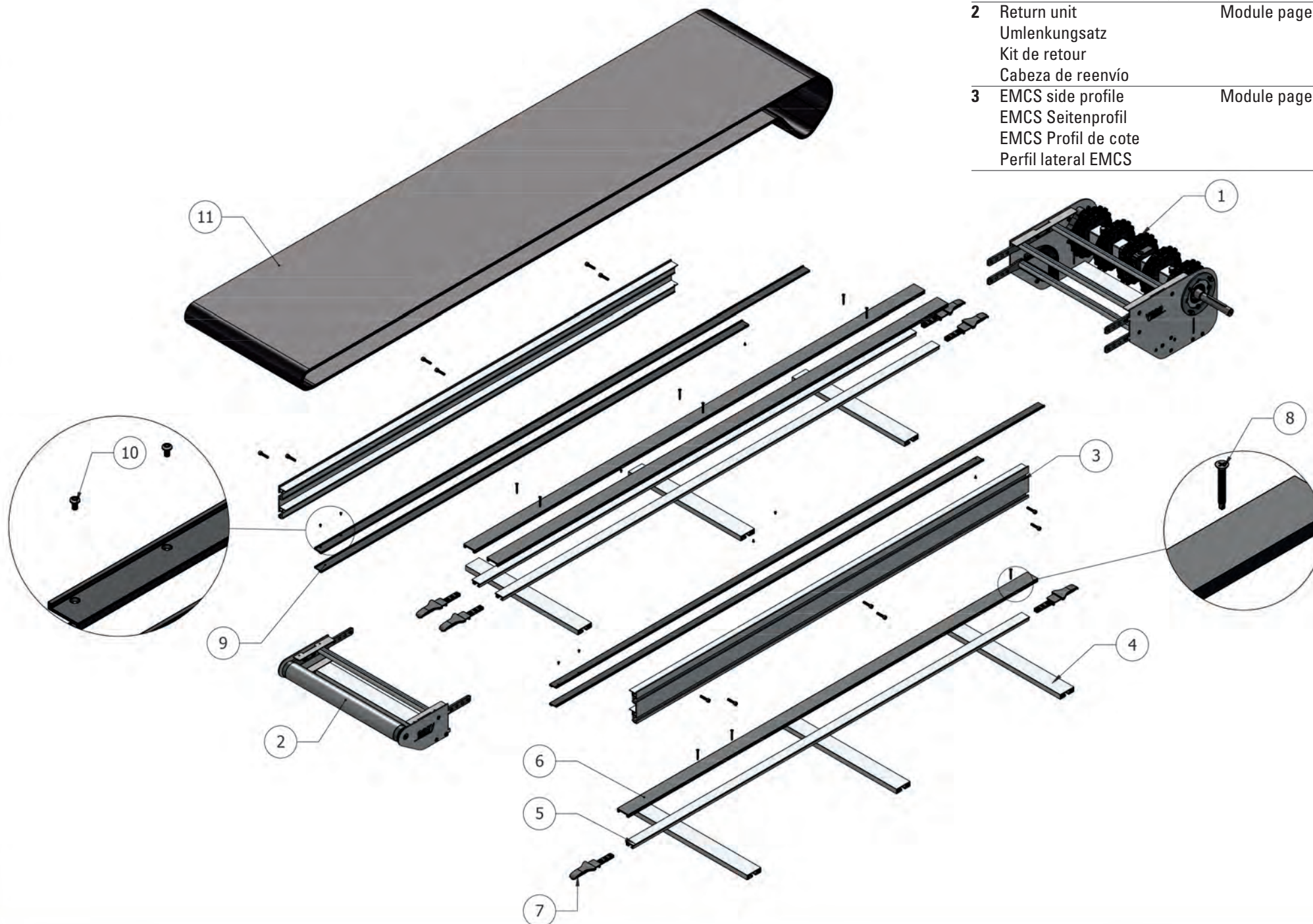
EMCS HEAD DRIVE

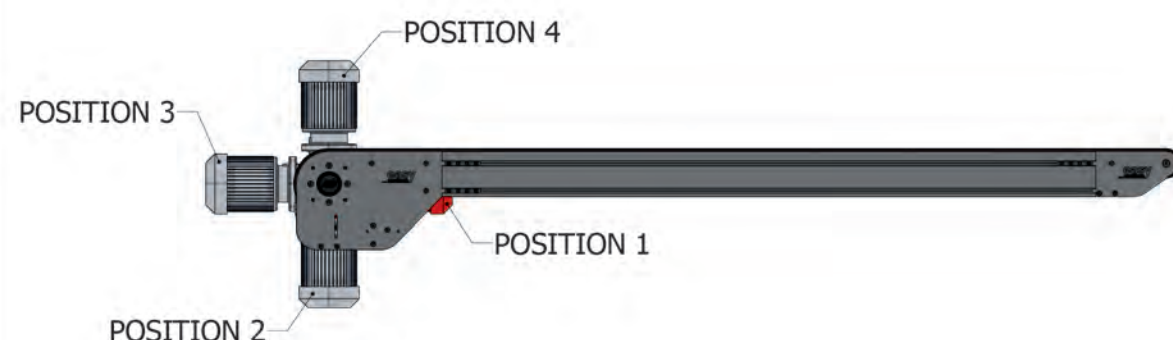
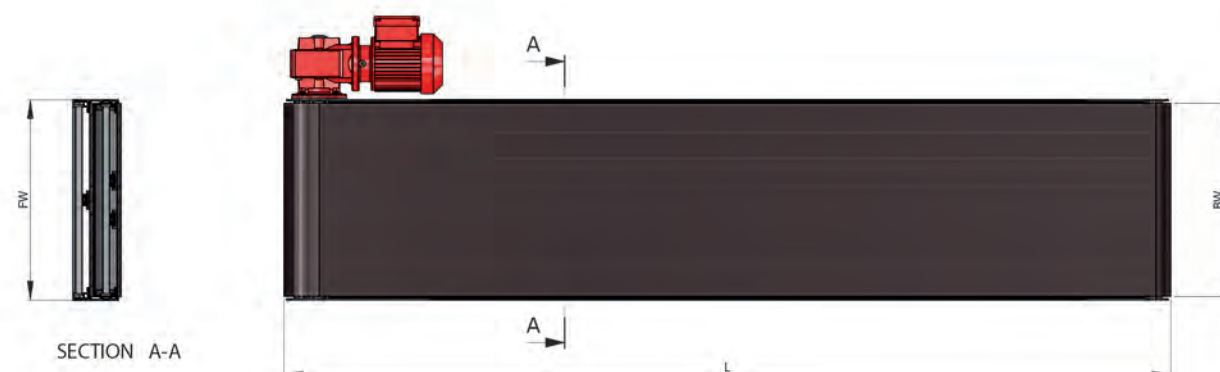


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- | | |
|---|-----------------------|
| 1 Head drive unit
Kopfantrieb - Satz
Ensemble Entraînement Direct
Cabeza de tracción, juego | Module page 412 - 419 |
| 2 Return unit
Umlenkungsatz
Kit de retour
Cabeza de reenvío | Module page 420 - 421 |
| 3 EMCS side profile
EMCS Seitenprofil
EMCS Profil de cote
Perfil lateral EMCS | Module page 408 - 411 |

- | | |
|--|-----------------------|
| 4 Straight connector
Längsverbinder
Connecteur droit
Conector longitudinal | Module page 408 - 411 |
| 5 Belt support
Gurt Unterstützung
Courroie support
Banda de soporte | Module page 408 - 411 |
| 6 Belt support
Gurt Unterstützung
Courroie support
Banda de soporte | Module page 408 - 411 |
| 7 Belt support
Gurt Unterstützung
Courroie support
Banda de soporte | Module page 408 - 411 |
| 8 Head screw
Kopf Schraube
Vis sans tête
Cabeza Husillo | Module page 408 - 411 |
| 9 Slide profile
Gleitprofil
Glissez le profil
Perfil de deslizamiento | Module page 408 - 411 |
| 10 Rokut rivet
Kunststoff Popnail
Popnail en plastique
Popnail plástico | Module page 408 - 411 |
| 11 EMCS Chain
EMCS Kette
EMCS chaîne
Cadena EMCS | Module page 422 - 423 |



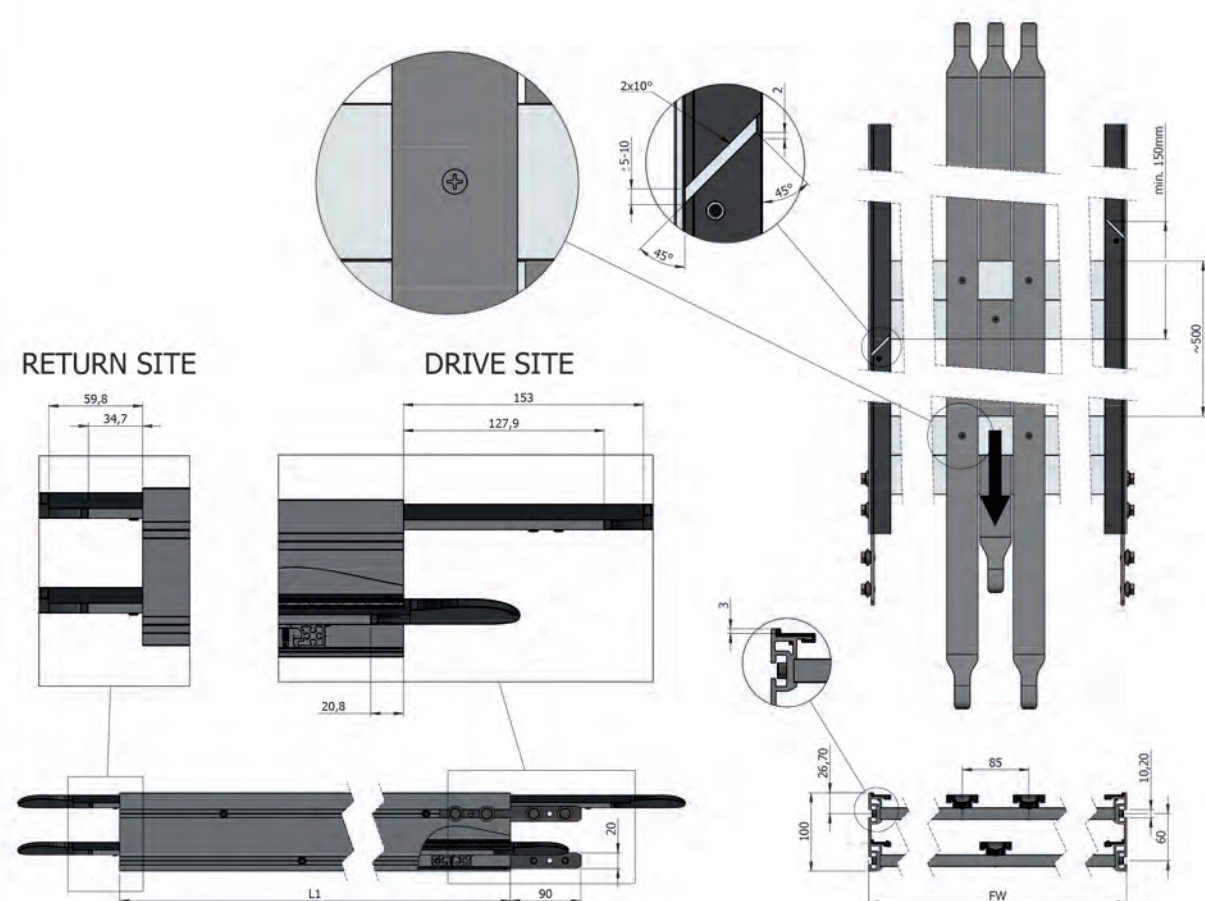


More technical information: See engineering online www.easy-conveyors.com

EMCS HEAD DRIVE	Dimensions - Abmessungen - Dimensions - Dimensiones						
L =	Individual von 785 -22.000 mm 30,91 - 866,14" inch						
	All lengths in between possible						
FW =	186	271	356	441	528	698	868 mm
	7,32"	10,67"	14,02"	17,36"	20,79"	27,48"	34,17" inch
BW =	170	255	340	425	510	680	850 mm
	6,69"	10,04"	13,39"	16,73"	20,08"	26,77"	33,47" inch
V ≈	Max. 45 mtr./min 148 Foot/min (dry condition)						
Breaking load, Bruchlast, Charge de rupture, Carga de rotura	21600 – 35000 N/mtr						
Support legs, Stützen, Supports, Patas de apoyo	Module page 424-433						
Side guiding, Seitenführungen, Guidage latéral, Guiado lateral	Module page 434-437						

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta





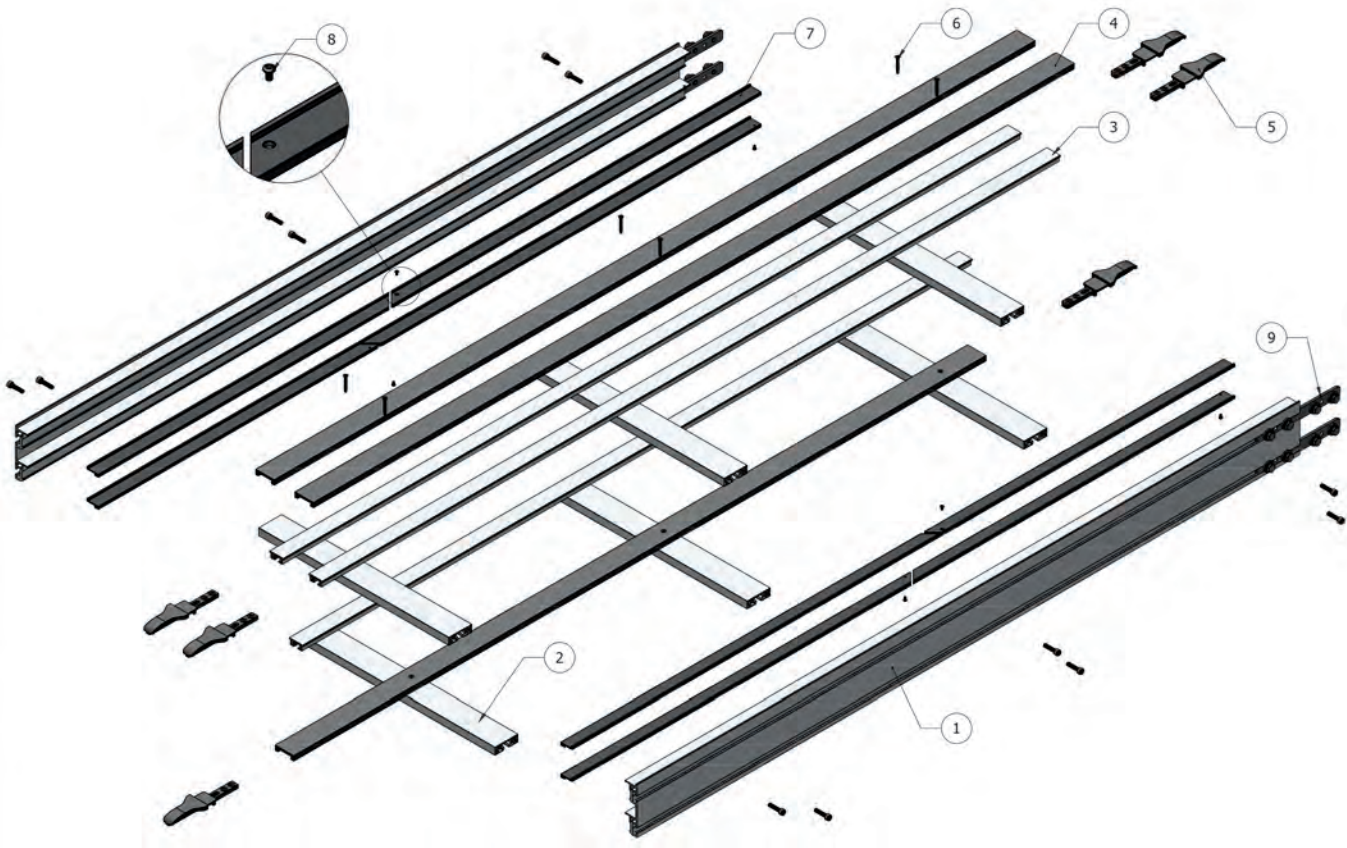
More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones
















EMCS FRAME	Dimensions - Abmessungen - Dimensions - Dimensiones						
FW =	186	271	356	441	528	698	868 mm
	7,32"	10,67"	14,02"	17,36"	20,79"	27,48"	34,17" inch

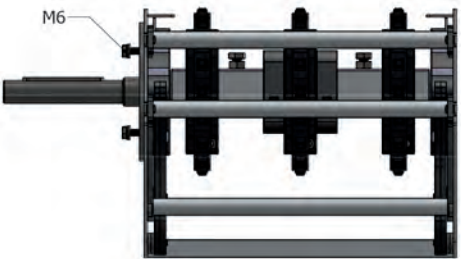
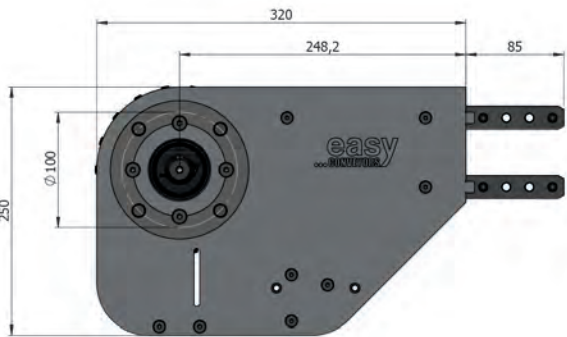
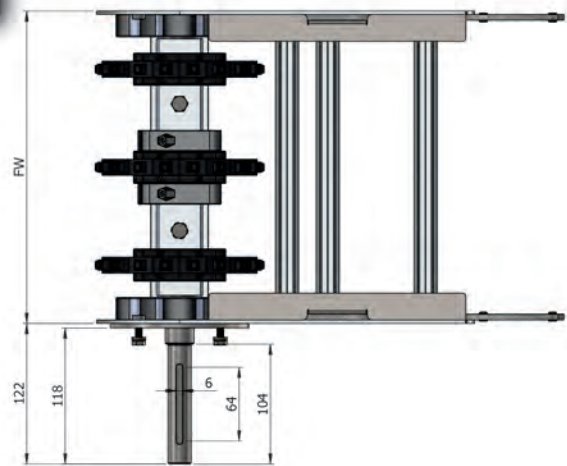
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Side profile
- 2 Straight connector
- 3 Belt support; Aluminium side guide profile
- 4 Belt support; Guide wear strip
- 5 Belt support; Guide end 40
- 6 Self-drilling countersunk head screw
- 7 Slide profile
- 8 Rokut rivets
- 9 Profile connector set

Art Nr. Pos 1			
EMCS041205000000		 1 piece	
Material	Aluminium, 10 micron anodized		
Art Nr. Pos 2			
EMCS041205000170	EMCS STRAIGHT CONNECTOR - 15x50; 170	 1 connector, with fasteners	
EMCS041205000255	EMCS STRAIGHT CONNECTOR - 15x50; 255	 1 connector, with fasteners	
EMCS041205000340	EMCS STRAIGHT CONNECTOR - 15x50; 340	 1 connector, with fasteners	
EMCS041205000425	EMCS STRAIGHT CONNECTOR - 15x50; 425	 1 connector, with fasteners	
EMCS041205000510	EMCS STRAIGHT CONNECTOR - 15x50; 510	 1 connector, with fasteners	
EMCS041205000680	EMCS STRAIGHT CONNECTOR - 15x50; 680	 1 connector, with fasteners	
EMCS041205000850	EMCS STRAIGHT CONNECTOR - 15x50; 850	 1 connector, with fasteners	
Material	Aluminium		
Art Nr. Pos 3			
ETS040809000000	Belt support; Aluminium side guide profile	 1 piece; L=5,6 mtr	
Material	Aluminium anodized		
Art Nr. Pos 4			
ECP040103000000	Belt support; Guide wear strip	 1 piece; L=3 mtr	
Material	PE Black		
Art Nr. Pos 5			
ETS040809050000	Belt support; Guide end 40	 1 set, with fasteners	
Material	PA FG		
Art Nr. Pos 6			
BV7504P4232VZ	Self-drilling countersunk head screw; 4,2 x 32	 100 pieces	
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado		
Art Nr. Pos 7			
EMCP041208010000	EMCS Slide profile 25x2; TCP	 1 roll L=25mtr	
Art Nr. Pos 8			
EMPT040705000005	Rokut rivets	 250 pieces	
Material	Nylon 6.6		
Art Nr. Pos 9			
EMPT040705000006	Profile connector set	 2 pieces, with fasteners	
Material	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado		
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta			



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

EMCS HEAD DRIVE UNIT	Dimensions - Abmessungen - Dimensions - Dimensiones						
FW =	186	271	356	441	528	698	868 mm
	7,32"	10,67"	14,02"	17,36"	20,78"	27,48"	34,17" inch

FOR ALUMINIUM SYSTEM

Left	Right						
EMCS041201010170L	EMCS041201010170R	186mm	7,32"	EMCS HEAD DRIVE UNIT SAF37; 170 TYPE 1			
EMCS041201010255L	EMCS041201010255R	271mm	10,67"	EMCS HEAD DRIVE UNIT SAF37; 255 TYPE 1			
EMCS041201010340L	EMCS041201010340R	356mm	14,02"	EMCS HEAD DRIVE UNIT SAF37; 340 TYPE 1			
EMCS041201010425L	EMCS041201010425R	441mm	17,36"	EMCS HEAD DRIVE UNIT SAF37; 425 TYPE 1			
EMCS041201010510L	EMCS041201010510R	528mm	20,78"	EMCS HEAD DRIVE UNIT SAF37; 510 TYPE 1			
EMCS041201010680L	EMCS041201010680R	698mm	27,48"	EMCS HEAD DRIVE UNIT SAF37; 680 TYPE 1			
EMCS041201010850L	EMCS041201010850R	868mm	34,17"	EMCS HEAD DRIVE UNIT SAF37; 850 TYPE 1			

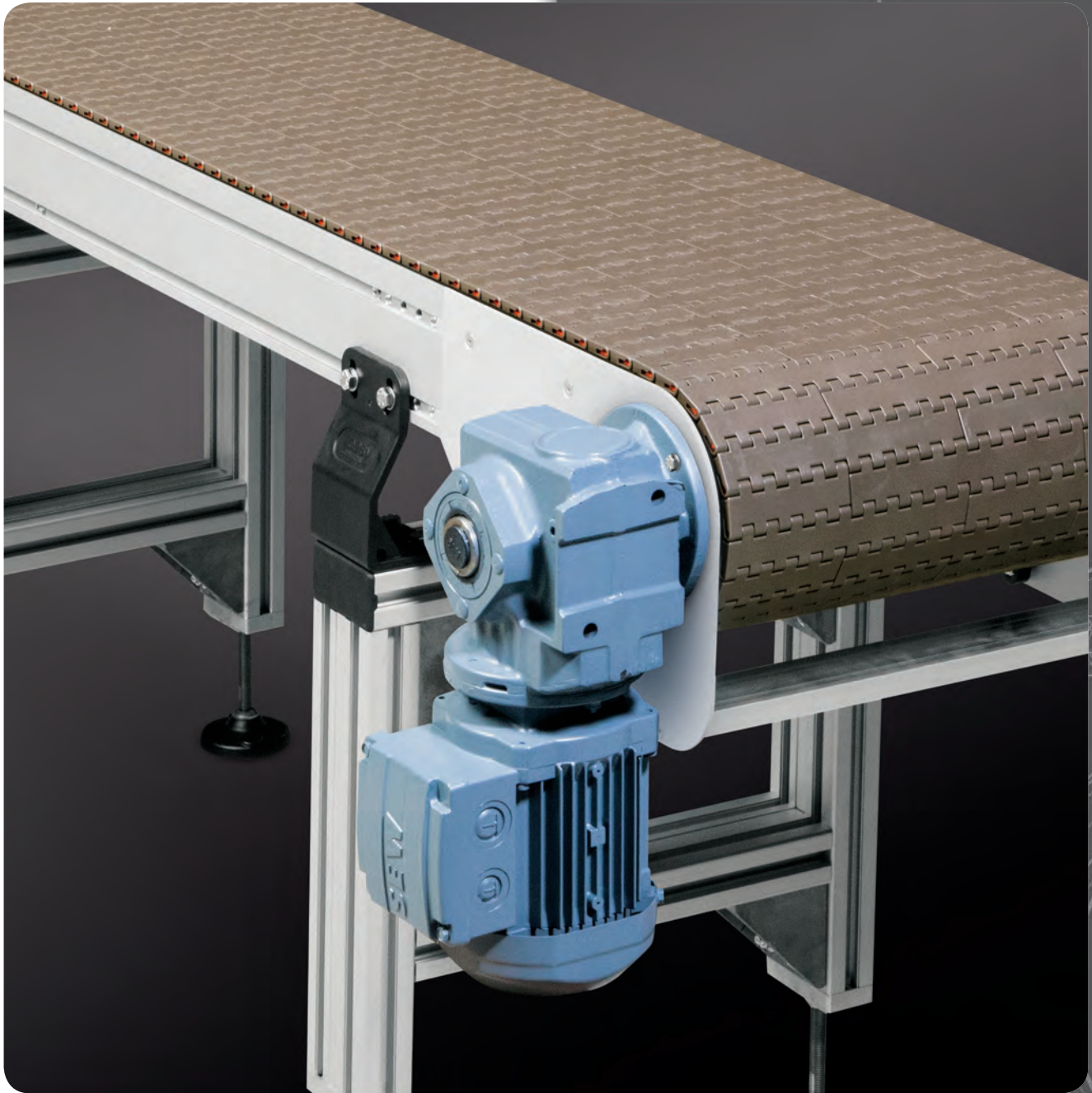
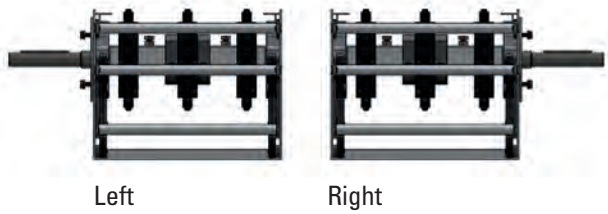
Suitable for, Geeignet für, SEW WITH FLANGE 120;

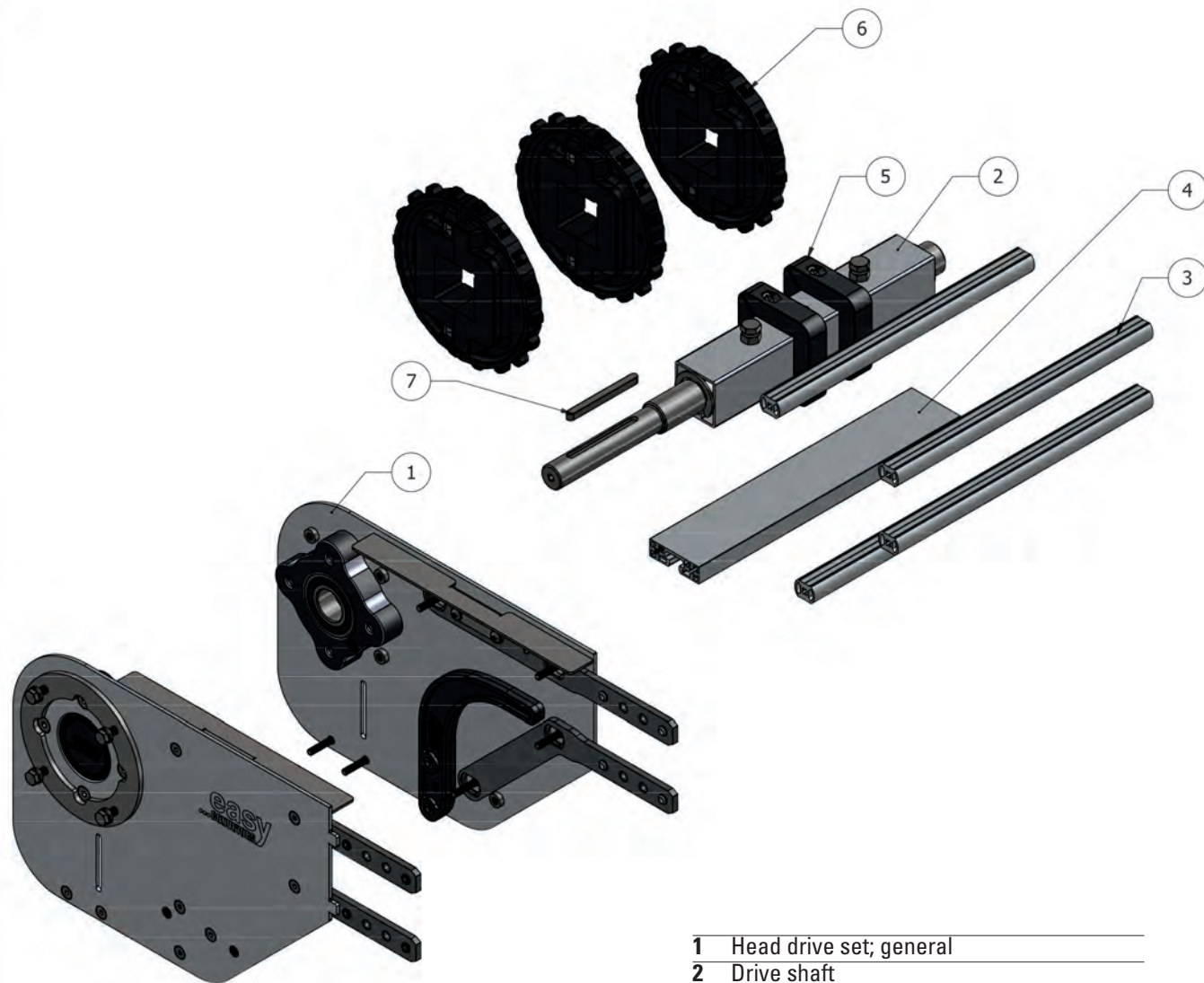
Convient pour, Adecuado para

Gearbox Not included

Package  Set incl. drive set and drive roller

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Head drive set; general
- 2 Drive shaft
- 3 Drive / return connector
- 4 Drive support connector
- 5 Split shaft collar
- 6 Sprocket wheel
- 7 Parallel key

Art Nr. Pos 1	For Aluminium system
EMCS04120100000	EMCS HEAD DRIVE SET SAF37; GENERAL TYPE 1
Material	AL+Stainless steel, AL+Edelstahl, AL+Acier inoxydable, AL+Acero inoxidable + PA 6.6
Package:	1 pc
SPROCKETS AND GEARMOTOR NOT INCLUDED	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

Art Nr. Pos 2	For Aluminium system	
041208000170	EMCS DRIVE SHAFT AL; 170 - SAF37	1
041208000255	EMCS DRIVE SHAFT AL; 255 - SAF37	1
041208000340	EMCS DRIVE SHAFT AL; 340 - SAF37	1
041208000425	EMCS DRIVE SHAFT AL; 425 - SAF37	1
041208000510	EMCS DRIVE SHAFT AL; 510 - SAF37	1
041208000680	EMCS DRIVE SHAFT AL; 680 - SAF37	1
041208000850	EMCS DRIVE SHAFT AL; 850 - SAF37	1
141Nm	Max. Torque, Couple, Esfuerzo de torsion, Drehmoment	
Material	Stainless steel shaft with aluminum roller tube, Welle aus Edelstahl mit Rolle aus Alu-Rohr, Arbre en Acier inoxydable avec tube d'enroulement en aluminium, Eje de Acero inoxidable con rodillos en tubo de aluminio	

Art Nr. Pos 3		Material
041204010170	EMCS DRIVE/RETURN CONNECTOR Ø20; 170	AL
041204010255	EMCS DRIVE/RETURN CONNECTOR Ø20; 255	AL
041204010340	EMCS DRIVE/RETURN CONNECTOR Ø20; 340	AL
041204010425	EMCS DRIVE/RETURN CONNECTOR Ø20; 425	AL
041204010510	EMCS DRIVE/RETURN CONNECTOR Ø20; 510	AL
041204010680	EMCS DRIVE/RETURN CONNECTOR Ø20; 680	AL
041204010850	EMCS DRIVE/RETURN CONNECTOR Ø20; 850	AL

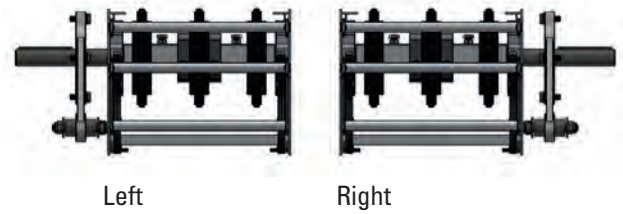
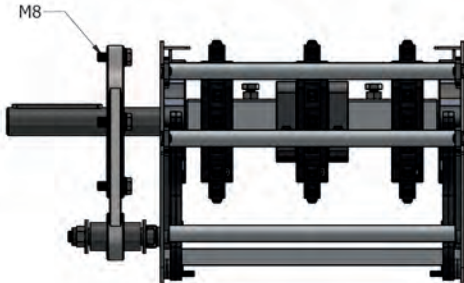
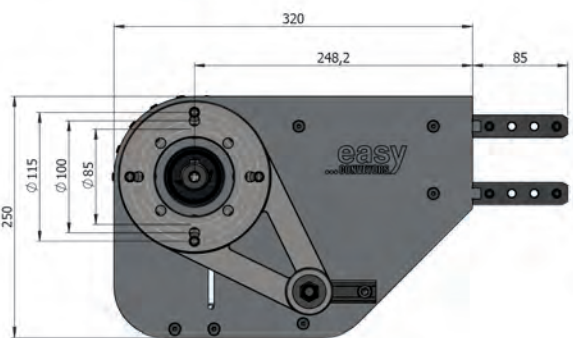
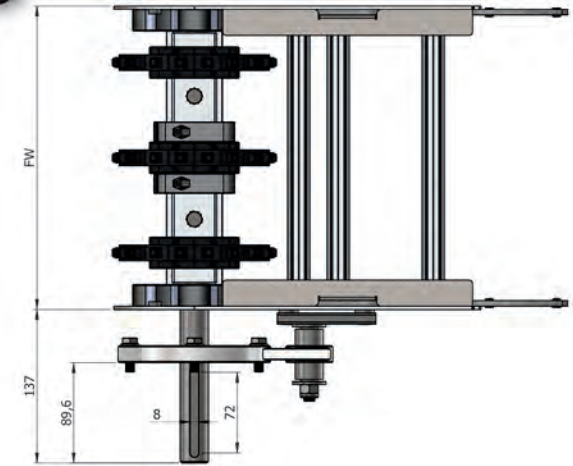
Art Nr. Pos 4		Material
041204020170	EMCS DRIVE SUPPORT CONNECTOR 15x50; 170	AL
041204020255	EMCS DRIVE SUPPORT CONNECTOR 15x50; 255	AL
041204020340	EMCS DRIVE SUPPORT CONNECTOR 15x50; 340	AL
041204020425	EMCS DRIVE SUPPORT CONNECTOR 15x50; 425	AL
041204020510	EMCS DRIVE SUPPORT CONNECTOR 15x50; 510	AL
041204020680	EMCS DRIVE SUPPORT CONNECTOR 15x50; 680	AL
041204020850	EMCS DRIVE SUPPORT CONNECTOR 15x50; 850	AL

Art Nr. Pos 5		
040706000018	Split shaft collar	10
Material	PA FG	

Art Nr. Pos 6		
041308060001	EMCS SPROCKET WHEEL; TYPE 2 Z=18, Bore Square 40	1
Pitch diameter	Ø146.3	
Material	Reinforced PA + Stainless Steel	

Art Nr. Pos 7		
BV688587080A4	Parallel key	100 pieces
Material	Stainless steel, Edelstahl, acier inoxydable, acero inoxidable	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

EMCS HEAD DRIVE UNIT	Dimensions - Abmessungen - Dimensions - Dimensiones					
FW =	186	271	356	441	528	698 868 mm
	7,32"	10,67"	14,02"	17,36"	20,78"	27,48" 34,17" inch

FOR ALUMINIUM SYSTEM

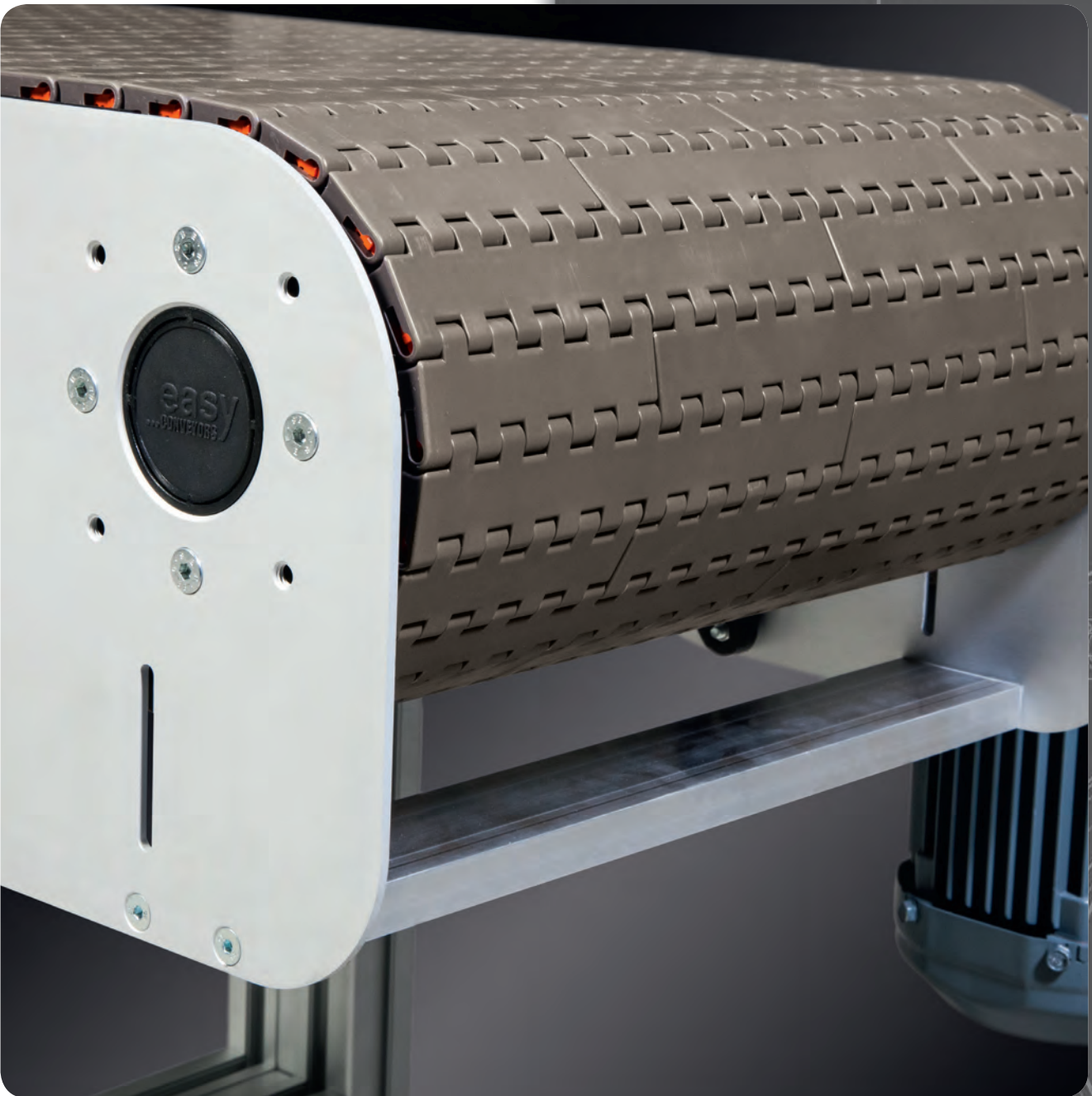
Left	Right				
EMCS041202010170L	EMCS041202010170R	186mm	7,32"	EMCS HEAD DRIVE UNIT SA47; 170 TYPE 1	
EMCS041202010255L	EMCS041202010255R	271mm	10,67"	EMCS HEAD DRIVE UNIT SA47; 255 TYPE 1	
EMCS041202010340L	EMCS041202010340R	356mm	14,02"	EMCS HEAD DRIVE UNIT SA47; 340 TYPE 1	
EMCS041202010425L	EMCS041202010425R	441mm	17,36"	EMCS HEAD DRIVE UNIT SA47; 425 TYPE 1	
EMCS041202010510L	EMCS041202010510R	528mm	20,78"	EMCS HEAD DRIVE UNIT SA47; 510 TYPE 1	
EMCS041202010680L	EMCS041202010680R	698mm	27,48"	EMCS HEAD DRIVE UNIT SA47; 680 TYPE 1	
EMCS041202010850L	EMCS041202010850R	868mm	34,17"	EMCS HEAD DRIVE UNIT SA47; 850 TYPE 1	

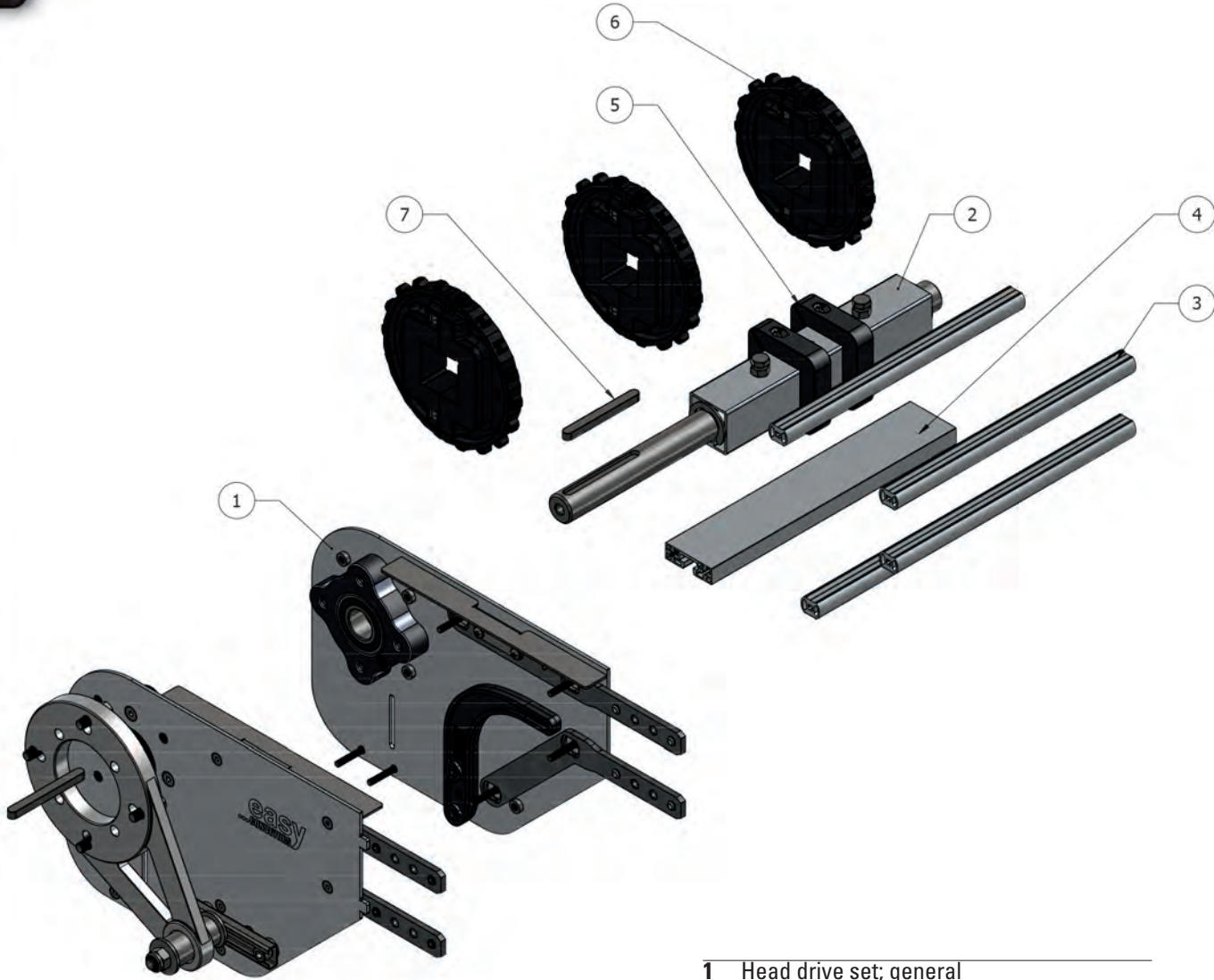
Suitable for, Geeignet für, SEW SA47, SEW WA37, VARVEL MRS 50, NORD SK-1SI 50, MOTOVARIO NMRV 50;
Convient pour, Adecuado para

Gearbox Not included

Package 1

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





- 1 Head drive set; general
- 2 Drive shaft
- 3 Drive / return connector
- 4 Drive support connector
- 5 Split shaft collar
- 6 Sprocket wheel
- 7 Parallel key

Art Nr. Pos 1	For Aluminium system
EMCS041202000000	EMCS HEAD DRIVE SET SA47; GENERAL TYPE 1
Material	AL+Stainless steel, AL+Edelstahl, AL+Acier inoxydable, AL+Acero inoxidable + PA 6.6
Package:	1 pc
SPROCKETS AND GEARMOTOR NOT INCLUDED	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

Art Nr. Pos 2	For Aluminium system	
041208010170	EMCS DRIVE SHAFT AL; 170 - SA47	1
041208010255	EMCS DRIVE SHAFT AL; 255 - SA47	1
041208010340	EMCS DRIVE SHAFT AL; 340 - SA47	1
041208010425	EMCS DRIVE SHAFT AL; 425 - SA47	1
041208010510	EMCS DRIVE SHAFT AL; 510 - SA47	1
041208010680	EMCS DRIVE SHAFT AL; 680 - SA47	1
041208010850	EMCS DRIVE SHAFT AL; 850 - SA47	1
276Nm	Max. Torque, Couple, Esfuerzo de torsion, Drehmoment	
Material	Stainless steel shaft with aluminum roller tube, Welle aus Edelstahl mit Rolle aus Alu-Rohr, Arbre en Acier inoxydable avec tube d'enroulement en aluminium, Eje de Acero inoxidable con rodillos en tubo de aluminio	

Art Nr. Pos 3		Material
041204010170	EMCS DRIVE/RETURN CONNECTOR Ø20; 170	AL
041204010255	EMCS DRIVE/RETURN CONNECTOR Ø20; 255	AL
041204010340	EMCS DRIVE/RETURN CONNECTOR Ø20; 340	AL
041204010425	EMCS DRIVE/RETURN CONNECTOR Ø20; 425	AL
041204010510	EMCS DRIVE/RETURN CONNECTOR Ø20; 510	AL
041204010680	EMCS DRIVE/RETURN CONNECTOR Ø20; 680	AL
041204010850	EMCS DRIVE/RETURN CONNECTOR Ø20; 850	AL

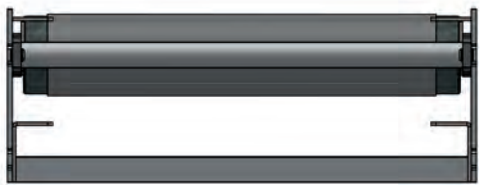
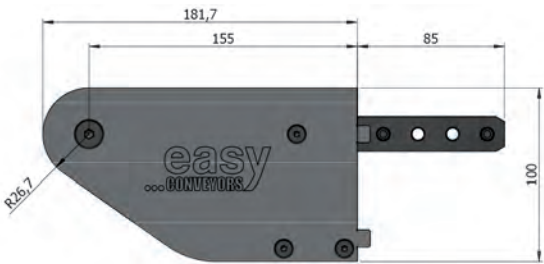
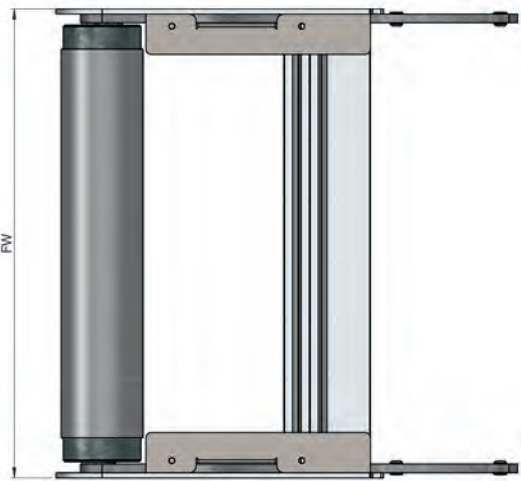
Art Nr. Pos 4		Material
041204020170	EMCS DRIVE SUPPORT CONNECTOR 15x50; 170	AL
041204020255	EMCS DRIVE SUPPORT CONNECTOR 15x50; 255	AL
041204020340	EMCS DRIVE SUPPORT CONNECTOR 15x50; 340	AL
041204020425	EMCS DRIVE SUPPORT CONNECTOR 15x50; 425	AL
041204020510	EMCS DRIVE SUPPORT CONNECTOR 15x50; 510	AL
041204020680	EMCS DRIVE SUPPORT CONNECTOR 15x50; 680	AL
041204020850	EMCS DRIVE SUPPORT CONNECTOR 15x50; 850	AL

Art Nr. Pos 5		
040706000018	Split shaft collar	10
Material	PA FG	

Art Nr. Pos 6		
041308060001	EMCS SPROCKET WHEEL; TYPE 2 Z=18, Bore Square 40	1
Pitch diameter	Ø146.3	
Material	Reinforced PA + Stainless Steel	

Art Nr. Pos 7		
BV688587080A4	Parallel key	100 pieces
Material	Stainless steel, Edelstahl, acier inoxydable, acero inoxidable	

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

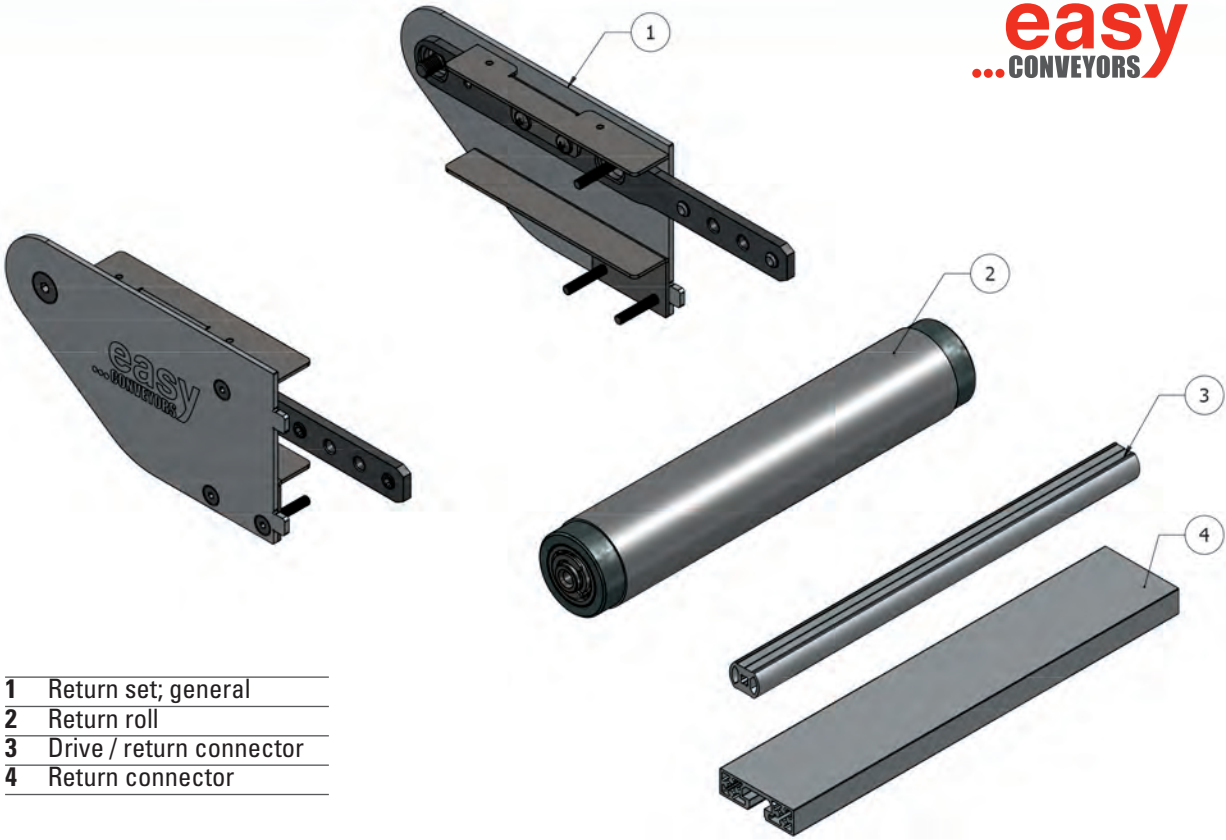


More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.		FW =		
EMCS041204010170	EMCS RETURN UNIT; 170 TYPE 1	186 mm	7,32" inch	1 set
EMCS041204010255	EMCS RETURN UNIT; 255 TYPE 1	271 mm	10,67" inch	1 set
EMCS041204010340	EMCS RETURN UNIT; 340 TYPE 1	356 mm	14,02" inch	1 set
EMCS041204010425	EMCS RETURN UNIT; 425 TYPE 1	441 mm	17,36" inch	1 set
EMCS041204010510	EMCS RETURN UNIT; 510 TYPE 1	528 mm	20,79" inch	1 set
EMCS041204010680	EMCS RETURN UNIT; 680 TYPE 1	698 mm	27,48" inch	1 set
EMCS041204010850	EMCS RETURN UNIT; 850 TYPE 1	868 mm	34,17" inch	1 set
Package	Set incl. return set and return roller			

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 Return set; general
- 2 Return roll
- 3 Drive / return connector
- 4 Return connector

Art Nr. Pos 1	
EMCS041204000000	1 piece, incl fasteners

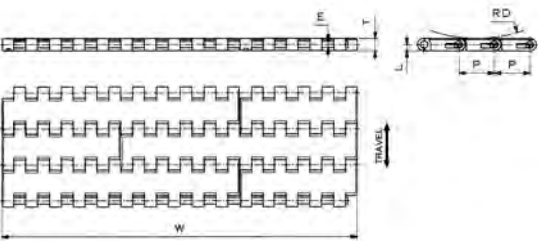
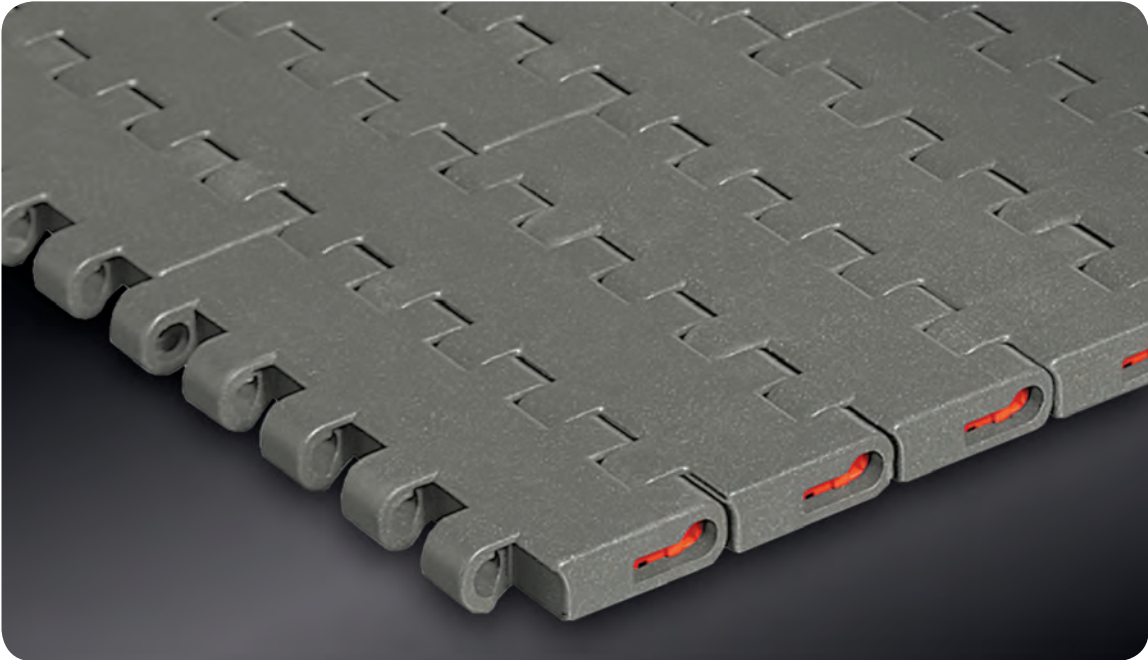
Art Nr. Pos 2	
041208040170	EMCS RETURN ROLL TYPE 1; 170 1
041208040255	EMCS RETURN ROLL TYPE 1; 255 1
041208040340	EMCS RETURN ROLL TYPE 1; 340 1
041208040425	EMCS RETURN ROLL TYPE 1; 425 1
041208040510	EMCS RETURN ROLL TYPE 1; 510 1
041208040680	EMCS RETURN ROLL TYPE 1; 680 1
041208040850	EMCS RETURN ROLL TYPE 1; 850 1

Diameter pulley Ø47,2

Material Stainless steel shaft with aluminum roller tube, end caps galvanized steel, Welle aus Edelstahl mit Rolle aus Alu-Rohr, Endkappen Stahl verzinkt, Arbre en Acier inoxydable avec tube d'enroulement en aluminium, Eje de Acero inoxidable con rodillos en tubo de aluminio, tapaz en acero galvanizado

Art Nr. Pos 3	Art Nr. Pos 4	Material
041204010170 Ø20; 170	041204030170 15x50; 170 1	AL
041204010255 Ø20; 255	041204030255 15x50; 255 1	AL
041204010340 Ø20; 340	041204030340 15x50; 340 1	AL
041204010425 Ø20; 425	041204030425 15x50; 425 1	AL
041204010510 Ø20; 510	041204030510 15x50; 510 1	AL
041204010680 Ø20; 680	041204030680 15x50; 680 1	AL
041204010850 Ø20; 850	041204030850 15x50; 850 1	AL

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



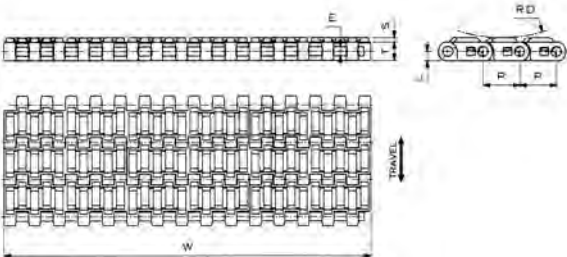
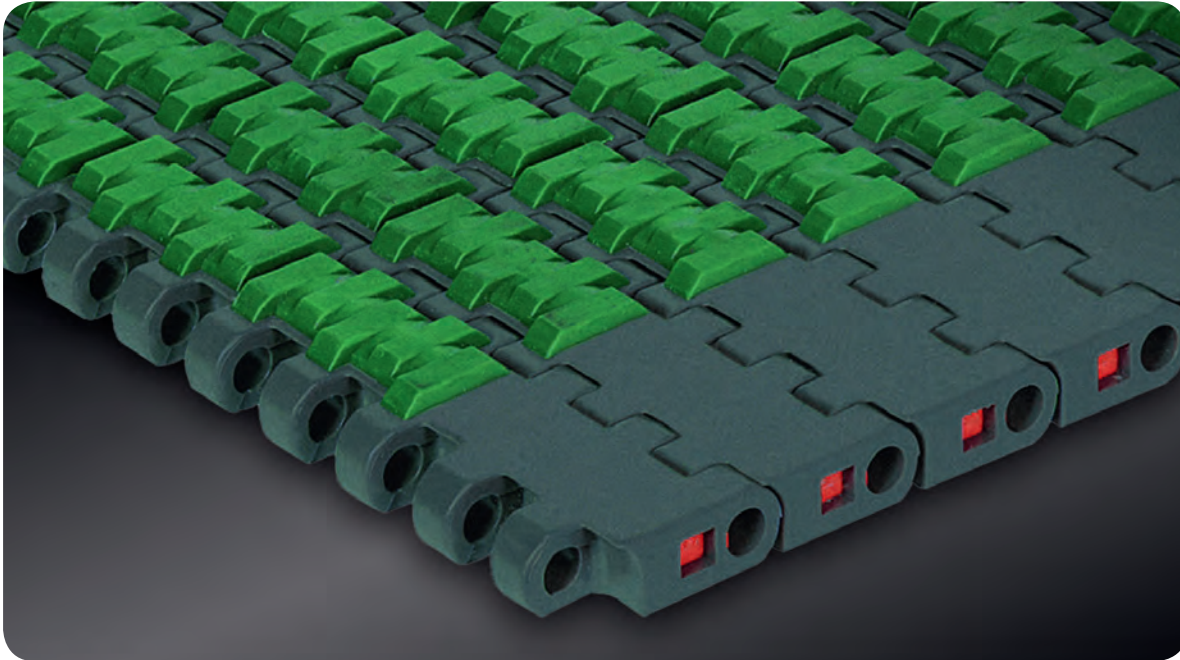
E	4,60mm
T	8,70mm
L	4,35mm
P	25,40mm
RD	20,00mm

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	BW =	Weight kg/m ²	Weight Lbs/ft
EMCP041208000170	170	1.29	0.87
EMCP041208000255	255	1.93	1.30
EMCP041208000340	340	2.57	1.73
EMCP041208000425	425	3.20	2.15
EMCP041208000510	510	3.84	2.58
EMCP041208000680	680	5.11	3.43
EMCP041208000850	850	6.38	4.29

Material	LW (acetal resin)
Pin material	PP
Max. load capacity	Straight 21.600 N/mtr
Package	1 box; L=3,048mtr (10 feet)
Color	



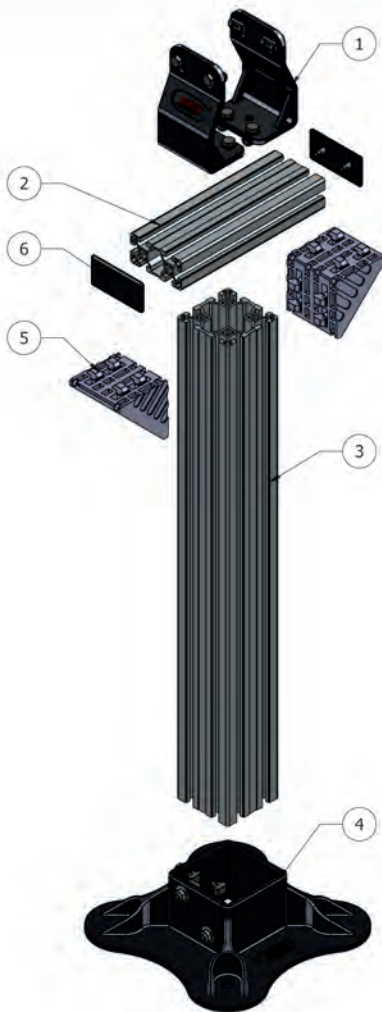
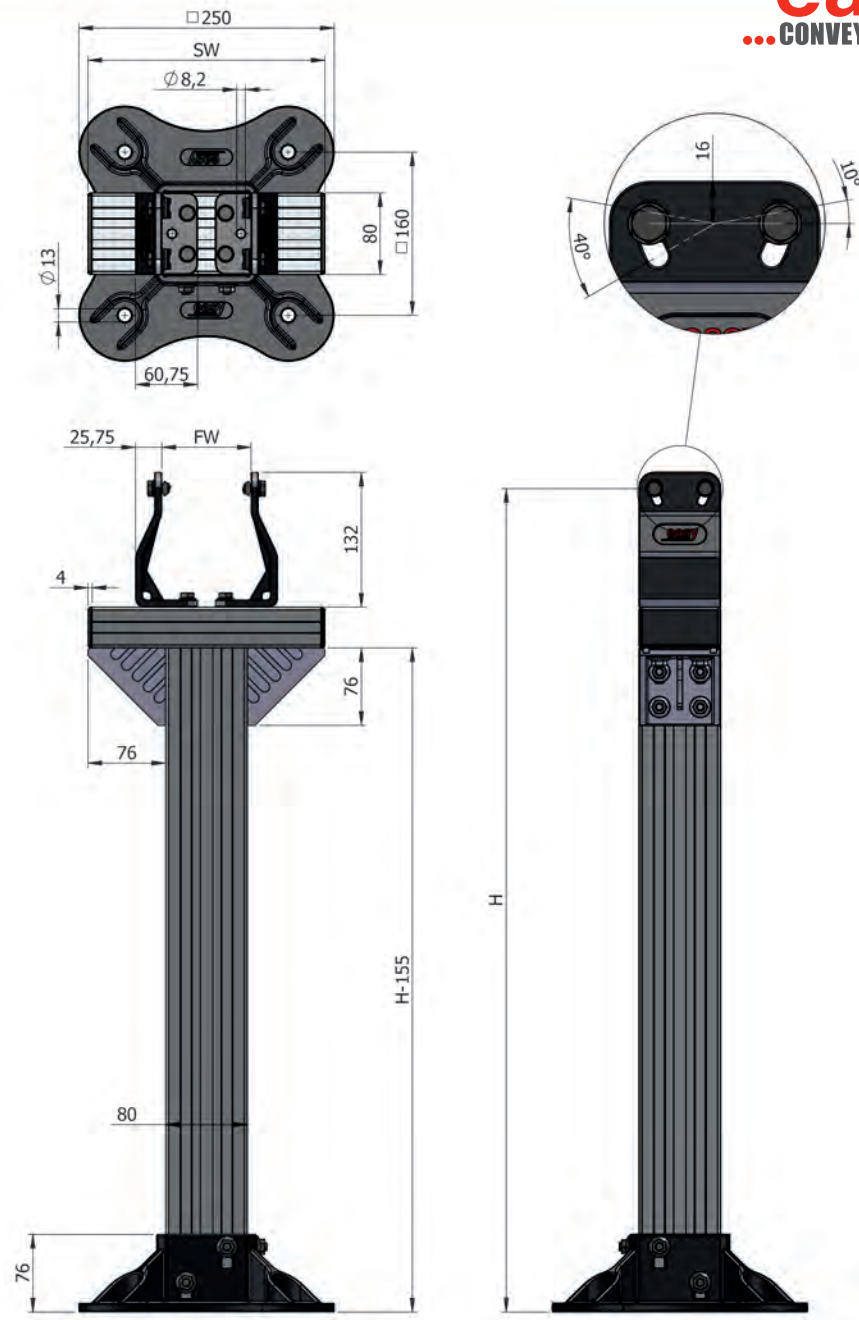
E	4,60mm
T	8,70mm
L	4,35mm
P	25,40mm
RD	20,00mm
S	3,00mm

More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones

Art. Nr.	BW =	Weight kg/m ²	Weight Lbs/ft
EMCP041208010255	255	2.73	1.83
EMCP041208010340	340	3.68	2.47
EMCP041208010425	425	4.63	3.11
EMCP041208010510	510	5.58	3.75
EMCP041208010680	680	7.48	5.03
EMCP041208010850	850	9.38	6.30

Material	LW (acetal resin)
Pin material	PBT
Rubber material	Thermoplastic
Rubber hardness	80 sha
Max. load capacity	Straight 35.000 N/mtr
Package	1 box; L=1,524mtr (60 pitches)
Color	
Friction color	

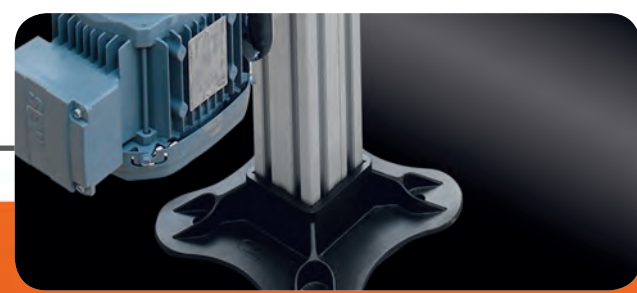


- 1 L support bracket
- 2 Profile 40x80 L
- 3 Profile 80x80 L
- 4 Support base
- 5 Bracket 80
- 6 Cap 40x80

More technical information: See engineering online www.easy-conveyors.com

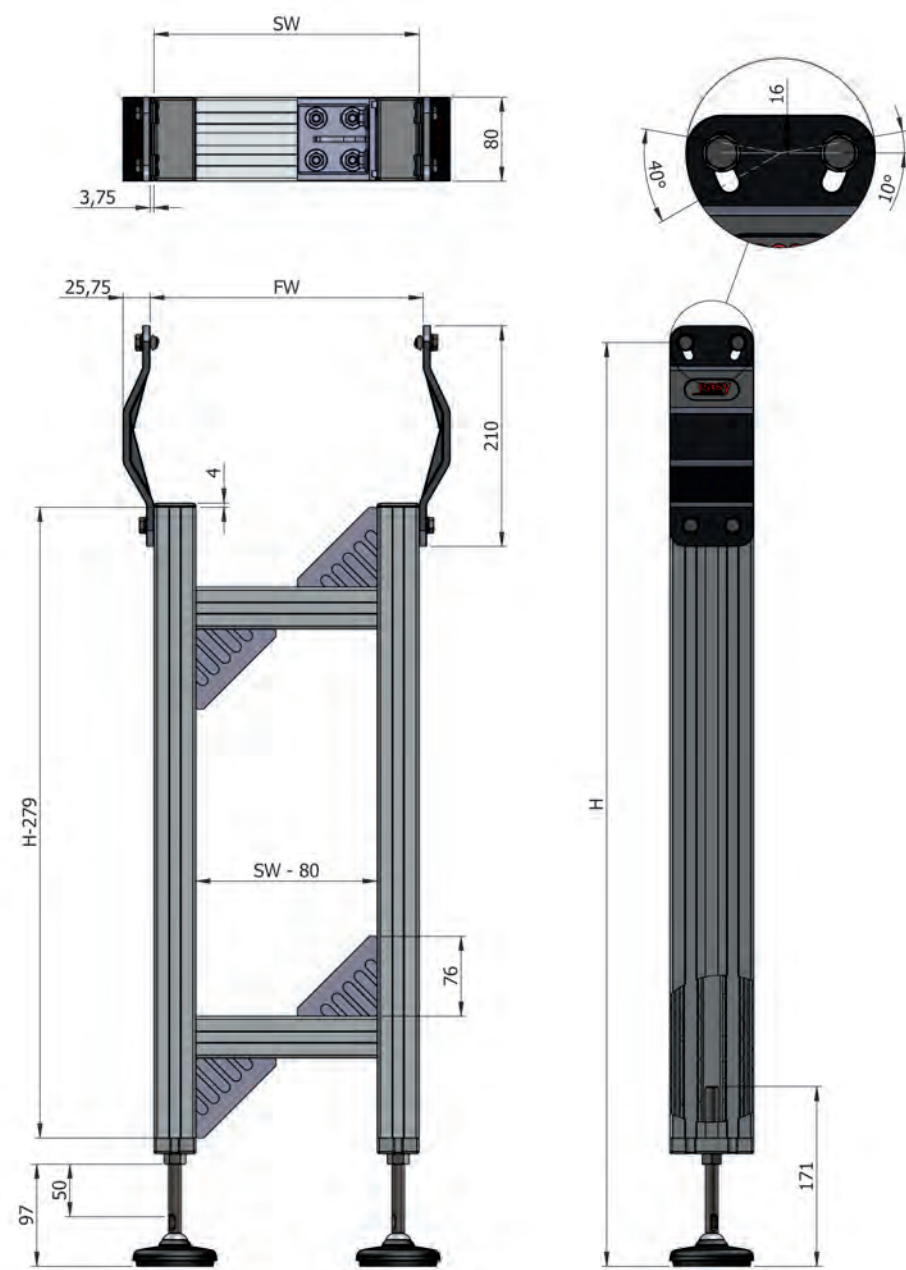
Dimensions - Abmessungen - Dimensions - Dimensiones			
FW =			
SW Min =	232 mm	9,13" inch	
We advise a maximum (FW) than 400 mm, Wir empfehlen eine maximale Breite von 400 mm			
Se aconseja un máximo de ancho de 400 mm, Nous vous conseillons une gamme maximale de 400 mm			
H Max =	1200 mm	47,25" inch	
Always fasten to the floor, Immer am Boden befestigen			
Siempre sujete al suelo, Toujours attacher à l'étage			

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040808020000	L support bracket	PA FG 1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2	Material	
020102070008	Profile 40x80L, L= 6070 mm	AL 1
Art Nr. Pos 3	Material	
020102070009	Profile 80x80L, L= 6070 mm	AL 1
Art Nr. Pos 4	Material	
ETS040808040000	Support base	AL RAL9005 1
Art Nr. Pos 5	Material	
020102160001	Bracket 80x80	AL 1 piece, incl. fasteners
Art Nr. Pos 6	Material	
020102140000	CAP 40x80	PA FG 10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 I support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Foot plate 40x80L
- 5 Hinged feet Ø80
- 6 Hexagon nut
- 7 Bracket 80
- 8 Cap 40x80

More technical information: See engineering online www.easy-conveyors.com

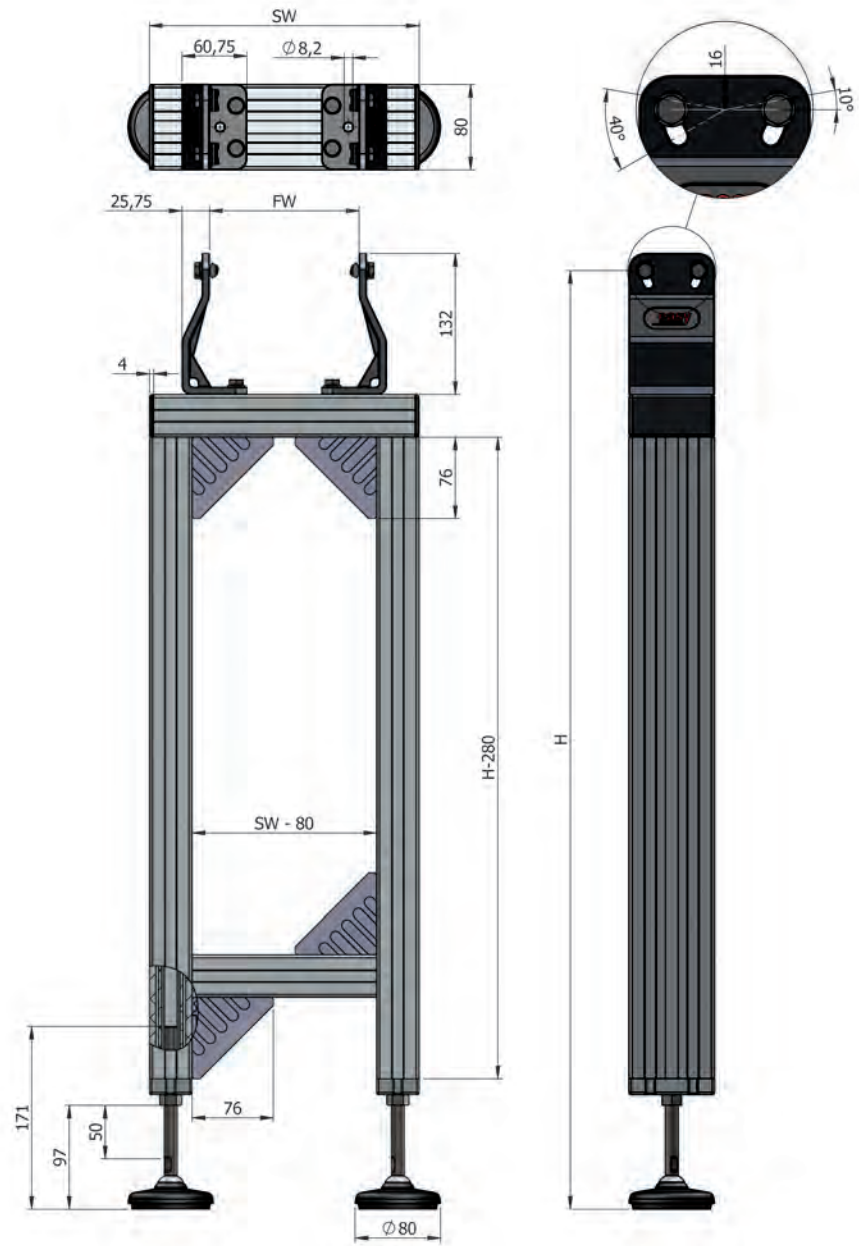
Dimensions - Abmessungen - Dimensions - Dimensiones			
FW =			
SW Min =	156 mm	6,14" inch	
H Max =	1200 mm	47,25" inch	
Always fasten to the floor, Immer am Boden befestigen			
Siempre sujete al suelo, Toujours attacher à l'étage			

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Art Nr. Pos 1	Material	
ETS040808030000 I support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 4	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 5	Material	
040707020003 Hinged feet Ø80	Screw jack: Stainless steel, Foot: Synthetic plastic	1
Art Nr. Pos 6	Material	
BV093412000A2 Hexagon nut	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable	100
Art Nr. Pos 7	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners
Art Nr. Pos 8	Material	
020102140000 Cap 40x80	PA FG	10

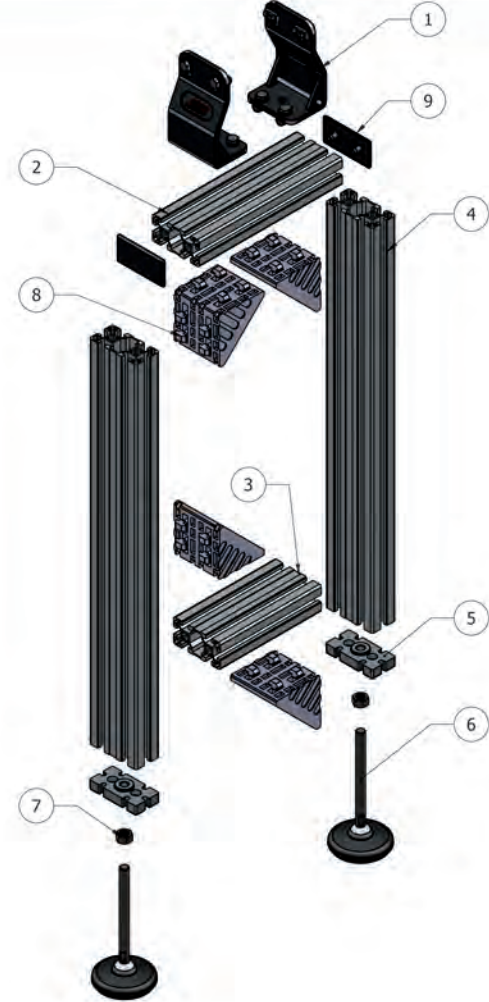
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Dimensions - Abmessungen - Dimensions - Dimensiones		
FW =		
SW Min =	232 mm	9,13" inch
H Max =	1200 mm	47,25" inch
Always fasten to the floor, Immer am Boden befestigen		
Siempre sujete al suelo, Toujours attacher à l'étage		

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



- 1 L support bracket
- 2 Profile 40x80L
- 3 Profile 40x80L
- 4 Profile 40x80L
- 5 Foot plate 40x80
- 6 Hinged feet Ø80
- 7 Hexagon nut
- 8 Bracket 80
- 9 Cap 40x80

Art Nr. Pos 1	Material	
ETS040808020000 L support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3 + 4	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 5	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 6	Material	
040707020003 Hinged feet Ø80	PA FG + stainless steel, PA + edelstahl PA Acier inoxydable, PA + acevo inoxidable	1
Art Nr. Pos 7	Material	
BV093412000A2 Hexagon nut	Stainless steel	100
Art Nr. Pos 8	Material	
020102160001 Bracket 80	AL	1 piece, incl. fasteners
Art Nr. Pos 9	Material	
020102140000 Cap 40x80	PA FG	10

Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



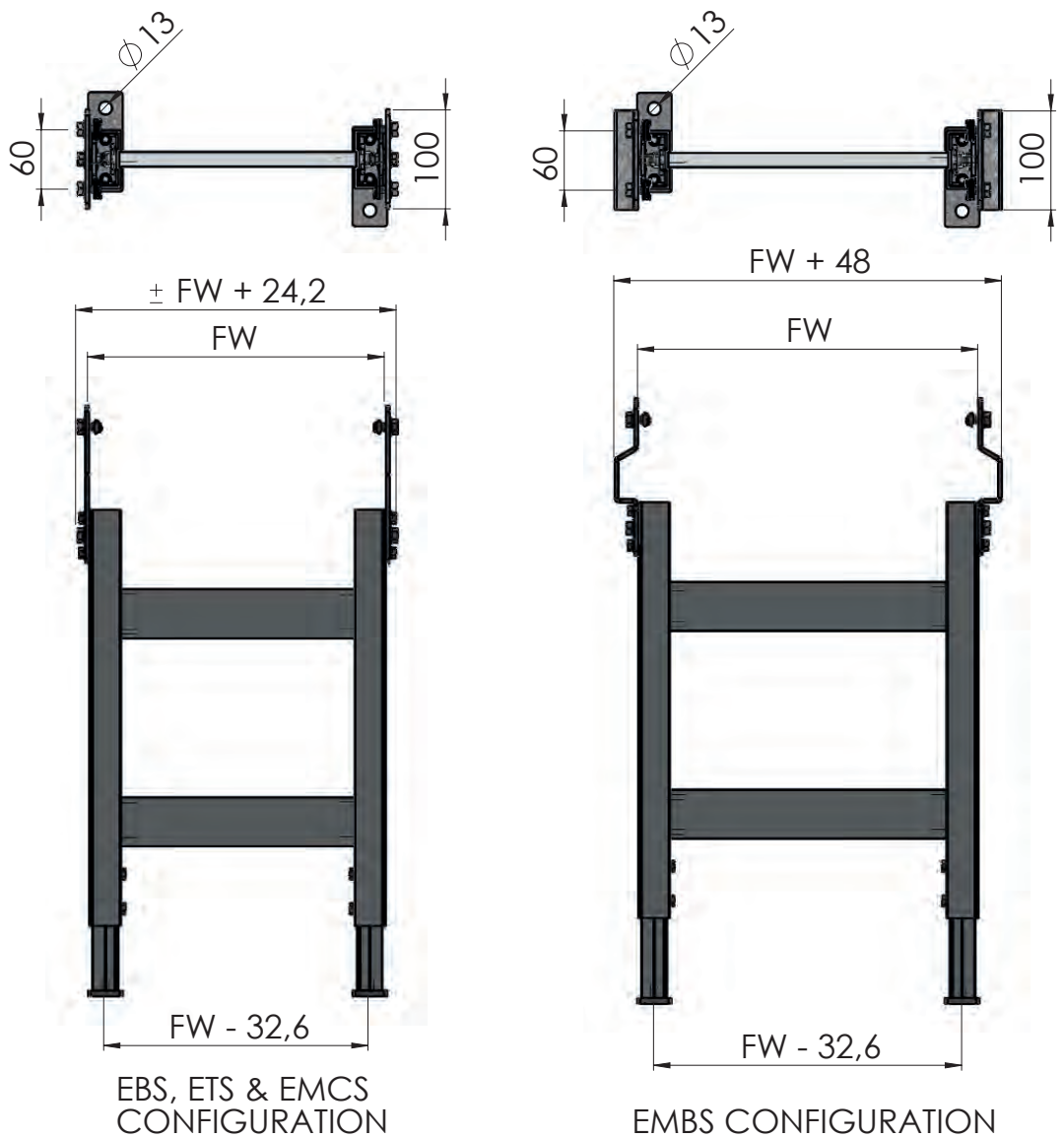
LEG SUPPORT

EBS, EMBS, ETS AND EMCS
IN HEIGHT ADJUSTABLE



easy
...CONVEYORS

www.easy-conveyors.com



EBS, ETS & EMCS
CONFIGURATION

EMBS CONFIGURATION

More technical information: See engineering online www.easy-conveyors.com

TECHNICAL DATA

General technical data

Max. load capacity	200 kg
Min. Adjustable Height	±325 mm
Max. Adjustable Height	±2500 mm
Number of cross members	Type 01 & 02 – 1 piece
	Type 03 & 04 – 2 pieces
	Type 05 – 3 pieces

Side Profile

Suitable side profile material	Aluminium
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Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



More technical information: See engineering online www.easy-conveyors.com

Type selection

Type	Conveyor System				
	EBS 40	EBS 80	ETS	EMBS	EMCS
	Adjustable Height [mm]*				
01.	325 – 400	325 – 440	355 – 430	360 – 435	335 – 470
02.	395 – 540	435 – 580	425 – 570	430 – 575	465 – 610
03.	535 – 820	575 – 860	565 – 850	570 – 855	605 – 890
04.	815 – 1380	855 – 1420	845 – 1410	850 – 1415	885 – 1450
05.	1375 – 2500	1415 – 2540	1405 – 2530	1410 – 2535	1445 – 2570

General Support Stand CONFIGURATOR

Please create the reference number with the following configurator.

1 TYPE GSS

2 Conveyor System EBS 40 | EBS 80 | ETS | EMBS | EMCS

3 System Width Enter Conveyor System Width Standard:

EBS 40	EBS 80	ETS	EMBS	EMCS
100	200	80	255	170
200	400	140	340	255
300	600	200	425	340
400	800		510	425
500	1000			510
600	1200			680
				850

Special: On request

4 Height 01 | 02 | 03 | 04 | 05

1 2 3 4
GSS - - -

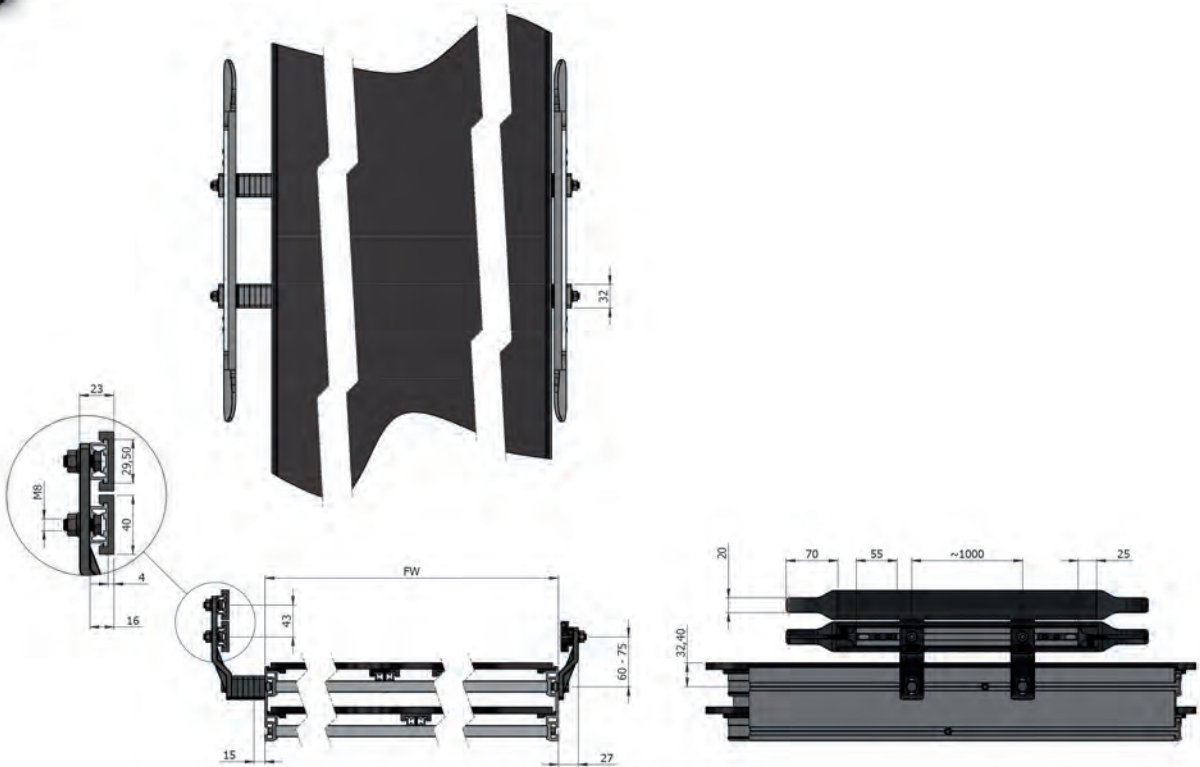
ORDER EXAMPLE

Example for a reference number:
GSS – ETS – 140 – 03

This reference number stand for a General Support Stand with the clearance for an ETS 140 conveyor type with an adjustable top of belt height between 565 mm and 850 mm.

Note:

- Longitudinal or diagonal cross members are not included.
- Dependable on conveyor speed, load, start/stops, etc. additional cross members noted under '1.' are not included.



- 1 Side guiding bracket short
- 2 Side guiding bracket long
- 3 Side guide profile AL
- 4 Side guide cover
- 5 Guide end
- 6 Guide spacer

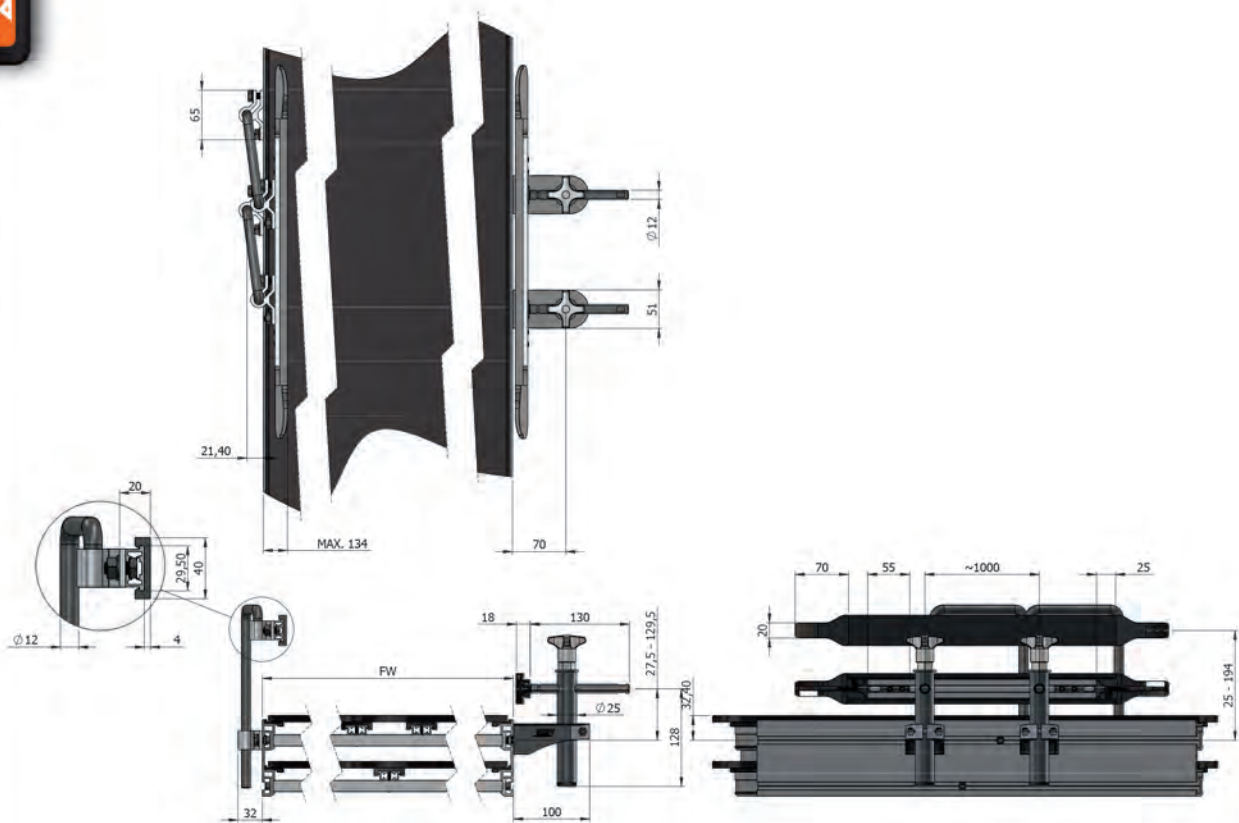
Art Nr. Pos 1		Material	
ETS040809010000 Side guiding short		PA FG	1 piece, incl. fasteners
Art Nr. Pos 2		Material	
ETS040809020000 Side guiding long		PA FG	1 piece, incl. fasteners
Art Nr. Pos 3		Material	
ETS040809000000 Side guide profile AL		AL	1 piece; L=5.6mtr
Art Nr. Pos 4		Material	
ECP040103000000 Side guiding cover		PE	1 piece; l=3mtr
Art Nr. Pos 5		Material	
ETS040809050000 Guide end 40		PA FG	1 set of pieces, incl. fasteners
Art Nr. Pos 6		Material	
ETS040809040000 Guide spacer		PA FG	10

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



- 1 Adjustable side guide
- 2 Adjustable side guide
- 3 Side guide profile
- 4 Side guide cover
- 5 Guide end

Art Nr. Pos 1	Material	
ETS040809030000 Side guide	PA FG + stainless steel, PA + edelstahl 1 piece, incl. fasteners	PA Acier inoxydable, PA + acevo inoxidable
Art Nr. Pos 2	Material	
ERA040409010000 Side guide	AL + steel galvanised, AL + stahl verzinkt 1 piece, incl. fasteners	AL + Acier galvanisé, AL + Acero galvanizado
Art Nr. Pos 3	Material	
ETS040809000000 Side guiding profile	AL	1 piece; L=5.6mtr
Art Nr. Pos 4	Material	
ECP040103000000 Side guide cover	PE	1 piece; l=3mtr
Art Nr. Pos 5	Material	
ETS040809050000 Guide end 40	PA FG	1 set of pieces, incl. fasteners

More technical information: See engineering online www.easy-conveyors.com

Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



This technical manual has been developed to assist you with specific engineering information when a new conveyor is designed as well as when an existing conveyor is going to be modified. Terms like TPM (Total Productive Maintenance) and SMED (Single Minute Exchange of Dies) are getting more and more important. With the right choice of chains and components you can design your conveyors to meet these principles. A large part of our program suits these principles. With this manual we intend to create some "CONVEYOR AWARENESS". As you will notice, most attention will be given to the construction details for the modular belt or chain, because this is the 'moving part' in a conveyor and therefore more critical when it comes to construction details. We also emphasize on guides as together with the belts, these are in direct contact with the customer's product and therefore of utmost importance. The right choice of type, style of the side guides can make the difference between a medium and a high production efficiency of a filling line.

For additional data and information about technical details of our products please refer to:

- Conveyor Belts catalogue
- Conveyor Roller catalogue
- Conveyor Chain catalogue
- Conveyor Support catalogue
- Conveyor Side guiding catalogue

Contact us To contact your local Technical Support check our website www.easy-conveyors.com or send an email to: info@easy-conveyors.com We cannot take responsibility for imperfections, damage or injuries due to wrong conveyor design, poor installation or improper use of our products made with or without reference to the information in this manual. We appreciate your suggestions to improve this Engineering Manual.

Selecting the size

A product's center of gravity, its inherent stability and its contours determine whether it is suited for transport on a mat top, table top, belt or roller conveyor system. The size of the conveyor system is selected according to the conveyed products, dimensions and weight. The maximum product width depends on its shape and the position of its center of gravity.

EMCS designs

The EMCS version in aluminum is an economic solution for many transport tasks. Open profiles prevent large amounts of contaminants from accumulating in the system and are especially easy to clean. The stainless steel version is used in areas that require wet cleaning or the use of acidic or alkaline cleaning agents to comply with stringent hygiene rules, as for primary packaging in the food industry.

Notes on system layout

- Using a center drive is similar to the conveyor system with the "sag" modules. The only exception is that it can be used in a reversing operation. However, it cannot handle the same heavy loads!
- There is a limit on the maximum weight of the transported product and the maximum length of the conveyors due to the permissible belt tensile force.
- The maximum width of a transported product depends on the position of its center of mass and the lateral guides.
- When using a conveyor with cleats for vertical transport, the maximum weight of a single product is limited by the strength of the cleats.
- Accumulation operation is not possible with static friction belt or cleated belt.
- Pay attention that the slide rails and section profiles are clean when assembling the system. Metal shavings or dust are highly abrasive and cause an extreme amount of wear!
- Accumulation must never occur at the drive wheels.
- Depending on the system's construction and the product being conveyed, certain places pose a risk of pinching / crushing. Appropriate safety devices must be provided in the operating area, as required. Also observe the notes in the assembly instructions which can be found in the download section at <http://www.easy-conveyors.com>
- Avoid conveying materials with a temperature higher than 60°C
- The maximum pulling force of the EMCS belt solid top on the straight is 21.600 N / m (this is Newton per meter width of the belt) and the EMCS belt with a rubber surface has a maximum pulling force from 35.000 N / m.

Conveyor length

Conveyor length depends on

- Chain/belt type
- Lubrication
- Product
- Load
- Etc.

Operating temperatures

Dry : -40°C to + 80°C

wet: 0°C to + 65°

Type	Max. advisable length [m]
Plastic chains,	22 - 30mtr

These are indicative figures. In any case it is recommended to double check the conveyor length by calculating the resulting chain pull.

A phenomenon called slip stick effect occurs unpredictably. It depends on speed, load, construction and lubrication. Pulsating dynamic forces are the result and affect the service life of all components of a conveyor. More importantly it influences product handling in a negative way. Long conveyors should be avoided in such cases.

Long conveyors result in high chain load, which affects many components of the conveyor and their wear life.

Conveyor speed

Maximum speed in m/min

Type	Max. advisable length [m]		
	Dry	Water	Water & Soap
Plastic chains,	45	80	115

Under abrasive or high load conditions the maximum speed is reduced. Higher speed causes higher wear in any case. For higher wear resistant materials contact our technical support.

Sprocket position for belts

Nominal belt width	Recommended number of sprockets/ idler wheels
170	2
255	3
340	4
425	5
510	6
680	8
850	10

Fix only one sprocket (centre sprocket), if the belt is running without positioners or any other lateral guide.



WEAR STRIPS

Construction:

There are different ways of supporting a chain or belt with wear strips:

- Parallel support => this way is as default for our systems;
- Heavy duty support => in case of heavy load and/or high impact;

Make sure the wear strip is chamfered at the entry side and that there's enough space between the lengths of wear strip to absorb thermal expansion:

Thermal expansion TCP: 10-15 mm/m +10 °C (K)

Thermal expansion TCS: 0.10-0.15 mm/m / °C

Heavy duty support: In case of heavy loads or high impact, it's advisable to support the belt. Bear in mind that a heavy duty support can also easily collect dust and dirt. Make sure abrasives can leave the system.

Selection of wear strip material:

Wear strip material	Plastic chains	
	Dry	Lubricated
TCS	recommended	possible
TCP	possible	possible

Temperature limits of wear strip materials must be considered.

TCS

- UHMWPE with built in dry lubricant
- Offers even lower coefficient of friction and less noise emission than standard UHMWPE
- Basic material properties are similar to UHMWPE

TCP

- To be used in slightly abrasive conditions
- Absorption of humidity to be considered

APPLICATIONS

Static electricity

Anti Static (AS) chain and belt material has the following properties: Surface resistivity: $10^5 \Omega/\text{sq}$ (According to IEC60093 test method) Volume resistivity: $10^3 \Omega\text{m}$

In order to avoid sparks:

- It must be assured on site that the electric charge is dissipated to the ground.
- Wear strips must be conductive and grounded.
- Sprockets and idler wheels must be conductive and grounded.

For further information regarding use of our AS chains in hazardous areas please contact our Technical Support.

Noise reduction

- When designing a layout use multiple strand or wider belt running at a lower speed rather than single strand or narrow belt running at higher speed.
- Avoid chain/belt colliding with conveyor parts.
- Reduce speed differentials and thus product impact.
- Adjust sprockets/idlers according to our recommendation in the catalogue
- Use materials with optimized sliding properties (e.g. TCS wear strips, product guides).
- Apply lubrication..

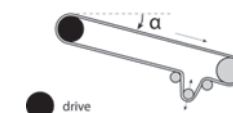
Inclined and declined conveyors

Maximum angles to avoid product sliding down on the chain

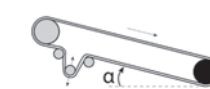
Chain type	Lubricated	Dry
Plastic chains/belt	2.5°	4.5°
Rubber top chains plastic	12 / 15°	15 / 20°

Pollution on the chain as well as on the product surface influences the maximum angles negatively.

Declines:



$\tan(\alpha) > \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.



$\tan(\alpha) < \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.

Dynamic tensioner is in both cases recommended.

Inclines:



Drive is normally located at the upper end. Soft start/stop is recommended.

Dynamic tensioner is recommended.

**Accumulation**

Accumulation of products results in increased load on the chain as well as in increased wear on chain/belt and product.

Cleaning:

The cleaning regime needs to be re-evaluated when going away from wet lubrication because:

- Wet lubricant has also cleaning effect
- More dedicated cleaning is required f.e. where product loss occurred

Product quality:

The type and quality of the material has an influence on the behavior on the conveyors like:

- Quality of PET
- Quality of Cans
- Quality of Glass

- Raw material	- Steel/ aluminum	- Raw material; origin
- Colorants	- Painted or varnished	- New or returnable
- Blockers	- Design	- Design
- Other additives	- Material thickness	- Surface finish of bottle
- Design/ settings of machine		

Process:

When designing a layout please bear in mind that the line is going to run without wet lubrication. Think about:

- Wider conveyors -> slower speed
- Longer inliners/outliners
- Shorter buffer sections [?] Back Line Pressure
- Optimized line controls
- Larger radius curves

Mechanical:

Some small mechanical issues on conveyors that seem not to create problems need to be addressed when going away from wet lubrication. Make sure that the chains/belts are running completely free (without obstruction). Some points of attention:

- TCS wear strips and curves with built-in lubricant can replace the wet lubrication to a certain extent.
- Perfect alignment of different sections.
- Smooth transfers of wear strips.
- Stable and straight side guides at right position.
- Positioning of sprockets and idlers.

Factor H:

The most important factor is the Human Factor: the people that are dealing with the line.

- How do the local people deal with the line?
- Who's responsible?
- How are the contracts made?
- 'Mind set' change when reducing lubrication!
- Never mix products! -> f.e. teflon spray in combination with dry lubricant creates high friction

So, is Dry Lubricant a good idea?

- Yes, in a good number of cases it brings interesting advantages.
- But be aware of the down side to get the full benefit!

Completely dry may be better?

- In certain areas of the bottling line and certain products: yes
- Depalletiser + outfeed conveyors
- Labeling, coding and packaging areas
- Cans and PET and even glass
- Beware of abrasives & chemicals

EMCS Calculation information:

Easy Modular Chain is a used design to convey carton, plastic, glass products etc., small sized products and unstable containers (for example PET bottles with petaloid base). In most applications the load on the belt can be relatively high because:

- The products are heavy
- There is usually no lubrication

Therefore it is very important that every application of a side flexing belt is calculated prior to fixing the final layout of the line. Our Technical Support department will be glad to assist you with the calculations.

Sprocket positions and supporting wheels:

Since these belts are not symmetrical to the middle axis, please note that the precise sprocket position also depends on the running direction of the belt. The right position for both directions is given in the sketches below.

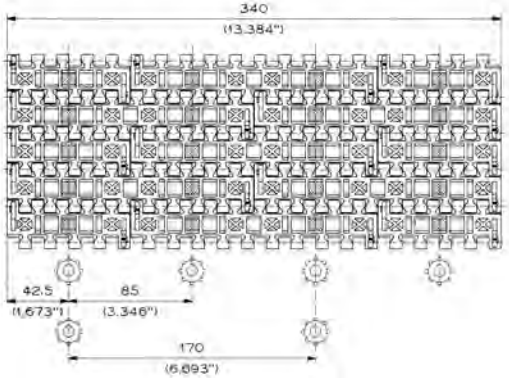
Note: Precise position of the sprockets must be determined during the installation to obtain optimum alignment.

MODULAR BELTS:

For other widths please always consider the same first pocket position dimension of 42,5 mm (1.673") from belt edge, and 85 mm (3.346") spacing between other consecutive pockets.

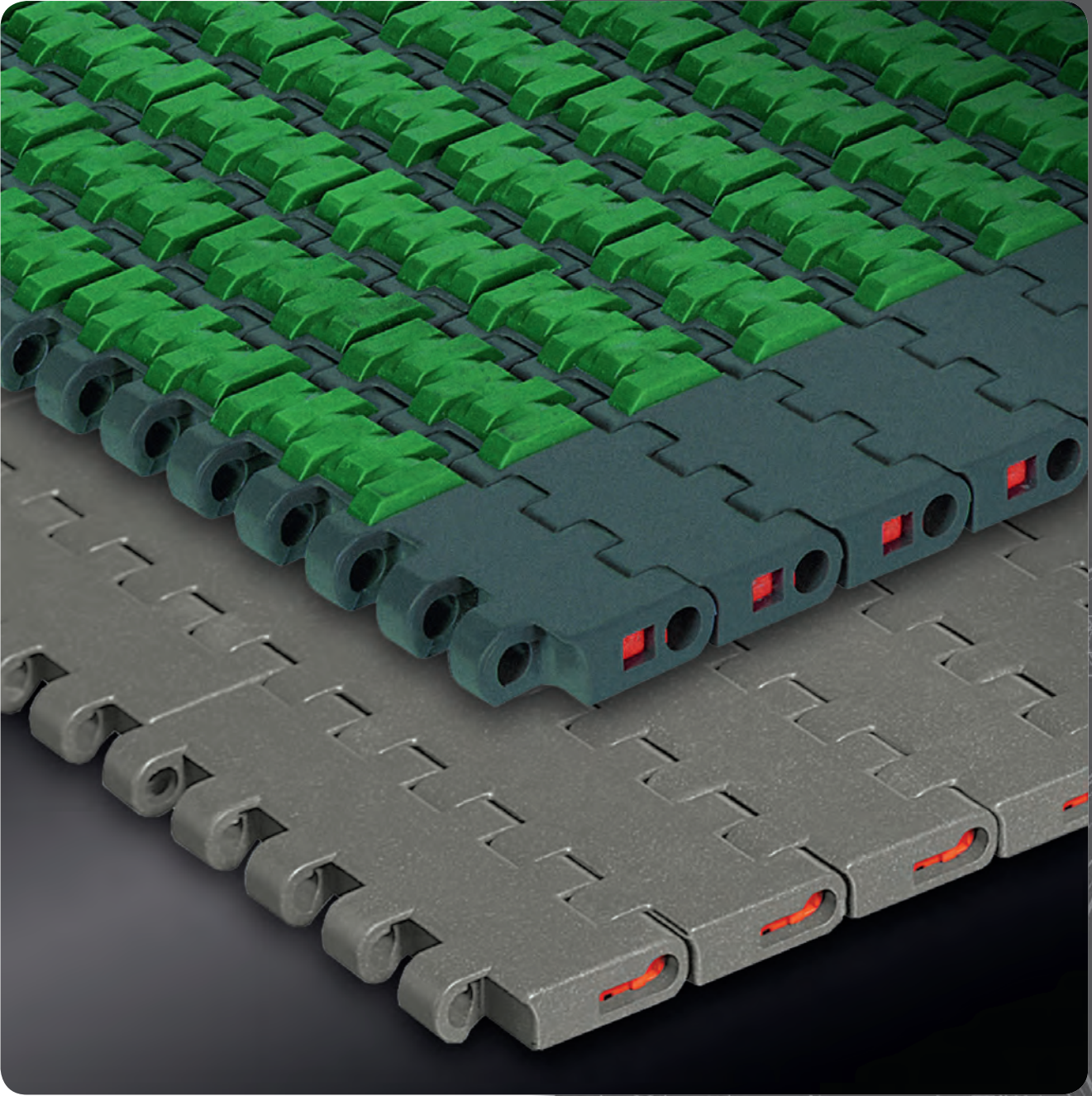
A spacing of 170 mm (6.693") between idler sprockets (or wheels) should normally be used on idler shaft.

The example refers to a 340 mm (13.384") wide belt.



Recommended number of sprockets and idler wheels, summary:

EMCS	
170	2
255	3
340	4
425	5
510	6
680	8
850	10



Product handling Forces due to acceleration:

The force necessary to accelerate the chain and products is calculated by:

$$F = M * a$$

F = force in [N]

M = mass of chain and product in [kg]

a = acceleration in [m/s²]

This extra force is working not only on the chain but also on the bearings, the drive unit and the structure. Frequent start-stops create an extra fatigue load on the chain and thus shorten the life time of the chain. In the calculation there's a factor included depending on number of start-stops per hour. Soft starts or frequency controllers are always advisable. Not only for the life time of the chain but also for smoother product handling and avoiding problems at start-up with products particularly unstable.

Maximum acceleration:

The max acceleration force on a product to be able to 'take along' the product with the chain is depending on the friction between product and chain. Maximum acceleration a_{max} can be calculated with:

$$a_{max} = \frac{F_{max}}{M} = \frac{W * \mu}{M} = \frac{M * g * \mu}{M} = g * \mu$$

W = weight of product in [N]

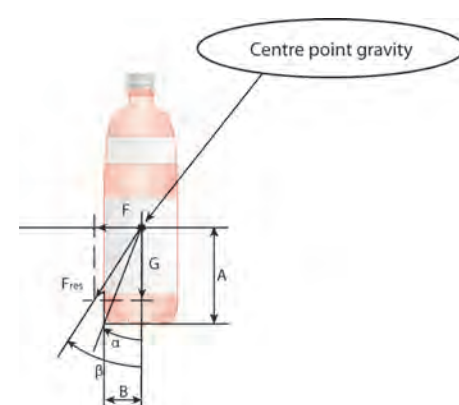
M = weight of product in [kg]

μ = coefficient of friction between chain and product

g = gravitational acceleration = 9.81 m/s²

Maximum force on products to avoid tip page:

The maximum acceleration without products falling over is depending on the shape (position of centre of gravity), the weight and the material of the product. This is for instance also important when the product is being conveyed onto a dead plate. See below sketch:



G = weight product

F = horizontal force on product

F_{res} = horizontal force on product

The force F is the force due to acceleration or deceleration of the product ($F=M*a$), or due to a different cause like other bottles or a side guide. The bottle will tip over when the angle β is larger than angle α . Angle α is determined by the diameter of the foot print of the product ($B= \frac{1}{2} * \text{diameter}$) and the height of the centre point of gravity ($=A$). Angle β is determined by the horizontal force on the bottle ($= F$) relative to the weight of the bottle ($= G$).

The max force F is found by following formula:

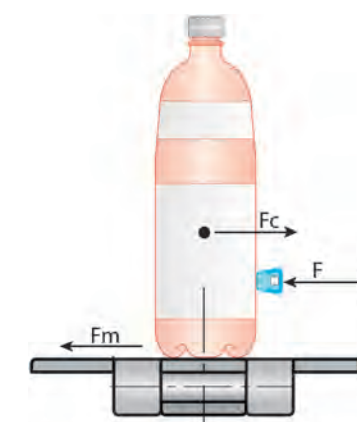
$$\frac{F_{max}}{G} = \frac{B}{A} \rightarrow F_{max} = G * \frac{B}{A} \quad \text{or} \quad \begin{array}{l} \mu < \frac{B}{A} \rightarrow \text{OK} \\ \mu > \frac{B}{A} \rightarrow \text{not OK} \end{array}$$

MSV= maximum speed variation

$$MSV = \sqrt{2 * g * (\sqrt{H^2 + B^2} - H)}$$

Centrifugal forces:

When a product is being conveyed through a curve there's a centrifugal force working on the product. This force on the product is compensated by the friction between chain and product and by a side guide.



The centrifugal force is calculated with:

$$F_c = \frac{M * v^2}{r}$$

M= weight of the product

v = speed

r = centre radius of the curve

Friction force between chain and product is calculated with:

$$F_m = M * g * \mu$$

g = gravitational acceleration

μ = coefficient of friction between chain and product.

The minimum force F that needs to be generated by the side guide is:

$$F = F_c - F_m = M * \left[\frac{v^2}{r} - g * \mu \right]$$

Pressure of accumulating products:

When a product is standing still (e.g. against a stopper or guide), the chain running underneath the product creates a force on the product equal to the weight of the product multiplied by the coefficient of friction between chain and product. Each following product is pushing with the same force against the next product, so the resulting force is proportional to the total weight of products upstream.

$$F_a = W_a * L_a * \mu$$

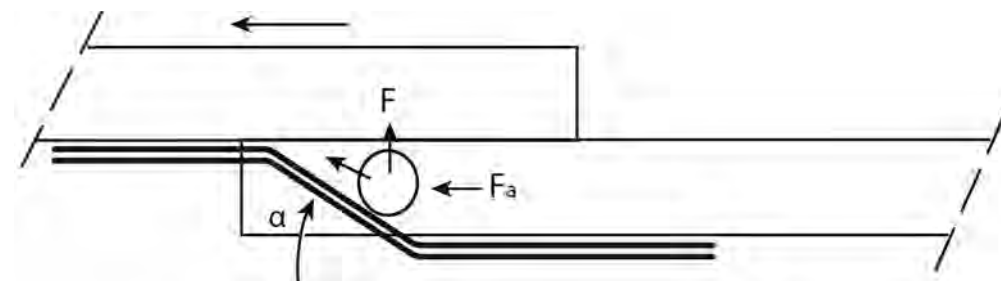
F_a = accumulation force

W_a = weight of the accumulating products in Kg/m.

L_a = length of accumulation in m

μ = coefficient of friction between chain and product.

Side transfer action:



Pushing the product sideward creates a force F on the product against the side guide

$$F = F_a * \sin(\alpha) = W_a * L_a * \mu * \sin(\alpha)$$

(see explanation of symbols above)

Nowadays cans and bottles are becoming thinner and thinner. At the same time more and more installations are running with less or no lubrication and are so increasing the coefficient of friction.

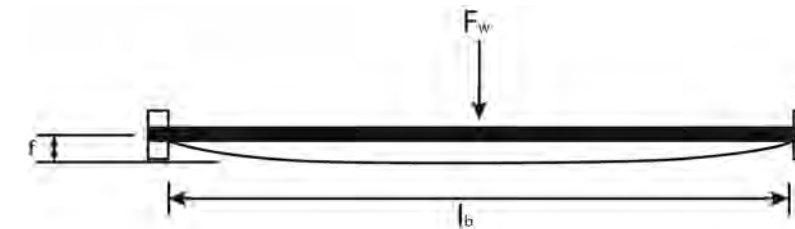
That's why it's important to take also these forces on the products into consideration. In the above mentioned formula the angle α plays an important role in a smooth transfer and reduced forces on the products. This angle should be kept as small as possible.

Shaft size:

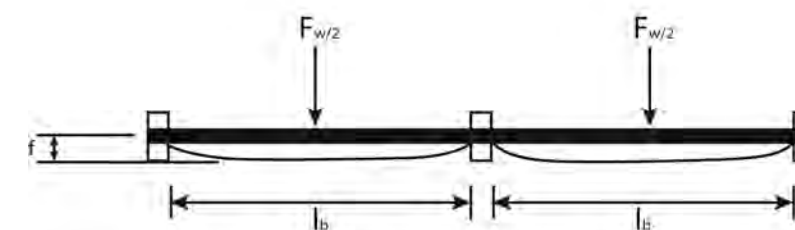
The shaft must fulfill the following conditions:

- max shaft deflection under full load (F_w). f_{max} is 2.5 mm. If the calculated shaft deflection exceeds this max value, select a bigger shaft size.
- Torque at max load must be below critical value

Shaft deflection can be calculated with following formula:



$$f = 0.013 * F_w * \frac{l_b^3}{E * I} \quad [\text{mm}]$$



$$f = \frac{1}{370} * F_w * \frac{l_b^3}{E * I} \quad [\text{mm}]$$

For uni-directional head drive $F_w = T_s$

For bi-directional centre drive $F_w = 2 * T_s$

For uni-directional pusher drives $F_w = 2.2 * T_s$

Shaft size [mm]	Inertia [mm ⁴]
Ø20	7850
Ø25	19170

Shaft material	Modulus of elasticity E [N/mm ²]	Shearing strenght [N/mm ²]
Stainless steel (low strength)	195000	60

The torque on the shaft is calculated with:

$$T_{\max} = F_w \cdot \frac{d_p}{2} \cdot 10^{-3} \quad [\text{Nm}]$$

T_{\max} = maximum torque
 T_{adm} = admissible torque

$$T_{\text{adm}} = \eta_{\text{adm}} \cdot \frac{d_w^3}{5000} \quad [\text{Nm}]$$

η_{adm} = admissible shearing strength [N/mm²]

for max. admissible shearing strength see table below:

Maximum allowable torque	
Shaft diam. [mm]	Stainless steel [Nm]
Ø20	141
Ø25	276

Bearings:

Relubrication is depending on the operating conditions. Dust, load, humidity, temperature, vibrations: all affect the relubrication interval. Below table show indicative values for relubrication intervals. Please note that all our bearing are pre-greased in the factory. There is no need for immediate re-greasing. Furthermore, regreasing should be done in small amounts and with care.

Use conditions	Temperature	Re-lubrication period
Clean	up to 50°C	1-2 years
Clean	50 ÷ 70 °C	4 -8 months
Clean	70 ÷ 100 °C	1 - 3 months
Dirty	up to 70°C	2 - 8 week
Dirty	70 ÷ 100 °C	2 - 4 week
Humid + wet	-	1 - 2 week

Standard PIN Material

(PP) Polypropylene

(PBT) Polybutylene Terephthalate

Standard Flight Material

(LW) DuPont™ Delrin® special acetal resin

It offers better wear resistance for more demanding applications.

Consistently low coefficients of friction.

(UP) DuPont™ Delrin® special acetal resin

It offers better wear resistance for more demanding applications.

Consistently low coefficients of friction.

Rubber materials

Applications

Packaging lines (cardboard, shrink packs).

Paper and cardboard boxes.

General conveying on inclined conveyors.

HF Modular Belts

Modules are available in:

• UP - DuPont™ Delrin® special acetal resin.

High friction surface is thermoplastic rubber (see table below).

MATERIAL	COLOUR	AVERAGE HARDNESS	NON SUITABLE WITH	RESISTANT TO
THERMOPLASTIC	GREEN	80 ShA	STRONG ACIDS AND BASES	OILS

Benefits

- Outstanding rubber retention (Patent Pending).
 - Excellent and reliable rubber grip.
 - Large sliding surface for extended wear life.
 - Wide sprocket tooth for reliable drive and extended life.
 - The maximum angle of the ramp is a function of type, shape and material of the product to be conveyed.
- Temperature and other environmental conditions can influence maximum value of the incline.

Storage of plastic chains and belts

- Materials of our plastic chains and belts offer best stability and resistance against environmental effects at appropriate storage:
 - in the original packaging,
 - without environmental radiation / UV light,
 - dry- in a non aggressive environment - a temperature between 5°C and 35°C
- First IN, First OUT.

We have applied that procedure in our logistic department.

We recommend this procedure to any external warehouse.

- Do not stack pallets or other heavy goods on top of chain packs. Chains inside the packs might get damaged.
- Do not stack chain packs higher than the original stacking height – as dispatched from our shipping department.

Coefficients of friction

Below listed coefficients can be used as a guideline. Dependent on environmental and application requirements (temperatures, lubricant, material combinations, dirt/debris, product and chain/belt surfaces, etc.) the coefficients are subject to variation.

Coefficient of friction between chain and wearstrip:

Friction coefficient Chain/Slide rail (μ_r)						
	Dry	Dry	Dry	Water	Water & Soap	Oil
	Normal	Dirty	Rough			
Straight sections TCP	0,2	0,4	0,5	0,16	0,10	0,10
Straight sections TCS	0,18	0,35	0,45	0,14	0,10	0,10

Friction coefficient Belt/Drive & Return (μ_n)						
	Dry	Dry	Dry	Water	Water & Soap	Oil
	Normal	Dirty	Rough			
Head drive unit	0,3	0,40	0,50	0,24	0,15	0,15
Return unit	0,3	0,40	0,50	0,24	0,15	0,15
Center drive unit	1,0	1,35	1,70	0,8	0,5	0,5

Coefficient of friction between chain and product (μ_{ST}):

Lubrication	Product material					
	Paper carton	Metal (steel)	Aluminum	Plastics incl. PET	Glass (return)	New glass, ceramics
Dry	0,28	0,25	0,25	0,21	0,24	0,20
Water		0,20	0,18	0,16	0,18	0,15
Water & Soap		0,15	0,14	0,13	0,14	0,12





Chemical resistance

Data shown in the table was taken from laboratory tests performed on unstrained samples and are merely indicative, Chemical resistance under normal working conditions can depend on various factors, such as stress and temperature, concentration of the chemical agent and duration of its effects, Valid for ambient temperature (21°C)

Chemical agent	METALS												PLASTICS						RUBBERS							
	EXTRA		AISI 304		AISI 316		OT.NI		POM		PBT		PP		PA		PE		EPDM		NBR		SEBS		VITON	
	C %		C %		C %		C %		C %		C %		C %		C %		C %		C %		C %		C %		C %	
Acetic Acid	5	☆	20	☆	100	☆		○	5	●	10	☆	40	☆	10	●	10	☆	25	☆		●	25	○	20	●
Acetone		☆	25	☆		☆		☆		○		○		☆	100	☆		☆		☆		●		○		●
Acrylonitrile														☆	100	☆				☆		●		○		●
Aluminium chloride				○		○								○	10	☆				☆		☆		☆		☆
Aluminium sulphate					SA	☆								☆	10	☆		☆		☆		☆		☆		SA
Amyl alcohol				☆		☆						☆		☆	10	☆		☆		☆				☆		☆
Ammonia		☆	100	☆			●		☆		○	30	☆	10	☆		☆		☆		○		○		○	
Ammonium chloride				○		☆					○	10	☆	10	☆				☆		☆		☆		SA	
Aniline		☆		☆		☆							☆	100	○	3	☆		●		●		●		☆	
Barium chloride				○	SA	☆							☆	10	☆				☆		☆		☆		☆	
Beer		☆		☆		☆		☆		☆			☆		☆		☆		☆		☆		☆		☆	
Benzene		☆	70	○		☆			☆		●		☆				○		●				●			
Benzoic acid			100	☆	SA	☆					☆	SA	☆	SA	○				●		☆		●		☆	
Benzol				☆		☆		☆		☆		☆	○	100	☆		○		●		●		●		○	
Boric acid			○	SA	☆	☆					10	☆	SA	☆	10	☆	SA	☆	☆		☆		☆		SA	☆
Brine	10		●		○		☆					☆		○		○		☆		☆				○		
Butter				☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		○		☆
Butyl acetate						☆					○		○	100	☆			○				○		○		●
Butyl alcohol				☆									○	100	☆			☆		☆		○		☆		☆
Butyl glycole						☆							☆	100	☆					☆				☆		
Calcium chloride		●		○		☆		☆			☆	50	☆	10	☆	SA	☆		☆		☆		☆		SA	☆
Carbon sulphide				☆		☆				☆			☆	100	☆				●		●		●			☆
Carbon tetrachloride			10	☆		☆		☆		☆			●		☆					●		●		☆		☆
Chlorine water		●		●		○				●		●		●				●	3	○				3	○	
Chloroform			○	10	☆		☆		☆		●		○	100	●		●		●		●		●		☆	
Chromic acid				25	☆		50	○			○			1	○			50	○		●		50		50	☆
Citric acid	10	☆		☆	SA	☆		●		○	10	☆	10	☆	10	○		☆		☆		☆		☆		SA
Cyclohexane						☆						☆		☆	100	☆				●		☆		●		☆
Cycloexanol						☆						☆		☆	100	☆				●		☆		○		☆
Decalin						☆						○		○		☆				●		○		●		●
Dioxane						☆						☆		○		☆				○		●		●		
Distilled water		☆	10	☆		☆		☆		☆		☆		☆		☆		☆		☆				☆		●
Ethyl acetate						○		☆			○			☆	100	☆					●				○	
Ethyl alcohol				☆					☆				96	☆	96	☆					○					○
Ethyl chloride				☆				○						●	100	☆		○			○					●
Ethyl ether						☆							☆	100	☆											☆
Ferric chloride				○		☆					10	☆		☆	10	☆				☆		☆		☆		SA
Food fats		☆	100	☆		☆			☆		☆				☆		☆		☆		○		☆		○	☆
Food oils		☆		☆		☆			☆				☆		☆		☆				☆					
Formaldehyde		☆		☆		☆		☆		☆		40	☆	30	☆		○		○		○		○		40	●
Formic acid	2		○		●	100	☆	☆	10	●		○			10	●	10	●		☆		●		☆		○
Freon 12				☆								☆			☆						☆		☆			☆
Fresh water		☆				☆			☆		☆		☆		☆		☆		☆		☆		☆		☆	☆
Fruit juice		☆		○		☆				☆		☆		☆		☆		☆		☆		☆		☆		☆
Gasoline		☆		☆		☆		○				○		○	☆		○		●		○		●		☆	☆
Glycerine		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆		☆
Hydrochloric acid		●		●		●		○	35	●	20	○	30	☆		●	35	☆	15	☆		○	15	☆		37
Hydrofluoric acid				●		●							40	☆		●	70	☆			●					48
Hydrogen peroxide	3	☆		☆	100	☆								☆		●			30	○		●	30	●		90
Isopropyl alcohol						☆						☆		☆		☆			☆				○			☆
Lactic acid			○			☆		●		☆	10	☆	20	☆		☆		☆		○		☆		○		☆
Linseed oil				☆		☆				☆		☆		☆		☆		☆		○		☆		●		

Chemical agent	METALS							PLASTICS					RUBBERS				
	EXTRA	AISI 304	AISI 316	OT.NI	POM	PBT	PP	PA	PE	EPDM	NBR	SEBS	VITON				
	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %	C %				
Magnesium chloride			○	☆				☆	☆	☆		☆	☆	☆	SA	☆	
Methyl acetate			○	☆				○	☆	☆		○	●	●		●	
Methyl alcohol		80	☆	☆	☆	☆	☆	●		☆		☆	○	☆		○	
Methylene chloride		○	○	☆		●	●	○	☆		○	●	●		●	○	
Milk		☆	☆	☆	☆	☆	☆	☆	☆	☆	○	☆	☆	☆		☆	
Mineral oil			☆	☆		☆	☆	☆	☆	☆	●	☆		●		☆	
Nitric acid	25	○	65	☆		☆		☆	●	○		10	●		70	☆	
Nitrobenzene				☆			☆	☆	○			●	●		○	○	
Oleic acid		○		☆	☆	☆		☆	☆	☆	○	●		○	●	○	
Oxalic acid			65	☆	☆			10	☆	☆	○		○	○	○	☆	
Paraffin				☆		☆		☆		☆		○		●			
Petroleum			☆	☆	☆	☆	☆	☆		●		●		☆	●	☆	
Petroleum ether			☆	☆	☆	☆	○	☆	☆			●		●	●	☆	
Phenol			☆	☆			●	☆	●			○		●	○	☆	
Phosphoric acid	25	○	●	☆	●	●	●	☆	●	☆		☆	20	○	☆	85	
Potassium bichromate				SA			○	☆	○			☆		○	○	SA	
Potassium bromite				☆				☆	☆	☆		☆		☆		☆	
Potassium hydroxide		☆	50	☆	☆		●	●	☆	☆	☆	☆		○	☆	☆	
Potassium permanganate				☆	☆			☆	☆	●		10	☆	●	10	○	
Sea water		●	☆	☆	☆	○	☆	☆	☆	☆	☆	☆		☆	○	☆	
Silicone oil				☆				☆	☆	☆		☆		☆	☆	☆	
Silver nitrate			○	☆					☆	☆				○		☆	
Sodium carbonate		☆	100	☆	SA	☆	☆	10	☆	☆	☆	☆		☆	☆	☆	
Sodium chloride		○	○	☆	☆	☆		☆	☆	☆	☆	☆		☆	☆	SA	
Sodium hydroxide	40	☆		☆	60	☆		10	●		☆			☆	○	☆	
Sodium hypochlorite			●	SA	○		●	10	○	☆	☆	☆	10	☆	●	10	
Sodium silicate			100	☆	☆				☆	☆		☆		☆	☆	☆	
Sodium sulphate			100	☆	☆				☆			○		☆	☆	☆	
Soft drinks				☆	☆		☆	☆	☆	☆	☆	☆		☆	☆	☆	
Suds				☆	☆		☆	10	☆	☆	☆	☆		☆	☆	☆	
Sulphuric acid		●	●	○	☆	●	2	☆	☆	●	○	50	☆		●	50	
Tartaric acid		☆	50	☆	☆	●	○	50	☆	☆	☆	☆		○	☆	☆	
Tetrahydrofuran				☆				☆	○	☆		●		●	●	●	
Tetralin			●	☆				☆	●	☆		●		●	●	☆	
Tincture of iodine			○	☆	●			☆	●	☆		○		●	○	☆	
Toluol		☆		☆				☆	☆	☆		●		●	●	○	
Transformer oil		☆		☆				☆	○	☆		●		☆	●	☆	
Trichloroethylene			●	100	☆			●	○	○		●		●	●	☆	
Triethanolamin				☆				☆	☆	☆		○		●	○	●	
Turpentine		☆	☆	☆		●		☆		☆	●	●			●		
Vaseline				☆				☆		☆	○	●		☆	●	☆	
Vegetable juice		☆	☆	☆		☆		☆	☆	☆	☆	☆		☆	☆	☆	
Vegetable oils		☆	☆			☆	●	☆	☆	☆	☆	○		☆	○	☆	
Vinegar		☆		100	☆	☆		10	☆	☆	☆	25	☆	○	25	○	
Water and soap		☆	☆	☆		☆		☆	☆	☆	☆	☆		☆	☆	☆	
Whisky		☆	☆	☆	☆	☆		☆	☆	☆		☆		☆	☆	☆	
Wine		☆	☆	☆	☆	☆		☆	☆	☆	○	☆		☆	☆	☆	
Xilol		☆	☆	☆		○	●	☆	●	☆	☆	●		●	●	☆	

ABBREVIATION

C = concentration
SA = saturated

☆ = good resistance
● = insufficient resistance (not recommended)

○ = fairly good resistance depending on use conditions
blank spaces = no tests performed



Parameters affecting wear rate

Operating conditions:

- Load
- Speed
- Number of starts per hour- No soft start/frequency inverter controlled drive
- Product accumulation
- Lubrication
- Water quality
 - Concentration of chlorines
 - Water hardness
 - Contaminations
 - Discontinuous water supply
- Lubricant
 - Suitability/performance
 - Dosing
 - Efficiency of nozzles

Cleaning:

- Cleaning agent
 - Frequency
 - Intensity
 - Rinsing
 - Concentration
 - Temperature
- Chemical attack

Environment:

- Temperature
- Humidity
- Wear increasing media/abrasives
- Corrosion
- Cleanliness- Soil e.g, from construction work

Conveyor components:

- Material quality
- Construction
- Dimensional accuracy of
 - Wear strips
 - Sprockets
 - Idlers
 - Return rollers
 - Shaft alignment

Conveyor construction:

- Choice of chain/belt
- Suitability of selected chain/belt for the application
- Mounting of wear strips
 - Flatness
 - Chamfers
 - Raised portions
 - Expansion compensation gaps

Changed/modified conditions:

- Modification of conveyor or its parts/components
 - Maintenance
 - Overhaul

Cleaning instructions

Cleaning is necessary to:

- minimize dirt and debris built up
- keep bacteriological situation under control
- elongate service life of chains/belts
- ensure smooth running of chain/belt for optimum product stability
- prevent crashes due to f,e, glass debris
- prevent malfunction due to sticky residues
- keep friction low

Frequency:

As a rule of thumb we say that cleaning the line once every week is sufficient,

Of course in practice depending on the circumstances this can be more frequent (f,e, during product changes in case of product loss or other pollution) or less frequent in a relatively clean environment,

In the direct surrounding of the filler cleaning will be more frequent anyway, Depending also on the bacteriological situation it may be necessary to clean at least once a day or once every shift,

Also chemicals coming f,e, from a pasteurizer may ask for more frequent cleaning to prevent the chemicals from affecting the chain/belt materials,

In a can line where aluminum cans are filled, there's the aluminum oxide that has to be kept under control, This can occur also far away from filler-pasteurizer, where the line is running dry, When the cans are accelerating on an inliner the remaining drops will fall down with the aluminum oxide on the chain causing a highly abrasive sludge to built up on the inliner, Therefore it may be necessary to clean more frequent also further down the line due to 'local' circumstances,

Method:

Important for an optimum service life of the chains and belts is a general inspection on the conveyors already during operation, Listen for strange –rattling or squeaking- noises, Check transfer plates, return rollers, bearings, etc, Make sure the chain/belt is still running free without extra load or obstruction, Often the service life of a chain/belt is reduced for mechanical reasons that can be sorted easily,

When cleaning we advice to go thru following steps:

1. Check for foreign parts on the conveyor, Check also the return part,
2. Rinse with warm (max 60°) or cold water thoroughly while chain/belt is running,
3. Use mild (PH-5-9) detergent according to suppliers instructions,
4. If necessary clean mechanically (brush) when pollution is hard to remove,
5. Rinse thoroughly with warm (max 60°) or cold water, Make sure all detergent is rinsed off while chain/belt is running,
6. Final mechanical check that chain/belt is running free and without obstruction, During this process it's important not to forget to clean in between carry and return section and underneath where the return support system is,

Especially with plastic chains/belts the detergent in use needs to be checked for compatibility with the plastic materials of the chain/belt,

General:

As obvious as it seems, cleaning is important! Since nowadays pressure on production rates and production costs are getting higher and higher, companies tend to look at cleaning when trying to cut costs,

Less time and resources are available while at the same time the capacity of the lines (and thus pollution and product loss) has to go up,

When companies are setting up a cleaning regime they tend to focus on the individual machines (mainly filler and surrounding) and not so much on the conveyors, Therefore we want to promote 'CONVEYOR AWARENESS' in this respect,

Dry versus wet:

When a wet lubricant is in use (water & soap) product loss is normally flushed off by the water & soap, Often the soap also has a 'cleaning function' built in, But wet circumstances also attract dust and dirt and wet circumstances will increase the growth of bacteria, When a line is standing still during a stop or during the

weekend without cleaning, the lubricant will dry in which may cause pollution and changing sliding characteristics of the chains/belt after several times,

Under dry circumstances the conveyors generally remain cleaner, But product loss needs to be cleaned to avoid functional problems of the line,

Therefore functionally speaking wet lubrication is more safe but requires just as well regular cleaning and is a high cost factor,

All together with the present state of conveyor technology it is possible to run a major part of a glass, can or a PET line dry taken into consideration that a regular cleaning regime is in place,

Inspection procedure

1. Inspect chains for unusual wear patterns or damage,
2. Look for excessive gaps between chain flights,
3. Check conveying surface for Flatness, bent or broken Flights,
4. Inspect hold-down tabs or beveled sliding surfaces for excessive wear,
5. Review chain catenary sag for proper amount,
6. If take-ups are used, check that take-up tension is not excessive, Do not preload chain,



7. Check all idlers, rollers, turn discs and sprockets for freedom of rotation,
8. Examine sprockets for excessive wear,
9. Look for debris build up in sprocket tooth pockets,
10. Check for excessive guide ring wear,
11. Check all wear strips and fasteners for excessive wear,
12. Check all transfer points, dead plates, turn tables, turn discs and sprockets for proper elevation and alignment,
13. Review function of lubrication system,
14. Inspect general cleanliness of conveyor system,

Installation procedure

1. Check all sprockets, idlers, turn discs and rollers for proper elevation and alignment with regard to the conveyor tracks,
2. Check all wear strips (carrying and return), dead plates, dividers and transfers mechanism for proper location, elevation, spacing and Flatness,
3. Check all fasteners for proper tightness (torque), Fasteners used on wear strips and dead plates must have recessed heads,
4. Check all conveyor splice points for proper elevation, alignment and fastening,
5. Inspect conveyor system for obstructions by pulling a short section of chain (1 meter) through the entire conveyor,

6. Check lubrication system (if present),
7. Install conveyor chain, assuring that the following has been done:
 - A Check for correct direction of chain travel,
 - B Assemble chain in 3 meters sections and avoid twisting or damaging the chain,
 - C Connect chain sections on the conveyor, Make sure that the connecting pins are not protruding,
 - D Adjust chain catenary (sag) to the proper elevation, Note: readjustment is usually necessary after a certain operating time,
8. Insure that lubricant is evenly dispersed through conveyor system,
9. Start up conveyor by jogging and/or using short running periods before loading the system, Be alert to unusual noises or actions, If a problem should occur, refer to the trouble shooting guide,

Replacement criteria

Chains must be replaced when:

- The chain starts to jump on the sprocket due to elongation, This may start to happen at 3% elongation or more,
- The thickness of the plate has been reduced by 50%,
- The surface becomes uneven or scratched causing stability problems,
- The hinge is worn to an extend that the pins protrude

Belts must be replaced when:

- The belt starts to jump on the sprocket due to elongation, This may start to happen at 3% elongation or more,
- The thickness of the module has been reduced by 1 mm from the top and from the bottom,
- The surface becomes uneven or scratched causing stability problems,

Sprockets and Idlers must be replaced when::

- teeth are worn flat
- chain/ belt does not release well
- teeth are damaged
- bore of idler is worn out and idler starts to oscillate
- hub or keyway are damaged
- new chain/ belt is installed

Wear strip must be replaced when:

- thickness is reduced by 50% and stability problems occur
- dirt or debris is embedded
- Fixing rivets protrude.

Layout procedure for a EMCS conveyor system

Task definition:

Determine number and position of the work steps, calculate the available space.



Plan rough system layout:

Lengths, segments, curves, slopes (sketch)



Product-specific data:

Determine conveyed material data:

Dimensions, mass, friction figures, antistatic environment needed?



Production-specific data:

Determine conveyor parameters: Speed, conveyed material spacing and cycle, number of start-up operations/h, accumulation section



Detailed system layout planning:

Accumulation sections, product interchange points

► www.easy-conveyor.com



Chain tensile force calculation F

► Examples 1-2-3, page 496-498-500



$F < F_{\text{permissible}}$ (page 497 & 499):

YES

NO ►



$F << F_{\text{permissible}}$ (oversized) ►

NO

YES ►



Check drive torque:

$$\frac{M \cdot 2}{\varnothing TK} \geq F$$

OK?

YES

NO ►



[✓]

**Needed data**

- The length and/or width of the belt conveyor (mm)
- The width of the belt (mm)
- Wanted speed (mtr/min)
- Product weight (Kg)
- Product length (mm) [!] (in direction of transport)
- Amount of products on the conveyor (pcs)
- Product to transport (bakery, food, plastic, cardboard, glass or metal)
- Slide profile (TCP / TCS)
- State of contact surfaces between slide rail/chain -(dry normal -dirty -rough/Water/Water & Soap/Oil)
- State of contact surfaces between goods/chain (dry/water/water & soap)
- Ambient temperature (°C)
- Start/Stop each hour (pcs/hr)
- Frequency controller (Yes or No)
- Accumulation (Yes or No)
- Amount of products to accumulate (pcs)
- Running hours per day
- Type of loading

Belt Weight FLAT TOP

Wideness	Kg/m	N/m	Max. load
170	1,29	12,65	3672
255	1,96	19,23	5508
340	2,57	25,21	7344
425	3,20	31,39	9180
510	3,84	37,67	11016
680	5,11	50,13	14688
850	6,38	62,59	18360

Belt Weight FRICTION TOP

Wideness	Kg/m	N/m	Max. load
255	2,73	26,78	8925
340	3,68	36,10	11900
425	4,63	45,42	14875
510	5,58	54,74	17850
680	7,48	73,38	23800
850	9,38	92,02	29750

Weight of the roles (Kg) (without drive pulley)

85	0,44695
170	0,73313
255	1,01930
340	1,30547
425	1,59165
510	1,88456
680	2,45691
850	3,02926

Application factor C₁

Approach procedures /h	Application factor
0-1	1
2-10	0,83
11-30	0,71
>30	0,62

Breaking force (max -40°C / +80°C) C₂

Temperature °C	Breaking force factor
0	1,12
20	1,0
40	0,96
60	0,92

Factor C₃ Breakaway torque

Temperature °C	Breaking force factor
0,09 kW	2,1
0,12 kW	2,4
0,18 kW	1,8
0,25 kW	1,8
0,37 kW	1,8
0,55 kW	2,1
0,75 kW	2,2
1,1 kW	2,0

Frequency controller	1,5
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MOTOR SELECTION

The drive torque of the selected gear motor must be greater than the calculated required drive torque.

There are the following options to reduce the required drive torque:

- reduce the chain tensile force (F).
- reduce the speed (v) and use a gear motor with a higher drive torque.
- change the operating conditions (e. g. the ambient temperature)

Procedure for both calculations:

- Divide the conveyor section into segments. Segment 1 starts at the traction stand (e.g. at the return unit, at the connecting drive outlet), the last segment ends at the drive unit. The division is made according to operating mode (conveying operation / accumulation operation). When using horizontal or vertical curves the segment ends after the curve.
- Calculate the individual segments in ascending order. The chain tensile force of the current segment will enter the calculation of the following segment as a counter force. The result of the last segment is the required chain tensile force to operate the conveyor.
- The tensile force resulting from the chain return can generally be overlooked.

Exceptions:

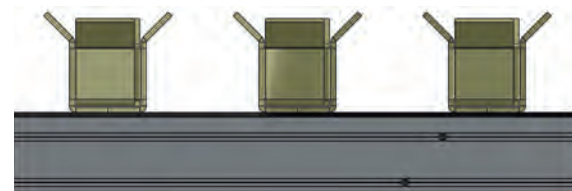
- The section load of the goods is lower than that of the chain (round trip):

$$q_F \leq 2 * q_K$$

In these cases, the first segment begins at the head drive outlet.

EMCS Straight

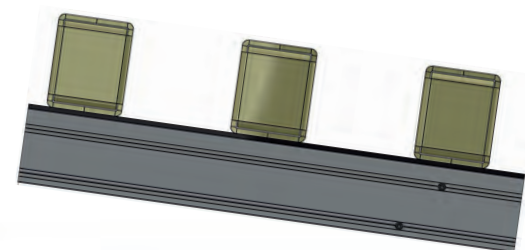
$$F_U = \mu_T * g * \left(m + \frac{m_B}{2} \right) + \mu_R * g * \left(\frac{m_B}{2} + m_R \right)$$



EMCS Incline/Decline (Dynamic tensioner is in both cases recommended.)

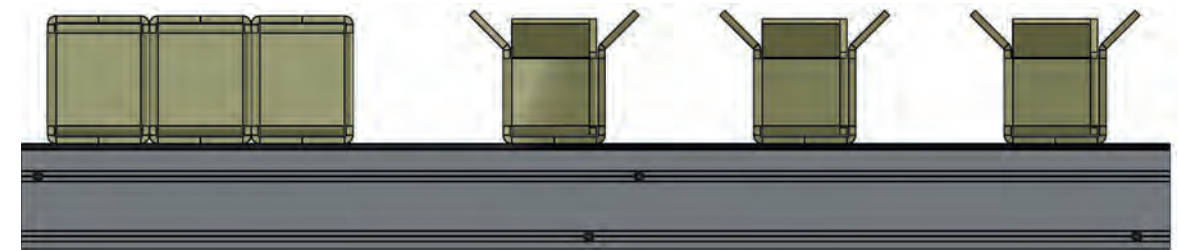
(-)

$$F_U = \mu_T * g * \left(m + \frac{m_B}{2} \right) + \mu_R * g * \left(\frac{m_B}{2} + m_R \right) + g * m * \sin \alpha$$



EMCS Accumulation (is not possible when using a friction or a cleated belt)

$$F_U = \mu_T * g * \left(m + \frac{m_B}{2} \right) + \mu_R * g * \left(\frac{m_B}{2} + m_R \right) + \mu_{ST} * g * m$$



$$F_{MAX} = F_{perm.} * C_1 * C_2$$

$$M_N = \frac{F_U * (d_A / 2)}{1000}$$

$$M_H = M_N * C_3$$

$$P_A = \frac{F_U * v}{1000}$$

$$P_M = \frac{P_A}{\eta}$$

LIST OF APPLIED ABBREVIATIONS

F_U = Chain Tensile force (at the drive pulley) (N)

$F_{perm.}$ = Permissible load capacity

F_i = Chain tensile force of individual segments (N)

g = 9,81 (m/s²)

m = Total product mass (Kg)

m_B = Mass of the belt (Kg)

m_R = Mass of the rolls (Kg)

μ_R = Friction coefficient Belt/Drive & Return

μ_{ST} = Friction coefficient accumulation

μ_T = Friction coefficient Belt/Top plate

v = Belt speed (mtr/min)

M_N = Nominal Torque (Nm)

M_H = Run-up Torque (Nm)

P_A = Mechanical Drive Power (kW)

P_M = Motor Power (kW)

η = Efficiency (%)

A_Z = Amount of Accumulation

α = Angle for Incline or Decline (°)

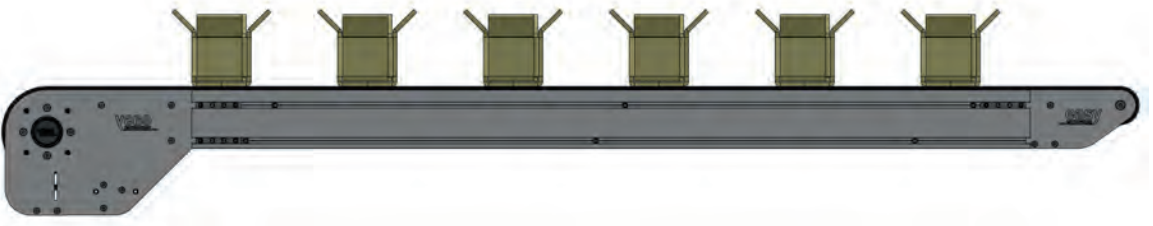
R_H = Running hours / day

S_S = Start/Stops /hr

U_L = Uniform Load

V_L = Variable Load

S_L = Shock Load



Example 1: Calculation EMCS Straight;

Conveyor system	: EMCS
Conveyor Length	: 3000mm
Belt width	: 425mm
Belt	: Flat top
Product weight	: 1 kg
Product Length	: 400mm
Products on the system	: 6 pieces
Product material	: cardboard
Environment Temperature	: 20° C
Contact surface between slide rail/chain	: Dry, normal
Contact surface between goods/chain	: Dry
Start/Stop	: 0-1 / h
Slide profile	: TCP
Position of conveyor	: straight
Wanted speed	: 10 mtr/min
Accumulation	: No
Number of products to accumulate	: 0
Frequency controller	: Yes
Running hours per day	: 8 hr
Type of loading	: Uniform Load

$v = 0,166\text{m/s}$	$C_3 = 1,5$
$\mu_R = 0.3$	$d_A = \varnothing 146.27\text{mm}$
$\mu_{ST} = 0.21$	$m = 6 \text{ Kg (6*1Kg)}$
$\mu_T = 0.2$	$m_B = 35.43 \text{ Kg}$
$C_1 = 1.0$	$m_R = 1,59 \text{ Kg}$
$C_2 = 1.0$	

EMCS Straight

$$F_U = \mu_T * g * (m + \frac{m_B}{2}) + \mu_R * g * (\frac{m_B}{2} + m_R)$$

$$F_U = 0,2 * 9,81 * (6,00 + \frac{35,43}{2}) + 0,3 * 9,81 * (\frac{35,43}{2} + 1,59)$$

$$F_U = 103,346 \text{ N}$$

Permissible tensile force:

$$F_{U \max} = F_{perm.} * C_1 * C_2$$

$$F_{U \max} = 9180 * 1,00 * 1,00$$

$$F_{U \max} = 9180,00$$

$$F_{U \max} \approx 9180 \text{ N} \quad F_U = 103,35 \text{ N} \quad \text{System is OK}$$

Nominal Torque:

$$M_N = \frac{F_U * (d_A / 2)}{1000}$$

$$M_N = \frac{103,35 * (146,27 / 2)}{1000}$$

$$M_N = 7,56 \text{ Nm}$$

Run-up Torque:

$$M_H = M_N * C_4$$

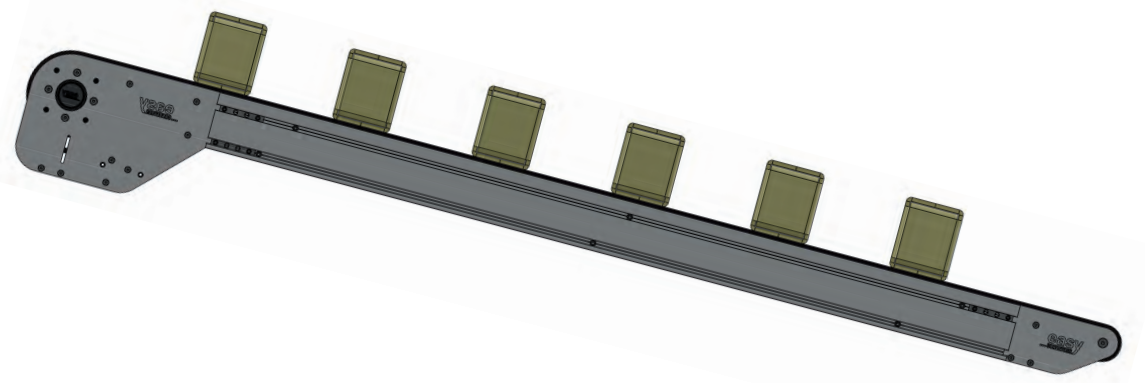
$$M_H = 7,56 * 1,5$$

$$M_H = 11,34 \text{ Nm}$$

$$P_A = \frac{103,35 * 0.166}{1000}$$

$$P_A = 0.017 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW]} \text{ Chose, the next larger standard motor}$$



Example 2: Calculation EMCS Incline

Conveyor system	: EMCS
Conveyor Length	: 3000mm
Belt width	: 255mm
Belt	: Friction top
Product weight	: 2,5 kg
Product Length	: 400mm
Products on the system	: 6 pieces
Product material	: cardboard
Environment Temperature	: 20° C
Contact surface between slide rail/chain	: Dry, normal
Contact surface between goods/chain	: Dry
Start/Stop	: 0-1 / h
Slide profile	: TCP
Position of conveyor	: incline - 15°
Wanted speed	: 10 mtr/min
Accumulation	: No
Number of products to accumulate	: 0
Frequency controller	: Yes
Running hours per day	: 8 hr
Type of loading	: Uniform Load

$v = 0,166\text{m/s}$	$C_3 = 1,5$
$\mu_R = 0.3$	$d_A = \varnothing 146.27\text{mm}$
$\mu_{ST} = 0.21$	$m = 15 \text{ Kg (6*2,5Kg)}$
$\mu_T = 0.2$	$m_B = 51,26 \text{ Kg}$
$C_1 = 1.0$	$m_R = 1,59 \text{ Kg}$
$C_2 = 1.0$	

EMCS Incline/Decline

$$F_U = \mu_T * g * (m + \frac{m_B}{2}) + \mu_R * g * (\frac{m_B}{2} + m_R) + g * m * \sin \alpha \quad (-)$$

$$F_U = 0,2 * 9,81 * (15,00 + \frac{51,26}{2}) + 0,3 * 9,81 * (\frac{51,26}{2} + 1,59) + 9,81 * 15,00 * 0,26$$

$$F_U = 197,896 \text{ N}$$

Permissible tensile force:

$$F_{U \max} = F_{perm.} * C_1 * C_2$$

$$F_{U \max} = 14875 * 1,00 * 1,00$$

$$F_{U \max} = 14875$$

$$F_{U \max} \approx 14875 \text{ N}$$

$$F_U = 197,896 \text{ N}$$

System is OK

Nominal Torque:

$$M_N = \frac{F_U * (d_A / 2)}{1000}$$

$$M_N = \frac{197,9 * (146,27 / 2)}{1000}$$

$$M_N = 14,47 \text{ Nm}$$

Run-up Torque:

$$M_H = M_N * C_4$$

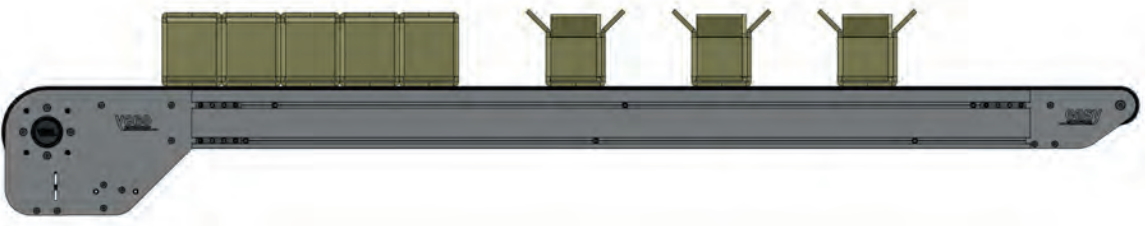
$$M_H = 14,47 * 1,5$$

$$M_H = 21,71 \text{ Nm}$$

$$P_A = \frac{197,9 * 0.166}{1000}$$

$$P_A = 0.033 \text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW]} \text{ Chose, the next larger standard motor}$$



Example 3: calculation EMCS Straight

Conveyor system	: EMCS
Conveyor Length	: 3000mm
Belt width	: 425mm
Belt	: Flat top
Product weight	: 2,5 kg
Product Length	: 400mm
Products on the system	: 8 pieces
Product material	: cardboard
Environment Temperature	: 20° C
Contact surface between slide rail/chain	: Dry, normal
Contact surface between goods/chain	: Dry
Start/Stop	: 0-1 / h
Slide profile	: TCP
Position of conveyor	: straight
Wanted speed	: 10 mtr/min
Accumulation	: Yes
Number of products to accumulate	: 5
Frequency controller	: Yes
Running hours per day	: 8 hr
Type of loading	: Uniform Load

$v = 0,166\text{m/s}$	$C_3 = 1,5$
$\mu_R = 0.3$	$d_A = \emptyset 146.27\text{mm}$
$\mu_{ST} = 0.21$	$m = 20\text{ Kg (8*2,5Kg)}$
$\mu_T = 0.2$	$m_B = 35,43\text{ Kg}$
$C_1 = 1.0$	$m_R = 1,59\text{ Kg}$
$C_2 = 1.0$	

EMCS Accumulation (is not possible when using a friction or a cleated belt)

$$F_U = \mu_T * g * (m + \frac{m_B}{2}) + \mu_R * g * (\frac{m_B}{2} + m_R) + \mu_{ST} * g * m$$

$$F_U = 0,2 * 9,81 * (20,00 + \frac{35,43}{2}) + 0,3 * 9,81 * (\frac{35,43}{2} + 1,59) + 0,21 * 9,81 * 12,50$$

$$F_U = 156,57\text{ N}$$

Permissible tensile force:

$$F_{U\max} = F_{perm.} * C_1 * C_2$$

$$F_{U\max} = 9180 * 1,00 * 1,00$$

$$F_{U\max} = 9180,00$$

$$F_{U\max} \approx 9180\text{ N} \quad F_U = 156,565\text{ N}$$

System is OK

Nominal Torque:

$$M_N = \frac{F_U * (d_A / 2)}{1000}$$

$$M_N = \frac{156,57 * (146,27 / 2)}{1000}$$

$$M_N = 11,45\text{ Nm}$$

Run-up Torque:

$$M_H = M_N * C_4$$

$$M_H = 11,45 * 1,5$$

$$M_H = 17,18\text{ Nm}$$

$$P_A = \frac{156,57 * 0.166}{1000}$$

$$P_A = 0.026\text{ kW}$$

$$P_M = \frac{P_A}{\eta} \text{ [kW]} \text{ Chose, the next larger standard motor}$$

Conclusion

You can see above that the motor and also the conveyor system are selected because of the input. Also you can see that some values cause a certain overload situation for the system, motor or both.

There are a few options to prevent an overload.

- Lower the speed
- Lower the amount of product on the conveyor
- Less Start/Stops
- Less Accumulation
- Change type of loading
- Shorten the conveyor
- Choose another conveyor system
- Less running hours per day.

Choose another transport system. (roller conveyor, belt conveyor or tabletop conveyor)

Chain/belt jumps on sprocket

Possible causes	Remedy
Chain/belt is elongated e.g. due to wear or overloaded	Replace chain/belt and sprocket. Check other components as well. Eliminate cause of overload.
Improper catenary sag	Check dimensions and adjust
Sprocket is worn	Replace sprocket
Wrong sprocket type	Install correct sprocket
Misaligned sprocket	Check and adjust
Improper sprocket position	Check and adjust position

Chain/belt does not release well

Possible causes	Remedy
Incorrect sprocket dimension or type	Check and replace sprocket
Sticky residue	Clean chain/sprocket or renew
Improper catenary sag	Check dimensions and adjust

Slip stick operation

Possible causes	Remedy
Slip stick	Use lubrication Reduce chain/belt tension by shortening the conveyor
Return roller diameter too small	Install larger rollers
Chain/belt catches the conveyor	Remove obstructions. Check return part as well
Improper catenary sag	Check dimension and adjust

Damaged chain hinges

Possible causes	Remedy
Overloading	Eliminate cause of overloading Check sprockets and other components Replace chain/belt Replace components if necessary
Blocking and obstructions	Check the complete conveyor
Exceeding the minimum backflex radius	Check conveyor construction
Too small radius for side flexing chain	Check minimum radius of chain and adjust accordingly

Elongation

Possible causes	Remedy
Overloading	Eliminate cause of overloading Check sprockets and other components Replace chain/belt Replace components if necessary
Wear from dirt in hinges	Improve cleaning or Use HB pins

Rapid curve wear

Possible causes	Remedy
Overheating	Use EXTRA curve or TCS
Embedded abrasives	Replace curve

Chain drifts sideways on sprockets

Possible causes	Remedy
Bad shaft/sprocket alignment	Adjust or use collars
Conveyors is not level	Adjust

Cracked hinge eyes

Possible causes	Remedy
Stress-corrosion caused by incompatible chemicals	Check chemicals compatibility with chain/belt material Use appropriate chemicals

Chains for magnetic system releases from curve

Possible causes	Remedy
Worn curve	Replace curver
Improper chamfering of the infeed or other obstructions	Check and adjust/rework
No soft start-up	Install frequency inverter drives
Curve not mounted level	Check and adjust

Corroded steel chain

Possible causes	Remedy
Incompatible combination of chain material and chemicals	Use only compatible chemicals
May occur even with stainless steel	Consider higher graded material

Excessive chain/belt wear

Possible causes	Remedy
Pollution	Improve cleaning
Failing lubrication	Check lubrication system Contact lubricant supplier
Obstructions	Check all sections
Debris in return part	Clean conveyor Install roller with larger diameter

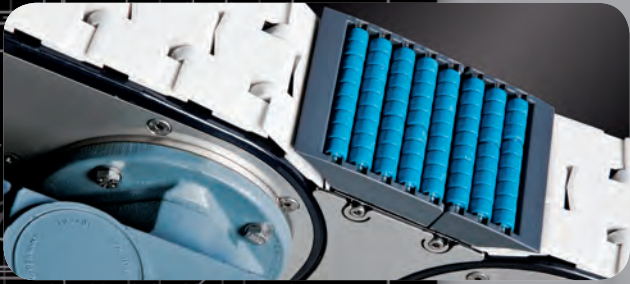
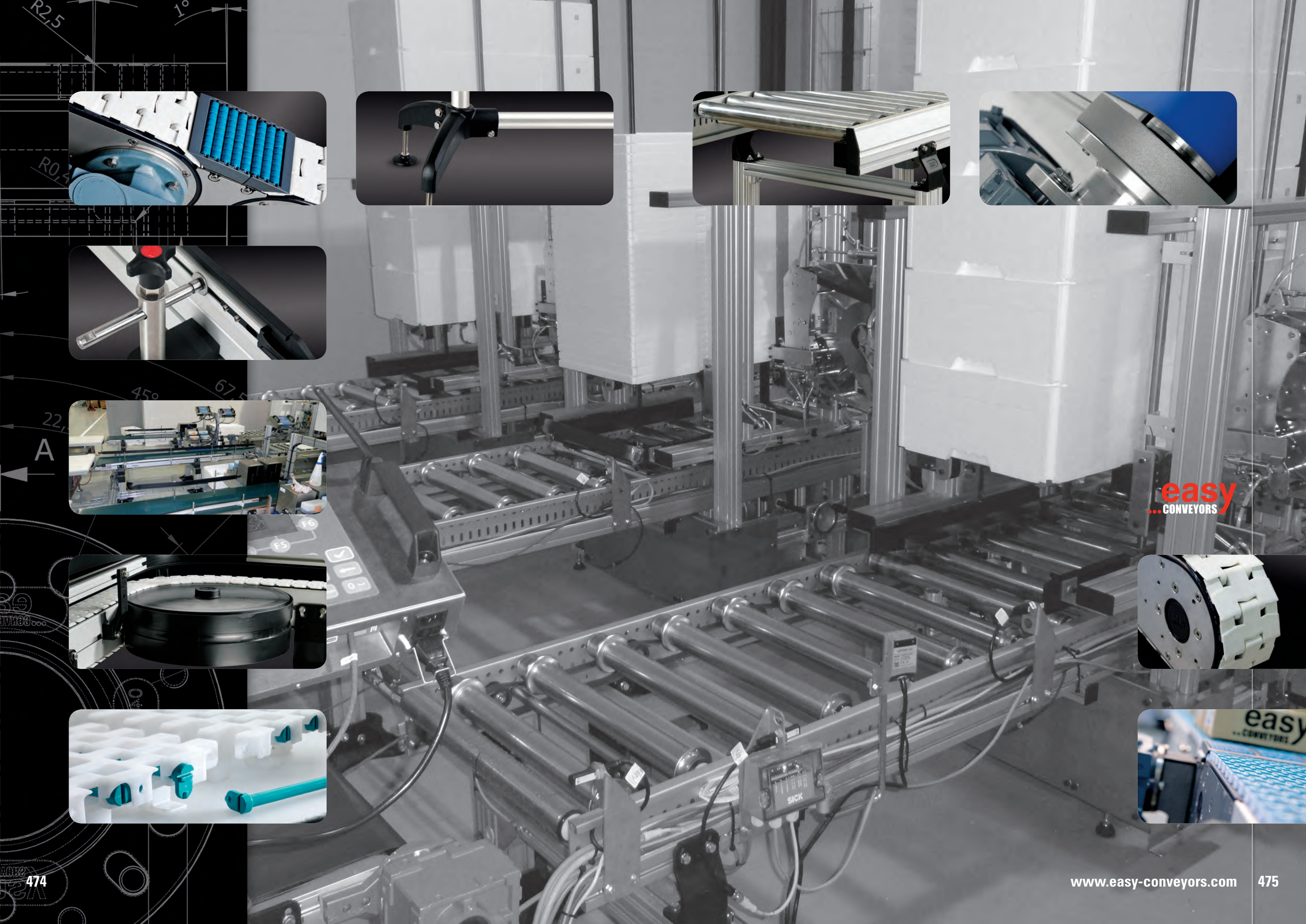
Sprockets don't slide on shaft when belt extends due to temperature increase

Possible causes	Remedy
Pollution	Improve cleaning
Axial fixing incorrect	Re-adjust axial fixing according to temperature situation
Wrong bore tolerance	Replace by sprockets with PLUS tolerance

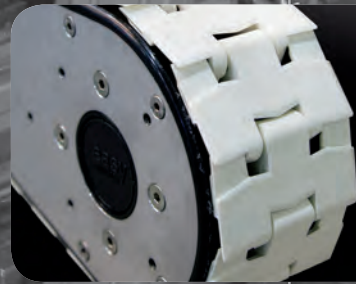
Rapid wear on sprockets

Possible causes	Remedy
Abrasive conditions	Improve cleaning Use steel sprockets

Please contact technical support
at any time in case of doubt.



easy
...CONVEYORS



METAALUNIE CONDITIONS

General Terms and Conditions issued by Koninklijke Metaalunie (the Dutch organization for small and medium-sized enterprises in the metal industry), referred to as the METAALUNIE TERMS AND CONDITIONS, filed at the Registry of the Rotterdam District Court on 1 January 2014. Issued by Koninklijke Metaalunie, P.O. Box 2600, 3430 GA Nieuwegein, the Netherlands. © Koninklijke Metaalunie

Article 1: Applicability

- 1.1. These Terms and Conditions apply to all offers made by members of Koninklijke Metaalunie, all agreements they conclude and all agreements that may result therefrom, all this in so far as the Metaalunie member is offeror or supplier.
- 1.2. A Metaalunie member using these Terms and Conditions is referred to as the Contractor. The other party is referred to as the Client.
- 1.3. In the event of any conflict between the substance of the agreement concluded between the Contractor and the Client and these Terms and Conditions, the provisions of the agreement will prevail.
- 1.4. These Terms and Conditions may only be used by Metaalunie members.

Article 2: Offers

- 2.1. All offers are without obligation.
- 2.2. If the Client provides the Contractor with data, drawings and the like, the Contractor may rely on their accuracy and completeness and will base its offer on the same.
- 2.3. The prices stated in the offer are based on delivery ex works, Contractor's place of establishment, in accordance with the Incoterms 2010. Prices are exclusive of VAT and packaging.
- 2.4. If the Client does not accept the Contractor's offer, the Contractor is entitled to charge the Client for all costs incurred by the Contractor in making the offer to the Client.

Article 3: Intellectual property rights

- 3.1. Unless otherwise agreed in writing, the Contractor retains the copyright and all industrial property rights in the offers made by it and in the designs, pictures, drawings, models (including trial models), software and the like provided by it.
- 3.2. The rights in the data referred to in paragraph 1 of this article will remain the property of the Contractor irrespective of whether the costs of their production have been charged to the Client. These data may not be copied, used or shown to third parties without the Contractor's prior express written consent. The Client will owe the Contractor an immediately payable penalty of € 25,000 for each breach of this provision. This penalty may be claimed in addition to damages pursuant to the law. 2
- 3.3. On the Contractor's first demand, the Client must return the data provided to it as referred to in paragraph 1 of this Article within the time limit set by the Contractor. Upon breach of this provision, the Client will owe the Contractor an immediately payable penalty of € 1,000 per day. This penalty may be claimed in addition to damages pursuant to the law.

Article 4: Advice and information provided

- 4.1. The Client cannot derive any rights from advice or information it obtains from the Contractor if this does not relate to the assignment.
- 4.2. If the Client provides the Contractor with data, drawings and the like, the Contractor may rely on their accuracy and completeness in the performance of the agreement.
- 4.3. The Client indemnifies the Contractor from and against all liability to third parties relating to use of the advice, drawings, calculations, designs, materials, samples, models and the like provided by or on behalf of the Client.

Article 5: Delivery period / performance period

- 5.1. The delivery period and/or performance period will be set by the Contractor on an approximate basis.
- 5.2. In setting the delivery period and/or performance period, the Contractor will assume that it will be able to perform the assignment under the conditions known to it at that time.
- 5.3. The delivery period and/or performance period will only commence once agreement has been reached on all commercial and technical details, all necessary data, final and approved drawings and the like are in the Contractor's possession, the agreed payment or instalment has been received and the necessary conditions for performance of the assignment have been satisfied.
- 5.4. a. In the event of circumstances that differ from those that were known to the Contractor when it set the delivery period and/or performance period, it may extend the delivery period and/or performance

period by such period as it needs to perform the assignment under such circumstances. If the work cannot be incorporated into the Contractor's schedule, it will be performed as soon as the Contractor's schedule so permits.

- b. In the event of any contract addition, the delivery period and/or performance period will be extended by such period as the Contractor needs to (cause to) supply the materials and parts for such work and to perform the contract addition. If the contract addition cannot be incorporated into the Contractor's schedule, the work will be performed as soon as the Contractor's schedule so permits.
- c. If the Contractor suspends its obligations, the delivery period and/or performance period will be extended by the duration of the suspension. If the continuation of the work cannot be incorporated into the Contractor's schedule, the work will be performed as soon as the Contractor's schedule so permits.
- d. In the event of inclement weather, the delivery period and/or performance period will be extended by the resulting delay.

- 5.5 The Client is required to pay all costs incurred by the Contractor as a result of delay affecting the delivery period and/or performance period as referred to in Article 5.4. 3
- 5.6 If the delivery period and/or performance period is/are exceeded, this will in no event entitle to damages or termination.

Article 6: Transfer of risk

- 6.1. Delivery will be made ex works, Contractor's place of establishment, in accordance with the Incoterms 2010. The risk attached to the good passes to the Client at the time the Contractor makes the good available to the Client.
- 6.2. Notwithstanding the provisions in paragraph 1 of this article, the Client and Contractor may agree that the Contractor will arrange for transport. In that event, the risk of storage, loading, transport and unloading will be borne by the Client. The Client may insure itself against these risks.
- 6.3. In the event of a purchase in which a good is exchanged (inruil) and the Client retains the good to be exchanged pending delivery of the new good, the risk attached to the good to be exchanged remains with the Client until it has placed this good in the possession of the Contractor. If the Client cannot deliver the good to be exchanged in the condition that it was in when the agreement was concluded, the Contractor may terminate the agreement.

Article 7: Price change

- 7.1. The Contractor may pass on to the Client any increase in costing factors occurring after conclusion of the agreement.
- 7.2. The Client will be obliged to pay the price increase as referred to in paragraph 1 of this article on any of the occasions below, such as at the discretion of the Contractor:
 - a. upon the occurrence of the price increase;
 - b. at the same time as payment of the principal sum;
 - c. on the next agreed payment deadline.

Article 8: Force majeure

- 8.1. The Contractor is entitled to suspend performance of its obligations if it is temporarily prevented from performing its contractual obligations to the Client due to force majeure.
- 8.2. Force majeure is understood to mean, inter alia, the circumstance of failure by suppliers, the Contractor's subcontractors or transport companies engaged by the Contractor to perform their obligations or perform them in good time, weather conditions, earthquakes, fire, power failure, loss, theft or destruction of tools or materials, road blocks, strikes or work stoppages and import or trade restrictions.
- 8.3. If the Contractor's temporary inability to perform lasts for more than six months, it will no longer be entitled to suspend performance. On expiry of this deadline, the Client and the Contractor may terminate the agreement with immediate effect, but only as regards such part of the obligations that has not yet been performed.
- 8.4. In the event of force majeure where performance is or becomes permanently impossible, both parties are entitled to terminate the agreement with immediate effect as regards such part of the obligations that has not yet been performed.
- 8.5. The parties will not be entitled to compensation for damage suffered or to be suffered as a result of suspension or termination as referred to in this article.

Article 9: Scope of the work

- 9.1. The Client must ensure that all licences, exemptions and other administrative decisions necessary to carry out the work are obtained in good time. The Client is required upon the Contractor's first demand to send the Contractor a copy of the documents mentioned above.
- 9.2. The price of the work does not include:
 - a. the costs of earthwork, pile driving, cutting, breaking, foundation work, cementing, carpentry, plastering, painting, wallpapering, repair work or other construction work;
 - b. the costs of connecting gas, water, electricity or other infrastructural facilities;
 - c. the costs of preventing or limiting damage to any goods present on or near the work site.
 - d. the costs of removal of materials, building materials or waste;
 - e. travel and accommodation expenses.

Article 10: Changes to the work

- 10.1. Changes to the work will in any event result in contract variations work if:
 - a. the design, specifications or contract documents are changed;
 - b. the information provided by the Client is not factually accurate;
 - c. quantities diverge by more than 10% from the estimates.
- 10.2. Contract additions will be charged on the basis of the pricing factors applicable at the time the contract addition is performed. Contract deductions will be charged on the basis of the pricing factors applicable at the time the agreement was concluded.
- 10.3. The Client will be obliged to pay the price of the contract addition as referred to in paragraph 1 of this article on any of the occasions below, such as at the discretion of the Contractor:
 - a. when the contract addition arises;
 - b. at the same time as payment of the principal sum;
 - c. on the next agreed payment deadline.
- 10.4. If the sum of the contract deduction exceeds that of the contract addition, in the final settlement the Contractor may charge the Client 10% of the difference. This provision does not apply to contract deductions that result from a request by the Contractor.

Article 11: Performance of the work

- 11.1. The Client will ensure that the Contractor can carry out its activities without interruption and at the agreed time and that the requisite facilities are made available to it when carrying out its activities, such as:
 - a. gas, water and electricity;
 - b. heating;
 - c. lockable and dry storage space;
 - d. facilities required pursuant to the Working Conditions Act and Working Conditions Regulations.
- 11.2. The Client bears the risk of and is liable for any damage connected with loss, theft, burning and damage to goods belonging to the Contractor, the Client and third parties, such as tools, materials intended for the work or material used in the work, that are located on the work site or at another agreed location.
- 11.3. The Client is obliged to adequately insure itself against the risks referred to in paragraph 2 of this article. In addition, the Client must procure insurance of work-related damage as regards the material to be used. Upon the Contractor first demand, the Client must send it a copy of the relevant insurance policy/policies and proof of payment of the premium. In the event of any damage, the Client is required to report this to its insurer without delay for further processing and settlement.
- 11.4. If the Client fails to perform its obligations as described in the previous paragraphs and this results in delayed performance of the activities, the activities will be carried out as soon as the Client performs its obligations as yet and the Contractor's schedule so permits. The Client is liable for all damage suffered by the Contractor as a result of the delay.

Article 12: Completion of the work

- 12.1. The work is deemed to be completed in the following events:
 - a. when the Client has approved the work;
 - b. when the work is been taken into commission by the Client. If the Client takes part of the work into commission, that part will be deemed to be completed;
 - c. if the Contractor notifies the Client in writing that the work has been completed and the Client does not inform it in writing as to whether or not the work is approved within 14 days of such notification having been made;

- d. if the Client does not approve the work due to minor defects or missing parts that can be rectified or subsequently delivered within 30 days and that do not prevent the work from being taken into commission.
- 12.2. If the Client does not approve the work, it is required to inform the Contractor of this in writing, stating reasons. The Client must provide the Contractor with the opportunity to complete the work as yet.
 - 12.3. The Client indemnifies the Contractor from and against any claims by third parties for damage to non-completed parts of the work caused by use of parts of the work that have already been completed.

Article 13: Liability

- 13.1. In the event of an attributable failure, the Contractor is obliged to perform its contractual obligations as yet.
- 13.2. The Contractor's obligation to pay damages, irrespective of the legal basis, is limited to damage for which the Contractor is insured under an insurance policy taken out by it or on its behalf, but will never exceed the amount paid out under this insurance in the relevant case.
- 13.3. If, for any reason whatsoever, the Contractor cannot invoke the limitation in paragraph 2 of this article, the obligation to pay damages will be limited to a maximum of 15% of the total assignment amount (excluding VAT). If the agreement comprises parts or partial deliveries, the obligation to pay damages is limited to a maximum of 15% (excluding VAT) of the assignment amount of that part or that partial delivery.
- 13.4. The following does not qualify for compensation:
 - a. consequential loss, including business interruption loss, production loss, loss of profit, transport costs and travel and accommodation expenses. The Client may insure itself against this damage if possible;
 - b. damage to goods in or under its care, custody or control. Such damage includes damage caused as a result of or during the performance of the work to goods on which work is being performed or to goods situated in the vicinity of the work site. The Client may insure itself against such damage if it so desires;
 - c. damage caused by the intent or wilful recklessness of agents or non-management employees of the Contractor.
- 13.5. The Contractor is not liable for damage to material provided by or on behalf of the Client where that damage is the result of improper processing.
- 13.6. The Client indemnifies the Contractor from and against all claims by third parties on account of product liability as a result of a defect in a product supplied by the Client to a third party and that consisted, entirely or partially, of products and/or materials supplied by the Contractor. The Client is obliged to compensate all damage suffered by the Contractor in this respect, including the full costs of defence.

Article 14: Warranty and other claims

- 14.1. Unless otherwise agreed in writing, the Contractor warrants the proper execution of the agreed performance for a period of six months after delivery/completion. In the event that a different warranty period is agreed, the other paragraphs of this article are also applicable.
- 14.2. If the agreed performance was not properly executed, the Contractor will decide whether to properly execute it as yet or to credit the Client for a proportionate part of the invoice amount. If the Contractor chooses to properly execute the performance as yet, it will determine the manner and time of execution itself. If the agreed performance consisted (entirely or partially) of the processing of material provided by the Client, the Client must provide new material at its own risk and expense.
- 14.3. Parts or materials that are repaired or replaced by the Contractor must be sent to the Contractor by the Client.
- 14.4. The Client bears the expense of:
 - a. all costs of transport or dispatch;
 - b. costs of disassembly and assembly;
 - c. travel and accommodation expenses.
- 14.5. The Client must in all cases offer the Contractor the opportunity to remedy any defect or to perform the processing again.
- 14.6. The Client may only invoke the warranty once it has satisfied all its obligations to the Contractor.
- 14.7. a. No warranty is given if the defects result from:
 - normal wear and tear;
 - improper use;
 - lack of maintenance or improper maintenance;
 - installation, fitting, modification or repair by the Client or third parties;

- defects in or unsuitability of goods originating from, or prescribed by, the Client;
 - defects in or unsuitability of materials or auxiliary materials used by the Client.
- b. No warranty is given in respect of:
 - goods supplied that were not new at the time of delivery;
 - the inspection and repair of goods of the Client;
 - parts for which a manufacturer's warranty has been provided.

- 14.8. The provisions of paragraphs 2 to 7 of this article apply mutatis mutandis to any claims by the Client based on breach of contract, non-conformity or on any other basis whatsoever.
- 14.9. The Client cannot assign any rights under this article.

Article 15: Obligation to complain

- 15.1. The Client can no longer invoke a defect in performance if it does not make a written complaint to the Contractor in respect thereof within fourteen days of the date it discovered, or should reasonably have discovered, the defect.
- 15.2. On pain of forfeiture of all rights, the Client must submit complaints regarding the amount invoiced to the Contractor in writing within the payment deadline. If the payment deadline is longer than thirty days, the Client must complain no later than thirty days after the date of the invoice.

Article 16: Failure to take delivery of goods

- 16.1. Upon expiry of the delivery period and/or performance period, the Client is obliged to take delivery of the good or goods forming the subject of the agreement.
- 16.2. The Client must lend all cooperation that can be reasonably expected from it to enable the Contractor to make the delivery.
- 16.3. If the Client does not take delivery of goods, such goods will be stored at the risk and expense of the Client.
- 16.4. Upon breach of the provisions in paragraphs 1 and/or 2 of this article, the Client will owe the Contractor a penalty of € 250 per day, to a maximum of € 25,000. This penalty may be claimed in addition to damages pursuant to the law.

Article 17: Payment

- 17.1. Payment will be made at the Contractor's place of establishment or to an account to be designated by the Contractor.
- 17.2. Unless agreed otherwise, payment will be made as follows:
 - a. in cash where sale is at the service desk;
 - b. in the case of payments in instalments:
 - 40% of the total price upon assignment;
 - 50% of the total price after supply of the material or, if delivery of the material is not included in the assignment, after commencement of the work;
 - 10% of the total price upon completion;
 - c. in all other cases, within thirty days of the date of the invoice.
- 17.3. If the Client fails to comply with its payment obligation, instead of paying the sum of money agreed it will be obliged to comply with a request by the Contractor for payment in kind (inbetalinggeving).
- 17.4. The right of the Client to set off or suspend amounts it is owed by the Contractor, save in the event of the Contractor's bankruptcy or if statutory debt rescheduling applies to the Contractor.
- 17.5. Irrespective of whether the Contractor has fully executed the agreed performance, everything that is or will be owed to it by the Client under the agreement is immediately due and payable if:
 - a. a deadline for payment has been exceeded;
 - b. an application has been made for the Client's bankruptcy or suspension of payments;
 - c. attachment is levied on the Client's goods or claims;
 - d. the Client (a company) is dissolved or wound up;
 - e. the Client (a natural person) requests to be admitted to statutory debt rescheduling, is placed under guardianship or dies.
- 17.6. If payment is not made within the agreed payment deadline, the Client will immediately owe interest to the Contractor. The interest rate is 12% per annum, but is equal to the statutory interest rate if the latter rate is higher. When calculating interest, part of a month is regarded as a whole month.
- 17.7. The Contractor is authorised to set off its debts to the Client with amounts owed by the Client to companies affiliated with the Contractor. In addition, the Contractor is authorised to set off amounts owed to it by the

Client with debts to the Client of companies affiliated with the Contractor. Further, the Contractor is authorised to set off its debts to the Client with amounts owed to the Contractor by companies affiliated with the Client. Affiliated companies are understood to mean the companies belonging to the same group, within the meaning of Article 2:24b Dutch Civil Code, and participating interests within the meaning of Article 2:24c Dutch Civil Code.

- 17.8. If payment is not made within the agreed payment deadline, the Client will owe the Contractor all extrajudicial costs, with a minimum of € 75. These costs will be calculated on the basis of the following table (principal sum plus interest):

on the first € 3,000	15%
on any additional amount up to € 6,000	10%
on any additional amount up to € 15,000	8%
on any additional amount up to € 60,000	5%
on any additional amount from € 60,000	3%

The extrajudicial costs actually incurred will be owed if these are higher than they would be according to the above calculation.

- 17.9. If judgment is rendered in favour of the Contractor in legal proceedings, all costs that it has incurred in relation to these proceedings will be borne by the Client.

Article 18: Security

- 18.1. Irrespective of the agreed payment conditions, upon the first demand of the Contractor the Client is obliged to provide such security for payment as the Contractor deems sufficient. If the Client does not comply with such demand within the period set, it will immediately be in default. In that event, the Contractor is entitled to terminate the agreement and to recover its damage from the Client.
- 18.2. The Contractor will retain ownership of any goods delivered as long as the Client:
 - a. fails or will fail in the performance of its obligations under this agreement or other agreements;
 - b. has not paid debts that have arisen due to non-performance of the aforementioned agreements, such as damage, penalties, interest and costs.
- 18.3. As long as the goods delivered are subject to retention of title, the Client may not encumber or alienate the same other than in the ordinary course of its business.
- 18.4. Once the Contractor has invoked its retention of title, it may take possession of the goods delivered. The Client will lend its full cooperation to this end.
- 18.5. The Contractor has a right of pledge and a right of retention in respect of all goods that are or will be held by it for any reason whatsoever and for all claims it has or might acquire against the Client in respect of anyone seeking their surrender.
- 18.6. If, after the goods have been delivered to the Client by the Contractor in accordance with the agreement, the Client has met its obligations, the retention of title will be revived with regard to such goods if the Client does not meet its obligations under any agreement subsequently concluded.

Article 19: Termination of the Agreement

If the Client wishes to terminate the agreement without the Contractor being in default, and the Contractor agrees to this, the agreement will be terminated by mutual consent. In that case, the Contractor is entitled to compensation for all financial loss, such as loss suffered, loss of profit and costs incurred.

Article 20: Applicable law and competent court

- 20.1. Dutch law applies.
- 20.2. The Vienna Sales Convention (C.I.S.G.) does not apply, nor do any other international regulations the exclusion of which is permitted.
- 20.3. Disputes will be heard exclusively by the Dutch civil court with jurisdiction over the Contractor's place of establishment, unless this is contrary to mandatory law. The Contractor may deviate from this rule of jurisdiction and apply the statutory rules of jurisdiction.

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