

Energy chain



MACHINE TOOL ACCESSORIES

Systems



Energy Chainsystems



Machine Tool Accessories

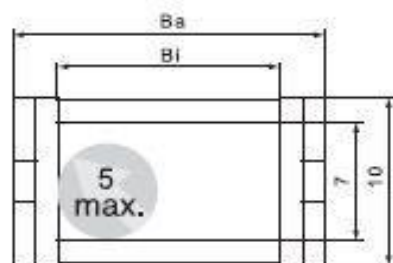


Extensive Application

Miniature series 7-non opening type



Delineation



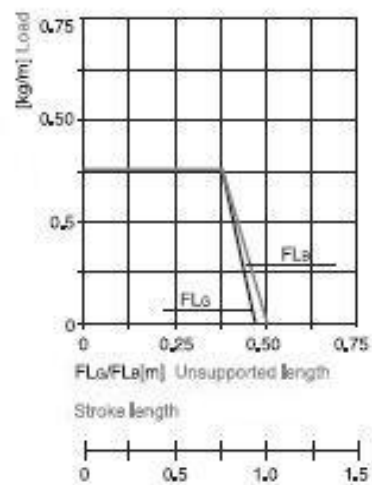
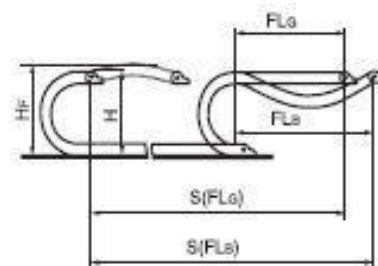
Basic technical data

- Max outer diameter of cable(mm) 5
- Max horizontal hanging length(m) 0.5
- Max travel distance(m)
- Max vertical hanging(m)

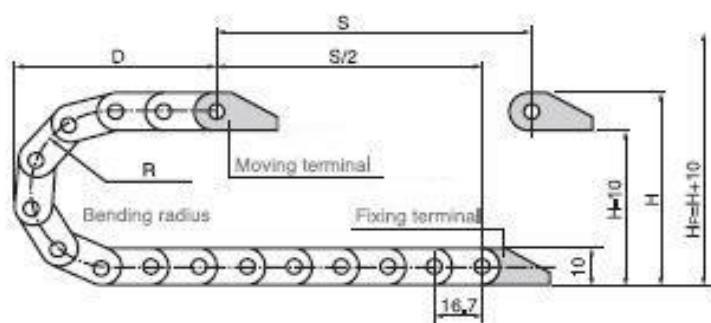
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=16.7mm, link per meter=60, length of chain= $S/2+K$, S =stroke, $K=\pi.R+\text{"safety ratio"}$

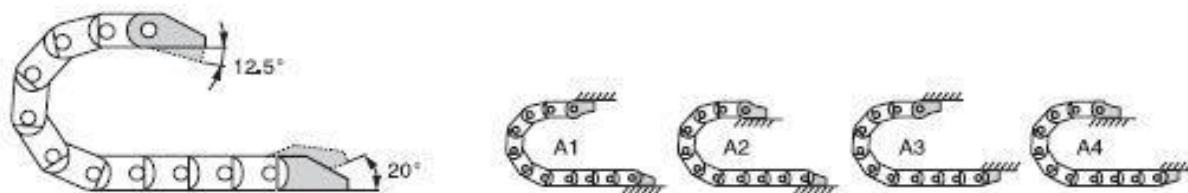


R	18	28	38
H	52	72	92
D	45	55	65
K	100	140	160

Actual mounting height: $H_p = H + 10\text{mm}$ (load 0.1kg/m)

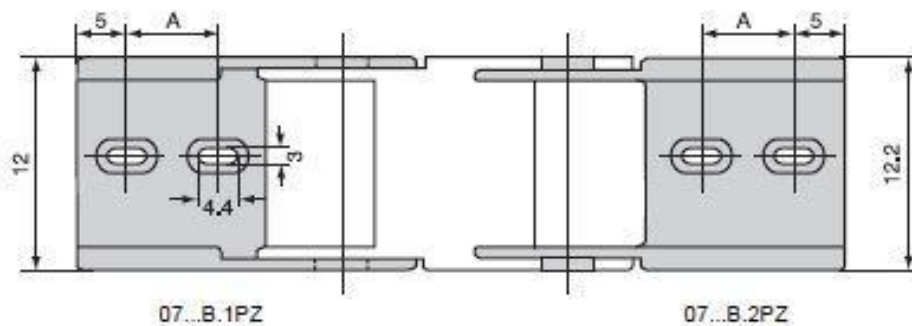
Selectable connector mounting way

07...B.1PZ moving terminal with the hole (external link)



07...B.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



Miniature series 7-non opening type

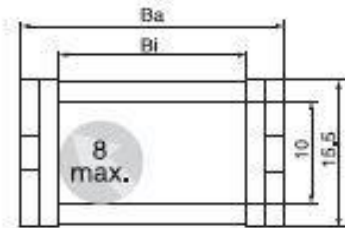
Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
7	7	7	10	12.5	18 28 38	B	A=8	07.07.B.12PZ

Note: The opening way B indicates non opening type

Model of connector: 07...B.12PZ=U type bevel connector complete set; 07...B.1PZ= one terminal with hole; 07...B.2PZ= one terminal with pin

Miniature series 10-non opening type

Delineation



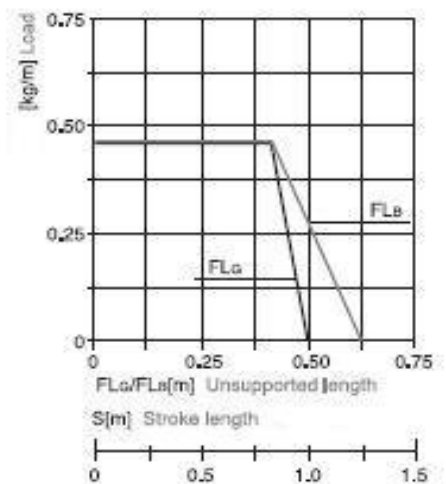
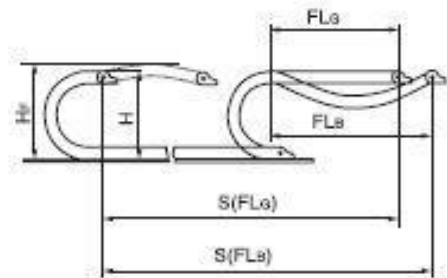
Basic technical data

- Max outer diameter of cable(mm) 8
- Max horizontal hanging length(m) 0.6
- Max travel distance(m)
- Max vertical hanging(m)

○ Unsupported length

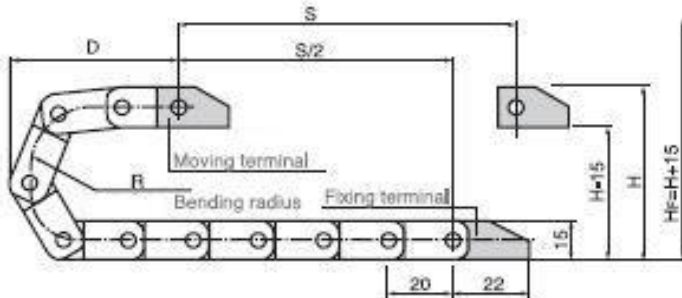
FL_o = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=20mm, link per meter=50, length of chain= $S/2+K$, S=stroke, $K=\pi.R+\text{"safety ratio"}$

Note: Thereinto, 10 × 10 tow chain, H=14mm, pitch=15mm, link per meter=66

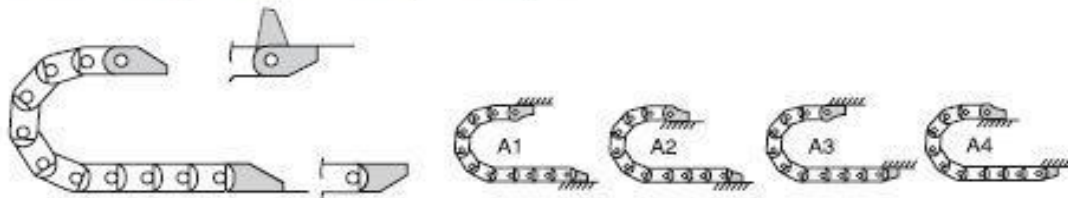


R	18	28	38
H	52	72	92
D	45	55	65
K	100	140	160

Actual mounting height: $H_p=H+15$ mm(load 0.2kg/m)

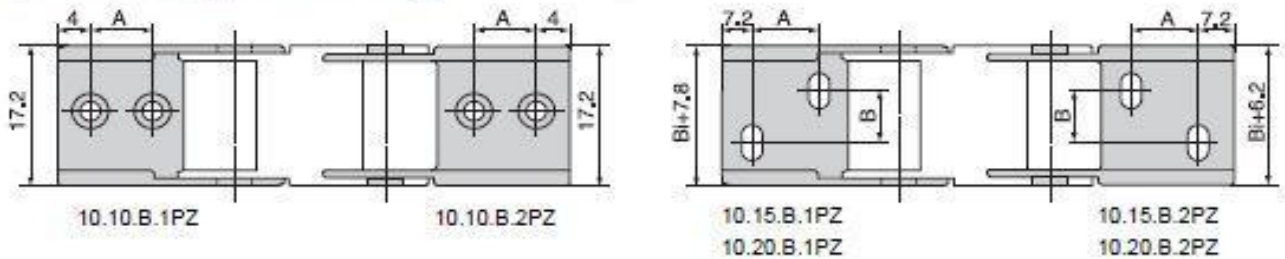
Selectable connector mounting way

10...B.1PZ moving terminal with the hole (external link)



10...B.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



Miniature series 10-non opening type

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
10	10	6	13.5	13.5	18 28 38	F	A=8	10.06.F.12PZ
10	10	10	14	17.5		B	A=8	10.10.B.12PZ
10	10	15	15.5	23		B	A=10 B=0	10.15.B.12PZ
10	10	20	15.5	28.5		B	A=10 B=5	10.20.B.12PZ

Note: The opening way B indicates non opening type, F is the convenient type, the cable can be assembled and disassembled directly needless to open.

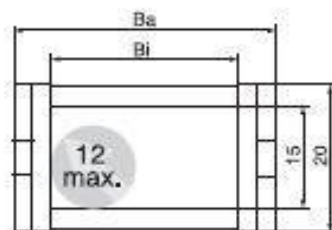
Model of connector: 10...B.12PZ=U type bevel connector complete set; 10...B.1PZ= one terminal with hole; 10...B.2PZ= one terminal with pin

15

Series 15-non opening type



■ Delineation



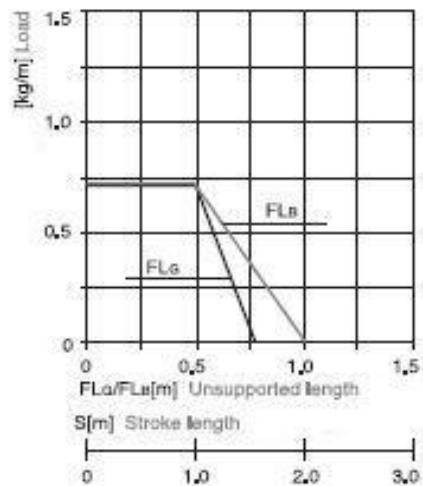
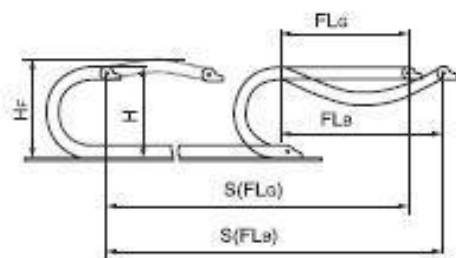
■ Basic technical data

- Max outer diameter of cable(mm) 12
- Max horizontal hanging length(m) 0.8
- Max travel distance(m)
- Max vertical hanging(m)

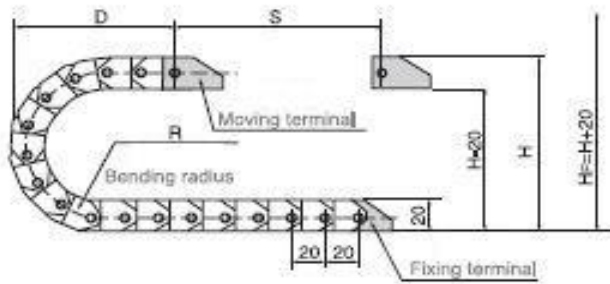
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=20mm, link per meter=50, length of chain= $S/2+K$, S =stroke, $K=\pi.R+\text{"safety ratio"}$

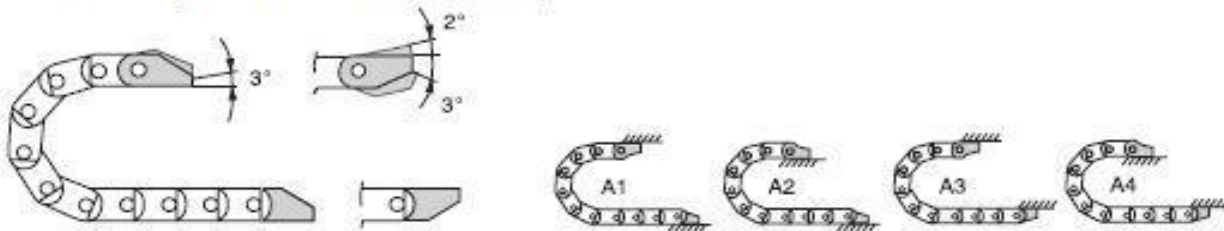


	28	38	48
R	28	38	48
H	76	96	116
D	60	70	80
K	130	160	190

Actual mounting height: $H_p=H+20\text{mm}$ (load 0.3kg/m)

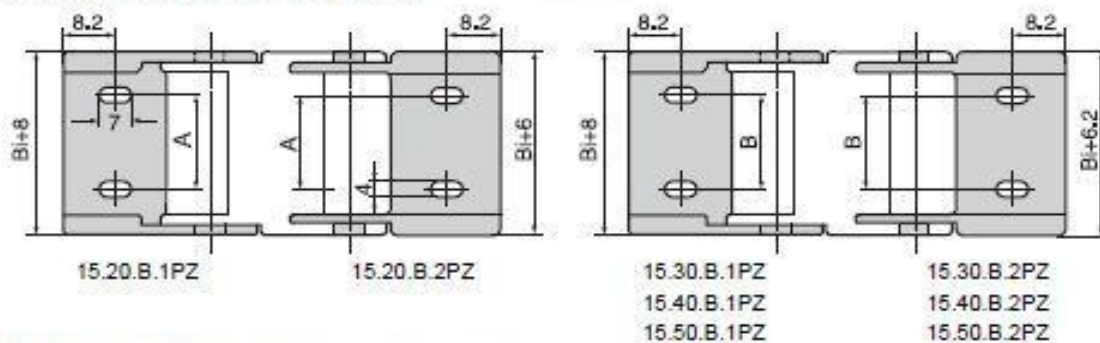
Selectable connector mounting way

15...B.1PZ moving terminal with the hole (external link)



15...B.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



Series 15-non opening type

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
15	15	20	20	28.2	18 28 38	B	A=11	15.20.B.12PZ
15	15	30	20	38.2		B	A=14	15.30.B.12PZ
15	15	40	20	48.2		B	B=20	15.40.B.12PZ
15	15	50	20	58.2		B	B=20	15.50.B.12PZ

Note: The opening way B indicates non opening type

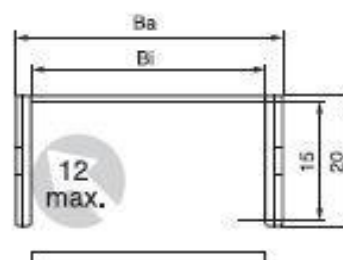
Model of connector: 15...B.12PZ-U type bevel connector complete set; 15...B.1PZ- one terminal with hole; 15...B.2PZ- one terminal with pin

15

Series 15 Csemi-enclosed interior opening



■ Delineation



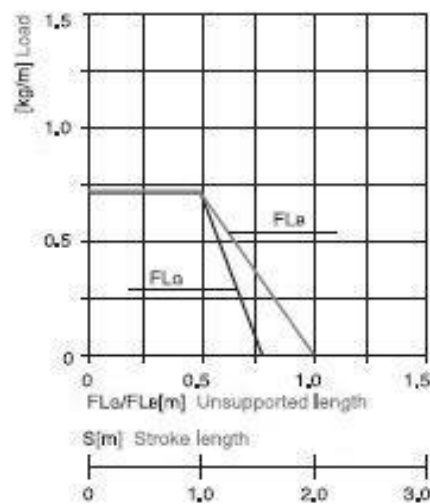
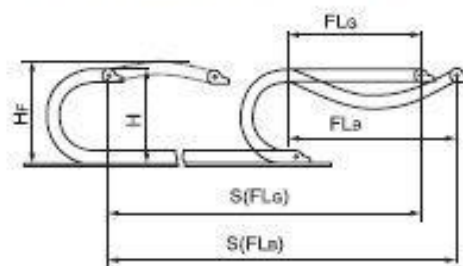
■ Basic technical data

Max outer diameter of cable(mm)	12
Max horizontal hanging length(m)	0.9
Max travel distance(m)	
Max vertical hanging(m)	

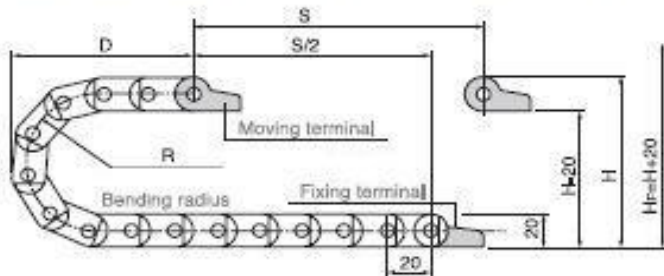
○ Unsupported length

FL_o = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=20mm, link per meter=50, length of chain= $S/2+K$, S =stroke, $K=\pi \cdot R$ + "safety ratio"



	28	38	48
R	28	38	48
H	76	96	116
D	60	70	80
K	130	160	190

Actual mounting height: $H_1=H+20$ mm(load 0.3kg/m)

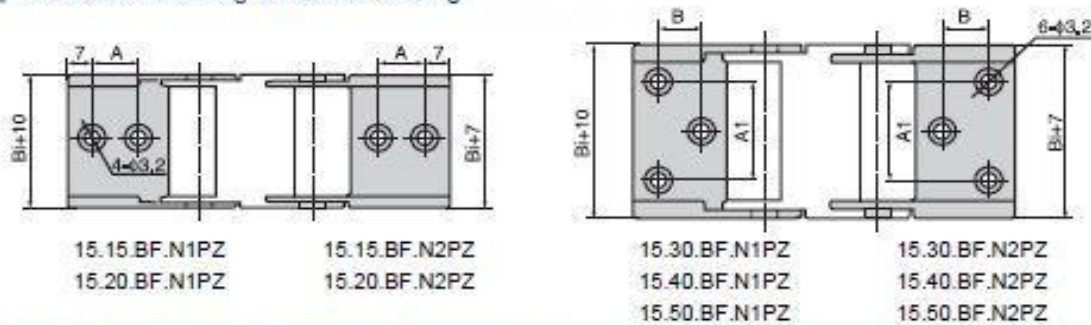
Selectable connector mounting way

15...BF.N.1PZ moving terminal with the hole (external link)



15...BF.N.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



15.15.BF.N.1PZ
15.20.BF.N.1PZ

15.15.BF.N.2PZ
15.20.BF.N.2PZ

15.30.BF.N.1PZ
15.40.BF.N.1PZ
15.50.BF.N.1PZ

15.30.BF.N.2PZ
15.40.BF.N.2PZ
15.50.BF.N.2PZ

Series 15 Csemi-enclosed interior opening

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
15	15	15	20	23	28 38 48	BF.N	A=8	15.15.BF.N.12PZ
15	15	20	20	29		BF.N	A=8	15.20.BF.N.12PZ
15	15	30	20	39		BF.N	A1=22 B=9.2	15.30.BF.N.12PZ
15	15	40	20	49		BF.N	A1=31.8 B=7.5	15.40.BF.N.12PZ
15	15	50	20	59		BF.N	A1=41.8 B=7.5	15.50.BF.N.12PZ

Note: The opening way BF indicates the enclosed type, and N indicates the interior opening, BF.N indicates the enclosed interior opening type.

Model of connector: 15...BF.N.12PZ=U type bevel connector complete set; 15...BF.N.1PZ= one terminal with hole; 15...BF.N.2PZ= one terminal with pin

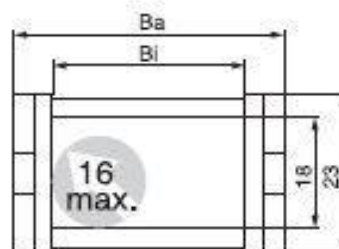
18

Series 18-non opening type



18...B.12PZ

■ Delineation



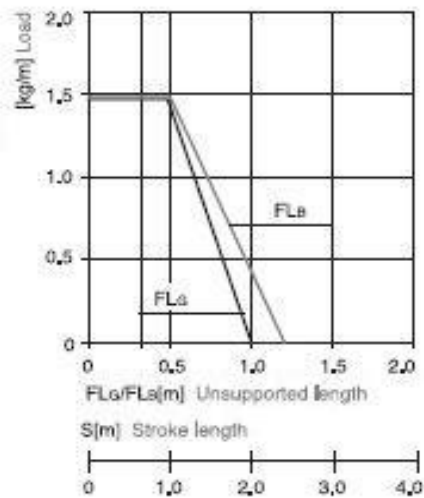
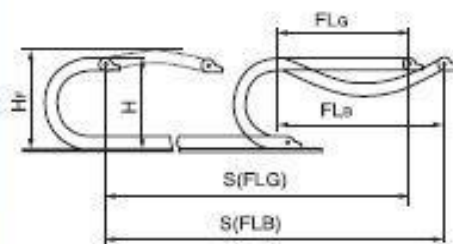
■ Basic technical data

- Max outer diameter of cable(mm) 16
- Max horizontal hanging length(m) 1.1
- Max travel distance(m)
- Max vertical hanging(m)

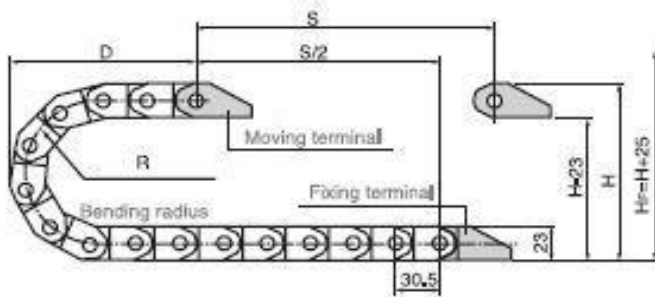
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=30.5mm, link per meter=33, length of chain= $S/2+K$, S =stroke, $K=\pi \cdot R$ +"safety ratio"

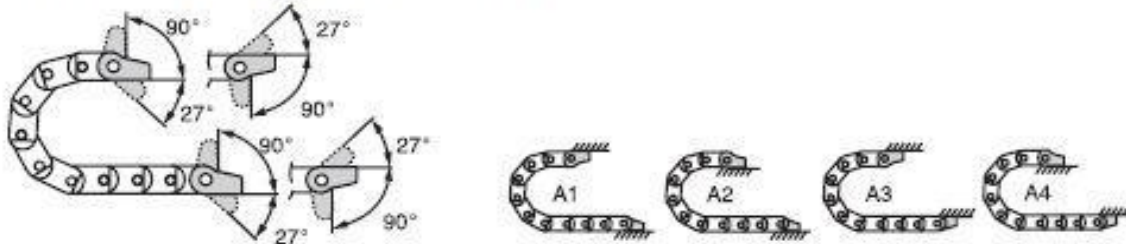


R	28	38	48	75	100
H	80	100	120	175	225
D	70	80	90	120	145
K	150	185	215	300	375

Actual mounting height: $H_1 = H + 25\text{mm}$ (load 0.5kg/m)

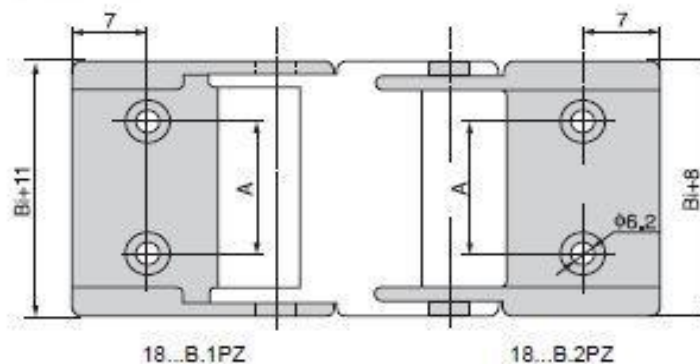
■ Selectable connector mounting way

18...B.1PZ moving terminal with the hole (external link)



18...B.2PZ fixed terminal with pin (external link)

■ Connector mounting dimension drawing



■ Series18-non opening type

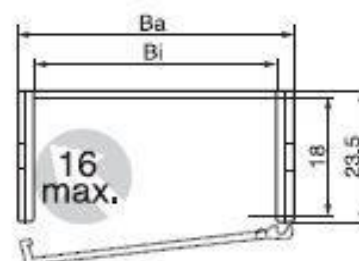
Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
18	18	25	23	36.5	38 48 75 100	B	A=14.5	18.25.B.12PZ
18	18	37	23	48.5		B	A=14.5	18.37.B.12PZ

Note: The opening way B indicates non opening type

Model of connector: 18...B.12PZ=U type bevel connector complete set; 18...B.1PZ= one terminal with hole; 18...B.2PZ= one terminal with pin



■ Delineation



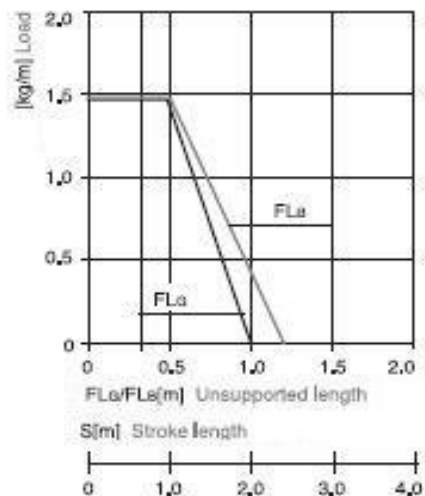
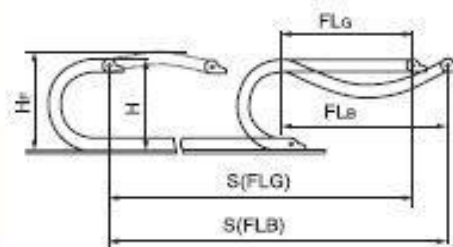
■ Basic technical data

- Max outer diameter of cable(mm) 18
- Max horizontal hanging length(m) 1.2
- Max travel distance(m)
- Max vertical hanging(m)

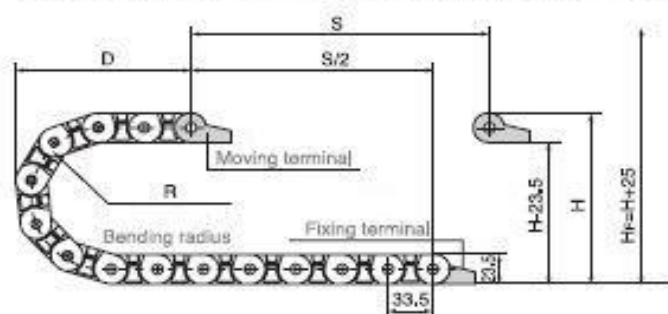
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=33.5mm, link per meter=30, length of chain= $S/2+K$, S =stroke, $K=\pi.R+\text{"safety ratio"}$



R	28	38	48	75	100
H	80	100	120	175	225
D	70	80	90	120	145
K	150	185	215	300	375

Actual mounting height: $H_p=H+25\text{mm}$ (load 0.5kg/m)

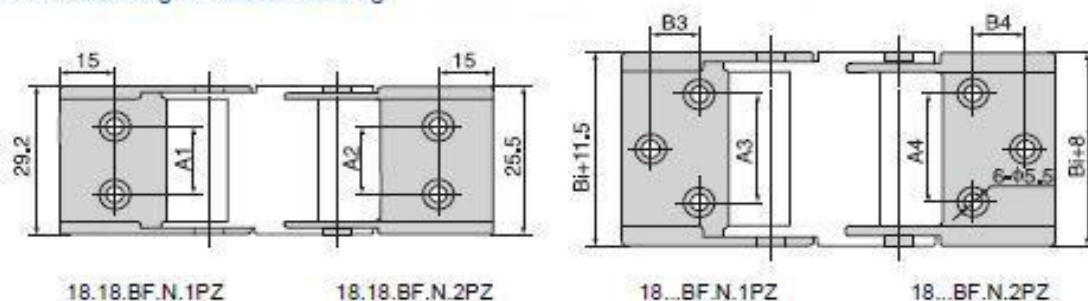
■ Selectable connector mounting way

18...BF.N.1PZ moving terminal with the hole (external link)



18...BF.N.2PZ fixed terminal with pin (external link)

■ Connector mounting dimension drawing



■ Series 18 Csemi-enclosed interior opening

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
18	18	18	23.5	28	28 38 48 75 100	BF.N	A1=14 A2=9.5	18.18.BF.N.12PZ
18	18	25	23.5	35		BF.N	A3=19.2 B3=10 A4=13.6 B4=10	18.25.BF.N.12PZ
18	18	37	23.5	47		BF.N	A3=29 B3=11 A4=25 B4=11	18.37.BF.N.12PZ
18	18	50	23.5	60		BF.N	A3=34.8 B3=7.5 A4=34.8 B4=7.5	18.50.BF.N.12PZ

Note: The opening way BF indicates the enclosed type, and N indicates the interior opening, BF.N indicates the enclosed interior opening type.

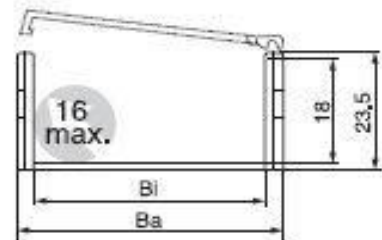
Model of connector: 18...BF.N.12PZ=U type bevel connector complete set; 18...BF.N.1PZ= one terminal with hole; 18...BF.N.2PZ= one terminal with pin



○ Opened with the screwdriver

18...W.12PZ

■ Delineation



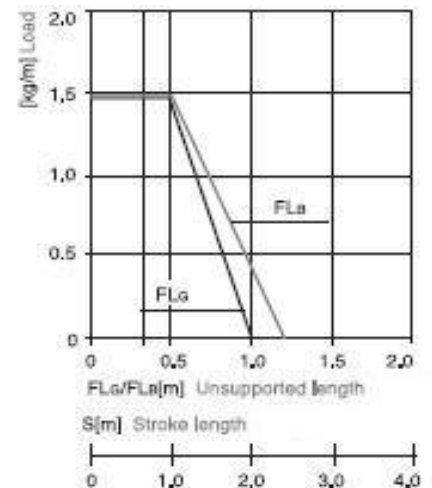
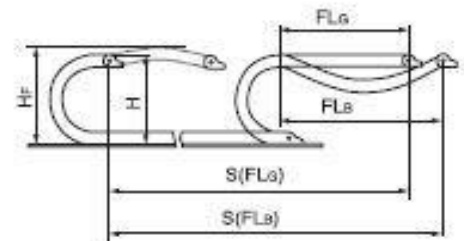
■ Basic technical data

- Max outer diameter of cable(mm) 16
- Max horizontal hanging length(m) 1.1
- Max travel distance(m)
- Max vertical hanging(m)

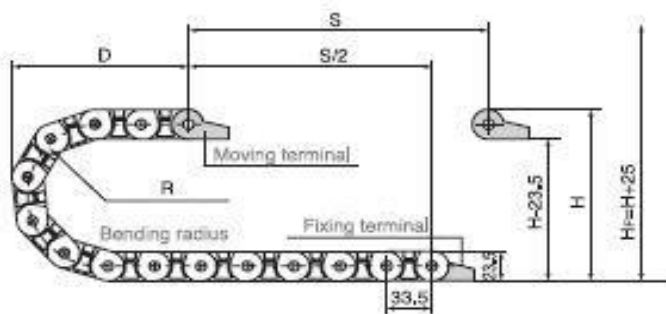
○ Unsupported length

FL_u = Linear unsupported length

FL_b = Safety bending unsupported length



- Pitch=33.5mm, link per meter=30, length of chain= $S/2+K$, S =stroke, $K=\pi.R+\text{"safety ratio"}$

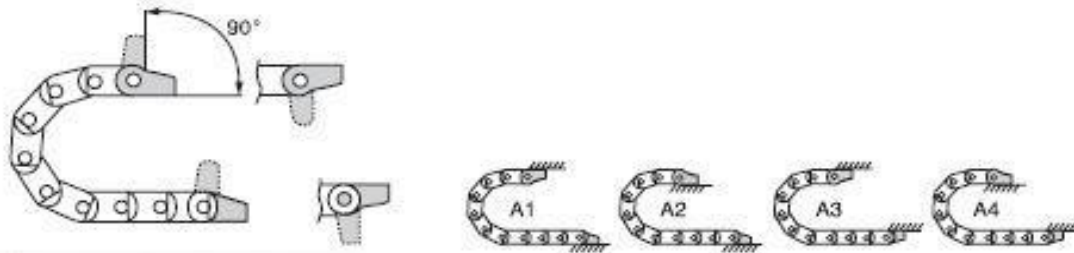


R	28	38	48	75	100
H	80	100	120	175	225
D	70	80	90	120	145
K	150	185	215	300	375

Actual mounting height: $H_p = H + 25\text{mm}$ (load 0.5kg/m)

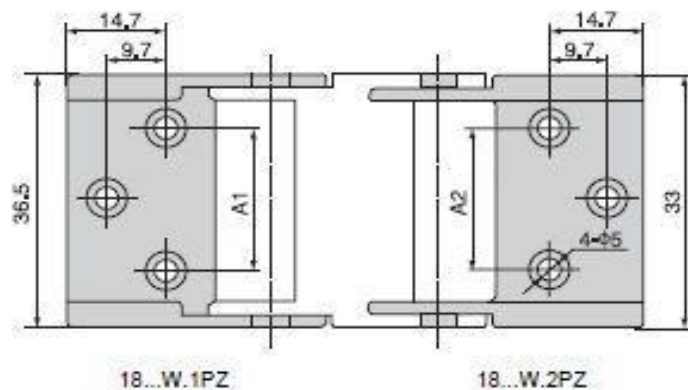
Selectable connector mounting way

18...W.1PZ moving terminal with the hole (external link)



18...W.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



Series 18-exterior opening

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
18	18	25	23.5	38	28 38 48 75 100	W	A1=19.2 A2=13.6	18.25.W.12PZ

Note: The opening way W indicates non opening type

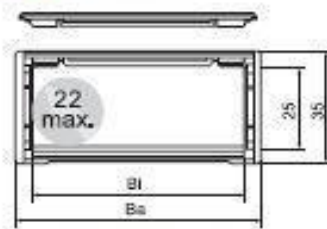
Model of connector: 18...W.12PZ=U type bevel connector complete set; 18...W.1PZ= one terminal with hole; 18...W.2PZ= one terminal with pin



25...S.12PZ

25...S.34PZ

Delineation



Refer to page 34 for selectable shim in details.



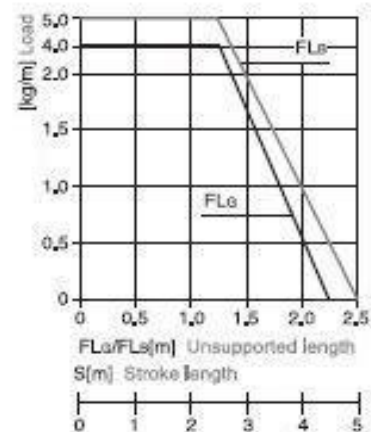
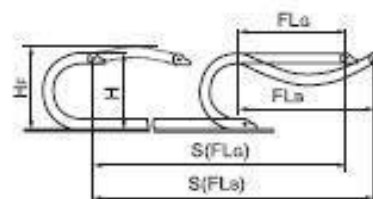
Basic technical data

Max outer diameter of cable(mm)	22
Max horizontal hanging length(m)	1.3
Max travel distance(m)	70
Max vertical hanging(m)	30

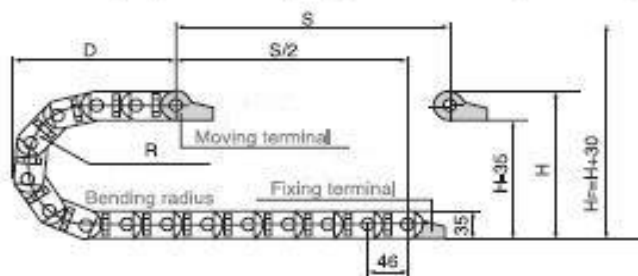
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



- Pitch=46mm, link per meter=22, length of chain= $S/2+K$, S=stroke, $K=\pi \cdot R + \text{"safety ratio"}$



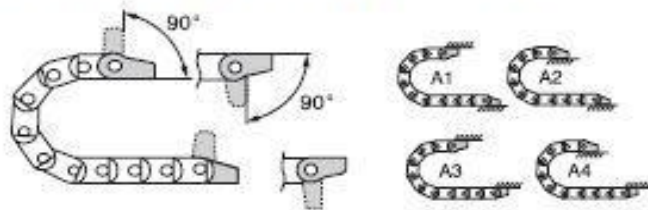
R	55	75	100	125	150	175	200	250
H	145	185	235	285	335	385	435	535
D	125	150	170	195	220	245	270	320
K	276	348	414	496	578	660	742	920

Actual mounting height: $H_1 = H + 30\text{mm}$ (load 1.0kg/m)

Selectable connector mounting way

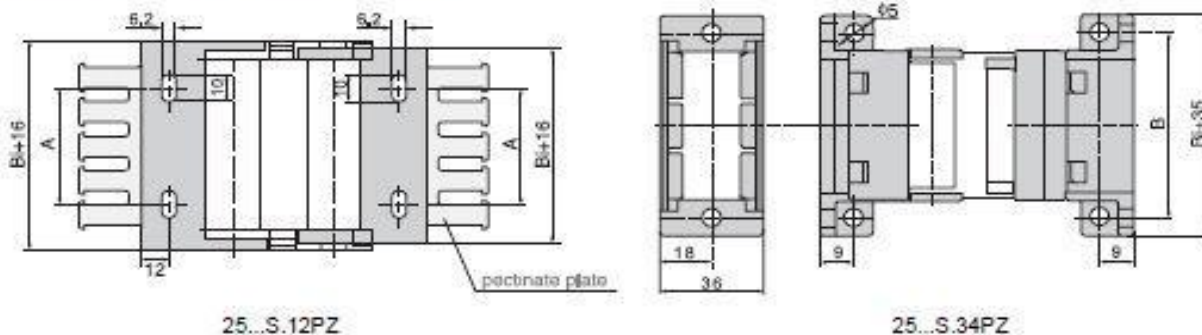
U type applicable connector accessory—pectinate plate

25...S.1PZ moving terminal with the hole (external link)



25...S.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



25...S.12PZ

25...S.34PZ

Series 25-Double-face opening

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
25/25F	25	25	25	38	*55 75 100 125 150 175 200 250	S	B=49.6	25...S.34PZ
25/25F	25	38	35	51		S	A=26 B=62.6	25.38.S.12PZ 25...S.34PZ
25/25F	25	57	35	71		S	A=45 B=81.6	25.57.S.12PZ 25...S.34PZ
25/25F	25	77	35	91		S	A=62 B=101.6	25.77.S.12PZ 25...S.34PZ

Note: Opening way S indicates the double side opening, 25F indicates the enclosed series, and series * 25F does not have this radius.

Model of connector: 25...S.12PZ=U type bevel connector complete set; 25...S.1PZ= one terminal with hole; 25...S.2PZ= one terminal with pin;
25...S.34PZ=KMA complete set of square connector; 25...S.3PZ= one terminal with hole; 25...S.4PZ= one terminal with pin

25

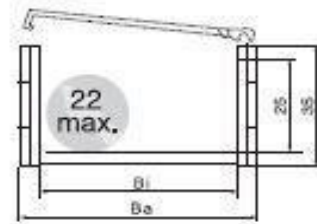
Series 25-connection interior opening



○ Opened with the screwdriver

25...N.12PZ

■ Delineation



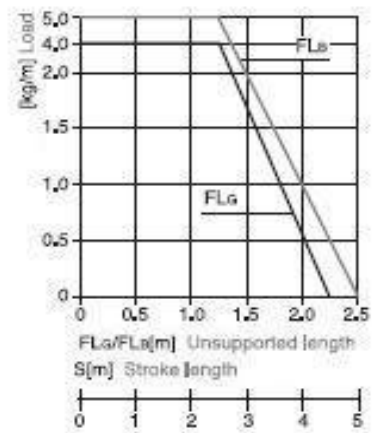
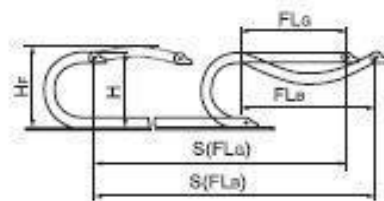
■ Basic technical data

Max outer diameter of cable(mm)	22
Max horizontal hanging length(m)	1.3
Max travel distance(m)	30
Max vertical hanging(m)	15

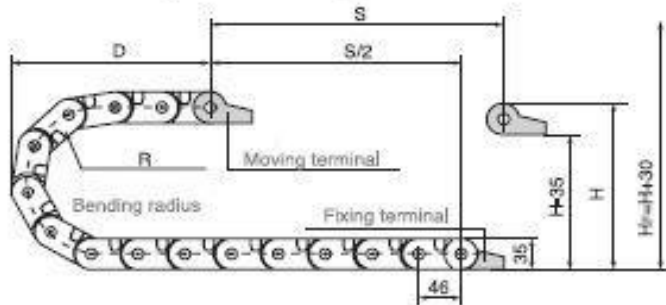
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



- Pitch=46mm, link per meter=22, length of chain= $S/2+K$, S =stroke, $K=\pi.R$ +“safety ratio”



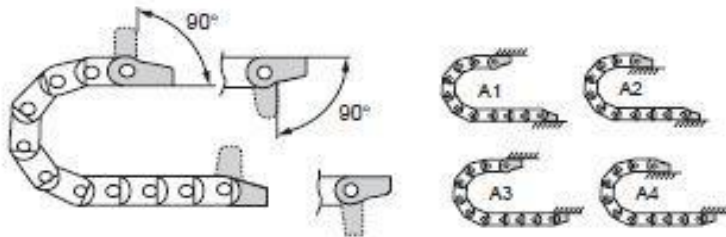
R	55	75	100	125	150	175	200	250
H	146	186	236	286	336	386	436	536
D	125	150	170	195	220	245	270	320
K	276	348	414	496	578	660	742	920

Actual mounting height: $H_p=H+30\text{mm}$ (load 1.0kg/m)

Selectable connector mounting way

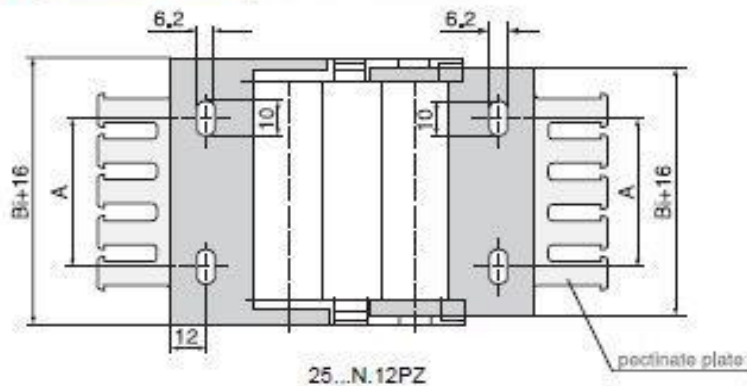
U type applicable connector assessor—pectinate plate

25...N.1PZ moving terminal with the hole (external link)



25...N.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



Series 25-connection interior opening

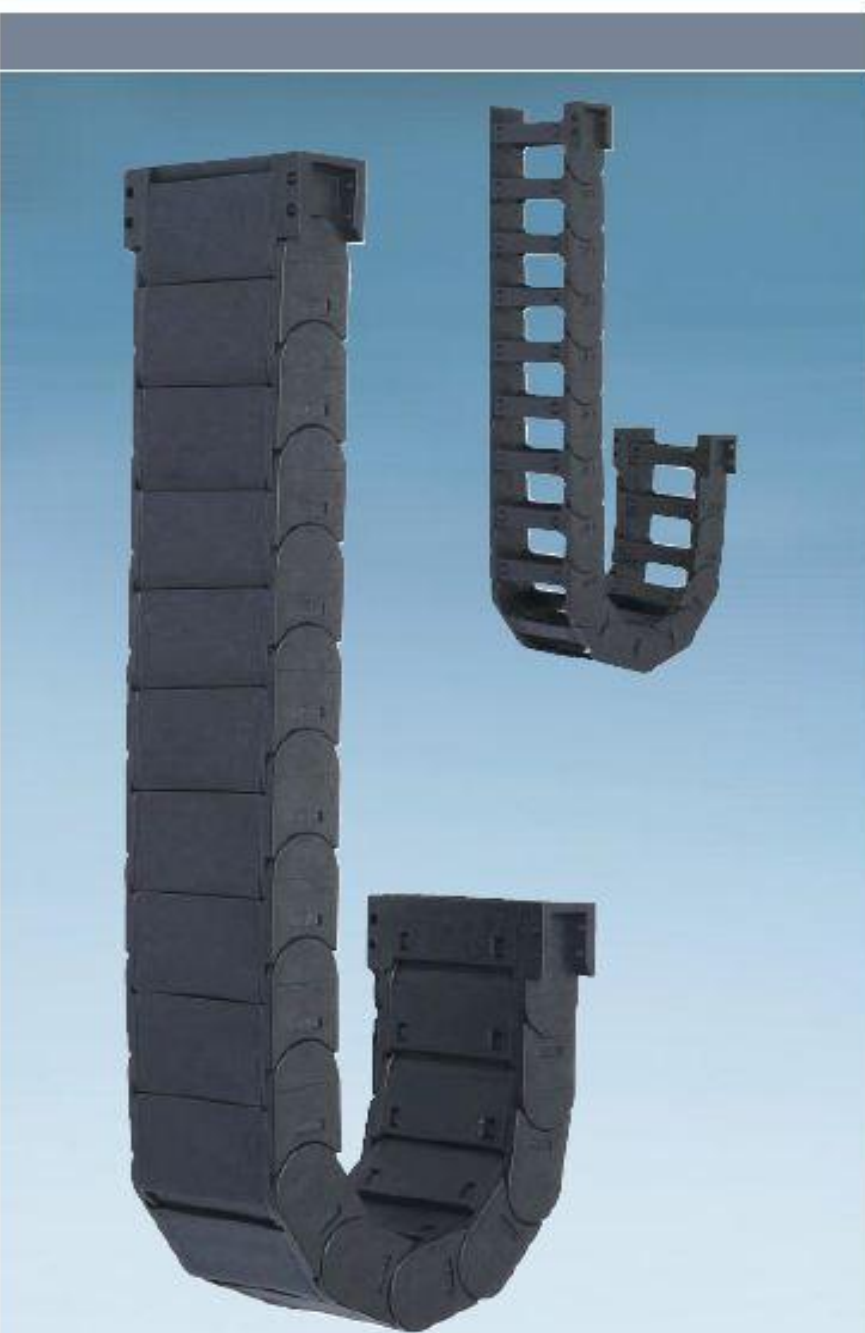
Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
25	25	38	35.5	53.5	55 75 100 125 150 175 200 250	N	A=26	25.38.N.12PZ
25	25	*57	35.5	72.5		N	A=45	25.57.N.12PZ
25	25	*77	35.5	92.5		N	A=62	25.77.N.12PZ
25	25	*103	35.5	118.5		N	-----	25.103.N.12PZ

Note: Opening way N indicates the interior opening, and please consult us about type * 25 before placing an order.

Model of connector: 25...N.12PZ=U type bevel connector complete set; 25...N.1PZ= one terminal with hole; 25...N.2PZ= one terminal with pin

N25

Series N25-Open on both sides



○ Various connectors are selectable



○ Opened with the screwdriver

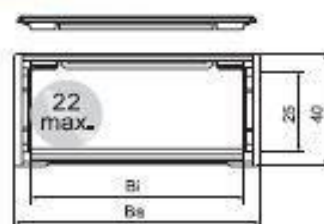


N25...S.12PZ

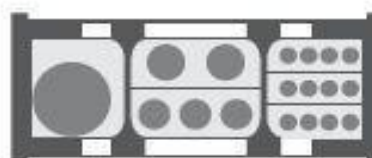


N25...S.34PZ

■ Delineation



■ Refer to page 34 for selectable shim in details.



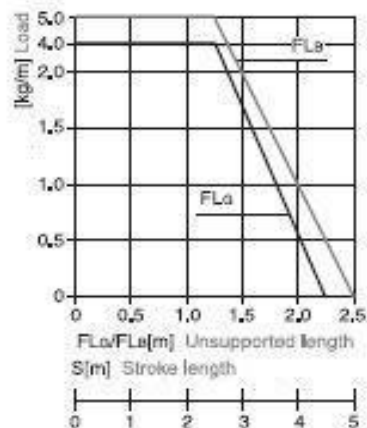
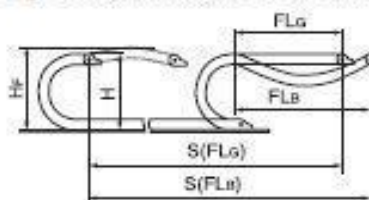
■ Basic technical data

Max outer diameter of cable(mm)	22
Max horizontal hanging length(m)	1.3
Max travel distance(m)	30
Max vertical hanging(m)	15

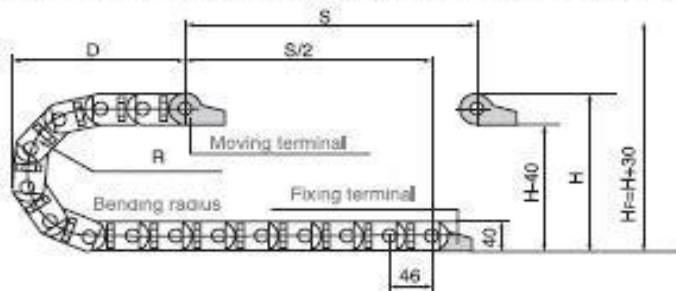
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



- Pitch=46mm, link per meter=22, length of chain= $S/2+K$, S=stroke, $K=\pi.R+\text{"safety ratio"}$

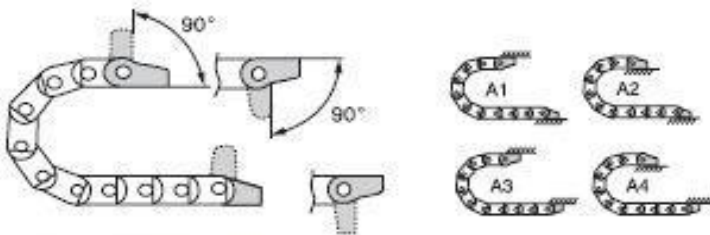


	R	55	75	100	125	150	175	200	250
H	150	190	240	290	340	390	440	490	540
D	125	150	170	195	220	245	270	320	370
K	276	346	414	496	578	660	742	824	920

Actual mounting height: $H_p=H+30\text{mm}$ (load 1.0kg/m)

Selectable connector mounting way

N25...S.1PZ moving terminal with the hole (external link)

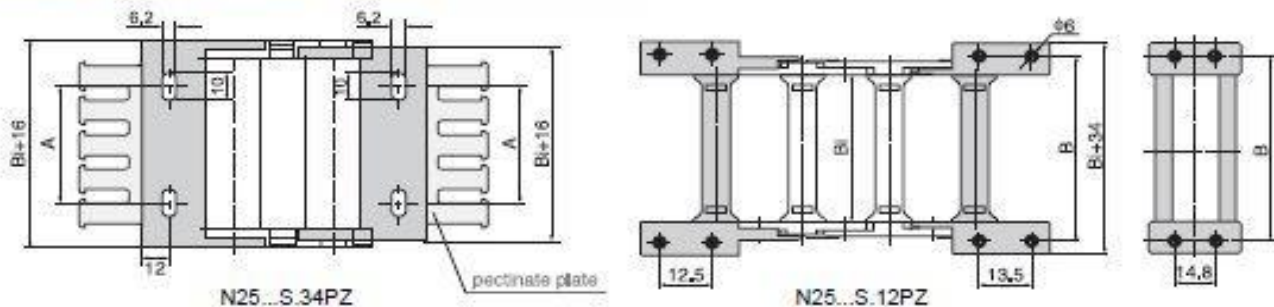


U type applicable connector accessory—pectinate plate



N25...S.2PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



N25 Series N25-Open on both sides

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
N25/N25F	25	38	40	55	*55 75 100 125 150 175 200 250	S	A=26 B=62.8	N25.38.S.12PZ N25...S.34PZ
N25/N25F	25	57	40	74		S	A=45 B=81.8	N25.57.S.12PZ N25...S.34PZ
N25/N25F	25	77	40	94		S	A=62 B=101.8	N25.77.S.12PZ N25...S.34PZ
N25/N25F	25	103	40	120		S	---- B=127.8	N25...S.34PZ

Note: Opening way S indicates the double side opening, and series * 25F does not have this radius.

Model of connector: N25...S.12PZ=U type bevel connector complete set; N25...S.1PZ= one terminal with hole; N25...S.2PZ= one terminal with pin; N25...S.34PZ=KMA complete set of square connector; N25...S.3PZ= one terminal with hole; N25...S.4PZ= one terminal with pin

S25

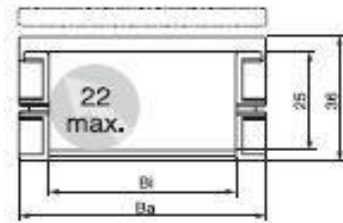
Low noise series S25-Open on both sides



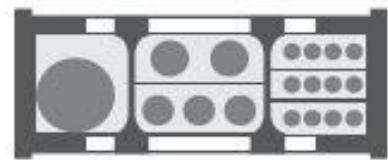
○ Opened with the screwdriver

S25...S.34PZ

■ Delineation



■ Refer to page 34 for selectable shim in details.



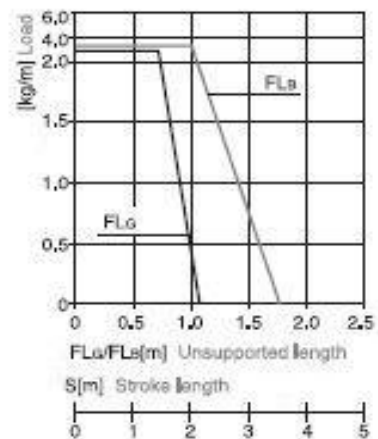
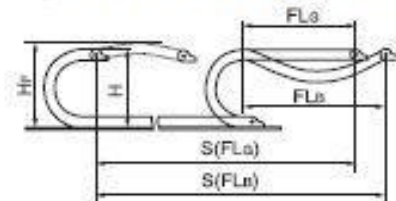
■ Basic technical data

Max outer diameter of cable(mm)	22
Max horizontal hanging length(m)	1.3
Max travel distance(m)	30
Max vertical hanging(m)	15

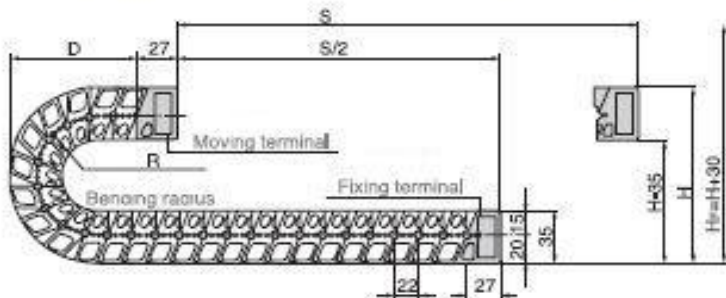
○ Unsupported length

FL_{α} = Linear unsupported length

FL_{β} = Safety bending unsupported length



○ Pitch=22mm, link per meter=46, length of chain= $S/2+K$, S =stroke, $K=\pi \cdot R$ + "safety ratio"

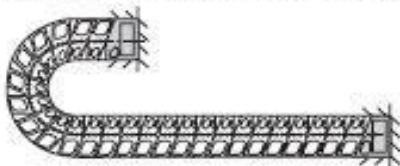


R	055	075	100	150
H	150	190	240	340
D	97	117	142	192
K	220	280	360	520

Actual mounting height: $H_1 = H + 30\text{mm}$ (load 1.0kg/m)

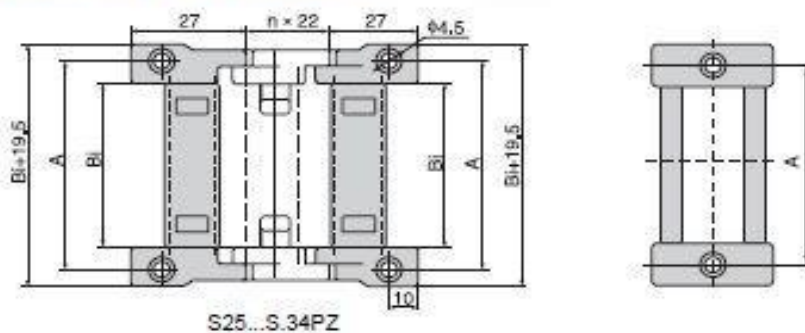
Selectable connector mounting way

S25...S.3PZ moving terminal with the hole (external link)



S25...S.4PZ fixed terminal with pin (external link)

Connector mounting dimension drawing



S25 Low noise series S25-Open on both sides

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
S25	25	38	36	55	R > 55	S	A=Bi+10	S25...S.34PZ
S25	25	57	36	74		S	A=Bi+10	S25...S.34PZ
S25	25	77	36	94		S	A=Bi+10	S25...S.34PZ
S25	25	*103	36	120		S	A=Bi+10	S25...S.34PZ

Note: Opening way S indicates the open on both sides, and please consult us about type * 25 before placing an order. At R=55, every link has a cross bar.

Model of connector: S25...S.34PZ=KMA complete set of square connector; S25...S.3PZ= one terminal with hole; S25...S.4PZ= one terminal with pin

30

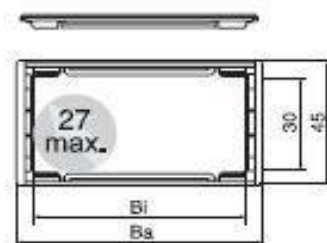
Series 30-Open on both sides



○ Opened with the screwdriver

30...S.34PZ

■ Delineation



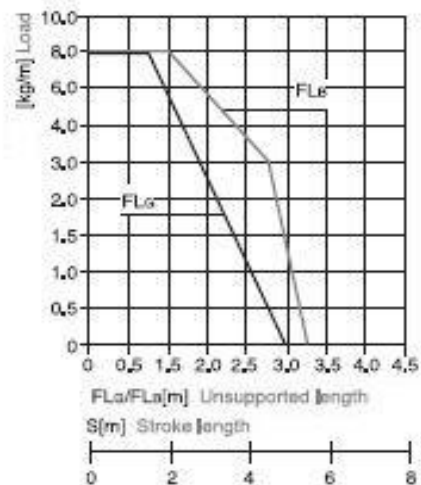
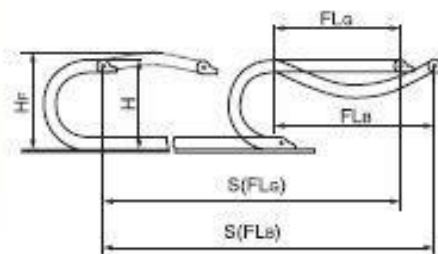
■ Basic technical data

Max outer diameter of cable(mm)	27
Max horizontal hanging length(m)	1.5
Max travel distance(m)	40
Max vertical hanging(m)	20

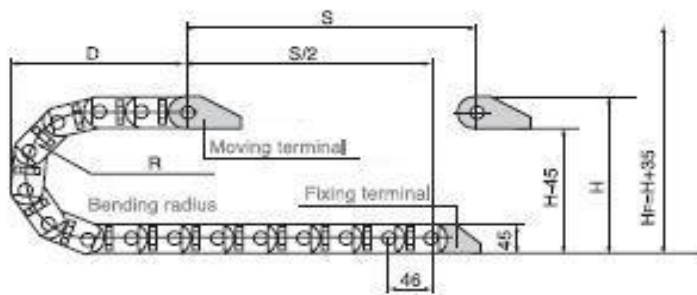
○ Unsupported length

FL_u = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=46mm, link per meter=22, length of chain= $S/2+K$, S=stroke, $K=\pi \cdot R$ +"safety ratio"

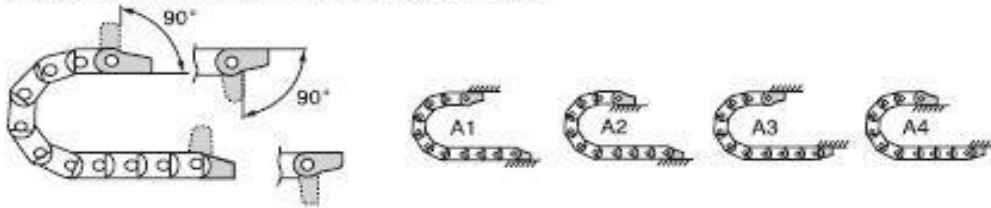


R	055	075	100	125	150	175	200	250
H	155	195	245	295	345	395	445	545
D	125	145	170	195	220	145	270	320
K	265	330	410	485	565	645	725	880

Actual mounting height: $H_p = H + 35\text{mm}$ (load 1kg/m)

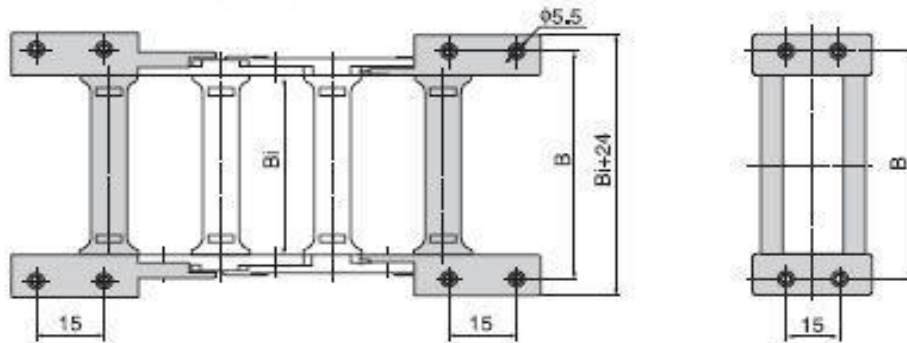
■ Selectable connector mounting way

30...S.1PZ moving terminal with the hole (external link)



30...S.2PZ fixed terminal with pin (external link)

■ Connector mounting dimension drawing



30...S.12PZ

■ 30 Series 30-Open on both sides

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
30/30F	30	38	45	55	*75 100 125 150 175 200 250	S	B=50	30...S.34PZ
30/30F	30	57	45	74		S	B=69	30...S.34PZ
30/30F	30	77	45	94		S	B=89	30...S.34PZ
30/30F	30	103	45	120		S	B=115	30...S.34PZ

Note: Opening way S indicates the open on both sides, 30F indicates the enclosed series, and series * 30F does not have this radius.

Model of connector: 30...S.34PZ=KMA complete set of square connector; 30...S.3PZ= one terminal with hole; 30...S.4PZ= one terminal with pin

35

Series 35-Open on both sides

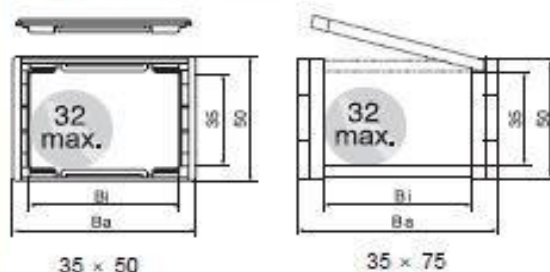


○ Opened with the screwdriver

35.50.S.34PZ

35.75.S.12PZ

■ Delineation



■ Refer to page 34 for selectable shim in details.



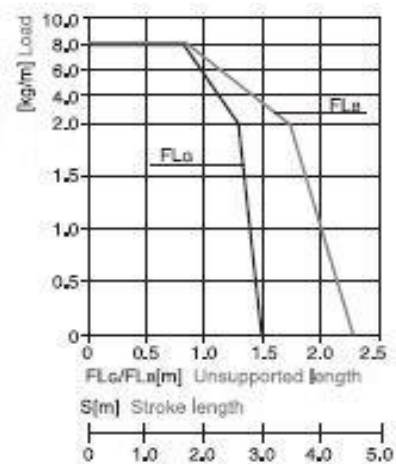
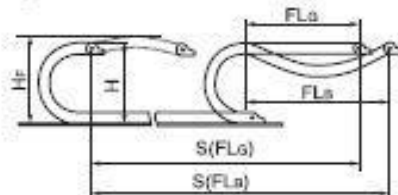
■ Basic technical data

Max outer diameter of cable(mm)	32
Max horizontal hanging length(m)	1.5
Max travel distance(m)	60
Max vertical hanging(m)	20

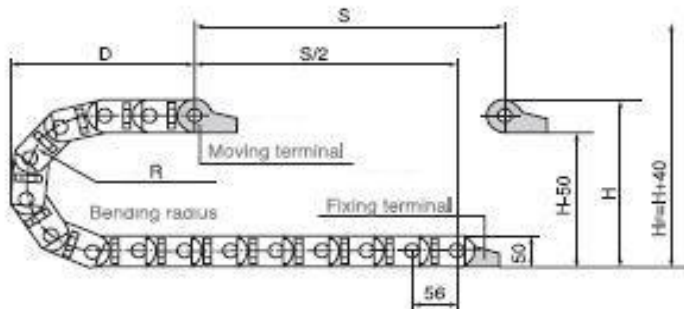
○ Unsupported length

FL_a = Linear unsupported length

FL_s = Safety bending unsupported length



○ Pitch=56mm, link per meter=18, length of chain= $S/2+K$, S=stroke, $K=\pi.R+\text{"safety ratio"}$



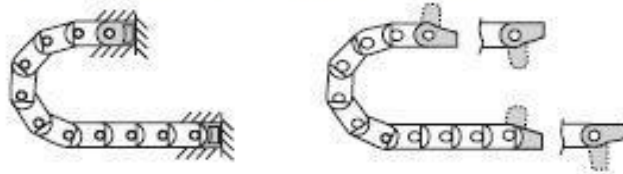
R	075	100	125	150	200	250
H	200	250	300	350	450	550
D	150	175	200	225	275	325
K	375	475	550	650	825	925

Actual mounting height: $H_1=H+40\text{mm}$ (load 1.7kg/m)

■ Selectable connector mounting way

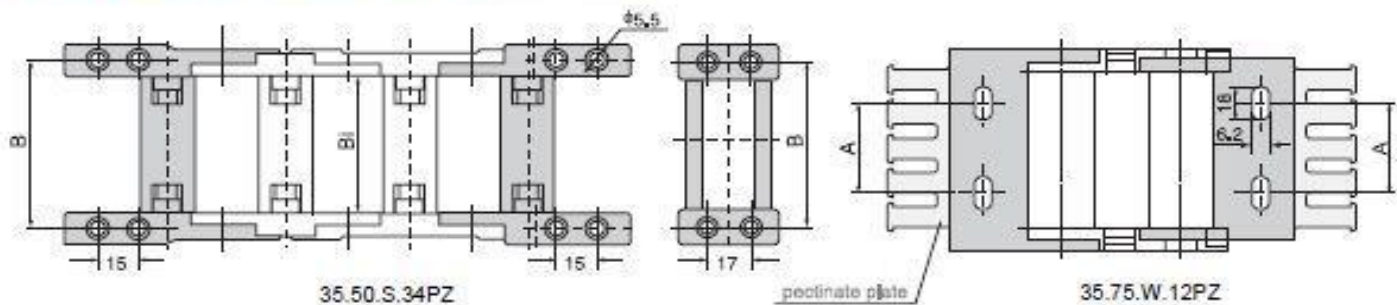
■ U type applicable connector accessory—pectinate plate

35...S.3PZ moving terminal with the hole (external link)



35...S.4PZ fixed terminal with pin (external link)

■ Connector mounting dimension drawing



■ 35 Series 35-Open on both sides , exterior opening

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
35	35	50	50	67	75 100 125 150 200 250	S	A=55	35...S.34PZ
35	35	75	50	92	75	W	B=62	35...W.12PZ

Note: Opening way S indicates the open on both sides, W indicates the type of the exterior opening.

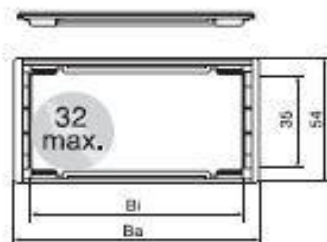
Model of connector: 35.50.S.34PZ= complete set of square connector; 35.50.S.3PZ= one terminal with hole; 35.50.S.4PZ= one terminal with pin
35.75.W.12PZ=U type bevel connector complete set; 35.75.W.1PZ= one terminal with hole; 35.75.W.2PZ= one terminal with pin

N35

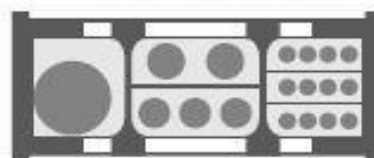
Series N35-Open on both sides



Delineation



Refer to page 34 for selectable shim in details.



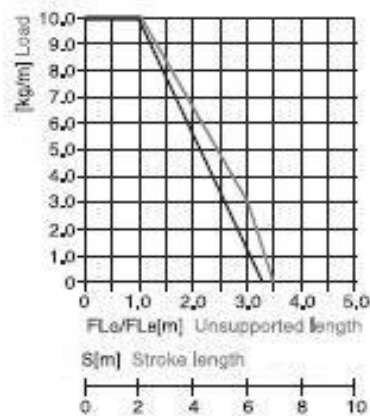
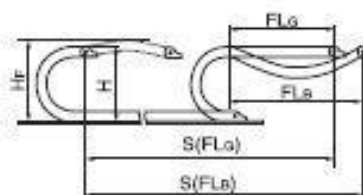
Basic technical data

Max outer diameter of cable(mm)	32
Max horizontal hanging length(m)	1.9
Max travel distance(m)	70
Max vertical hanging(m)	30

○ Unsupported length

FL_a = Linear unsupported length

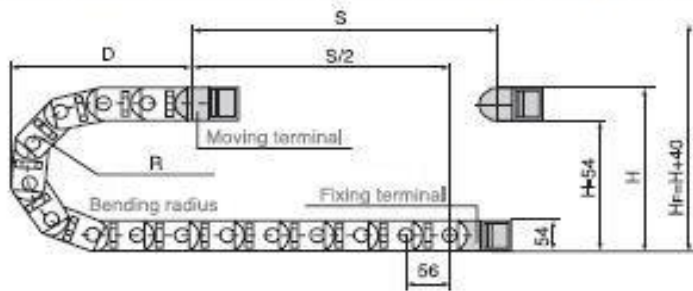
FL_b = Safety bending unsupported length



○ Opened with the screwdriver

N35...S.34PZ

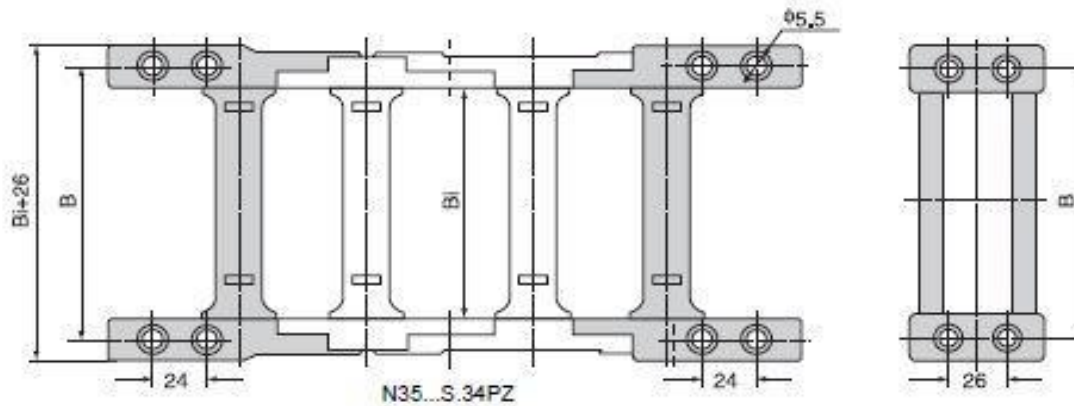
○ Pitch=56mm, link per meter=18, length of chain= $S/2+K$, S =stroke, $K=\pi \cdot R$ *safety ratio*



R	075	100	125	150	200	250
H	200	250	300	350	450	550
D	150	175	200	225	275	325
K	375	475	550	650	825	925

Actual mounting height: $H_1 = H + 45$ mm (load 2.0kg/m)

■ Connector mounting dimension drawing



■ N35 Series N35-Open on both sides

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
N35	35	50	55	70	* 75 100 125 150 175 200 250	S	B=64	N35...S.34PZ
N35/N35F	35	75	55	95		S	B=89	N35...S.34PZ
N35/N35F	35	100	55	120		S	B=114	N35...S.34PZ
N35/N35F	35	125	55	145		S	B=139	N35...S.34PZ
N35/N35F	35	150	55	170		S	B=164	N35...S.34PZ
N35	35	175	55	195		S	B=189	N35...S.34PZ

Note: Opening way S indicates the open on both sides, and series * N35F does not have this radius.

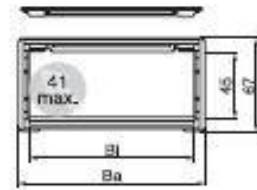
Model of connector: N35...S.34PZ=KMA complete set of square connector; N35...S.3PZ= one terminal with hole; N35...S.4PZ= one terminal with pin



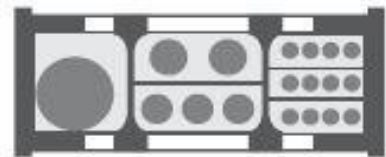
○ Opened with the screwdriver

45...S.34PZ

■ Delineation



■ Refer to page 34 for selectable shim in details.



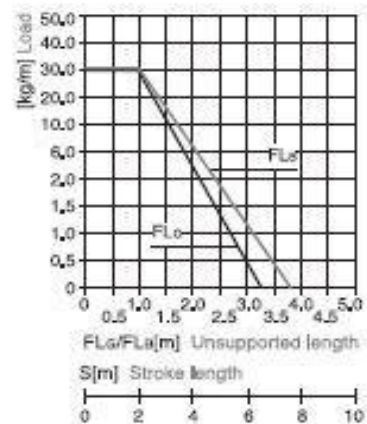
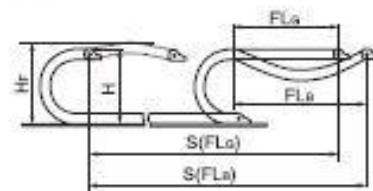
■ Basic technical data

Max outer diameter of cable(mm)	41
Max horizontal hanging length(m)	2.8
Max travel distance(m)	80
Max vertical hanging(m)	30

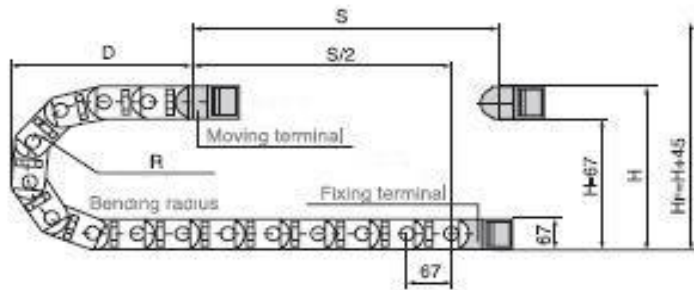
○ Unsupported length

FL_a = Linear unsupported length

FL_s = Safety bending unsupported length



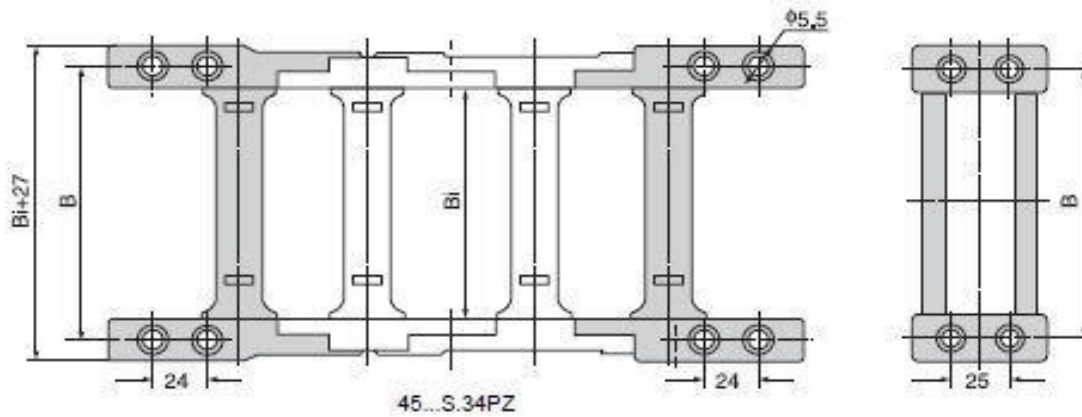
- Pitch=67mm, link per meter=15, length of chain= $S/2+K$, S =stroke, $K=\pi \cdot R$ +*safety ratio*



R	100	125	150	200	225	250	300
H	267	317	367	467	517	567	667
D	200	225	250	300	325	350	400
K	500	650	725	875	975	1050	1224

Actual mounting height: $H_0 = H + 45\text{mm}$ (load 2.2kg/m)

■ Connector mounting dimension drawing



■ 45 Series 45-Open on both sides

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
45	45	50	67	74	*75 100 125 150 175 200 250 300	S	B=65.5	45...S.34PZ
45	45	75	67	99		S	B=90.5	45...S.34PZ
45/45F	45	100	67	124		S	B=115.5	45...S.34PZ
45/45F	45	125	67	149		S	B=140.5	45...S.34PZ
45/45F	45	150	67	174		S	B=165.5	45...S.34PZ
45/45F	45	175	67	199		S	B=190.5	45...S.34PZ
45	45	200	67	224		S	B=215.5	45...S.34PZ

Note: Opening way S indicates the open on both sides, 45F indicates the enclosed series, and series * 45F does not have this radius.

Model of connector: 45...S.34PZ=KMA complete set of square connector; 45...S.3PZ= one terminal with hole; 45...S.4PZ= one terminal with pin



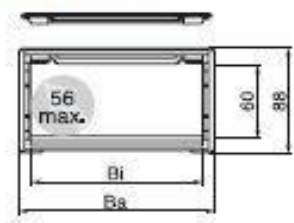
○ Opened with the screwdriver



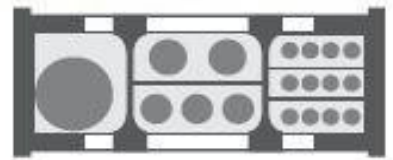
60...S.34PZ



■ Delineation



■ Refer to page 34 for selectable shim in details.



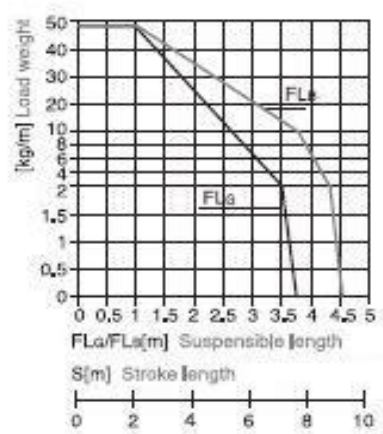
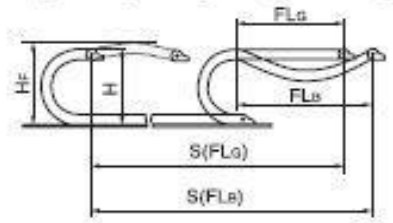
■ Basic technical data

Max outer diameter of cable(mm)	56
Max horizontal hanging length(m)	3.8
Max travel distance(m)	---
Max vertical hanging(m)	---

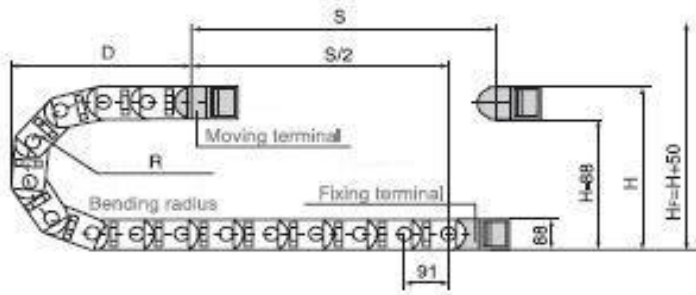
○ Unsupported length

FL_a = Linear unsupported length

FL_b = Safety bending unsupported length



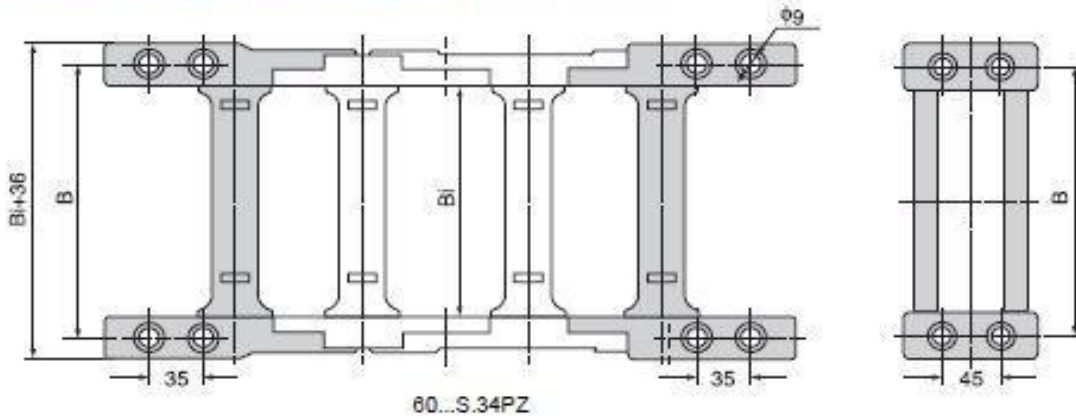
○ Pitch=91mm, link per meter=11, length of chain= $S/2+K$, S=stroke, $K=\pi.R+\text{"safety ratio"}$



R	135	150	175	200	250	300	350	400	500
H	360	388	438	488	588	688	788	888	1088
D	270	285	310	335	385	435	485	535	635
K	650	750	825	900	1020	1225	1340	1450	1775

Actual mounting height: $H_1 = H + 50\text{mm}$ (load 3.0kg/m)

■ Connector mounting dimension drawing



■ 60 Series 60-Open on both sides

Serial no.	Hi	Bi	H	Ba	Bending radius	Opening way	Corresponding connector hole distance	Ordering model of connector
60	60	75	88	111	135 150 175 200 250 300 350 400 500	S	B=98.5	60...S.34PZ
60	60	100	88	136		S	B=123.5	60...S.34PZ
60	60	150	88	186		S	B=148.5	60...S.34PZ
60	60	200	88	236		S	B=173.5	60...S.34PZ
60	60	300	88	336		S	B=198.5	60...S.34PZ

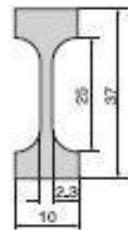
Note: Opening way S indicates the open on both sides.

Model of connector: 60...S.34PZ=KMA complete set of square connector; 60...S.3PZ= one terminal with hole; 60...S.4PZ= one terminal with pin

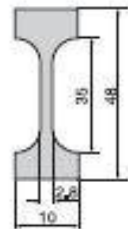
Inner separating part



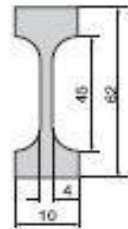
25 series shim



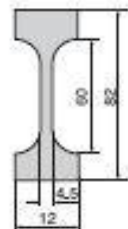
35 series shim



45 series shim



*60 series shim



○ Put a shim in any position along the cross section of tow chain, and the shim can be mounted in every link.

○ If it is used for the pipe loading with the thick cable or different mediums or many cables are different in diameters, the shim can be used to adjust the space, therefore, the product has the reliable stability.

Data of chain material

Properties		Astm	Unir	Test conditions		Articles
mechanical	(Tensile strength at yield)	D638	kg/cm ²	1/8" Sample		1178
	(Tensile modulus)		kg/cm ²			70140
	(Tear strength at break)		kg/cm ²			1178
	(Elongation at break)		%			2
	(Flexural yield)	D790	kg/cm ²	1/8" Sample		1653
(Flexural modulus)	69527					
Izod notch impact (machine processing)		D256	kg/cm ²	1/4 × 1/2 × 5/2	23℃	5.30
				Sample	-20℃	-
					-40℃	-
				1/8 × 1/2 × 5"	23℃	5.33
Sample	-20℃	-				
	-40℃	-				
Thermal	Heat distortion temp	D648	℃	1/8" × 1/2" × 5/2" Sample	4.6 kg/cm ²	-
					186 kg/cm ²	-
	Flammability	UL-94	-	1/8" Sample	-	
				1/16" Sample	-	
Others	(Specific gravity)	D792	g/cm ³	23℃ Brinell		1.36
	(Hardness)	D2240	D			81.5
	(Max water absorption)		%			5
	(Frictional coefficient)		%			0.3
	(Erea mould shrinkage)	D955	%	23℃ Brinell		-
Moldable condition	(Cylinder temperature)	-	℃	-		-
	(Molding pressure)	-	-	-		-
	(Mold temperature)	-	-	-		-

Product packing parameters

Standard	Bending radius	Opening way	/ kg Weight of tow chain	Type of connector	/ kg N.W.	/ kg G.W.	Dimension	Packing qty.
7 × 7	R28	B	14.70	U/0.81	15.51	16.31	45 × 30 × 28	210
10 × 10	R28	B	15.75	U/0.56	16.31	17.11	45 × 30 × 28	105
	R18	B	15.75	U/0.56	16.31	17.11	45 × 30 × 28	105
10 × 15	R28	B	15.20	U/0.79	15.99	16.93	45 × 30 × 39	95
10 × 20	R28	B	14.00	U/0.68	14.68	15.62	45 × 30 × 39	80
	R18	B	14.00	U/0.68	14.69	15.62	45 × 30 × 39	80
15 × 15	R28	BF.N	19.60	U/0.72	20.32	21.26	45 × 30 × 39	70
15 × 20	R28	B	26.50	U/1.31	27.81	28.75	61 × 41 × 32	100
	R28	BF.N	28.50	U/1.24	29.74	30.68	61 × 41 × 32	100
15 × 30	R28	B	24.40	U/1.32	25.72	26.66	61 × 41 × 32	80
	R28	BF.N	26.40	U/1.32	27.72	28.66	61 × 41 × 32	80
15 × 40	R28	B	20.10	U/1.10	21.20	22.14	61 × 41 × 32	60
	R28	BF.N	22.80	U/0.94	23.74	24.68	61 × 41 × 32	60
15 × 50	R28	BF.N	21.25	U/0.88	22.13	23.07	61 × 41 × 32	50
	R48	BF.N	21.25	U/0.88	22.13	23.07	61 × 41 × 32	50
18 × 18	R38	BF.N	21.00	U/1.17	22.17	23.11	61 × 41 × 32	70
	R48	BF.N	21.00	U/1.17	22.17	23.11	61 × 41 × 32	70
18 × 25	R38	B	20.16	U/1.10	21.26	22.20	61 × 41 × 32	63
	R48	B	20.16	U/1.10	21.26	22.20	61 × 41 × 32	63
	R38	W	21.42	U/1.10	22.52	23.46	61 × 41 × 32	63
	R75	W	21.42	U/1.10	22.52	23.46	61 × 41 × 32	63
	R38	BF.N	21.42	U/1.10	22.52	23.46	61 × 41 × 32	63
	R60	BF.N	21.42	U/1.10	22.52	23.46	61 × 41 × 32	63
18 × 37	R38	B	17.28	U/0.97	18.25	19.19	61 × 41 × 32	48
	R48	B	17.28	U/0.97	18.25	19.19	61 × 41 × 32	48
	R38	BF.N	18.55	U/1.10	19.65	20.59	61 × 41 × 32	35
25 × 25	R75	S	25.90	U/2.59	28.49	29.80	61 × 41 × 32	35
25 × 25F	R75	SF	28.35	KMA/2.80	31.10	32.42	61 × 41 × 32	35
25 × 38	R75	S	21.00	U/1.19	22.19	23.51	61 × 41 × 32	25
25 × 38F	R75	SF	22.50	U/1.19	23.69	25.00	61 × 41 × 32	25
N25 × 38	R75	S	24.87	U/1.19	26.06	27.37	61 × 41 × 32	25
N25 × 38F	R75	SF	29.30	U/1.19	30.49	31.80	61 × 41 × 32	25
25 × 57	R75	S	17.50	U/1.11	18.61	19.92	61 × 41 × 32	20
25 × 57F	R75	SF	21.40	U/1.11	22.51	23.82	61 × 41 × 32	20
N25 × 57	R75	S	22.00	U/1.11	23.11	24.42	61 × 41 × 32	20
N25 × 57F	R75	SF	26.30	U/1.11	27.41	28.72	61 × 41 × 32	20
25 × 77	R75	S	15.06	U/0.91	15.97	17.28	61 × 41 × 32	15
25 × 77F	R75	SF	17.85	U/0.91	18.76	20.07	61 × 41 × 32	15
N25 × 77	R75	S	17.55	U/0.91	18.46	19.77	61 × 41 × 32	15
N25 × 77F	R75	SF	21.75	U/0.91	22.66	23.97	61 × 41 × 32	15

Standard	Bending radius	Opening way	/ kg Weight of tow chain	/ kg Type of connector	/ kg N.W.	/ kg G.W.	Dimension	/ m Packing qty.
25 × 38	R75	S	21.00	KMA/2.00	23.00	23.32	61 × 41 × 32	25
25 × 38F	R75	SF	22.50	KMA/2.00	24.50	25.81	61 × 41 × 32	25
N25 × 38	R75	S	24.87	KMA/2.90	27.77	28.96	61 × 41 × 32	25
N25 × 38F	R75	SF	29.30	KMA/2.90	32.20	33.51	61 × 41 × 32	25
25 × 57	R75	S	17.50	KMA/1.70	19.20	20.51	61 × 41 × 32	20
25 × 57F	R75	SF	21.40	KMA/1.70	23.10	24.41	61 × 41 × 32	20
N25 × 57	R75	S	22.00	KMA/2.33	24.33	25.64	61 × 41 × 32	20
N25 × 57F	R75	SF	26.30	KMA/2.33	28.63	29.95	61 × 41 × 32	20
25 × 77	R75	S	15.06	KMA/1.50	16.56	17.87	61 × 41 × 32	15
25 × 77F	R75	SF	17.85	KMA/1.50	19.35	20.66	61 × 41 × 32	15
N25 × 77	R75	SF	17.55	KMA/2.10	19.65	20.96	61 × 41 × 32	15
N25 × 77F	R75	SF	21.75	KMA/2.10	23.85	25.17	61 × 41 × 32	15
N25 × 103	R75	S	20.48	KMA/2.56	23.04	24.45	61 × 41 × 51	16
35 × 50	R75	S	22.00	KMA/2.69	24.69	26.69	114 × 38 × 25	18
35 × 75	R75	W	15.18	U/2.82	18.00	20.00	114 × 38 × 25	12
N35 × 75	R75	S	19.32	KMA/2.82	22.14	24.14	114 × 38 × 25	12
N35 × 75F	R75	SF	21.36	KMA/2.82	24.18	26.18	114 × 38 × 25	12
N35 × 100	R75	S	20.34	KMA/3.01	23.35	25.35	114 × 38 × 28	12
N35 × 100F	R75	SF	23.94	KMA/3.01	26.95	28.95	114 × 38 × 28	12
N35 × 125	R75	S	22.68	KMA/3.24	25.92	27.92	114 × 38 × 37	12
N35 × 125F	R75	SF	25.08	KMA/3.24	28.32	30.32	114 × 38 × 37	12
N35 × 150	R75	S	24.48	KMA/3.24	27.72	29.72	114 × 38 × 37	12
N35 × 150F	R75	SF	28.56	KMA/3.24	31.79	33.79	114 × 38 × 37	12
N35 × 200	R75	S	14.60	KMA/1.93	16.53	18.53	114 × 38 × 28	6
45 × 50	R100	S	27.45	KMA/4.59	32.04	34.04	114 × 38 × 28	15
45 × 75	R100	S	20.55	KMA/3.40	23.95	25.95	114 × 38 × 25	10
45 × 75F	R100	SF	23.10	KMA/3.40	26.50	28.50	114 × 38 × 25	10
45 × 100	R100	S	21.25	KMA/3.57	24.82	26.82	114 × 38 × 28	10
45 × 100F	R100	SF	25.00	KMA/3.57	28.57	30.57	114 × 38 × 28	10
45 × 125	R100	S	22.90	KMA/3.77	26.67	28.67	114 × 38 × 37	10
45 × 125F	R100	SF	27.15	KMA/3.77	30.92	32.92	114 × 38 × 37	10
45 × 150	R100	S	24.40	KMA/3.96	28.36	30.36	114 × 38 × 37	10
45 × 150F	R100	SF	29.00	KMA/3.96	32.96	34.96	114 × 38 × 37	10
45 × 175	R100	S	13.00	KMA/1.88	14.88	16.88	114 × 38 × 25	5
45 × 175F	R100	SF	15.33	KMA/1.88	17.21	19.21	114 × 38 × 28	5
45 × 200	R100	S						
45 × 200F	R100	SF						

Note: Type U is the integrated diagonal connector, type KMA is the standard square connector.

Opening way: B: Non opening; BF,N: Semi-enclosed interior opening; S: Open on both sides; SF: Full-enclosed open on both sides