



# Energy chain systems

**mp**  **420**  
EVOCHAIN



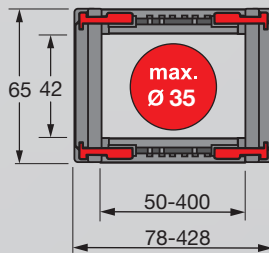
# MP 420 OPEN



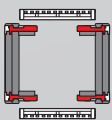
More Information about the MP 420 EVOCHAIN can be found on the internet [www.mp.de/mp420](http://www.mp.de/mp420)



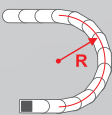
- EASY TO ASSEMBLE WITH THE **EVOLOCK®** CROSSBAR LOCK SYSTEM
- FAST TOOL -FREE OPENING AND CLOSING OF THE SHELVING SYSTEM IN THE INSIDE AND OUTSIDE BEND WITH THE **EVORACK®** SHELF SUPPORT HINGED ON BOTH (!) SIDES
- EXTREMELY DURABLE NOISE DAMPING SYSTEM IN THE CHAIN LINK WITH A SPECIALLY DEVELOPED ELASTOMER
- QUIET AND LOW-VIBRATION UNROLLING WITH THE **EVOSHUX®** DAMPING SHOE
- GREATLY EXTENDED SERVICE LIFE WITH THE **EVOCONTROL®** GLIDING SHOE WITH INTEGRATED WEAR CONTROL INDICATOR
- PARTICULARLY HIGH SERVICE LIFE FOR APPLICATIONS WITH LATERAL ACCELERATION



## TECHNICAL DATA



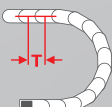
**Loading side**  
Inside and outside bend



**Available radii**  
75.0 – 350.0 mm



**Available inside widths**  
With plastic crossbar  
50.0 – 400.0 mm



**Pitch**  
T = 67.0 mm



**Noise damping in chain link**  
Noise reduction of up to 10 dB(A) with damping elements in the chain links.



**EVOSHUX® damping shoe**  
Noise reduction of up to 25 dB(A) in combination with the noise damping in the chain link.



### TECHNICAL SPECIFICATION

Travel distance gliding $L_g$ max.	150.0 m
Travel distance self-supporting $L_f$ max.	8.0 m
Travel distance vertical hanging $L_{vh}$ max.	100.0 m
Travel distance vertical upright $L_{vs}$ max.	6.0 m
90° rotated unsupported $L_{90f}$ max.	2.0 m
Speed gliding $V_g$ max.	10.0 m/s
Speed self-supporting $V_f$ max.	20.0 m/s
Acceleration gliding $a_g$ max.	50.0 m/s <sup>2</sup>
Acceleration self-supporting $a_f$ max.	50.0 m/s <sup>2</sup>

Contact our engineering department for any special applications: [efk@murrplastik.de](mailto:efk@murrplastik.de)

### MATERIAL CHARACTERISTICS

Standard material	Polyamide (PA) black
Service temperature	-30.0 – 120.0 °C
Gliding friction factor	0.3
Static friction factor	0.45
Fire classification	UL 94 HB

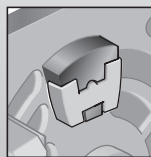
Other material characteristics on request.

### ADDITIONAL INFORMATION MATERIAL

On our YouTube channel we provide video material on the topics of function, assembly and disassembly.  
<https://www.youtube.com/user/MurrplastikTV>



### ACCESSORIES



Damping element  
in side link

#### CROSSBAR LOCK



Crossbar lock  
**EVOLOCK®**

#### SHELVING SYSTEM



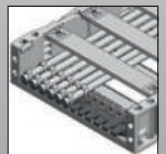
Separator TR

#### GUIDE CHANNELS



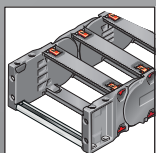
VAV galvanised steel /  
stainless steel

#### STRAIN RELIEF



Strain relief ZL-C

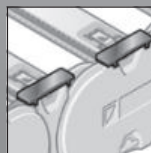
#### CHAIN BRACKET



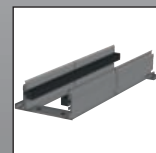
Chain bracket flexible



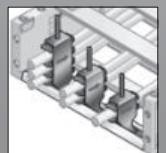
Shelving system RS  
**EVO RACK®**



Gliding shoe  
**EVOCONTROL®**



VAV aluminium



Steel Fix STF

**ORDERING KEY**

Dimensions in mm [US inch]

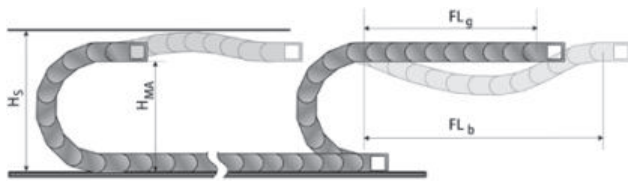
Type code	Variant	Inside width	Outside width	Inside width	Outside width	Radius	Crossbar variant	Material	Chain length
<b>0420 30</b>	MP 420 open Crossbar on outside bend Crossbar on inside bend To be opened from inside and outside bend	<b>050</b> [1.97]	<b>078</b> [3.07]	<b>287</b> [11.30]	<b>315</b> [12.40]	<b>075</b> [2.95]	<b>0</b> Plastic full-ridged with bias (RV)	<b>2</b> Polyamide without damper (PA/black)	
		<b>068</b> [2.68]	<b>096</b> [3.78]	<b>300</b> [11.81]	<b>328</b> [12.91]				
		<b>075</b> [2.95]	<b>103</b> [4.06]	<b>312</b> [12.28]	<b>340</b> [13.39]	<b>100</b> [3.94]	<b>1</b> Plastic full ridged without bias (RK)	<b>3</b> Polyamide with damper (PA/black)	
		<b>087</b> [3.43]	<b>115</b> [4.53]	<b>325</b> [12.80]	<b>353</b> [13.90]				
		<b>097</b> [3.82]	<b>125</b> [4.92]	<b>337</b> [13.27]	<b>365</b> [14.37]	<b>115</b> [4.53]	<b>2</b> Plastic half-ridged with bias (RV)	<b>9</b> Special version (on request)	
		<b>100</b> [3.94]	<b>128</b> [5.04]	<b>350</b> [13.78]	<b>378</b> [14.88]				
		<b>108</b> [4.25]	<b>136</b> [5.35]	<b>362</b> [14.25]	<b>390</b> [15.35]	<b>125</b> [4.92]	<b>3</b> Plastic half-ridged without bias (RK)		
		<b>112</b> [4.41]	<b>140</b> [5.51]	<b>375</b> [14.67]	<b>403</b> [15.87]				
		<b>125</b> [4.92]	<b>153</b> [6.02]	<b>387</b> [15.24]	<b>415</b> [16.34]	<b>150</b> [5.91]	<b>9</b> Special version (on request)		
		<b>137</b> [5.39]	<b>165</b> [6.50]	<b>400</b> [15.75]	<b>428</b> [16.85]				
		<b>150</b> [5.91]	<b>178</b> [7.01]			<b>160</b> [6.30]			
		<b>162</b> [6.38]	<b>190</b> [7.48]						
		<b>168</b> [6.61]	<b>196</b> [7.72]			<b>175</b> [6.89]			
		<b>175</b> [6.89]	<b>203</b> [7.99]						
		<b>187</b> [7.36]	<b>215</b> [8.46]			<b>200</b> [7.87]			
		<b>200</b> [7.87]	<b>228</b> [8.98]						
		<b>212</b> [8.35]	<b>240</b> [9.45]			<b>250</b> [9.84]			
		<b>225</b> [8.862]	<b>253</b> [9.96]						
		<b>237</b> [9.33]	<b>265</b> [10.43]			<b>300</b> [11.81]			
		<b>250</b> [9.84]	<b>278</b> [10.94]						
		<b>262</b> [10.31]	<b>290</b> [11.42]			<b>350</b> [13.78]			
		<b>275</b> [10.83]	<b>303</b> [11.93]						



**ORDERING EXAMPLE: 0420 30 200 100 0 2 1005**

Crossbar on outside bend, crossbar on inside bend, to be opened from inside and outside bend  
 Inside width 200 mm, Radius 100 mm  
 Plastic crossbar, full-ridged with bias, material polyamide without damper (PA/black)  
 Chain length 1005 mm (15 links)

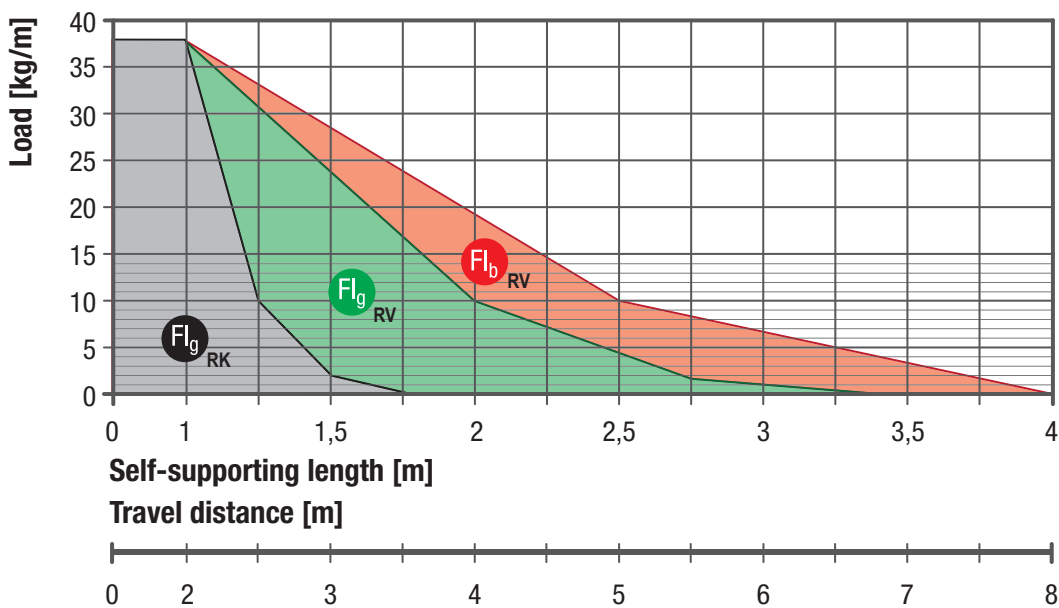
## SELF-SUPPORTING LENGTH



The self-supporting length is the distance between the chain bracket on the moving end and the start of the chain arc.  
The installation variant  $FL_g$  offers the lowest load and wear for the energy chain.  
The maximum travel parameters (speed and acceleration) can be applied for this variant.

- $H_S$  = Installation height plus safety
- $H_{MA}$  = Height of moving end bracket
- $FL_g$  = Self-supporting length, upper run straight
- $FL_b$  = Self-supporting length, upper run bent

## LOAD DIAGRAM FOR SELF-SUPPORTING APPLICATIONS

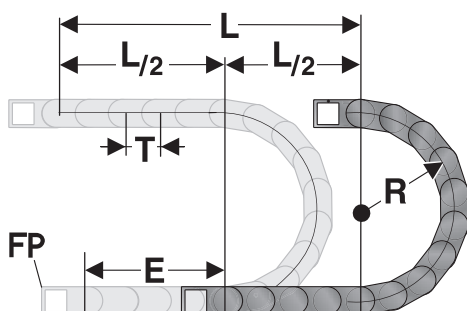


**$FL_g$  Self-supporting length, upper run straight**  
In the  $FL_g$  range, the chain upper run still has a bias, is straight or has a maximum sag of 70.0 mm.

**$FL_b$  Self-supporting length, upper run bent**  
In the  $FL_b$  range, the chain upper run has a sag of more than 70.0 mm, but still less than the maximum sag of 140.0 mm. Where the sag is greater than that permitted in the  $FL_b$  range,

the application is critical and should be avoided. The self-supporting length can be optimised by using a support for the upper run or a more stable energy chain.

## DETERMINING THE CHAIN LENGTH



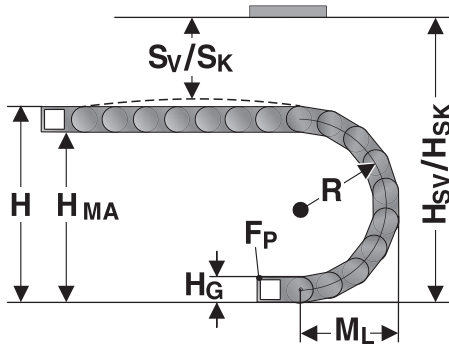
The fixed point of the energy chain should be connected in the middle of the travel distance.  
This arrangement gives the shortest connection between the fixed point (FP) and the moving consumer and thus the most efficient chain length.

Chain length calculation =  $L/2 + \pi * R + E$   
1 m chain = 15 links, 67.0 mm each

- E = distance between entry point and middle of travel distance
- L = Travel distance
- R = Radius
- T = Pitch 67.0 mm

MP 420 OPEN

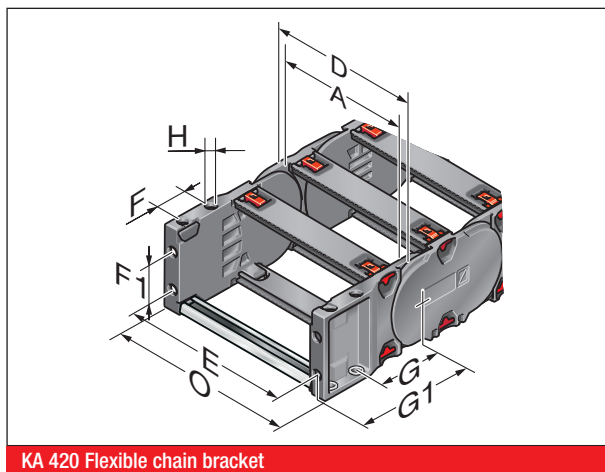
**INSTALLATION DIMENSIONS**



The moving end chain bracket is to be screw fixed at height  $H_{MA}$  for the respective radius.  
 For high acceleration values, we recommend the use of a one-sided pivotable moving end bracket.  
 Concerning the installed dimensions, you must take into account whether the chain links are equipped with or without bias.  
 For chain links without bias, the “installed height without bias  $H_{SK}$ ” has to be taken into account.  
 If the chain links are equipped with a bias, the value “installed height with bias  $H_{SV}$ ” has to be taken into account.

Radius R	75	100	115	125	150	160	175	200	250	300	350
Outside height of chain link ( $H_e$ )	65	65	65	65	65	65	65	65	65	65	65
Height (H) for KA pendular	215	265	295	315	365	385	415	465	565	665	765
Height (H) for KA pivotable on one side	265	315	345	365	415	435	465	515	615	715	815
Height of moving end bracket ( $H_{MA}$ ) for KA pendular	150	200	230	250	300	320	350	400	500	600	700
Height of moving end bracket ( $H_{MA}$ ) for KA pivotable on one side	200	250	280	300	350	370	400	450	550	650	750
Safety margin with bias ( $S_v$ )	20	20	20	20	20	20	20	20	20	20	20
Installation height with bias ( $H_{sv}$ ) without damper	295	345	375	395	445	465	495	545	645	745	845
Installation height with bias ( $H_{sv}$ ) with damper	320	370	400	420	470	490	520	570	670	770	870
Safety margin without bias ( $S_k$ )	20	20	20	20	20	20	20	20	20	20	20
Installation height without bias ( $H_{sk}$ ) without damper	235	285	315	335	385	405	435	485	585	685	785
Installation height without bias ( $H_{sk}$ ) with damper	260	310	340	360	410	430	460	510	610	710	810
Arc projection ( $M_L$ )	175	200	215	225	250	260	275	300	350	400	450

**KA 420 FLEXIBLE CHAIN BRACKET**



KA 420 Flexible chain bracket

This chain bracket offers universal connection options (top, bottom and front) and is attached to the ends of the energy chain. This allows the chain to move right up to the bracket.

If the number of chain links is even, each energy chain requires one male and one female bracket. If the number of chain links is uneven, each energy chain requires two female brackets. At the moving end there is always a female bracket.

M6 bolts are used to secure the brackets in place. Press-in metal bushes with either a through-hole (-FB) or a threaded hole (-FG) ensure the permanent and high-strength transmission of even extreme forces onto the energy chain.

Optionally the chain bracket can be equipped with C-rail and strain relief ZL-C or with bow clamps type STF MP.

Type	Order No.	Material	Inside width A mm	D mm	E mm	F mm	F1 mm	G mm	G1 mm	H mm	HØ mm	KA outside width O mm
KA 420-FB female, complete	042000050	Plastic	50.0-400.0	A+28.0	A+16.0	22.5	22.0	59.5	97.0	6.5	A+32,0	
KA 420-FB female, pendular, complete	042000056	Plastic	50,0-400,0	A+28,0	A+16,0	22.5	22.0	59.5	97.0	6.5	A+32,0	
KA 420-FB male, complete	042000051	Plastic	50,0-400,0	A+28,0	A+16,0	22.5	22.0	59.5	97.0	6.5	A+32,0	
KA 420-FG female, complete	042000053	Plastic	50,0-400,0	A+28,0	A+16,0	22.5	22.0	59.5	97.0	M6	A+32,0	
KA 420-FG female, pendular, complete	042000055	Plastic	50.0-400.0	A+28,0	A+16,0	22.5	22.0	59.5	97.0	M6	A+32,0	
KA 420-FG male, complete	042000054	Plastic	50,0-400,0	A+28,0	A+16,0	22.5	22.0	59.5	97.0	M6	A+32,0	

**PLASTIC CROSSBAR EVOLINE**



Crossbar

The crossbars connect the two side runs of the energy chain. The crossbar length is equivalent to the inside width of the energy chain.

Type	Order No.	Description	Inside width mm
RS 050-40	040000005000	Crossbar	50.0
RS 068-40	040000006800	Crossbar	68.0
RS 075-40	040000007500	Crossbar	75.0
RS 087-40	040000008700	Crossbar	87.0
RS 097-40	040000009700	Crossbar	97.0
RS 100-40	040000010000	Crossbar	100.0
RS 108-40	040000010800	Crossbar	108.0
RS 112-40	040000011200	Crossbar	112.0
RS 125-40	040000012500	Crossbar	125.0
RS 137-40	040000013700	Crossbar	137.0
RS 150-40	040000015000	Crossbar	150.0
RS 162-40	040000016200	Crossbar	162.0
RS 168-40	040000016800	Crossbar	168.0
RS 175-40	040000017500	Crossbar	175.0
RS 187-40	040000018700	Crossbar	187.0
RS 200-40	040000020000	Crossbar	200.0
RS 212-40	040000021200	Crossbar	212.0
RS 225-40	040000022500	Crossbar	225.0
RS 237-40	040000023700	Crossbar	237.0
RS 250-40	040000025000	Crossbar	250.0
RS 262-40	040000026200	Crossbar	262.0
RS 275-40	040000027500	Crossbar	275.0
RS 287-40	040000028700	Crossbar	287.0
RS 300-40	040000030000	Crossbar	300.0
RS 312-40	040000031200	Crossbar	312.0
RS 325-40	040000032500	Crossbar	325.0
RS 337-40	040000033700	Crossbar	337.0
RS 350-40	040000035000	Crossbar	350.0
RS 362-40	040000036200	Crossbar	362.0
RS 375-40	040000037500	Crossbar	375.0
RS 387-40	040000038700	Crossbar	387.0
RS 400-40	040000040000	Crossbar	400.0

MP 420 OPEN

## EVOLOCK® CROSSBAR LOCK RS 420



Crossbar lock

The EVOLOCK® crossbar lock allows an extremely easy and quick locking of the crossbars due to the innovative locking slide.

The standard colour is red, RAL 3020. Further colours on request.

Type	Order No.	Colour
RS-420 lock, red	042000004270	RAL 3020
RS-420 lock, blue	042000004271	RAL 5015
RS-420 lock, black	042000004272	RAL 9005

## EVOCONTROL® GLIDING SHOE GS 420



Gliding shoe in inside bend

Gliding shoes are used in a horizontally gliding installation (the upper run of the chain glides on the lower run).

The gliding shoes are set onto the side links on the inside bend (no tools necessary). Therefore, the chain does not glide on the side links of the chain but only on the gliding shoes. Depending on the application, the service life of the energy chain may be extended five-fold, by using gliding shoes.

The gliding shoes can be optionally equipped with the EVOCONTROL® wear indicator. This visually indicates the on-time replacement of the gliding shoes.

Type	Order No.	Description	Installation site	Min. radius mm	Gliding shoe height mm
GS 420 gliding shoe	042090400300	GS 420 gliding shoe	Inside bend	125.0	4.5
GS 420 wear indicator / colour: yellow	042090400350	Wear indicator	Inside bend	125.0	4.5

## DAMPING ELEMENT IN SIDE LINK



Damping element in side link

Extremely durable noise damping system in the chain link with a specially developed elastomer (optional).

Due to the large area and almost wear-free damping element in the chain link, the energy chains roll up to 10 dB(A) quieter.

Type	Order No.	Description
Damping element MP 420	800099131275	Damping element

## EVOSHOX® DAMPING SHOE DS 420



Damping shoe in outside bend

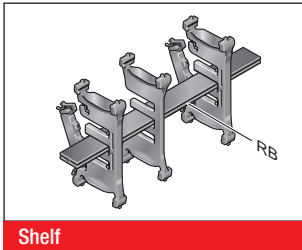
The EVOSHOX® damping shoes significantly reduce the noise emission when the energy chain is rolling.

When using the damping elements in the chain link in connection with the EVOSHOX® damping shoes, the noise emission is reduced by up to 25 dB (A).

Type	Order No.	Description	Installation site	Min. radius mm	Damping shoe height mm
DS 420 damping shoe	042090400400	Damping shoe	Outside bend	75	5.0



**SHELF RB-K**

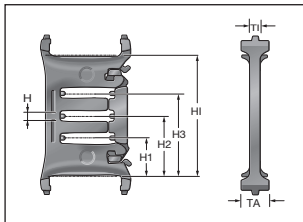


In combination with at least two shelf supports that can be opened on both sides, the shelf provides the innovative EVORACK® shelf support system. The additional levels prevent the cables from twisting and minimise the friction between them.

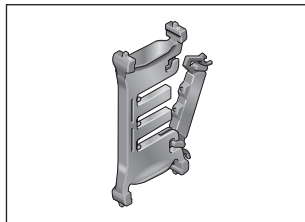
Type	Order No.	Description	Width mm
RB 23-K *	10000002300	Shelf	23
RB 28-K	1000002804	Shelf	28
RB 31-K	1000003104	Shelf	30.5
RB 33-K *	10000003300	Shelf	33.1
RB 36-K	1000003604	Shelf	35.6
RB 38-K	1000003804	Shelf	38.1
RB 41-K	1000004104	Shelf	40.6
RB 43-K	1000004304	Shelf	43.1
RB 46-K	1000004604	Shelf	45.6
RB 48-K	1000004804	Shelf	48.1
RB 51-K	1000005104	Shelf	50.7
RB 53-K	1000005304	Shelf	53.2
RB 56-K	1000005604	Shelf	55.7
RB 58-K	1000005804	Shelf	58.2
RB 61-K	1000006104	Shelf	60.7
RB 63-K	1000006304	Shelf	63.2
RB 66-K	1000006604	Shelf	65.7
RB 68-K	1000006804	Shelf	68.2
RB 71-K	1000007104	Shelf	70.7
RB 73-K	1000007304	Shelf	73.3
RB 76-K	1000007604	Shelf	75.8
RB 78-K	1000007804	Shelf	78.3
RB 81-K	1000008104	Shelf	80.8
RB 83-K	1000008304	Shelf	83.3
RB 86-K	1000008604	Shelf	85.8
RB 88-K	1000008804	Shelf	88.3
RB 91-K	1000009104	Shelf	90.9
RB 93-K	1000009304	Shelf	93.4
RB 96-K	1000009604	Shelf	95.9
RB 98-K	1000098804	Shelf	98.4
RB 101-K	1000010104	Shelf	100.9
RB 103-K	1000010304	Shelf	103.5
RB 106-K	1000010604	Shelf	106
RB 108-K	1000010804	Shelf	108.5
RB 111-K	1000011104	Shelf	111
RB 113-K	1000011304	Shelf	113.5
RB 116-K	1000011604	Shelf	116
RB 118-K	1000011804	Shelf	118.5
RB 121-K	1000012104	Shelf	121
RB 123-K	10000012300	Shelf	123.5

\* grid = 2 mm

**EVORACK® SHELF SUPPORT WITH FLAP RTT 420**



Shelf support

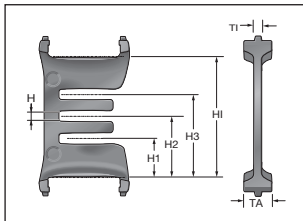


Shelf support

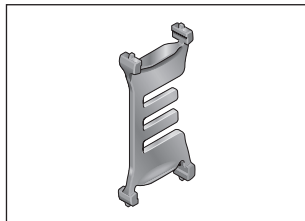
Two shelf supports that can be opened on both sides (RTT) in combination with at least one shelf (RB) provide an easy to fill EVORACK® shelf support system. The additional levels prevent the cables from twisting and minimise the friction between them.

Type	Order No.	Description	Version	TI mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
RTT 420 shelf support, with flap	042000004000	Shelf support	lockable	5.0	10.0	3.8	13.6	21.2	28.8	42.4

**TR 420.1 SEPARATOR**



Separator

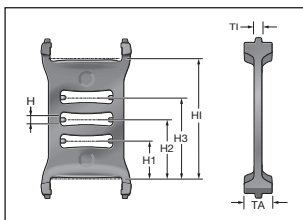


Separator

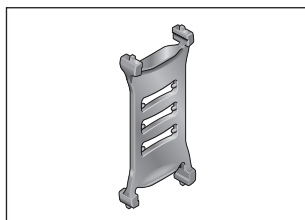
The lockable separator TR 420.1 is required, when a shelving system with separable shelf supports and shelves is used.

Type	Order No.	Description	Version	TI mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
TR 420.1, open, lockable	042000004100	Separator	lockable	3.0	10.0	3.8	13.6	21.2	28.8	42.4

**TR 420.3 SEPARATOR**



Separator

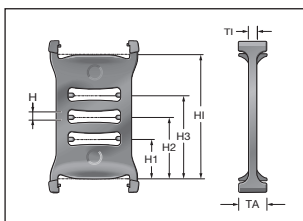


Separator

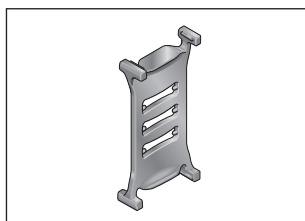
The lockable separator TR 420.3 is particularly required for gliding applications if only vertical partitions with grids are used.

Type	Order No.	Description	Version	TI mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
TR 420.3 lockable	042000004300	Separator	lockable	3.0	10.0	3.8	13.6	21.2	28.8	42.4

**SEPARATOR TR 420.5-V**



Separator

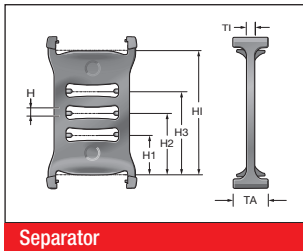


Separator

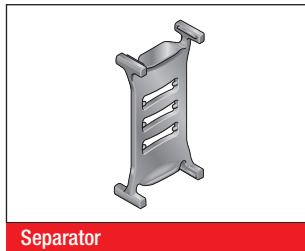
With the movable separators TR 420.5, TR 420.6 and TR 420.7 different chamber widths can be created using the width of the foot contour (dimension TA).

Type	Order No.	Description	Version	TI mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
TR 420.5, movable	042000004500	Separator	movable	3.0	10.0	3.8	13.6	21.2	28.8	42.4

**TR 420.6-V SEPARATOR**



Separator

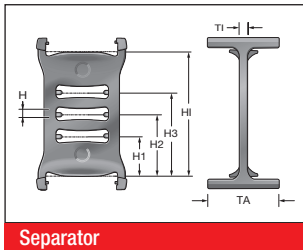


Separator

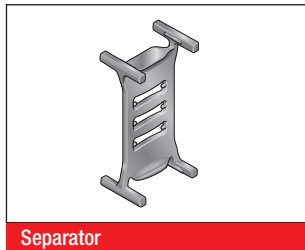
With the movable separators TR 420.5, TR 420.6 and TR 420.7 different chamber widths can be created using the width of the foot contour (dimension TA).

Type	Order No.	Description	Version	T1 mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
TR 420.6, movable	042000004600	Separator	movable	3.0	14.0	3.8	13.6	21.2	28.8	42.4

**TR 420.7-V SEPARATOR**



Separator

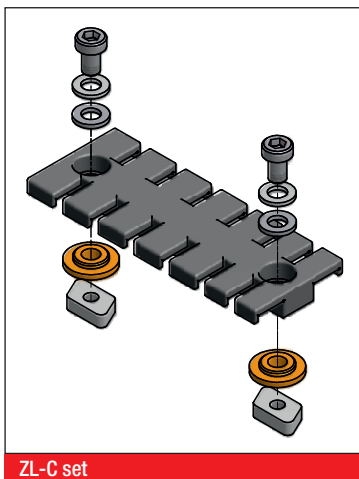


Separator

With the movable separators TR 420.5, TR 420.6 and TR 420.7 different chamber widths can be created using the width of the foot contour (dimension TA).

Type	Order No.	Description	Version	T1 mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm
TR 420.7, movable	042000004700	Separator	movable	3.0	27.0	3.8	13.6	21.2	28.8	42.4

**STRAIN RELIEF WITH C-RAIL AND STRAIN RELIEF PLATE ZL-C**



ZL-C set

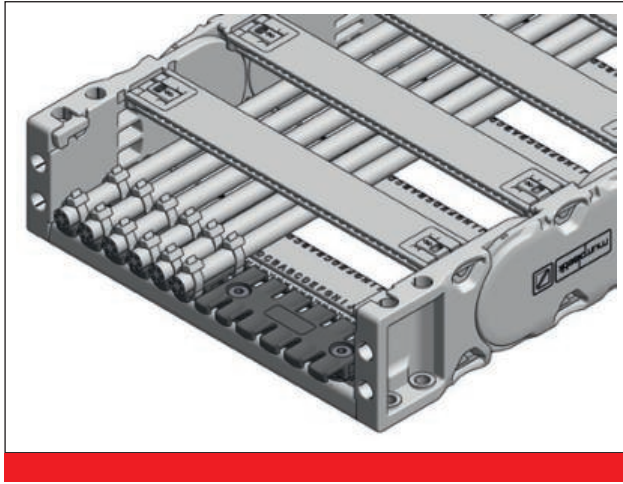
In addition to a type ZL strain relief plate, the ZL-C sets contain a complete set of installation materials, such as washers, serrated and spacer washers, plus T-slot nuts for installation in the C-rail.

Suitable combinations of C-rails and ZL-Sets for all inside widths: See table on next page.

Type	Order No.	Version	Quantity teeth
ZL-C 39 Set	87702810	Metric thread	3
ZL-C 60 Set	87702812	Metric thread	4
ZL-C 80 Set	87702814	Metric thread	6
ZL-C 87 Set	87702816	Metric thread	6
ZL-C 103 Set	87702818	Metric thread	7
ZL-C 121 Set	87702820	Metric thread	8
ZL-C 140 Set	87702822	Metric thread	9

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**STRAIN RELIEF WITH C-RAIL AND STRAIN RELIEF PLATE ZL**

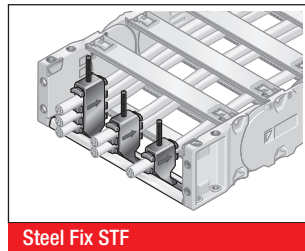
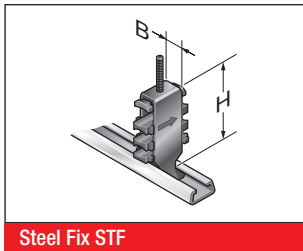


For the strain relief with C-rail and strain relief plate ZL-C the C-rail for the suitable inside width must be chosen. One C-rail per chain bracket side is required.

The combination of the ZL-C for each inner width is shown in the table below. The corresponding order numbers can be found on the previous page.

Type C-rail	Order No.	Inside width mm	Length C-rail mm	Recommended ZL combinations	Quantity teeth
C-rail KA 420 050	0420050090	50.0	53.0	ZL-C 39	3
C-rail KA 420 068	0420068090	68.0	71.0	ZL-C 39	3
C-rail KA 420 075	0420075090	75.0	78.0	ZL-C 60	4
C-rail KA 420 087	0420087090	87.0	90.0	ZL-C 60	4
C-rail KA 420 097	0420097090	97.0	100.0	ZL-C 80	6
C-rail KA 420 100	0420100090	100.0	103.0	ZL-C 87	6
C-rail KA 420 108	0420108090	108.0	111.0	ZL-C 87	6
C-rail KA 420 112	0420112090	112.0	115.0	ZL-C 87	6
C-rail KA 420 125	0420125090	125.0	128.0	ZL-C 103	7
C-rail KA 420 137	0420137090	137.0	140.0	ZL-C 121	8
C-rail KA 420 150	0420150090	150.0	153.0	ZL-C 121	8
C-rail KA 420 162	0420162090	162.0	165.0	ZL-C 140	9
C-rail KA 420 168	0420168090	168.0	171.0	ZL-C 140	9
C-rail KA 420 175	0420175090	175.0	178.0	ZL-C 140	9
C-rail KA 420 187	0420187090	187.0	190.0	ZL-C 80 + ZL-C 80	12
C-rail KA 420 200	0420200090	200.0	203.0	ZL-C 87 + ZL-C 87	12
C-rail KA 420 212	0420212090	212.0	215.0	ZL-C 103 + ZL-C 87	13
C-rail KA 420 225	0420225090	225.0	228.0	ZL-C 103 + ZL-C 103	14
C-rail KA 420 237	0420237090	237.0	240.0	ZL-C 121 + ZL-C 87	14
C-rail KA 420 250	0420250090	250.0	253.0	ZL-C 140 + ZL-C 87	15
C-rail KA 420 262	0420262090	262.0	265.0	ZL-C 121 + ZL-C 121	16
C-rail KA 420 275	0420275090	275.0	278.0	ZL-C 121 + ZL-C 121	16
C-rail KA 420 287	0420287090	287.0	290.0	ZL-C 140 + ZL-C 121	17
C-rail KA 420 300	0420300090	300.0	303.0	ZL-C 140 + ZL-C 140	18
C-rail KA 420 312	0420312090	312.0	315.0	ZL-C 121 + ZL-C 80 + ZL-C 80	20
C-rail KA 420 325	0420325090	325.0	328.0	ZL-C 121 + ZL-C 87 + ZL-C 87	20
C-rail KA 420 337	0420337090	337.0	340.0	ZL-C 103 + ZL-C 103 + ZL-C 103	21
C-rail KA 420 350	0420350090	350.0	353.0	ZL-C 121 + ZL-C 121 + ZL-C 80	22
C-rail KA 420 362	0420362090	362.0	365.0	ZL-C 121 + ZL-C 121 + ZL-C 87	22
C-rail KA 420 375	0420375090	375.0	378.0	ZL-C 121 + ZL-C 121 + ZL-C 103	23
C-rail KA 420 387	0420387090	387.0	390.0	ZL-C 121 + ZL-C 121 + ZL-C 121	24
C-rail KA 420 400	0420400090	400.0	403.0	ZL-C 140 + ZL-C 140 + ZL-C 87	24

**STRAIN RELIEF MP STEEL FIX**

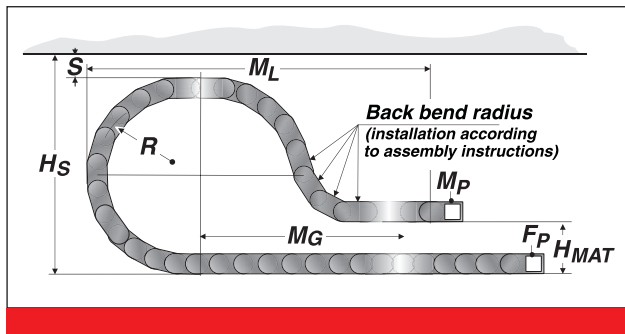


C-rails (galvanised) can be permanently integrated to hold the Steel Fix bow clamps in the chain brackets. The bow clamps can take up to 3 cables and are suitable for C-rails with a groove width of 11 mm. Due to the design of the channel elements, a cable-friendly cable guidance is ensured. Can be assembled on the inside and outside bends at both chain ends. The total height stated is a guideline only. The actual height depends, among other things, on the cable diameter and cable type. A safety distance of 10 mm at the fixed point above the strain relief must be kept for gliding applications.

Type	Order No.	Description	Holders pcs.	Cable Ø mm	Width (B) mm	Total height (H) mm
<b>Single clamp (for one cable)</b>						
STF MP 12-1 Steel Fix	80661801	Bow clamp	1	6.0 – 12.0	16.0	53.0
STF MP 14-1 Steel Fix	80661802	Bow clamp	1	12.0 – 14.0	18.0	52.0
STF MP 16-1 Steel Fix	80661803	Bow clamp	1	14.0 – 16.0	20.0	54.0
STF MP 18-1 Steel Fix	80661804	Bow clamp	1	16.0 – 18.0	22.0	56.0
STF MP 20-1 Steel Fix	80661805	Bow clamp	1	18.0 – 20.0	24.0	59.0
STF MP 22-1 Steel Fix	80661806	Bow clamp	1	20.0 – 22.0	26.0	61.0
STF MP 26-1 Steel Fix	80661807	Bow clamp	1	22.0 – 26.0	30.0	70.0
STF MP 30-1 Steel Fix	80661808	Bow clamp	1	26.0 – 30.0	34.0	74.0
STF MP 34-1 Steel Fix	80661809	Bow clamp	1	30.0 – 34.0	38.0	78.0
STF MP 38-1 Steel Fix	80661810	Bow clamp	1	34.0 – 38.0	42.0	82.0
STF MP 42-1 Steel Fix	80661811	Bow clamp	1	38.0 – 42.0	46.0	87.0
<b>Double clamp (for two cables)</b>						
STF MP 12-2 Steel Fix	80661821	Bow clamp	2	6.0 – 12.0	16.0	73.0
STF MP 14-2 Steel Fix	80661822	Bow clamp	2	12.0 – 14.0	18.0	74.0
STF MP 16-2 Steel Fix	80661823	Bow clamp	2	14.0 – 16.0	20.0	81.0
STF MP 18-2 Steel Fix	80661824	Bow clamp	2	16.0 – 18.0	22.0	85.0
STF MP 20-2 Steel Fix	80661825	Bow clamp	2	18.0 – 20.0	24.0	89.0
STF MP 22-2 Steel Fix	80661826	Bow clamp	2	20.0 – 22.0	26.0	93.0
STF MP 26-2 Steel Fix	80661827	Bow clamp	2	22.0 – 26.0	30.0	108.0
STF MP 30-2 Steel Fix	80661828	Bow clamp	2	26.0 – 30.0	34.0	119.0
STF MP 34-2 Steel Fix	80661829	Bow clamp	2	30.0 – 34.0	38.0	127.0
<b>Triple clamp (for three cables)</b>						
STF MP 12-3 Steel Fix	80661841	Bow clamp	3	6.0 – 12.0	16.0	97.0
STF MP 14-3 Steel Fix	80661842	Bow clamp	3	12.0 – 14.0	18.0	98.0
STF MP 16-3 Steel Fix	80661843	Bow clamp	3	14.0 – 16.0	20.0	104.0
STF MP 18-3 Steel Fix	80661844	Bow clamp	3	16.0 – 18.0	22.0	111.0
STF MP 20-3 Steel Fix	80661845	Bow clamp	3	18.0 – 20.0	24.0	118.0
STF MP 22-3 Steel Fix	80661846	Bow clamp	3	20.0 – 22.0	26.0	124.0

MP 420 OPEN

**LOWERED FIXING POINT MP 420**



Sometimes it is required to lower the height of the moving end bracket for longer travel distances. In this case, modifications to the chain layout should be considered (e.g. extension of the chain). Rearward chain links are mounted directly following the chain bracket. Please contact our application engineers.

Radius R mm	Height of moving end bracket ( $H_{MAT}$ ) mm	Safety margin (S) mm	Installation height incl. safety ( $H_s$ ) mm	Projection ( $M_L$ ) mm	Additional links pcs.	of which additional rearward chain links pcs.
175	180	50	465	590	11	2
200	210	50	515	660	13	2
250	240	50	615	790	17	2
300	270	50	715	910	18	2
350	300	50	815	1060	22	2

**GUIDE CHANNEL VAW (ALUMINIUM /STAINLESS STEEL)**



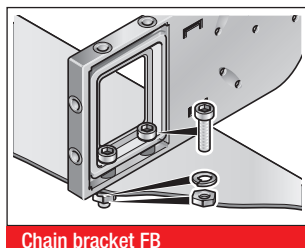
VAW galvanised steel / stainless steel



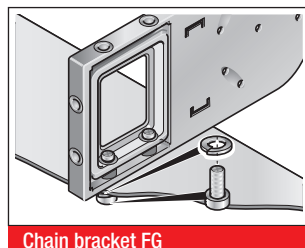
VAW aluminium

A range of variable guide channel systems, constructed from aluminium or stainless steel sections, are available for this energy chain. The variable guide channel ensures that the energy chain is supported and guided securely.

**ASSEMBLY INSTRUCTION FLEXIBLE CHAIN BRACKET FB/FG**



Chain bracket FB



Chain bracket FG

Metal bushings guarantee long-lasting fastening without cold flow in the plastic.

**Type KA-FB:**

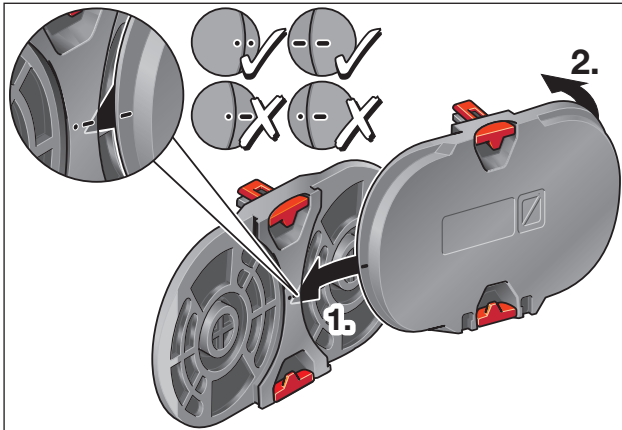
Integrated through-hole is fastened using screw and nut.

**Type KA-FG:**

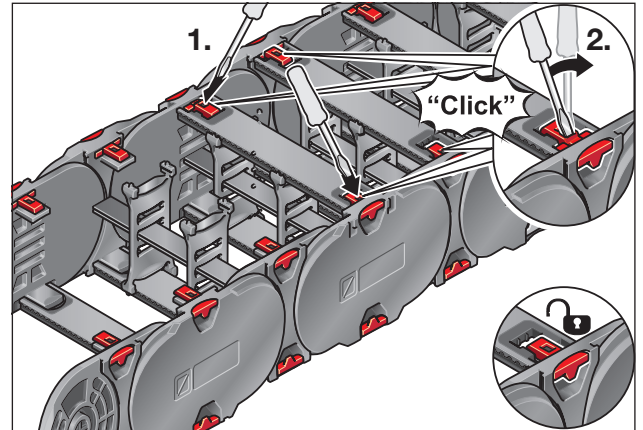
Built-in threads allow for quick and easy on-site mounting, since a screw, including a retaining washer where necessary, is sufficient.

**ASSEMBLY**

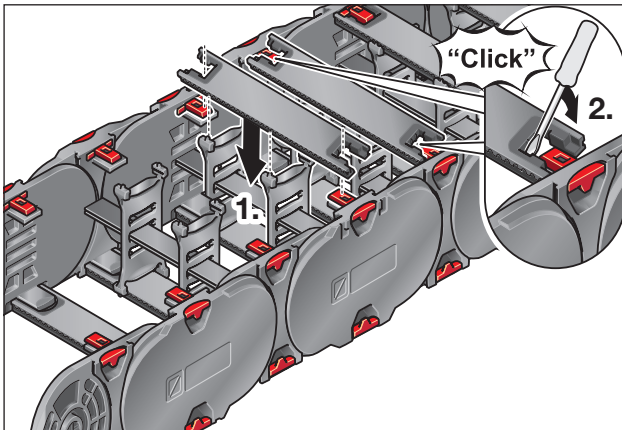
**DISASSEMBLY**



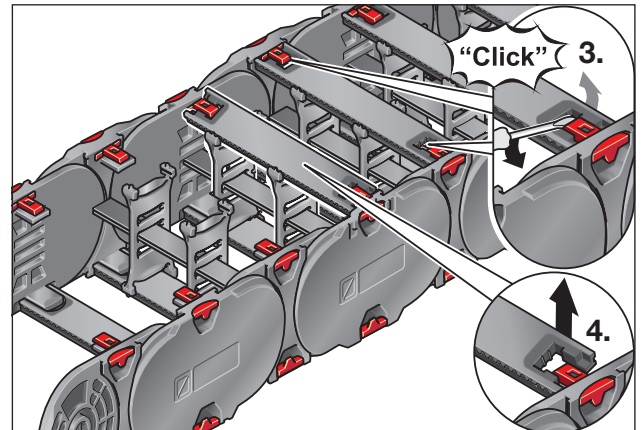
Step 1



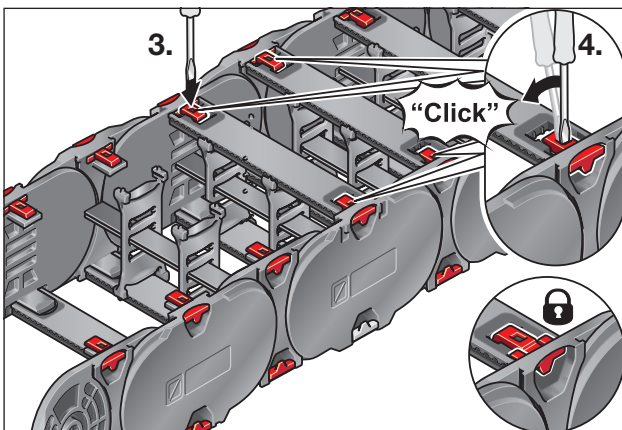
Step 1



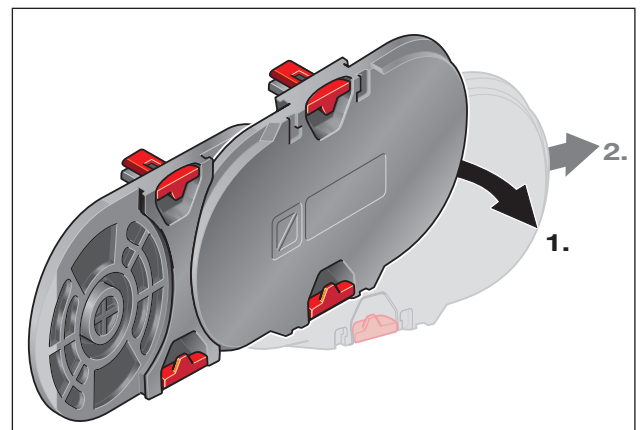
Step 2



Step 2



Step 3



Step 3

**MP 420 OPEN**

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