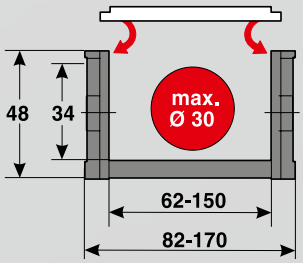
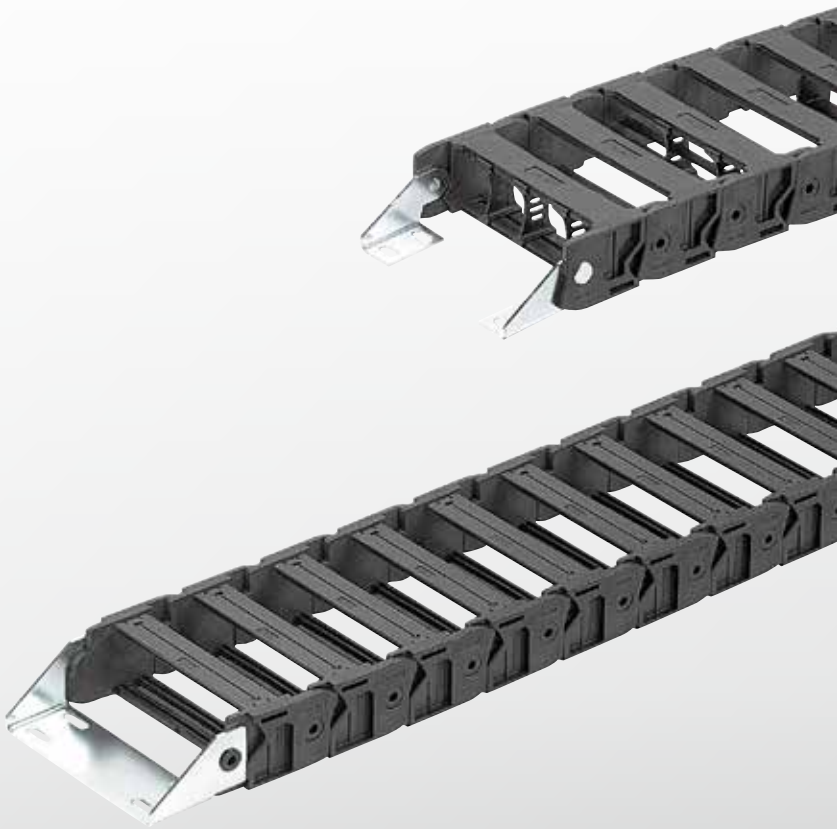
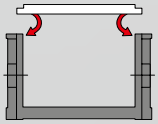
MP 35
OPEN

- METAL CHAIN BRACKET
- LOW-COST VARIANT

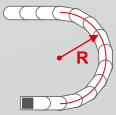




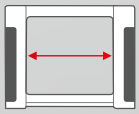
TECHNICAL DATA



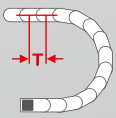
Loading side
Inside bend



Available radii
70.0 – 300.0 mm



Available interior widths
With plastic crossbar
62.0 – 150.0 mm



Pitch
T = 58.0 mm

TECHNICAL SPECIFICATIONS

Travel distance gliding L_g max.	80.0 m
Travel distance self-supporting L_f max.	see diagram on page 347
Travel distance vertical, hanging L_{vh} max.	40.0 m
Travel distance vertical, upright L_{vs} max.	3.0 m
Rotated 90°, unsupported L_{90f} max.	1.0 m
Speed, gliding V_g max.	3.0 m/s
Speed, self-supporting V_f max.	10.0 m/s
Acceleration, gliding a_g max.	15.0 m/s²
Acceleration, self-supporting a_f max.	20.0 m/s²

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

MATERIAL PROPERTIES

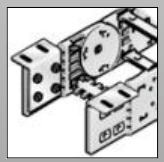
Standard material	Polyamide (PA) black
Service temperature	-30.0 – 120.0 °C
Gliding friction factor	0.3
Static friction factor	0.45
Fire classification	Based on UL 94 HB

Other material properties on request.

SHELVING SYSTEM

Separator TR

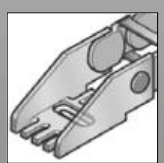
CHAIN BRACKET



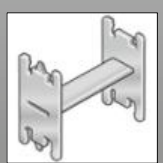
Chain bracket angle

RS shelving system

VAW steel galvanised / stainless steel



Chain bracket U-part



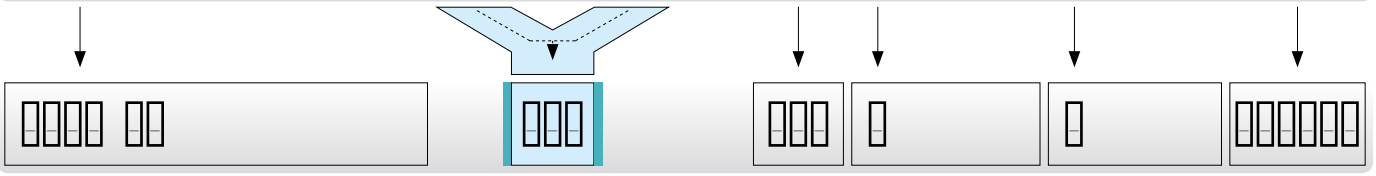
H-shaped shelf unit RE

VAW aluminium

GUIDE CHANNELS

ORDERING KEY

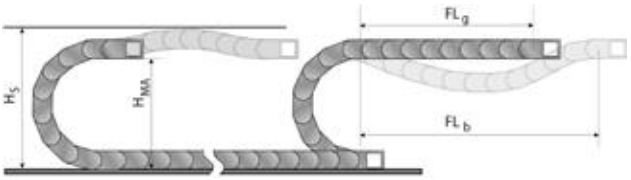
Type code	Variation	Inside width	Outside width	Inside width	Outside width	Radius	Crossbar variant	Material	Chain length
0350 02	Crossbar on outside bend Crossbar on inside bend Opens on inside bend	062 [2.44]	082 [3.23]			070 [2.76]	0 Plastic, full-ridged with bias	0 Polyamide standard (PA/black)	
		086 [3.39]	106 [4.17]						
		102 [4.02]	122 [4.80]			100 [3.94]	1 Plastic, full-ridged without bias	9 Special version (on request)	
		125 [4.92]	145 [5.71]						
		150 [5.91]	170 [6.69]			150 [5.91]			
						200 [7.87]			
						300 [11.81]			



ORDERING EXAMPLE: 0350 02 062 070 0 0 1276

Crossbar on outside bend, crossbar on inside bend, can be opened from inside bend
Inside width 62 mm; radius 70 mm
Plastic crossbar, full-ridged with bias, material black-coloured polyamide
Chain length 1276 mm (22 links)

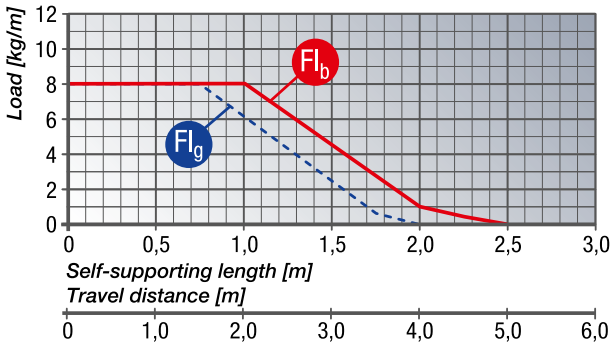
SELF-SUPPORTING LENGTH



The self-supporting length is the distance between the chain bracket on the moving end and the start of the chain arch.
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 connection
FL_g = Self-supporting length, upper run straight
FL_b = Self-supporting length, upper run bent

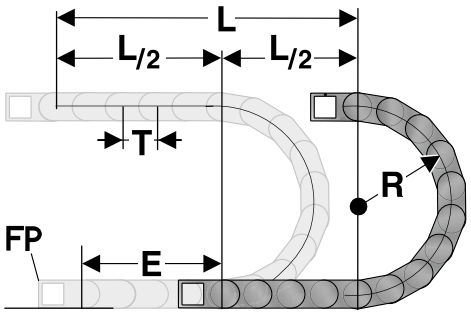
LOAD DIAGRAM FOR SELF-SUPPORTING APPLICATIONS



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 60.0 mm.

FL_b Self-supporting length, upper run bent
In the FL_b range, the chain upper run has a sag of more than 60.0 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

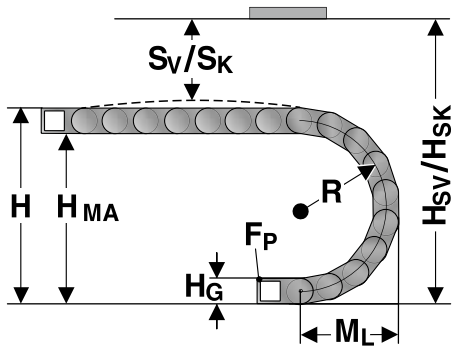


The fixed point of the energy chain should be connected in the middle of the travel distance.
This arrangement gives the shortest connection between the fixed point and the moving consumer and thus the most efficient chain length.

Chain length calculation = $L/2 + \pi * R + 2 * T + E$
≈ 1 m chain = 17 qty. x58.0 mm.

E = Distance between entry point and middle of travel distance
L = Travel distance
R = Radius
P = Pitch 58.0 mm

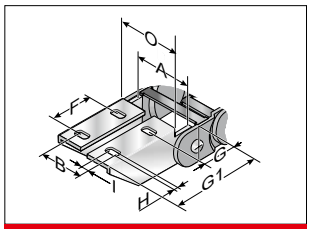
INSTALLATION DIMENSIONS



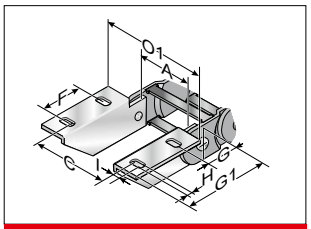
The moving end chain connection is to be screw fixed at height H_{MA} for the respective radius.
Concerning the installed dimensions, you must take into account whether the chain links are equipped with or without bias.
For chain links without bias, the “Installed height without bias H_{SK}” value has 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	70	100	150	200	300
Outside height of chain link (H_G)	48	48	48	48	48
Height of bend (H)	188	248	348	448	648
Height of moving end bracket (H_{MA})	140	200	300	400	600
Safety margin with bias (S_v)	40	40	40	40	40
Installation height with bias (H_{SV})	228	288	388	488	688
Safety margin without bias (S_K)	15	15	15	15	15
Installation height without bias (H_{SK})	203	263	363	463	663
Arc projection (M_L)	152	182	232	282	382

KA 35 CHAIN BRACKET ANGLE



KA 35... (Inside up / down)

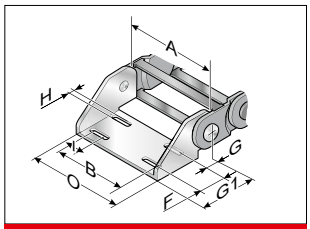


KA 35... (Outside up / down)

The chain bracket can be supplied either in galvanised sheet steel or stainless steel. To secure one energy chain, you will need two angle brackets (left and right) with a drilled hole and two angle brackets (left and right) with a bolt. The order numbers given below each comprise a left and right angle bracket.

Type	Order No.	Material	Inside width A mm	B mm	C mm	F mm	G mm	HØ mm	I mm	Outside width of KA O mm	Outside width of KA O1 mm
KA 3508 Female end	0350000054	Sheet steel	62.0 – 150.0	A-7.0	A+28.0	25.0	20.0	7.0	8.0	A+20.0	A+52.0
KA 3508 Male end	0350000055	Sheet steel	62.0 – 150.0	A-12.0	A+38.5	25.0	20.0	7.0	8.0	A+10.0	A+52.0
KA 3509 Female end	0350000056	Stainless steel 1.4301	62.0 – 150.0	A-7.0	A+28.0	25.0	20.0	7.0	8.0	A+20.0	A+52.0
KA 3509 Male end	0350000057	Stainless steel 1.4301	62.0 – 150.0	A-12.0	A+38.5	25.0	20.0	7.0	8.0	A+10.0	A+52.0

KA 35 CHAIN BRACKET U-PART

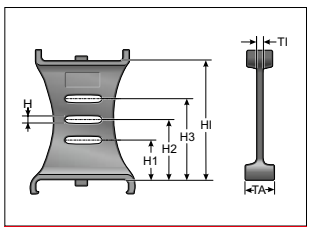


KA 35062 – 35150

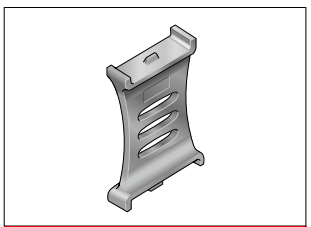
The metal connection (U-section) is precisely adjusted to the respective chain width. It only needs to be snapped in the chain link. Please order one male and one female end bracket for each chain. The brackets should be fastened with M6 screws.

Type	Order No.	Material	Inside width A mm	B mm	F mm	G mm	G1 mm	HØ mm	I mm	Outside width of KA O mm
KA 35062 Female end	035000007000	Sheet steel	62.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35062 Male end	035000007100	Sheet steel	62.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35086 Female end	035000007200	Sheet steel	86.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35086 Male end	035000007300	Sheet steel	86.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35102 Female end	035000007400	Sheet steel	102.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35102 Male end	035000007500	Sheet steel	102.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35125 Female end	035000007600	Sheet steel	125.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35125 Male end	035000007700	Sheet steel	125.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35150 Female end	035000007800	Sheet steel	150.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35150 Male end	035000007900	Sheet steel	150.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35062 Female end	035000008000	Stainless steel 1.4301	62.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35062 Male end	035000008100	Stainless steel 1.4301	62.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35086 Female end	035000008200	Stainless steel 1.4301	86.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35086 Male end	035000008300	Stainless steel 1.4301	86.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35102 Female end	035000008400	Stainless steel 1.4301	102.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35102 Male end	035000008500	Stainless steel 1.4301	102.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35125 Female end	035000008600	Stainless steel 1.4301	125.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35125 Male end	035000008700	Stainless steel 1.4301	125.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35150 Female end	035000008800	Stainless steel 1.4301	150.0	A-7.0	25.0	20.0	55.0	7.0	15.0	A+20.0
KA 35150 Male end	035000008900	Stainless steel 1.4301	150.0	A-12.0	25.0	20.0	55.0	7.0	15.0	A+20.0

TR 35 SEPARATOR



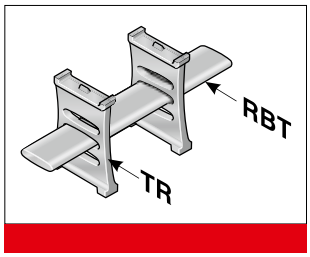
Separator



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	HI mm
TR 35	035000009200	Separator	lockable	2.0	13.0	2.5	10.9	16.9	22.9	33.8

MP 35 SHELVING SYSTEM



The shelf must be used with a minimum of two separators to create a shelving system. The additional levels prevent cables from criss-crossing and minimise the friction between them. The shelves are matched to the available chain widths.

Type	Order No.	Description	Width mm	Pitch mm
RBT 062	100000006200	Shelf	62.0	3.0
RBT 086	100000008600	Shelf	86.0	3.0
RBT 101	100000010100	Shelf	101.0	3.0
RBT 125	100000012500	Shelf	125.0	3.0
RBT 150	100000015000	Shelf	150.0	3.0

RE 35 H-SHAPED SHELF UNIT

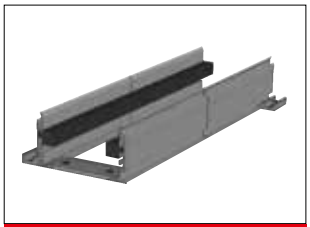
Shelf unit

One-piece shelving system, the shelf cannot be varied in height.

Type	Order No.	Description	WA mm	WI mm	H1 mm	H2 mm	HI mm
RE 35/33	100000353310	H-shaped shelf unit	35.5	30.5	18.0	12.0	33.0
RE 35/48	100000354810	H-shaped shelf unit	50.5	45.5	18.0	12.0	33.0
RE 35/57	100000355710	H-shaped shelf unit	59.5	54.5	18.0	12.0	33.0

GUIDE CHANNEL VAW (ALUMINIUM / STAINLESS STEEL)

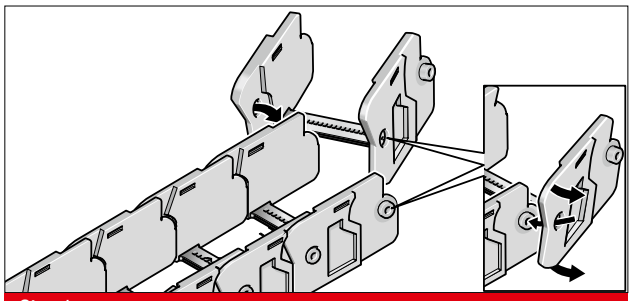
VAW steel galvanised / stainless steel



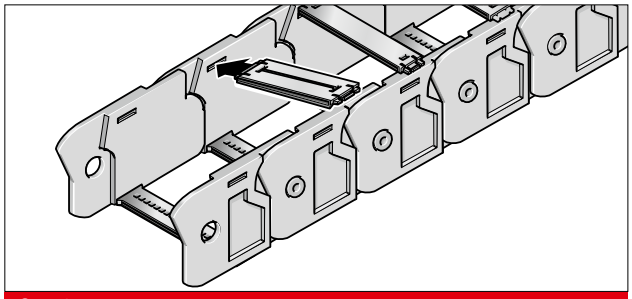
VAW aluminium

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.

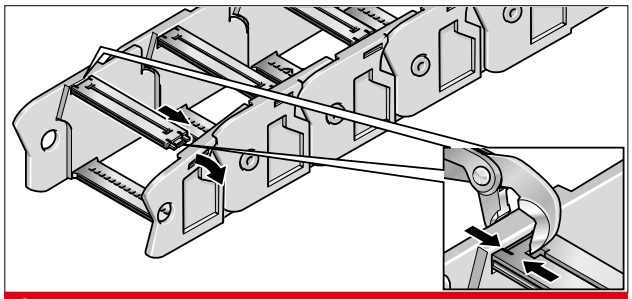
ASSEMBLY



Step 1

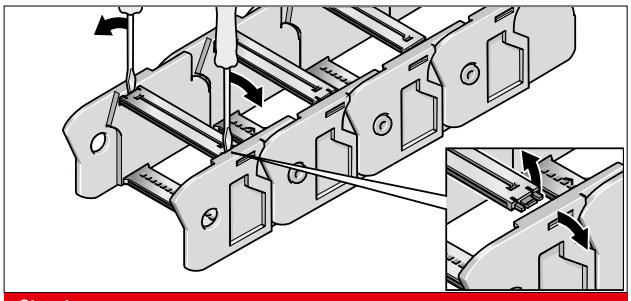


Step 2

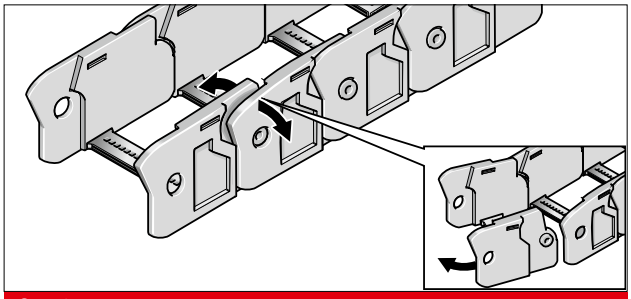


Step 3

DISASSEMBLY

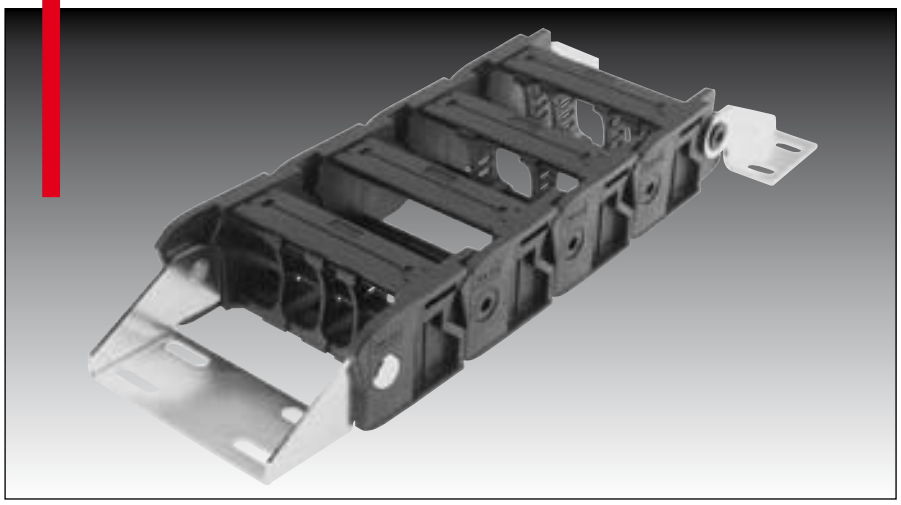


Step 1



Step 2

Cable drag chain systems

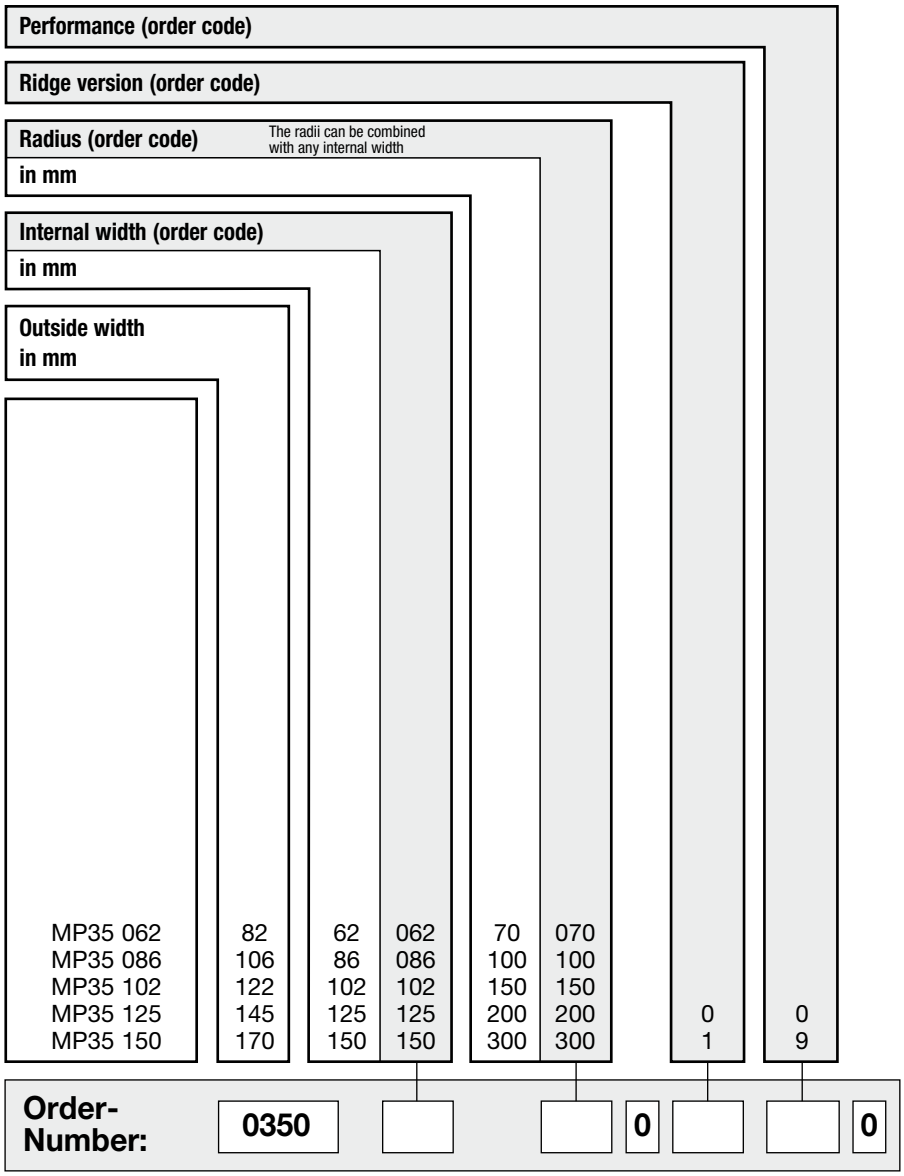


MultiLine

MP 35

MP 35 - MultiLine

Order variants



Ridge version:

0 PA full-ridged with bias
1 PA full-ridged without bias

Version:

0 Standard (PA/black)
9 Custom version

Sample order:

0350 062 070 0000

Internal width = 62 mm
Radius = 70 mm
Ridge version = 0
Version = 0

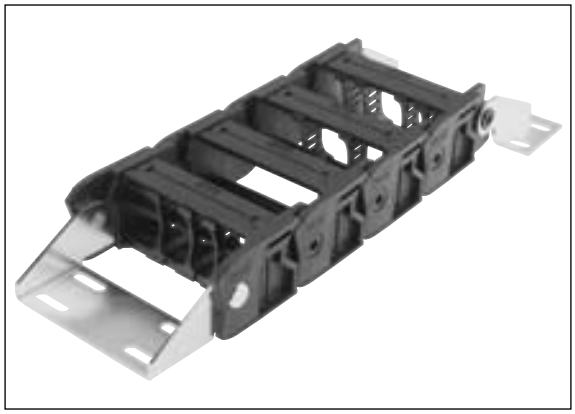
Ideal operating conditions:

- Compact dimensions with
- opening cover in inside bend
- Quiet operation
- High stability
- Flexible internal separation
- Rotated 90°, unsupported
- Version with bias (RV) for greater self supporting length
- Version with bias (RV) for gliding arrangement

Alternative chain type:

- MP 36 G closed series
- MP 32 can be opened on both sides
- MP 32 variable widths
- MP 32 greater stresses
- MP 32 flange connection (KA-F)
- MP 32 Back radii

Features



Chain bracket with variably positionable metal angle

Back radius combinations

Integrable separator for cable separation

Plug-in shelf system for reliable cable guidance

Chain bracket/metal bracket

Radii with or without bias (RK/RV)

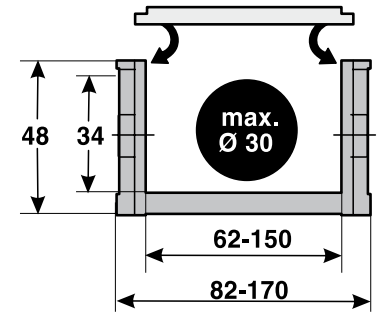
H-shelf for simple cable separation in the chain compartment

Frame bridges can be removed on one side

Strain relief plate ZL

Technical data

Chain link dimensions (mm)



Loading side: inside flexure curve

Material characteristics standard (PA/black)

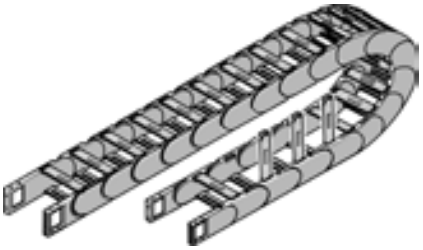
Service temperature:	-30 to 120° C
Gliding friction factor:	0.30
Static friction factor:	0.45
Fire classification:	Based on UL94 HB

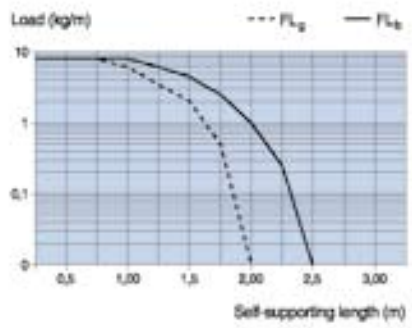
Other material properties on request

Technical specifications

Travel distance, gliding, L_g:	80 m
Travel distance, self supporting, L_f:	see diagram
Travel distance, vertical, hanging, L_{vh}:	40 m
Travel distance, vertical, upright, L_{vs}:	3 m
Rotated 90°, self supporting, L_{90f}:	1 m
Speed, gliding, V_g:	3 m/s
Speed, self supporting, V_f:	10 m/s
Acceleration, gliding, a_g:	15 m/s²
Acceleration, self supporting, a_f:	20 m/s²

Self supporting length



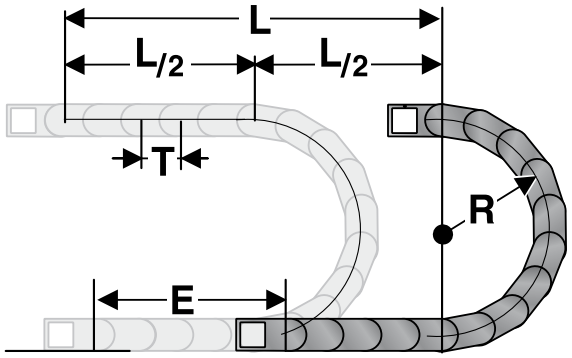


FL_g:
Ideal installation situation for high stresses at the limit of the max. travel parameters. In this range the chain upper run is still biased, straight or has a max. sag of 10 – 50 mm depending on the type of chain.

FL_b:
Satisfactory installation position for many applications working in the lower to middle range of the max. travel parameters. Depending on the chain type, the sag of the chain upper run is >10 – 50 mm but certainly less than the max. sag.

If the sag is greater than FL_b, the arrangement is unsuitable and should be avoided. Please choose a more stable Murrplastik cable drag chain.

Determining the chain length



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

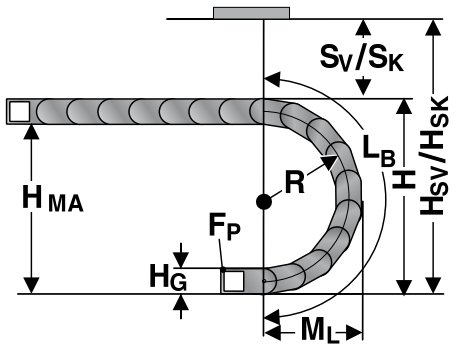
Determining the chain length

Length = $\frac{L}{2} + \pi \times R + 2 \times T + E$

≈ 1 m chain = 17 x 58 mm link

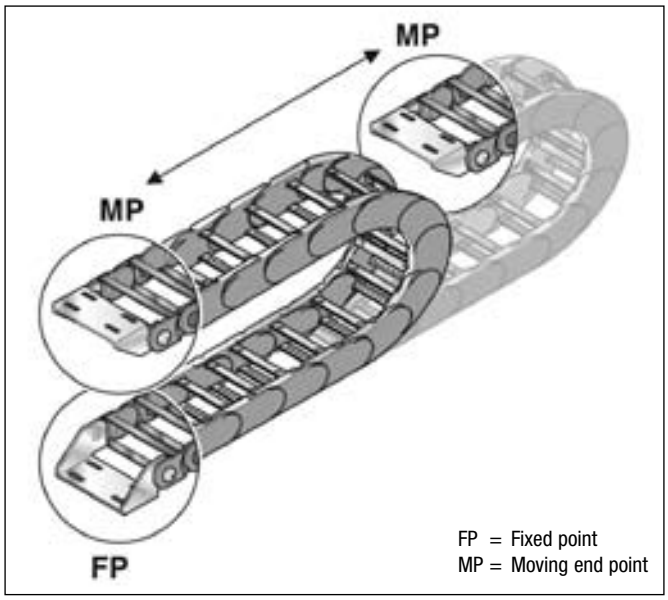
The fixed point of the cable drag chain should be connected in the middle of the travel distance. This arrangement gives the shortest connection between the fixed point and the moving consumer and thus the most efficient chain length.

Installation dimensions (in mm)

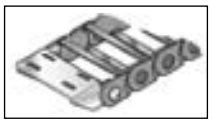


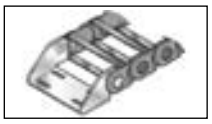
Radius R	70	100	150	200	300
Outside height of chain link (H_G)	48	48	48	48	48
Height of bend (H)	188	248	348	448	648
Height of moving end connection (H_{MA})	140	200	300	400	600
Safety margin with bias (S_V)	40	40	40	40	40
Installation height with bias (H_{SV})	228	288	388	488	688
Safety margin without bias (S_K)	15	15	15	15	15
Installation height without bias (H_{SK})	203	263	363	463	663
Arc projection (M_L)	152	182	232	282	382
Bend length (L_B)	353	447	604	761	1075

Chain bracket



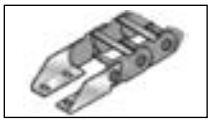
Chain bracket U-part

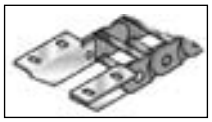

Top

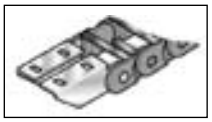

Bottom

Chain bracket angle

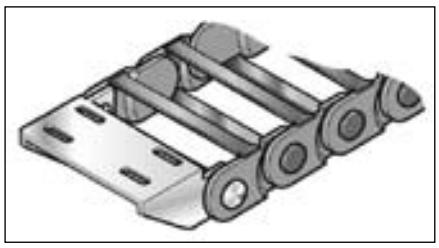

Bottom/Outside


Bottom/Inside


Top/Outside


Top/Inside

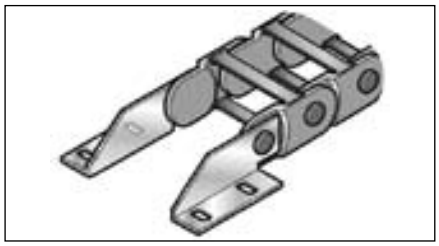
Chain bracket U-part


KA 35062–KA 35150

Type	Order no.	Material	Pack qty.
KA 35062 Female end	035000007000	Sheet steel	1
KA 35062 Male end	035000007100	Sheet steel	1
KA 35086 Female end	035000007200	Sheet steel	1
KA 35086 Male end	035000007300	Sheet steel	1
KA 35102 Female end	035000007400	Sheet steel	1
KA 35102 Male end	035000007500	Sheet steel	1
KA 35125 Female end	035000007600	Sheet steel	1
KA 35125 Male end	035000007700	Sheet steel	1
KA 35150 Female end	035000007800	Sheet steel	1
KA 35150 Male end	035000007900	Sheet steel	1
KA 35062 Female end	035000008000	Stainless steel 1.4301	1
KA 35062 Male end	035000008100	Stainless steel 1.4301	1
KA 35086 Female end	035000008200	Stainless steel 1.4301	1
KA 35086 Male end	035000008300	Stainless steel 1.4301	1
KA 35102 Female end	035000008400	Stainless steel 1.4301	1
KA 35102 Male end	035000008500	Stainless steel 1.4301	1
KA 35125 Female end	035000008600	Stainless steel 1.4301	1
KA 35125 Male end	035000008700	Stainless steel 1.4301	1
KA 35150 Female end	035000008800	Stainless steel 1.4301	1
KA 35150 Male end	035000008900	Stainless steel 1.4301	1

The metal connection (U-shaped part) is precisely adjusted to the respective chain width. It only needs to be snapped in the chain link. Please order one male and one female end bracket for each chain. The brackets should be fastened with M6 screws.

Chain bracket angle

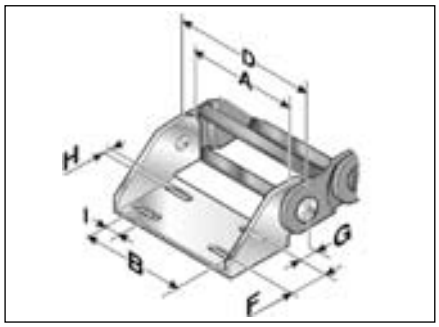


KA 3508–KA 3509

Type	Order no.	Material	Pack qty.
KA 3508 Female end	0350000054	Sheet steel	1
KA 3508 Male end	0350000055	Sheet steel	1
KA 3509 Female end	0350000056	Stainless steel 1.4301	1
KA 3509 Male end	0350000057	Stainless steel 1.4301	1

Please order one male and one female end bracket for each chain.

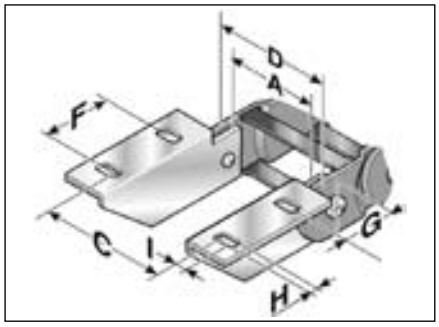
Chain bracket U-part



KA 35062-150

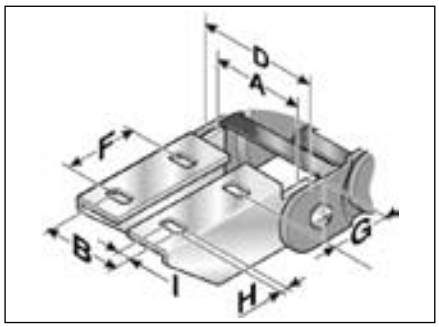
Type	A mm	B mm	D mm	F mm	G mm	H Ø mm	I mm
KA 35062	62.0	53.5	82.0	25.0	20.0	7.0	15.0
KA 35086	86.0	77.5	106.0	25.0	20.0	7.0	15.0
KA 35102	102.0	93.5	122.0	25.0	20.0	7.0	15.0
KA 35125	125.0	116.5	145.0	25.0	20.0	7.0	15.0
KA 35150	150.0	142.0	170.0	25.0	20.0	7.0	15.0

Chain bracket angle



Angle exterior

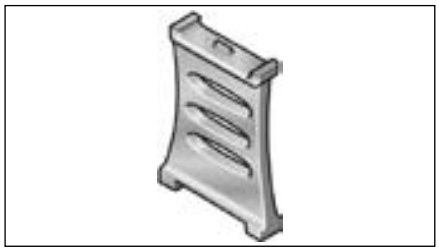
Type	A mm	C mm	D mm	F mm	G mm	H Ø mm	I mm
KA 3508/09 Female end	62.0	90.0	82.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	62.0	100.5	82.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	86.0	114.0	106.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	86.0	124.5	106.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	102.0	130.0	122.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	102.0	140.5	122.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	125.0	153.0	145.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	125.0	163.5	145.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	150.0	178.0	170.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	150.0	188.5	170.0	25.0	20.0	7.0	8.0



Angle interior

Type	A mm	B mm	D mm	F mm	G mm	H Ø mm	I mm
KA 3508/09 Female end	62.0	55.0	82.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	62.0	50.0	82.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	86.0	79.0	106.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	86.0	74.0	106.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	102.0	95.0	122.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	102.0	90.0	122.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	125.0	118.0	145.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	125.0	113.0	145.0	25.0	20.0	7.0	8.0
KA 3508/09 Female end	150.0	143.0	170.0	25.0	20.0	7.0	8.0
KA 3508/09 Male end	150.0	138.0	170.0	25.0	20.0	7.0	8.0

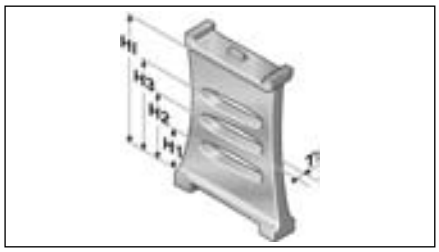
Separator



Separator

Type	Order no.	Designation	Pitch mm		Pack qty.
TR 35	035000009200	Separator	3.0	lockable	1

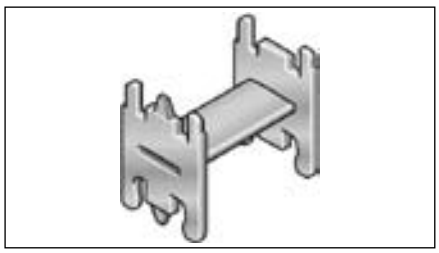
We recommend that separators be used if multiple round cables or conduits with differing diameters are to be installed. An offset configuration of the separators is advisable.



Separator

Type	TI mm	H1 mm	H2 mm	H3 mm	HI mm	H mm
TR 35	2.0	10.9	16.9	22.9	33.8	2.5

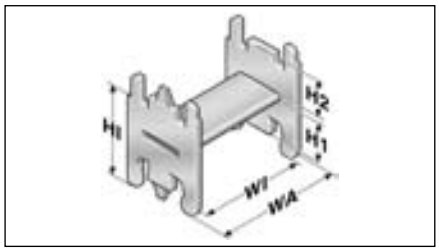
H-shaped shelf unit



H-shaped shelf unit

Type	Order no.	Designation	Pitch mm	Pack qty.
RE 35/33	100000353310	RE 35/33 H-shaped shelf unit	5.6	1
RE 35/48	100000354810	RE 35/48 H-shaped shelf unit	5.6	1
RE 35/57	100000353710	RE 35/57 H-shaped shelf unit	5.6	1

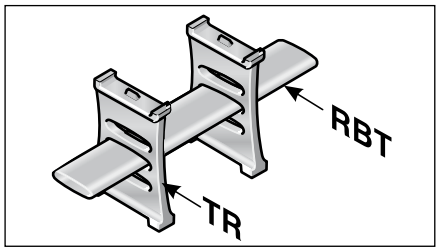
Insert to obtain additional levels in pre-defined distances.



H-shaped shelf unit

Type	WA mm	WI mm	H1 mm	H2 mm	HI mm
RE 35/33	35.5	30.5	18.0	12.0	33.0
RE 35/48	50.5	45.5	18.0	12.0	33.0
RE 35/57	59.5	54.5	18.0	12.0	33.0

Shelving system

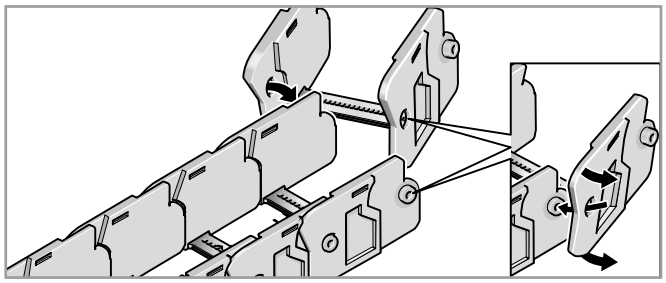


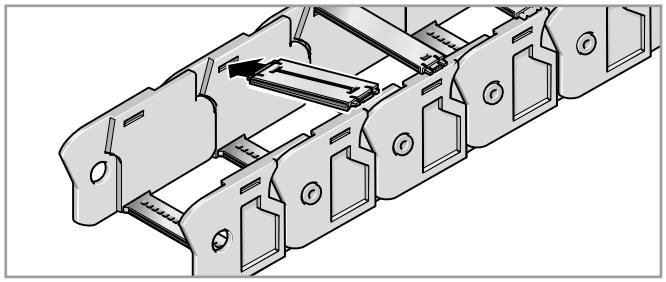
Shelving system

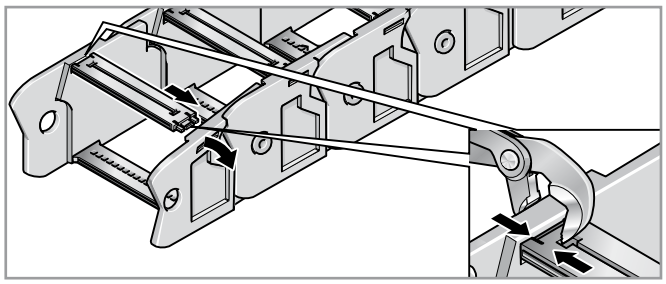
Type	Order no.	Designation	Width mm	Pitch mm	Pack qty.
RBT 062	100000006200	RBT 062 shelf	62	3.0	1
RBT 086	100000008600	RBT 086 shelf	86	3.0	1
RBT 101	100000010100	RBT 101 shelf	101	3.0	1
RBT 125	100000012500	RBT 125 shelf	125	3.0	1
RBT 150	100000015000	RBT 150 shelf	150	3.0	1

The shelf must be used with a minimum of two separators to create a shelving system. The additional levels prevent cables from criss-crossing and therefore destroying each other, whilst also avoiding excessive friction. The shelves are matched to the available chain widths.

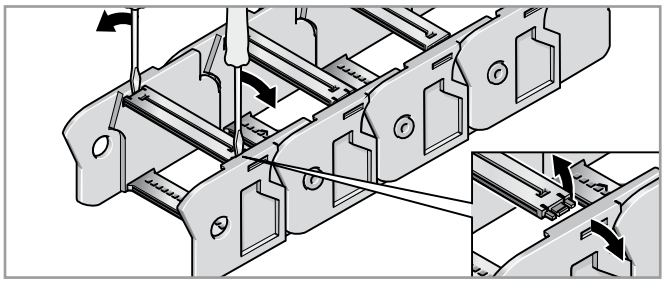
Assembly

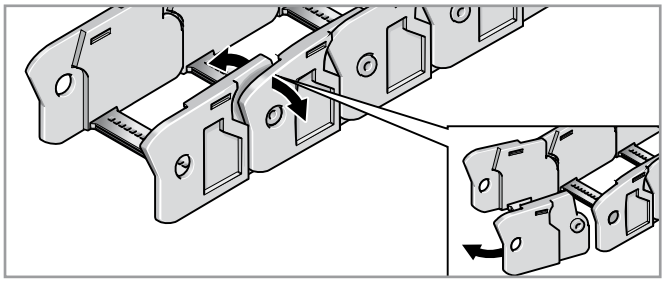

Step 1


Step 2


Step 3

Dismantling


Step 1


Step 2