murrSystems®
Simply Smart Systems

Energy chain systems

MP 45.1, MP 45.2

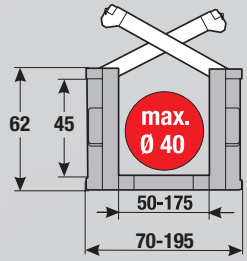
murrSystems®
Simply Smart Systems

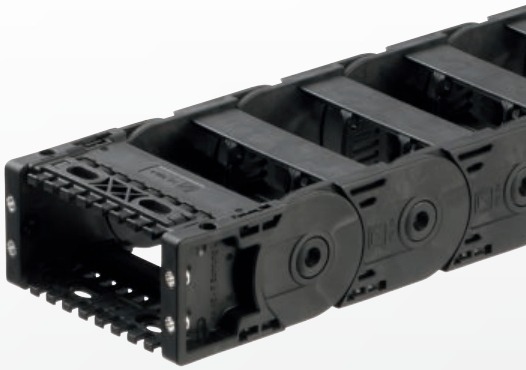
MULTILINE

MP 45.1
OPEN

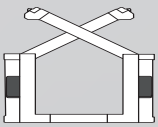
MP 45.2
OPEN

- LOW-COST VARIANT
- SOFT-STOP SYSTEM
- SUITABLE FOR UNIVERSAL USE
- CHAIN BRACKET WITH INTEGRATED STRAIN RELIEF
- BROAD INTERIOR LAYOUT

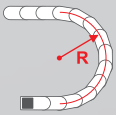




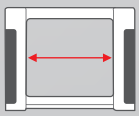
TECHNICAL DATA



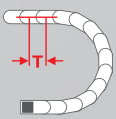
Loading side
Inside or outside bend



Available radii
75,0 – 300,0 mm



Available interior widths
With plastic crossbar
50,0 – 250,0 mm



Pitch
T = 67.0 mm

Noise damper
Reduction of the noise emission by up to 10 dB(A) by the use of damping elements in the chain links.

TECHNICAL SPECIFICATION

Travel distance gliding L_g max.	80.0 m
Travel distance self-supporting L_f max.	see diagram on page 5
Travel distance vertical hanging L_{vh} max.	60.0 m
Travel distance vertical upright L_{vs} max.	4.0 m
90° rotated unsupported L_{90f} max.	1.0 m
Speed gliding V_g max.	5.0 m/s
Speed, self-supporting V_f max.	20.0 m/s
Acceleration, gliding a_g max.	15.0 m/s²
Acceleration self-supporting a_f max.	50.0 m/s²

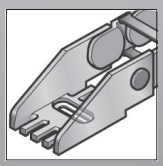
Contact our engineering department to meet any higher requirements: efk@murrplastik.de

MATERIAL CHARACTERISTICS

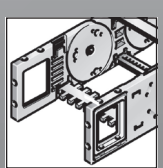
Standard material	Polyamide (PA) black
Service temperature	-30.0 – 120.0 °C
Gliding friction factor	0.3
Static friction factor	0.45
Fire classification	UL 94 HB

Other material characteristics on request.

CHAIN BRACKET



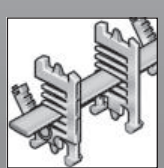
Chain bracket U-part



Chain bracket flexible

SHELVING SYSTEM

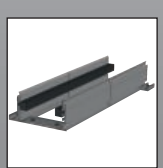
Separator TR



RS shelving system

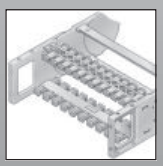
GUIDE CHANNELS

VAW steel galvanised / stainless steel



VAW aluminium

STRAIN RELIEF



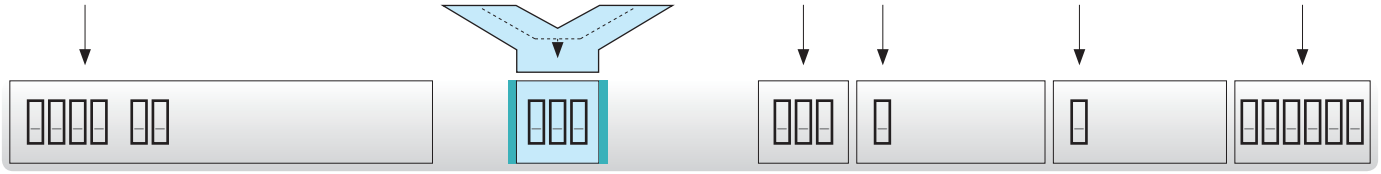
RS-ZL crossbar

Steel Fix STF

ORDER KEY

Dimensions in mm [US inch]

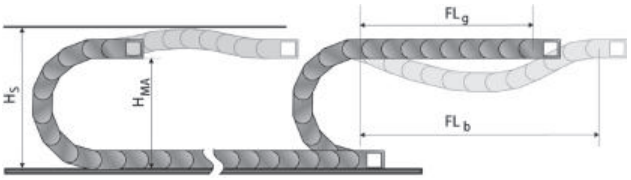
Type code	Variant	Inside width	Outside width	Inside width	Outside width	Radius	Crossbar variant	Material	Chain length
0451 01	**MP 45.1 open** Crossbar in outside bend Crossbar in inside bend Opens on outside bend	050 [1.97]	070 [2.76]			075 [2.95]	0 Plastic full-ridged with bias	2 Polyamide without attenuator (PA/black)	
		075 [2.95]	095 [3.74]						
0452 02	**MP 45.2 open** Crossbar in outside bend Crossbar in inside bend Opens on inside bend	100 [3.94]	120 [4.72]			100 [3.94]	1 Plastic full-ridged without bias	3 Polyamide with attenuator (PA/black)	
		115 [4.53]	135 [5.31]						
		125 [4.92]	145 [5.71]			125 [4.92]		7 ESD (PA/light grey)	
		150 [5.91]	170 [6.69]						
		175 [6.89]	195 [7.68]			150 [5.91]		9 Special version (on request)	
		200 [7.87]	220 [8.66]						
		225 [8.86]	245 [9.65]			200 [7.87]			
		250 [9.84]	270 [10.63]						
						250 [9.84]			
						300 [11.81]			



ORDERING EXAMPLE: 0452 02 075 100 0 3 2010

Crossbar in outside bend, crossbar in inside bend, to be opened from inside bend
Inside width 075 mm, radius 100 mm
Plastic, full-ridged with bias, material polyamide with damper (PA/black)
Chain length 2010 mm (30 links)

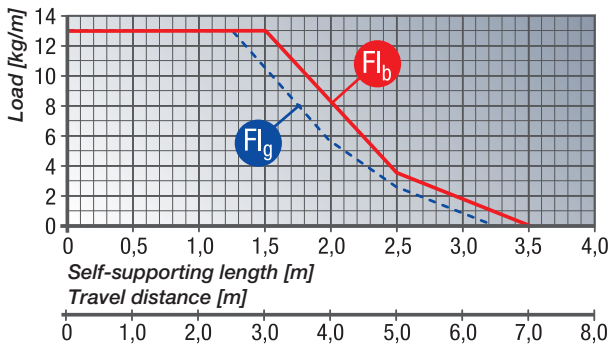
SELF-SUPPORTING LENGTH



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

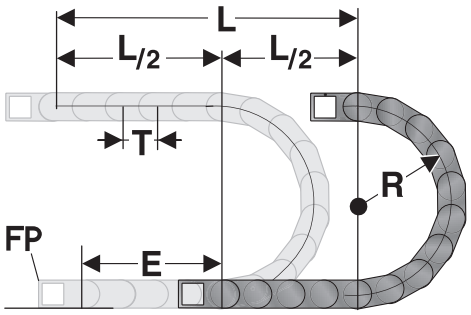
LOAD DIAGRAM FOR SELF-SUPPORTING APPLICATIONS



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 50.0 mm.

FL_b Self-supporting length, upper run bent
In the FL_b range, the chain upper run has a sag of more than 50.0 mm, but this is still less than the maximum sag.
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

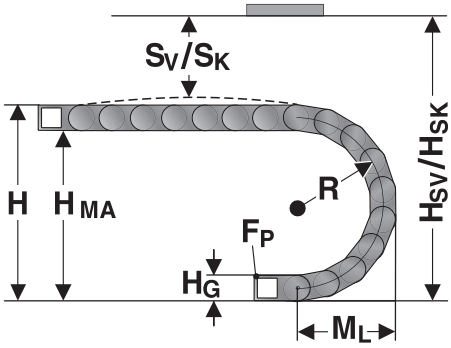


The fixed point of the energy chain should be placed in the middle of the travel distance.
This arrangement gives the shortest connection between the fixed point (FP) and the moving consumer and thus the most efficient chain length.

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

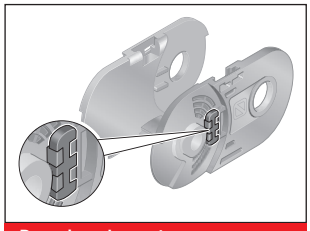
INSTALLATION DIMENSIONS



The moving end chain bracket is to be screw fixed at height H_{MA} for the respective radius.
Concerning the installed dimensions, you must take into consideration whether the chain links are equipped with damping elements or not.
For chain links without damping elements, the value “Installation height with bias H_{SV} without damper” or “Installation height without bias H_{SK} without damper” must be observed
If the chain links are equipped with damping elements, the value "Installation height with bias H_{SV} with damper" or "Installation height without bias H_{SK} with damper" must be observed.

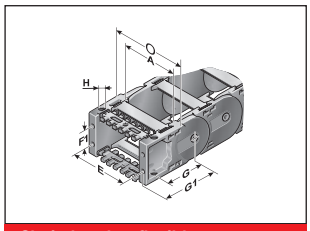
Radius R	**75**	**100**	**125**	**150**	**200**	**250**	**300**
Outside height of chain link (H_G)	62	62	62	62	62	62	62
Height of bend (H)	212	262	312	362	462	562	662
Height of moving end bracket (H_{MA})	150	200	250	300	400	500	600
Safety margin with bias (S_v)	20	20	20	20	20	20	20
Installation height with bias (H_{SV}) without damper	322	372	422	472	572	672	772
Installation height with bias (H_{SV}) with damper	342	392	442	492	592	692	792
Safety margin without bias (S_K)	20	20	20	20	20	20	20
Installation height without bias (H_{SK}) without damper	232	282	332	382	482	582	682
Installation height without bias (H_{SK}) with damper	252	302	352	402	502	602	702
Arc projection (M_L)	173	198	223	248	298	348	398

DAMPING ELEMENT FOR THE CHAIN LINKS

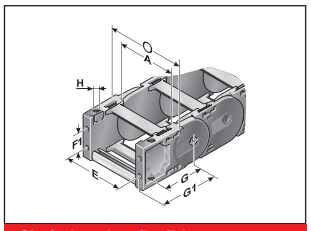

Damping element

The damping elements in the stops facilitate a significantly quieter unrolling of the chain links. The dampers can be chosen optionally.
A reduction of the noise emission by up to 10 dB(A) comparing to the variants without the use of damping elements is possible.

KA 45 FLEXIBLE CHAIN BRACKET



Chain bracket flexible



Chain bracket flexible

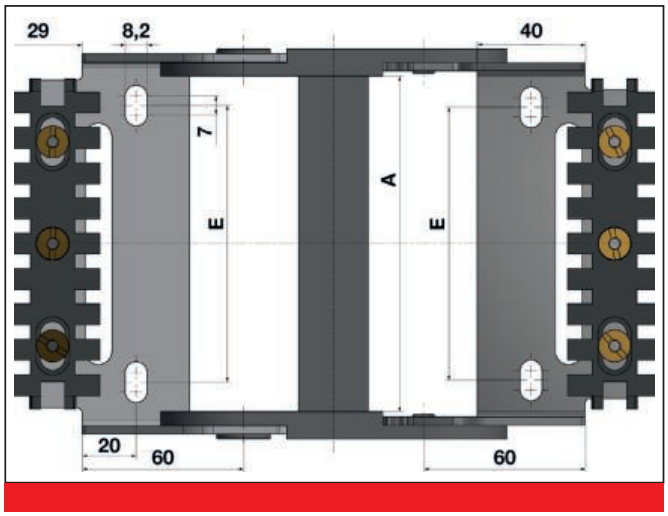
This chain bracket offers universal connection options (top, bottom and front) and is attached to the ends of the cable drag chain like a side link. This allows the chain to move right up to the bracket. Each energy chain requires one male and one female bracket. M5 screws are used to secure the brackets in place. Press-in metal bushes with a through-hole ensure the permanent, high-strength transmission of even extreme forces onto the energy chain.
By default, the chain bracket is supplied with crossbars.
The chain bracket can then be optionally fitted with crossbar strain relief plates (RS-ZL) or with strain relief using C-rails and type STF bow clamps.

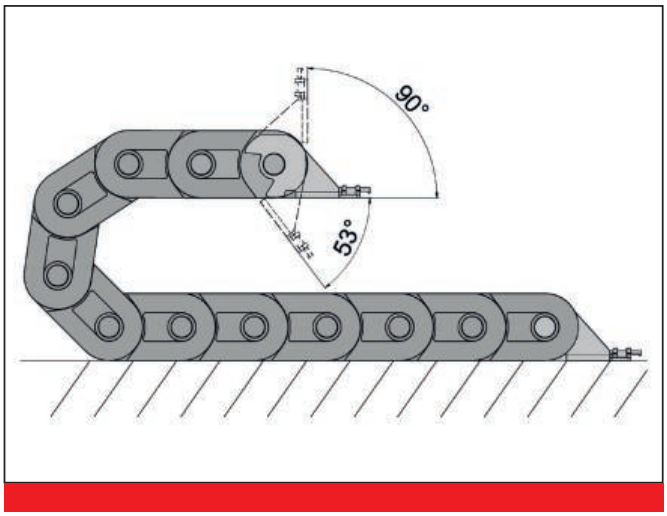
Type	Order No.	Material	Inside width A mm	E mm	F1 mm	G mm	G1 mm	H	HØ mm	Outside width KA O mm
KA 45-FB Female end, 050, complete	0450005050	Plastic	50.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 050, pendular, complete	0450005052	Plastic	50.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 050, complete	0450005051	Plastic	50.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 050, pendular, complete	0450005053	Plastic	50.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 075, complete	0450007550	Plastic	75.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 075, pendular, complete	0450007552	Plastic	75.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 075, complete	0450007551	Plastic	75.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 075, pendular, complete	0450007553	Plastic	75.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 100, complete	0450010050	Plastic	100.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 100, pendular, complete	0450010052	Plastic	100.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 100, complete	0450010051	Plastic	100.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 100, pendular, complete	0450010053	Plastic	100.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 115, complete	0450011550	Plastic	115.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 115, pendular, complete	0450011552	Plastic	115.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 115, complete	0450011551	Plastic	115.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 115, pendular, complete	0450011553	Plastic	115.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 125, complete	0450012550	Plastic	125.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 125, pendular, complete	0450012552	Plastic	125.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 125, complete	0450012551	Plastic	125.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 125, pendular, complete	0450012553	Plastic	125.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 150, complete	0450015050	Plastic	150.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 150, pendular, complete	0450015052	Plastic	150.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 150, complete	0450015051	Plastic	150.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 150, pendular, complete	0450015053	Plastic	150.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 175, complete	0450017550	Plastic	175.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 175, pendular, complete	0450017552	Plastic	175.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 175, complete	0450017551	Plastic	175.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 175, pendular, complete	0450017553	Plastic	175.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 200, complete	0450020050	Plastic	200.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 200, pendular, complete	0450020052	Plastic	200.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 200, complete	0450020051	Plastic	200.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 200, pendular, complete	0450020053	Plastic	200.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 225, complete	0450022550	Plastic	225.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 225, pendular, complete	0450022552	Plastic	225.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 225, complete	0450022551	Plastic	225.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0

KA 45 FLEXIBLE CHAIN BRACKET

Type	Order No.	Material	Inside width A mm	E mm	F1 mm	G mm	G1 mm	H	HØ mm	Outside width KA O mm
KA 45-FB Male end, 225, pendular, complete	0450022553	Plastic	225.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 250, complete	0450025050	Plastic	250.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Female end, 250, pendular, complete	0450025052	Plastic	250.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 250, complete	0450025051	Plastic	250.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FB Male end, 250, pendular, complete	0450025053	Plastic	250.0	A+13,0	22.0	60.0	82.0		5.5	A+24,0
KA 45-FG Female end, 050, complete	0450005054	Plastic	50.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 050, pendular, complete	0450005056	Plastic	50.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 050, complete	0450005055	Plastic	50.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 050, pendular, complete	0450005057	Plastic	50.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 075, complete	0450007554	Plastic	75.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 075, pendular, complete	0450007556	Plastic	75.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 075, complete	0450007555	Plastic	75.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 075, pendular, complete	0450007557	Plastic	75.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 100, complete	0450010054	Plastic	100.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 100, pendular, complete	0450010056	Plastic	100.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 100, complete	0450010055	Plastic	100.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 100, pendular, complete	0450010057	Plastic	100.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 115, complete	0450011554	Plastic	115.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 115, pendular, complete	0450011556	Plastic	115.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 115, complete	0450011555	Plastic	115.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 115, pendular, complete	0450011557	Plastic	115.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 125, complete	0450012554	Plastic	125.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 125, pendular, complete	0450012556	Plastic	125.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 125, complete	0450012555	Plastic	125.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 125, pendular, complete	0450012557	Plastic	125.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 150, complete	0450015054	Plastic	150.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 150, pendular, complete	0450015056	Plastic	150.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 150, complete	0450015055	Plastic	150.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 150, pendular, complete	0450015057	Plastic	150.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 175, complete	0450017554	Plastic	175.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 175, pendular, complete	0450017556	Plastic	175.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 175, complete	0450017555	Plastic	175.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 175, pendular, complete	0450017557	Plastic	175.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 200, complete	0450020054	Plastic	200.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 200, pendular, complete	0450020056	Plastic	200.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 200, complete	0450020055	Plastic	200.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 200, pendular, complete	0450020057	Plastic	200.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 225, complete	0450022554	Plastic	225.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 225, pendular, complete	0450022556	Plastic	225.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 225, complete	0450022555	Plastic	225.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 225, pendular, complete	0450022557	Plastic	225.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 250, complete	0450025054	Plastic	250.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Female end, 250, pendular, complete	0450025056	Plastic	250.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 250, complete	0450025055	Plastic	250.0	A+13,0	22.0	60.0	82.0	M5		A+24,0
KA 45-FG Male end, 250, pendular, complete	0450025057	Plastic	250.0	A+13,0	22.0	60.0	82.0	M5		A+24,0

CHAIN BRACKET U-PART KA 45.1



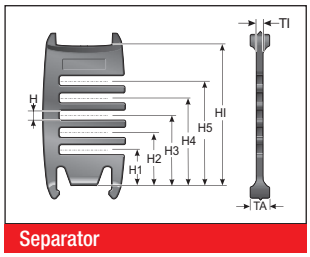


The metal chain bracket (U-part) is precisely adjusted to the respective chain width and only needs to be snapped in at the chain link. Each energy chain requires one female and one male chain bracket.

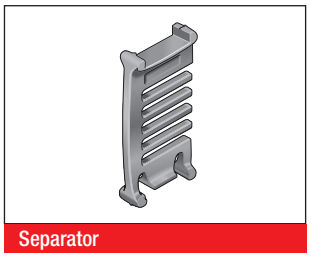
The brackets should be fastened with M5 screws. To fix the cables or conduits directly in the chain bracket, use the order number including strain relief.

Type	Order No.	Order No. With strain relief	QuantityTeeth	Material	Inside width A mm	Drilling dimension E mm
KA 45.1 050 U Female end, steel	045150505000	0451506050	5.0	Steel	50.0	28.0
KA 45.1 050 U Female end, pendular, steel	045150005000	0451501050	5.0	Steel	50.0	28.0
KA 45.1 050 U Male end, steel	045160005000	0451601050	5.0	Steel	50.0	28.0
KA 45.1 075 U Female end, steel	045150507500	0451506075	7.0	Steel	75.0	53.0
KA 45.1 075 U Female end, pendular, steel	045150007500	0451501075	7.0	Steel	75.0	53.0
KA 45.1 075 U Male end, steel	045160007500	0451601075	7.0	Steel	75.0	53.0
KA 45.1 100 U Female end, pendular, steel	045150510000	0451506100	8.0	Steel	90.0	78.0
KA 45.1 100 U Female end, steel	045150010000	0451501100	8.0	Steel	90.0	78.0
KA 45.1 100 U Male end, steel	045160010000	0451601100	8.0	Steel	90.0	78.0
KA 45.1 115 U Female end, pendular, steel	045150511500	0451506115	9.0	Steel	100.0	93.0
KA 45.1 115 U Female end, steel	045150011500	0451501115	9.0	Steel	100.0	93.0
KA 45.1 115 U Male end, steel	045160011500	0451601115	9.0	Steel	100.0	93.0
KA 45.1 125 U Female end, pendular, steel	045150512500	0451506125	9.0	Steel	125.0	103.0
KA 45.1 125 U Female end, steel	045150012500	0451501125	9.0	Steel	125.0	103.0
KA 45.1 125 U Male end, steel	045160012500	0451601125	9.0	Steel	125.0	103.0
KA 45.1 150 U Female end, steel	045150515000	0451506150	11.0	Steel	150.0	128.0
KA 45.1 150 U Female end, pendular, steel	045150015000	0451501150	11.0	Steel	150.0	18.0
KA 45.1 150 U Male end, steel	045160015000	0451601150	11.0	Steel	150.0	128.0
KA 45.1 175 U Female end, pendular, steel	045150517500	0451506175	13.0	Steel	175.0	153.0
KA 45.1 175 U Female end, steel	045150017500	0451501175	13.0	Steel	175.0	153.0
KA 45.1 175 U Male end, steel	045160017500	0451601175	13.0	Steel	175.0	153.0

TRT 45 DIVISIBLE SEPARATOR



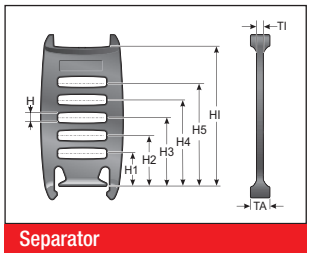
Separator


Separator

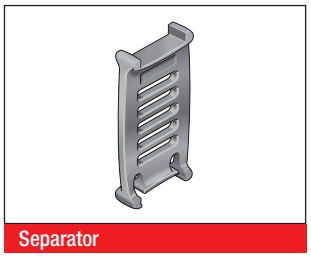
We recommend that separators be used if multiple round cables or conduits with differing diameters are to be installed.

Type	Order No.	Description	Version	TI mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	HI mm
TRT 45	045000009200	TRT 45, separator, divisible	lockable	3.0	8.0	3.2	11.3	16.9	22.5	28.1	33.7	45.0

TR 45-V SEPARATOR



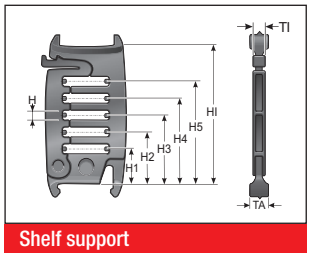
Separator


Separator

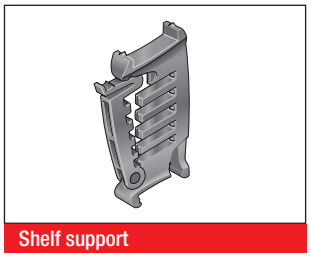
We recommend that separators be used if multiple round cables or conduits with differing diameters are to be installed.

Type	Order No.	Description	Version	TI mm	TA mm	H mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	HI mm
TR 45-V	045000009300	TR 45-V Separator	movable	3.0	8.0	3.2	11.3	16.9	22.5	28.1	33.7	45.0

RTT 45 SHELF SUPPORT, DIVISIBLE



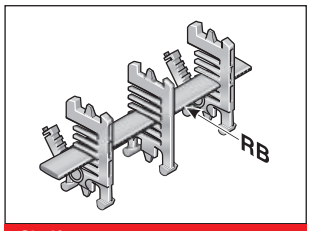
Shelf support


Shelf support

Two separable shelf supports (RTT) in combination with at least one shelf (RB) provide an easy to fill shelving 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	H5 mm	HI mm
RTT 45	100090450000	Shelf support, divisible	lockable	5.0	8.0	3.2	11.3	16.9	22.5	28.1	33.7	45.0

RB-3 SHELF



Shelf

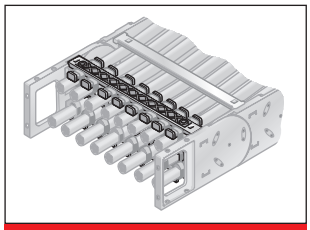
The shelf RBD creates a horizontal division over the entire inner width of the chain link. When used together with the TRT separator, an additional vertical division can be realised.

Type	Order No.	Description	Width mm	for inner width mm
RB 039-3	030100003900	Shelf	38.6	40.0
RB 041-3	1000004103	Shelf	41.1	50.0
RB 044-3	1000004403	Shelf	43.6	50.0
RB 046-3	1000004603	Shelf	46.1	50.0
RB 049-3	030100004900	Shelf	48.6	50.0
RB 051-3	1000005103	Shelf	51.1	60.0
RB 054-3	1000005403	Shelf	53.6	60.0
RB 056-3	1000005603	Shelf	56.1	60.0
RB 059-3	030100005900	Shelf	58.6	60.0
RB 061-3	1000006103	Shelf	61.1	75.0
RB 064-3	1000006403	Shelf	63.6	75.0
RB 066-3	1000006603	Shelf	66.1	75.0
RB 069-3	1000006903	Shelf	68.6	75.0
RB 071-3	1000007103	Shelf	71.1	75.0
RB 074-3	030100007400	Shelf	73.6	75.0
RB 076-3	1000007603	Shelf	76.1	85.0
RB 079-3	1000007903	Shelf	78.6	85.0
RB 081-3	1000008103	Shelf	81.1	85.0
RB 084-3	030100008400	Shelf	83.6	85.0
RB 086-3	1000008603	Shelf	86.1	100.0
RB 089-3	1000008903	Shelf	88.6	100.0
RB 091-3	1000009103	Shelf	91.1	100.0
RB 094-3	1000009403	Shelf	93.6	100.0
RB 096-3	1000009603	Shelf	96.1	100.0
RB 099-3	030100009900	Shelf	98.6	100.0
RB 101-3	1000010103	Shelf	101.1	115.0
RB 104-3	1000010403	Shelf	103.6	115.0
RB 106-3	1000010603	Shelf	106.1	115.0
RB 109-3	1000010903	Shelf	108.6	115.0
RB 111-3	1000011103	Shelf	111.1	115.0
RB 114-3	030100011400	Shelf	113.6	115.0
RB 116-3	1000011603	Shelf	116.1	125.0
RB 119-3	1000011903	Shelf	118.6	125.0
RB 121-3	1000012103	Shelf	121.1	125.0
RB 124-3	030100012400	Shelf	123.6	125.0
RB 126-3	1000012603	Shelf	126.1	150.0
RB 129-3	1000012903	Shelf	128.6	150.0
RB 131-3	1000013103	Shelf	131.1	150.0

RB-3 SHELF

Type	Order No.	Description	Width mm	for inner width mm
RB 134-3	1000013403	Shelf	133.6	150.0
RB 136-3	1000013603	Shelf	136.1	150.0
RB 139-3	1000013903	Shelf	138.6	150.0
RB 141-3	1000014103	Shelf	141.1	150.0
RB 144-3	1000014403	Shelf	143.6	150.0
RB 146-3	1000014603	Shelf	146.1	150.0
RB 149-3	030100014900	Shelf	148.6	150.0
RB 151-3	1000015103	Shelf	151.1	175.0
RB 154-3	1000015403	Shelf	153.6	175.0
RB 156-3	1000015603	Shelf	156.1	175.0
RB 159-3	1000015903	Shelf	158.6	175.0
RB 161-3	1000016103	Shelf	161.1	175.0
RB 164-3	1000016403	Shelf	163.6	175.0
RB 166-3	1000016603	Shelf	166.1	175.0
RB 169-3	1000016903	Shelf	168.6	175.0
RB 174-3	030100017400	Shelf	173.6	175.0
RB 176-3	1000017603	Shelf	176.1	200.0
RB 179-3	1000017903	Shelf	178.6	200.0
RB 181-3	1000018103	Shelf	181.1	200.0
RB 184-3	1000018403	Shelf	183.6	200.0
RB 186-3	1000018603	Shelf	186.1	200.0
RB 189-3	1000018903	Shelf	188.6	200.0
RB 191-3	1000019103	Shelf	191.1	200.0
RB 194-3	1000019403	Shelf	193.6	200.0
RB 196-3	1000019603	Shelf	196.1	200.0
RB 199-3	030100019900	Shelf	198.6	200.0

RS-ZL-3 ZLA MP 45 CROSSBAR STRAIN RELIEF

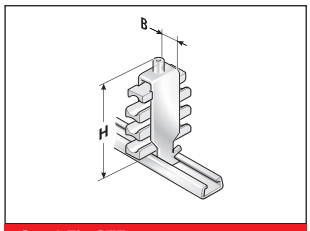


Crossbar strain relief plate

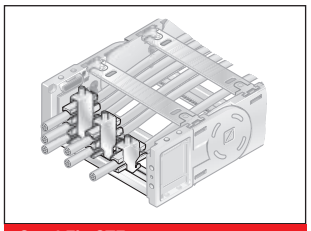
Fixed integrated crossbar strain relief plates in the chain brackets. Tailored to all crossbar widths up to 175 mm. Can be assembled on the inside and outside bends at both chain ends.

Type	Order No.	Description	for inner width mm
RS-ZL 050-3 ZLA MP 45	0451050010	Crossbar strain relief plate	50.0
RS-ZL 075-3 ZLA MP 45	0451075010	Crossbar strain relief plate	75.0
RS-ZL 100-3 ZLA MP 45	0451100010	Crossbar strain relief plate	100.0
RS-ZL 115-3 ZLA MP 45	0451115010	Crossbar strain relief plate	115.0
RS-ZL 125-3 ZLA MP 45	0451125010	Crossbar strain relief plate	125.0
RS-ZL 150-3 ZLA MP 45	0451150010	Crossbar strain relief plate	150.0
RS-ZL 175-3 ZLA MP 45	0451175010	Crossbar strain relief plate	175.0

STRAIN RELIEF WITH STEEL FIX MP



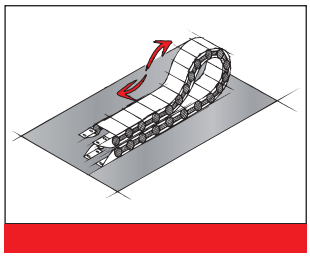
Steel Fix STF

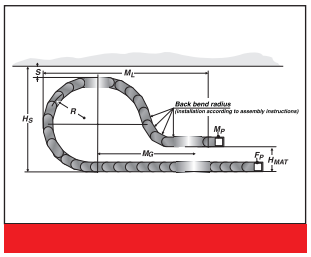

Steel Fix STF

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.	Cable Ø mm	Width (B) mm	Total height (H) mm
Single clamp (for one cable)				
STF MP 12-1 Steel Fix	80661801	6.0 – 12.0	16.0	53.0
STF MP 14-1 Steel Fix	80661802	12.0 – 14.0	18.0	52.0
STF MP 16-1 Steel Fix	80661803	14.0 – 16.0	20.0	54.0
STF MP 18-1 Steel Fix	80661804	16.0 – 18.0	22.0	56.0
STF MP 20-1 Steel Fix	80661805	18.0 – 20.0	24.0	59.0
STF MP 22-1 Steel Fix	80661806	20.0 – 22.0	26.0	61.0
STF MP 26-1 Steel Fix	80661807	22.0 – 26.0	30.0	70.0
STF MP 30-1 Steel Fix	80661808	26.0 – 30.0	34.0	74.0
STF MP 34-1 Steel Fix	80661809	30.0 – 34.0	38.0	78.0
STF MP 38-1 Steel Fix	80661810	34.0 – 38.0	42.0	82.0
STF MP 42-1 Steel Fix	80661811	38.0 – 42.0	46.0	87.0
Double clamp (for two cables)				
STF MP 12-2 Steel Fix	80661821	6.0 – 12.0	16.0	73.0
STF MP 14-2 Steel Fix	80661822	12.0 – 14.0	18.0	74.0
STF MP 16-2 Steel Fix	80661823	14.0 – 16.0	20.0	81.0
STF MP 18-2 Steel Fix	80661824	16.0 – 18.0	22.0	85.0
STF MP 20-2 Steel Fix	80661825	18.0 – 20.0	24.0	89.0
STF MP 22-2 Steel Fix	80661826	20.0 – 22.0	26.0	93.0
STF MP 26-2 Steel Fix	80661827	22.0 – 26.0	30.0	108.0
STF MP 30-2 Steel Fix	80661828	26.0 – 30.0	34.0	119.0
STF MP 34-2 Steel Fix	80661829	30.0 – 34.0	38.0	127.0
Triple clamp (for three cables)				
STF MP 12-3 Steel Fix	80661841	6.0 – 12.0	16.0	97.0
STF MP 14-3 Steel Fix	80661842	12.0 – 14.0	18.0	98.0
STF MP 16-3 Steel Fix	80661843	14.0 – 16.0	20.0	104.0
STF MP 18-3 Steel Fix	80661844	16.0 – 18.0	22.0	111.0
STF MP 20-3 Steel Fix	80661845	18.0 – 20.0	24.0	118.0
STF MP 22-3 Steel Fix	80661846	20.0 – 22.0	26.0	124.0

LOWERED FIXING POINT MP 45





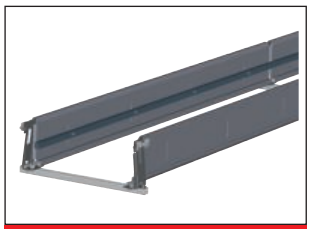
Sometimes it is required to lower the height of the moving end bracket for longer travel distances.

In this case, modifications to the chain layout should be considered (e.g. extension of the chain).

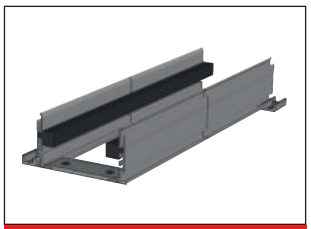
Please contact our application engineers.

Radius R mm	Height of moving end bracket (H_{MA}) 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.
150.0	200.0	50.0	412.0	630.0	12	3
200.0	200.0	50.0	512.0	760.0	13	3
250.0	200.0	50.0	612.0	930.0	18	4
300.0	200.0	50.0	712.0	1080.0	20	4

GUIDE CHANNEL VAW (ALUMINIUM / STAINLESS STEEL)



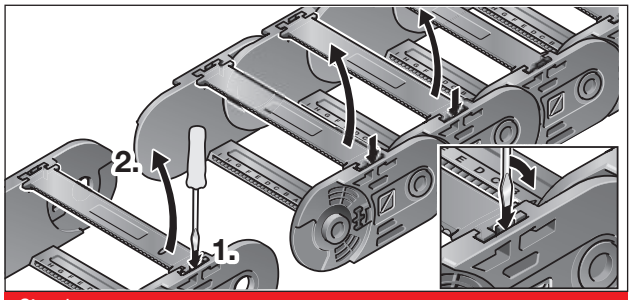
VAW steel galvanised / stainless steel



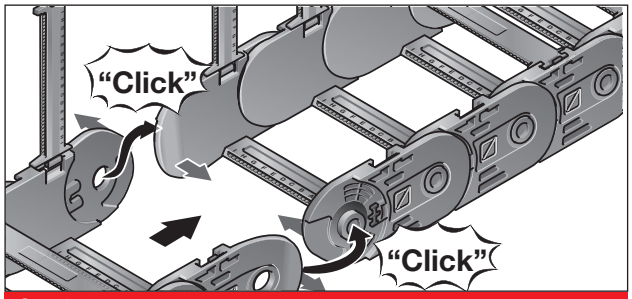
VAW aluminium

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.
A selection guide can be found in the chapter "Variable Guide Channel System"

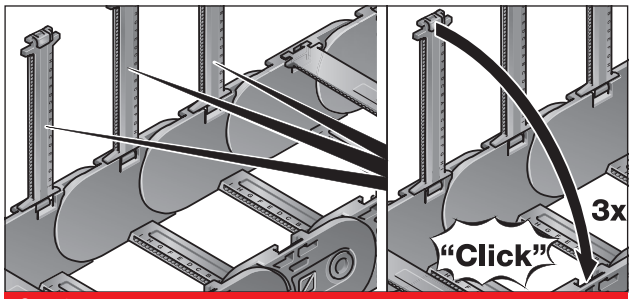
ASSEMBLY



Step 1

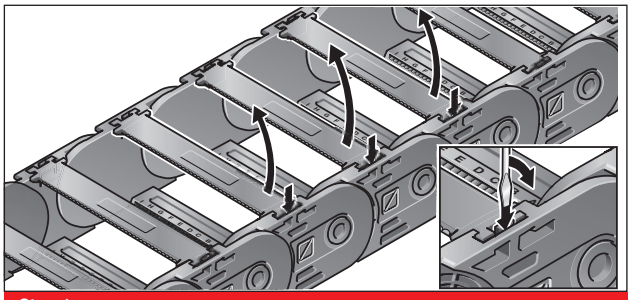


Step 2

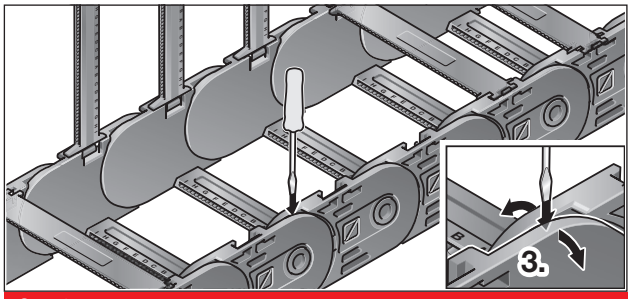


Step 3

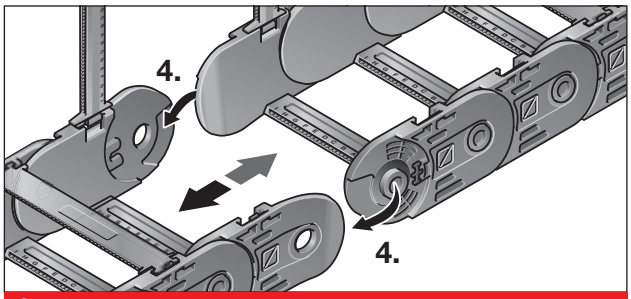
DISASSEMBLY



Step 1



Step 2



Step 3