

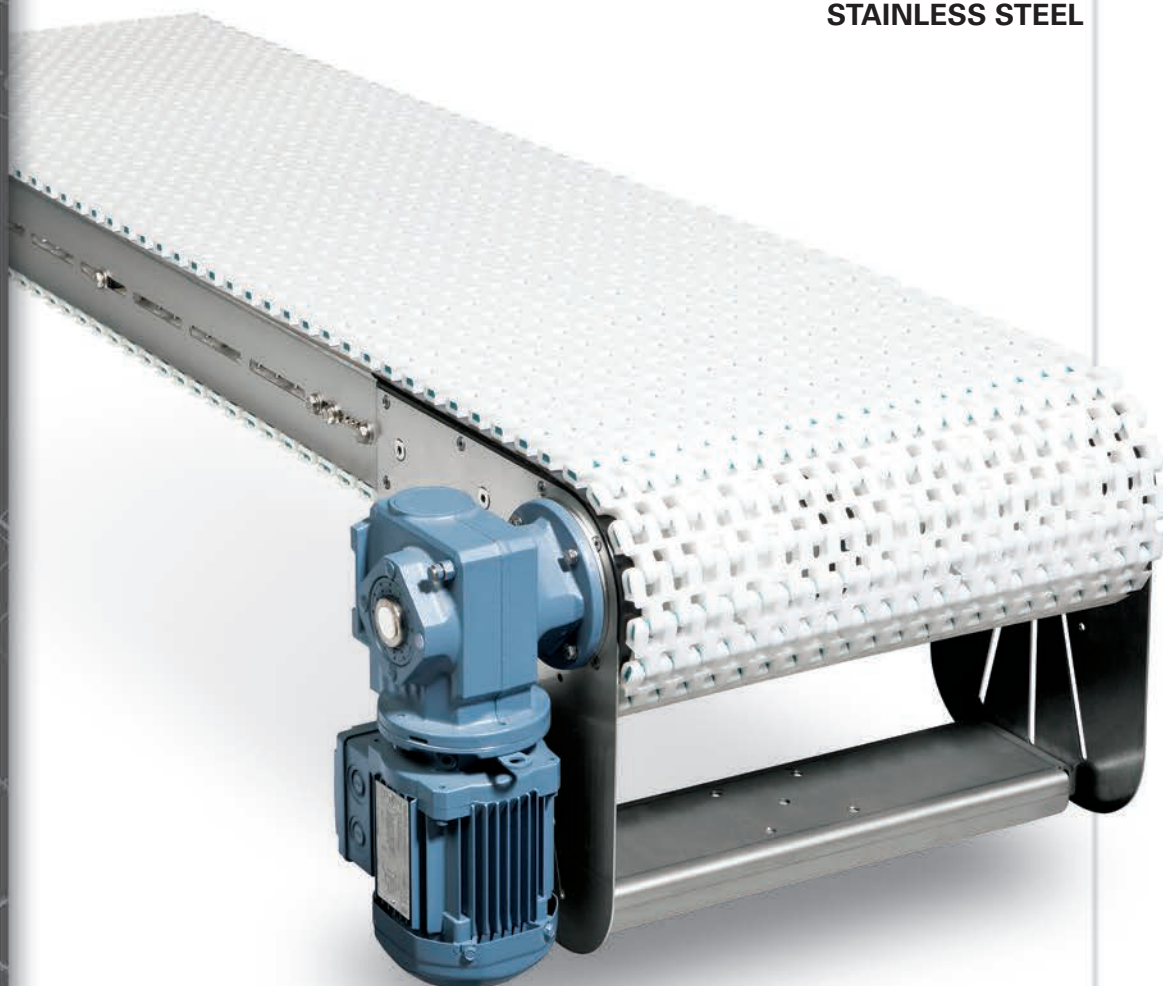


EMBS
SYSTEM

Mat Top Conveyor
Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

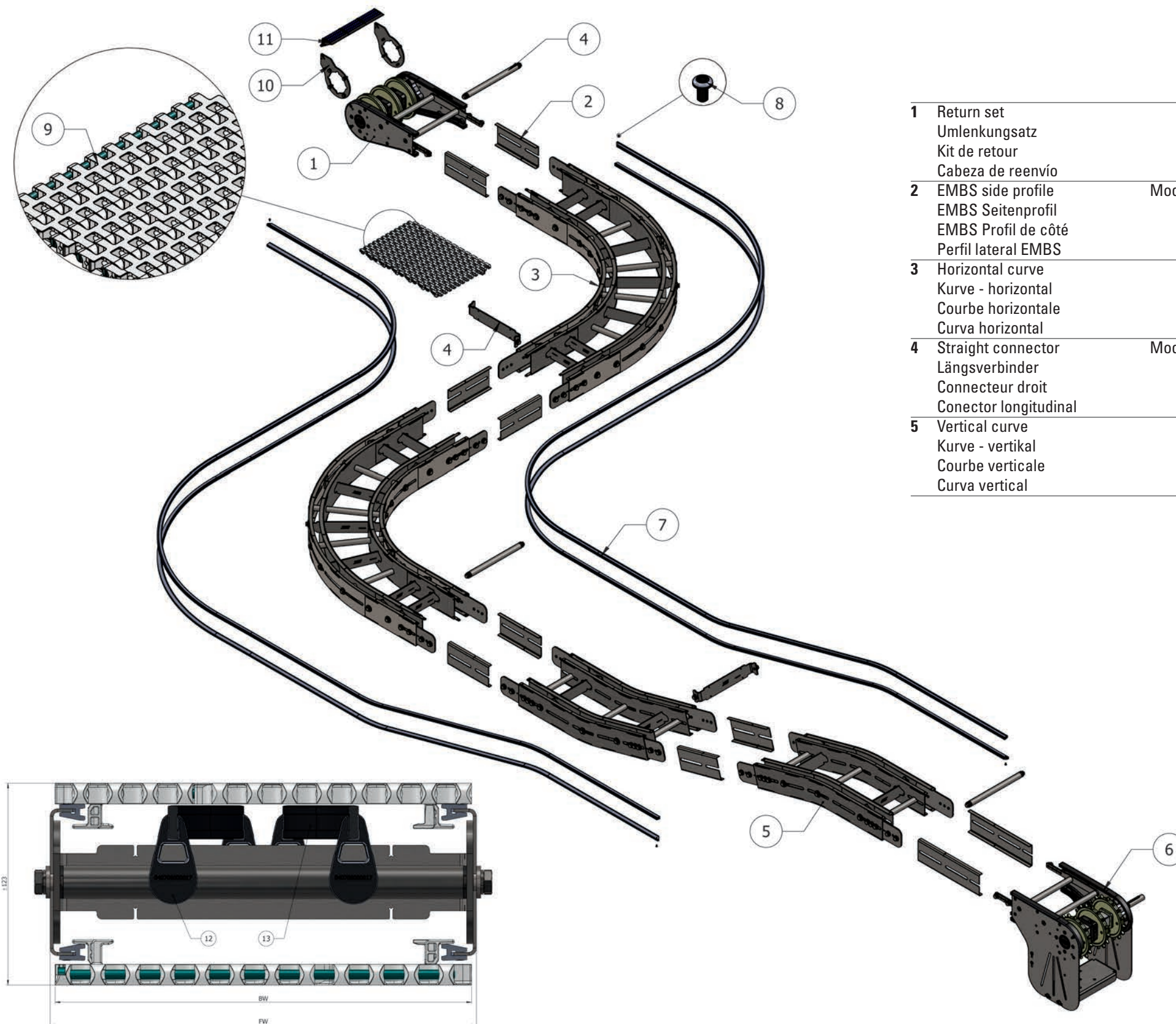
EMBS HEAD DRIVE

STAINLESS STEEL



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EMBS HEAD DRIVE



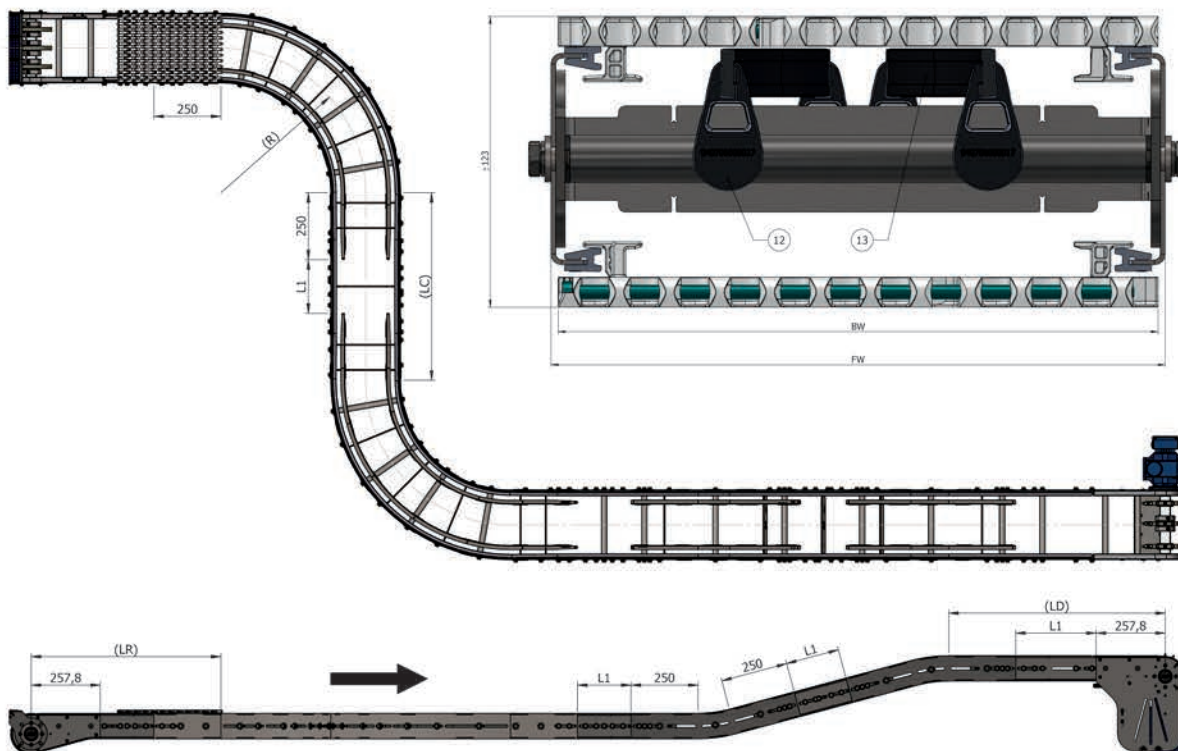
1	Return set Umlenkungsatz Kit de retour Cabeza de reenvío	Module page 330
2	EMBS side profile EMBS Seitenprofil EMBS Profil de côté Perfil lateral EMBS	Module page 302-303
3	Horizontal curve Kurve - horizontal Courbe horizontale Curva horizontal	Module page 337
4	Straight connector Längsverbinder Connecteur 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 Kopftrieb - 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





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



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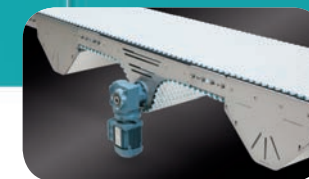
EMBS CENTER DRIVE

STAINLESS STEEL

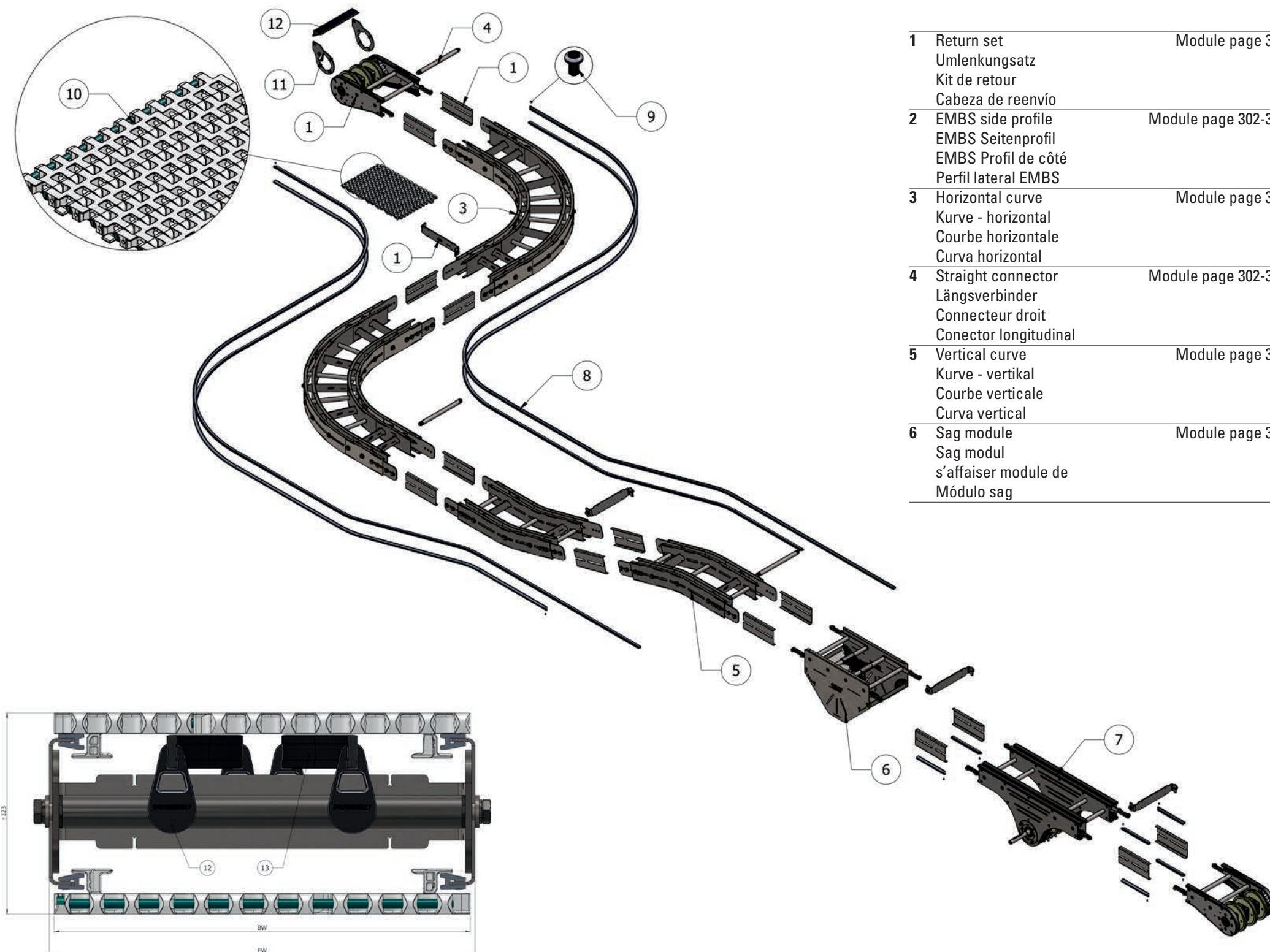


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EMBS CENTER DRIVE



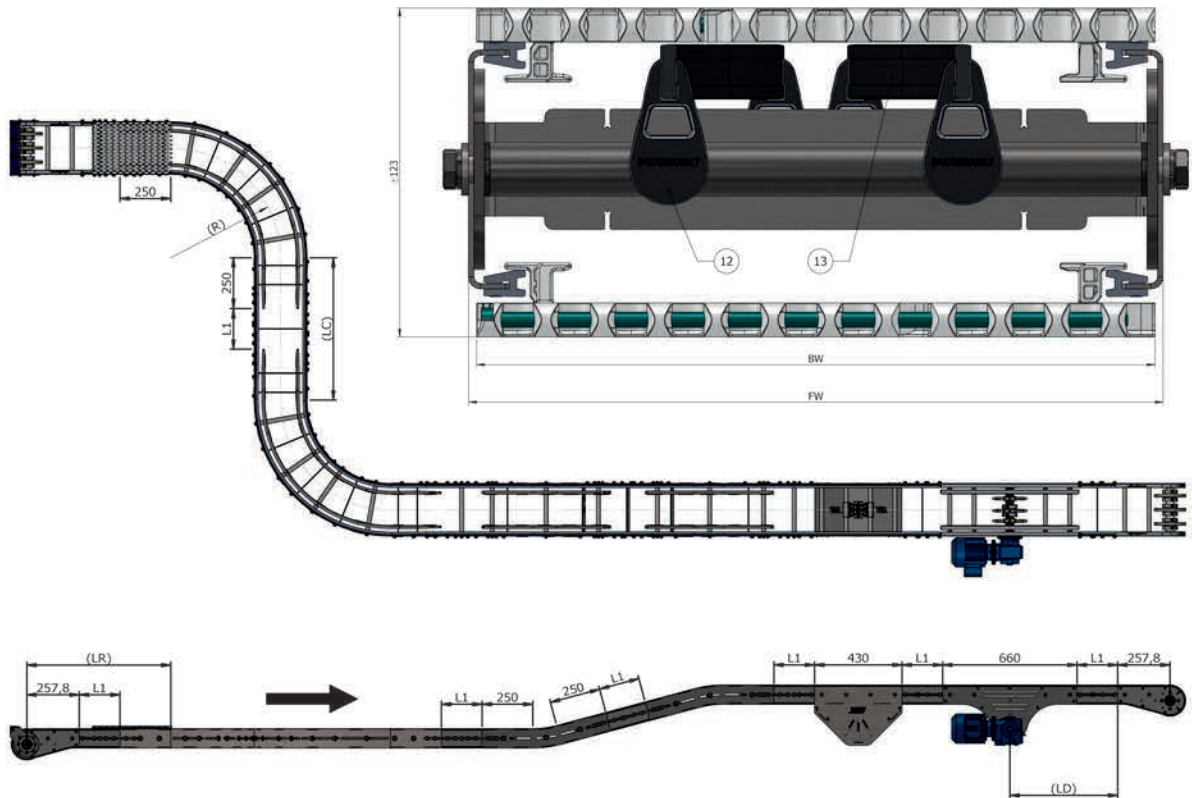
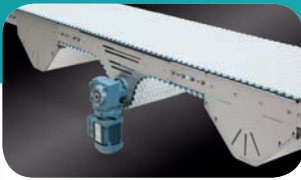
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1	Return set Umlenkungsatz Kit de retour Cabeza de reenvío	Module page 330
2	EMBS side profile EMBS Seitenprofil EMBS Profil de côté Perfil lateral EMBS	Module page 302-303
3	Horizontal curve Kurve - horizontal Courbe horizontale Curva horizontal	Module 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





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

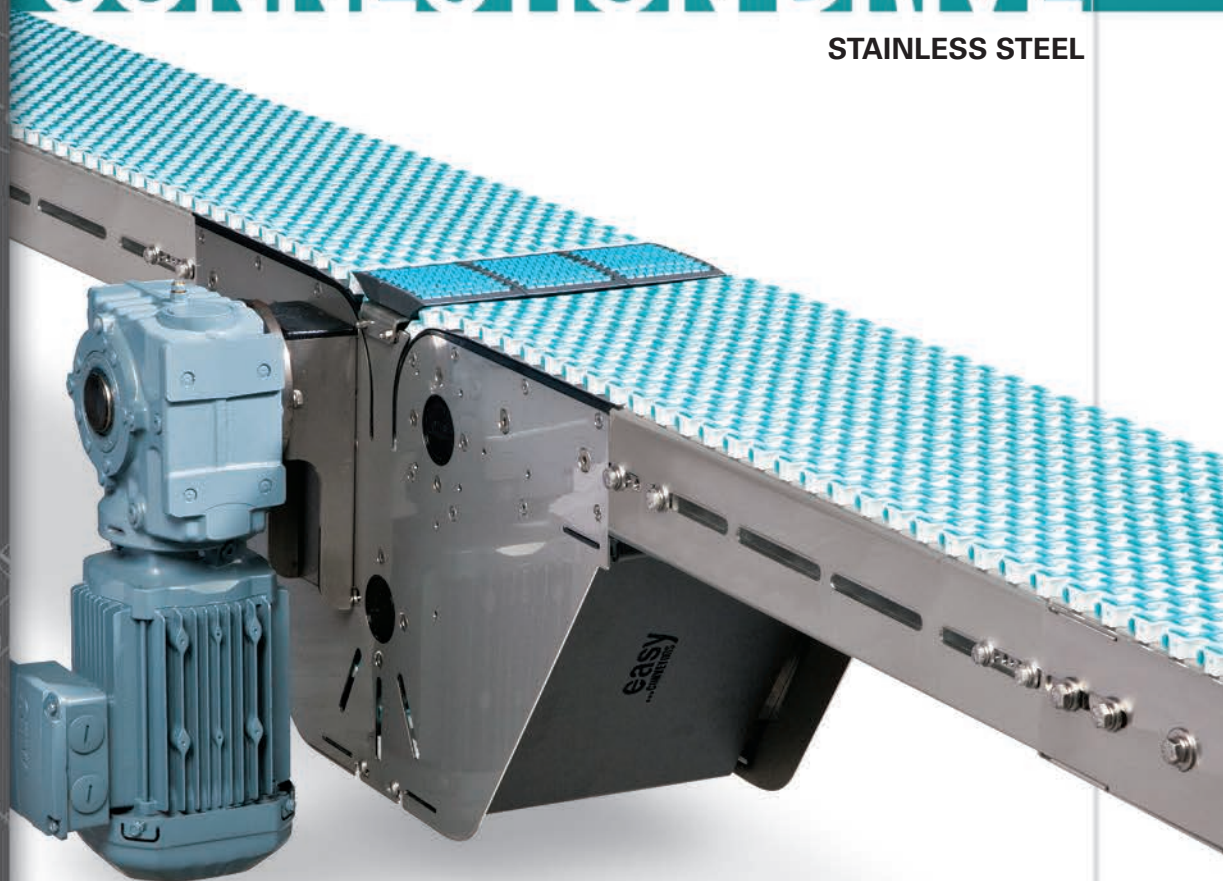


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Gliederbandförderer
Convoyeur à tapis haut
Transportador de banda articulada

EMBS CONNECTION DRIVE

STAINLESS STEEL

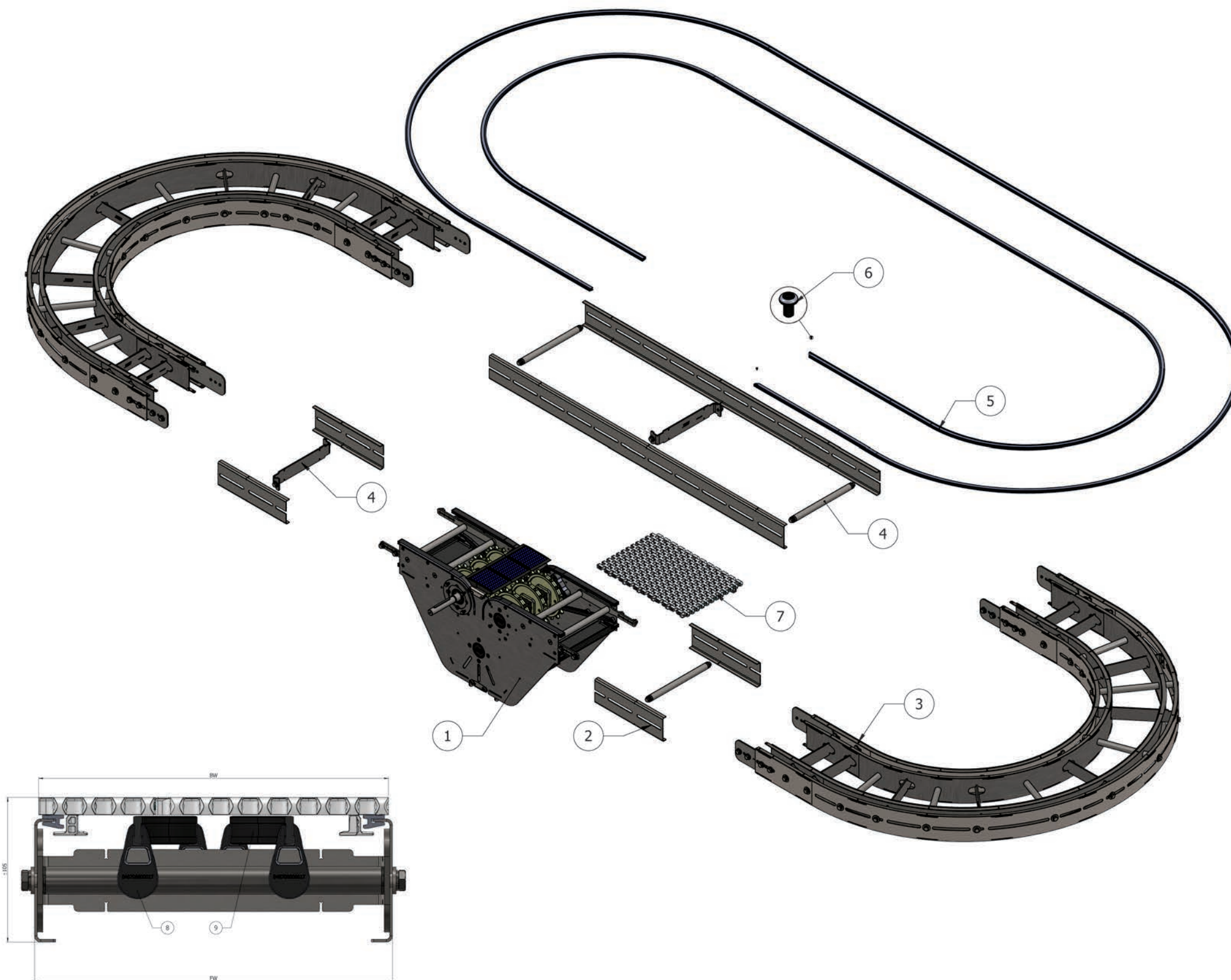


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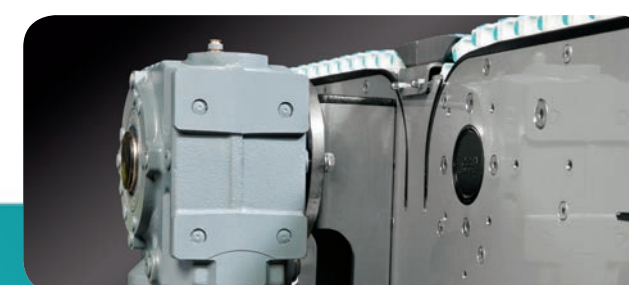
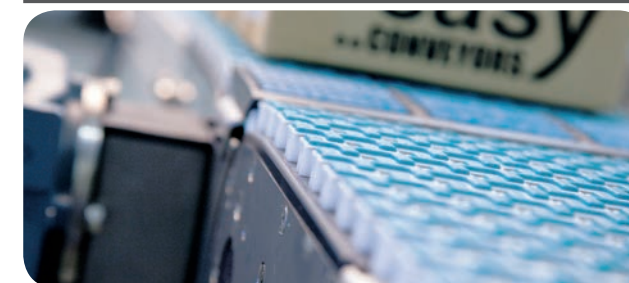
EMBS CONNECTION DRIVE

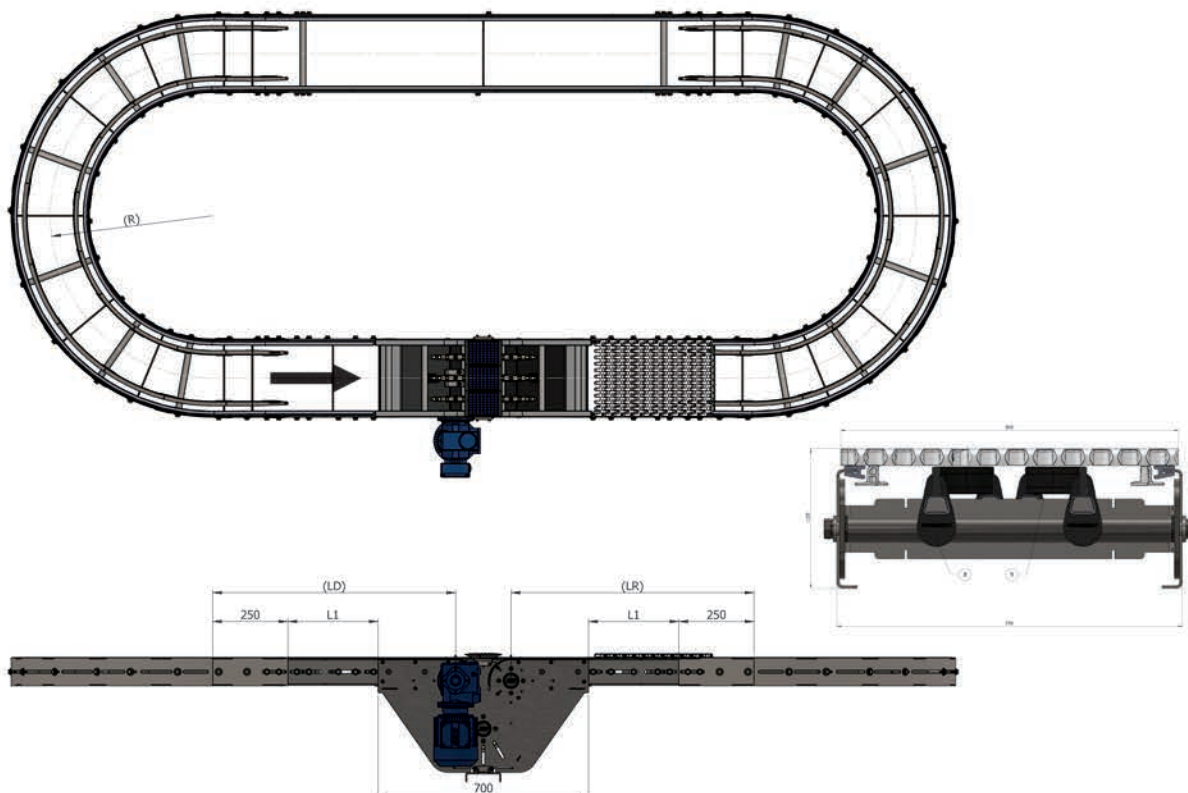
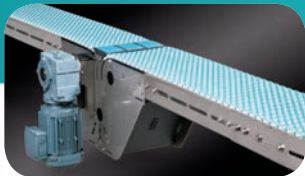


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- | | | |
|---|---|---------------------|
| 1 | Connection drive set
Verbindungs Antrieb
Entraînement de raccord
Conexión de la unidad | Module page 322-329 |
| 2 | EMBS side profile
EMBS Seitenprofil
EMBS Profil de côté
Perfil lateral EMBS | Module 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.			

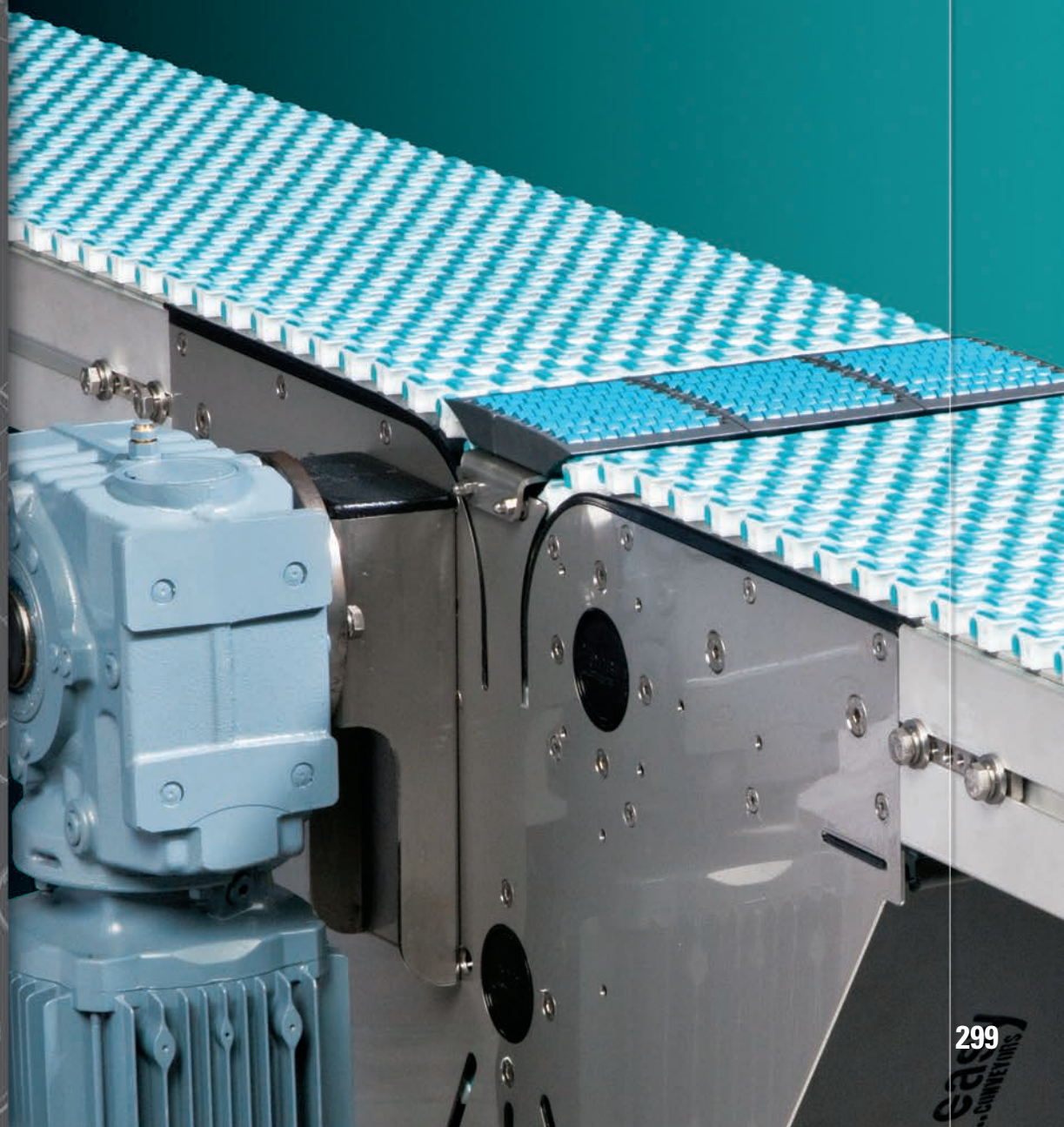
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta



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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 |

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)

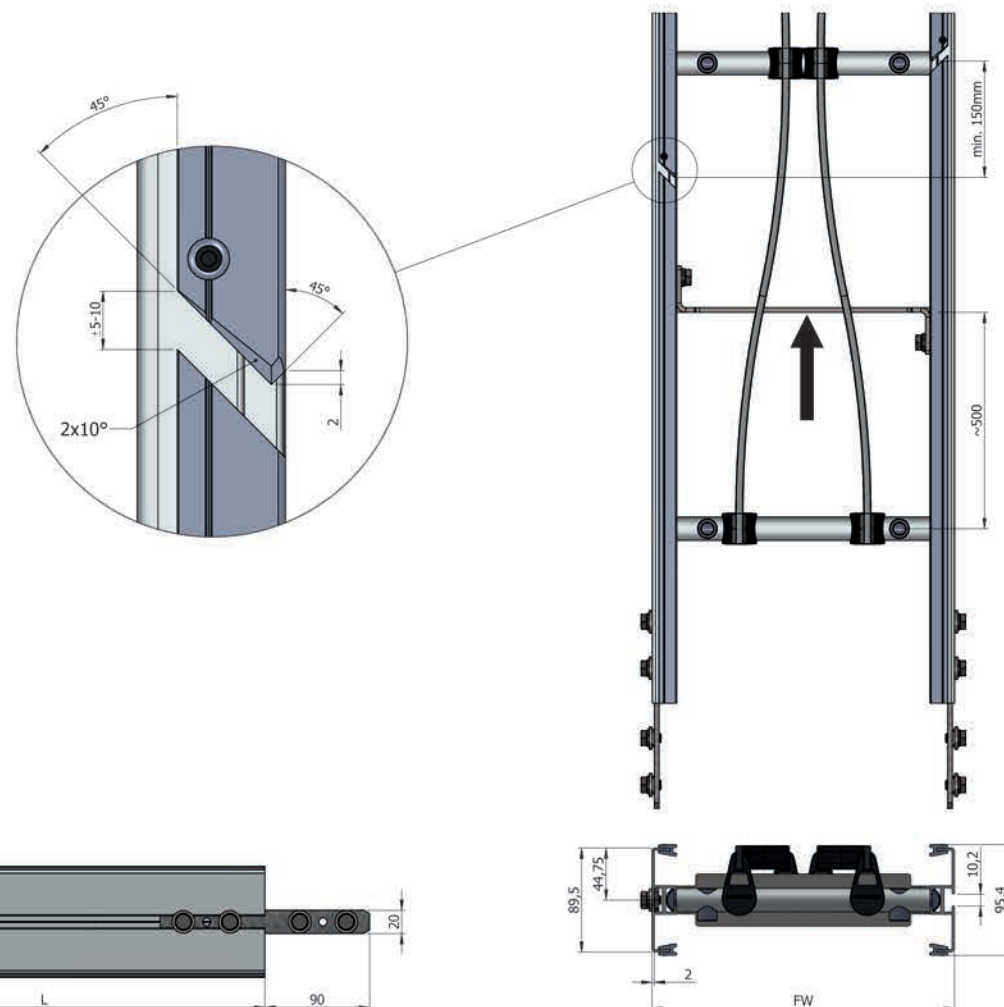
Art Nr. Pos 5	Material	
EMPT040705000005	Nylon 6.6	 250

Art Nr. Pos 6	Material	
EMPT040705000003	PA 6	25

Art Nr. Pos 7	Material	
EMPT040705000002	PE	 Roll = 30 Mtr. 98,43 Foot

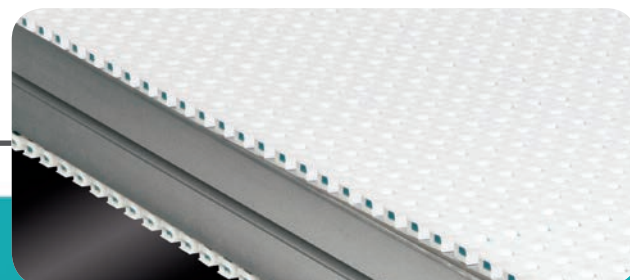
Art Nr. Pos 8	Material	
EMPT040705000004	Steel galvanized, Stahl verzinkt, Acier galvanisé, Acero galvanizado	 2 pieces with fastener

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



	Dimensions - Abmessungen - Dimensions - Dimensiones			
Standard Length L =	5,6 Mtr. 18.37 Foot			
FW =	260	344	429	513 mm
	10.23"	13.54"	16.89"	20.19" inch

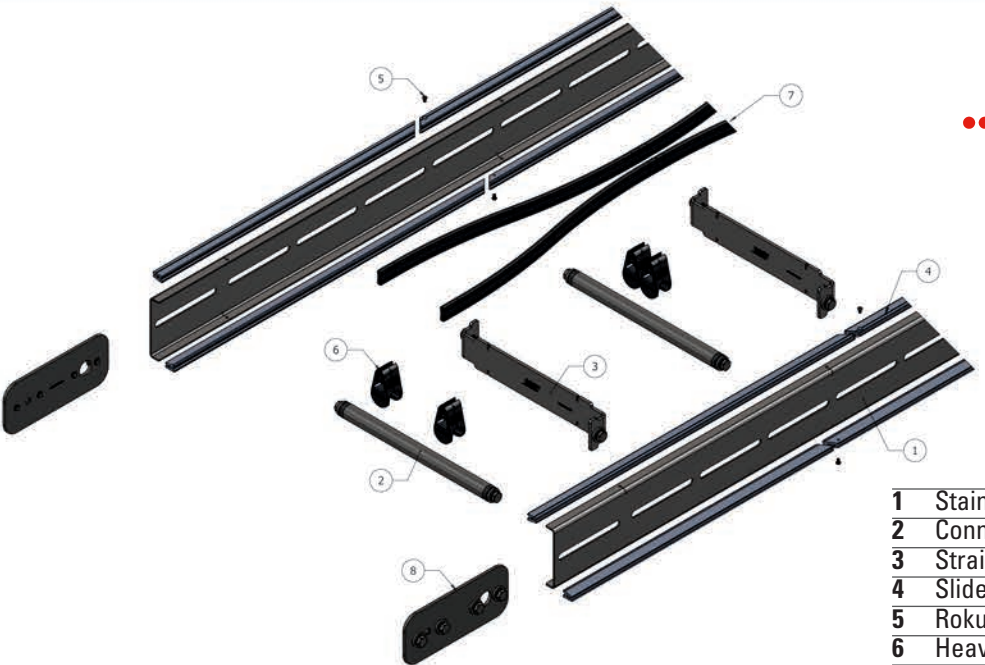
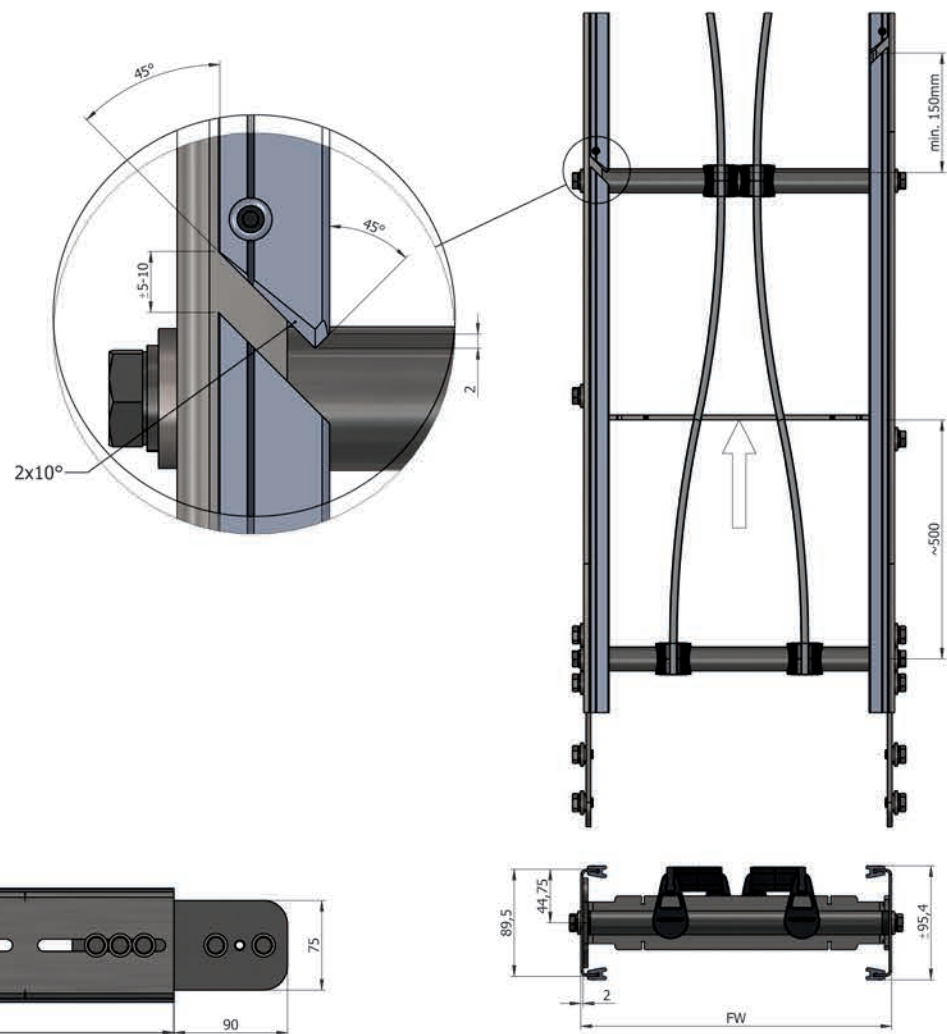
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta





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- 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

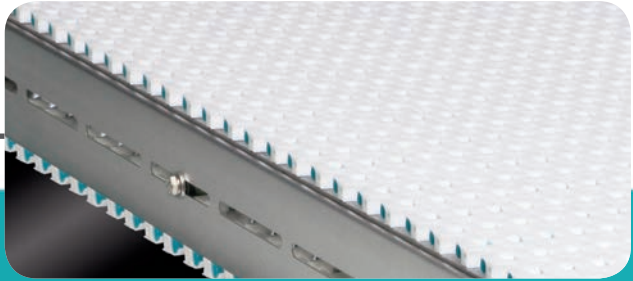
Art Nr. Pos 7	Material	
EMPT040705000002	PE	Roll = 30 Mtr. 98,43 Foot

Art Nr. Pos 8	Material	
EMPT040705000006	Stainless steel, Edelstahl, Aluminium	2 pieces with fastener

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

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

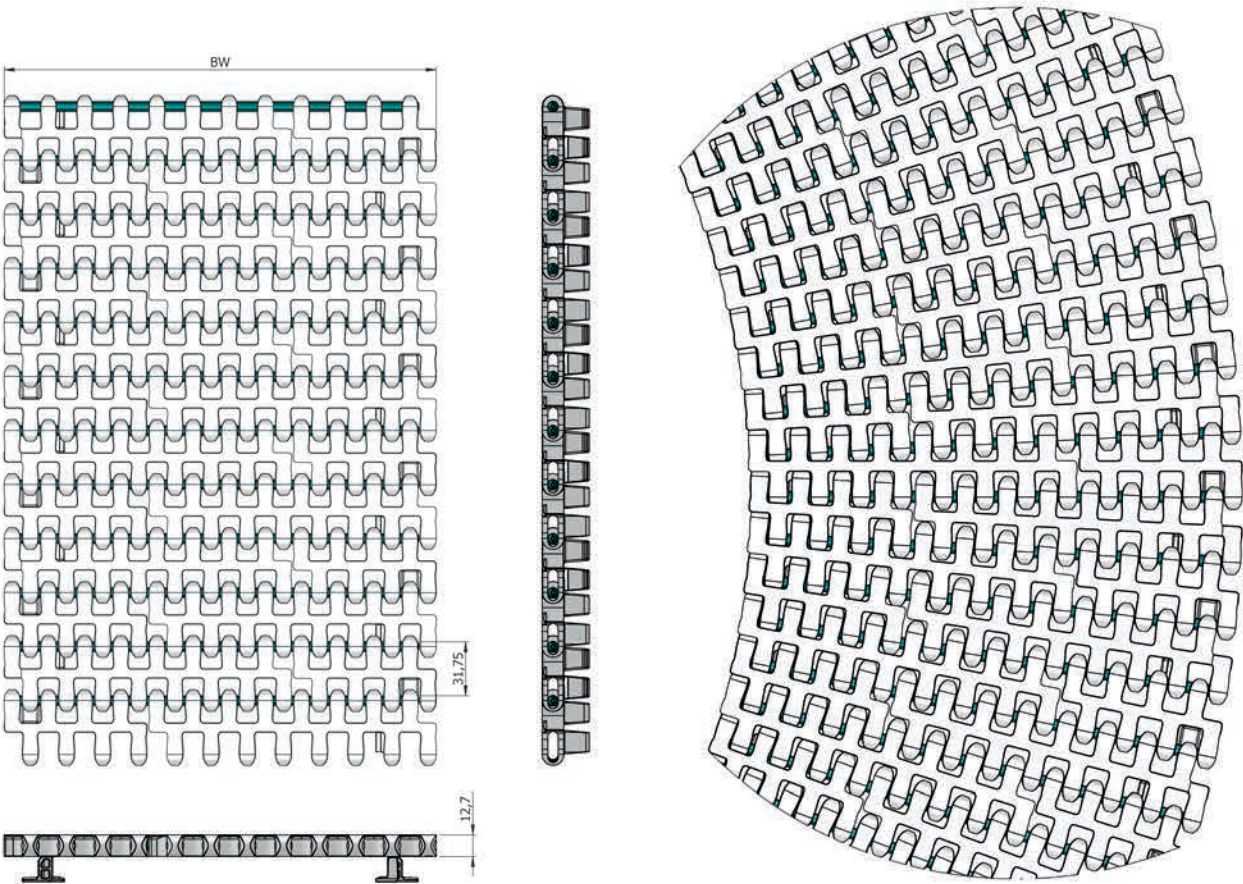
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Autres sur demande, Otros sobre consulta





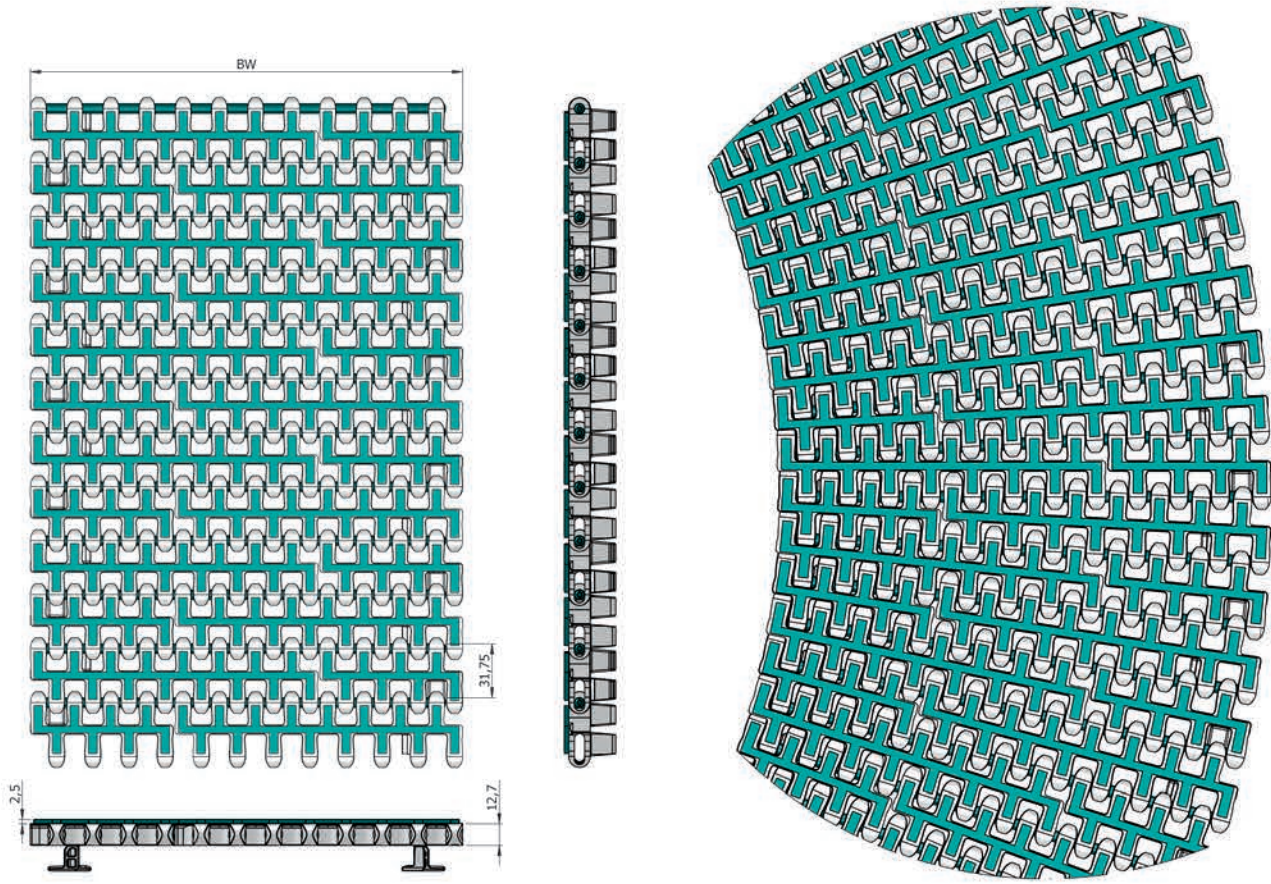
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Dimensions - Abmessungen - Dimensions - Dimensiones				
Material	LFW (low friction acetal resin), Reibungsarmer Acetal Faible coefficient de frottement acétal, Acetal de baja fricción			
Color	Natural, Natur, Naturel, Natural			
Package	1 box; L=1,5 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

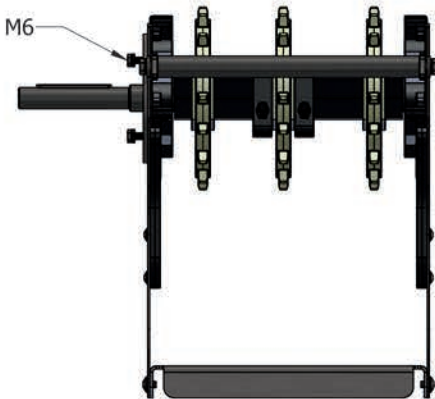
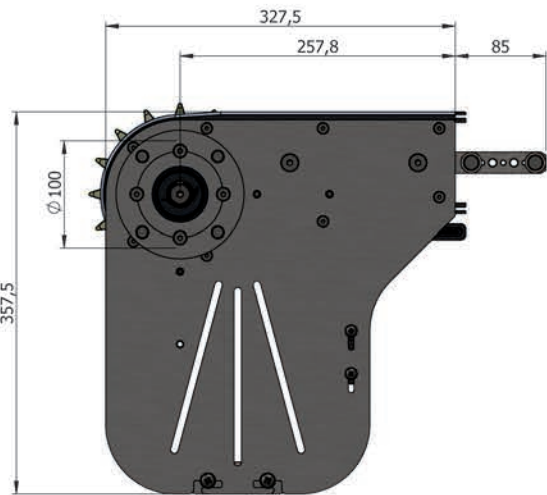
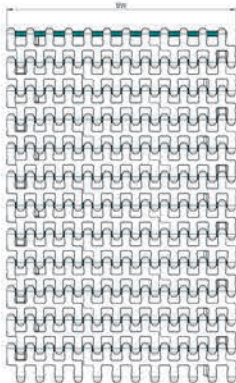
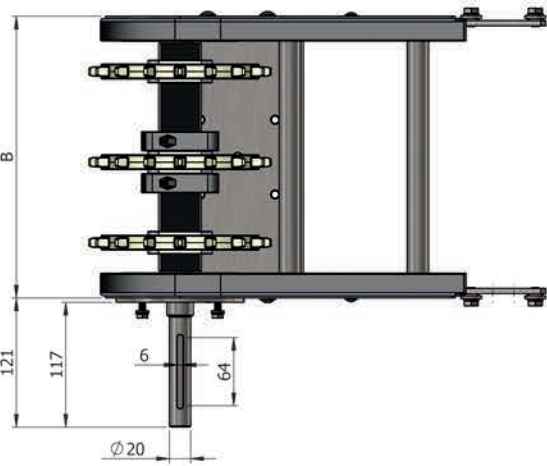
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



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

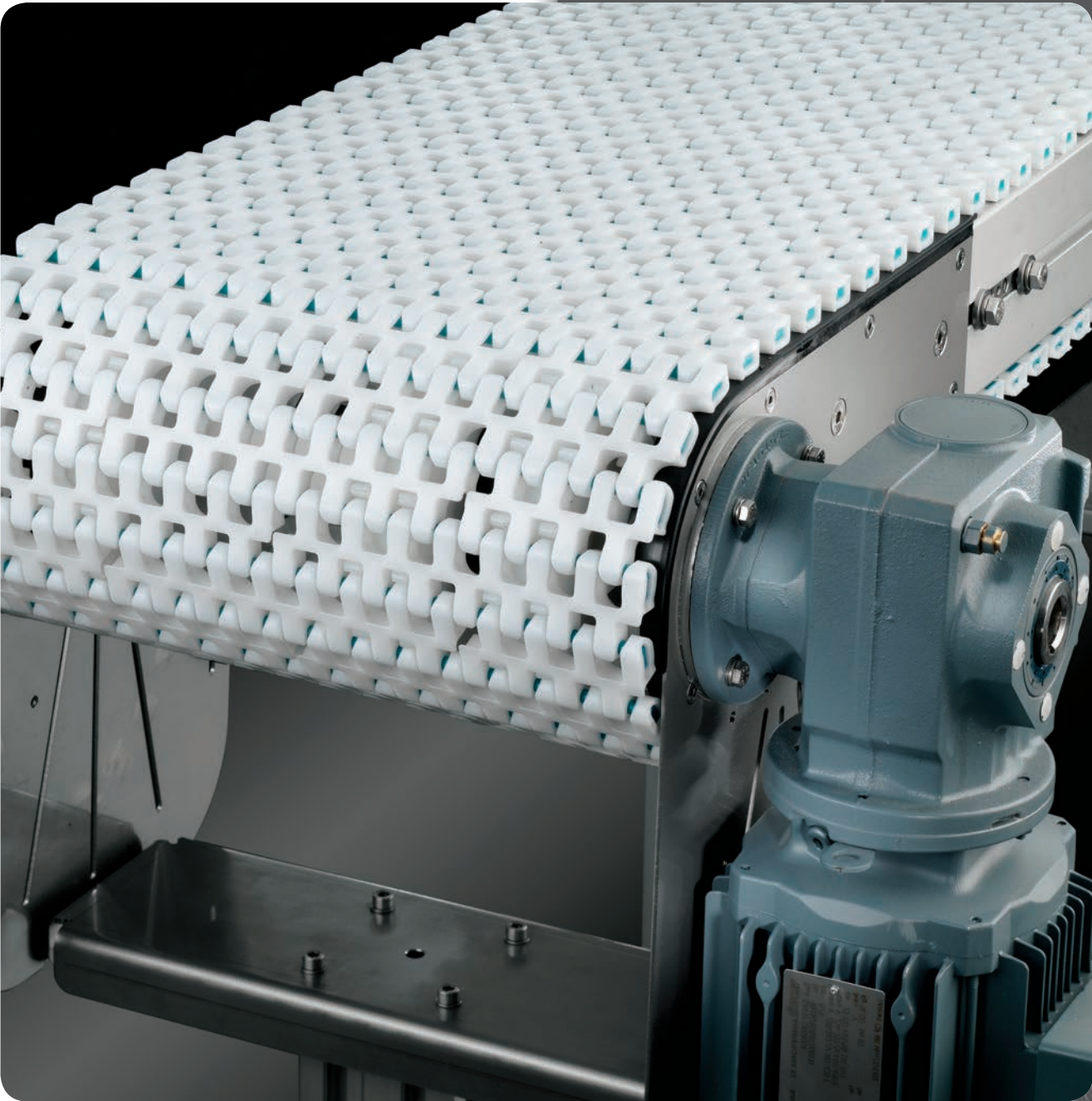
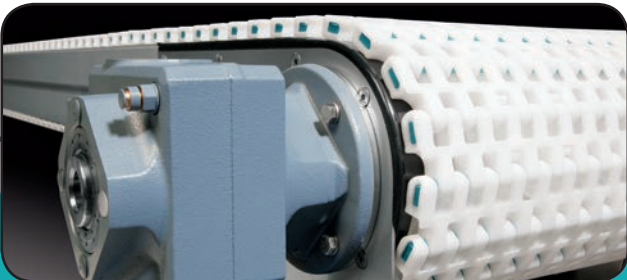


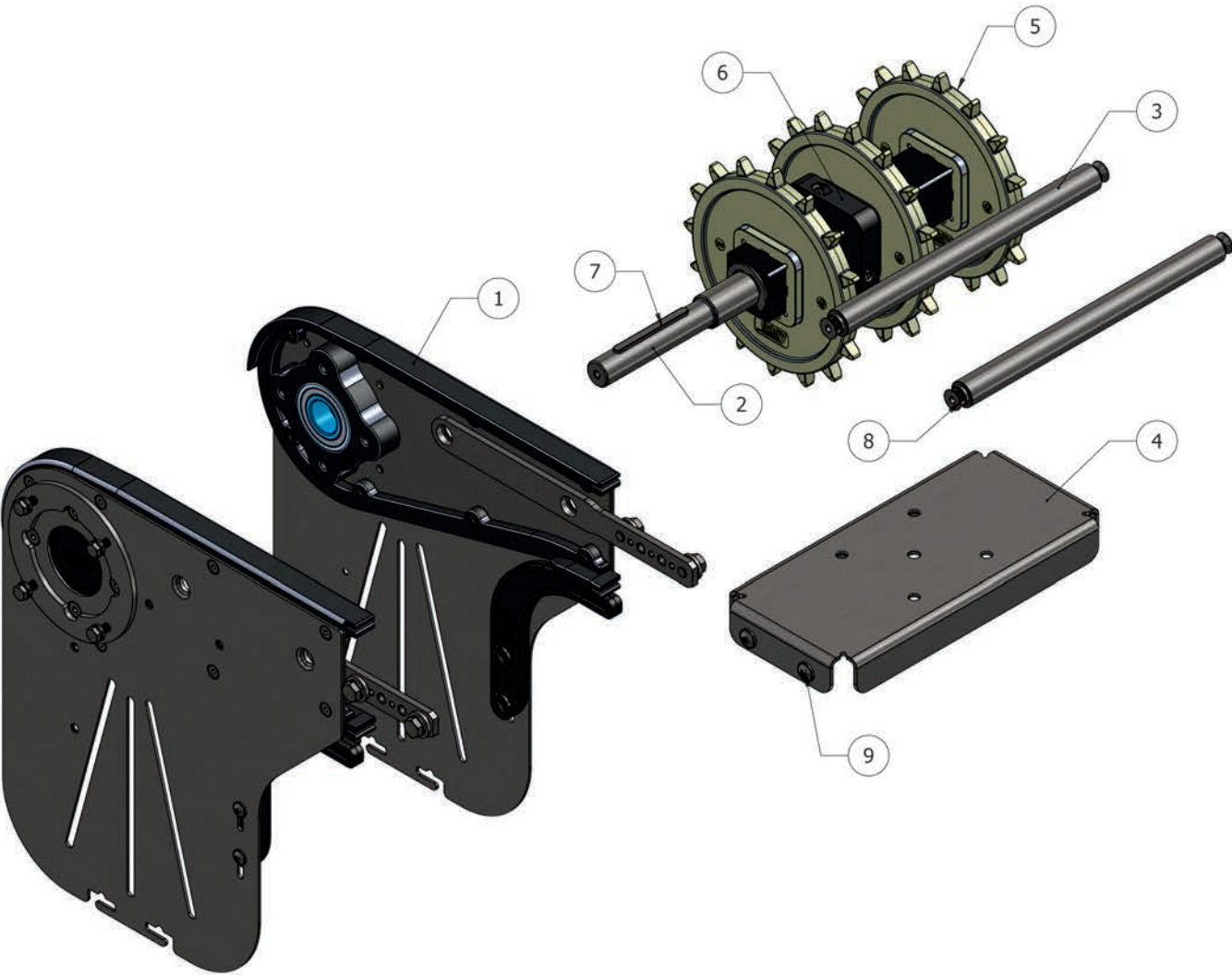


Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =	BW =
EMBS041401020255	EMBS041501020255	264 mm 10,23" inch	255 mm 10,04" inch
EMBS041401020340	EMBS041501020340	348 mm 13,54" inch	340 mm 13,38" inch
EMBS041401020425	EMBS041501020425	433 mm 16,89" inch	425 mm 16,73" inch
EMBS041401020510	EMBS041501020510	517 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 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

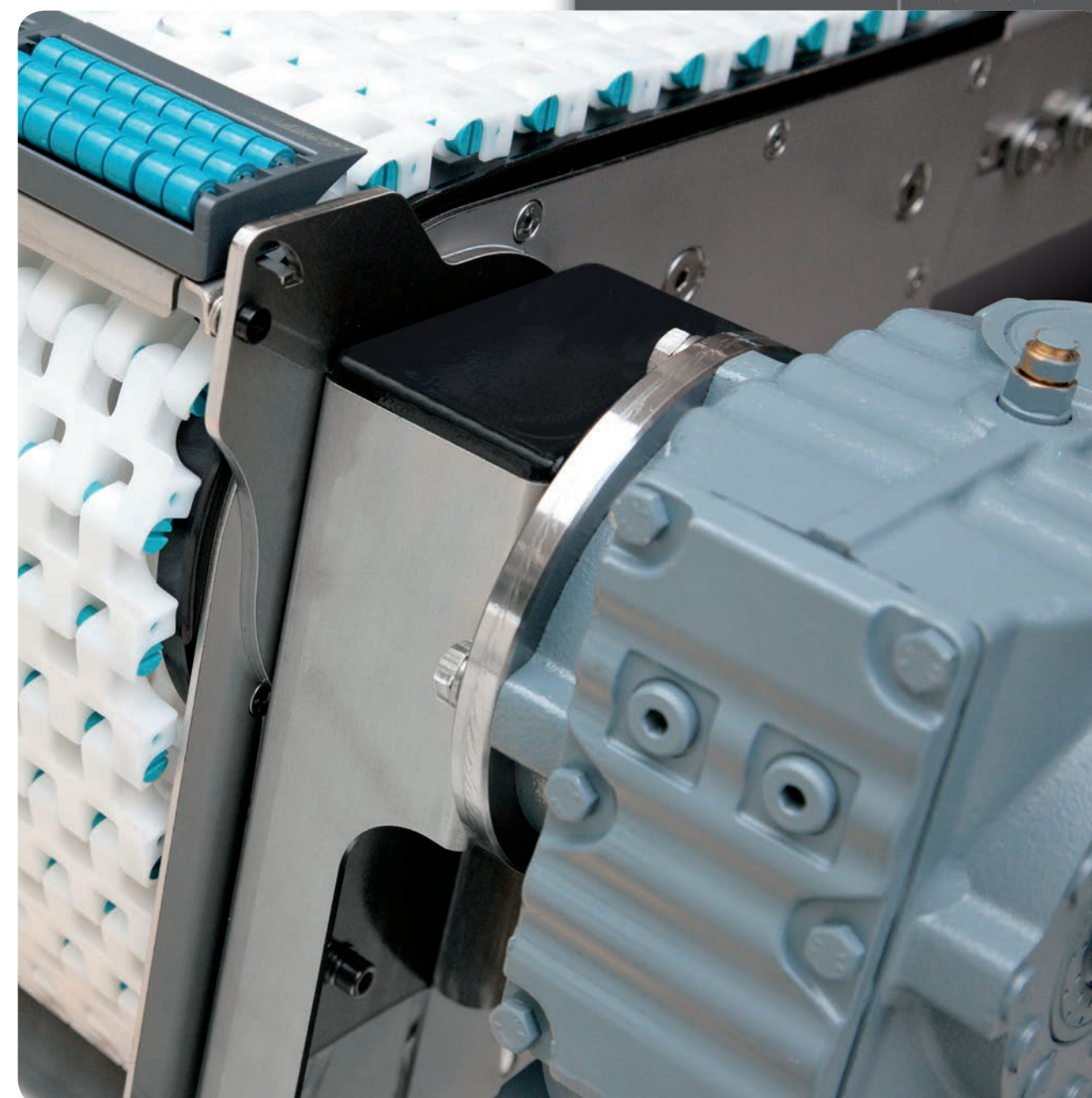
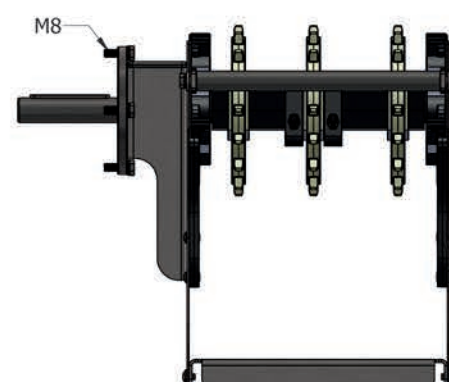
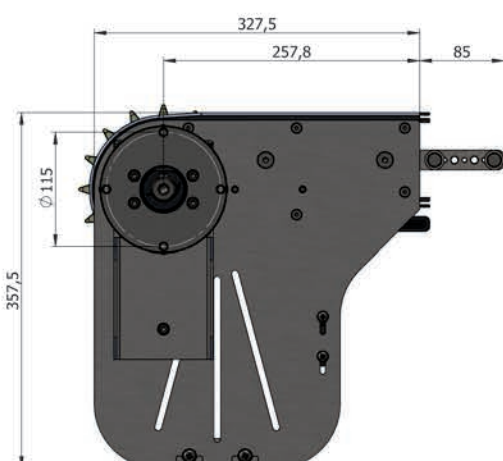
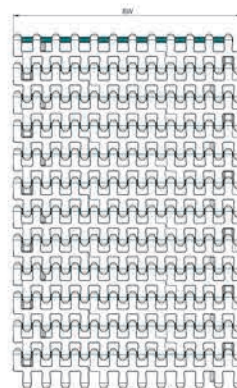
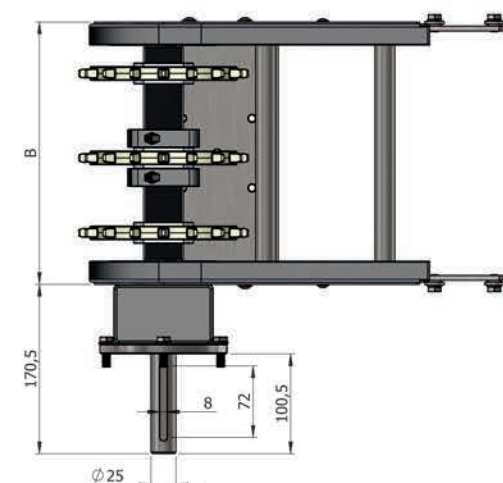
Art Nr. Pos 9		Material	
BV738006008A2	Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		100

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

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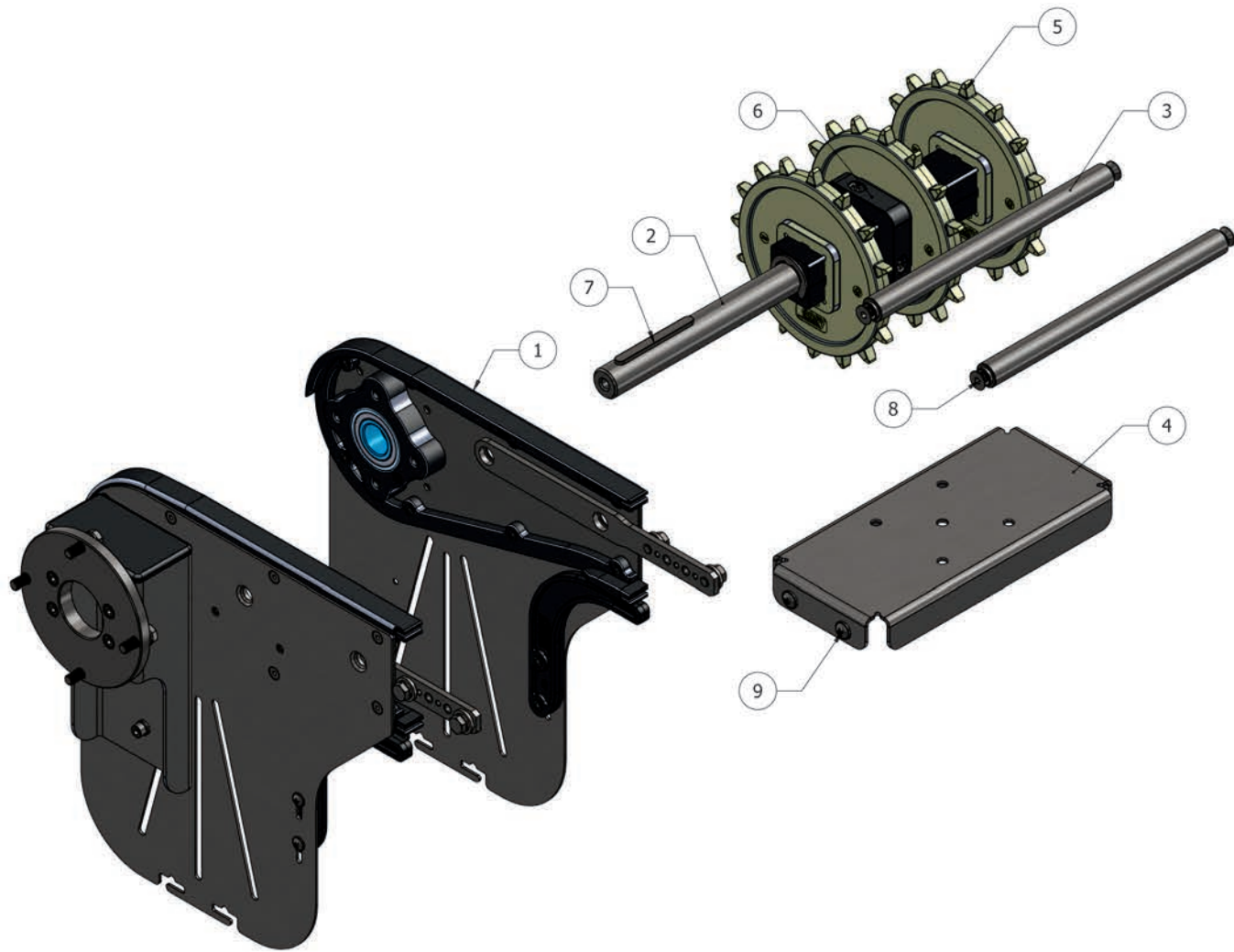


Dimensions - Abmessungen - Dimensions - Dimensiones

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			

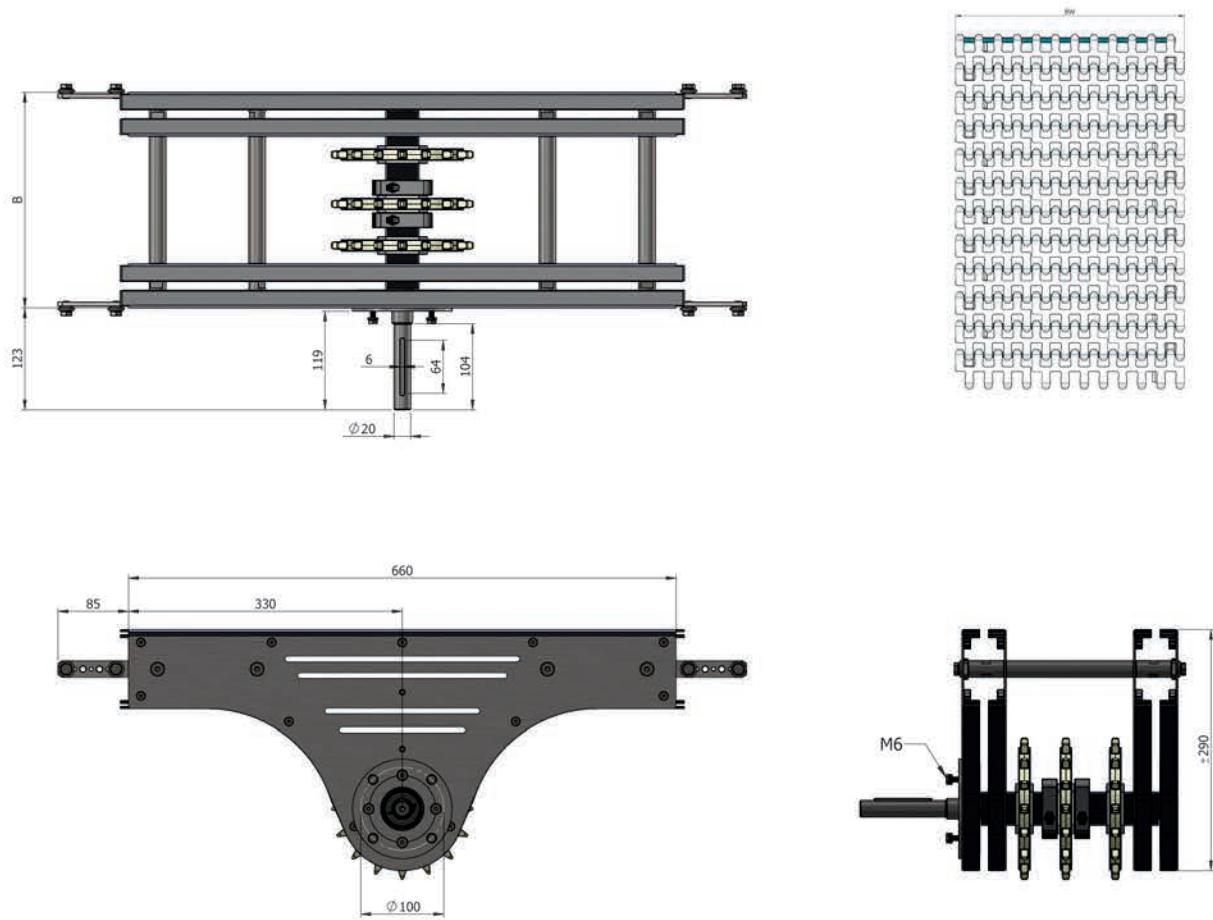
Art Nr. Pos 6	Material			
040706000018	PA FG			10

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

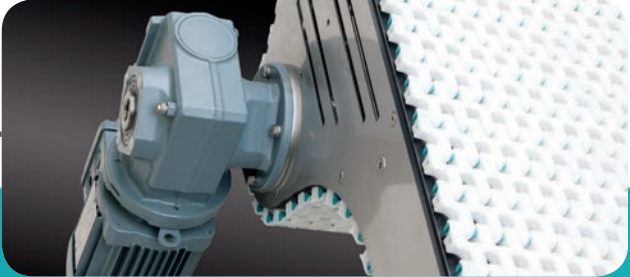
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

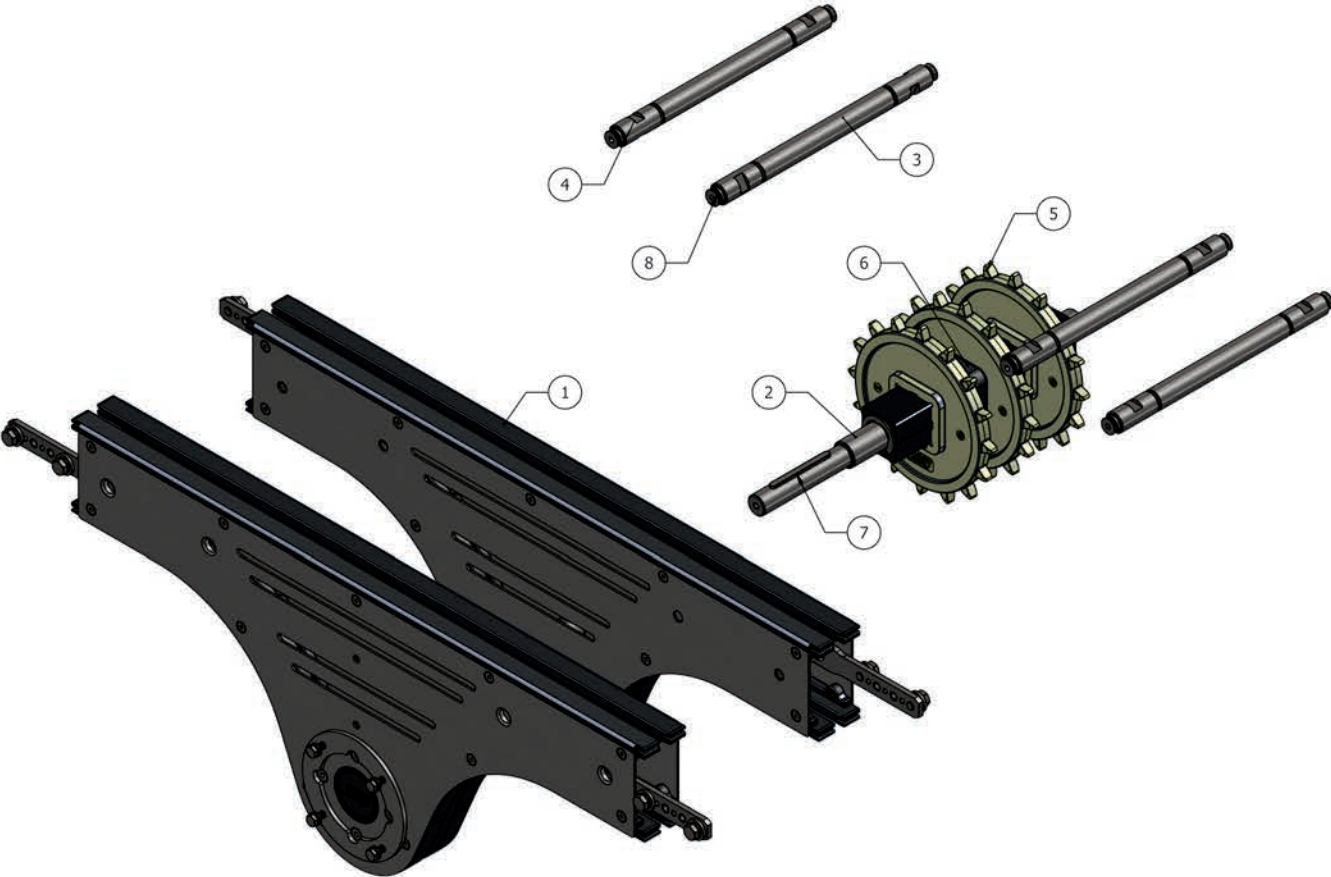


Dimensions - Abmessungen - Dimensions - Dimensiones

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		1
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				

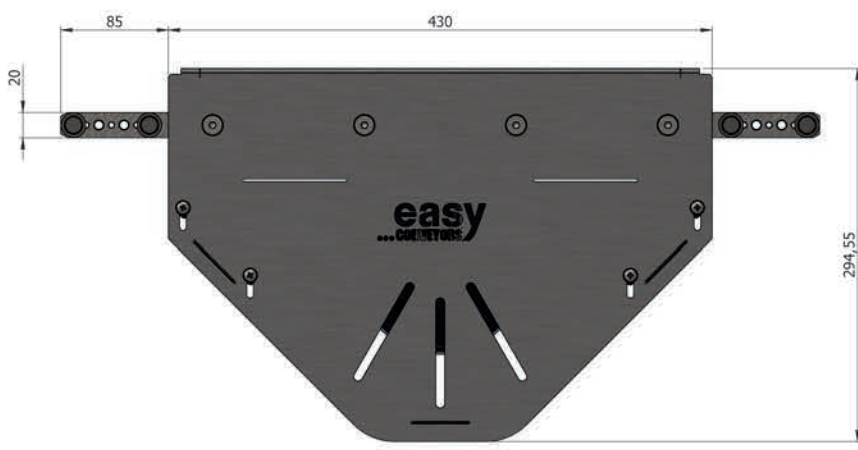
Art Nr. Pos 5			
041506000000	Pitch diameter Ø169.7	Bore Square 40	1
Material	POM		

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

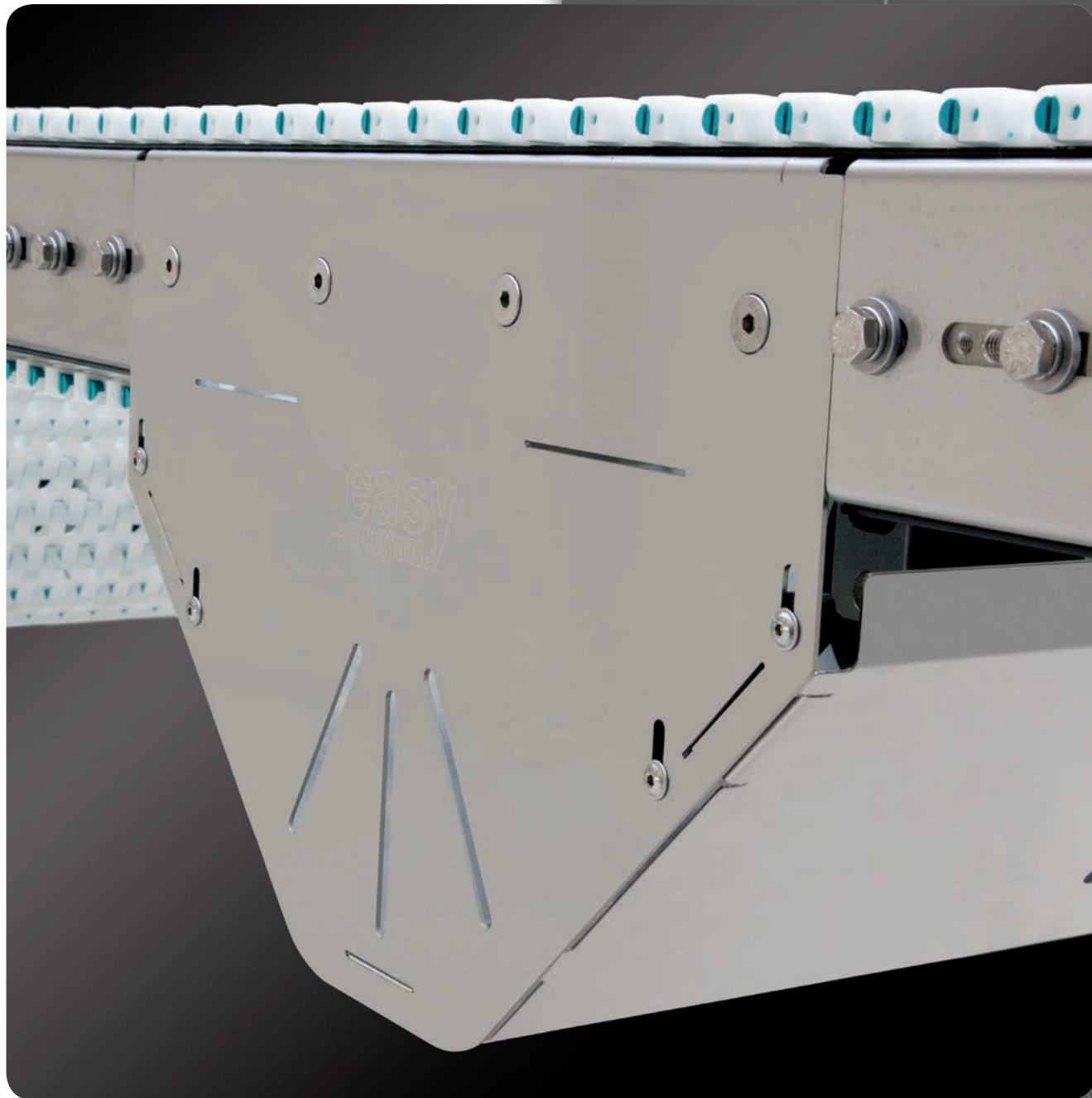
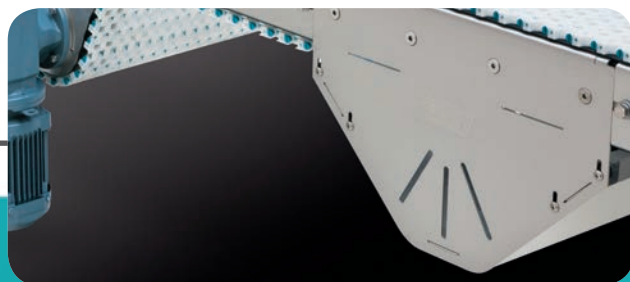
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta

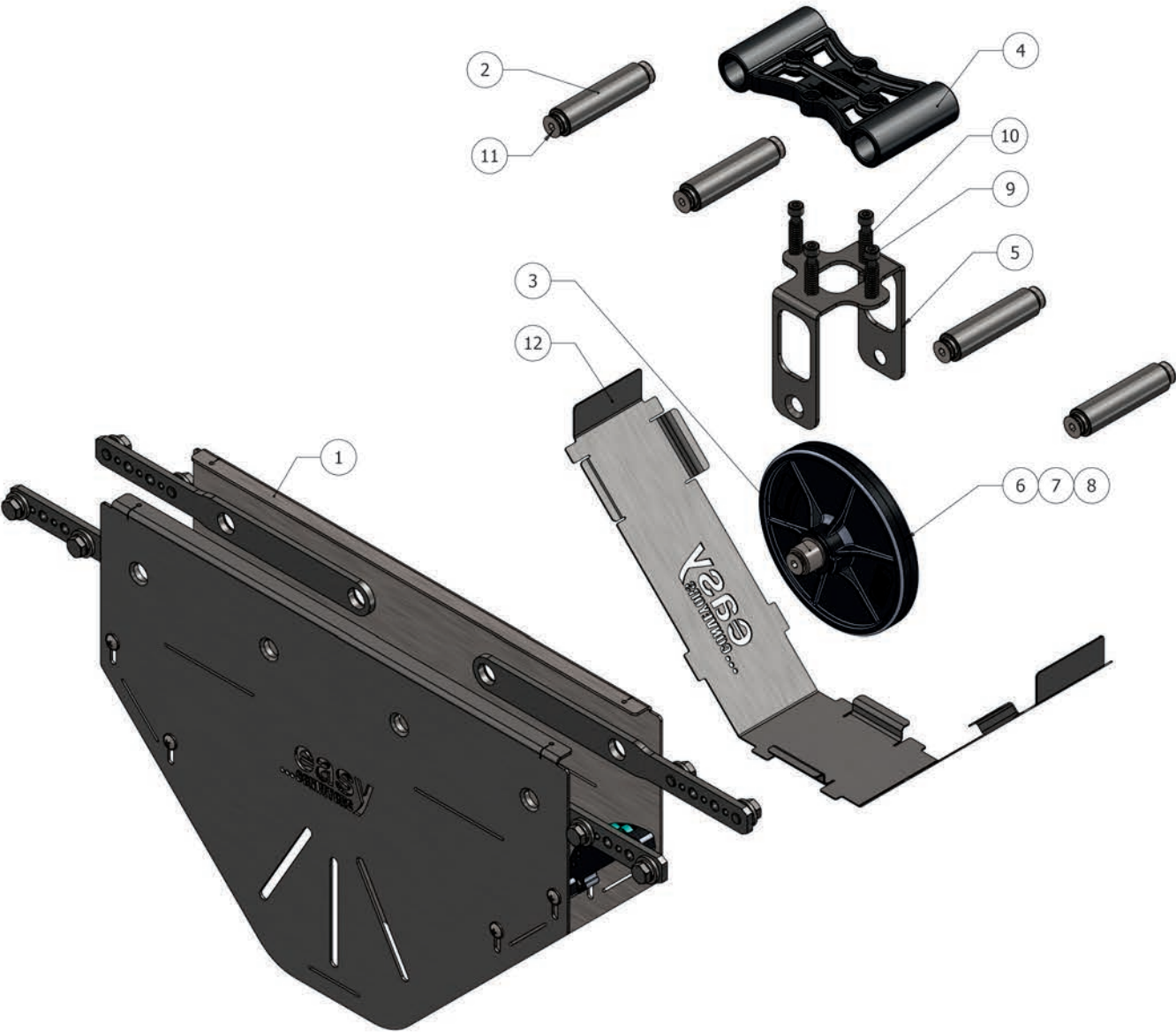


Dimensions - Abmessungen - Dimensions - Dimensiones

	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	

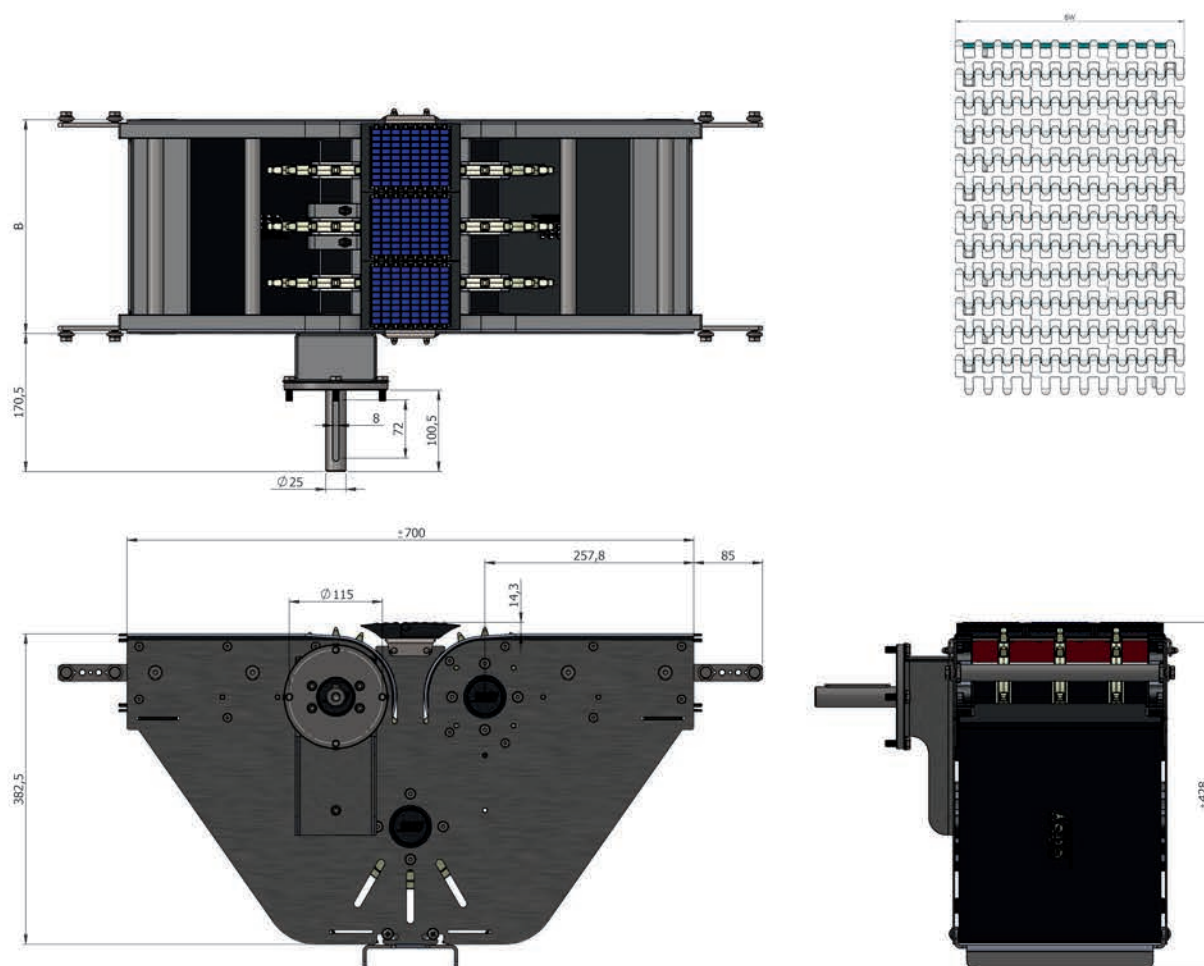
Art Nr. Pos 12		Material	
041505042255	EMBS SAG MODULE COVER; 255	Stainless steel	1
041505042340	EMBS SAG MODULE COVER; 340	Stainless steel	1
041505042425	EMBS SAG MODULE COVER; 425	Stainless steel	1
041505042510	EMBS SAG MODULE COVER; 510	Stainless steel	1

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

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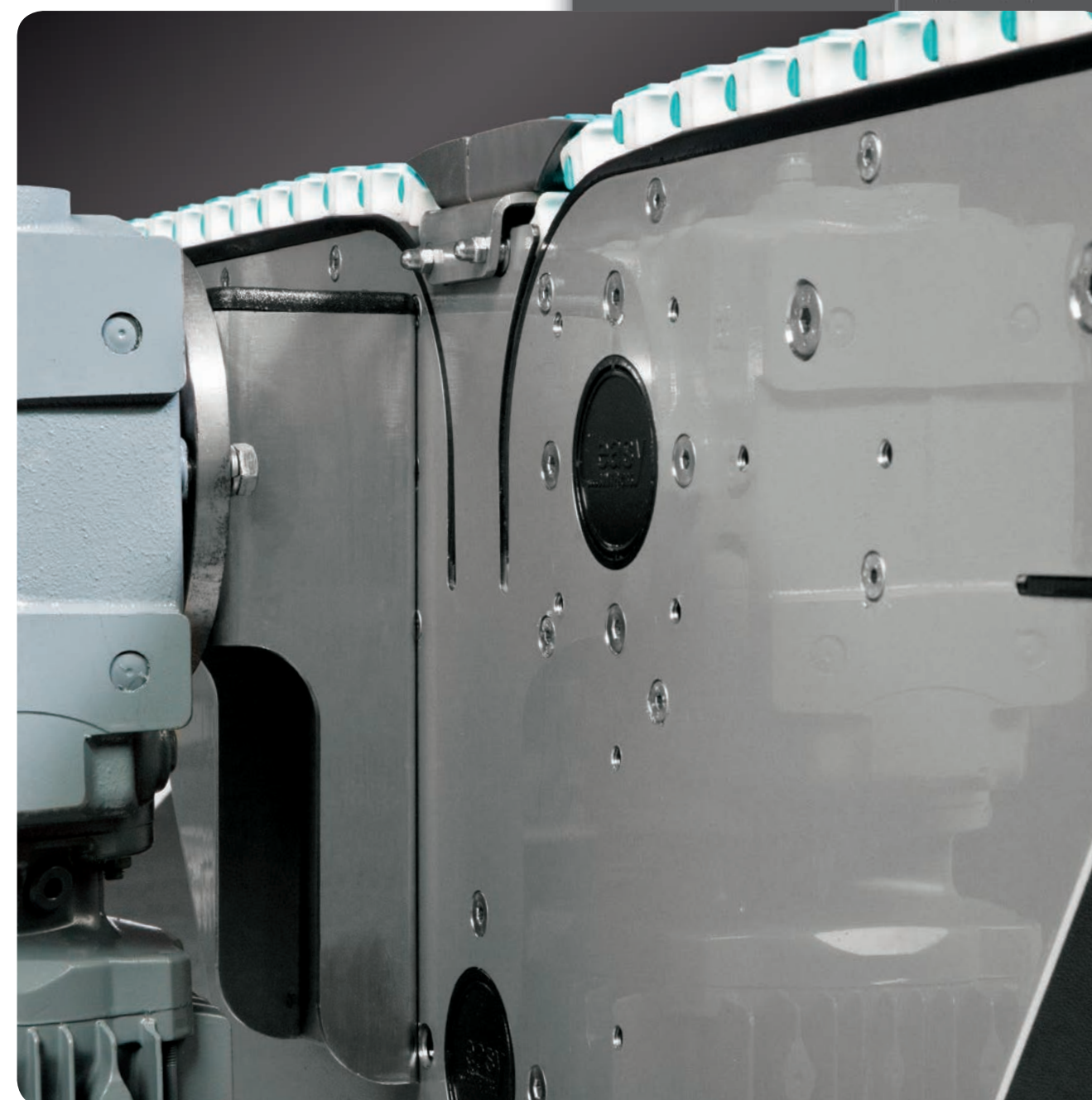
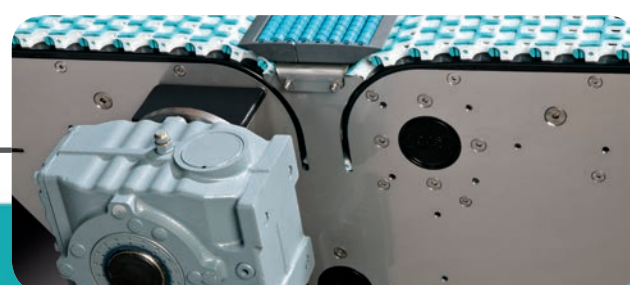
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Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	STAINLESS STEEL	B =	BW =
EMBS041403030255	EMBS041503030255	264 mm 10,23" inch	255 mm 10,04" inch
EMBS041403030340	EMBS041503030340	348 mm 13,54" inch	340 mm 13,38" inch
EMBS041403030425	EMBS041503030425	433 mm 16,89" inch	425 mm 16,73" inch
EMBS041403030510	EMBS041503030510	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 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			

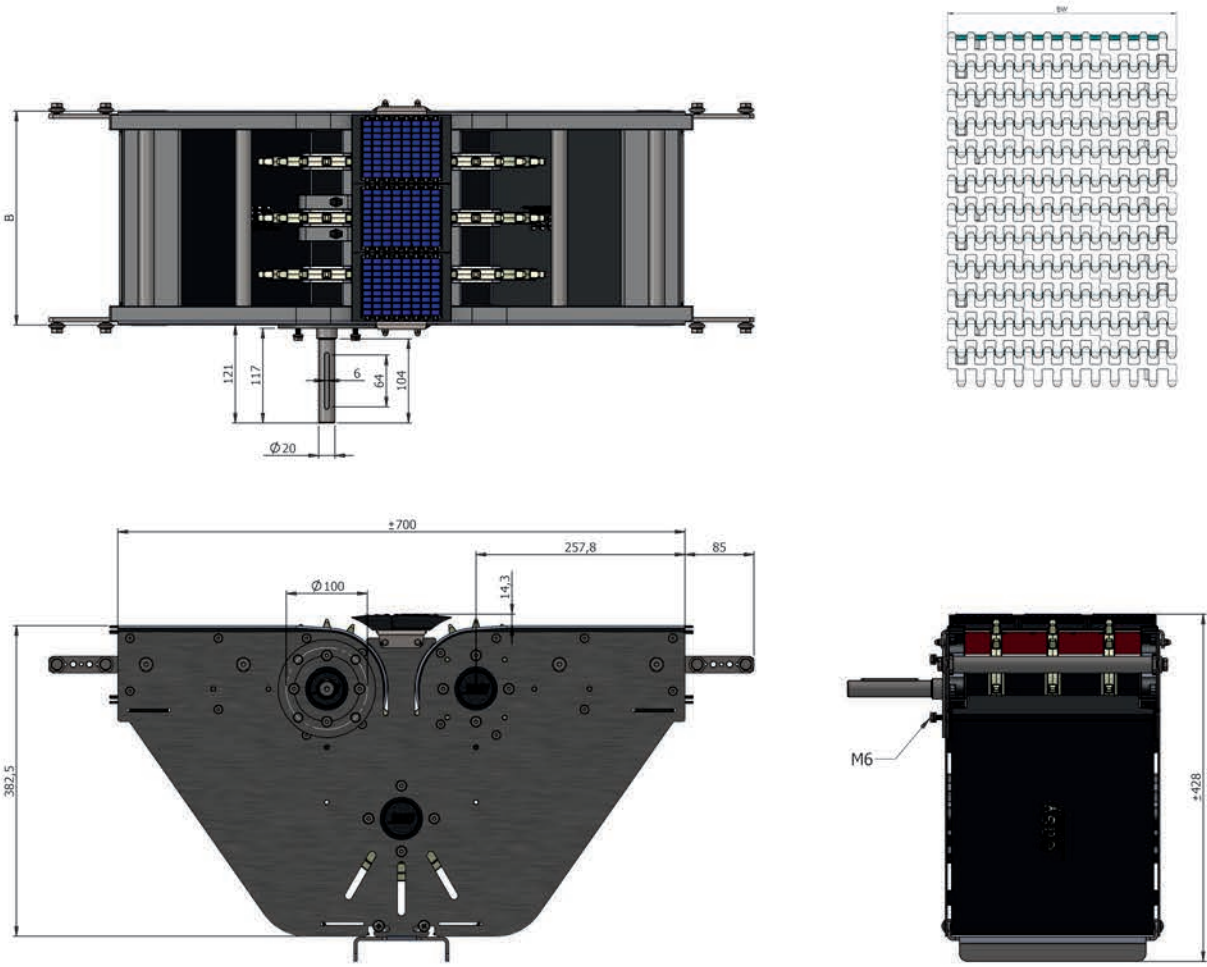
Art Nr. Pos 16	Art Nr. Pos 17	Art Nr. Pos 18
BV091204008A2	BV15870004A2	BV738006008A2 100
Material		
Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable		

Art Nr. Pos 19		Material
040706000018		PA FG 10

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

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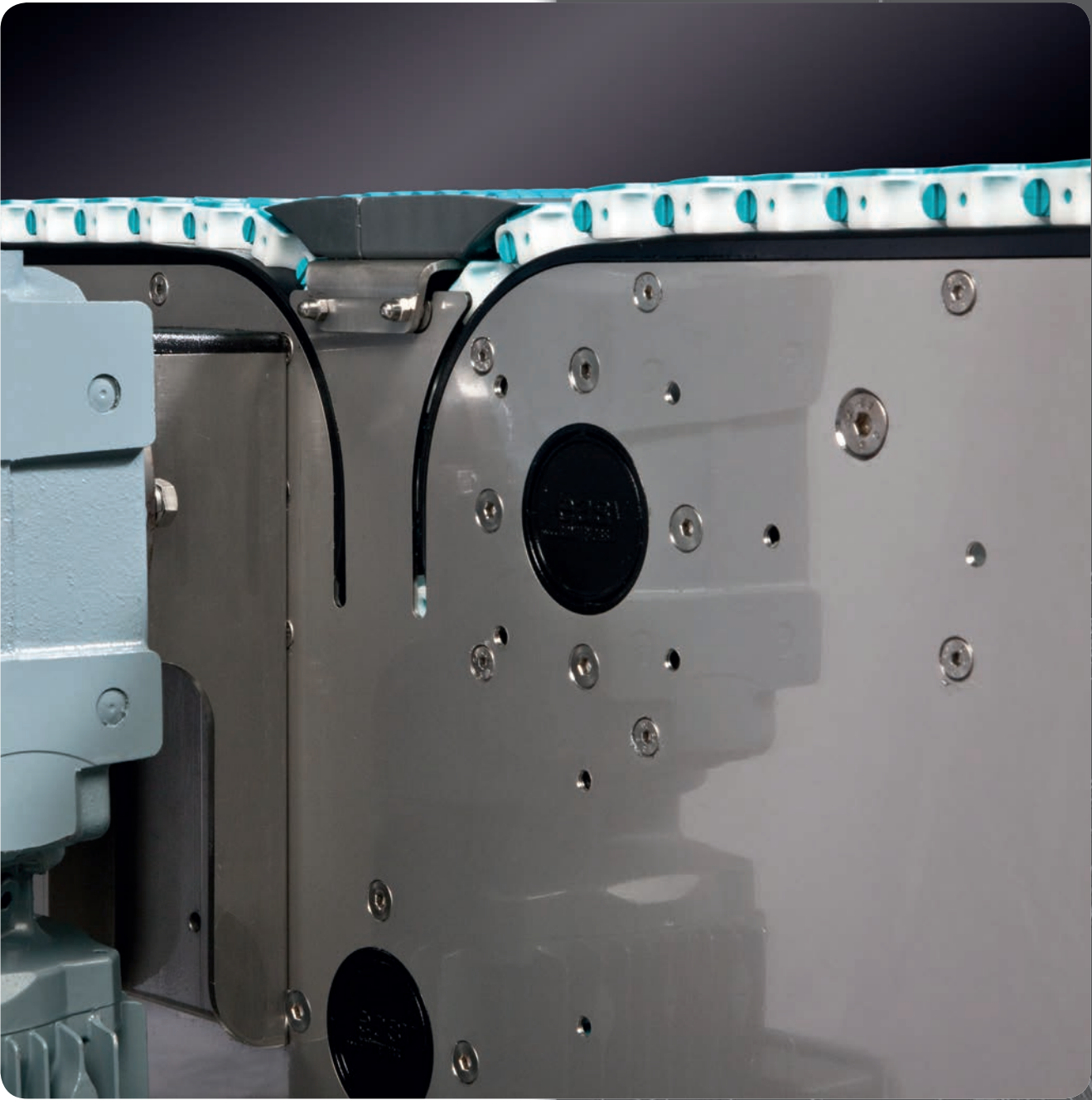
Dimensions - Abmessungen - Dimensions - Dimensiones

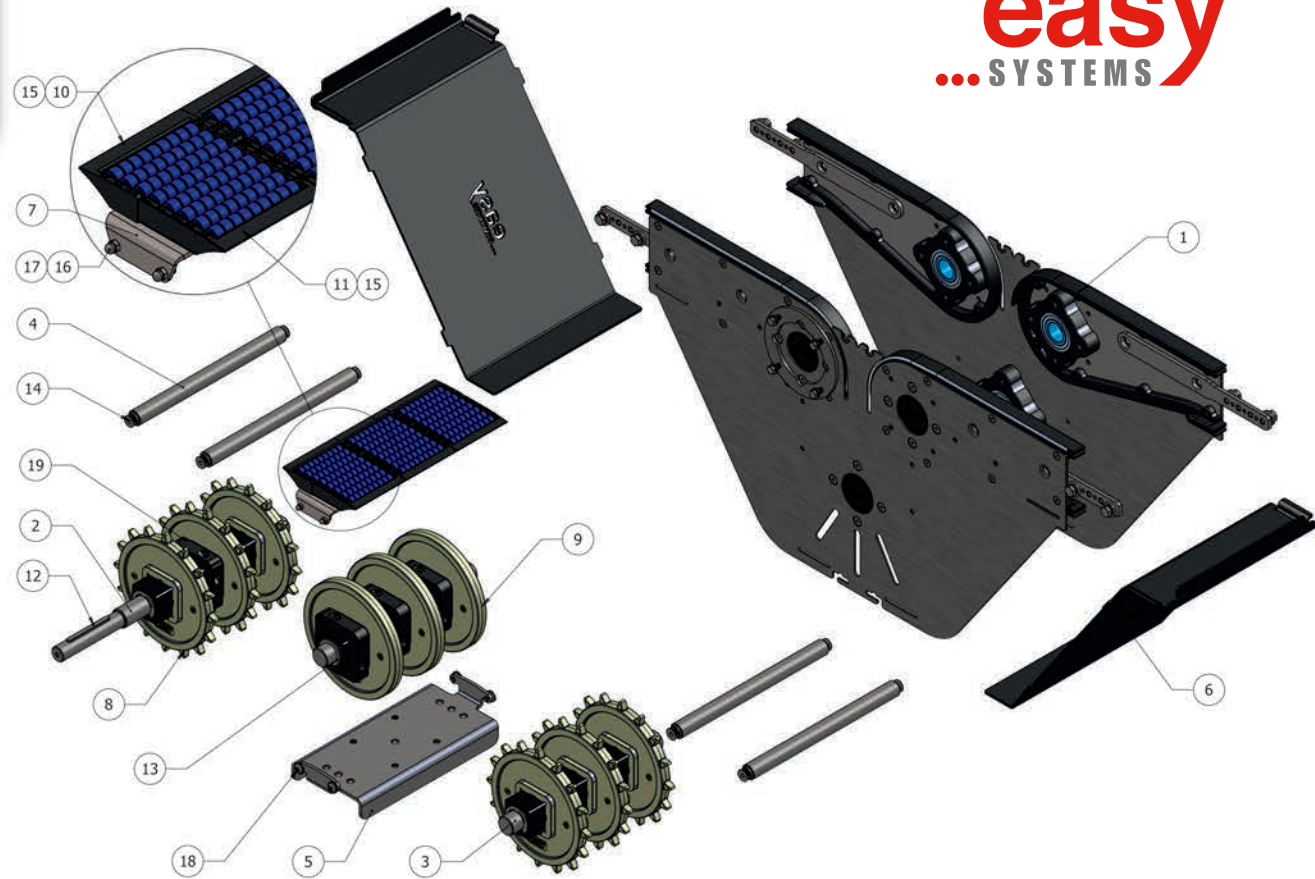
ALUMINIUM	STAINLESS STEEL	B =	BW =	
EMBS041403020255	EMBS041503020255	264 mm	10,23" inch	255 mm 10,04" inch 1
EMBS041403020340	EMBS041503020340	348 mm	13,54" inch	340 mm 13,38" inch 1
EMBS041403020425	EMBS041503020425	433 mm	16,89" inch	425 mm 16,73" inch 1
EMBS041403020510	EMBS041503020510	517 mm	20,19" 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		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		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	

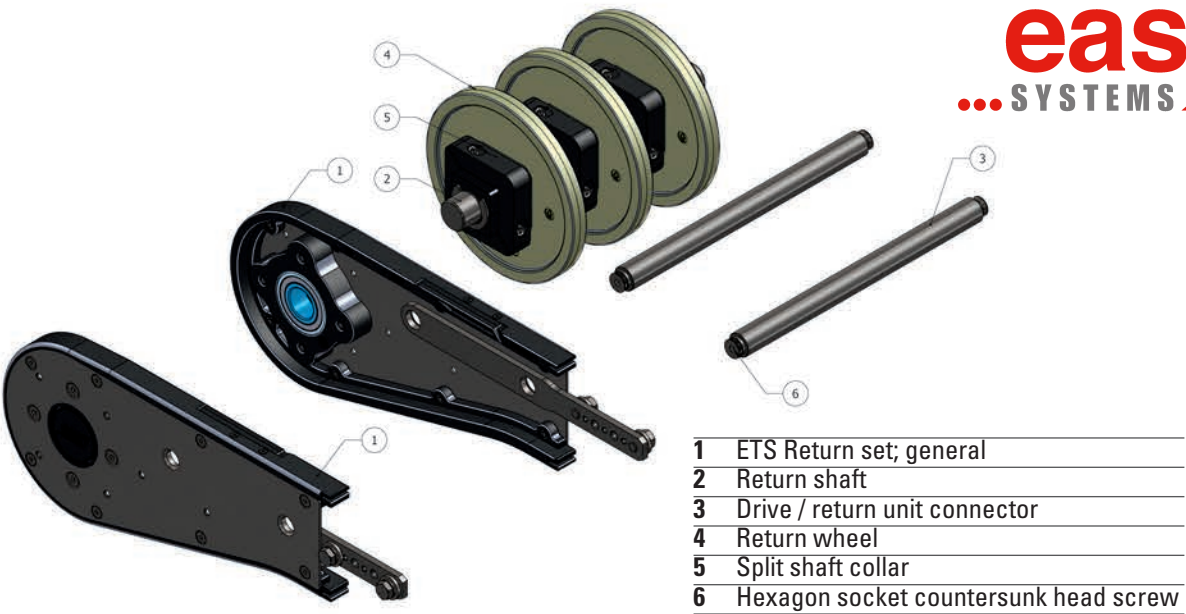
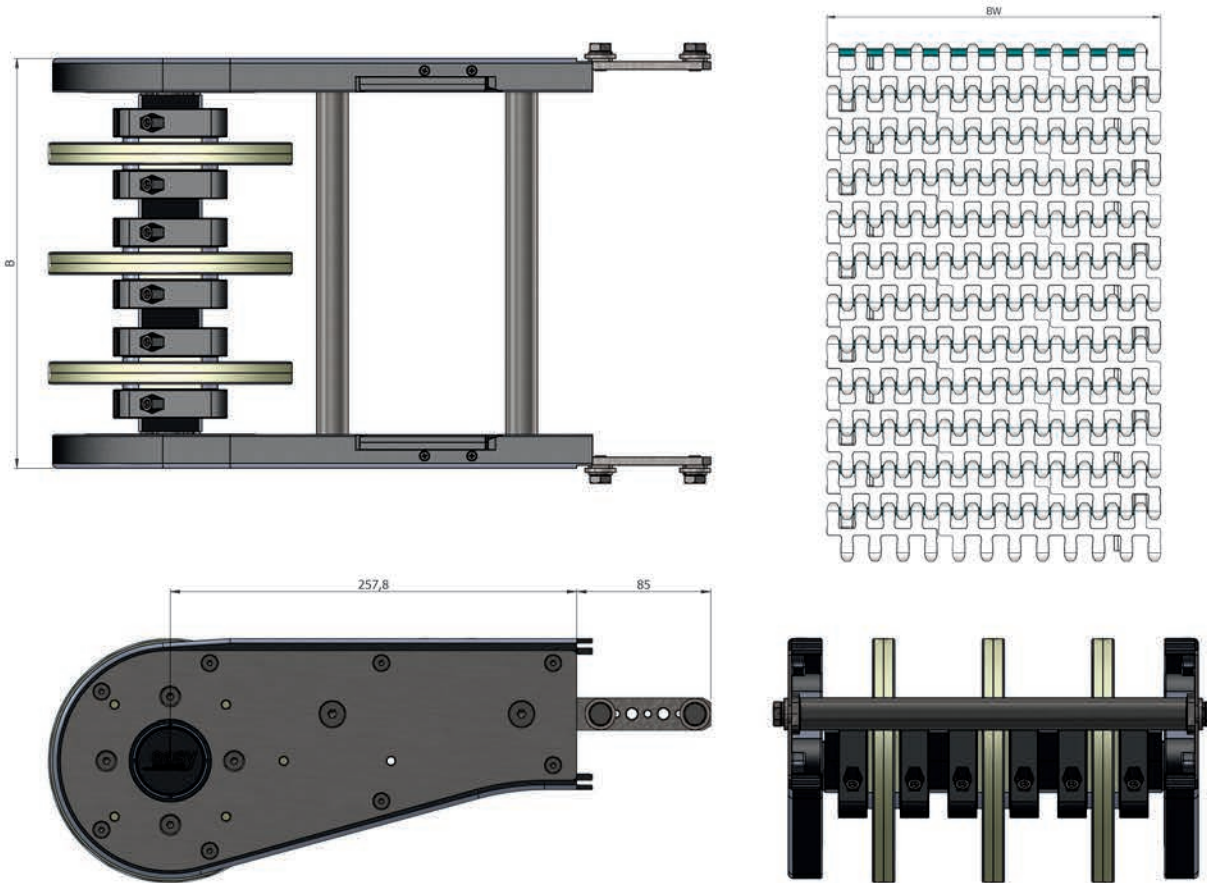
Art Nr. Pos 19		Material	
040706000018		PA FG	10

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



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- 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

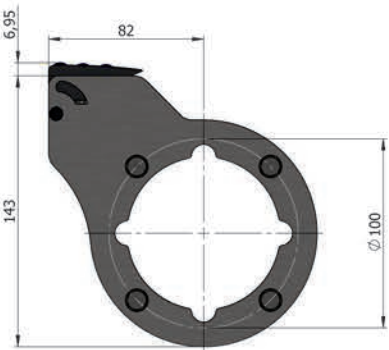
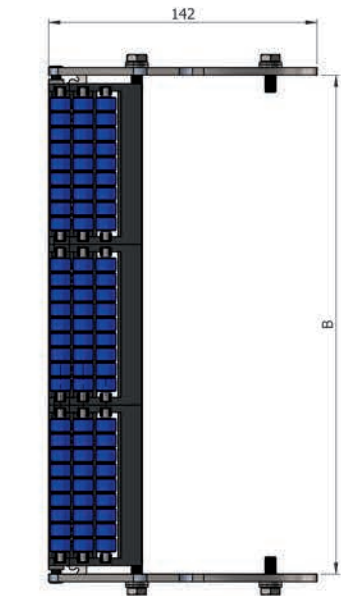
Art Nr. Pos 6	Material
BV799108016A2 M8x16 DIN7991 A2	Stainless steel 100

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

Dimensions - Abmessungen - Dimensions - Dimensiones

	B =
EMBS TRANSFER MODULE SINGLE	WIDENESS DRIVE OR RETRUN UNIT

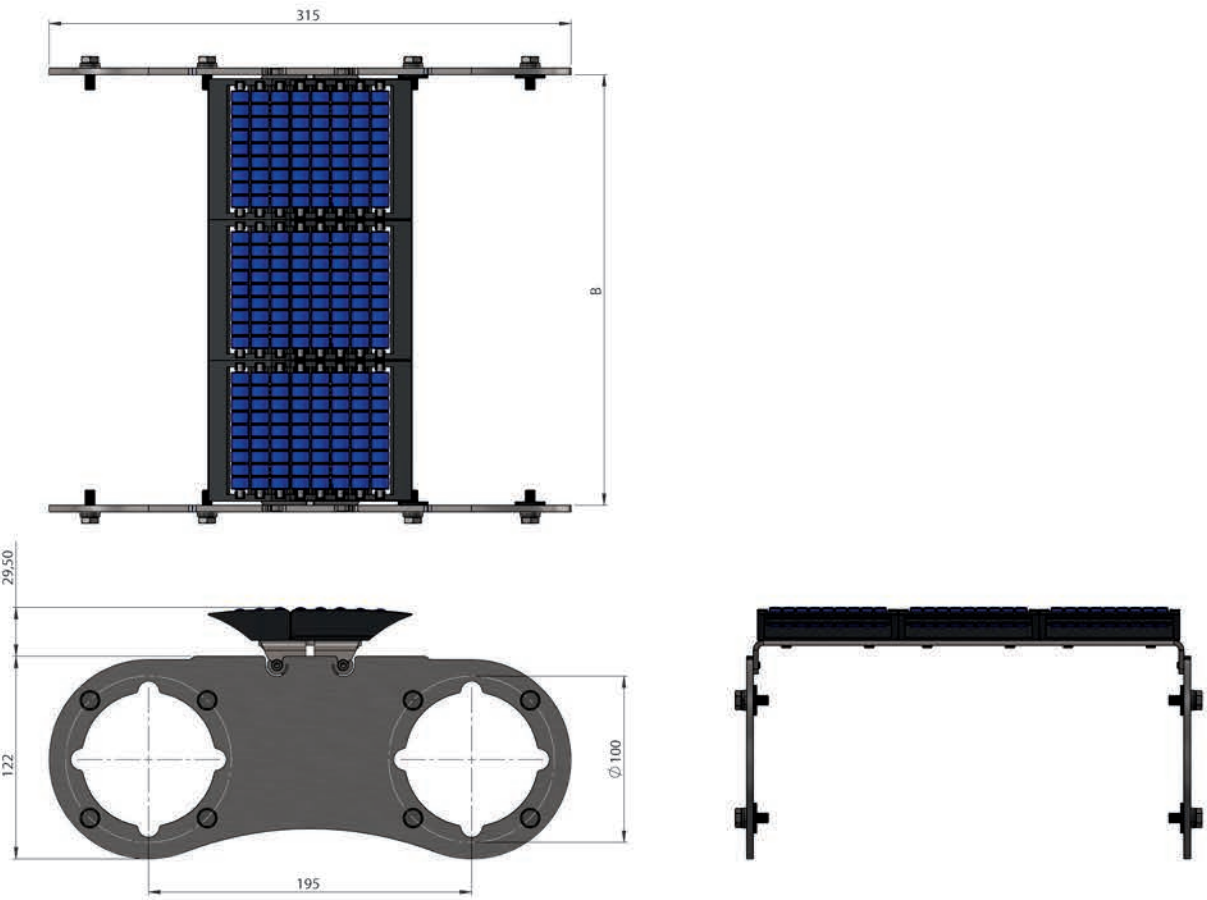
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



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

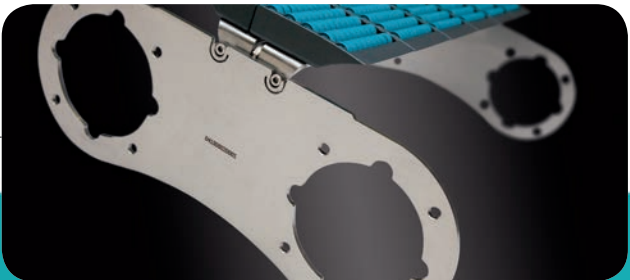


- 1 Transfer module double; general
- 2 Transfer module double

Dimensions - Abmessungen - Dimensions - Dimensiones

	B =
EMBS TRANSFER MODULE DOUBLE	WIDENESS DRIVE OR RETRUN UNIT

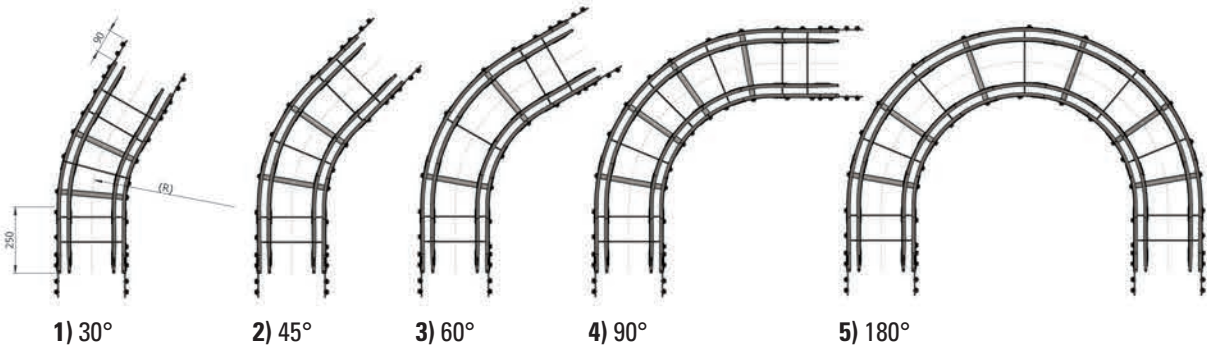
Others on request, Andere auf Anfrage,
Autres sur demande, Otros sobre consulta



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

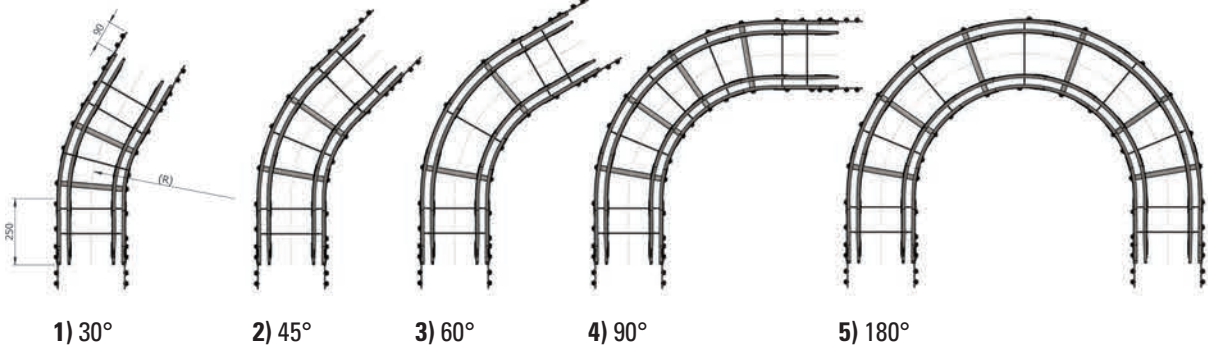


More technical information: See engineering online www.easy-conveyors.com

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

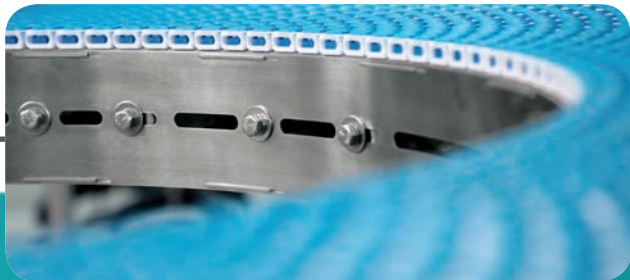


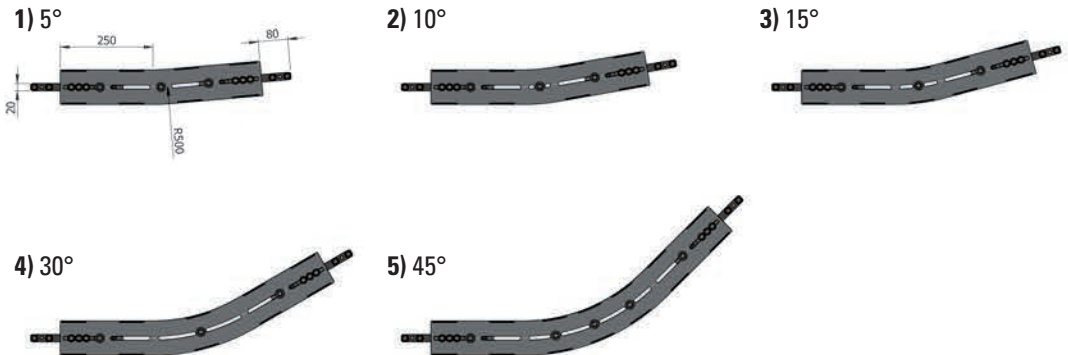
More technical information: See engineering online www.easy-conveyors.com

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



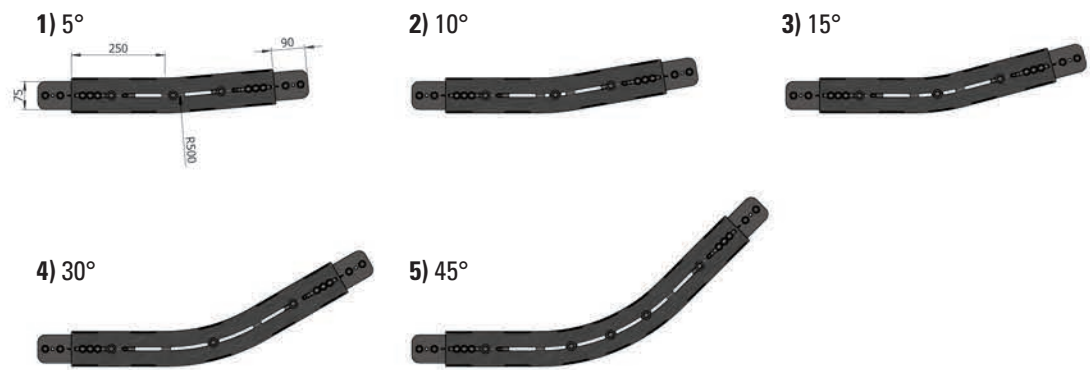


Dimensions - Abmessungen - Dimensions - Dimensiones

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



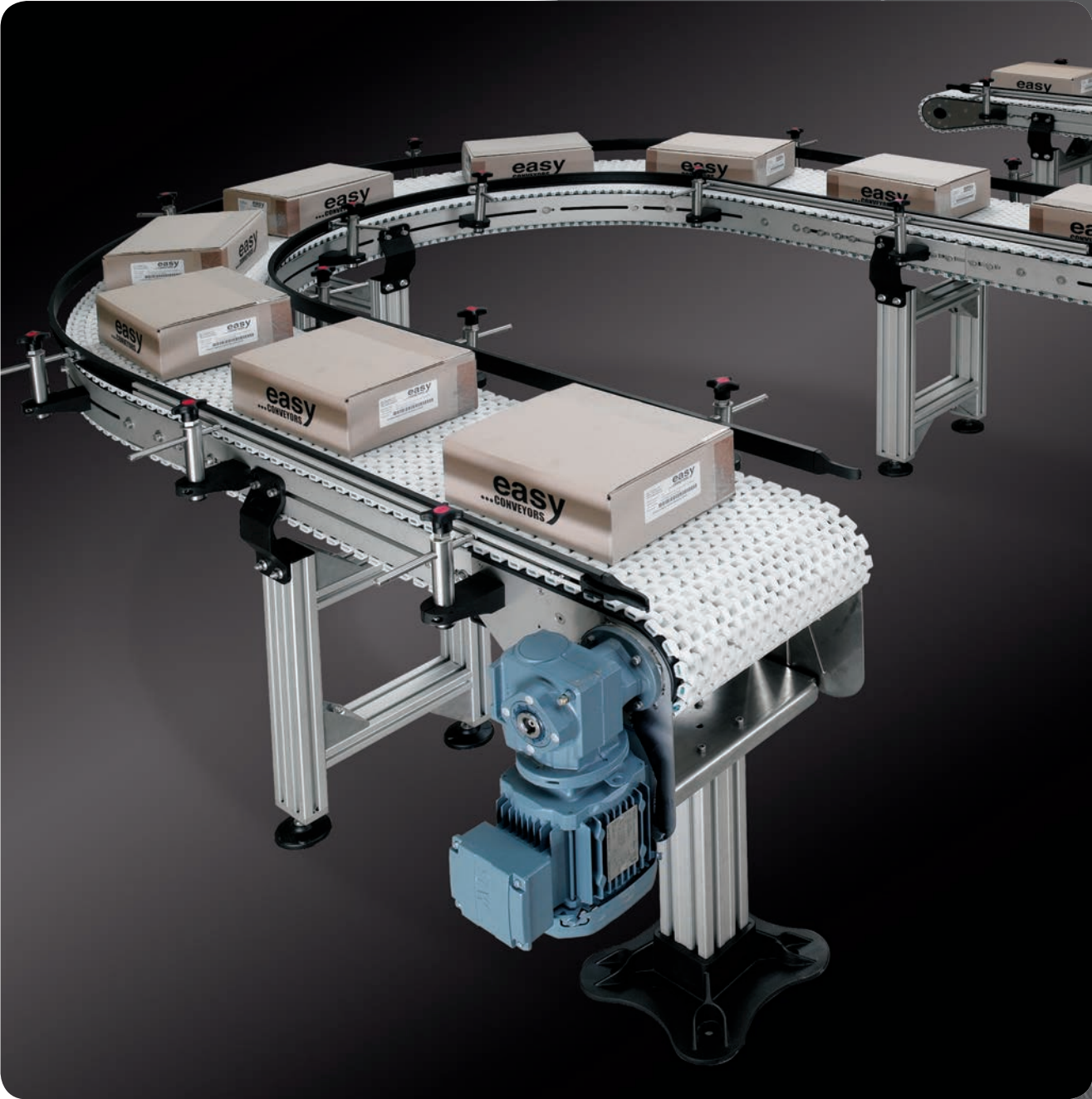
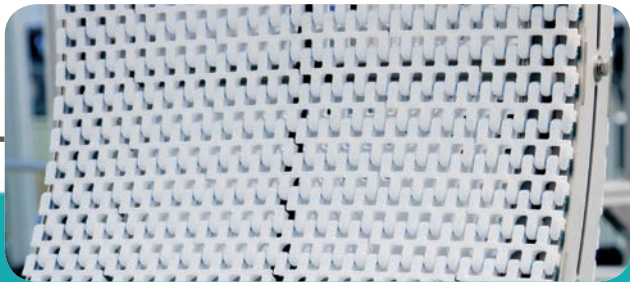


Dimensions - Abmessungen - Dimensions - Dimensiones

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

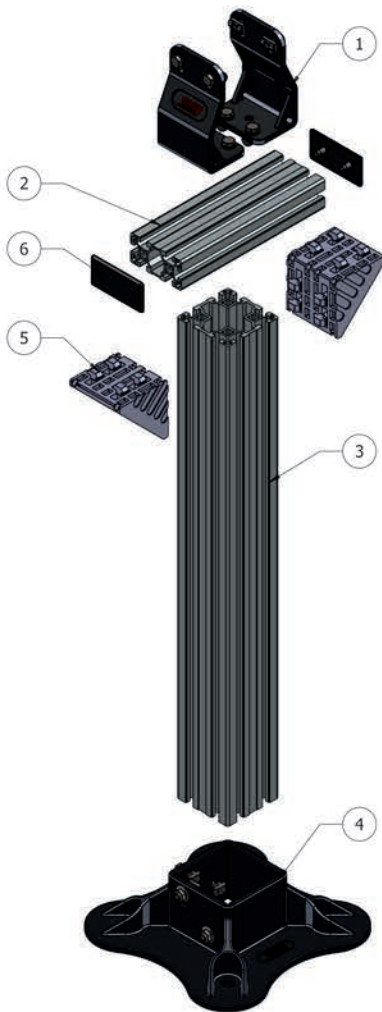
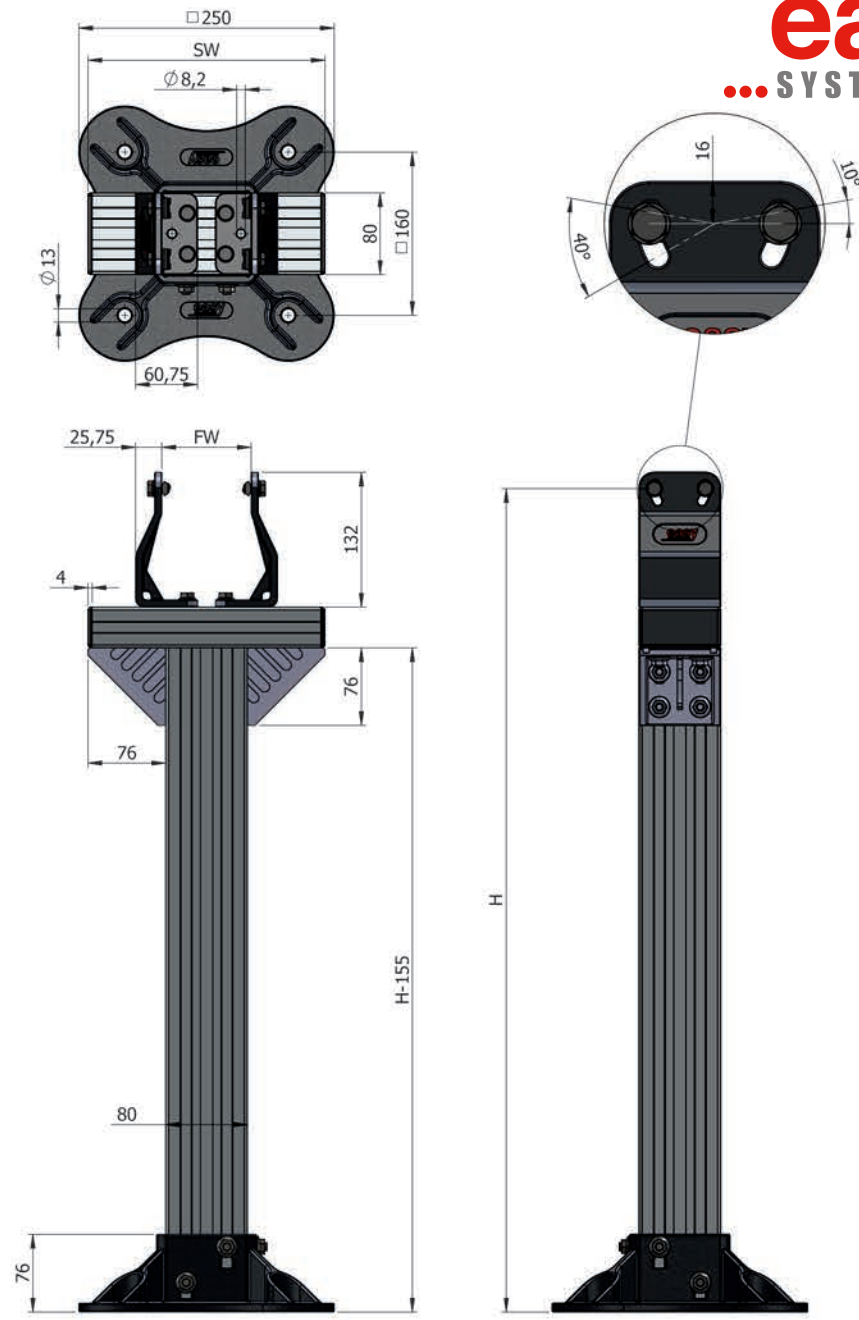
Material Side plates: Stainless steel, Edelstahl, Acier inoxydable, Acero inoxidable

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



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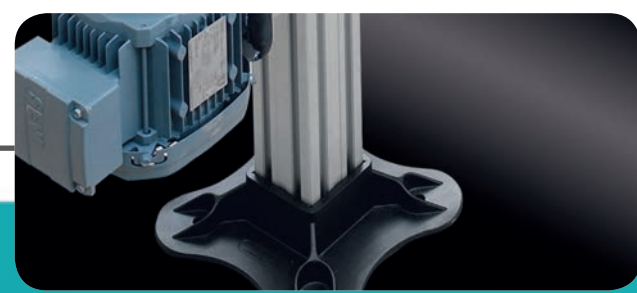


- 1 L support bracket
- 2 Profile 40x80 L
- 3 Profile 80x80 L
- 4 Support base
- 5 Bracket 80
- 6 Cap 40x80

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



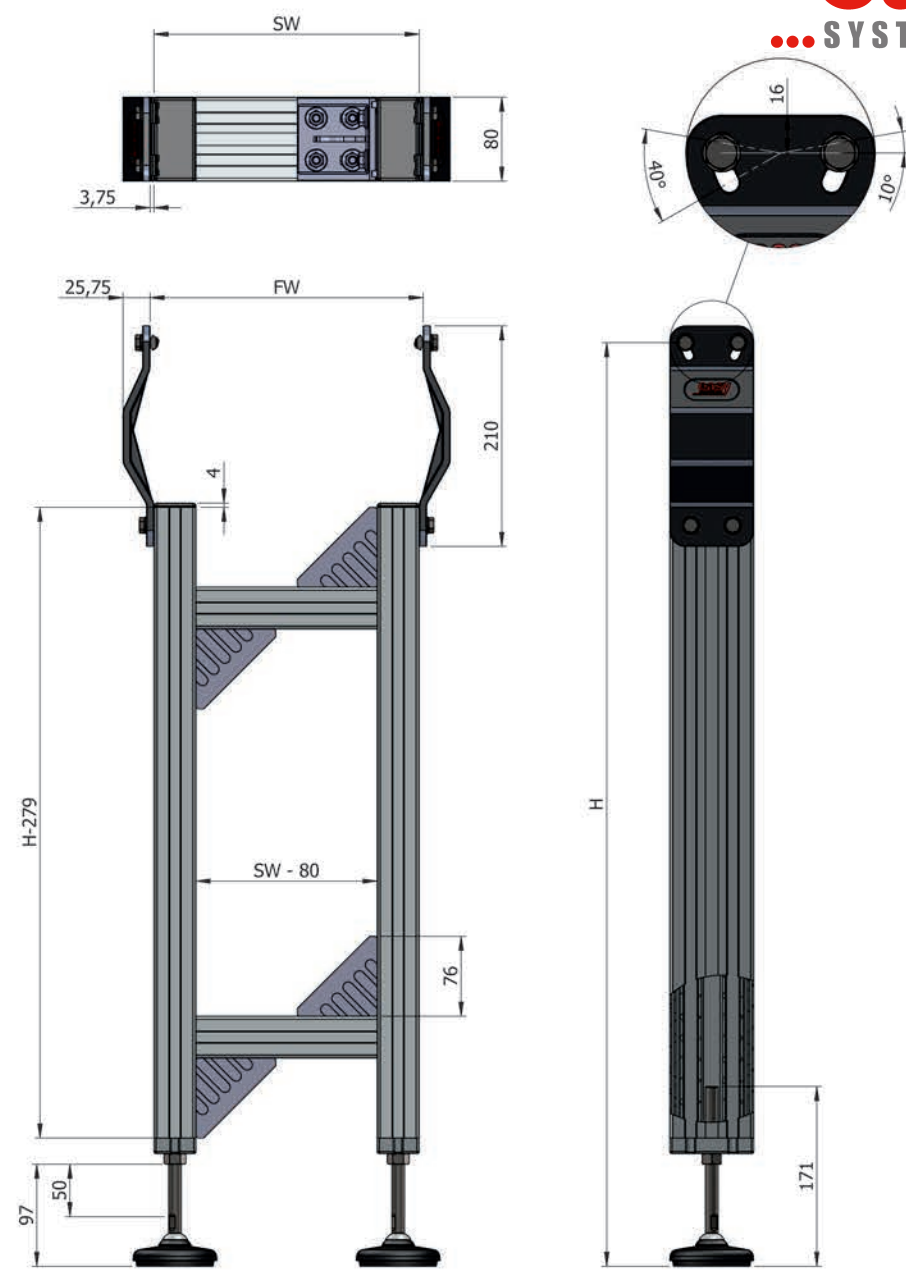
Art Nr. Pos 1	Material	
ETS040808020000 L support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 3	Material	
020102070009 Profile 80x80L, L= 6070 mm	AL	1
Art Nr. Pos 4	Material	
ETS040808040000 Support base	AL RAL9005	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



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- 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

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



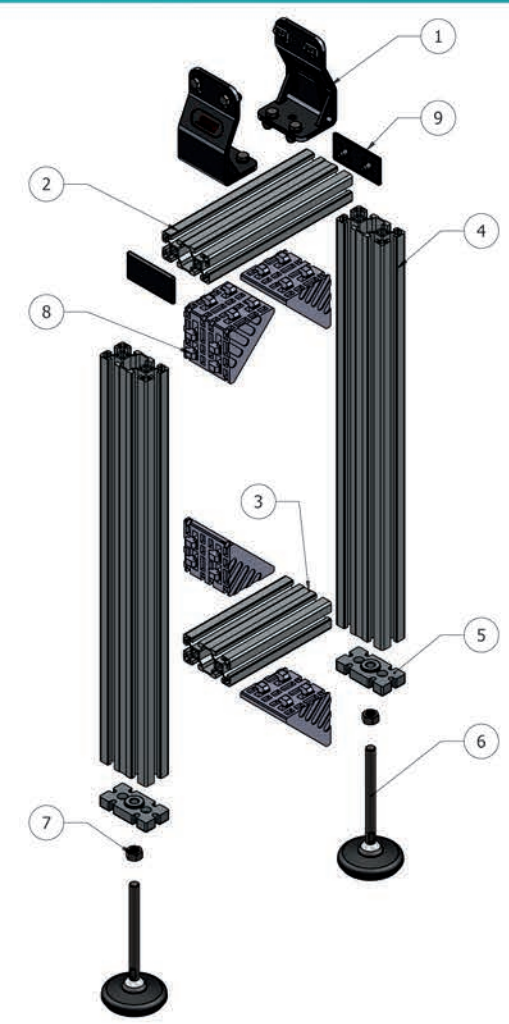
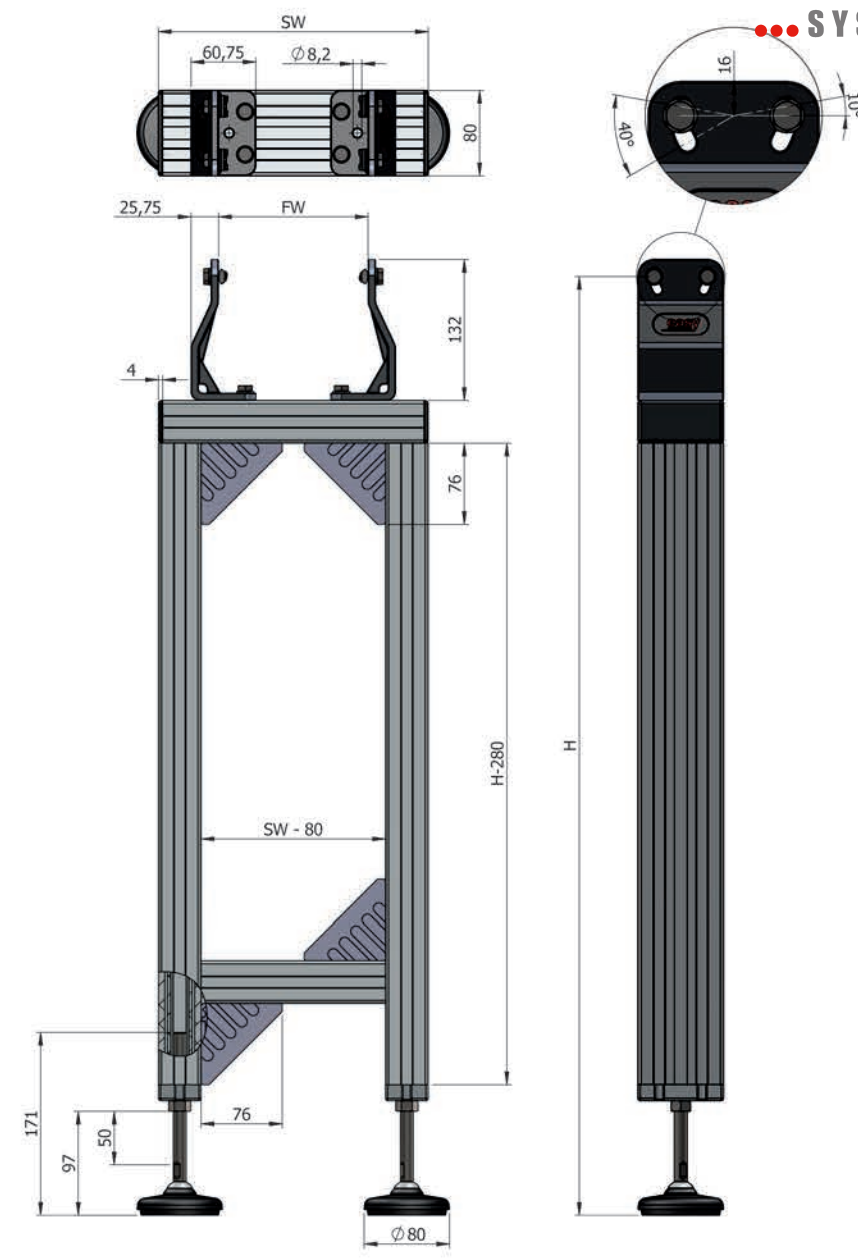
Art Nr. Pos 1	Material	
ETS040808030000 I support bracket	PA FG	1 set of 2 pieces, incl. fasteners
Art Nr. Pos 2 + 3	Material	
020102070008 Profile 40x80L, L= 6070 mm	AL	1
Art Nr. Pos 4	Material	
020102150000 Foot plate 40x80L	AL	1 piece, incl. fasteners
Art Nr. Pos 5	Material	
040707020003 Hinged feet 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



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- 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

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



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



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

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			

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 Ø48,3	PA FG	1 piece, 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



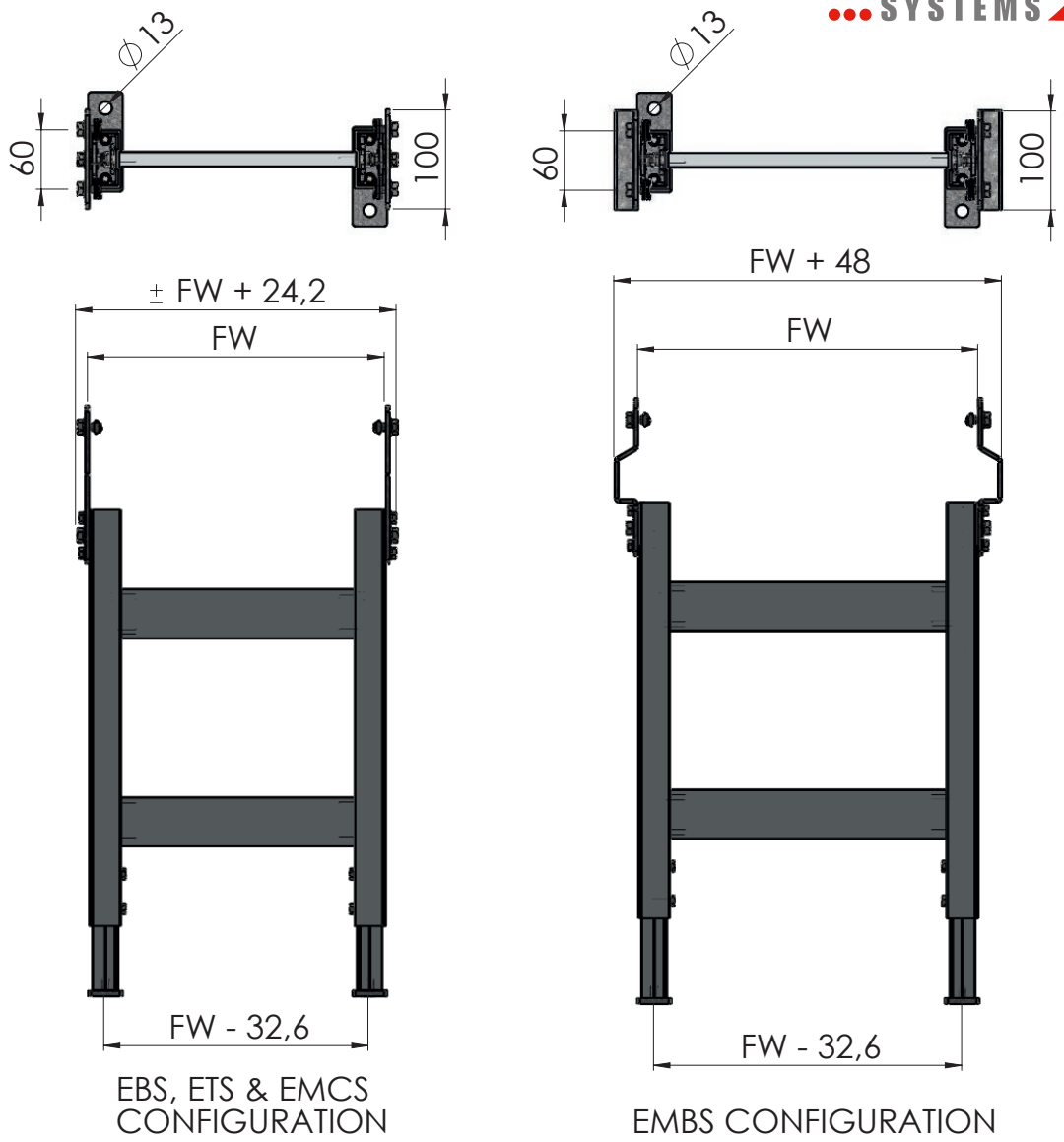


LEG SUPPORT

EBS, EMBS, ETS AND EMCS
IN HEIGHT ADJUSTABLE



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TECHNICAL DATA

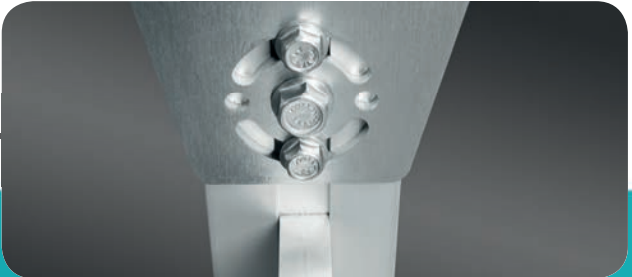
General technical data

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



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.

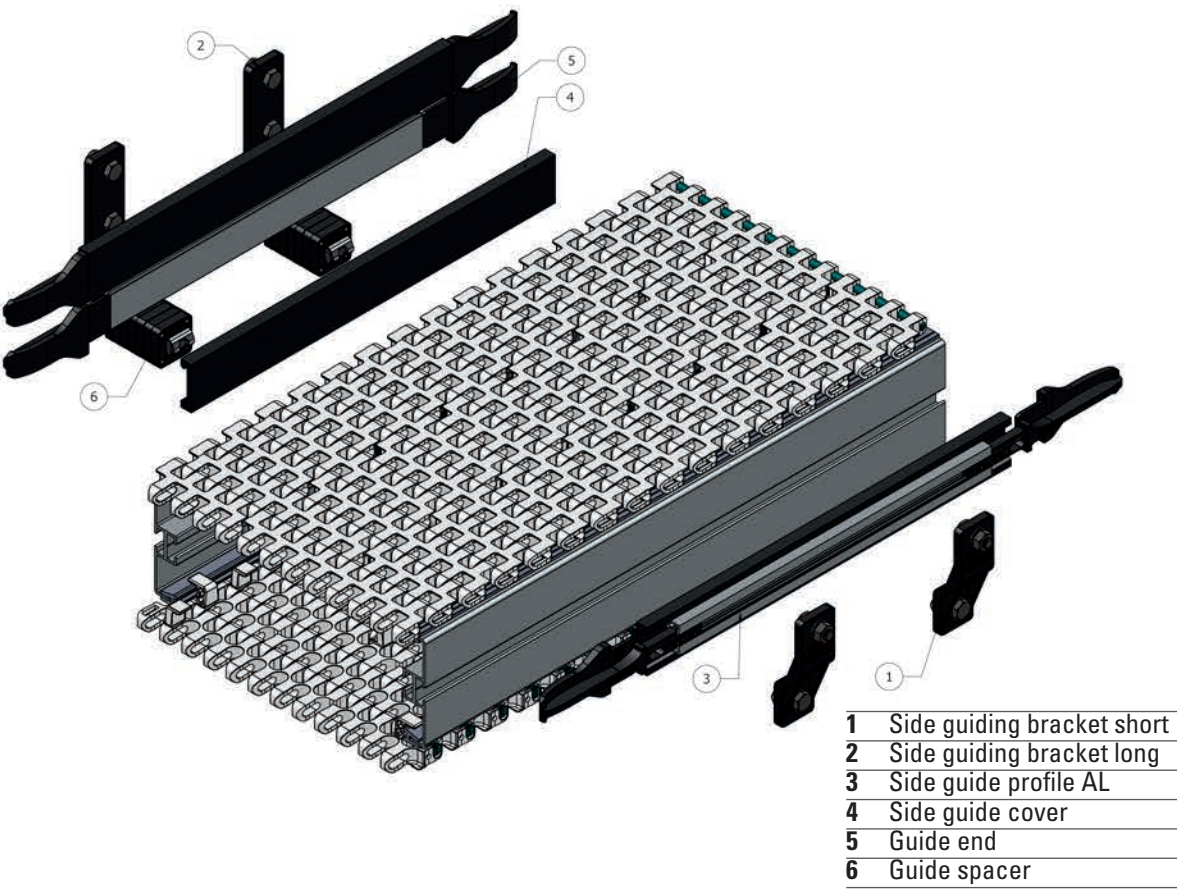
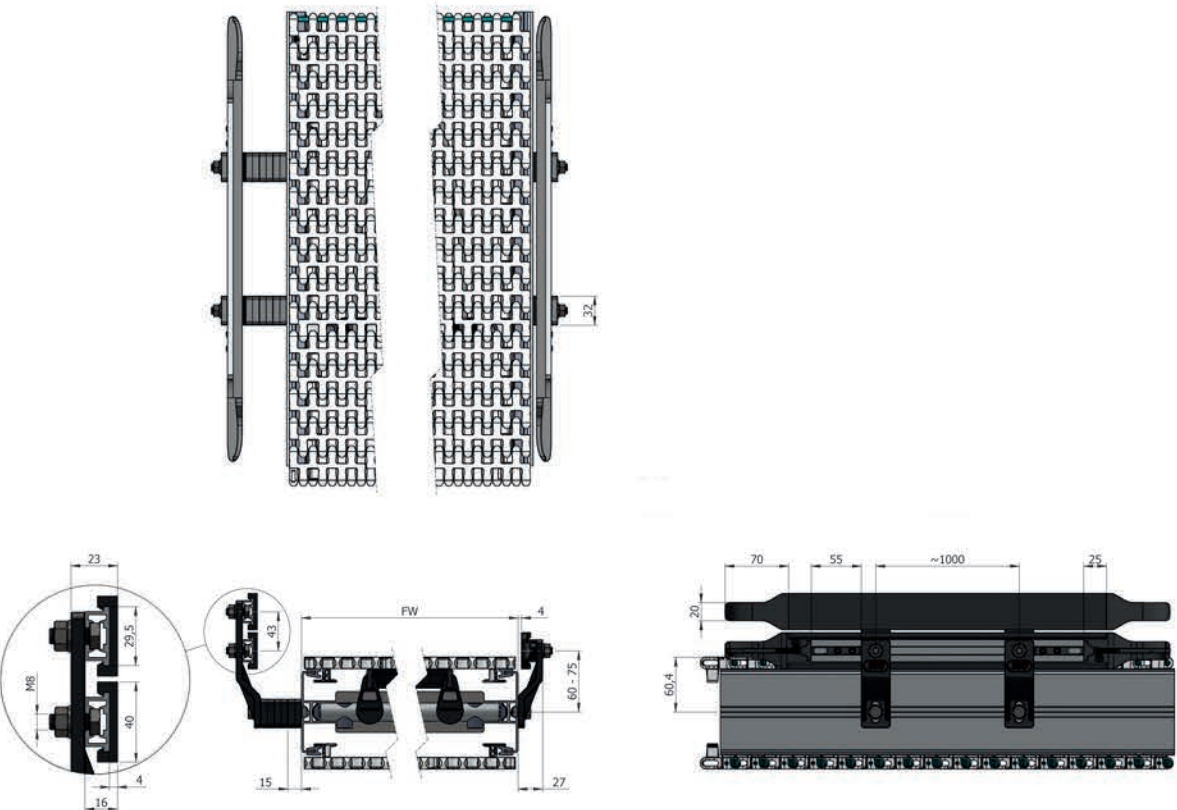
Note:

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.



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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

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

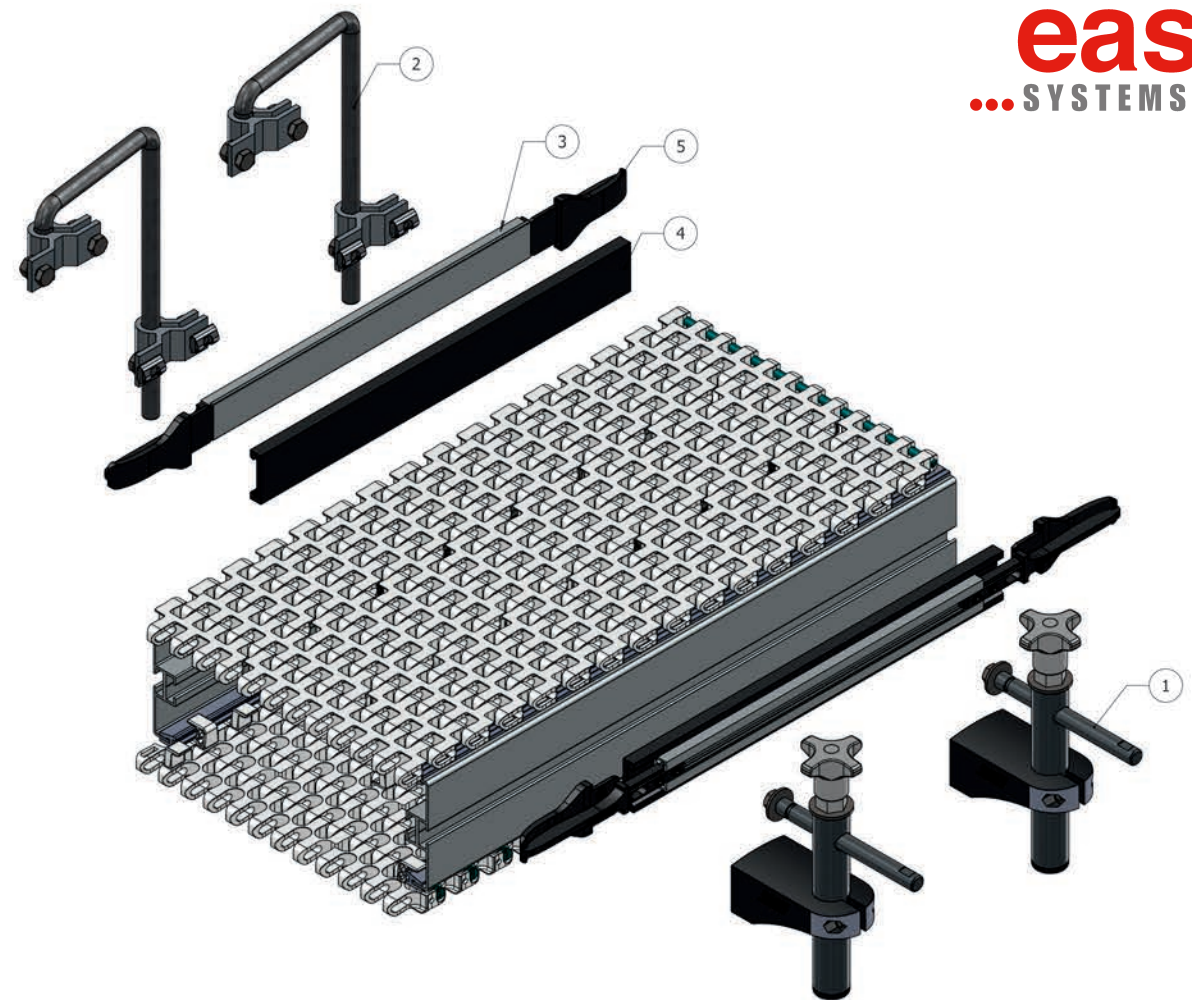
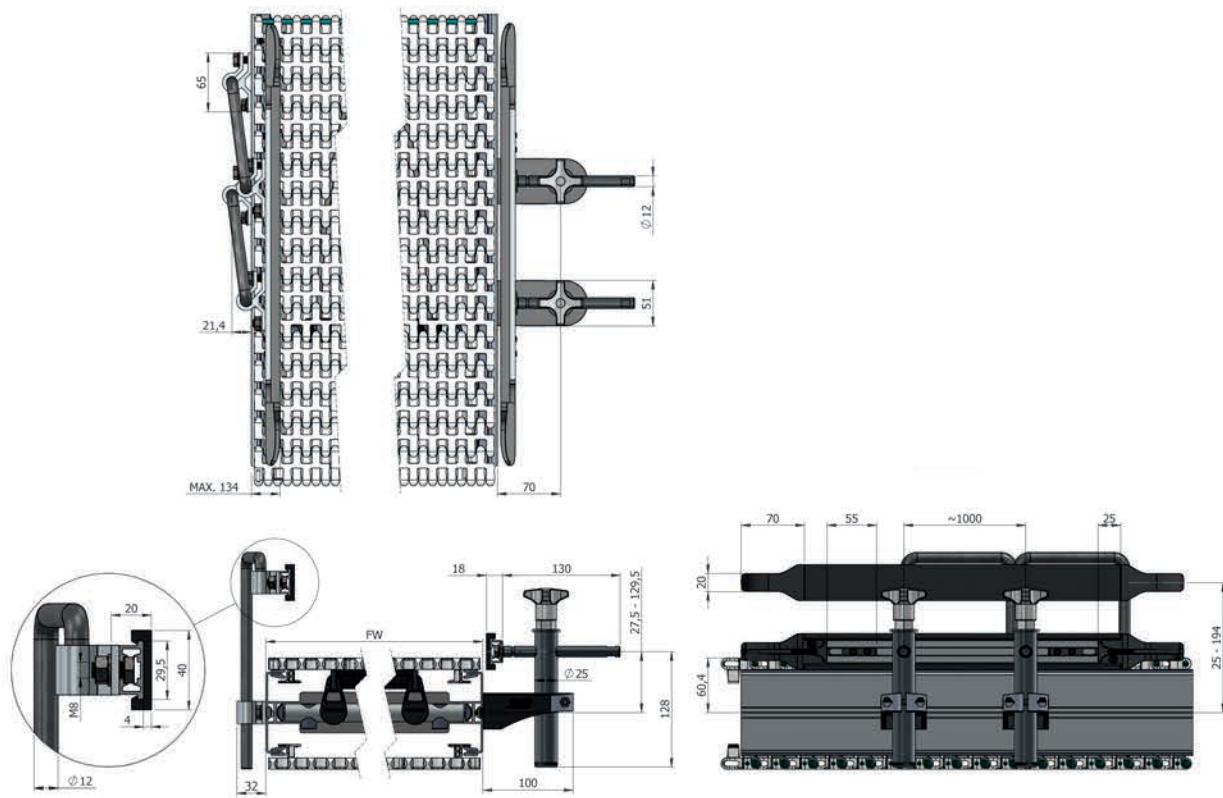
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta





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- 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

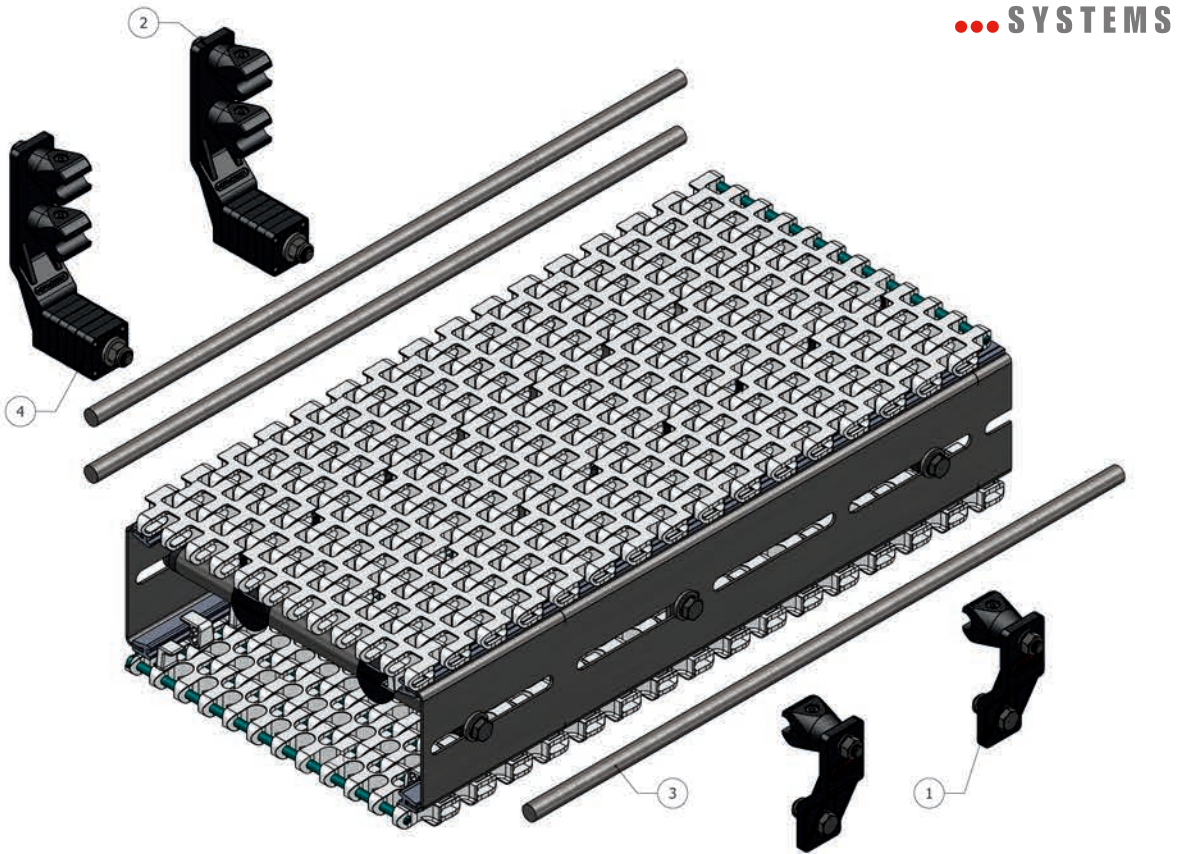
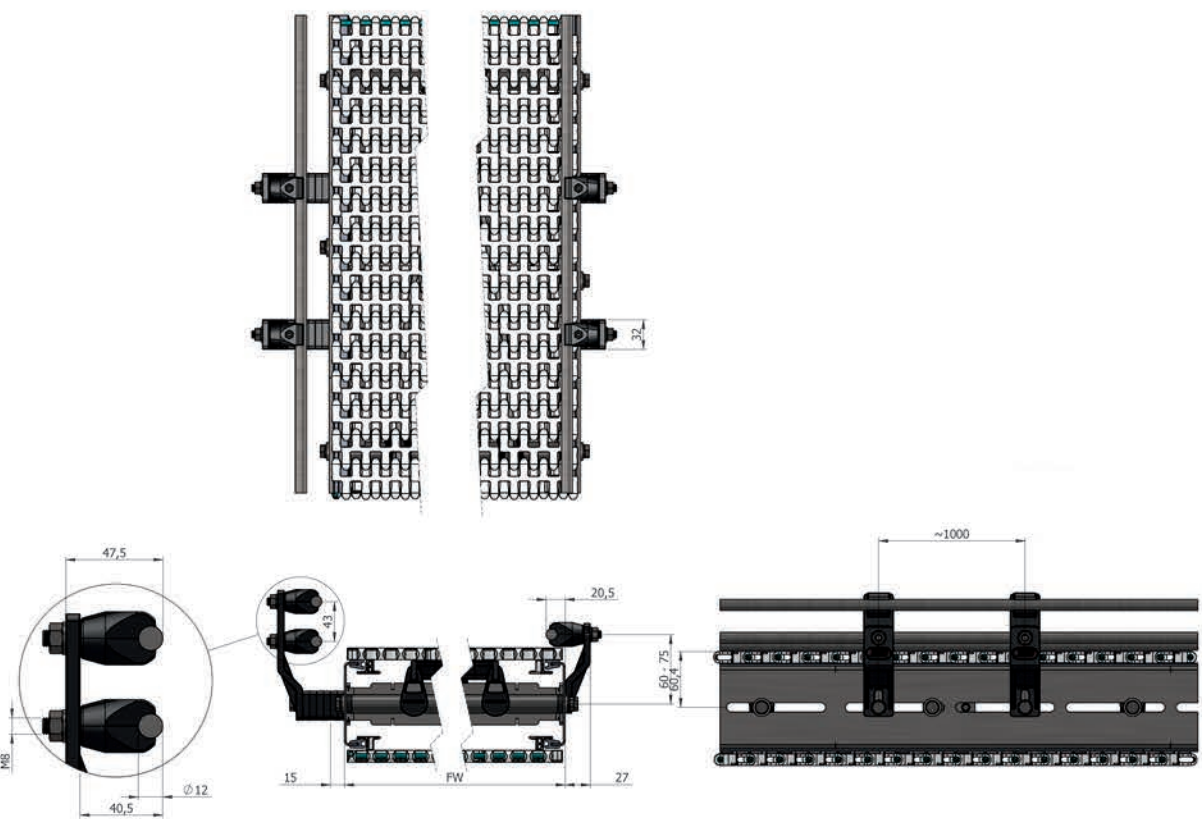
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta





easy
...SYSTEMS

easy
...SYSTEMS



- 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

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

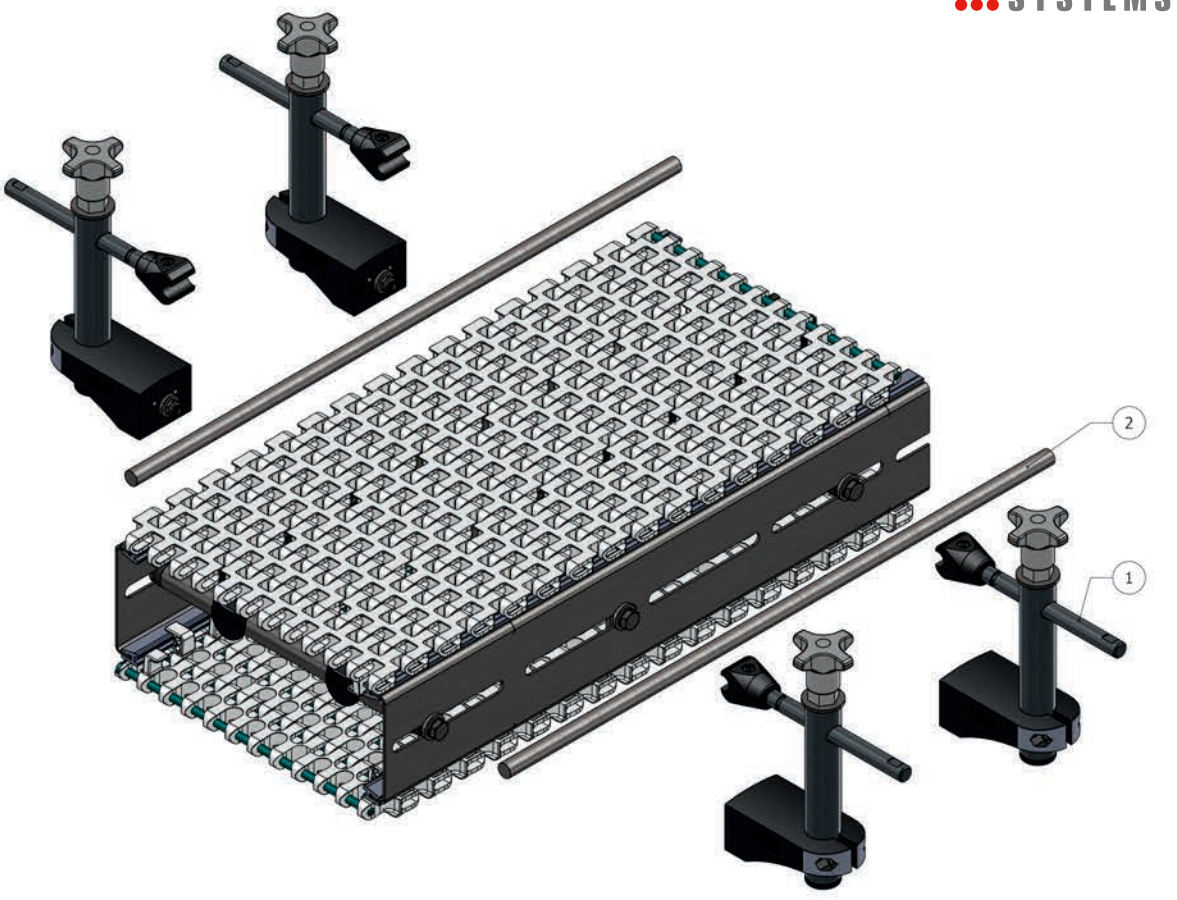
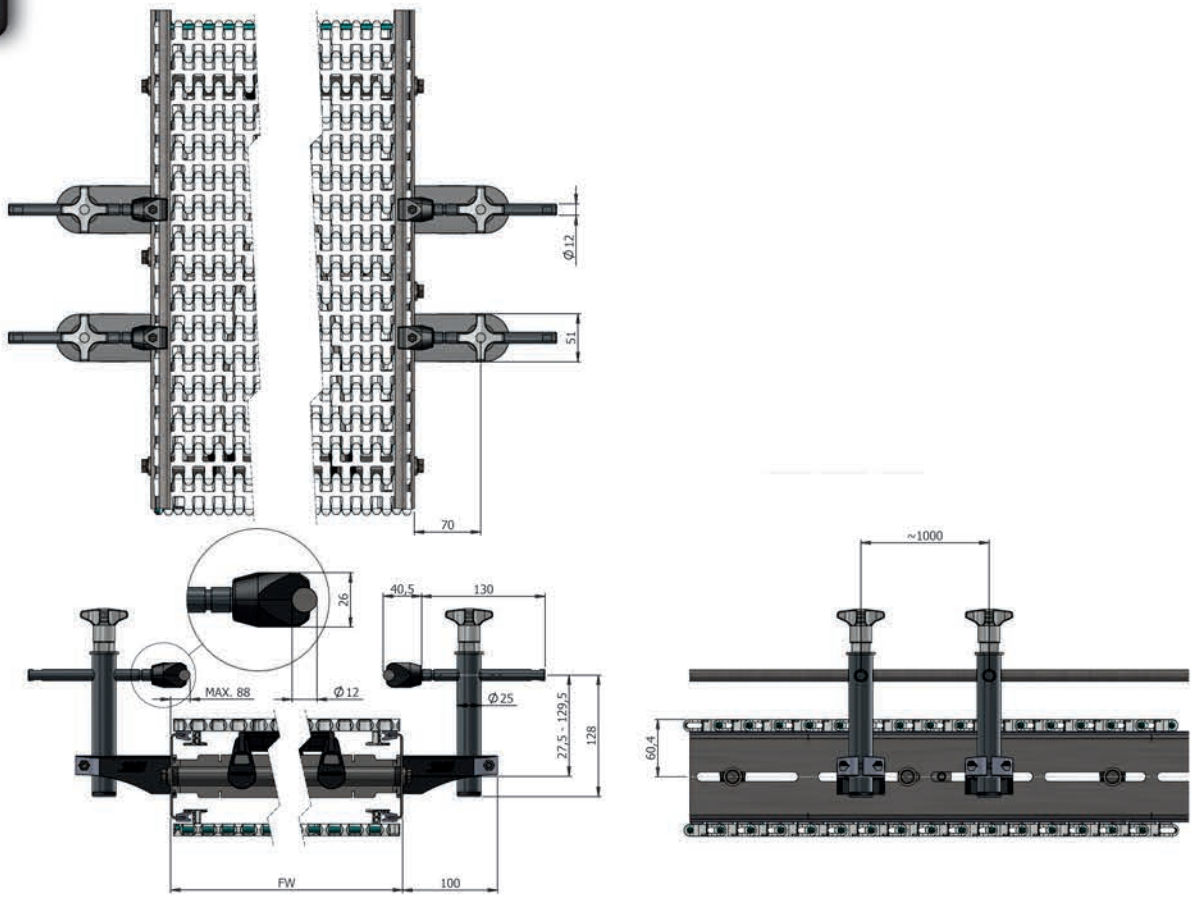
Others on request, Andere auf Anfrage, Autres sur demande, Otros sobre consulta





easy
...SYSTEMS

easy
...SYSTEMS



- 1 Side guiding
- 2 Guide profile

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.

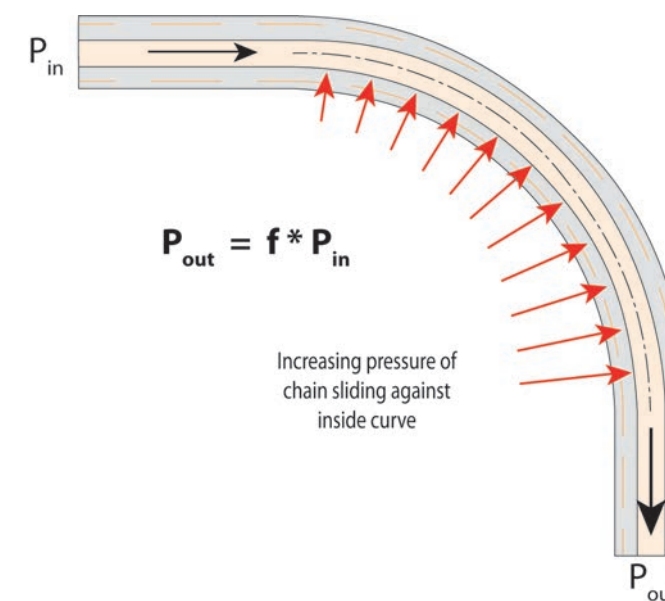
Curve systems

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):



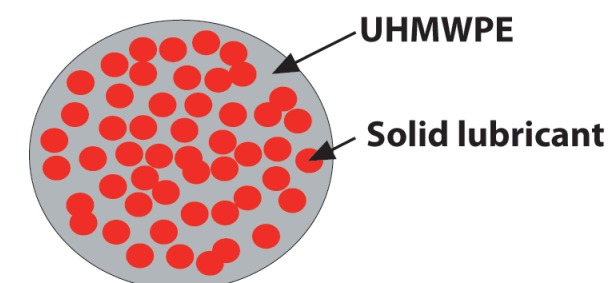
Because of this curve factor it's generally better to position a curve close to the idler end rather than close to the drive end. Then the curve adds relatively less chain pull.

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: $10^9 \Omega\text{m}$

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.

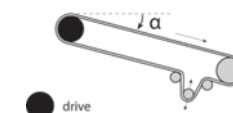
Inclined and declined conveyors

Maximum angles to avoid product sliding down on the chain

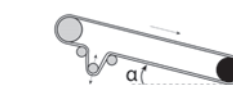
Chain type	Lubricated	Dry
Plastic chains/belt	2.5°	4.5°
Rubber top chains plastic	12 / 15°	15 / 20°

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

Declines:



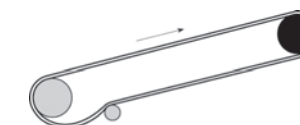
$\tan(\alpha) > \text{friction coefficient between chain and wearstrips}$ Soft start/stop is recommended.



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

Dynamic tensioner is in both cases recommended.

Inclines:

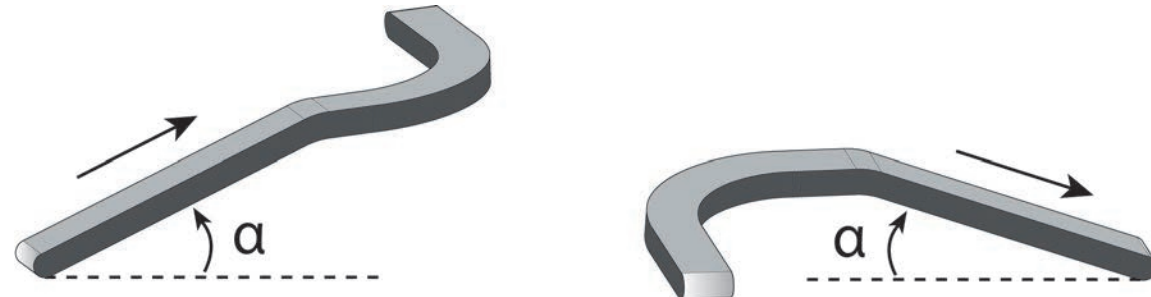


Drive is normally located at the upper end. Soft start/stop is recommended.



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:

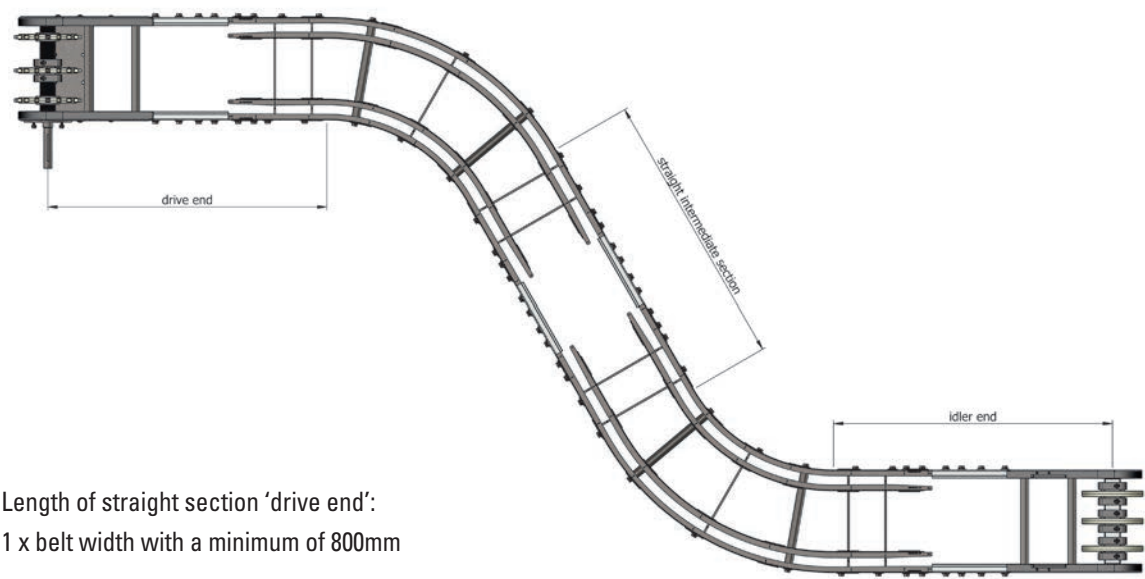
- The products are heavy
- There is usually no lubrication
- Many times the belts has to make a 180° turn
- In the curve there is only a limited part of the belt (only the outer part) that is pulling.

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:

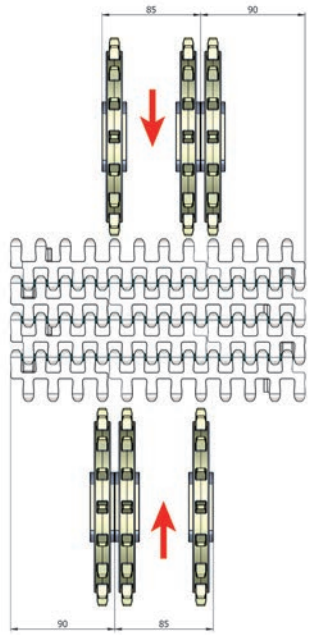
3 sprockets

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]

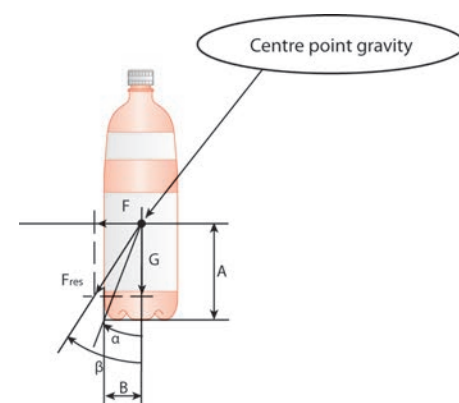
M = weight of product in [kg]

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 ($B= \frac{1}{2} * \text{diameter}$) 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:

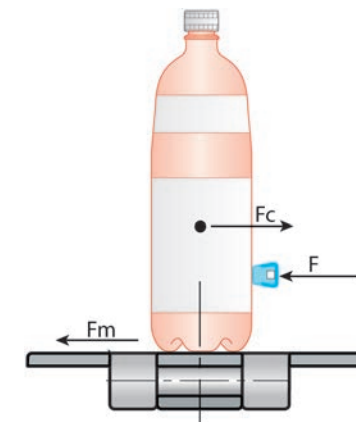
$$\frac{F_{max}}{G} = \frac{B}{A} \rightarrow F_{max} = G * \frac{B}{A} \quad \text{or} \quad \begin{array}{l} \mu < \frac{B}{A} \rightarrow \text{OK} \\ \mu > \frac{B}{A} \rightarrow \text{not OK} \end{array}$$

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.

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

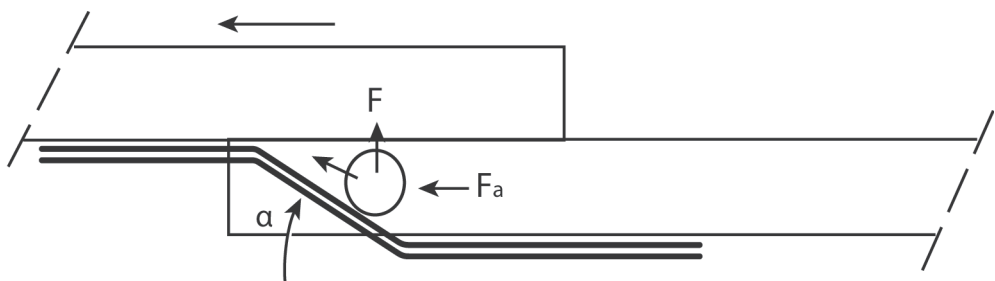
F_a = accumulation force

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.

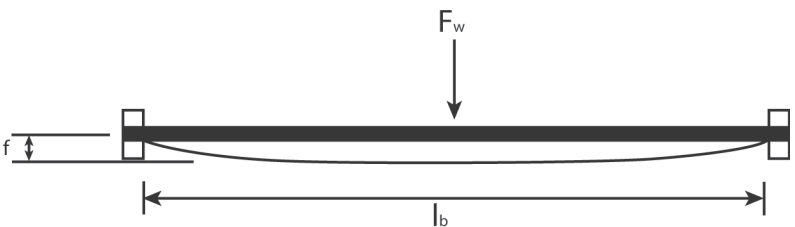
That's why it's important to take also these forces on the products into consideration. In the above mentioned formula the angle α plays an important role in a smooth transfer and reduced forces on the products. This angle should be kept as small as possible.

Shaft size:

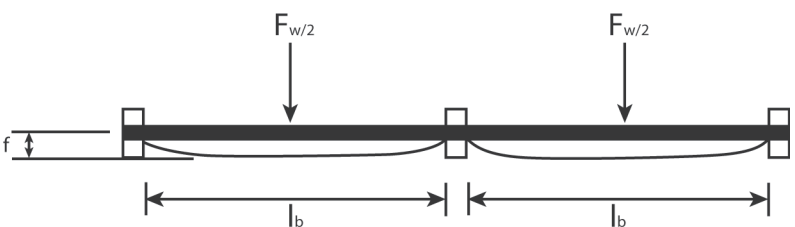
The shaft must fulfill the following conditions:

- 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:



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



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

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

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

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. 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





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_{permissible} (page 390 & 394):

YESNO ►

▼

F<<F_{permissible} (oversized) ►

NONOYES ►

▼

Check drive torque:

M * 2 ≥ F
ØTK

OK?YESNO ►

▼

[✓]

**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
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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
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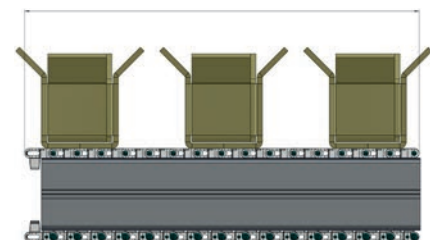
MOTOR SELECTION

For all calculations

$$Q_{Fi} = \frac{M_i \cdot g}{L_i}$$

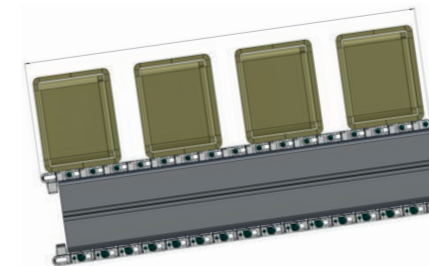
EMBS Straight

$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot \mu_T + (L_K - L_i) \cdot qK \cdot \mu_T] \cdot \mu_R$$



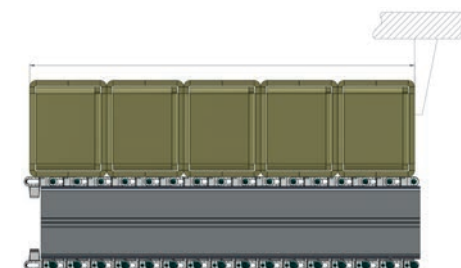
EMBS Incline/Decline

$$F_i = [F_{i-0} + L_i \cdot (Q_K + Q_{Fi}) \cdot (\mu_T \cdot \cos\beta + \sin\beta) + (L_K - L_i) \cdot qK \cdot (\mu_T \cdot \cos\beta - \sin\beta) \cdot \mu_T] \cdot \mu_R$$



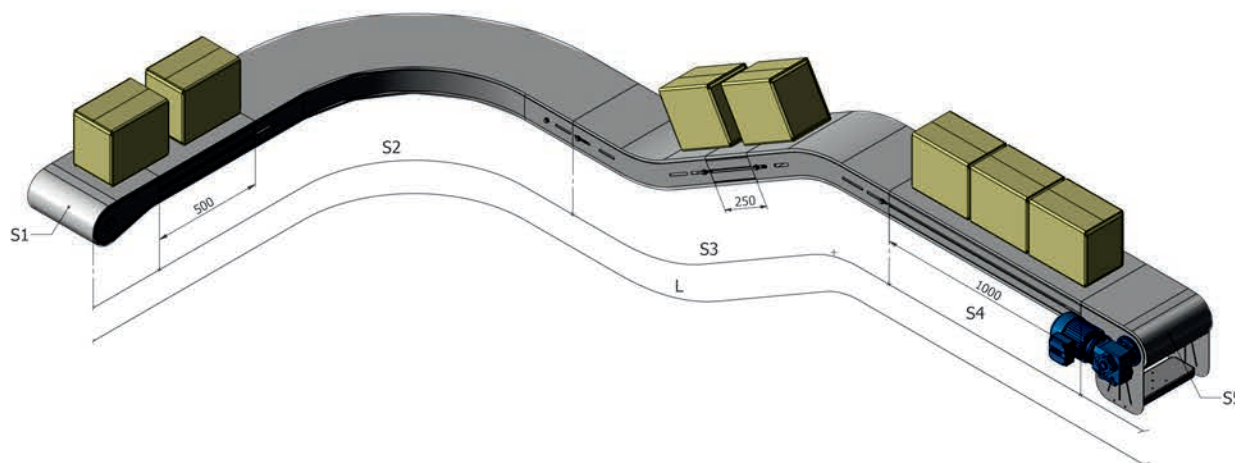
EMBS Accumulation (is not possible when using a friction or a cleated belt)

$$F_i = [F_{i-0} + L_i \cdot \{ (Q_K + Q_{Fi}) \cdot \mu_T + Q_{Fi} \cdot \mu_{ST} \} + (L_K - L_i) \cdot Q_K \cdot \mu_T] \cdot \mu_R$$



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

$$F_5 = [F_{i-4} + \{L_i * (Q_K + Q_{Fi}) * \mu_T\} + \{(L_K - L_i) * Q_K * \mu_T\}] * \mu_R$$

$$F_5 = [595,45 + \{0,347 * (29,35 + 0) * 0,3\} + \{(0,984 - 0,347) * 29,35 * 0,3\}] * 1,0$$

$$F_5 = [595,45 + \{0,347 * 8,81\} + 5,61] * 1,0$$

$$F_5 = [595,45 + 3,06 + 5,61] * 1,0$$

$$F_5 \approx 604,12 \text{ N}$$

$$F_{\max} = F_{\text{perm.}} * C_1 * C_2$$

$$F_{\max} = 10.200 * 0,83 * 1,0$$

$$F_{\max} \approx 8465 \text{ N} \quad F = 604,12 \text{ N}$$

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

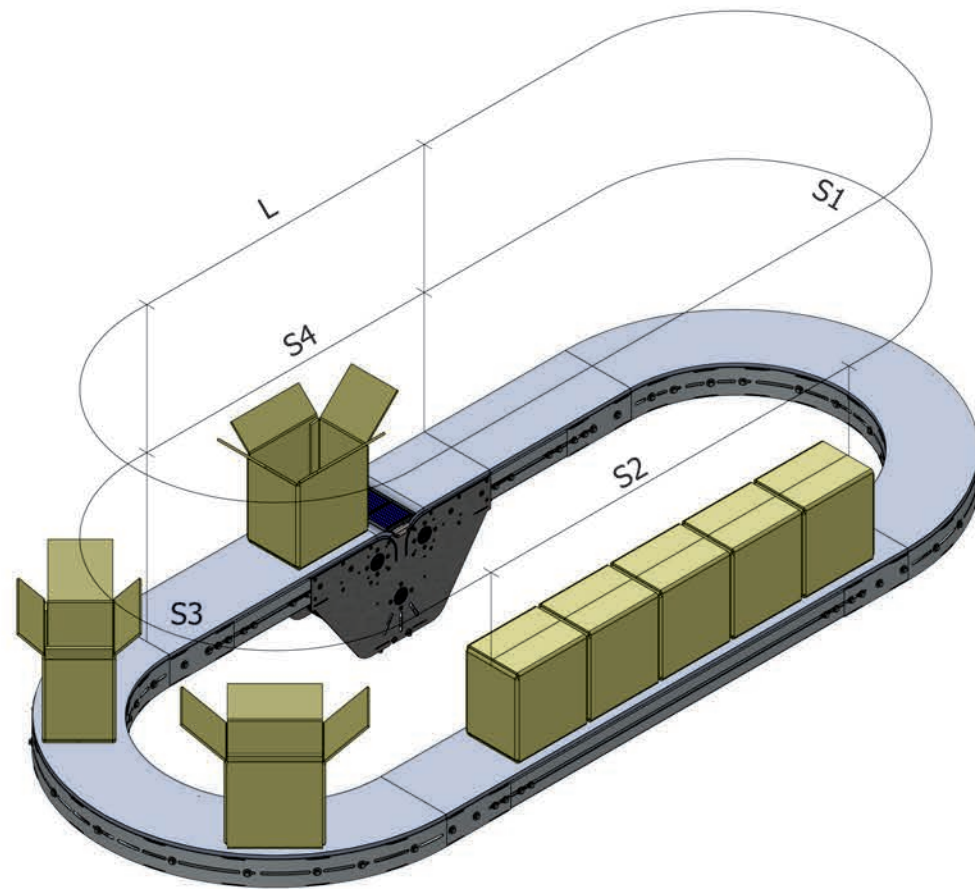
$$M_H = M_N * C_3 \quad P_A = \frac{F_U * v}{1000} \quad P_A = \frac{604,12 * 0,33}{1000}$$

$$M_H = 51,26 * 1,5$$

$$M_H \approx 76,90 \text{ Nm}$$

$$P_A = 0,20 \text{ kW}$$

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

**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.