

# THE EASY WAY. of solving your material handling needs

# Easy conveyors by

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



# Quality with innovative solutions

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

# Efficiency for all businesses

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

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

- 01Fast layout capability05Enhanced productivity02Minimal component variation06Low maintenance
- 03 Design simplicity 07 L
- 04 Effective space utilization

# **Distribution network**

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

# Product configurator online

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

# TRY OUT ON WWW.EASY-CONVEYORS.COM

07 User-friendliness



Online product configurator

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









# DRODUCTICALLETC

F NUDUCI LL	RILLIS	
Aluminium	EMBS HEAD DRIVE	Page 365
	MODULE PAGES	
	EMBS ALUMINIUM SIDE PROFILE	Page 370
	EMBS CHAIN	Page 372
	EMBS HEAD DRIVE UNIT	Page 374
	EMBS HEAD DRIVE UNIT HD	Page 378
	EMBS RETURN UNIT	Page 382
	EMBS TRANSFER MODULE SINGLE	Page 384
	EMBS TRANSFER MODULE DOUBLE	Page 386
	EMBS HORIZONTAL CURVE	Page 388
	EMBS VERTICAL CURVE; R=500 ALUMINIUM	Page 390
	L SUPPORT LEGS ALUMINIUM	Page 392
	12 SUPPORT LEGS ALUMINIUM	Page 394
	L2 SUPPORT LEGS ALUMINIUM	Page 396
	HEIGHT ADJUSTABLE LEG SUPPORT/ALU	Page 399
	EMBS SIDE PROFILE; FIXED	Page 402
	EMBS SIDE PROFILE; ADJUST	Page 404
	EMBS TECHNICAL MANUAL	Page 406

# CONTENT

363 www.easy-conveyors.com



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

# EMBS HEAD DRIVE



www.easy-conveyors.com



# **EMBS HEAD DRIVE**

1       Return set Umlenkungsatz Kit de retour Cabeza de reenvío       Module PAGE 382         2       EMBS side profile EMBS Seitenprofil EMBS Profil de côté Perfil lateral EMBS       Module PAGE 370         3       Horizontal curve Norizontal curve Kurve - horizontal Courbe horizontale Curva horizontale       Module PAGE 388         4       Straight connector Längsverbinder Connecteur droit Conector longitudinal       Module PAGE 370         5       Vertical curve Kurve - vertikal Courbe verticale Curva vertical       Module PAGE 390





6	Head drive set	Module PAGE 374
	Kopfantrieb - Satz	
	Ensemble Entraînement Direct	
	Cabeza de tracción, juego	
7	Slide profile	Module PAGE 370
	Gleitprofil	
	Glissez le profil	
	Perfil de deslizamiento	
8	Rokut rivet	Module PAGE 370
	Kunstoff Popnail	
	Popnail en plastique	
	Popnail plástico	
9	EMBS Chain	Module PAGE 372
	EMBS Kette	
	EMBS chaîne	
	Cadena EMBS	
10	Transfer module	Module PAGE 384
	Transfer-Modul	
	Module de transfer	
	Módulo de transferencia	
11	Transfer plate	Module PAGE 384
	Transferplatte	
	Plaque de transfer	
	Transferencia placa	
12	Heavy duty clips	Module PAGE 370
	Schwerlast clip	
	Clip lourds	
	Clip de servicio reforzado	
13	Heavy duty profile	Module PAGE 370
	Schwerlast profile	
	Voir le profile lourds	
	Perfil para cargo pesoda	







ETS HEAD DRIVE	Dimensio	ns - Abmes	sungen - D	imensions - Dimensi	ones	
L=	Max. total	+/- 22 mtr.	Longer on request			
L1 =	Min. 200 n	1m   7,87″ i	nch			
LR =	1 x BW - N	/lin. 500mm	n   19,68" in	ch		
LC =	1.5 x BW					
LD =	1 x BW - N	/lin. 800mm	n   31,49″ in	ch		
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, 3	40 =750, 42	25=900, 510	=1100 mm		
	10,04″=21,	26", 13,58"	=29,52", 16	,73″=35,43″, 20,07″=43	3,3″ inch	
V ≈	Max. 45 m	tr./min <b> </b> 14	8 Foot/min			
Max. Torque, Couple, Esfue	rzo de torsi	on, Drehmo	oment		141 Nm	
Breaking load, Bruchlast, C	Breaking load, Bruchlast, Charge de rupture, Carga de rotura 30.000 N/mtr (dynamic)					
Support legs, Stützen, Supports, Patas de apoyo Module PAGE 392-401					Module PAGE 392-401	
Side guiding, Seitenführung	Side guiding, Seitenführungen, Guidage latéral, Guiado lateral Module PAGE 401-405					
! POS 12 -13	When BW	= 425/ 13,5	8″ & 510/ 2	0,07" or Product Weig	ht >10kg.	

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



# MODULE PAGES

www.easy-conveyors.com

3





Dimensions - Abmessungen - Dimensions - Dimensiones					
Standard Lenght 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



easy ...conveyors



				SPARE PARTS
				Aluminium side profile
			2 3	Straight connector
	0		4	Slide profile
			5 6	Heavy duty clips
			7	Heavy duty profile
Dimensions - Abmes	ssungen - Dimensions - Dimensiones		8	Profile connector set
Art Nr. Pos 1			40.07 E	1 ( ) )
ETS040805000001		5,6 Mtr.	18,37 Foot	E(1(L)
Vaterial	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	<b>10</b>
Material	AL; Steel, galvanized, Steel galvanized	l, Stahl verzinkt	, Acier galvani	sé, Acero galvanizado
Art Nr. Pos 4				it is the
ETP040801000000	ETS SLIDE PROFILE; TCP BLACK	5.6 Mtr	18,37 Foot	<u> </u>
ETP040801000002	ETS SLIDE PROFILE; TCS GREY	6 Mtr	19,69 Foot	⊑ 10 (L)
Art Nr. Pos 5	Material			<sup>ж</sup> ого
EMP1040705000005	Nylon 6.6			250
Art Nr. Pos 6				<u>а</u> ог
EIVIP 1040706000017	ra 0			۳۵ کت
	Matavial			
			* Dall 00.14	
EIVIP 1040705000002		,	🖾 κοιι = 30 M	u.   98,43 FOOT
	M./			
AILINE POS 8			<u>گ</u> و:	with footors
EIVIP 1040705000004	Steel galvanized, Stani Verzinkt,		📼 2 pieces	with tastener
	Acier gaivanise, Acero galvanizado			
046		0.		
Juners on request, A	nuere aut Antrage, Autres sur demande	e, utros sobre d	consulta	
			14/14/14/ 0.2	See engineering online
			www.ed	sy-conveyors.com

				SPARE PARTS
				Aluminium side profile Connector Ø20x5 Straight connector Slide profile Rokut rivets Heavy duty clips
Dimensions - Abmes	ssungen - Dimensions - Dimensiones	5	7 8	Heavy duty profile 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	ed, Stahl verzinkt	, Acier galvani	sé, 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			
EMPT040706000017	PA 6			<b>25</b>
Art Nr. Dec 7	Motorial			
	DE		🛱 Roll - 20 M4	tr   98 / 3 East
	11		nuli = 30 IVI	u.   30,43 FUUL
Art Nr. Pos 8	Material			
EMPT040705000004	Steel galvanized, Stahl verzinkt		🛎 2 pieces	with fastener
	Acier galvanisé. Acero galvanizado		p.0000	
	garanoo, nooro garanzado			
Others on request, A	ndere auf Anfrage, Autres sur deman	de, Otros sobre o	consulta	
				See engineering online

				SPARE PARTS
				Aluminium side profile Connector Ø20x5 Straight connector Slide profile Rokut rivets Heavy duty clips Heavy duty profile
Dimensions - Abmes	ssungen - Dimensions - Dimensiones	;	8	Profile connector set
ARLINE POS 1 ETS040805000001		5 6 Mtr	18 37 Foot	<u>}</u> (1 (I )
Material	AL	0,0 With.	10,07 1001	~ i (L/
Art Nr. Pos 2	Art Nr. Pos 3	FW =		
Connector Ø20x5	Straight connector		40.00%	- Mar 1 1
EMBS041405010255	EMBS041405030255	260 mm	10,23" inch	<u>    10                                </u>
EMBS041405010340	EMBS041405030340	344 mm	13,54" inch	10
EMBS041405010425	EMBS041405030425	429 mm	16,89" inch	<u> </u>
EMBS041405010510	EMBS041405030510	513 mm	20,19" inch	
Material	AL; Steel, galvanized, Steel galvanize	ed, Stahl verzinkt	, Acier galvani	sé, Acero galvanizado
Art Nr. Doo 4				
ATL NI. PUS 4		5.6 Mtr	18 27 Eoot	🗯 10 (I )
ETTP0//0801000000		6 M+r	19 69 Foot	<u> </u>
		UIVILI	13,03 FUUL	⊷ IU (L/
Art Nr. Pos 5	Material			
EMPT040705000005	Nvlon 6.6			250
	,			~ _~~
Art Nr. Pos 6	Material			
EMPT040706000017	PA 6			25
Art Nr. Pos 7	Material			
EMPT040705000002	PE	1	🛎 Roll = 30 M	tr.   98,43 Foot
Art Nr. Pos 8	Material			
EMPT040705000004	Steel galvanized, Stahl verzinkt,		🛎 2 pieces	with fastener
	Acier galvanisé, Acero galvanizado			
Others on request, A	ndere auf Anfrage, Autres sur demand	le, Otros sobre o	consulta	
				See engineering online

				SPARE PARTS
				Aluminium side profile Connector Ø20x5 Straight connector Slide profile Rokut rivets Heavy duty clips Heavy duty profile
Dimensions - Abmes	ssungen - Dimensions - Dimensiones	3	8	Profile connector set
ARLNI: POS 1 ETS040805000001		5 6 Mtr	18 37 Foot	1 (I )
Material	AL	5,0 1011.	10,07 1001	une 1 (16/
Art Nr. Pos 2	Art Nr. Pos 3	FW =		
Connector Ø20x5	Straight connector	000	10.00 <i>"</i> in th	
EMBS041405010255	EMBS041405030255	260 mm	10,23" inch	<u> </u>
EIVID 304 14050 10340		344 mm	15,04 INCN	₩ IU
EIVID S041405010425		429 mm	10,09 INCN	₩ IU
	EIVIDOU4140000010	513 MM		inó. Aporo apluonizado
waterial	AL; Steel, galvanized, Steel galvaniz	ea, Stani verzinkt	, Acier gaivani	se, Acero galvanizado
Art Nr. Pos /		1 -		
ETP04080100000	ETS SLIDE PROFILE. TOP BLACK	5.6 Mtr	18 37 Foot	🛣 10 (L)
ETP040801000000	ETS SLIDE PROFILE: TCS GREY	6 Mtr	19.69 Foot	≝ 10 (L)
		0 1110		
Art Nr. Pos 5	Material			
EMPT040705000005	Nylon 6.6			<b>ž</b> 250
Art Nr. Pos 6	Material			
EMPT040706000017	PA 6			<b>ž</b> 25
Art Nr. Pos 7	Material			
EMPT040705000002	PE	1	🛎 Roll = 30 M	tr.   98,43 Foot
Art Nr. Pos 8	Material			
EMPT040705000004	Steel galvanized, Stahl verzinkt,		🛱 2 pieces	with fastener
	Acier galvanisé, Acero galvanizado			
0.1		L 0.		
Uthers on request, A	ndere aut Antrage, Autres sur deman	de, Utros sobre c	onsulta	
				See engineering online

Art Nr. Pos 6	Material
EMPT040706000017	PA 6

Art Nr. Pos 7	Material
EMPT040705000002	PE

				SPARE PARTS
				Aluminium side profile Connector Ø20x5 Straight connector Slide profile Rokut rivets Heavy duty clips Heavy duty profile
Dimensions - Abmes	ssungen - Dimensions - Dimensiones	5	7 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	000	10.00 <i>″</i> :	<i>₩</i> 10
EIVIBS041405010255	EIVIBS041405030255	260 mm	10,23 INCN	 
EMPS041403010340	EMB \$041405030340	120 mm	16.90" in ch	
EMBS041405010425	EMBS041405030510	513 mm	20.19" inch	<u> </u>
Material	Al : Steel aslyanized Steel aslyaniz	ed Stahl verzinkt		sé Δcero galvanizado
Wateria	AL, Steel, galvanizeu, Steel galvaniz		, Aciel galvalli	
Art Nr Pos 4		1 =		
FTP040801000000	ETS SLIDE PROFILE. TCP BLACK	5.6 Mtr	18.37 Foot	َ الله الله (۱)
ETP040801000002	ETS SLIDE PROFILE: TCS GREY	6 Mtr	19.69 Foot	≝ 10 (L)
		0 1111	10,001001	
Art Nr. Pos 5	Material			
EMPT040705000005	Nylon 6.6			250
	•			
Art Nr. Pos 6	Material			
EMPT040706000017	PA 6			25
Art Nr. Pos 7	Material			
EMPT040705000002	PE	,	🛱 Roll = 30 Mt	tr.   98,43 Foot
Art Nr. Pos 8	Material			
EMPT040705000004	Steel galvanized, Stahl verzinkt,		🛱 2 pieces	with fastener
	Acier galvanisé, Acero galvanizado			
Others on request, A	ndere auf Anfrage, Autres sur deman	de, Otros sobre o	consulta	
				See engineering online







	II - DIIIIEIISIUIIS - D	imensiones		
LFW (low friction acetal resin), Reibungsarmer Acetal				
aible coefficient de frotter	nent acétal, Acetal	de baja fricción		
Natural, Natur, Naturel, Na	tural			
I box; L=1,5 mtr				
Code	Max. load capaci	ty	Weight	
	Straight	Curve		
EMBP041408000255	30.000 N/mtr	2.500 N	2,25 kg/mtr	
EMBP041408000340	30.000 N/mtr	2.500 N	2,99 kg/mtr	
EMBP041408000425	30.000 N/mtr	2.500 N	3,74 kg/mtr	
EMBP041408000510	30.000 N/mtr	2.500 N	4,50 kg/mtr	
	FW (low friction acetal res aible coefficient de frotter Natural, Natur, Naturel, Na box; L=1,5 mtr Code EMBP041408000255 EMBP041408000340 EMBP041408000425 EMBP041408000510	FW (low friction acetal resin), Reibungsarme         Faible coefficient de frottement acétal, Acetal         Natural, Natur, Naturel, Natural         I box; L=1,5 mtr         Code       Max. load capaci         Straight         EMBP041408000255       30.000 N/mtr         EMBP041408000425       30.000 N/mtr         EMBP041408000425       30.000 N/mtr         EMBP041408000510       30.000 N/mtr	FW (low friction acetal resin), Reibungsarmer Acetal         Faible coefficient de frottement acétal, Acetal de baja fricción         Natural, Natur, Naturel, Natural         I box; L=1,5 mtr         Code       Max. load capacity         Straight       Curve         EMBP041408000255       30.000 N/mtr       2.500 N         EMBP041408000425       30.000 N/mtr       2.500 N         EMBP041408000425       30.000 N/mtr       2.500 N         EMBP041408000425       30.000 N/mtr       2.500 N	

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



**easy** ...conveyors



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

	Dimensions - Abmessu	ngen - Dimensions -	Dimensiones			
Material	LFW (low friction aceta	l resin), Reibungsarr	ner Acetal			
	Faible coefficient de fro	ttement acétal, Ace	tal de baja fricció	n		
Color	Blue, Blau, Bleu, Azul	Blue, Blau, Bleu, Azul				
Friction top	Thermoplastic rubber, T	Thermoplastic rubber, Thermoplastischem Gummi				
	Cautchouc thermoplast	ique, Caucho termoj	olástico			
Package	1 box; L=1,5 mtr					
BW	Code	Max. load capa	city	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







**EMBS HEAD DRIVE UNIT** 







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

# **Dimensions - Abmessungen - Dimensions - Dimensiones**

ALUMINIUM	B =		BW =		
EMBS041401020255	264 mm	10,23" inch	255 mm	10,04" inch	嘗1
EMBS041401020340	348 mm	13,54″ inch	340 mm	13,38″ inch	<b>Ö</b> 1
EMBS041401020425	433 mm	16,89" inch	425 mm	16,73" inch	<b>Ö</b> 1
EMBS041401020510	517 mm	20,19" inch	510 mm	20,07" inch	<b>Ö</b> 1
Suitable for, Geeignet für, Convient pour, Adec	uado para		S	EW With flang	je 120

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









manananaaA ากุกกที่กำกักกกกุก นิถุกกกกกกกกกก. ปกิกกกิกกกกก็ญี่ กิกกกกุกกกุกญา Ronninnin

monning. Roomanning

EMBS SYSTEM





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
R	Hexagon socket countersunk head scr

8 Hexagon socket countersunk head screw
 9 Hexagon socket button head screw

# Dimensions - Abmessungen - Dimensions - Dimensiones

	0				
Art Nr. Pos 1					
Aluminium					三1
EMBS041401000000	• • • • • • • • • • • • • • • • • • • •	<b>BA a a</b>			巨1
Material	Acero inoxidable	+ PA6.6			
Art Nr. Pos 2					
AIUIIIIIIUIII 0/1/08010255		255 mm	10.04″ inch	1 1	
041400010233		233 mm	13 39" inch	<u> </u>	
041408010345		425 mm	16,73″ inch	 ₩1	
041408010510		510 mm	20.07" inch	<u></u> ≝1	
Material	Material	510 mm	20,07 1101		
Stainless steel shaft	Stainless steel st	naft			
Aluminium tube	Plastic tube				
Max. Torque. Couple	, Esfuerzo de torsi	on, Drehmoment	141Nm		
		,			
Art Nr. Pos 3	Art Nr. Pos 4				
Aluminium	Stainless steel				
041504000255	041505030255	255 mm	10,04″ inch	۳1	
041504000340	041505030340	340 mm	13,39″ inch	۳ًا ا	
041504000425	041505030425	425 mm	16,73″ inch	1	
041504000510	041505030510	510 mm	20,07" inch	<u>1</u>	
Material	Stainless steel, E	delstahl, Acier in	oxydable, Acero inoxi	dable	
Art Nr. Pos 5					
041506000000	Pitch diameter Ø	169.7 Bore So	quare 40		۵1 🛎
Material	POM				
Art Nr. Pos 6	Material				
040706000018	PA FG				10
	Madavial				
	Stoiploos stool 5	dolotobl Asiaria		dabla	<b>100</b>
DV0883000/UA4	Stamess steel, E	ueistani, Acier in	uxydabie, Acero inoxi	uapie	b⊐ 100
Art Nr. Poe 9	Matorial				
	Stainloss staal	doletabl Agior in	ovudablo. Agoro inovi	dablo	<b>100</b>
DV/99100010AZ	Stanness steel, E	ueistaili, Acier In	uxyuable, Acero inoxi	uanie	
Art Nr Pos 9	Material				
RV738006008A2	Stainless steel F	delstabl Acier in	oxydable Acero inovi	dahle	jä 100
D ¥ 7 3000000AZ	Stanness steel, E	utistani, Atlei III	oryuable, Acelo 110XI		<b>IUU</b> س
Others on request A	ndara auf Anfraga	Autros sur domo	nda Atros sobro cons	ulta	

Art No. Do -1	Sungen - Dimension	is - Dimensiones			
Art Nr. Pos 1					<b>*</b> 1
					<u> </u>
EIVIBS04140100000	Acoroinavidable	DACC			
iviateriai	Acero inoxidable +	PA0.0			
Art Nr. Pos 2					
Aluminium					
041408010255		255 mm	10.04" inch	1	
041408010340		340 mm	13.39" inch	۲	
041408010425		425 mm	16,73″ inch	1	
041408010510		510 mm	20,07" inch	1	
Material	Material				
Stainless steel shaft,	Stainless steel shaf	it,			
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	۳1	
041504000340	041505030340	340 mm	13,39″ inch	۳1	
041504000425	041505030425	425 mm	16,73" inch	۳1	
041504000510	041505030510	510 mm	20,07" inch	۳1	
Material	Stainless steel, Ede	lstahl, Acier inox	ydable, Acero inoxi	idable	
Art Nr. Pos 5					
041506000000	Pitch diameter Ø16	9.7 Bore Squ	iare 40		1
Material	POM				
Art Nr. Pos 6	Material				
040706000018	PA FG				⊠ 10
Art Nr. Pos /					× 100
BV688566070A4	Stainless steel, Ede	istani, Acier inox	(ydable, Acero inoxi	dadie	
Art Nr. Dog 9	Motorial				
AIT NI. PUS 8	Stainlage steel Edg	latahl Asiar inay	udabla Aaara inavi	dabla	<b>100</b>
DV/33100010AZ	Stanness steel, Ede	istaili, Acier Inox	yuable, Acero Inox	luanie	
Art Nr. Poc.0	Matorial				
	Staiplage steel Edg	latabl Asiar issu	udabla Asara inavi	idabla	<b>100</b>
BV738006008A2	Stainless steel, Ede	Istahl, Acier inox	kydable, Acero inoxi	idable	₪ 100
Others on request A	ndere auf Anfrage A	utres sur demand	le. Otros sobre cons	ulta	

Art Nr. Pos 1					- <sup>396</sup> 7 1
					<u> </u>
IVIBS04140100000	Acoro inovidable				
viateriai	Acero inoxidable	+ PA0.0			
Art Nr. Pos 2					
Aluminium					
041408010255		255 mm	10,04" inch	1	
041408010340		340 mm	13,39″ inch	۳1	
041408010425		425 mm	16,73″ inch	۳1	
041408010510		510 mm	20,07" inch	1	
Vaterial	Material				
Stainless steel shaft,	Stainless steel sh	aft,			
Aluminium tube	Plastic tube				
Max. Torque, Couple	e, Esfuerzo de torsio	on, Drehmoment	141Nm		
Art Nr. Pos 3	Art Nr. Pos 4				
Aluminium	Stainless steel				
41504000255	041505030255	255 mm	10,04" inch	۳1 🖿	
)41504000340	041505030340	340 mm	13,39″ inch	۵	
41504000425	041505030425	425 mm	16,73" inch	۵	
041504000510	041505030510	510 mm	20,07" inch	۵	
Vaterial	Stainless steel, Ed	delstahl, Acier in	oxydable, Acero inoxi	idable	
Art Nr. Pos 5					ñile.
041506000000	Pitch diameter Ø1	69.7 Bore S	quare 40		鬥1
Viaterial	PUM				
Art Nr. Boe C	Motorial				
Art Nr. Pos 6	Material				<b>1</b> 0
Art Nr. Pos 6 040706000018	Material PA FG				10
Art Nr. Pos 6 040706000018 Art Nr. Pos 7	Material PA FG Material				10
Art Nr. Pos 6 140706000018 Art Nr. Pos 7 3V68856607044	Material PA FG Material Stainless steel Fo	lelstahl Acier in	oxydable. Acero inovi	idable	10
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 3V688566070A4	Material PA FG Material Stainless steel, Ec	delstahl, Acier in	oxydable, Acero inoxi	idable	≝ 10 ≝ 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 3V688566070A4 Art Nr. Pos 8	Material PA FG Material Stainless steel, Ec Material	delstahl, Acier in	oxydable, Acero inoxi	idable	ž 10 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 3V688566070A4 Art Nr. Pos 8 3V799108016A2	Material PA FG Material Stainless steel, Ed Material Stainless steel Fo	delstahl, Acier in	oxydable, Acero inoxi oxydable, Acero inoxi	idable	± 10 ± 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 3V688566070A4 Art Nr. Pos 8 3V799108016A2	Material PA FG Material Stainless steel, Ec Material Stainless steel, Ec	delstahl, Acier in delstahl, Acier in	oxydable, Acero inoxi oxydable, Acero inoxi	idable idable	<ul><li>▲ 10</li><li>▲ 100</li><li>▲ 100</li></ul>
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 3V688566070A4 Art Nr. Pos 8 3V799108016A2 Art Nr. Pos 9	Material PA FG Material Stainless steel, Ed Material Stainless steel, Ed	delstahl, Acier in delstahl, Acier in	oxydable, Acero inoxi oxydable, Acero inoxi	idable idable	10 100



# **EMBS HEAD DRIVE UNIT HD**



- Used when the Torque  $\geq$  141 Nm - Verwendet wenn da Dreh moment  $\geq$  141 Nm - Utilisé lorsque le couple est ≥ 141 Nm
- Se utiliza cuando el par es ≥ 141 Nm









WARNANANA นิลลินสินหนุกหน บถึงบันนั้น และ บถึงบันนั้น และ บถึงบันนั้น และ บันนั้น และ 



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

# **Dimensions - Abmessungen - Dimensions - Dimensiones**

<b>ALUMINIUM L</b>	ALUMINIUM R	B =		BW =		
EMBS041401030255	EMBS041501030255	264 mm	10,23" inch	255 mm	10,04" inch	۵1
EMBS041401030340	EMBS041501030340	348 mm	13,54" inch	340 mm	13,38" inch	Ë1
EMBS041401030425	EMBS041501030425	433 mm	16,89" inch	425 mm	16,73" inch	Ë1
EMBS041401030510	EMBS041501030510	517 mm	20,19" inch	510 mm	20,07" inch	Ë1
Suitable for, Geeigne	et für, Convient pour, Adecı	iado para			SEW SA47	

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





EMBS SYSTEM





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
0	Havagan cookat countarcunk haad co

8 Hexagon socket countersunk head screw
 9 Hexagon socket button head screw

# **Dimensions - Abmessungen - Dimensions - Dimensiones**

Aluminium					邕1
EMBS04140101000	)0				1
Material	PA6.6				
Art Nr. Pos 2					
041408011255		255 mm	10,04" inch	<b>E</b> 1	
041408011340		340 mm	13,39" inch	Ē1	
041408011425		425 mm	16,73″ inch	営1	
041408011510		510 mm	20,07" inch	首1	
Material	Stainless steel sha	ft, Aluminium tub	00		
Max. Torque, Coup	ole, Esfuerzo de torsi	on, 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	当1	
041504000425	041505030425	425 mm	16,73″ inch	1	
041504000510	041505030510	510 mm	20,07" inch	首1	
Material	Stainless steel, Eq	delstahl, Acier in	oxydable, Acero inox	idable	
Art Nr. Pos 5					
041506000000	Pitch diameter Ø1	69.7 Bore S	quare 40		1
Material	POM				
Art Nr. Pos 6	Material				
<b>Art Nr. Pos 6</b> 040706000018	Material PA FG				۳ الله الله الله الله الله الله الله الل
Art Nr. Pos 6 040706000018	Material PA FG				ڴ 10
Art Nr. Pos 6 040706000018 Art Nr. Pos 7	Material PA FG Material				<b>Ž</b> 10
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 BV688587080A4	Material PA FG Material Stainless steel, Ed	delstahl, Acier in	oxydable, Acero inox	idable	営 10 営 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 BV688587080A4	Material PA FG Material Stainless steel, Ed	delstahl, Acier in	oxydable, Acero inox	idable	當 10 當 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 BV688587080A4 Art Nr. Pos 8	Material PA FG Material Stainless steel, Ec Material	delstahl, Acier in	oxydable, Acero inox	idable	් 10 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 BV688587080A4 Art Nr. Pos 8 BV799108016A2	Material PA FG Material Stainless steel, Ed Material Stainless steel, Ed	delstahl, Acier in delstahl, Acier in	oxydable, Acero inox oxydable, Acero inox	idable	當 10 當 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 BV688587080A4 Art Nr. Pos 8 BV799108016A2	Material PA FG Material Stainless steel, Ed Material Stainless steel, Ed	delstahl, Acier in delstahl, Acier in	oxydable, Acero inox oxydable, Acero inox	idable idable	් 10 ජ 100 ජ 100
Art Nr. Pos 6 040706000018 Art Nr. Pos 7 BV688587080A4 Art Nr. Pos 8 BV799108016A2 Art Nr. Pos 9	Material PA FG Material Stainless steel, Ed Material Stainless steel, Ed	delstahl, Acier in delstahl, Acier in	oxydable, Acero inox oxydable, Acero inox	idable idable	<ul><li>☐ 10</li><li>☐ 100</li><li>☐ 100</li></ul>

Art Nr. Pos 1					
Aluminium					1
EMBS04140101000	0				Land 1
Material	PA6.6				
Art Nr. Pos 2					
041408011255		255 mm	10,04" inch	曽1	
041408011340		340 mm	13,39″ inch	1	
041408011425		425 mm	16,73" inch	1	
041408011510		510 mm	20,07" inch	1	
Material	Stainless steel sha	ft, Aluminium tul	be		
Max. Torque, Coup	le, Esfuerzo de torsio	on, Drehmoment	276Nm		
Art Nr. Pos 3	Art Nr. Pos 4				
041504000255	041505030255	255 mm	10,04" inch	۳1	
041504000340	041505030340	340 mm	13,39″ inch	۳1	
041504000425	041505030425	425 mm	16,73″ inch	<b>E</b> 1	
041504000510	041505030510	510 mm	20,07" inch	<b>1</b>	
Material	Stainless steel, Ec	delstahl, Acier in	oxydable, Acero inox	kidable	
Art Nr. Pos 5					
041506000000	Pitch diameter Ø1	69.7 Bore S	quare 40		<b>1</b>
Material	POM				
Art Nr. Pos 6	Material				
040706000018	PA FG				🛎 10
Art Nr. Pos 7	Material				
BV688587080A4	Stainless steel, Ec	delstahl, Acier in	oxydable, Acero inox	kidable	🛱 100
Art Nr. Pos 8	Material				
BV799108016A2	Stainless steel, Ec	delstahl, Acier in	oxydable, Acero inox	kidable	<b>100</b>
Art Nr. Pos 9	Material				
BV738006008A2	Stainless steel, Ec	delstahl, Acier in	oxydable, Acero inox	kidable	<b>100</b>
0.1		• •			

Art Nr. Pos 1 Aluminium					1 1
AIUIIIIIIIIII FMBS04140101000	0				<u> </u>
Material	PA6.6				
Art Nr. Pos 2					
041408011255		255 mm	10,04" inch	۳1	
041408011340		340 mm	13,39" inch	۳1	
041408011425		425 mm	16,73" inch	۳1	
041408011510		510 mm	20,07" inch	۳1	
Material	Stainless steel shaft	t, Aluminium tul	)e		
Max. Torque, Coup	le, Esfuerzo de torsior	n, Drehmoment	276Nm		
Art Nr. Pos 3	Art Nr. Pos 4				
041504000255	041505030255	255 mm	10,04" inch	۳1	
041504000340	041505030340	340 mm	13,39" inch	営1	
)41504000425	041505030425	425 mm	16,73" inch	営1	
041504000510	041505030510	510 mm	20,07" inch	営1	
Material	Stainless steel, Ede	elstahl, Acier in	oxydable, Acero inox	idable	
Art Nr. Pos 5					
041506000000	Pitch diameter Ø16	9.7 Bore S	quare 40		۳1
Material	POM				
Art Nr. Pos 6	Material				
040706000018	PA FG				10
Art Nr. Pos 7	Material				
BV688587080A4	Stainless steel, Ede	elstahl, Acier in	oxydable, Acero inox	idable	🛎 100
Art Nr. Pos 8	Material				
BV799108016A2	Stainless steel, Ede	elstahl, Acier in	oxydable, Acero inox	idable	🛎 100
Art Nr. Pos 9	Material				

Art Nr. Pos 1	5				
Aluminium					1
EMBS04140101000	0				<b>1</b>
Material	PA6.6				
Art Nr. Pos 2					
041408011255		255 mm	10,04" inch	1	
041408011340		340 mm	13,39″ inch	1	
041408011425		425 mm	16,73″ inch	ind 1	
041408011510		510 mm	20,07" inch	in 1	
Material	Stainless steel sha	aft, Aluminium tul	be		
Max. Torque, Coup	ole, Esfuerzo de torsi	on, Drehmoment	276Nm		
Art Nr. Pos 3	Art Nr. Pos 4				
041504000255	041505030255	255 mm	10,04" inch	営1	
041504000340	041505030340	340 mm	13,39" inch	営1	
041504000425	041505030425	425 mm	16,73" inch	1	
041504000510	041505030510	510 mm	20,07" inch	1	
Material	Stainless steel, E	delstahl, Acier in	oxydable, Acero inox	idable	
Art Nr. Pos 5					
041506000000	Pitch diameter Ø	169.7 Bore S	quare 40		1
Material	POM				
Art Nr. Pos 6	Material				
040706000018	PA FG				<b>10</b>
Art Nr. Pos 7	Material				
BV688587080A4	Stainless steel, E	delstahl, Acier in	oxydable, Acero inox	idable	🛱 100
Art Nr. Pos 8	Material				
BV799108016A2	Stainless steel, E	delstahl, Acier in	oxydable, Acero inox	idable	🛱 100
Art Nr. Pos 9	Material				
BV738006008A2	Stainless steel, E	delstahl, Acier in	oxydable, Acero inox	idable	🛱 100
Others on request,	Andere auf Anfrage,	Autres sur dema	nde, Otros sobre cons	sulta	

**SPARE PARTS** 



# **EMBS RETURN UNIT**













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

# **Dimensions - Abmessungen - Dimensions - Dimensiones**

ALUMINIUM	<b>B</b> =		BW =		
EMBS041404010255	260 mm	10,23" inch	255 mm	10,04" inch	<b>É</b> 1
EMBS041404010340	344 mm	13,54" inch	340 mm	13,38″ inch	<b>Ë</b> 1
EMBS041404010425	429 mm	16,89" inch	425 mm	16,73" inch	<b>Ĕ</b> 1
EMBS041404010510	513 mm	20,19" inch	510 mm	20,07" inch	<b>Ë</b> 1

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





# **Dimensions - Abmessungen - Dimensions - Dimensiones**

Art Nr. Pos 1		
Aluminium		
ETS040804010000		
Material	Edelstahl, acier inoxydable, acero inc	

Art Nr. Pos 2		
Aluminium		
041408030255	EMBS RETURN SHAFT; 255	1
041408030340	EMBS RETURN SHAFT; 340	<b>1</b>
041408030425	EMBS RETURN SHAFT; 425	and 1
041408030510	EMBS RETURN SHAFT; 510	۳1
Material	Edelstahl, acier inoxydable, acero inoxidable + Aluminium or plastic tube	

Art Nr. Pos 3		Material
041504000255	EMBS DRIVE/RETURN UNIT CONNECTOR; 255	<b>1</b>
041504000340	EMBS DRIVE/RETURN UNIT CONNECTOR; 340	۵
041504000425	EMBS DRIVE/RETURN UNIT CONNECTOR; 425	۵
041504000510	EMBS DRIVE/RETURN UNIT CONNECTOR; 510	۵
Material	Stainless steel, Edelstahl, acier inoxydable, acero inoxidable	

Art Nr. Pos 4	Material	
041506000001   Ø154,5 Bore Square 40	POM	営 1
Art Nr. Pos 5	Material	
040706000018   Split shaft collar	PA FG	蒼 10
Art Nr. Pos 6	Material	
BV799108016A2   M8x16 DIN7991 A2	Stainless steel	営 100

Art Nr. Pos 4	Material	
041506000001   Ø154,5 Bore Square 40	POM	<u>×</u> 1
Art Nr. Pos 5	Material	
040706000018   Split shaft collar	PA FG	差 10
Art Nr. Pos 6	Material	
BV799108016A2   M8x16 DIN7991 A2	Stainless steel	ڴ 100

Art Nr. Pos 4	Material	
041506000001   Ø154,5 Bore Square 40	POM	蒼1
Art Nr. Pos 5	Material	
040706000018   Split shaft collar	PA FG	差 10
Art Nr. Pos 6	Material	
BV799108016A2   M8x16 DIN7991 A2	Stainless steel	差 100

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

382

🛱 1 piece, incl. fasteners oxidable, PA6, PP; incl. bearings 2205 2RS

**EMBS TRANSFER MODULE SINGLE** 









easy ...conveyors

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

B =

# **Dimensions - Abmessungen - Dimensions - Dimensiones**

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 SINGLI
Material	Stainless steel, Edelstahl, Acier ino

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 inoxidabl,	, РВТ, РОМ

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



# 1 Transfer module single; general 2 Transfer module single

# E; GENERAL

🛱 1 incl. fastners

# oxydable, Acero inoxidable







easy ....conveyors

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

B =

# **Dimensions - Abmessungen - Dimensions - Dimensiones**

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** Aut Nu Dan 4

Material	Stainless steel, Edelstahl, Acier ino
EMBP041501050000	EMBS TRANSFER MODULE DOUBL
AIL NI. FUS I	

Material	Stainless steel, Edelstahl, Acier inoxydable, A	Acero inoxidable, PBT, POM
EMBP041501050510	EMBS TRANSFER MODULE DOUBLE; 510	🛱 1 incl. fastners
EMBP041501050425	EMBS TRANSFER MODULE DOUBLE; 425	🛱 1 incl. fastners
EMBP041501050340	EMBS TRANSFER MODULE DOUBLE; 340	🛱 1 incl. fastners
EMBP041501050255	EMBS TRANSFER MODULE DOUBLE; 255	🛱 1 incl. fastners
Art Nr. Pos 2		

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

1 Transfer module double; general 2 Transfer module double

🛱 1 incl. fastners

# oxydable, Acero inoxidable





# Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	FW =				
1) EMBS041406010255	260 mm	10,23" inch	Hor. Curve 255 30°	R=540	۳1
1) EMBS041406010340	344 mm	13,54″ inch	Hor. Curve 340 30°	R=750	邕1
1) EMBS041406010425	429 mm	16,80" inch	Hor. Curve 425 30°	R=900	曽1
1) EMBS041406010510	513 mm	20.19" inch	Hor. Curve 510 30°	R=1100	曽1
2) EMBS041406020255	260 mm	10,23" inch	Hor. Curve 255 45°	R=540	۳1
2) EMBS041406020340	344 mm	13,54″ inch	Hor. Curve 340 45°	R=750	۵1
2) EMBS041406020425	429 mm	16,80" inch	Hor. Curve 425 45°	R=900	۳1
2) EMBS041406020510	513 mm	20.19" inch	Hor. Curve 510 45°	R=1100	<b>Ĕ</b> 1
3) EMBS041406030255	260 mm	10,23" inch	Hor. Curve 255 60°	R=540	首1
3) EMBS041406030340	344 mm	13,54″ inch	Hor. Curve 340 60°	R=750	۳1
3) EMBS041406030425	429 mm	16,80" inch	Hor. Curve 425 60°	R=900	۳1
<b>3)</b> 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	耆1
4) EMBS041406040340	344 mm	13,54″ inch	Hor. Curve 340 90°	R=750	۳1
4) EMBS041406040425	429 mm	16,80″ inch	Hor. Curve 425 90°	R=900	<b>Ě</b> 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	曽1
5) EMBS041406050340	344 mm	13,54″ inch	Hor. Curve 340 180°	R=750	首1
Material	AL				

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







easy ...conveyors

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

# Dimensions - Abmessungen - Dimensions - Dimensiones

ALUMINIUM	FW =				
1) EMBS041407010255	260 mm	10,23" inch	Vertical Curve 255 5°	R=500	邕1
1) EMBS041407010340	344 mm	13,54″ inch	Vertical Curve 340 5°	R=500	邕1
1) EMBS041407010425	429 mm	16,80" inch	Vertical Curve 425 5°	R=500	邕1
1) EMBS041407010510	513 mm	20.19" inch	Vertical Curve 510 5°	R=500	嘗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	۵1
2) EMBS041407020425	429 mm	16,80" inch	Vertical Curve 425 10°	R=500	邕1
2) EMBS041407020510	513 mm	20.19" inch	Vertical Curve 510 10°	R=500	邕1
3) EMBS041407030255	260 mm	10,23" inch	Vertical Curve 255 15°	R=500	۳1
3) EMBS041407030340	344 mm	13,54" inch	Vertical Curve 340 15°	R=500	۳1
3) EMBS041407030425	429 mm	16,80" inch	Vertical Curve 425 15°	R=500	۵1
<b>3)</b> 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	営1
4) EMBS041407040340	344 mm	13,54″ inch	Vertical Curve 340 30°	R=500	۳1
4) EMBS041407040425	429 mm	16,80" inch	Vertical Curve 425 30°	R=500	۳1
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	۳1
5) EMBS041407050340	344 mm	13,54" inch	Vertical Curve 340 45°	R=500	۳1
5) EMBS041407050425	429 mm	16,80" inch	Vertical Curve 425 45°	R=500	۳1
5) EMBS041407050510	513 mm	20.19" inch	Vertical Curve 510 45°	R=500	當1

Material

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

AL





ES

S





# L SUPPORT LEGS ALUMINIUM





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

<b>Dimensions</b> -	Abmessungen -	<b>Dimensions</b>	<ul> <li>Dimensiones</li> </ul>

# 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, Toujour 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
Art Nr. Pos 2	Material
020102070008   Profile 40x80L, L= 6070 mm	AL
Art Nr. Pos 3	Material
020102070009   Profile 80x80L, L= 6070 mm	AL
Art Nr. Pos 4	Material
ETS040808040000   Support base	AL RAL9005
Art Nr. Pos 5	Material
020102160001   Bracket 80x80	AL

Art Nr. Pos 6	Material
020102140000   CAP 40x80	PA FG

Others on request, Andere auf Anfrage, Autres sur demand

	SPARE PARTS
-(1)	<b>easy</b> conveyors
-(3)	
-(4)	
	<ol> <li>L support bracket</li> <li>Profile 40x80 L</li> <li>Profile 80x80 L</li> <li>Support base</li> <li>Bracket 80</li> <li>Cap 40x80</li> </ol>
🛱 1 set of 2	pieces, incl. fasteners
	<b>1</b>
	<u>े</u> जिल्हों 1
	ا نیا
	邕1
Ť	1 piece, incl. fasteners
	<b>10</b>
le, Otros sobre consulta	

**12 SUPPORT LEGS ALUMINIUM** 





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

# Dimensions - Abmessungen - Dimensions - Dimensiones

FW =		
SW Min =	156 mm	6,14″ inch
H Max =	1200 mm	47,25" inch
Always fasten to the floo	r, Immer am E	3oden befestigen
Siempre sujete al suelo,	Toujour attac	her 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
Art Nr. Pos 2 + 3	Material
020102070008   Profile 40x80L, L= 6070 mm	AL
Art Nr. Pos 4	Material
020102150000   Foot plate 40x80L	AL
Art Nr. Pos 5	Material
040707020003   Hinged feet Ø80	Screw jack:
Art Nr. Pos 6	Material
BV093412000A2   Hexagon nut	Stainless ste
Art Nr. Pos 7	Material
020102160001   Bracket 80	AL
Art Nr. Pos 8	Material
0201021/0000   Cap /0v80	PA FG



Dimensions - Abmessungen	- Dimensions - Dimensiones

<b>FW</b> =		
SW Min =	232 mm	9,13″ inch
H Max =	1200 mm	47,25″ inch
Always fasten to the f	floor, Immer am E	3oden befestigen
Siempre sujete al sue	lo, Toujour attacl	her à l'étage

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





Art Nr. Pos 6	Material
040707020003   Hinged feet Ø80	PA FG + stai
	PA Acier inc

Art Nr. Pos 7	Material
BV093412000A2   Hexagon nut	Stainless ste
Art Nr. Pos 8	Material
020102160001   Bracket 80	AL

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



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

# LEG SUPPORT EBS, EMBS, ETS AND EMCS IN HEIGHT ADJUSTABLE



www.easy-conveyors.com

# LEG SUPPORT EBS, EMBS, ETS AND EMCS

In Height adjustable







CONFIGURATION



easy ....conveyors

8

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

# **TECHNICAL DATA**

General technical data	
Max. load capacity	200 kg
Min. Adjustable Height	±325 mm
Max. Adjustable Height	±2500 mm
Number of cross members	Type 01 & 02 – 1 piece
	Type 03 & 04 – 2 pieces
	Type 05 – 3 pieces
Side Profile	
Suitable side profile material	Aluminium

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



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

Type selectio	n				
			<b>Conveyor System</b>	I	
	EBS 40	EBS 80	ETS	EMBS	EMCS
Туре		Adj	justable Height [m	m]*	
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	
	222	

# 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 reques	t				

**4** Height

01 02 03 04 05



# **ORDER EXAMPLE**

Example for a reference number: GSS – ETS – 140 – 03

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

# Note:



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

**EMBS SIDE PROFILE; FIXED** 









easy ...conveyors

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

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





Art Nr. Pos 1	Material
ETS040809010000   Side guiding short	PA FG
· · · · ·	
Art Nr. Pos 2	Material
ETS040809020000   Side guiding long	PA FG
Art Nr. Pos 3	Material
FTS04080900000   Side quide profile Al	AI
Art Nr. Pos 4	Material
Art Nr. Pos 4 ECP040103000000   Side quiding cover	Material PE
Art Nr. Pos 4 ECP040103000000   Side guiding cover	Material PE
Art Nr. Pos 4 ECP040103000000   Side guiding cover	Material PE
Art Nr. Pos 4 ECP040103000000   Side guiding cover Art Nr. Pos 5	Material PE Material
Art Nr. Pos 4 ECP040103000000   Side guiding cover Art Nr. Pos 5 ETS040809050000   Guide end 40	Material PE Material PA FG
Art Nr. Pos 4 ECP040103000000   Side guiding cover Art Nr. Pos 5 ETS040809050000   Guide end 40	Material PE Material PA FG
Art Nr. Pos 4 ECP040103000000   Side guiding cover Art Nr. Pos 5 ETS040809050000   Guide end 40 Art Nr. Pos 6	Material PE Material PA FG
Art Nr. Pos 4           ECP040103000000   Side guiding cover           Art Nr. Pos 5           ETS040809050000   Guide end 40           Art Nr. Pos 6	Material PE Material PA FG Material
Art Nr. Pos 4           ECP040103000000   Side guiding cover           Art Nr. Pos 5           ETS040809050000   Guide end 40           Art Nr. Pos 6           ETS040809040000   Guide spacer	Material PE Material PA FG Material PA FG
Art Nr. Pos 4           ECP040103000000   Side guiding cover           Art Nr. Pos 5           ETS040809050000   Guide end 40           Art Nr. Pos 6           ETS040809040000   Guide spacer	Material PE Material PA FG Material PA FG

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



🛱 1 piece, incl. fasteners

🛱 1 piece, incl. fasteners

🛎 1 piece; L=5.6mtr

🗯 1 piece; l=3mtr

🖄 1 set of pieces, incl. fasteners

🛎 10

OF DEPARTMENTS

12

VERSENALS.







easy .... CONVEYORS

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

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





Material

ETS040809030000   Side guide	PA FG + stain
	PA Acier inox
Art Nr. Pos 2	Material
ERA040409010000   Side guide	AL + steel ga

Art Nr. Pos 1

Art Nr. Pos 3	Material
ETS040809000000   Side guiding profile	AL
Art Nr. Pos 4	Material
ECP040103000000   Side guide cover	PE

Art Nr. Pos 5	Material
ETS040809050000   Guide end 40	PA FG

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

404



nless steel, PA + edelstahl 🛛 🖄 1 piece, incl. fasteners xyable, PA + acevo inoxidable

lvanised, AL + stahl verzinkt 🖄 1 piece, incl. fasteners AL + Acier galvanisé, AL + Acero galvanizado

🛱 1 piece; L=5.6mtr

🛎 1 piece; l=3mtr

😤 1 set of pieces, incl. fasteners



# 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

- 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 wheel. Another advantage is that it is possible to accommodate any belt contraction/expansion.
- be used in a reversing operation. However, it cannot handle the same heavy loads!
- due to the permissible belt tensile force.
- Belt width from > 340 must have an additional support profile for section loads >10kg/m
- the strength of the cleats.
- Accumulation operation is not possible with static friction belt or cleated belt.
- 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.
- 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
- 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 is an option, you can take this to consideration.

# **CONVEYOR CONSTRUCTION**



 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,

be placed after the drive unit. This ensures continuous positive engagement from the sprockets on the drive

Using a center drive is similar to the conveyor system with the "sag" modules. The only exception is that it can

There is a limit on the maximum weight of the transported product and the maximum length of the conveyors

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

Pay attention that the slide rails and section profiles are clean when assembling the system. Metal shavings or

 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

When placing or removing links it's critical that the sequence of tabs will be followed. So make sure that tabs

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



# **Convevor 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°

Туре	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

Туре				
	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):



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





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.

- 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						
ТСР	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:  $10^5 \Omega/sq$  (According to IEC60093) test method) Volume resistivity:  $10^3 \Omega m$ 

# 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 stand 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:**



Inclines:



mended.



 $tan(\alpha) > friction coefficient between chain and wearstrips Soft start/$ 

 $tan(\alpha)$  < friction coefficient between chain and wearstrips Soft start/

Dynamic tensioner is in both cases recommended.

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



# 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
- Colorants

- Blockers

- Steel/ aluminum

- Other additives

- Design/ settings of machine

- Material thickness

- Design

# 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

- Painted or varnished
- Surface finish of bottle

- New or returnable

- Design

- Raw material; origin





# **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.







# **GENERAL CALCULATION**



**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/s<sup>2</sup>]

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  $\mathbf{a}_{max}$  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/s<sup>2</sup>

# 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<sub>ree</sub> = 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 ß is larger than angle  $\alpha$ . Angle  $\alpha$  is determined by the diameter of the foot print of the product (B= ½ \* diameter) and the height of the centre point of gravity (=A). Angle ß 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:

$$\frac{F_{max}}{G} = \frac{B}{A} \rightarrow F_{max} = G * \frac{B}{A} \quad \text{or} \quad \mu > 0$$

MSV= maximum speed variation

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

# **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

 $\mathbf{r}=\mathbf{centre}\ \mathbf{radius}\ \mathbf{of}\ \mathbf{the}\ \mathbf{curve}$ 

Friction force between chain and product is calculated with:

F<sub>a</sub> = M∗g∗µ

g = gravitational acceleration

 $\mu$  = coefficient of friction between chain and product.







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

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

# Pressure of accumulating products:

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

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

Fa = accumulation force
Wa = weight of the accumulating products in Kg/m.
La = length of accumulation in m
μ = coefficient of friction between chain and product.

# Side transfer action:



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

$$F = F_s * sin(\alpha) = W_s * L_s * \mu * sin(\alpha)$$

(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  $\alpha$  plays an important role in a smooth transfer and reduced forces on the products. This angle should be kept a small as possible.

# Shaft size:

- The shaft must fulfill the following conditions:
- max shaft deflection under full load (Fw). fmax is 2.5 mm. select a bigger shaft size.
- Torque at max load must be below critical value

Shaft deflection can be calculated with following formula:







For uni-directional head drive Fw = Ts For bi-directional centre drive Fw = 2 \* Ts For uni-directional pusher drives Fw = 2.2 \* Ts

Shaft size [mm]	Inertia [mm4
Ø20	7850
Ø25	19170

Shaft material	Modulus of elasticity E	Shearing strenght	
	[N/mm2]	[N/mm2]	
Stainless steel (low strength)	195000	60	



# • max shaft deflection under full load (Fw). fmax is 2.5 mm. If the calculated shaft deflection exceeds this max value,





The torque on the shaft is calculated with:

$$T_{max} = F_w * \frac{d_p}{2} * 10^{-3} [Nm]$$
  
 $T_{adm} = \eta_{adm} * \frac{d_w^3}{5000} [Nm]$ 

T\_\_\_\_ = maximum torque T\_\_\_\_ = admissible torque

 $\eta_{\mathsf{adm}} = \mathsf{admissible} \mathsf{shearing} \mathsf{strength} [\mathsf{N}/\mathsf{mm}^2]$ 

for max. admissible shearing strength see table below:

Maximum allowable torque	
Stainless steel [Nm]	
141	
276	
	Maximum allowable torque Stainless steel [Nm] 141 276

# **Bearings:**

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

Use conditions	Temperature	<b>Re-lubrification period</b>
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

- priate 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.

**MATERIALS** 



• Materials of our plastic chains and belts offer best stability and resistance against environmental effects at appro-

• Do not stack chain packs higher than the original stacking height – as dispatched from our shipping department.

EMBS SYSTEM



# **Coefficients offriction**

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 ( $\mu_{T}$ )											
	Dry/normal	Rough	Dirty	Water	Water & Soap	Oil					
Straight sections <b>TCP</b>	0,2	0,4	0,5	0,16	0,10	0,10					
Straight sections <b>TCS</b>	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 ( $\mu_{sT}$ ):

Lubrication	Product material											
	Paper	Metal	Aluminum	Plastics	Glass	New glass,						
Dry	carton	(steel)		incl, PET	(return)	ceramics						
	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						





1.11.11

0.05

# **Chemical resistance**

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

Chemical agent	- Correct	METALS						PLASTICS								AUDORRS										
	CS	RA	ARS C.S.	304	C-%	316	0%	M	05	344	03	1	03	-	05	A-121	0%	1	63	OM	C 16		65	55	O S	CN I
Second Second	Lor		1-		Long		_				L un		Line		Trail.		1.0		T- fee	-			Law		-	1.16
Acetic Acid	0		20		100	-9		0	5	•	10	1	40	1	10		10	1	25			•	25	0	70	•
Notione			20					9.		.0		0	-	12	100	1		19.		1.7		÷	-		-	
Actybratile	-	-	-	-								-	-	-	100	. 4		-	-	1		•	-		1.00	1.
Aumenum chioride	-	-	-	0	70	.0							-	0	12		-		-			4	-	-	30	12
Aumenum suprate	-	-	-	-	SN			-			-	-	-		14		-	9	-			2	-		NG	10
Artişi silocihdi	-	1.00	1.00	1		19						3	-	1	10			1					-		-	1.0
Armania	-	- 11	100		-	- 4		٠		. 0		0	80	1.3	11	. 18	-	. 10	-	. 0		0	-	0		0
Arrmonium chioride	-	100	-	0		. 4		_		_		_	10	. 3	10	. 1			-	. 19		. 1	-	. 6	SA.	. 0
Anline	-	W		1	-	- 18							-	1	100	0	3	1		•		•	-	٠	-	13
Barium unionite	-			0	SA.	- 1							-	. 4	10		-	-		1			-	14	L	. 1
Elenr.		1		19		18		9		. 19		_		-9	1	. 1		18		0.		9	-	-9.	-	. 9
Dergene	-	-4	70	0	1			_		14		٠		- 14	1			0	-	٠				٠	-	
Sentoic acid			100	. 4	SA.	19							SA	1.0	88	0				٠		4		٠	L	4
Bentol				- 10		10		1		-14		. 9		0	100	1		0		٠		٠		٠		0
Bonic acid		0	SA	.4		- 4					10	. 4	SA	- 4	10	1	SA	4		- 1		4			SA	4
Brine	10	٠	1.00	0		- 4						. 1	1.11	0		0	1.000	9		- 0				0		
Butter				- 16		. 18		. 17		÷.		18		- 4		. 19		. 11		1		1		0		1.18
Butyl acotate						10						0		C:	100	. 10				0				0		٠
Butyl alcohol				- 14-										- 14	100					: 4		0		4		. 17
Bulyi glacole						18								-14	100	18				÷.				18		
Galcium officiale		٠		0		4		4				6	60	-14	11	-14	8A.	4		-9				4	SA.	4
Carbon sulpitide		100								-14				- 16	100		100					٠			1	4
Cadson tetrachloride			10					4		- 16					1	h						٠				1
Chlorine water		٠				0						٠						٠	3	0			3	0		
Chibroform		0	10	10		1.08		+						0	100							٠	1			-11
Cheantic aciti		-	25		50	0						0			1	0			50	0			50		30	1.7
Citic acid	10	- 11	-	-	BA.	1				0	10	-	10	1	12	0		1	-	14		-	-	-8	DA.	14
Cutiohexane	1				1.1.1	14		1			-		12		100										-	1
Customatel	-			-		14		-				1.6		1.0	100			-				4		0		
Decelo		-		-		14								0	1.000			-							1	1
Distante	-	-	-	-				-					-	0	1		-	-		0					-	
Distance in the second	-	100	122			-		1		1		1	-			-	-	12				-	-	-	-	
Ditul anatita	-	-	1.00	6		-							-	1	100	-		-		-				-	-	-
Elfert alcohol	-	-				-		-		4		~	40.	1	- 64	1		-		-					-	1
Ediyi albandi Ediyi albanda	-	-	-	12		-		~		-				1	100	1		0				~	-		-	12
Edital attac	-	-	-			1.6		~					-		100	1	-	~					-		-	1
E a fer manne	-	-		120		1.0					- 10	12	-	12	100	1.	-	-	-	1.2		-	-	-	144	1.1
Frence University	-	1.2		~	-	1	-	-			10	-	-		1.10	1	-	12		2		4	-	-	00	16
FOOD TARK	-	-	100	1.0	-	- 1		-					-	1		4	-	9		0		-	-		-	1
Food data	-							-				-		9	1			9				9	-	-	-	
Formaldunyse		2	-	1.2				-				12	42		30			9				0	-	0	-10	
Formic acid	3	0	-		100	18		π.	10	•	-	0	-		19	•	10	•	-			•	-		-	0
Freak 12	-		-	1	-			_					-				-		-			3	-		ļ	- 18
Freich weter	-	.4				1		_		. 19		12.	-		-	.9	-	14		. 19						. 9
Fruit juke		.0		0		.0		-				. 3		4	-	.0		1	-	9				4	-	4
Osective		٨		4		- 5		0	-	11		0		0	1	. 4		0		•		0		•	-	4
Glycenine	-	1		4		1		1		4		1		4	-			A.		. 9				1	1	1
Hydroclonic acid		٠		٠		٠		φ.	35	٠	20	9	30	. 19	-	٠	35	-	12			0	15		31	à
Hydrofluoric acid	-			٠	1	٠				_		_	40	.4	1	٠	70	4				٠		_	43	1
Hydrogen perceide	3	.4		4	100	10								1		٠			30	0		٠	30	٠	-80	4
isopropyl alcohel					1	4						4	1.00	4	1	. 4		1.11		1				4		14
Lactic and		0				.4		٠		. 19	10	. 19	20	- 14				ŵ		0		4		0		1
Lineaciol					1.0					4	1		1							0			1			1.00

METALS			PLASTICS				1 20 20000				RUSSERS											
Chemical agent	C.S.	RA	5.%	304	C N	3.06	CA CA	C S	c	5	CS	6.5	-	CN	0.5	ON.	0.%		C 5		C %	CN
the second second	-	-	-	-			1 .		T	T'A	1 1 .		1.4		1		-	-		-	Les.	-
Magnesium chicece	-	-	-	-		7		+ +	+			-	17			-	-	-		-	- 200	
NAMES INCOME.	-	-	60	~		-			-	~		-	12			-	-			-		-
Material access	-	- 0	00	-		17			-	-	1	-	1.4	-		-	-					
seenalere caonde	-					1			-	1.	1	-	1.2	0		-	-			-	-	0
hillin,	-			1		2		++	-			-	1.2	1 2		-		-				-
Minersi di						- 12			-			-	1	1 1		•	4.00			•	-	
Nex ext	29	0	50	9	-	-			-	1.2	1	-		0		1	10			100	70	-
Nerobercome	-				-	1	-		+	.4	1	<u>۲</u>	0.	-		•	-	•		0	-	0
Cleic add	-	0		31		1			-		1	r.		0		•	-	0		•		0
Coalin antil	-	-	60	4		. 1			1	3 4	1	•	0	1		0		.0		0		3
Paraffin	-			_		1		1	1	1		-		. 1		0	-			٠		_
Petroleum		_		14		1	. 4	1.1.1	2	. 9	V	1	1	•		٠		1		٠		. 19
Polisieum after				14		- 6	18	1.0		0	1	,	1.0			٠	1	٠		٠		
Phonol				1		. 9	_		-	•	1	,	٠			0	-	٠		0	_	3
Phosphorie seid	- 25	0		•		- 4	•		•	•	1	•	٠	- 4		4	20	0			85	
Potassium bichromats		1			58	. 1				0	1	٩	0			*	1	0		0	SA.	÷
Potassium bromite						- 5				. 0	1	1	1			. 9		. 19		16	1.11	. 9
Potassium hydroxide		.9	50	196		- 19		179	•	٠	1	Y	19	- 3		. 1		0		Ψ.		:19
Potaesium permangenate				$A_{i}$						1.14	2	Ý.	٠		10	11		٠	.10	0		
Sea water		٠		4				0	3	-10	1			4				18		0		
Silicone oil						. 6			T	- +	1	1	.3			*		18		*		
Silver nitrate				0						1.11	1	1	- 5					0		100		
Sodium carbonate		- 7	100		BA	- 5		1	1 1	2 . 4	1	•				×						
Sisdeum citidoride		0		0		- 11	· A.	1 17					1.5	1 4		4		4			84	
Sodium hydroxida	40	4			-00	-5			10				. 4					0		4		
Edum hypechlority					EA	0			. 1	0 0		1	1	1.14	10	4			60	0	5	
Sodium ellicate			530	4		- 6			1	1.0			4			4				4		. 11
Sodium subhate			100	- 6		-5			-	-		-	4			0		16		4		
Boft drivke			1.00	14		- 6				- 1		1	1	1 14								
Sub						- 4			1	0.0		¥-	4	1				- 18				
Subhurc acid						0	4							0	50				50	0	25	
Tortagic acki	-	4	60	-		A			1 1	1 1			1.4	1		0	-	- 6	-	4	-	
Tetrahutvillean	-	-				-		1 12	17				12									
Tekalin						4			+	4			4									-
Techra of inflor				0		-			-	1.4				1		0	-			0		-
Tabad		1.4		~		1.2			-	1.46			12				-	-				
Topolo al	-	1.1		-		-			+		1		1			-	-			-		
The lock of the lock	-	- 4		-	100	-		+ +-	+	1.		-	1			-	-	-		-		-
Turnovetnijeme	-			•	100				+			-				-	-			-		-
Thebanolaren	-					2		+ + -	+		1	'	- 1			0		•		0		•
Tupertine		. 7						1	-			-	-			•	-	-		•		-
Vaceline	-	1.0				2			-		-			0		•	-	1		•		
vegetable juce						2			-	14	7		1.0	1			-					
Vegetable oils		1		4		4		1 1	-		1	*	14	1 1	100	0		. 2		0		
Vinegar		1		4	100	.1	.9	1 1	1 1	8 4	1	2	. 4	11	26	4		0	25	0		٠
Water and scop		4		4		1		1		4		1	1	1		. 4		.1		4		. 9
Whaty		. 11		4		. 1	11	1 1	1	1	1	1	1			1		1		4		. 9
V/Vite er/V/		1				-	1.7		-	- 1	1	1	- 1	0				.18		9		
3666		. 6		10			0	1.0	•	1.9		•	1.16	N				٠		٠		

# ABBREVIATION

C = concentration SA - saturated

# **EMBS CONVEYORS**



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

 <sup>=</sup> good resistance
 = insufficient resistance ( not recommended)



# 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,q, from construction work

# **Conveyor components:**

Material guality

- Wear strips

- Sprockets

- Return rollers

- Shaft alignment

belt for the application

• Mounting of wear strips

- Flatness

- Chamfers

- Raised portions

parts/components

- Maintenance

Cleaninginstructions

Cleaning is necessary to:

- minimize dirt and debris built up

- keep bacteriological situation

- elongate service life of chains/

chain/belt for optimum product

- prevent crashes due to f,e, glass

- prevent malfunction due to

- ensure smooth running of

- Overhaul

under control

belts

stability

debris

sticky residues

- keep friction low

- Expansion compensation gaps

**Changed/modified conditions:** 

· Modification of conveyor or its

- Idlers

Dimensional accuracy of

Construction

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

Frequency:

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,

In a can line where aluminum cans are filled, there's the aluminum oxide that has to be kept under control, This can occur oxide on the chain causing a 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,

# Drv 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

- **Conveyor construction:**  Choice of chain/belt · Suitability of selected chain/
  - - Also chemicals coming f,e, from a pasteurizer may ask for more frequent cleaning to prevent the chemicals from affecting the chain/belt materials,

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 highly abrasive sludge to built up on the inliner, Therefore it may be necessary to clean more frequent

# EMBS CONVEYORS



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,

# Installationprocedure

- 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

# **Replacement criteria**

shooting guide,

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, calcula

Lengths, segments, curves, slopes (sketch)

Determine conveyed material data: Dimensions, mass, friction figures, antistatic environment

# Production-specific data:

Determine conveyor parameters:Speed, conveyed materia number of start-up operations/h, accumulation section

# Detailed system layout planning:

Accumulation sections, product interchange points

www.easy-conveyor.com

Examples 1-2, PAGE 434-441

F <fnermissible< td=""><td>(page 3</td><td>90 &amp;</td><td>394):</td></fnermissible<>	(page 3	90 &	394):

F<<Fpermissible (oversized) ►

▼





ate the available space.
•
needed?
al spacing and cycle,
YES >
•
≥ F



# 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 $(q_{\kappa})$		Actual leng	ht (L <sub>K</sub> )	Straight lenght (Ls)
(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 Li		

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	
EMBS HORIZONTAL CURVE 425; 45° R900	
EMBS HORIZONTAL CURVE 425; 60° R900	
EMBS HORIZONTAL CURVE 425; 90° R900	_
	_

EMBS HORIZONTAL CURVE 510; 30° R1100	
EMBS HORIZONTAL CURVE 510; 45° R1100	
EMBS HORIZONTAL CURVE 510; 60° R1100	
EMBS HORIZONTAL CURVE 510; 90° R1100	

# Belt length Vert. Curves (mm) Degrees (ß)

(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<sub>R</sub>)

0° (Straight sections)

Curve angle (	vertical)	
5°	1,03	
10°	1,05	
15°	1,05	
30°	1,10	
45°	1,20	

<b>SLIDE Curve</b>	SLIDE Curve angle (horizontal)				
30°	1,2				
45°	1,3				
60°	1,4				
90°	1,6				
180°	2,2				



2165,00	
2747,51	
3330,01	
4495,02	
2418,95	
3128,43	
3837,91	
5256,86	

1,0



Application factor C <sub>1</sub>					
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 <sub>3</sub> Breakawa	ay torque	
Temperature °C	Breaking force factor	
0,09 kW	2,1	
0,12 kW	2.4	
0,18 kW	1,8	
0,25 kW	1,8	
0,37 kW	1,8	
0,55 kW	2,1	
0,75 kW	2,2	
1,1 kW	2,0	

Frequency controller 1,5

# MOTOR SELECTION

For all calculations

 $\mathbf{q}_{Fi} = \mathbf{M}_i * \mathbf{g}$ 

Li

EMBS Straight  $\mathbf{F}_{i} = [F_{i \cdot 0} + L_{i} * (Q_{K} + Q_{Fi}) * \mu_{T} + (L_{K} - L_{i}) * qK * \mu_{T}] * \mu_{R}$ 



# **EMBS** Incline/Decline

 $F_i = [F_{i-0} + L_i * (Q_K + Q_{F_i}) * (\mu_T * cosB + sinB) +$  $(L_{K} - L_{i}) * qK * (\mu_{T} * cosB - sinB) \mu_{T} \} ] * \mu_{R}$ 



# **EMBS Accumulation** (is not possible when using a friction or a cleated belt) $\textbf{F}_{i} = [ F_{i \cdot 0} + L_{i} * \{ ( Q_{K} + Q_{F_{i}} ) * \mu_{T} + Q_{F_{i}} * \mu_{ST} \} + ( L_{K} - L_{i} ) * Q_{K} * \mu_{T} ] * \mu_{R}$



# LIST OF APPLIED ABBREVIATIONS

F	= Chain Tensile force (at the drive pulley) (N)
F <sub>perm.</sub>	=Permissible load capacity
Fi	= Chain tensile force of individual segments (N)
g	= 9,81 (m/s <sup>2</sup> )
μ <sub>R</sub>	= Friction forces occur in curves
μ <sub>st</sub>	= Friction coefficient Product/Chain
µ⊤	= Friction coefficient Chain/Slide rail
L	= Conveyor section length (mtr)
Li	= Segment length (mtr)
Lĸ	Actual chain length (mtr)
Ls	= Chain length straight (mtr)
q <sub>Fi</sub>	Section load of conveyed material
	on segment Li (N/mtr)
qκ	Weight of the belt (N/mtr)
ß	= Angle for Incline or Decline (°)





Мн	=Run-up Torque (Nm)
Mi	Total product mass (Kg)
МN	=Nominal Torque (Nm)
Мт	= Motor Torque (Nm)
V	=Belt speed (mtr/min)
4 <sub>z</sub>	=Amount of Accumulation
В	=Service Factor
PA	=Mechanical Drive Power (kW)
Рм	=Motor Power (kW)
RH	=Running hours / day
S∟	=Shock Load
Ss	= Start/Stops /hr
JL	=Uniform Load
V.	=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 ${f q}_\kappa$	: 29,35 N/m (8.8*0.340*9.81 )
Slide rail	: TCP
State of contact surfaces µst	: Dry
State of contact surfaces µ⊤	: 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 Li = Segment length (mtr)

L <sub>i</sub> = Segment length (mtr)	: 0,34
$L_{K}$ = Actual chain length (mtr)	: 0,777
$\mu_{\text{R}}$ = Friction forces occur in curves	: 1,0
$\mu_{\text{T}}$ = Friction coefficient Chain/Slide rail	: 0,3
	. 0,0

$\mathbf{q}_{\mathbf{F}i} = \mathbf{M}_i * \mathbf{g}$	<b>Q</b> <sub>Fi</sub> = <u>0</u> * 9,81
Li	0,34

# **EMBS Section 1**

F1	$= \; [\; F_{i\text{-}0} + \{\; L_i ^* (\; Q_K + Q_{Fi} \;) ^* \mu_T \} + \{\; (\; L_K - L_i \;) ^*  Q_K ^* \mu_T \} \;] ^*$
F1	= [ 0,0 + { 0,34 * ( 29,35 + 0 ) * 0,3 } + { ( 0,777 - 0,34 ) * 29
F1	= [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 <sub>i</sub> = Segment length	(mtr)	: 2,18 ((Curve 3
$L_{\kappa}$ = Actual chain length	gth (mtr)	: 4,36 ((Curve 3
$\mu_{R}$ = Friction forces of	ccur in curves	: 1,60 (Slide cu
$\mu_{T}$ = Friction coefficie	nt Chain/Slide rail	: 0,3
M <sub>i</sub> = Total product ma	ss (Kg)	: 20 Kg
<b>0</b> – M * a	<b>n</b> – 20 * (	0.01
$\mathbf{q}_{FI} = \frac{\mathbf{v}_{II}}{\mathbf{L}_{i}}$	$\mathbf{q}_{\rm FI} = \frac{20}{2,18}$	

# EMBS Section 2

$$\begin{split} \textbf{F}_2 &= [\ F_{i\cdot 0} + \{\ L_i * (\ Q_K + Q_{F_i}) * \ \mu_T \} + \{(\ L_K - L_i) * \ Q_K * \ \mu_T \}] * \ \mu_R \\ \textbf{F}_2 &= [\ 6,84 + \{\ 2,18 * (\ 29,35 + 90) * \ 0,2 \} + \{(\ 4,36 - 2,18) * \ 29,35 * \ 0,2 \}] * \ 1,60 \\ \textbf{F}_2 &= [\ 6,84 + \{\ 2,18 * \ 23,87 \} + \ 12,80 ] * \ 1,60 \\ \textbf{F}_2 &= [\ 6,84 + \ 52,04 + \ 12,80 ] * \ 1,60 \end{split}$$

 $\begin{array}{ll} F_2 &\approx 114,70 \ N \\ (Max. \ 2500N \ in \ a \ curve \ section!) \end{array}$ 

# **CONVEYOR LAYOUT**



μ<sub>R</sub> 29,35 \* 0,3 } ] \* 1,0

340-90° | 1 side) + 1 \* 0.5mtr) 340-90° | 2 side) + 2 \* 0.5mtr) arve 90°)

 $Q_{Fi} = 90 \text{ N/m}$ 



EMBS SECTION 3	
L <sub>i</sub> = 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)
$\mu_{R}$ = Friction forces occur in curves	: 1,10 (Vert. slide curve 30°)
$\mu_T$ = Friction coefficient Chain/Slide rail	: 0,2
M <sub>i</sub> = Total product mass (Kg)	: 20 Kg

$\mathbf{q}_{\mathbf{Fi}} = \mathbf{M}_{\mathbf{i}} * \mathbf{g}$	$\mathbf{q}_{Fi} = 20 * 9,81$
Li	1,77

# **EMBS Section 3**

- $\textbf{F}_{3} = [F_{i \cdot 2} + \{L_{i} * (Q_{K} + Q_{Fi}) * (\mu_{T} * \cos\beta + \sin\beta)\} + \{(L_{K} L_{i}) * Q_{K} * (\mu_{T} * \cos\beta \sin\beta)\}] * \mu_{R}$
- $\mathbf{F}_{3} = [110,85 + \{1,77 * (29,35 + 110,85) * (0,2 * 0,866 + 0,5)\} + \{(3,55 1,77) * 29,35 * (0,2 * 0,866 0,5)\}] * \mu_{R}$

**Q**<sub>Fi</sub> = 110,85 N/m

 $\mathbf{F}_{3} = [110,85 + \{1,77 * 140,2 * 0,67 + \{52,24 * -0,33\}] * 1,10$ 

 $\mathbf{F}_3 = [110,85 + 166,26 - 17,24] * 1,10$ 

# $F_3 \approx 285,86 \text{ N}$

EMBS SECTION 4	
L <sub>i</sub> = Segment length (mtr)	: 1,0 (Straight section)
$L_{K}$ = Actual chain length (mtr)	: 2,0 (Straight section * 2)
$\mu_{\text{R}}$ = Friction forces occur in curves	: 1,0
$\mu_{T}$ = Friction coefficient Chain/Slide rail	: 0,2
M <sub>i</sub> = Total product mass (Kg)	: 60 Kg
$\mathbf{q}_{\mathbf{Fi}} = \mathbf{M}_{\mathbf{i}} * \mathbf{g}$ $\mathbf{q}_{\mathbf{Fi}} = 60 * \mathbf{g}$	9,81 <b>Q</b> <sub>Fi</sub> = 588,6 N/m
Accumulation	

 $Q_{Fi} = 643,28 \text{ N/m}$ 

# Li

 $\mathbf{q}_{Fi} = M_i * g$ 

 $\begin{aligned} & \textbf{F}_4 &= [\ F_{i\cdot3} + \{\ L_i\ ^*\ (\ Q_K + Q_{F_i}\ )\ ^*\ \mu_T + Q_{F_i}\ ^*\ \mu_{ST}\} + \{(\ L_K - L_i\ )\ ^*\ Q_K\ ^*\ \mu_T\}\ ]\ ^*\ \mu_R \\ & \textbf{F}_4 &= [\ 285,86 + \{\ 1,0\ ^*\ (\ 29,35\ +\ 588,6\ )\ ^*\ 0,2\ +\ 643,28\ ^*\ 0,28\} + \{(\ 2,0\ -\ 1,0\ )\ ^*\ 29,35\ ^*\ 0,2\ \}\ ]\ ^*\ 1,0 \\ & \textbf{F}_4 &= [\ 285,86\ +\ \{\ 1,0\ ^*\ 123,6\ +\ 180.12\ \}\ +\ 5,87\ ]\ ^*\ 1,0 \\ & \textbf{F}_4 &= [\ 285,86\ +\ 303,72\ +\ 5,87\ ]\ ^*\ 1,0 \end{aligned}$ 

**Q**<sub>Fi</sub> = 60 \* 9,81

0,915

 $F_4 \approx 595,45 N$ 

EMBS SECTION 5	
L <sub>i</sub> = Segment length (mtr) Li	: 0,34
$L_{K}$ = Actual chain length (mtr)	: 0,777
$\mu_{R}$ = Friction forces occur in curves	: 1,0
$\mu_T$ = Friction coefficient Chain/Slide rail	: 0,3

$\mathbf{q}_{\mathbf{Fi}} = \mathbf{M}_{i} * \mathbf{g}$	$\mathbf{Q}_{Fi} = 0 * 9,81$
Li	0,34

# EMBS Section 5

 $\textbf{F}_{5} \hspace{0.1in} = \hspace{0.1in} [ \hspace{0.1in} F_{i\cdot4} + \hspace{-0.1in} \{ \hspace{0.1in} L_i \hspace{0.1in}^{*} ( \hspace{0.1in} q_K + \hspace{-0.1in} q_{Fi} \hspace{0.1in} ) \hspace{0.1in}^{*} \mu_T \hspace{0.1in} \} \hspace{-0.1in} + \hspace{-0.1in} \{ \hspace{0.1in} ( \hspace{0.1in} L_K - \hspace{-0.1in} L_i \hspace{0.1in} ) \hspace{0.1in}^{*} \hspace{-0.1in} q_K \hspace{0.1in}^{*} \mu_T \hspace{-0.1in} \} \hspace{-0.1in} ] \hspace{-0.1in}^{*} \mu_R$ 

 ${\bf F}_5 \ = \ [\ 595,45 + \{\ 0,347\ *\ (\ 29,35 + 0\ )\ *\ 0,3\ \} + \{\ (\ 0,984 - 0,347\ )\ *\ 29,35\ *\ 0,3\ \}\ ]\ *\ 1,0$ 

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

 $\mathbf{F}_5 = [595,45 + 3,06 + 5,61] * 1,0$ 

# $F_5 ~\approx~604,12~N$

$\mathbf{F}_{max} =$	F <sub>perm.</sub> * C <sub>1</sub> * C <sub>2</sub>
$\mathbf{F}_{max} =$	10.200 * 0,83 * 1,0

**F**<sub>max</sub> ≈ **8465 N** F = 604,12 N **System is OK** 

MN	=	F	*	(d <sub>A</sub> / 2 )	
				1000	

 $\mathbf{M}_{\mathbf{N}} = \frac{604,12 * (169,7 / 2)}{1000}$ 

 $M_{N}\,\approx\,51,26~Nm$ 

# **Run-up Torque**

$\mathbf{M}_{H} = \mathbf{M}_{N} * \mathbf{C}_{3}$	<b>P</b> <sub>A</sub> =	$F_{U} * \nu$
<b>И</b> н = 51,26 * 1,5		1000

M<sub>H</sub> ≈ 76,90 Nm

436

# **CONVEYOR LAYOUT**



$$\mathbf{q}_{Fi} = 0$$

<sup>•</sup> μ<sub>R</sub> ) \* 29,35 \* 0,3 } ] \* 1,0

 $\mathbf{P}_{A} = \frac{604,12 * 0,33}{1000}$  $\mathbf{P}_{A} = 0.20 \text{ kW}$  $\mathbf{P}_{M} = \frac{P_{A}}{\eta} \text{ [kW] chose, the next larger standard motor}$ 

# **EMBS CONVEYORS**





# **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 <b>q</b> <sub>K</sub>	: 21,58 N/m (8.8*0.250*9.81 )
Slide rail	: TCS
State of contact surfaces $\mu_{sT}$	: Dry
State of contact surfaces $\mu_{T}$	: 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 <sub>i</sub> = Segment length (mtr)	: 2,5 ((Curve 25
$\mu_{R}$ = Friction forces occur in curves	: 2,2 (Slide cur
$\mu_T$ = Friction coefficient Chain/Slide rail	: 0,18

$\mathbf{q}_{\mathbf{Fi}} = \mathbf{M}_i * \mathbf{g}$	$\mathbf{q}_{Fi} = 0 * 9,81$
Li	2,5

# EMBS Section 1

 $\textbf{F_1} \hspace{.1in} = \hspace{.1in} [ \hspace{.1in} F_{i \cdot 0} \hspace{.1in} + \hspace{.1in} \{ \hspace{.1in} L_i \hspace{.1in} ^* \hspace{.1in} ( \hspace{.1in} q_K \hspace{.1in} + \hspace{.1in} q_{Fi} \hspace{.1in} ) \hspace{.1in} ^* \hspace{.1in} \mu_T \hspace{.1in} \} \hspace{.1in} ] \hspace{.1in} ^* \hspace{.1in} \mu_R$  $\mathbf{F}_{1} = [0 + \{2,5 * (21,58 + 0) * 0,18\}] * 2,2$  $\mathbf{F}_1 = [0,0 + \{0,34 * 8,805\} + 3,848] * 1,15$  $\mathbf{F}_1 = [0+9,711] * 2,2$ 

 $F_1 \approx 21,36 \text{ N}$ 

(Max. 2500N in a curve section!)

EMBS SECTION 2	
L <sub>i</sub> = Segment length (mtr)	: 1,397 (Straigh
$\mu_{\text{R}}$ = Friction forces occur in curves	: 1,0
$\mu_{\text{T}}$ = Friction coefficient Chain/Slide rates	il : 0,18
M <sub>i</sub> = Total product mass (Kg)	: 25 Kg
$\mathbf{q}_{Fi} = M_i * g$ $\mathbf{q}_{Fi} = 25 *$	9,81
	207

Li	1,397	
comulation		

$\mathbf{q}_{\mathbf{F}\mathbf{i}} = \mathbf{M}_{\mathbf{i}} * \mathbf{g}$	<b>q</b> <sub>Fi</sub> = 25 * 9,81
Li	1,397

# EMBS Section 2

 $F_{2} = [F_{i-1} + \{L_{i} * (Q_{K} + Q_{F_{i}}) * \mu_{T} + Q_{F_{i}} * \mu_{ST}\}] * \mu_{R}$  $\mathbf{F}_2 = [21,36 + \{1,397 * (21,58 + 175,6) * 0,18 + 175,6 * 0,28\}] * 1,0$  $\mathbf{F}_2 = [21,36+49,58+49,17] * 1,0$ 

 $F_2 ~\approx~ 120,11~N$ 

438



50-180° | 1 side) + 0.3mtr) rve 180°)

 $\mathbf{q}_{Fi} = 0$ 

ht section)

**Q**<sub>Fi</sub> = 175,6 N/m

**Q**<sub>Fi</sub> = 175,6 N/m

# **EMBS CONVEYORS**



# **EMBS SECTION 3**

L <sub>i</sub> = Segment length (mtr)	: 2,05 ((Curve 250-180°   1 side) - 0.153mtr)
$\mu_{\text{R}}$ = Friction forces occur in curves	: 2,2 (Slide curve 180°)
$\mu_{T}$ = Friction coefficient Chain/Slide rail	: 0,18
M <sub>i</sub> = Total product mass (Kg)	: 10 Kg

**Q**<sub>Fi</sub> = 47,85 N/m

<b>q</b> <sub>Fi</sub> =	$M_{\rm i}$	*	g		
		Li			

**Q**<sub>Fi</sub> = 10 \* 9,81 2,05

# **EMBS Section 3**

 $\textbf{F_{3}} = [F_{i-2} + \{L_{i} * (Q_{K} + Q_{Fi}) * \mu_{T}\}] * \mu_{R}$  $\mathbf{F}_3 = [120,11 + \{2,05 * (21,58 + 47,85) * 0,18\}] * 2,2$  $\mathbf{F}_3 = [120, 11 + 25, 52] * 2, 2$ 

# $F_3 \approx 320,40 \text{ N}$

(Max. 2500N in a curve section!)

# **EMBS SECTION 4** L<sub>i</sub> = Segment length (mtr) Li : 1,645 (Drive unit 1,34461mtr + 0.3mtr) $\mu_{R}$ = Friction forces occur in curves : 1,0 $\mu_T$ = Friction coefficient Chain/Slide rail : 0,6 M<sub>i</sub> = Total product mass (Kg) : 5 Kg

 $\mathbf{q}_{Fi} = \mathbf{M}_i * \mathbf{g}$ Ŀ

 $Q_{Fi} = 29,82 \text{ N/m}$ 

# **EMBS Section 4**

 $F_{4} = [F_{i-3} + \{L_{i} * (Q_{K} + Q_{Fi}) * \mu_{T}\}] * \mu_{R}$  $\mathbf{F}_4 = [320,40 + \{1,645 * (21,58 + 29,82) * 0,6\}] * 1,0$  $\mathbf{F}_4 = [320,40 + 50,73] * 1,0$ 

**Q**<sub>Fi</sub> = 5 \* 9,81

1,654

# F<sub>4</sub> ≈ 371,13 N

 $\mathbf{F}_{max} = \mathbf{F}_{perm.} * \mathbf{C}_1 * \mathbf{C}_2$  $\mathbf{F}_{max} = 7500 * 0,71 * 0,96$ 

 $F_{max} \approx 5112 N$ F = 371,13 N System is OK

# 1000 $\mathbf{M}_{N} = 371,13 * (169,7 / 2)$ 1000 $M_N \approx 31,50 \text{ Nm}$

 $M_{N} = F * (d_{A} / 2)$ 

$\mathbf{M}_{N} = \mathbf{M}_{N} * \mathbf{C}_{3}$	P <sub>A</sub> =	F <sub>∪</sub> * ν
$M_{N} = 31,50 * 1,5$		1000

 $M_{\rm H} \approx 47,24 \,\rm Nm$ 

**Run-up Torque** 

# 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)



$$\mathbf{P}_{A} = \frac{371,13 * 0,25}{1000}$$

- $P_{A} = 0.09 \text{ kW}$
- $\mathbf{P}_{\mathbf{M}} = \mathbf{P}_{A}$  [kW] chose, the next larger standard motor η



# Chain/belt jumps on sprocket

Possible causes	Remedy
Chain/belt is enlongated e.g. due to wear	Replace chain/belt and sprocket.
or overloaded	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

# Possible causes Bad shaft/sprocket alignment Conveyors is not level **Cracked hinge eyes** Possible causes Stress-corrosion caused by incompatible chemicals Chains for magnetic system releases from curve Possible causes Worn curve Improper chamfering of the infeed or other obstructions No soft start-up Curve not mounted level

Chain drifts sideways on sprockets

# **Corroded steel chain** D ....

Possible causes
Incompatible combination of chain material and
chemicals
May occur even with stainless steel

# Excessive chain/belt wear

Possible causes	
Pollution	
Failing lubrication	
Obstructions	
Debris in return part	

# Sprockets don't slide on shaft when belt extends due to temperature increase

Possible causes
Pollution
Axial fixing incorrect
Wrong bore tolerance

# **Rapid wear on sprockets**

Possible causes	
Abrasive conditions	Ir
	11



# Remedy

Adjust or use collars Adjust

# Remedy

Check chemicals compatibility with chain/belt material Use appropriate chemicals

# Remedy

Replace curver Check and adjust/rework

Install frequency inverter drives Check and adjust

# Remedy

Use only compatible chemicals

Consider higher graded material

# Remedy

Improve cleaning

Check lubrication system

Contact lubricant supplier

Check all sections

Clean conveyor

Install roller with larger diameter

# Remedy

Improve cleaning

Re-adjust axial fixing according to temperature situation

Replace by sprockets with PLUS tolerance

# Remedy

mprove cleaning

Use steel sprockets

Please contact technical support at any time in case of doubt.







# **METAALUNIE CONDITIONS**

General Terms and Conditions issued by Koninklijke Metaalunie (the Dutch organization for small and medium-sized enterprises in the metal industry), referred to as the METAALUNIE TERMS AND CONDITIONS, filed at the Registry of the Rotterdam District Court on 1 January 2014. Issued by Koninklijke Metaalunie, P.O. Box 2600, 3430 GA Nieuwegein. the Netherlands. © Koninklijke Metaalunie

# Article 1: Applicability

- 1.1. These Terms and Conditions apply to all offers made by members of Koninklijke Metaalunie, all agreements they conclude and all agreements that may result therefrom, all this in so far as the Metaalunie member is offeror or supplier.
- 1.2. A Metaalunie member using these Terms and Conditions is referred to as the Contractor. The other party is referred to as the Client.
- 1.3. In the event of any conflict between the substance of the agreement concluded between the Contractor and the Client and these Terms and Conditions, the visions of the agreement will prevail.
- 1.4. These Terms and Conditions may only be used by Me

## Article 2: Offers

- 2.1. All offers are without obligation.
- 2.2. If the Client provides the Contractor with data, dra-wings and the like, the Contractor may rely on their accuracy and completeness and will base its offer on
- 2.3. The prices stated in the offer are based on delivery ex works, Contractor's place of establishment, in accor-dance with the Incoterms 2010. Prices are exclusive of VAT and packaging.
- 2.4. If the Client does not accept the Contractor's offer, the Contractor is entitled to charge the Client for all costs incurred by the Contractor in making the offer to the

# Article 3: Intellectual property rights

- 3.1. Unless otherwise agreed in writing, the Contractor retains the copyright and all industrial property rights in the offers made by it and in the designs, pictures, drawings, models (including trial models), software drawings, models (includii and the like provided by it.
- 3.2. The rights in the data referred to in paragraph 1 of this article will remain the property of the Contractor irrespective of whether the costs of their production have been charged to the Client. These data may not be copied, used or shown to third parties without the Contractor's prior express written consent. The Client will ove the Contractor an immediately payable penalty of  $\notin$  25,000 for each breach of this provision. This penalty may be claimed in addition to damages pursuant to the law 2
- 3.3. On the Contractor's first demand, the Client must re-1 of this Article within the time limit set by the Con-tractor. Upon breach of this provision, the Client will owe the Contractor an immediately navable nenalty of € 1,000 per day. This penalty may be claimed in ad lition to damages pursuant to the law

### Article 4: Advice and information provided

- 4.1. The Client cannot derive any rights from advice or nformation it obtains from the Contractor if this does not relate to the assignment
- 4.2 If the Client provides the Contractor with data drawings and the like, the Contractor may rely on the accuracy and completeness in the performance of the agreement.
- 4.3. The Client indemnifies the Contractor from and against all liability to third parties relating to use of the advice, drawings, calculations, designs, materi-als, samples, models and the like provided by or on hehalf of the Client

### Article 5: Delivery period / performance period

- 5.1. The delivery period and/or performance period will be set by the Contractor on an approximate basis.
- 5.2. In setting the delivery period and/or performance pe-riod, the Contractor will assume that it will be able to perform the assignment under the conditions known to it at that time
- 5.3. The delivery period and/or performance period will only commence once agreement has been reached on all commercial and technical details, all necessary data, final and approved drawings and the like are in the Contractor's possession, the agreed payment or nstalment has been received and the necessary con ditions for performance of the assignment have been satisfied
- 5.4. a. In the event of circumstances that differ from those that were known to the Contractor when it set the delivery period and/or performance period, it may extend the delivery period and/or perfor-

522

mance period by such period as it needs to perform the assignment under such circumstances. If the work cannot be incorporated into the Contrac-tor's schedule, it will be performed as soon as the

- Contractor's schedule so nermits b. In the event of any contract addition, the delivery period and/or performance period will be extended by such period as the Contractor needs to (cause to) supply the materials and parts for such work and to perform the contract addition. If the contract addition cannot be incorporated into the Contractor's schedule, the work will be performed as soon as the Contractor's schedule so permits.
- c. If the Contractor suspends its obligations, the delivery period and/or performance period will be extended by the duration of the suspension. If the continuation of the work cannot be incorporated into the Contractor's schedule, the work will be performed as soon as the Contractor's schedule so permits.
- d. In the event of inclement weather, the delivery period and/or performance period will be extended by the resulting delay.
- The Client is required to pay all costs incurred by the Contractor as a result of delay affecting the delivery period and/or performance period as referred to in Article 5.4.3
- If the delivery period and/or performance period is/ 5.6 are exceeded, this will in no event entitle to damages

## Article 6: Transfer of risk

- 6.1. Delivery will be made ex works, Contractor's place of establishment, in accordance with the Incoterns 2010. The risk attached to the good passes to the Client at the time the Contractor makes the good available to the Client.
- 6.2. Notwithstanding the provisions in paragraph 1 of this article, the Client and Contractor may agree that the Contractor will arrange for transport. In that event, the risk of storage, loading, transport and unloading will be borne by the Client. The Client may insure itself against these risks.
- 63 In the event of a purchase in which a good is exchanged (inruil) and the Client retains the good to be ex-changed pending delivery of the new good, the risk attached to the good to be exchanged remains with the Client until it has placed this good in the posses-sion of the Contractor. If the Client cannot deliver the good to be exchanged in the condition that it was in when the agreement was concluded, the Contractor may terminate the agreement.

### Article 7: Price change

7.1.

- The Contractor may pass on to the Client any increase in costing factors occurring after conclusion of
- 7.2. The Client will be obliged to pay the price increase as referred to in paragraph 1 of this article on any of the occasions below, such at the discretion of the Contractor upon the occurrence of the price increase at the same time as payment of the principal sum;

# c. on the next agreed payment deadline.

# Article 8: Force majeure

- 8.1. The Contractor is entitled to suspend performance of its obligations if it is temporarily prevented from per-forming its contractual obligations to the Client due to force maieure.
- 8.2. Force majeure is understood to mean, inter alia, the circumstance of failure by suppliers, the Contractor's subcontractors or transport companies engaged by the Contractor to perform their obligations or perform them in good time weather conditions earthquakes ver failure, loss, theft or destruction of tools of materials, road blocks, strikes or work stoppages and import or trade restrictions.
- 83 If the Contractor's temporary inability to perform lasts for more than six months, it will no longer be entitled to suspend performance. On expiry of this deadline, the Client and the Contractor may terminate the agreement with immediate effect, but only as regards such part of the obligations that has not yet been per-
- 8.4. In the event of force maieure where performance is or becomes permanently impossible, both parties are entitled to terminate the agreement with immediate effect as regards such part of the obligations that has ot yet been performed
- 8.5. The parties will not be entitled to compensation for damage suffered or to be suffered as a result of sus-pension or termination as referred to in this article.

# Article 9: Scope of the work

- 9.1. The Client must ensure that all licences, exemptions and other administrative decisions necessary to carry out the work are obtained in good time. The Client is required upon the Contractor's first demand to send the Contractor a copy of the documents mentioned ahove
- 9.2. The price of the work does not include:
- a. the costs of earthwork, pile driving, cutting, breaking, foundation work, cementing, carpentry, plas-tering, painting, wallpapering, repair work or other construction work:
- b. the costs of connecting gas, water, electricity or other infrastructural facilities;
  c. the costs of preventing or limiting damage to any
- goods present on or near the work site. the costs of removal of materials, building materi-
- als or waste: e. travel and accommodation expenses.

# Article 10: Changes to the work

- 10.1. Changes to the work will in any event result in contract variations work if: a. the design, specifications or contract documents
  - are changed; b. the information provided by the Client is not factu-
  - ally accurate: quantities diverge by more than 10% from the esti-
- 10.2. Contract additions will be charged on the basis of the pricing factors applicable at the time the contract ad-dition is performed. Contract deductions will be charged on the basis of the pricing factors applicable at the time the agreement was concluded.
- 10.3. The Client will be obliged to pay the price of the contract addition as referred to in paragraph 1 of this article on any of the occasions below, such at the discretion of the Contractor
- when the contract addition arises; at the same time as payment of the principal sum; c. on the next agreed payment deadline.
- 10.4. If the sum of the contract deduction exceeds that of the contract addition, in the final settlement the Contractor may charge the Client 10% of the difference. This provision does not apply to contract deductions that result from a request by the Contractor.

# Article 11: Performance of the work

- 11.1 The Client will ensure that the Contractor can carry out its activities without interruption and at the agreed time and that the requisite facilities are made available to it when carrying out its activities, such as: gas, water and electricity;
  - heating; lockable and dry storage space.
  - d. facilities required pursuant to the Working Conditions Act and Working Conditions Regulations.
- 11.2 The Client hears the risk of and is liable for any damage connected with loss, theft, burning and damage to goods belonging to the Contractor, the Client and third parties, such as tools, materials intended for the work or material used in the work, that are located on the work site or at another agreed location
- 11.3. The Client is obliged to adequately insure its against the risks referred to in paragraph 2 of this article. In addition, the Client must procure insurance of work-related damage as regards the material to be used. Upon the Contractor first demand, the Client must send it a copy of the relevant insurance policy policies and proof of payment of the premium. In the event of any damage, the Client is required to report this to its insurer without delay for further processing
- 11.4 If the Client fails to perform its obligations as described in the previous paragraphs and this results in delayed performance of the activities, the activities will be carried out as soon as the Client performs its obligations as yet and the Contractor's schedule so permits. The Client is liable for all damage suffered by the Contractor as a result of the delay.

### Article 12: Completion of the work

12.1. The work is deemed to be completed in the following

- a. when the Client has approved the work; when the work is been taken into commission by the
- Client. If the Client takes part of the work into co mission, that part will be deemed to be completed: c. if the Contractor notifies the Client in writing that the
- work has been completed and the Client does not inform it in writing as to whether or not the work is approved within 14 days of such notification having been made:

- d. if the Client does not approve the work due to minor defects or missing parts that can be rectified or sub-sequently delivered within 30 days and that do not prevent the work from being taken into commission.
- 12.2. If the Client does not approve the work, it is required to inform the Contractor of this in writing, stating reasons. The Client must provide the Contractor with the opporverv: tunity to complete the work as yet.
- 12.3. The Client indemnifies the Contractor from and against any claims by third parties for damage to non-com pleted parts of the work caused by use of parts of the work that have already been completed.

# Article 13: Liability

- 13.1. In the event of an attributable failure, the Contractor is obliged to perform its contractual obligations as yet.
- 13.2. The Contractor's obligation to pay damages, irrespec tive of the legal basis, is limited to damage for which the Contractor is insured under an insurance policy ta-ken out by it or on its behalf, but will never exceed the amount paid out under this insurance in the relevant
- 13.3. If, for any reason whatsoever, the Contractor cannot If, for any reason whatsoever, the Contractor cannot invoke the limitation in paragraph 2 of this article, the obligation to pay damages will be limited to a maximum of 15% of the total assignment amount (excluding VAT). If the agreement comprises parts or partial deliveries, the obligation to pay damages is limited to a maximum of 15% (excluding VAT) of the assignment amount of that part or that partial delivery
- 13.4. The following does not qualify for compensation: consequential loss, including business interruption loss, production loss, loss of profit, transport costs and travel and accommodation expenses. The Client may insure itself against this damage if pos
  - b. damage to goods in or under its care, custody or control. Such damage includes damage caused as a result of or during the performance of the work to goods on which work is being performed or to goods situated in the vicinity of the work site. The Client may insure itself against such damage if it so desires;
  - c. damage caused by the intent or wilful recklessness of agents or non-management employees of the Con-
- 13.5. The Contractor is not liable for damage to material provided by or on behalf of the Client where that damage Article 17: Paymen is the result of improper processing.
- 13.6. The Client indemnifies the Contractor from and against all claims by third parties on account of product lia hility as a result of a defect in a product supplied by the Client to a third party and that consisted, entirely or partially, of products and/or materials supplied by the Contractor. The Client is obliged to compensate all damage suffered by the Contractor in this respect including the full costs of defence.

# Article 14: Warranty and other claims

- 14.1. Unless otherwise agreed in writing, the Contractor warrants the proper execution of the agreed perfor-mance for a period of six months after delivery/com-pletion. In the event that a different warranty period s agreed, the other paragraphs of this article are also
- 14.2. If the agreed performance was not properly executed, the Contractor will decide whether to properly execute it as yet or to credit the Client for a proportionate part of the invoice amount. If the Contractor chooses to properly execute the performance as yet, it will determine the manner and time of execution itself. If the agreed nerformance consisted (entirely or partially) of the pro cessing of material provided by the Client, the Client must provide new material at its own risk and expense.
- 14.3. Parts or materials that are repaired or replaced by the Contractor must be sent to the Contractor by the Client.
- 14.4. The Client bears the expense of: a. all costs of transport or dispatch;
  - b. costs of disassembly and assembly
  - travel and accommodation expenses
- 14.5. The Client must in all cases offer the Contractor the opportunity to remedy any defect or to perform the processing again.
- 14.6. The Client may only invoke the warranty once it has satisfied all its obligations to the Contractor
- 14.7. a. No warranty is given if the defects result from: normal wear and tear; improper use;
  - lack of maintenance or improper maintenance; installation, fitting, modification or repair by the Client or third parties;

- defects in or unsuitability of goods originating from or prescribed by the Client defects in or unsuitability of materials or auxiliary materials used by the Client. b. No warranty is given in respect of:
   goods supplied that were not new at the time of del
- the inspection and repair of goods of the Client; parts for which a manufacturer's warranty has been provided.
- 14.8. The provisions of paragraphs 2 to 7 of this article apply mutatis mutandis to any claims by the Client based on breach of contract, non-conformity or on any other

Article 15: Obligation to complain

ant to the law

Contractor

quardianship or dies.

regarded as a whole month.

14.9. The Client cannot assign any rights under this article.

15.1. The Client can no longer invoke a defect in performance if it does not make a written complaint to the Contractor in respect thereof within fourteen days of the date it discovered, or should reasonably have discovered, the defect

15.2. On pain of forfeiture of all rights, the Client must submit complaints regarding the amount invoiced to the Con-tractor in writing within the payment deadline. If the payment deadline is longer than thirty days, the Client of the invoice.

### Article 16: Failure to take delivery of goods

16.1. Upon expiry of the delivery period and/or performance period, the Client is obliged to take delivery of the good or goods forming the subject of the agreement.

16.2. The Client must lend all cooperation that can be reasonably expected from it to enable the Contractor to make the delivery.

16.3. If the Client does not take delivery of goods, such goods will be stored at the risk and expense of the Client.

16.4. Upon breach of the provisions in paragraphs 1 and/ or 2 of this article, the Client will owe the Contractor a penalty of  $\in$  250 per day, to a maximum of  $\in$  25,000. This penalty may be claimed in addition to damages pursu-

17.1 Payment will be made at the Contractor's place of eslishment or to an account to be designated by the

17.2. Unless agreed otherwise, payment will be made as fol-

in cash where sale is at the service desk:

in the case of payments in instalments: - 40% of the total price upon assignment

- 50% of the total price after supply of the material

or, if delivery of the material is not included in the assignment, after commencement of the work; - 10% of the total price upon completion;

c. in all other cases, within thirty days of the date of

17.3. If the Client fails to comply with its payment obligation, instead of paying the sum of money agreed it will be obliged to comply with a request by the Contractor for payment in kind (inbetalinggeving).

17.4. The right of the Client to set off or suspend amounts it is owed by the Contractor, save in the event of the Contractor's bankruptcy or if statutory debt reschedu-ling applies to the Contractor.

17.5. Irrespective of whether the Contractor has fully execu-ted the agreed performance, everything that is or will he owed to it by the Client under the agreement is im-

nediately due and payable if: . a deadline for payment has been exceeded; b. an application has been made for the Client's bank

ruptcy or suspension of payments; attachment is levied on the Client's goods or claims; d. the Client (a company) is dissolved or wound up. the Client (a natural person) requests to be admit-ted to statutory debt rescheduling, is placed under

17.6 If payment is not made within the agreed payment deadline, the Client will immediately owe interest to the Contractor. The interest rate is 12% per annum, but equal to the statutory interest rate if the latter rate is higher. When calculating interest, part of a month is

17.7 The Contractor is authorised to set off its debts to the Client with amounts owed by the Client to companies affiliated with the Contractor. In addition, the Contrac-tor is authorised to set off amounts owed to it by the

Client with debts to the Client of companies affiliated with the Contractor. Further, the Contractor is autho-rised to set off its debts to the Client with amounts owed to the Contractor by companies affiliated with the Client. Affiliated companies are understood to mean the companies belonging to the same group, within the meaning of Article 2:24b Dutch Civil Code, and participating interests within the meaning of Article 2:24c Dutch Civil Code

- 17.8 If payment is not made within the agreed payment deadline, the Client will owe the Contractor all extra-judicial costs, with a minimum of € 75. These costs will be calculated on the basis of the following table (princinal sum nlus interest) on the first € 3,000 15% on any additional amount up to € 6,000 10% on any additional amount up to € 15,000 8% on any additional amount up to € 60,000 5% on any additional amount from € 60.000 3% The extraiudicial costs actually incurred will be owed if these are higher than they would be according to the above calculation
- 17.9 If judgment is rendered in favour of the Contractor in legal proceedings, all costs that it has incurred in relation to these proceedings will be borne by the Client.

# Article 18: Security

- 18.1. Irrespective of the agreed payment conditions, upon the first demand of the Contractor the Client is obliged to provide such security for payment as the Contractor. deems sufficient. If the Client does not comply with such demand within the period set, it will immediately be in default. In that event, the Contractor is entitled to terminate the agreement and to recover its damage rom the Client.
- 18.2. The Contractor will retain ownership of any goods delivered as long as the Client: a. fails or will fail in the performance of its obligations
  - under this agreement or other agreements;
    b. has not paid debts that have arisen due to non-performance of the aforementioned agreements,
  - such as damage, penalties, interest and costs.
- 18.3. As long the goods delivered are subject to retention of title, the Client may not encumber or alienate the same other than in the ordinary course of its business
- 18.4. Once the Contractor has invoked its retention of title, it may take possession of the goods delivered. The Client will lend its full cooperation to this end.
- 18.5 The Contractor has a right of pledge and a right of retention in respect of all goods that are or will be held by it for any reason whatsoever and for all claims it has or might acquire against the Client in respect of anyone seeking their surrender
- 18.6 If after the goods have been delivered to the Client by the Contractor in accordance with the agreement, the Client has met its obligations, the retention of title will be revived with regard to such goods if the Client does not meet its obligations under any agreement subsequently concluded

# Article 19: Termination of the Agreement

If the Client wishes to terminate the agreement without the Contractor being in default, and the Contractor agrees to this, the agreement will be terminated by mutual consent. In that case, the Contractor is entitled to compensation for all financial loss, such as loss suffered, loss of profit and costs

# Article 20: Applicable law and competent court

# 20.1. Dutch law applies.

- 20.2. The Vienna Sales Convention (C.I.S.G.) does not apply, nor do any other international regulations the exclusion of which is nermitted
- 20.3. Disputes will be heard exclusively by the Dutch civil court with jurisdiction over the Contractor's place of establishment, unless this is contrary to mandatory law. The Contractor may deviate from this rule of jurisdiction and apply the statutory rules of jurisdiction

Easy Conveyors is not responsible Easy Conveyors is not responsible for changes and printing mistakes Easy Conveyors ist nicht verantwortlich für Anderungen oder Druckfehler Easy conveyors est pas responsable des modifications et erreurs d'impression Easy Conveyors no se hace responsable por cambios y errores de imprenta



Easy Conveyors





# **EASY CONVEYORS**

# EUROPE

Dragonder 19 5554 GM Valkenswaard The Netherlands Phone: +31 (0)40 - 283 8319 Telefax: +31 (0)40 - 283 5999

**UK** Phone: +44 - 7775 - 908 030

**NORTH-AMERICA** Phone: +1 - 519 - 495 6006

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

