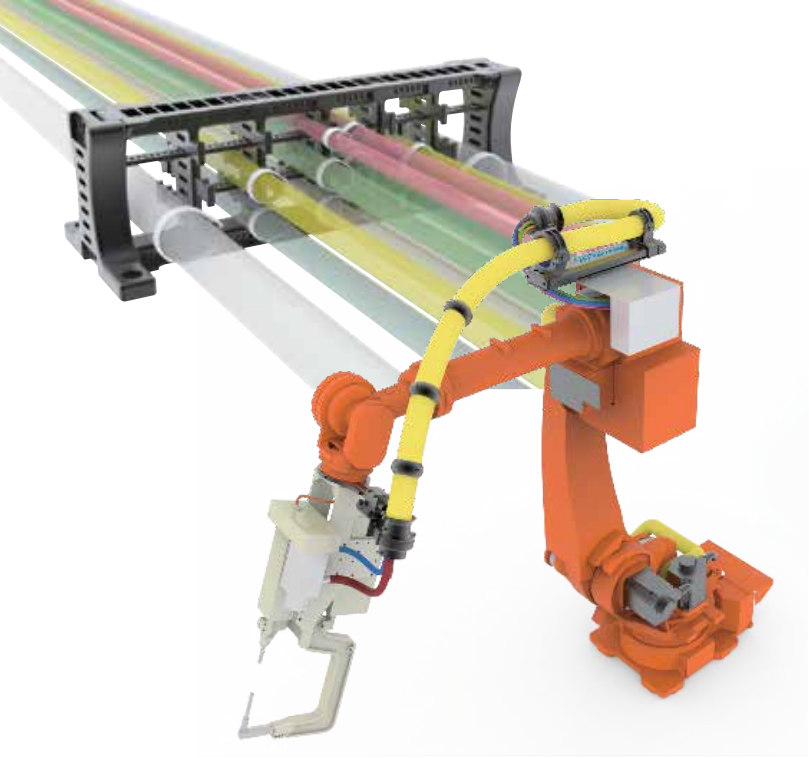
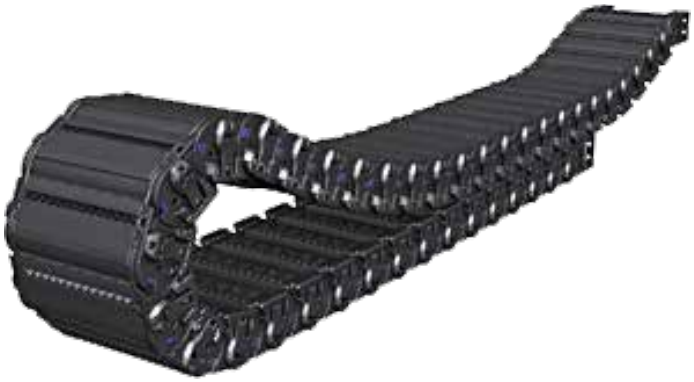
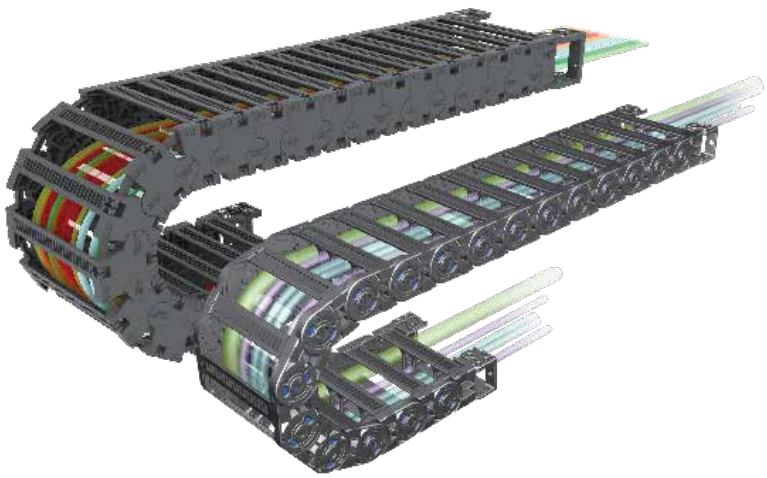
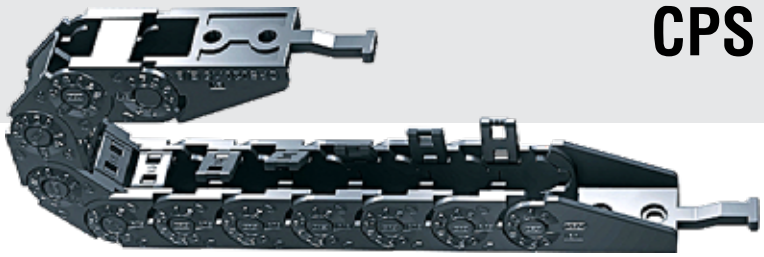








CPS Series

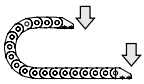
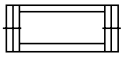
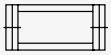
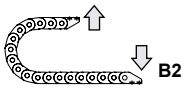
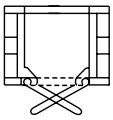
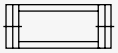
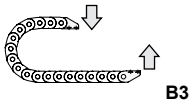
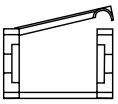
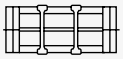
Mini Cable Chain

RoHS CE Ex

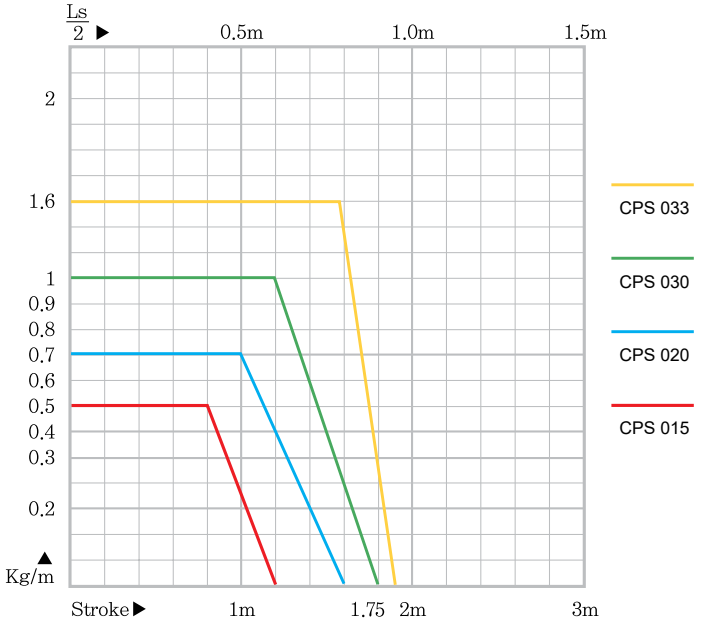
Ordering Information

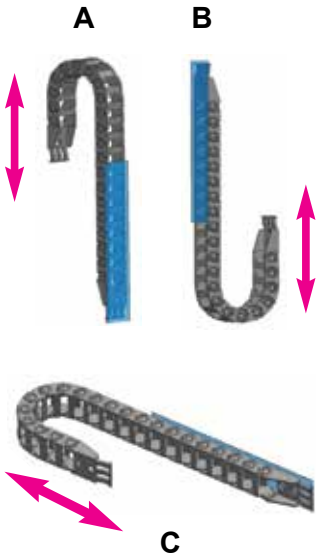
CPS **015** . **10** . **R28** / **B2** – **(XXX mm)**

① ② ③ ④ Length

① CPS Cable-chain	② Inner Width	③ Bending Radius	④ Bracket Type	Size (Unit : mm) A	B	C	D	Frame type	Section - composition	Weight (kg/m)
015	**06** **10** **15** **20**	**18** **28** **38**	 **B1**	12.6 16.6 21.6 26.6	13	6 10 15 20	10			0.100 0.106 0.111 0.115
020	**15** **20** **30** **40**	**28** **38** **48**	 **B2**	24 29 39 49	20	15 20 30 40	14.5			0.245 0.260 0.285 0.310
030	**15** **25** **35** **50**	**38** **48** **75** **100**	 **B3**	29 39 49 64	26	15 25 35 50	19			0.380 0.400 0.420 0.440
033	**27** **37** **47** **67** **77**	**35** **45** **75** **100** **120**	**E** **(S-EEB033)**	45 55 65 85 95	31	27 37 47 67 77	23			0.550 0.590 0.610 0.680 0.700

Unsupported Length





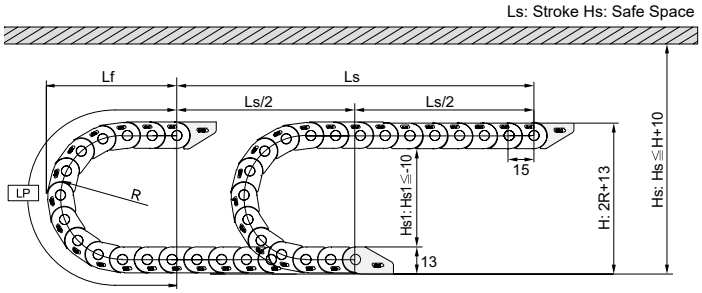
Specifications

Material	Polyamide with reinforced glass fiber: UL94-HB
Noise Range	40dB
Speed	3m/s
Acceleration	10m/s²
Temperature	-30°C~+130°C
Special Production	ESD, UV
Certificate	CE, ATEX(Ex), RoHs

Other Length Restrictions

Type	Vertial standing (Max) **A**	Vertical Hanging (Max) **B**	Side Mounted Unsup-ported (Max) **C**
CPS 015	0.8m	3.0m	0.2m
CPS 020	1.0m	5.0m	0.5m
CPS 030	1.5m	10.0m	0.6m
CPS 033	1.5m	10.0m	0.6m

CPS 015 Series



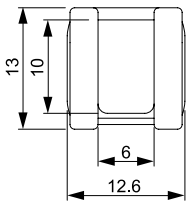
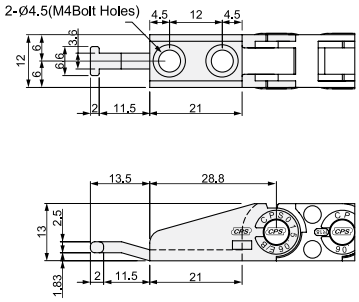
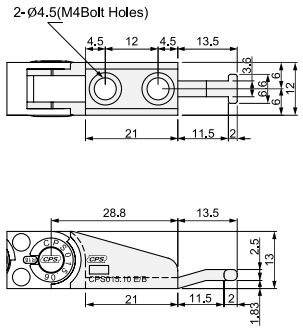
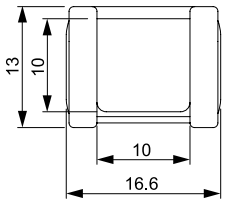
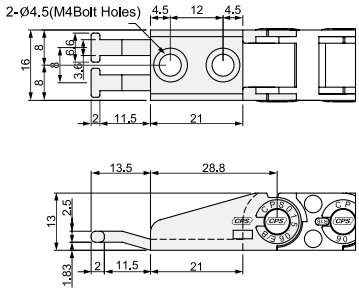
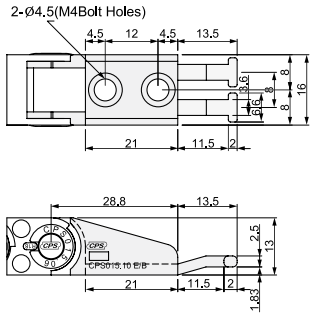
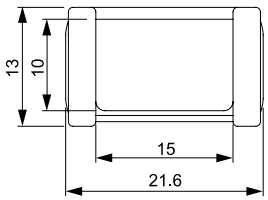
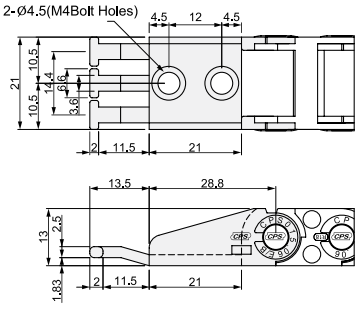
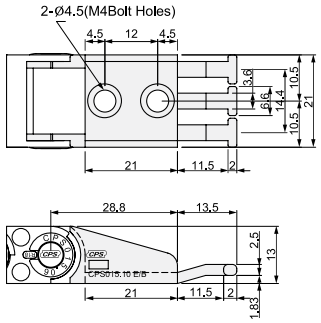
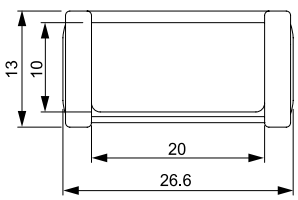
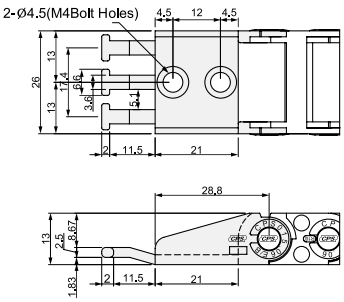
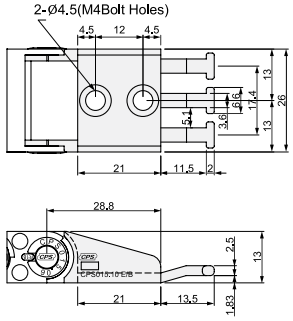
Calculation of the chain length

$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

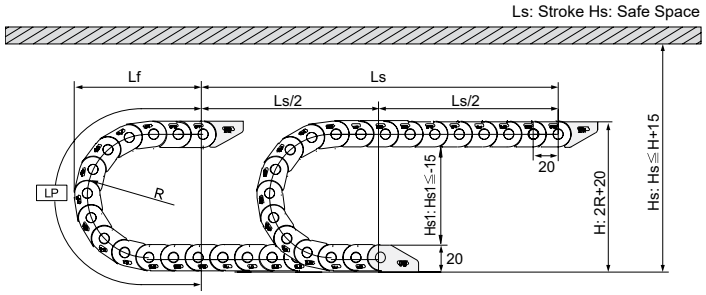
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
18	117	55	49
28	148	65	69
38	180	75	89

(Unit : mm)

Models	Frame	Part Number	Mounting Bracket (Tie Wrap Type)	
			Moving End	Fixing End
CPS015.06		S-TEB015.06		
CPS015.10		S-TEB015.10		
CPS015.15		S-TEB015.15		
CPS015.20		S-TEB015.20		

CPS 020 Series



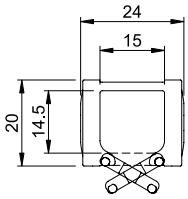
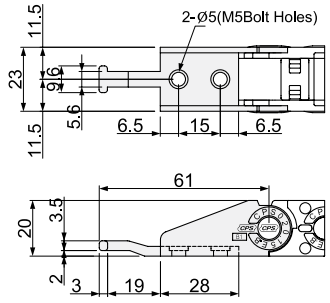
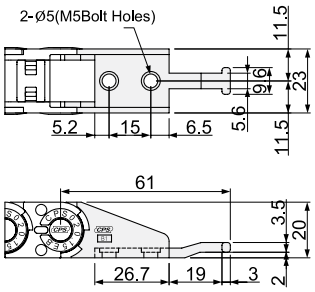
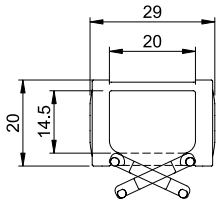
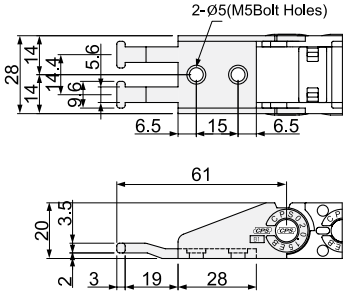
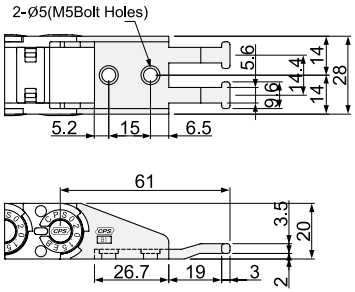
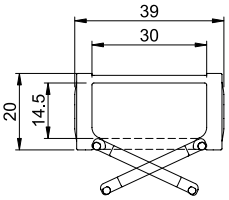
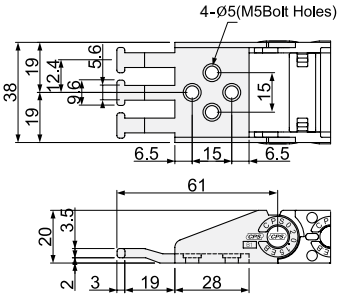
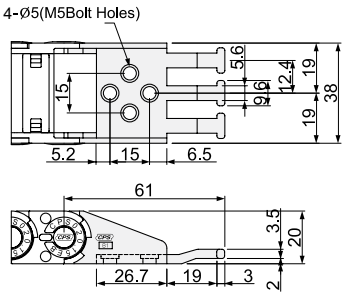
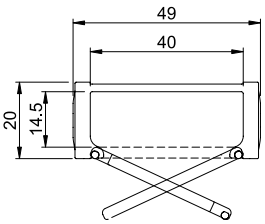
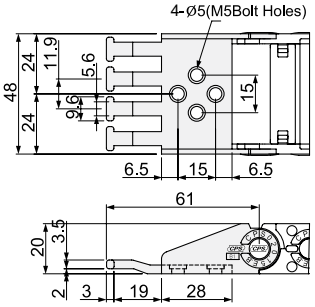
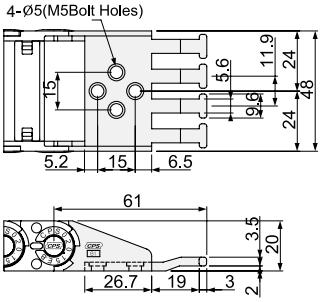
Calculation of the chain length

$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

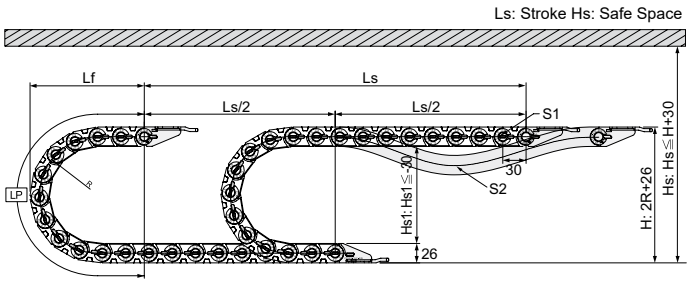
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
28	170	78	76
38	200	88	96
48	230	98	116

(Unit : mm)

Models	Frame	Part Number	Mounting Bracket (Tie wrap type)	
			Moving End	Fixing End
CPS020.15		S-TEB020.15		
CPS020.20		S-TEB020.20		
CPS020.30		S-TEB020.30		
CPS020.40		S-TEB020.40		

CPS 030 Series



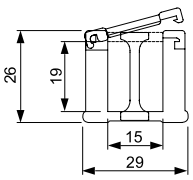
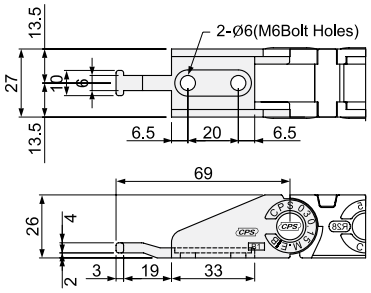
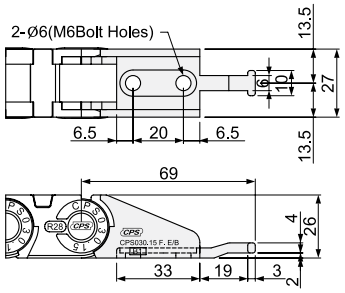
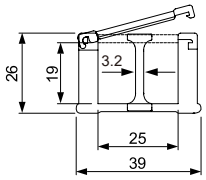
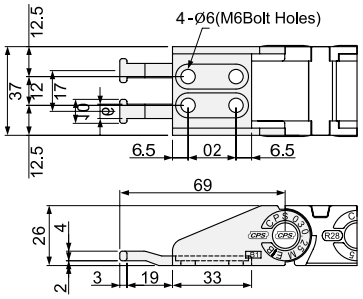
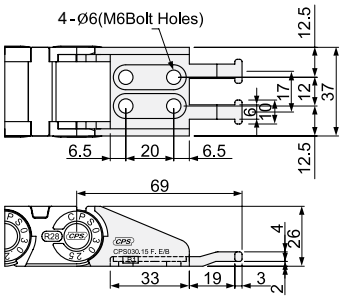
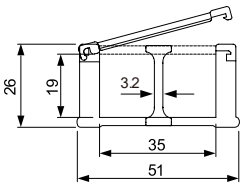
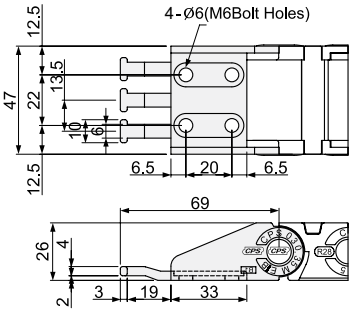
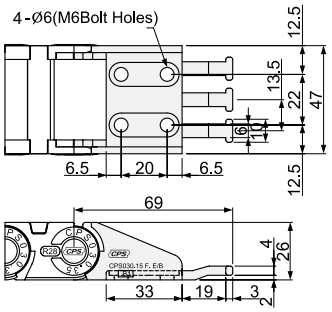
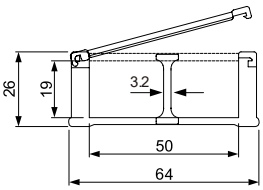
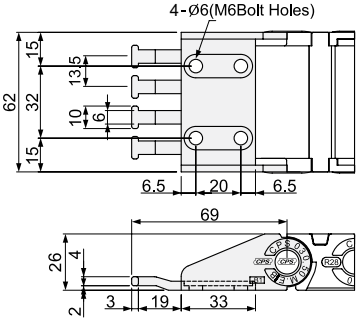
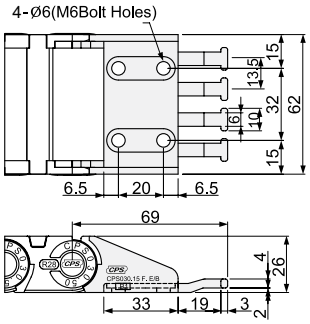
Calculation of the chain length

$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

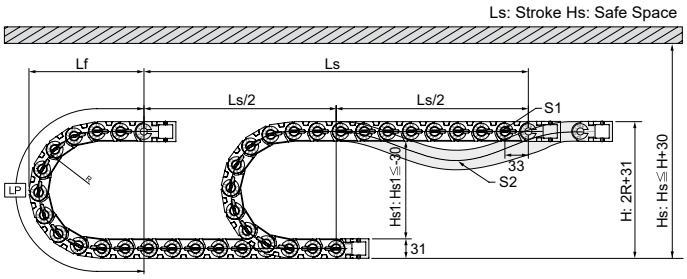
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
38	240	110	101
48	271	119	121
75	356	148	175
100	434	173	225

(Unit : mm)

Models	Frame	Part Number	Mounting Bracket (Tie Wrap Type)	
			Moving End	Fixing End
CPS030.15		S-TEB030.15		
CPS030.25		S-TEB030.25		
CPS030.35		S-TEB030.35		
CPS030.50		S-TEB030.50		

CPS 033 Series

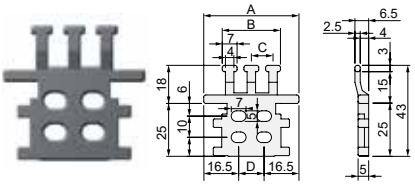


Calculation of the chain length

$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
35	242	117	101
45	274	127	121
75	368	157	181
100	446	182	231
120	509	202	271

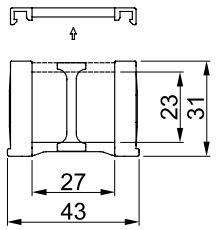
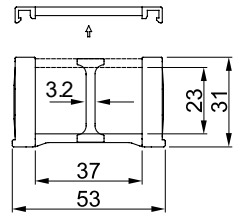
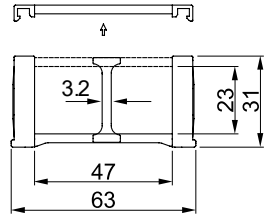
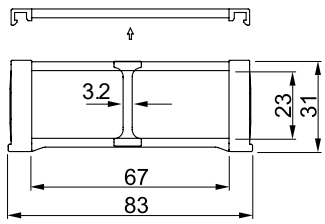
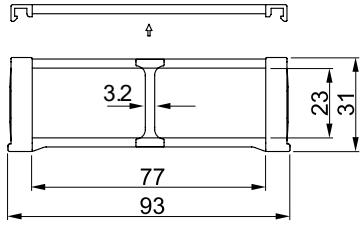


Tie wrap (TW)

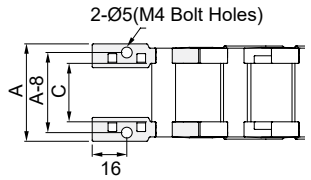
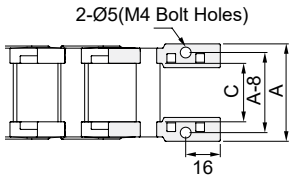
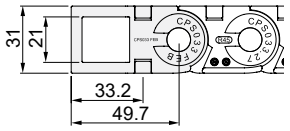
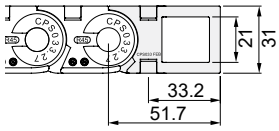
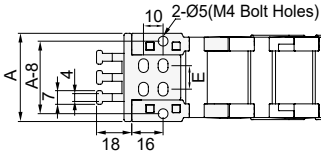
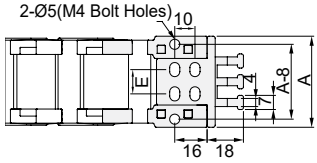
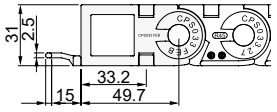
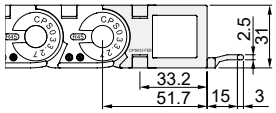
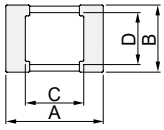
Tie wrap to prevent damage of the cable by twisting & pulling movements can be used as assembling with bracket or separating from the bracket at end position of chain.

(Unit : mm)

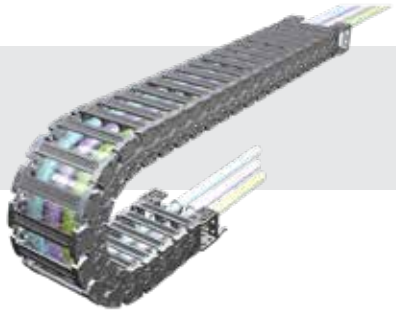
Ordering No.	A	B	C	D
S-TW033/20CR.27	45.0	27.5	10.20	12.0
S-TW033/20CR.37	55.0	41.0	8.50	22.0
S-TW033/20CR.47	65.0	48.0	10.40	32.0
S-TW033/20CR.67	85.0	68.0	10.00	52.0
S-TW033/20CR.77	95.0	78.0	8.87	62.0

Models	Frame
CPS033.27	
CPS033.37	
CPS033.47	
CPS033.67	
CPS033.77	

(Unit : mm)

S-EEB033	End Bracket Moving End	End Bracket Fixing End
Easy Mounting bracket		
		
Easy Mounting Bracket (Tie wrap type)		
		
Front End		

	CPS033.27	CPS033.37	CPS033.47	CPS033.67	CPS033.77
A Width(Outer)	45	55	65	85	95
B Height(Outer)	31				
C Frame	27	37	47	67	77
D Height(Inner)	23				
E Hole width (Tie wrap type only)	12	22	32	52	62



nsb-CR Series

Clean room type

RoHS CE Ex TÜV IPA

Ordering Information

nsb 020 CR . 20 . R48

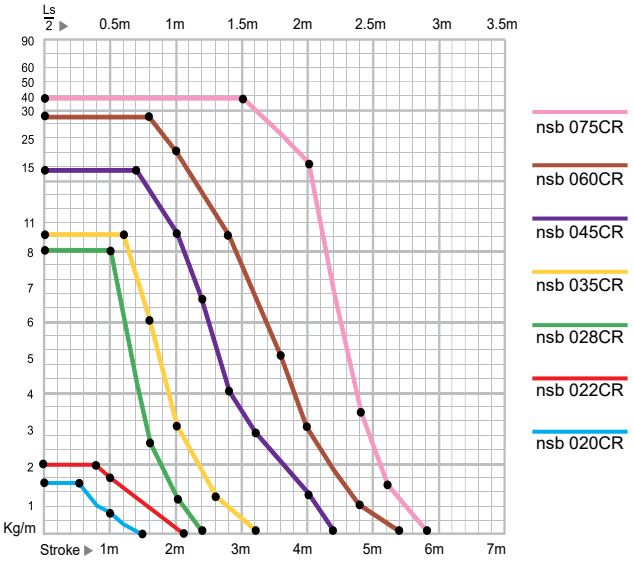
① ② ③

① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
020	20 40	28 38 48	34 54	22	20 40	15		0.32 0.35
022	16 27 37 47 67	35 45 75 100 120	30 41 51 61 81	29	16 27 37 47 67	22		0.43 0.47 0.51 0.55 0.67
028	35 50 55 75 100 125 150 175 200	50 70 90 120 150	55 70 75 95 120 145 170 195 220	38	35 50 55 75 100 125 150 175 200	26		0.90 0.98 1.02 1.12 1.27 1.41 1.59 1.74 1.84
035	35 50 55 75 100 125 150 175 200	75 100 125 150 200	55 70 75 95 120 145 170 195 220	52	35 50 55 75 100 125 150 175 200	40		1.00 1.06 1.09 1.17 1.29 1.39 1.53 1.65 1.73
045	50 75 100 125 150 175 200 250 300	75 100 120 140 200 250 300	80 105 130 155 180 205 230 280 330	70	50 75 100 125 150 175 200 250 300	49		2.59 2.74 2.90 3.11 3.31 3.48 4.18 4.76 5.32
060	75 100 125 150 175 190 200 250 300 350 400	125 140 190 220 270 390	115 140 165 190 215 230 240 290 340 390 440	82	75 100 125 150 175 190 200 250 300 350 400	56		3.56 3.66 3.97 4.16 4.33 4.52 4.64 5.06 5.48 6.09 6.66
075	75 100 125 150 175 200 250 300 350 400 450 500 550 600	180 200 250 300 350 400 500	115 140 165 190 215 240 290 340 390 440 490 540 590 640	108	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78		5.37 5.57 5.82 6.01 6.26 6.68 7.22 7.94 8.67 9.43 10.01 10.41 11.88 12.17

Specifications

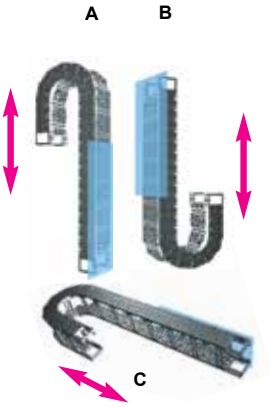
Material	Polyamide with reinforced glass fiber: UL94-HB
Speed	5m/s
Noise level	30dB
Acceleration	15m/s²
Temperature	-30°C~+130°C
Special Production	ESD, UV, Customized color
Certificate	CE, IPA, ATEX(Ex), TUV, RoHS

Unsupported Length



Other Length Restrictions

Type	Vertial standing (Max) A	Vertical Hanging (Max) B	Side Mounted Unsupported (Max) C
nsb 020CR	1.0m	5m	0.5m
nsb 022CR	1.0m	5m	0.5m
nsb 028CR	2.0m	40m	1.0m
nsb 035CR	3.0m	50m	1.0m
nsb 045CR	6.0m	100m	2.5m
nsb 060CR	6.0m	100m	3.0m
nsb 075CR	6.0m	100m	3.0m



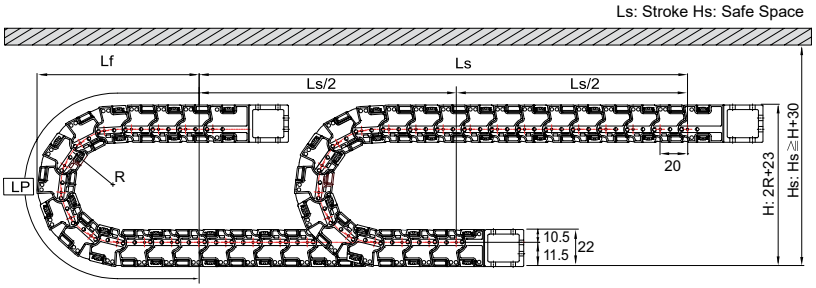
How to Choose Bending Radius

Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

See page 65 - 66 for accessories

nsb 020CR

Calculation of the chain length



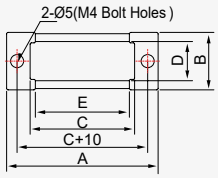
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

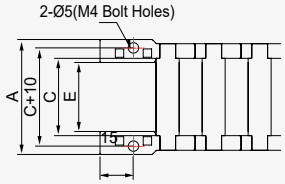
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
28	162	76	79
38	202	90	99
48	242	105	119

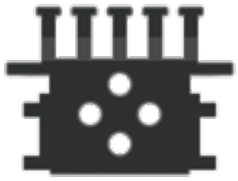
Accessories

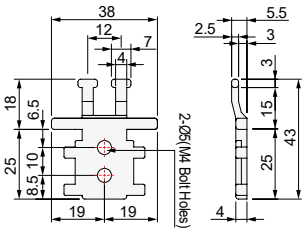
Free end bracket

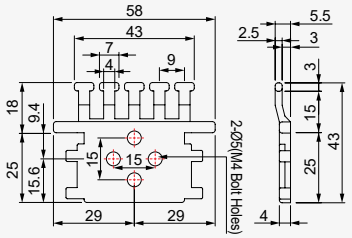




Tie wrap

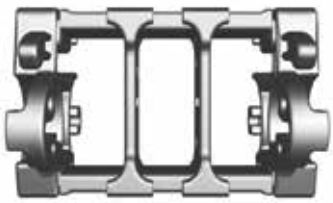






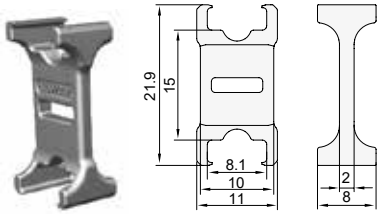
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	Ordering No.	
nsb-FEB020CR	38 58	22	20 40	15	16 36	sb-TW018CR.20	sb-TW018CR.40

Dividers



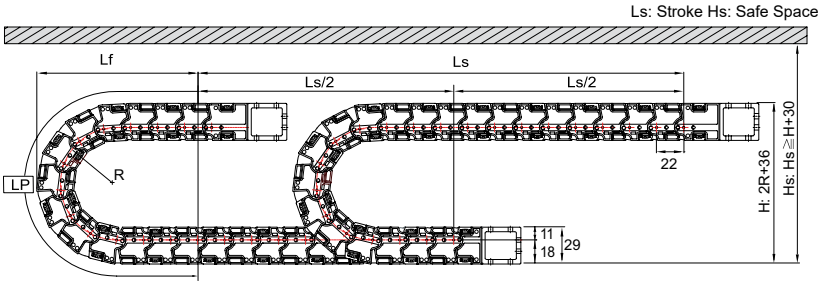
Assemble divider every third links.

sb-DV018CR



nsb 022CR

Calculation of the chain length



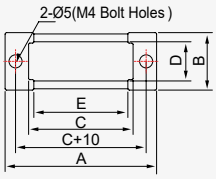
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

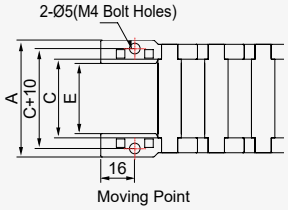
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
35	222	108	106
45	266	125	126
75	353	152	186
100	441	182	236
120	485	192	276

Accessories

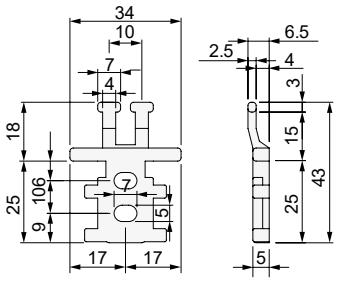
Free end bracket

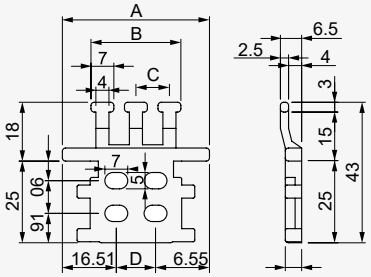




Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB022CR	34 45 55 65 85 95	29	16 27 37 47 67 77	22	12 23 33 43 63 73

Tie wrap

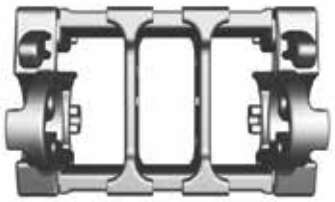




Ordering No.	A	B	C	D
S-TW033/020CR.27	45	27.5	10.20	12
S-TW033/020CR.37	55	41.0	8.50	22
S-TW033/020CR.47	65	48.0	10.40	32
S-TW033/020CR.67	85	68.0	10.00	52
S-TW033/020CR.77	95	78.0	8.87	62

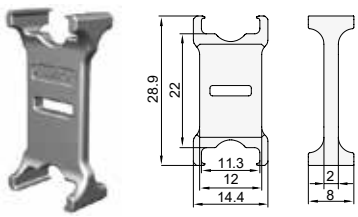
sb-TW020CR.16

Dividers



Assemble divider every third links.

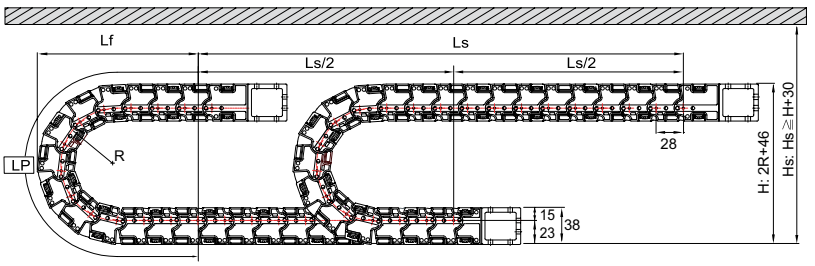
sb-DV020CR



nsb 028CR

Calculation of the chain length

Ls: Stroke Hs: Safe Space



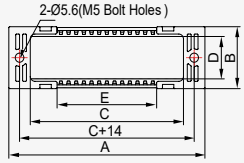
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

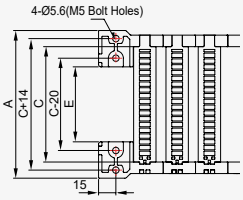
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
50	311	149	146
70	367	135	186
90	422	182	226
120	533	221	286
150	589	232	346

Accessories

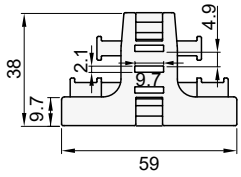
Free end bracket

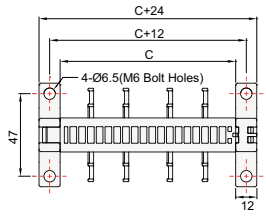




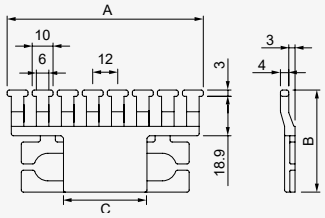
Moving Point

System tie wrap





Tie wrap



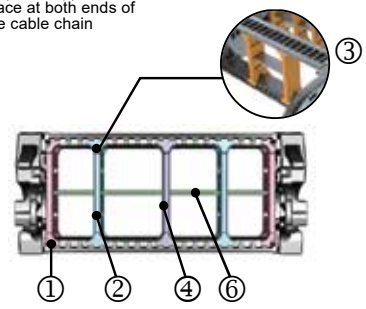
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB028CR	63	38	35	26	0
	78		50		15
	83		55		20
	103		75		40
	128		100		65
	153		125		90
	178		150		115
	203		175		140
	228		200		165

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.50	50	
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	
S-TW.EB028.125	125	
S-TW.EB028.150	150	
S-TW.EB028.175	175	
S-TW.EB028.200	200	

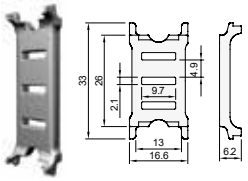
Ordering No.	A	B	C
S-TW036/025CR.35	46	35.4	-
S-TW036/025CR.50	69	48.9	15
S-TW036/025CR.55	70	48.9	20
S-TW036/025CR.75	94	48.9	40
S-TW036/025CR.100	118	48.9	65
S-TW036/025CR.125	142	48.9	90

Dividers

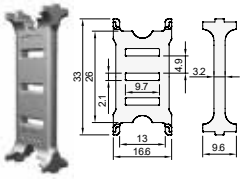
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**T** divider can be used at center position to support frame longer than 125mm and up
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



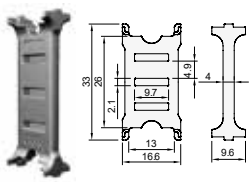
① sb-DV028/S



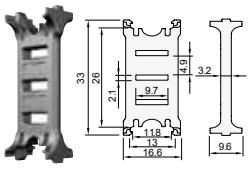
② sb-DV028/M1



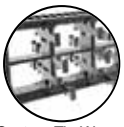
③ sb-DV028/M2



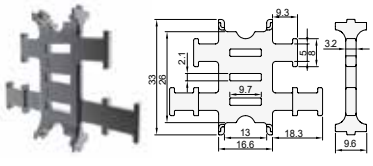
④ sb-DV028/T



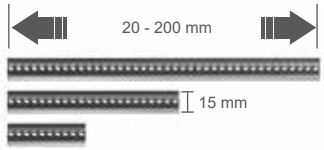
⑤ sb-DV028/W



System Tie Wrap



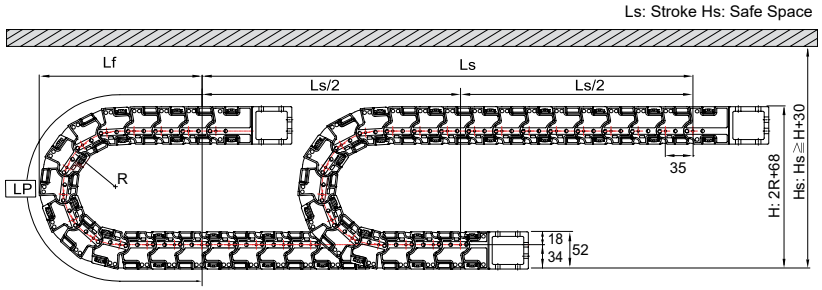
⑥Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

nsb 035CR

Calculation of the chain length



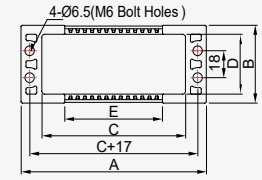
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

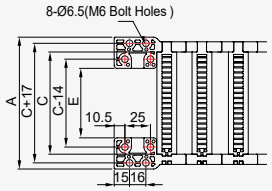
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
75	471	226	218
100	550	251	268
125	628	276	318
150	706	301	368
200	863	351	468

Accessories

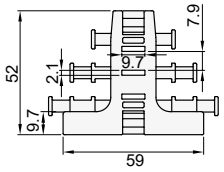
Free end bracket

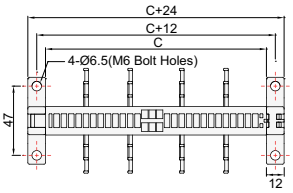




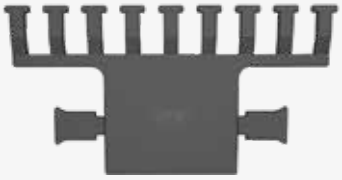
Moving Point

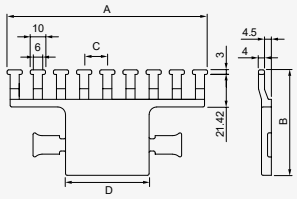
System tie wrap





Tie wrap





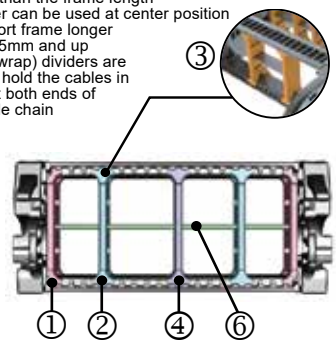
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB035CR	64 79 84 104 129 154 179 204 229	52	35 50 55 75 100 125 150 175 200	40	3 18 23 43 68 93 118 143 168

Ordering No.	C Frame	Hole Type
S-TW.EB035.35	35	M6 Bolt Holes
S-TW.EB035.50	50	
S-TW.EB035.55	55	
S-TW.EB035.75	75	
S-TW.EB035.100	100	
S-TW.EB035.125	125	
S-TW.EB035.150	150	
S-TW.EB035.175	175	
S-TW.EB035.200	200	

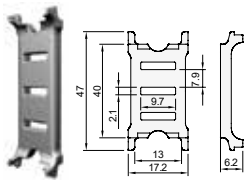
Ordering No.	A	B	C	D
S-TW050/035N.50	82	64.5	12.00	5
S-TW050/035N.55	82		12.00	10
S-TW050/035N.75	107		12.13	30
S-TW050/035N.100	132		15.25	55
S-TW050/035N.125	157		14.70	80
S-TW050/035N.150	182		14.35	105
S-TW050/035N.175	203		12.31	130
S-TW050/035N.200	232		13.88	155

Dividers

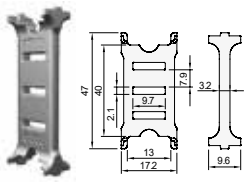
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**T** divider can be used at center position to support frame longer than 125mm and up
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



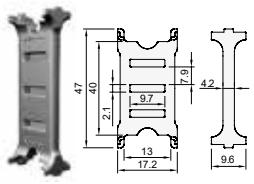
① sb-DV035/S



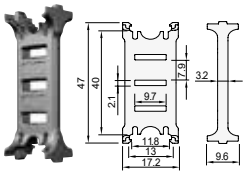
② sb-DV035/M1



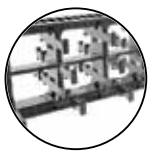
③ sb-DV035/M2



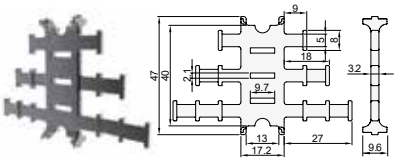
④ sb-DV035/T



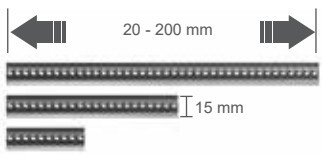
⑤ sb-DV035/W



System Tie Wrap



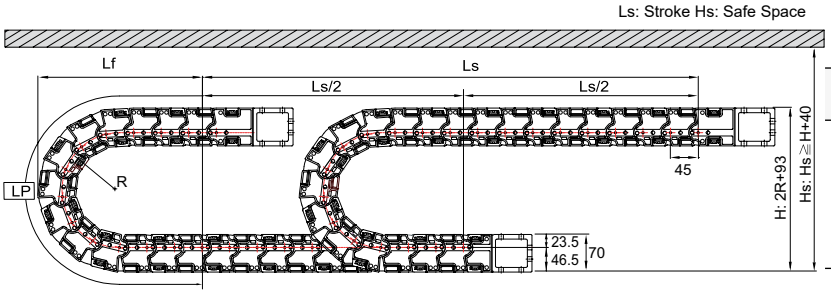
Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

nsb 045CR

Calculation of the chain length



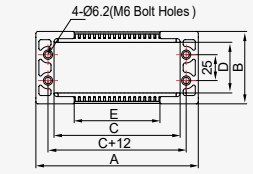
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

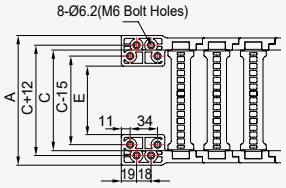
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
75	587	279	243
100	665	304	293
120	728	324	333
140	791	344	373
200	979	404	493
250	1,136	454	593
300	1,293	504	693

Accessories

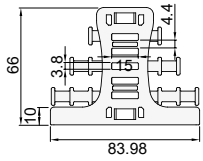
Steel end bracket

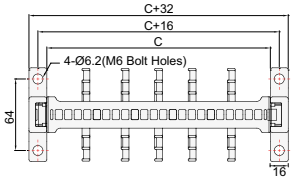




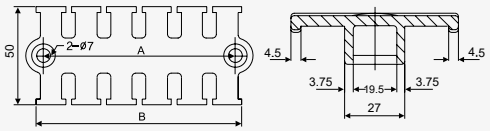
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB045CR	86 111 136 161 176 186 201 211 226 236 276 286 336	70	50 75 100 125 150 175 200 250 300	49	10 35 60 85 100 110 125 135 150 160 200 210 260

Ordering No.	C Frame	Hole Type
S-TW.EB045.50	50	M6 Bolt Holes
S-TW.EB045.75	75	
S-TW.EB045.100	100	
S-TW.EB045.125	125	
S-TW.EB045.140	140	
S-TW.EB045.150	150	
S-TW.EB045.165	165	
S-TW.EB045.175	175	
S-TW.EB045.190	190	
S-TW.EB045.200	200	
S-TW.EB045.240	240	
S-TW.EB045.250	250	
S-TW.EB045.300	300	

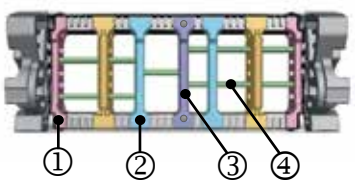
Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

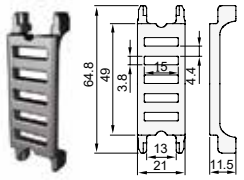
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

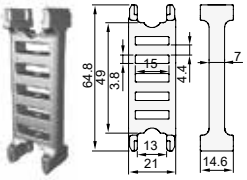
③**T** divider can be used at center position to support frame longer than 200mm and up



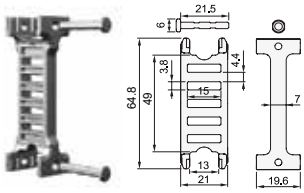
① sb-DV045/S



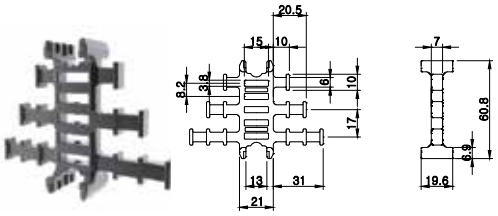
② sb-DV045/M



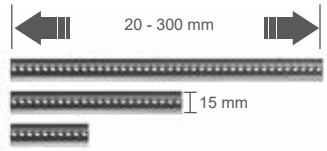
③ sb-DV045/T



④ sb-DV060/W



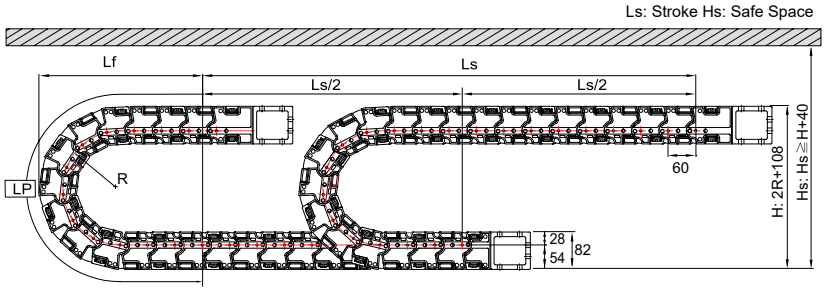
⑤ Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

nsb 060CR

Calculation of the chain length



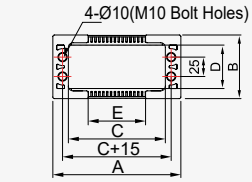
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

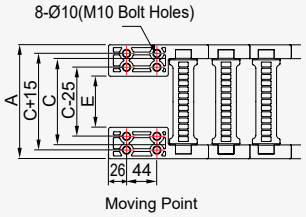
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
125	854	389	358
140	901	404	388
190	1,058	454	488
220	1,152	484	548
270	1,309	574	648
390	1,686	654	888

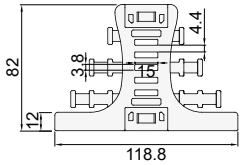
Accessories

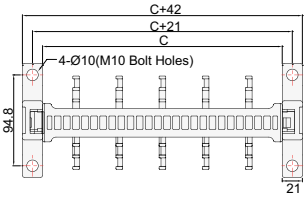
Steel end bracket



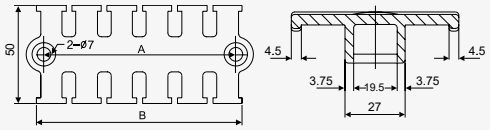


System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB060CR	115 140 165 190 215 230 240 270 280 290 340 390 440	82	75 100 125 150 175 190 200 250 300 350 400	55	24 49 74 99 124 139 149 179 189 199 249 299 349

Ordering No.	C Frame	Hole Type
S-TW.EB060.75	75	M10 Bolt Holes
S-TW.EB060.100	100	
S-TW.EB060.125	125	
S-TW.EB060.150	150	
S-TW.EB060.175	175	
S-TW.EB060.190	190	
S-TW.EB060.200	200	
S-TW.EB060.230	230	
S-TW.EB060.240	240	
S-TW.EB060.250	250	
S-TW.EB060.300	300	
S-TW.EB060.350	350	
S-TW.EB060.400	400	

Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

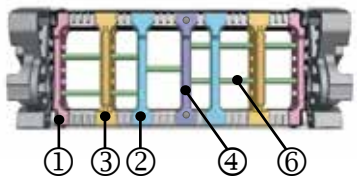
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

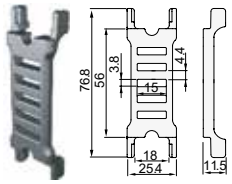
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 200mm and up

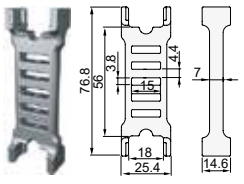
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



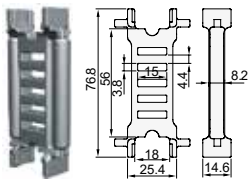
① sb-DV060/S



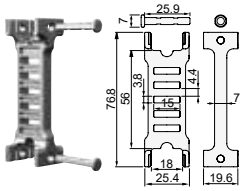
② sb-DV060/M



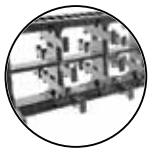
③ sb-DV060/R



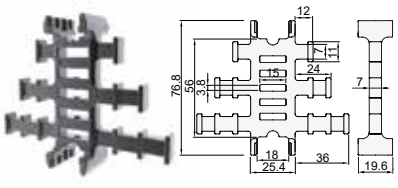
④ sb-DV060T



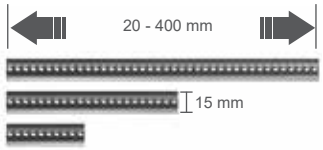
⑤ sb-DV060/W



System Tie Wrap



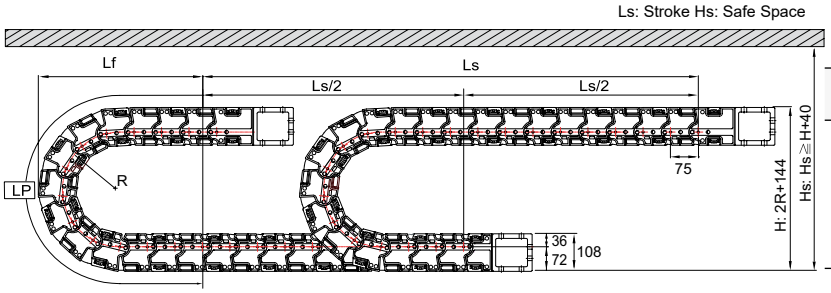
⑥Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

nsb 075CR

Calculation of the chain length



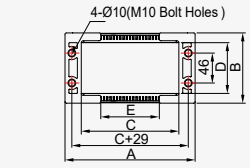
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

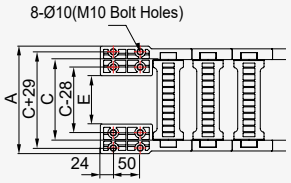
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
180	1,147	515	504
200	1,210	535	544
250	1,367	585	644
300	1,524	635	744
350	1,681	685	844
400	1,838	735	944
500	2,152	835	1,144

Accessories

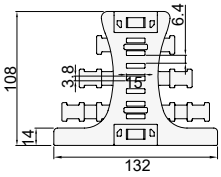
Steel end bracket

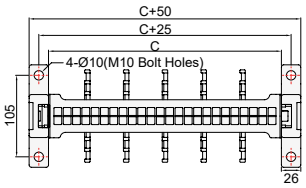




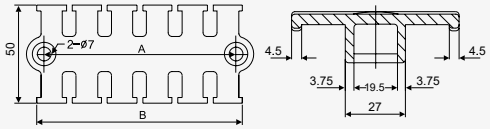
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB075CR	125 150 165 175 200 225 250 290 300 340 350 400 450 500 550 600 650	108	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78	15 40 55 65 90 115 140 180 190 230 240 290 340 390 440 490 540

Ordering No.	C Frame	Hole Type
S-TW.EB075.75	75	M10 Bolt Holes
S-TW.EB075.100	100	
S-TW.EB075.115	115	
S-TW.EB075.125	125	
S-TW.EB075.150	150	
S-TW.EB075.175	175	
S-TW.EB075.200	200	
S-TW.EB075.240	240	
S-TW.EB075.250	250	
S-TW.EB075.290	290	
S-TW.EB075.300	300	
S-TW.EB075.350	350	
S-TW.EB075.400	400	
S-TW.EB075.450	450	
S-TW.EB075.500	500	
S-TW.EB075.550	550	
S-TW.EB075.600	600	

Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

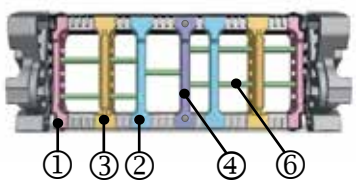
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

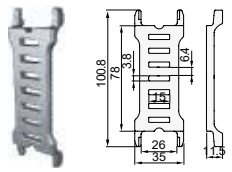
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 300mm and up

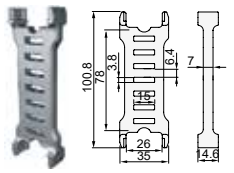
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



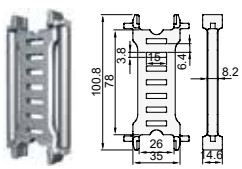
① sb-DV075/S



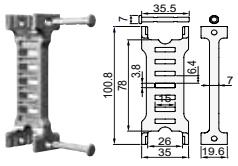
② sb-DV075/M



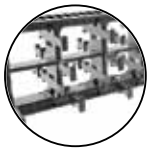
③ sb-DV075/R



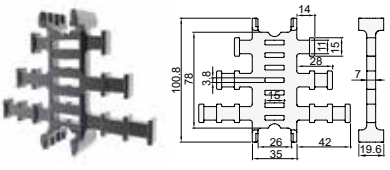
④ sb-DV075/T



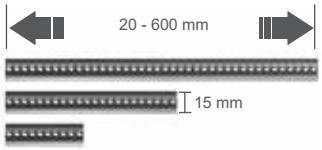
⑤ sb-DV075/W



System Tie Wrap

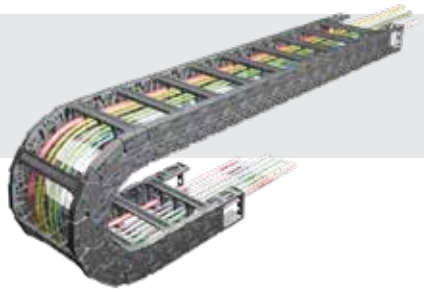


Separators



Ordering NO.

sb-SP/600.600
Cut to length (600 mm)



nsb-N Series

Low Noise, Normal type

RoHS CE Ex

Ordering Information

nsb 028 N . 50 . R66

① ② ③

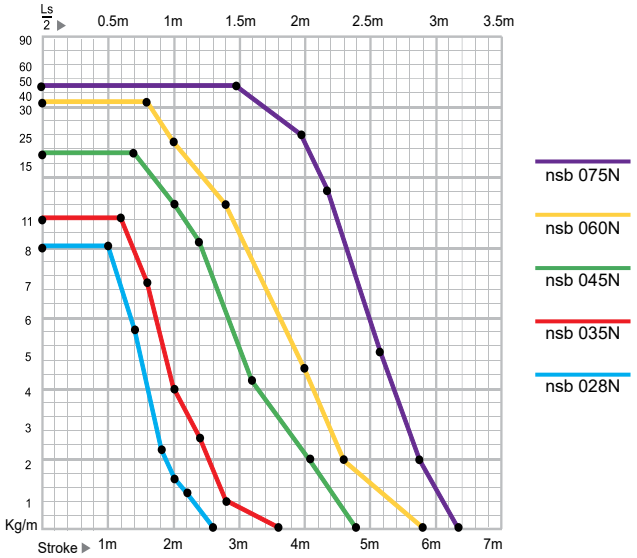
① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
028	35 50 55 75 100 125 150 175 200	46 66 86 116 146	55 70 75 95 120 145 170 195 220	38	35 50 55 75 100 125 150 175 200	26		0.79 0.82 0.85 0.90 0.98 1.08 1.18 1.45 1.59
035	35 50 55 75 100 125 150 175 200	55 65 90 115 140 190	55 70 75 95 120 145 170 195 220	52	35 50 55 75 100 125 150 175 200	40		1.10 1.13 1.15 1.18 1.25 1.32 1.41 1.62 1.72
045	50 75 100 125 140 150 175 200 250 300	90 110 135 165 185 235 285	80 105 130 155 170 180 205 230 280 330	66	50 75 100 125 140 150 175 200 250 300	45		2.06 2.14 2.22 2.32 2.38 2.42 2.51 2.86 3.15 3.43
060	75 100 125 150 175 200 250 300 350 400	125 135 150 180 230 270 340	115 140 165 190 215 240 290 340 390 440	82	75 100 125 150 175 200 250 300 350 400	56		3.30 3.35 3.51 3.60 3.69 3.84 4.05 4.26 4.57 4.85
075	75 100 125 150 175 200 250 300 350 400 450 500 550 600	160 180 230 280 330 380 480	115 140 165 190 215 240 290 340 390 440 490 540 590 640	108	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78		4.80 4.90 5.02 5.12 5.25 5.46 5.72 6.09 6.45 6.83 7.12 7.32 8.06 8.20

See page 65 - 66 for accessories

Specifications

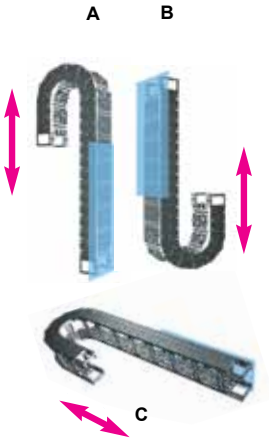
Material	Polyamide with reinforced glass fiber: UL94-HB
Noise Range	30dB
Speed	5m/s
Acceleration	15m/s²
Temperature	-30°C~+130°C
Special Production	ESD, UV, Customized color
Certificate	CE, ATEX(Ex), RoHS

Unsupported Length



Other Length Restrictions

Type	Vertial standing (Max) A	Vertical Hanging (Max) B	Side Mounted Unsupported (Max) C
nsb 028N	2.0m	40m	1.0m
nsb 035N	2.0m	40m	1.0m
nsb 045N	6.0m	100m	2.5m
nsb 060N	6.0m	100m	3.0m
nsb 075N	6.0m	100m	3.0m



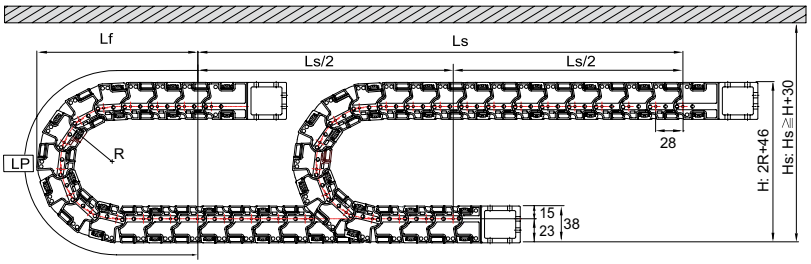
How to Choose Bending Radius

Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

nsb 028N

Calculation of the chain length

Ls: Stroke Hs: Safe Space



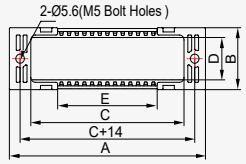
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

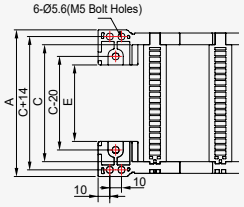
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
46	313	153	138
66	376	173	178
86	439	193	218
116	533	223	278
146	627	253	338

Accessories

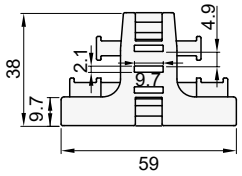
Free end bracket

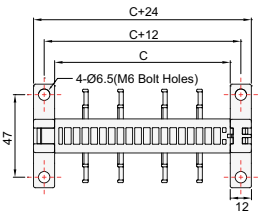




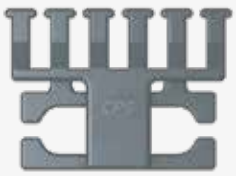
Moving Point

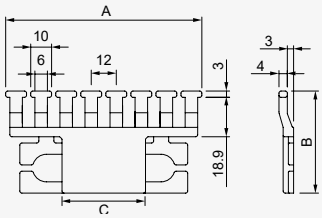
System tie wrap





Tie wrap





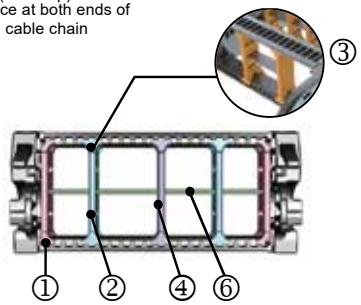
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB028N	60.4	38	35	26	0.4
	75.4		50		15.4
	80.4		55		20.4
	100.4		75		40.4
	125.4		100		65.4
	150.4		125		90.4
	175.4		150		115.4
	200.4		175		140.4
	225.4		200		165.4

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.50	50	
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	
S-TW.EB028.125	125	
S-TW.EB028.150	150	
S-TW.EB028.175	175	
S-TW.EB028.200	200	

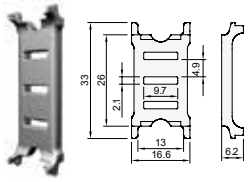
Ordering No.	A	B	C
S-TW036/025CR.35	46	35.4	-
S-TW036/025CR.50	69	48.9	15
S-TW036/025CR.55	70	48.9	20
S-TW036/025CR.75	94	48.9	40
S-TW036/025CR.100	118	48.9	65
S-TW036/025CR.125	142	48.9	90

Dividers

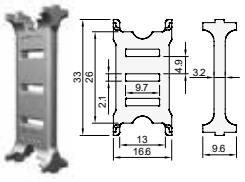
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**T** divider can be used at center position to support frame longer than 125mm and up
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



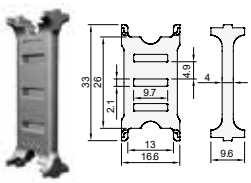
① sb-DV028/S



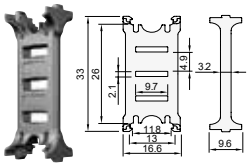
② sb-DV028/M1



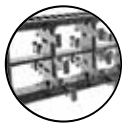
③ sb-DV028/M2



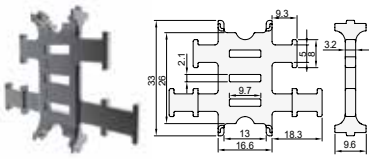
④ sb-DV028/T



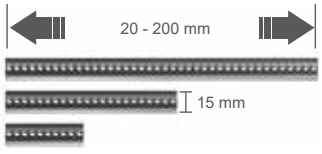
⑤ sb-DV028/W



System Tie Wrap



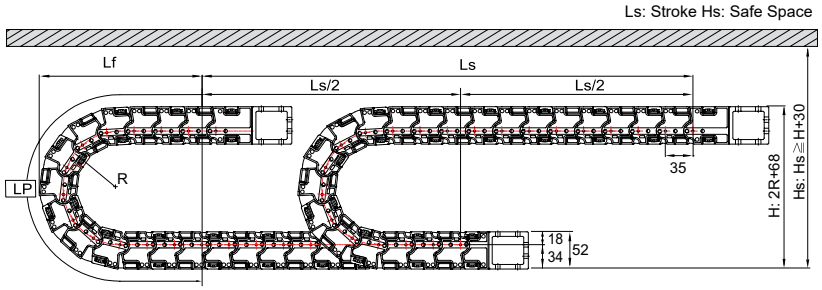
⑥ Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

nsb 035N

Calculation of the chain length



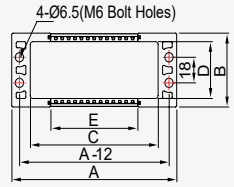
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

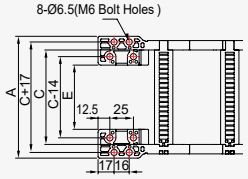
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
55	383	194	178
65	414	204	198
90	493	229	248
115	572	254	298
140	650	279	348
190	807	329	448

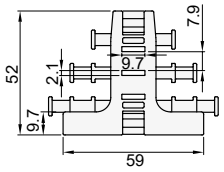
Accessories

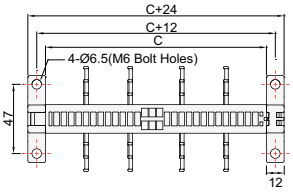
Free end bracket



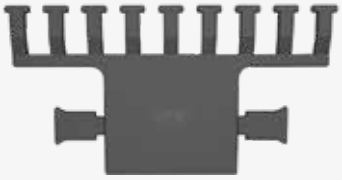


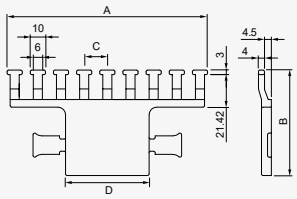
System tie wrap





Tie wrap





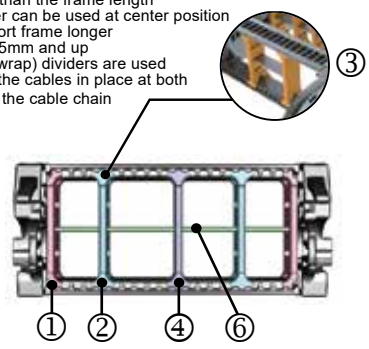
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB035N	64 79 84 104 129 154 179 204 229	52	35 50 55 75 100 125 150 175 200	40	3 18 23 43 68 93 118 143 168

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.50	50	
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	
S-TW.EB028.125	125	
S-TW.EB028.150	150	
S-TW.EB028.175	175	
S-TW.EB028.200	200	

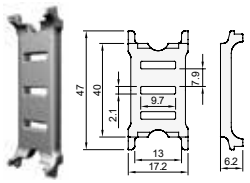
Ordering No.	A	B	C	D
S-TW050/035N.50	82	64.5	12.00	5
S-TW050/035N.55	82		12.00	10
S-TW050/035N.75	107		12.13	30
S-TW050/035N.100	132		15.25	55
S-TW050/035N.125	157		14.70	80
S-TW050/035N.150	182		14.35	105
S-TW050/035N.175	203		12.31	130
S-TW050/035N.200	232		13.88	155

Dividers

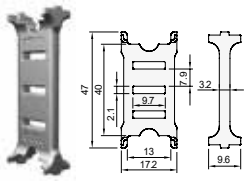
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**T** divider can be used at center position to support frame longer than 125mm and up
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



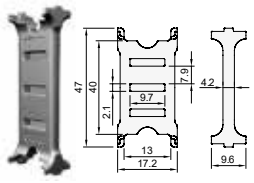
① sb-DV035/S



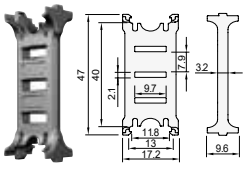
② sb-DV035/M1



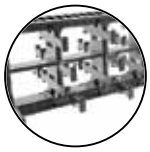
③ sb-DV035/M2

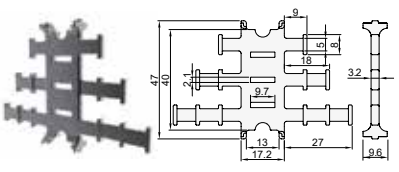


④ sb-DV035/T

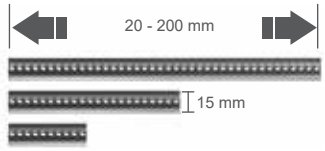


⑤ sb-DV035/W


System Tie Wrap



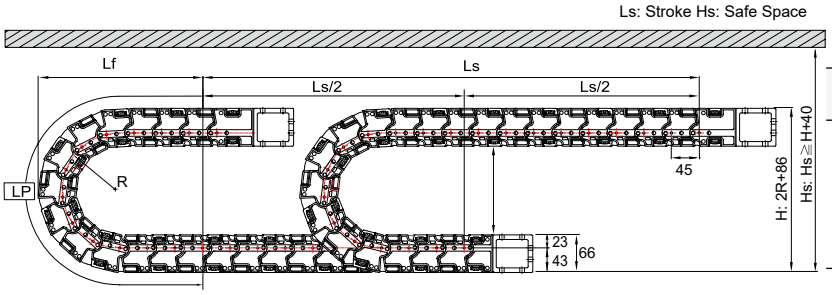
Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

nsb 045N

Calculation of the chain length



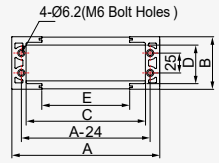
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

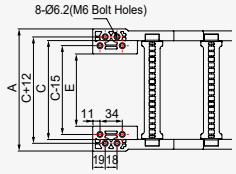
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
90	633	291	266
110	695	311	306
135	774	336	356
165	868	366	416
185	931	386	456
235	1,088	436	556
285	1,245	486	656

Accessories

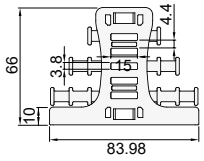
Steel end bracket

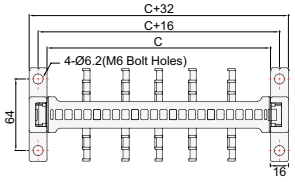




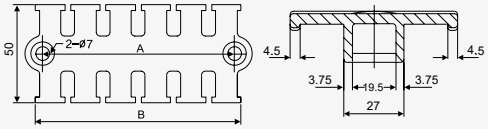
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	Ordering No.	C Frame	Hole Type	Ordering No.	A	B
	86		50		10	S-TW.EB045.50	50				
	111		75		35	S-TW.EB045.75	75				
	136		100		60	S-TW.EB045.100	100				
	161		125		85	S-TW.EB045.125	125				
	176		140		100	S-TW.EB045.140	140		S- TW50	58	65
	186		150		110	S-TW.EB045.150	150		S-TW75	75	82
nsb-FEB045N	201	66	165	45	125	S-TW.EB045.165	165	M6 Bolt Holes	S-TW100	98	105
	211		175		135	S-TW.EB045.175	175		S-TW125	122	129
	226		190		150	S-TW.EB045.190	190		S-TW150	141	148
	236		200		160	S-TW.EB045.200	200				
	276		240		200	S-TW.EB045.240	240				
	286		250		210	S-TW.EB045.250	250				
	336		300		260	S-TW.EB045.300	300				

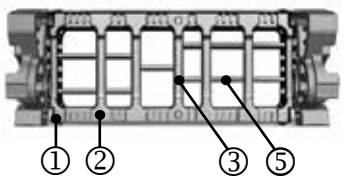
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

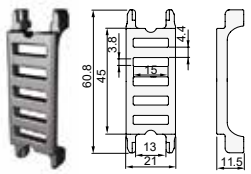
②**M** divider is used to separate individual cables

③**T** divider can be used at center position to support frame longer than 200mm and up

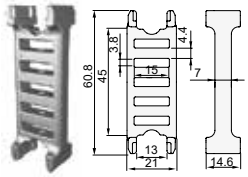
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



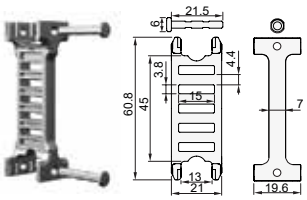
① sb-DV045/S



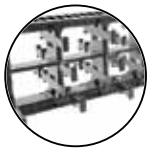
② sb-DV045/M



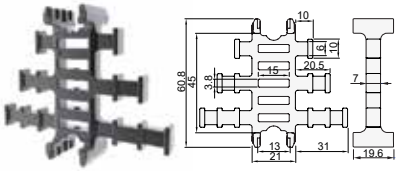
③ sb-DV045/T



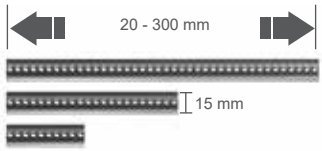
④ sb-DV045/W



System Tie Wrap



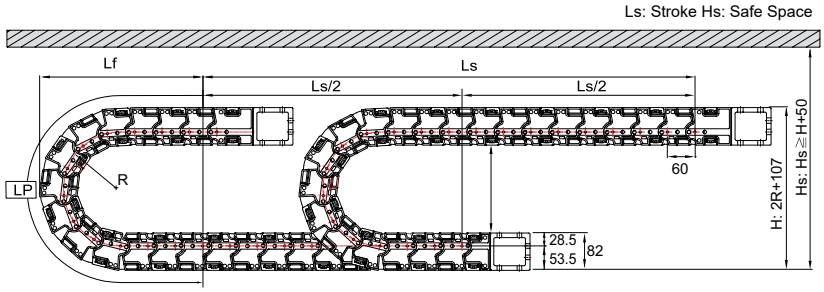
Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

nsb 060N

Calculation of the chain length



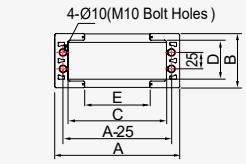
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

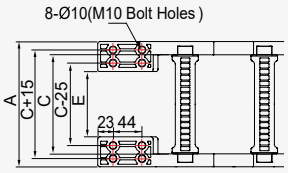
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
125	854	389	357
135	885	399	377
150	932	414	407
180	1,026	444	467
230	1,183	494	567
270	1,309	534	647
340	1,529	604	787

Accessories

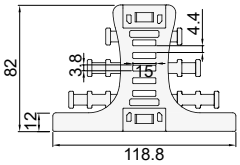
Steel end bracket

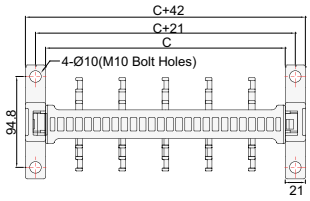




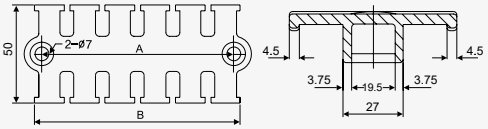
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB060N	115	82	75	55	24
	140		100		49
	165		125		74
	190		150		99
	215		175		124
	230		190		139
	240		200		149
	270		230		179
	280		240		189
	290		250		199
	340		300		249
	390		350		299
	440		400		349

Ordering No.	C Frame	Hole Type
S-TW.EB060.75	75	M10 Bolt Holes
S-TW.EB060.100	100	
S-TW.EB060.125	125	
S-TW.EB060.150	150	
S-TW.EB060.175	175	
S-TW.EB060.190	190	
S-TW.EB060.200	200	
S-TW.EB060.230	230	
S-TW.EB060.240	240	
S-TW.EB060.250	250	
S-TW.EB060.300	300	
S-TW.EB060.350	350	
S-TW.EB060.400	400	

Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

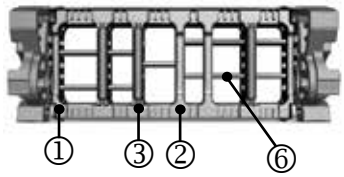
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

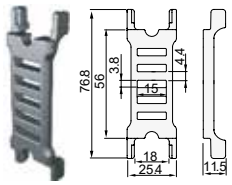
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 200mm and up

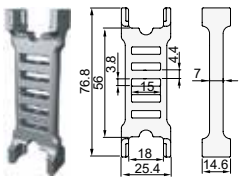
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



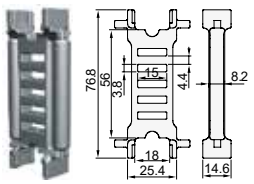
① sb-DV060/S



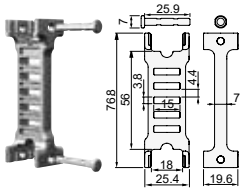
② sb-DV060/M



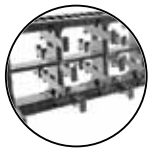
③ sb-DV060/R



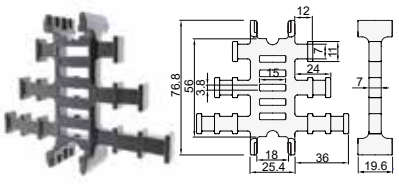
④ sb-DV060/T



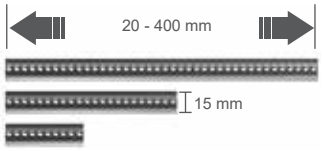
⑤ sb-DV060/W



System Tie Wrap



⑥Separators

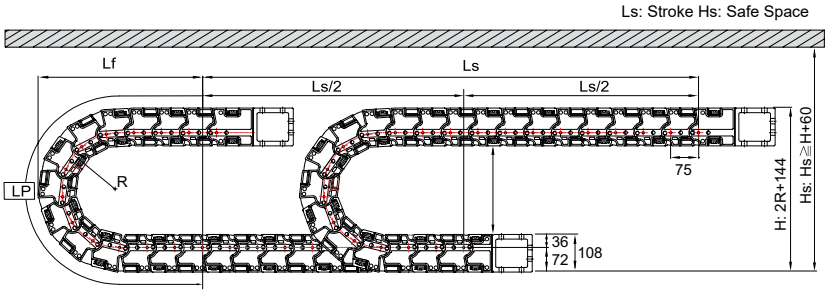


Ordering NO.

sb-SP/400.400
Cut to length (400 mm)

nsb 075N

Calculation of the chain length



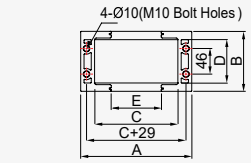
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

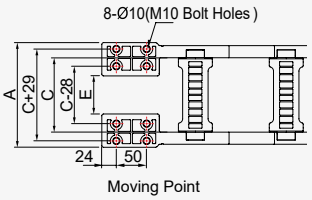
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
160	1,084	495	464
180	1,147	515	504
230	1,304	565	604
280	1,461	615	704
330	1,618	665	804
380	1,775	715	904
480	2,089	815	1,104

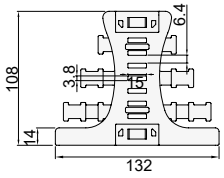
Accessories

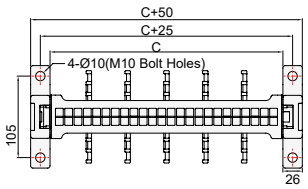
Steel end bracket



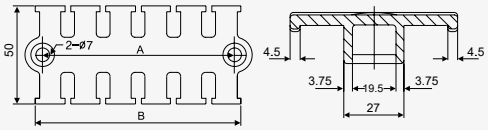


System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	Ordering No.	C Frame	Hole Type	Ordering No.	A	B
	125		75		15	S-TW.EB075.75	75				
	150		100		40	S-TW.EB075.100	100				
	165		115		55	S-TW.EB075.115	115				
	175		125		65	S-TW.EB075.125	125				
	200		150		90	S-TW.EB075.150	150				
	225		175		115	S-TW.EB075.175	175				
	250		200		140	S-TW.EB075.200	200		S- TW50	58	65
	290		240		180	S-TW.EB075.240	240	M10	S-TW75	75	82
nsb-FEB075N	300	108	250	78	190	S-TW.EB075.250	250	Bolt	S-TW100	98	105
	340		290		230	S-TW.EB075.290	290	Holes	S-TW125	122	129
	350		300		240	S-TW.EB075.300	300		S-TW150	141	148
	400		350		290	S-TW.EB075.350	350				
	450		400		340	S-TW.EB075.400	400				
	500		450		390	S-TW.EB075.450	450				
	550		500		440	S-TW.EB075.500	500				
	600		550		490	S-TW.EB075.550	550				
	650		600		540	S-TW.EB075.600	600				

Dividers

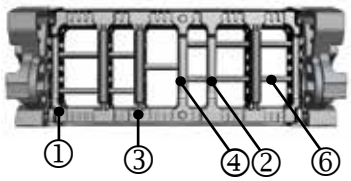
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

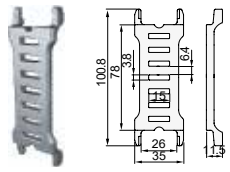
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 300mm and up

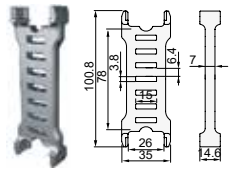
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



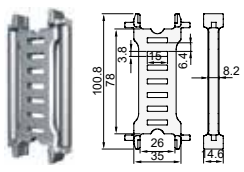
① sb-DV075/S



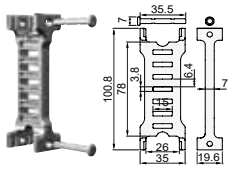
② sb-DV075/M



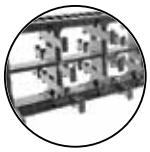
③ sb-DV075/R

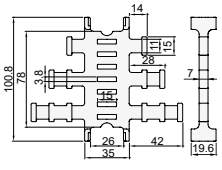


④ sb-DV075/T

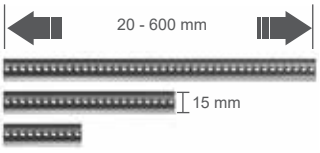


⑤ sb-DV075/W





⑥ Separators



Ordering NO.
sb-SP/600.600 Cut to length (600 mm)

nsb-E Series

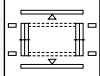
Low Noise Enclosed type

RoHS CE Ex

Ordering Information

nsb 028 E . 50 . R66

① ② ③

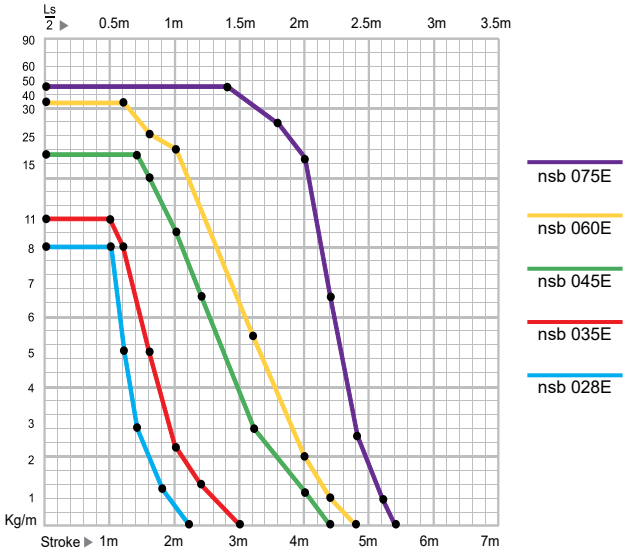
① Pitch (mm)	② Inner Width	③ Bend-ing Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
028	35 55 75 100	66 86 116 146	55 75 95 120	38	35 55 75 100	26		1.00 1.13 1.30 1.50
035	50 75 100 125 150	90 115 140 190	70 95 120 145 170	52	50 75 100 125 150	40		1.45 1.64 1.83 2.06 2.28
045	75 100 125 150	90 110 135 165 185 235 285	105 130 155 180	66	75 100 125 150	45		2.78 3.07 3.35 3.58
060	100 150 200	125 135 150 180 230 270 340	140 190 240	82	100 150 200	56		4.32 4.86 5.41
075	150 200 300	160 180 230 280 330 380 480	190 240 340	108	150 200 300	78		7.01 7.97 9.48

See page 65 - 66 for accessories

Specifications

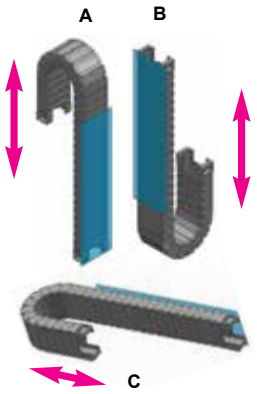
Material	Polyamide with reinforced glass fiber: UL94-HB
Noise Range	30dB
Speed	5m/s
Acceleration	15m/s²
Temperature	-30°C~+130°C
Special Production	ESD, UV, Customized color
Certificate	CE, ATEX(Ex), RoHS

Unsupported Length



Other Length Restrictions

Type	Vertial standing (Max) A	Vertical Hanging (Max) B	Side Mounted Unsupported (Max) C
nsb 028E	2.0m	40m	1.0m
nsb 035E	3.0m	50m	1.0m
nsb 045E	6.0m	100m	2.5m
nsb 060E	6.0m	100m	3.0m
nsb 075E	6.0m	120m	3.0m

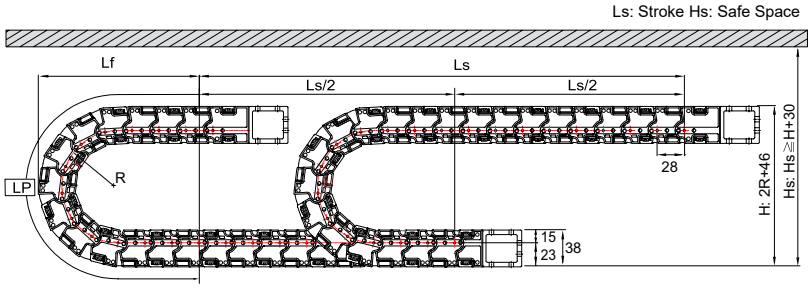


How to Choose Bending Radius

Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

nsb 028E

Calculation of the chain length



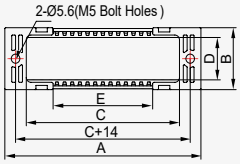
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

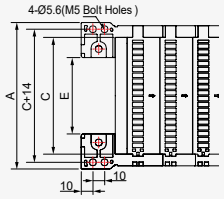
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
66	376	173	178
86	439	193	218
116	533	223	278
146	627	253	338

Accessories

Free end bracket

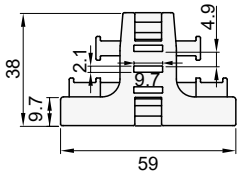


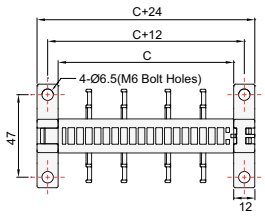


Moving Point

Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB028E	60.4 80.4 100.4 125.4	38	35 55 75 100	26	0.4 20.4 40.4 65.4

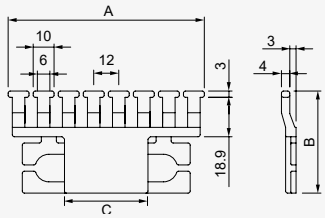
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	

Tie wrap



Ordering No.	A	B	C
S- TW036/025CR.35	46	35.4	-
S- TW036/025CR.55	70	48.9	20
S- TW036/025CR.75	94	48.9	40
S- TW036/025CR.100	118	48.9	65

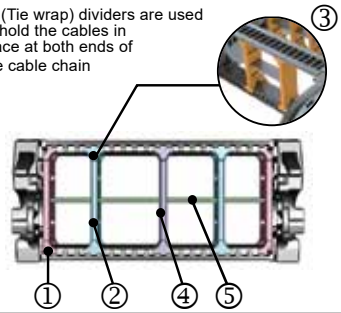
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

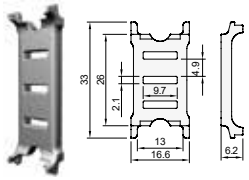
②**M1** divider is used to separate individual cables

③**M2** divider is used to fasten a separator that is shorter than the frame length

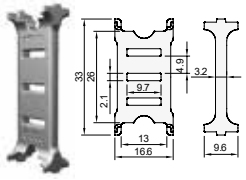
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



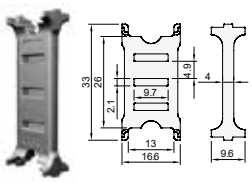
① sb-DV028/S



② sb-DV028/M1

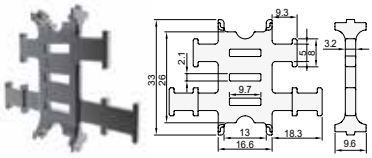


③ sb-DV028/M2

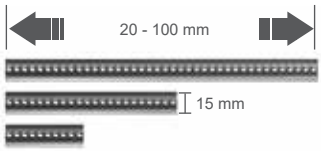


④ sb-DV028/W

System Tie Wrap



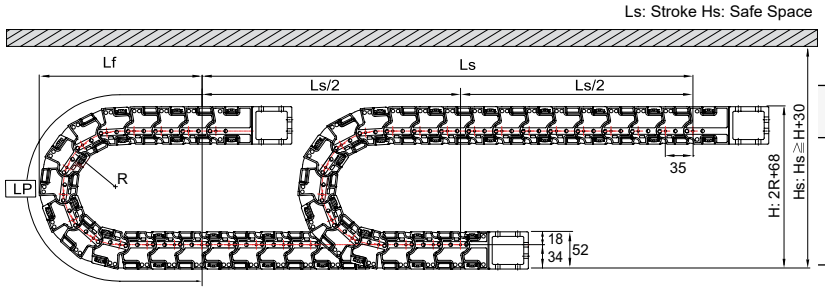
Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100

nsb 035E

Calculation of the chain length



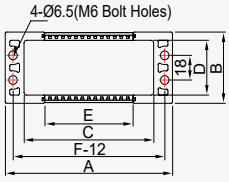
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

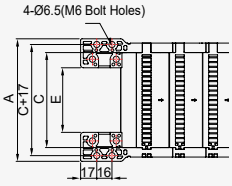
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
90	493	229	248
115	572	254	298
140	650	279	348
190	807	329	448

Accessories

Free end bracket

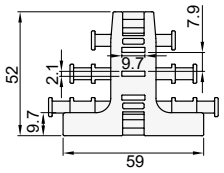


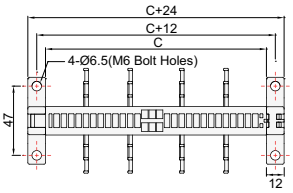


Moving Point

Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB035E	79 104 129 154 179	52	50 75 100 125 150	40	18 43 68 93 118

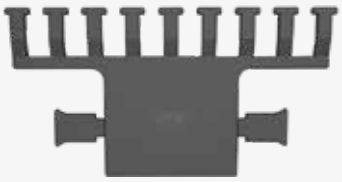
System tie wrap

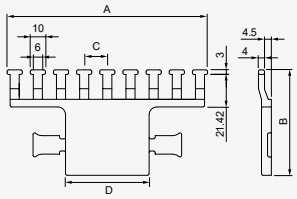




Ordering No.	C Frame	Hole Type
S-TW.EB035.50	50	M6 Bolt Holes
S-TW.EB035.75	75	
S-TW.EB035.100	100	
S-TW.EB035.125	125	
S-TW.EB035.150	150	

Tie wrap





Ordering No.	A	B	C	D
S-TW050/035N.50	82	64.5	12.00	5
S-TW050/035N.75	107		12.13	30
S-TW050/035N.100	132		15.25	55
S-TW050/035N.125	157		14.70	80
S-TW050/035N.150	182		14.35	105

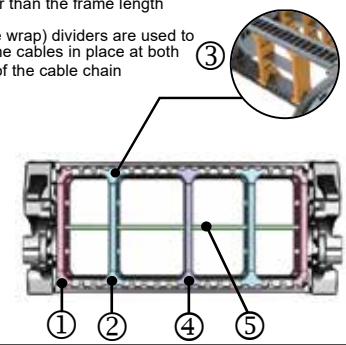
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

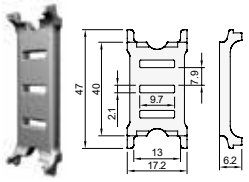
②**M1** divider is used to separate individual cables

③**M2** divider is used to fasten a separator that is shorter than the frame length

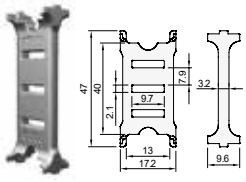
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



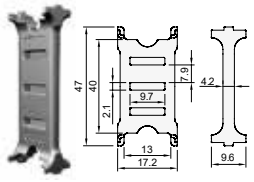
① sb-DV035/S



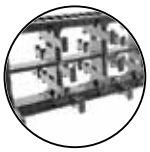
② sb-DV035/M1



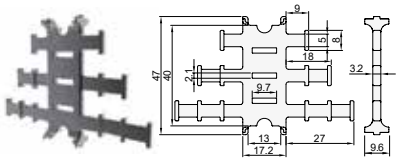
③ sb-DV035/M2



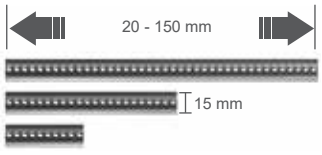
④ sb-DV035/W



System Tie Wrap



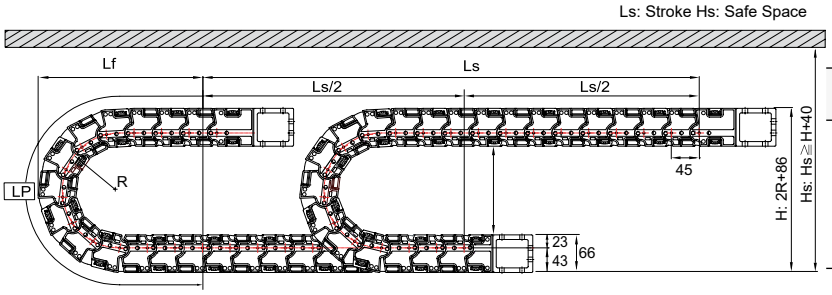
Separators ⑤



Ordering NO.	Frame
S-SP/M.50	50
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150

nsb 045E

Calculation of the chain length



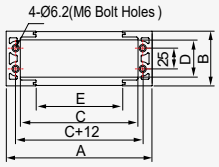
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

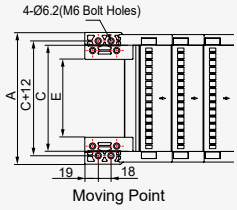
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
90	633	291	266
110	695	311	306
135	774	336	356
165	868	366	416
185	931	386	456
235	1,088	436	556
285	1,245	486	656

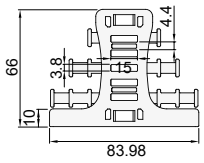
Accessories

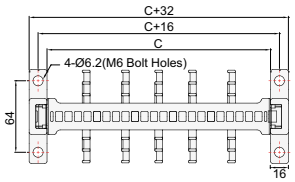
Steel end bracket



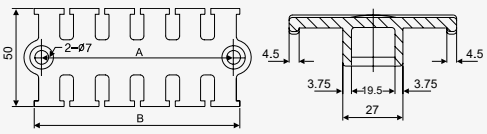


System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB045E	111 136 161 186	66	75 100 125 150	45	35 60 85 110

Ordering No.	C Frame	Hole Type
S- TW.EB045.75 S- TW.EB045.100 S- TW.EB045.125 S- TW.EB045.150	75 100 125 150	M6 Bolt Holes

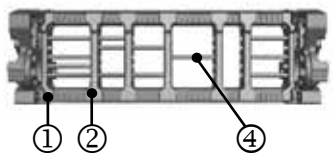
Ordering No.	A	B
S- TW50 S-TW75 S-TW100 S-TW125 S-TW150	58 75 98 122 129 141	65 82 105 129 148

Dividers

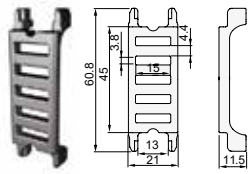
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

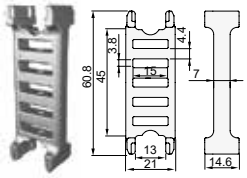
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



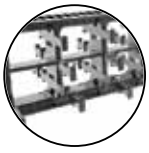
① sb-DV045/S



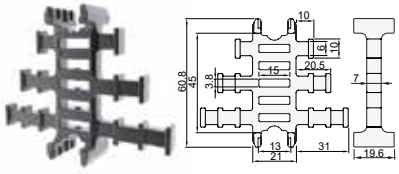
② sb-DV045/M



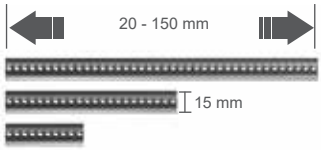
③ sb-DV045/W



System Tie Wrap



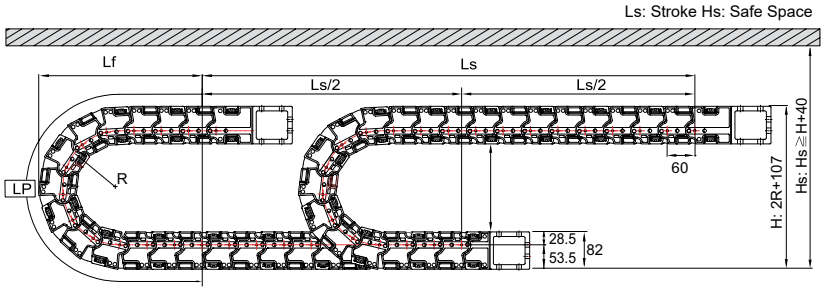
④Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

nsb 060E

Calculation of the chain length



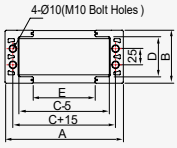
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

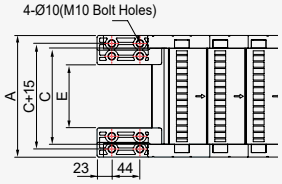
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
125	854	389	357
135	885	399	377
150	932	414	407
180	1,026	444	467
230	1,183	494	567
270	1,309	534	647
340	1,529	604	787

Accessories

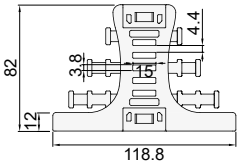
Steel end bracket

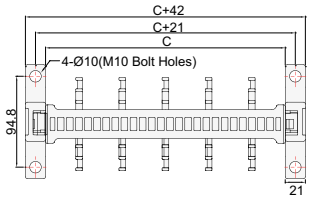




Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB060E	140 190 240	82	100 150 200	56	49 99 149

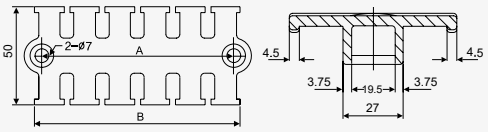
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB060.100	100	M10 Bolt Holes
S-TW.EB060.150	150	
S-TW.EB060.200	200	

Tie wrap



Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

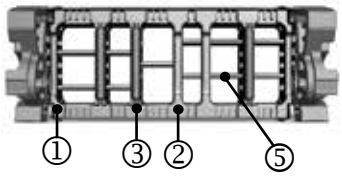
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

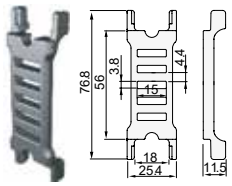
②**M** divider is used to separate individual cables

③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

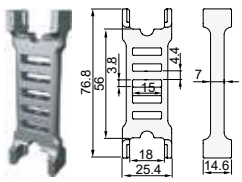
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



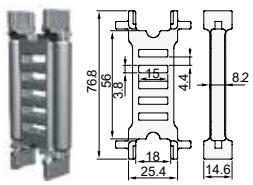
① sb-DV060/S



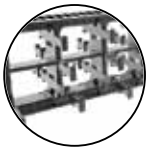
② sb-DV060/M



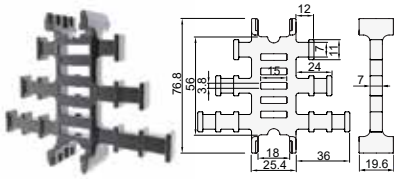
③ sb-DV060/R



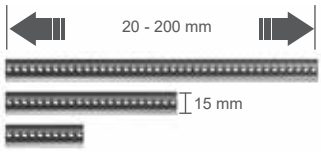
④ sb-DV060/W



System Tie Wrap



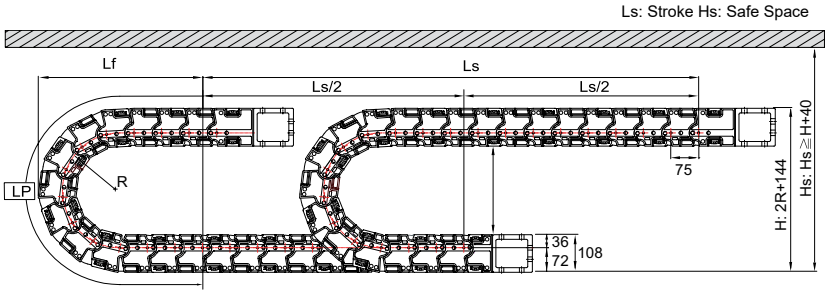
⑤Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

nsb 075E

Calculation of the chain length



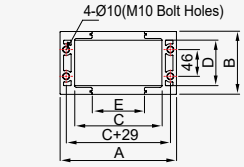
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

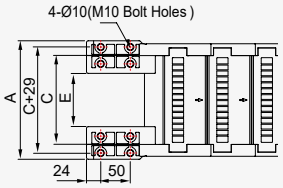
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
160	1,084	495	464
180	1,147	515	504
230	1,304	565	604
280	1,461	615	704
330	1,618	665	804
380	1,775	715	904
480	2,089	815	1,104

Accessories

Steel end bracket

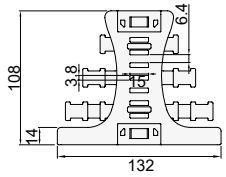


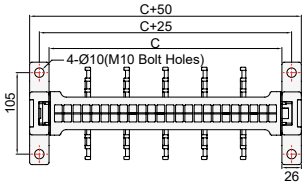


Moving Point

Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
nsb-FEB075E	200 250 350	108	150 200 300	78	90 140 240

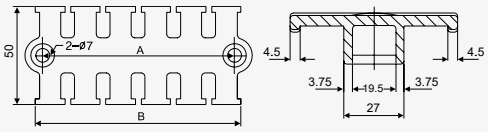
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB075.150 S-TW.EB075.200 S-TW.EB075.300	150 200 300	M10 Bolt Holes

Tie wrap



Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

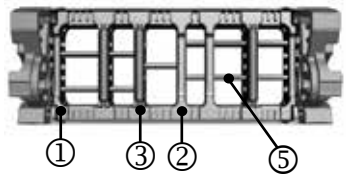
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

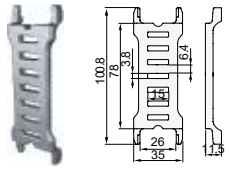
②**M** divider is used to separate individual cables

③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

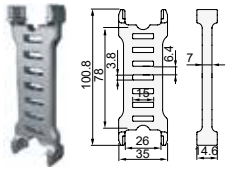
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



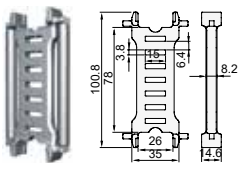
① sb-DV075/S



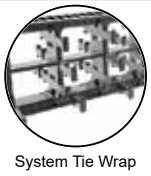
② sb-DV075/M



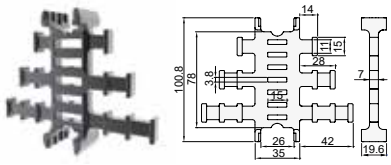
③ sb-DV075/R



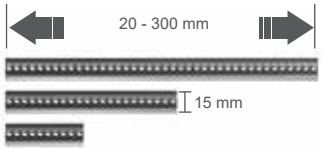
④ sb-DV075/W



System Tie Wrap

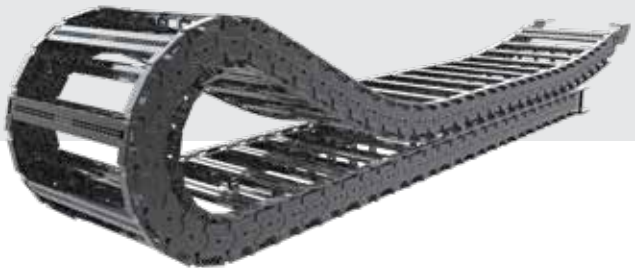


⑥ Separators



Ordering NO.

sb-SP/600.600
Cut to length (600 mm)



nsb-S Series

Low Noise, Long Travel Type

- Silent running-30dB
- Fit for high speed applications
- Low dust

RoHS CE Ex

Ordering Information

nsb 044 S . 100 . R185

① ② ③

① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
050	50 75 100 125 150 175 200 250 300	110 135 165 185 235 285	104 129 154 179 204 229 254 304 354	71.5	50 75 100 125 150 175 200 250 300	45		2.38 2.44 2.51 2.61 2.71 2.80 3.09 3.38 3.63
065	75 100 125 150 175 190 200 240 250 300 350 400	140 190 220 270 390	137 162 187 212 237 252 262 302 312 362 412 462	89	75 100 125 150 175 190 200 240 250 300 350 400	56		3.29 3.34 3.49 3.58 3.68 3.76 3.82 3.99 4.03 4.24 4.53 4.85
080	75 100 125 150 175 200 250 300 350 400 450 500 550 600	180 200 250 300 350 400 500	143 168 193 218 243 268 318 368 418 468 518 568 618 668	115	75 100 125 150 175 200 250 300 350 400 450 500 550 600	76		4.27 4.36 4.47 4.57 4.67 4.85 5.07 5.40 5.71 6.09 6.28 6.45 7.08 7.20

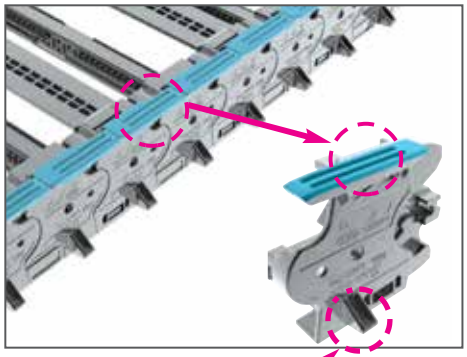
How to Choose Bending Radius

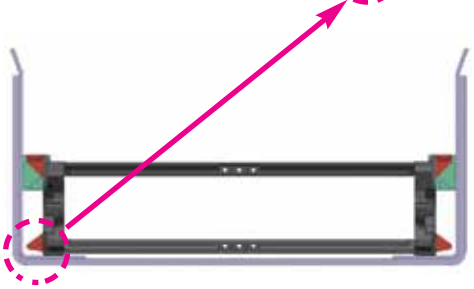
Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

Specifications

Material	CPS-Amid(PA6+GF)
Noise Range	30dB
Speed	3m/s
Acceleration	10m/s²
Temperature	-30°C~+130°C
Certificate	CE, ATEX(Ex), RoHS

nsb chain is designed to minimize dust as forming the groove on skid surface and by installing sliding bar (Nylon) which is same material with nsb cable chain on guide channel



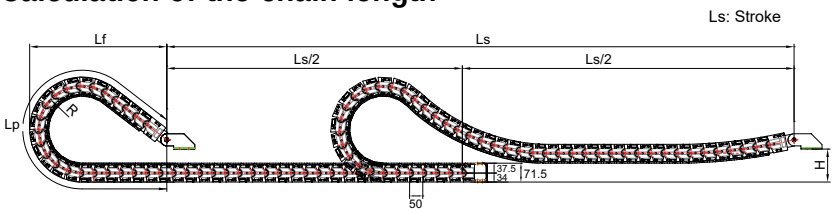


The side supports allow it to maintain a stable operation, making it suitable for high speed applications.

See page 65 - 66 for accessories

nsb 050S

Calculation of the chain length



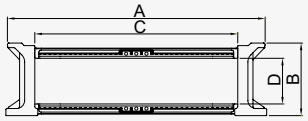
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

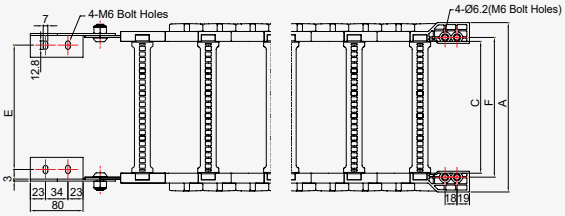
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
110	916	380	180
135	1,068	430	
165	1,255	490	
185	1,382	530	
235	1,703	630	
285	2,029	730	

Accessories

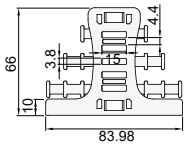
Free/Steel end bracket

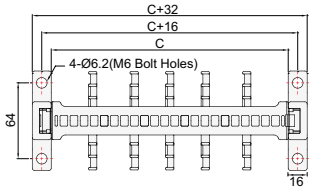




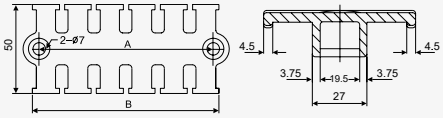
Moving Point Fixing Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	F F.EB Bolt hole width
nsb-FEB050S /F nsb-FEB050S /M(SEB)(Steel)	104	71.5		45	38.7	62
	129				63.7	87
	154		50		88.7	112
	179		75		113.7	137
	194		100		128.7	152
	204		125		138.7	162
	219		150		153.7	177
	229		175		163.7	187
	244		200		178.7	202
	254		250		188.7	212
	294		300		228.7	252
	304				238.7	262
	354				288.7	312

Ordering No.	C Frame	Hole Type
S-TW.EB045.50	50	M6 Bolt Holes
S-TW.EB045.75	75	
S-TW.EB045.100	100	
S-TW.EB045.125	125	
S-TW.EB045.140	140	
S-TW.EB045.150	150	
S-TW.EB045.165	165	
S-TW.EB045.175	175	
S-TW.EB045.190	190	
S-TW.EB045.200	200	
S-TW.EB045.240	240	
S-TW.EB045.250	250	
S-TW.EB045.300	300	

Ordering No.	A	B
S- TW50	58	65
S- TW75	75	82
S- TW100	98	105
S- TW125	122	129
S- TW150	141	148

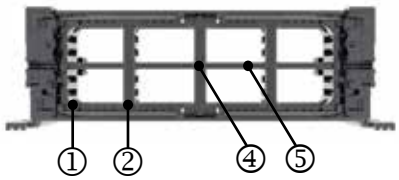
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

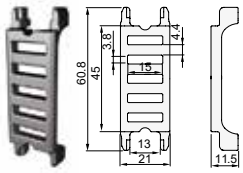
②**M** divider is used to separate individual cables

③**T** divider can be used at center position to support frame longer than 200mm and up

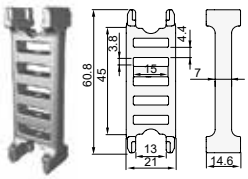
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends ofthe cable chain



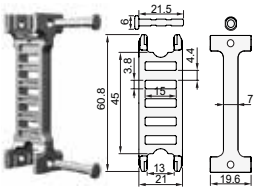
① sb-DV045/S



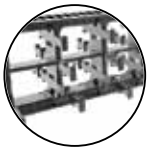
② sb-DV045/M



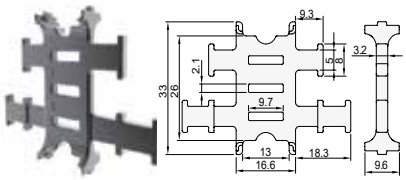
③ sb-DV045/T



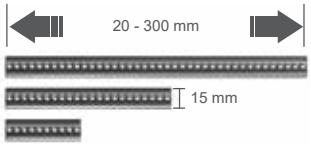
④ sb-DV045/W



System Tie Wrap



⑤ Separators

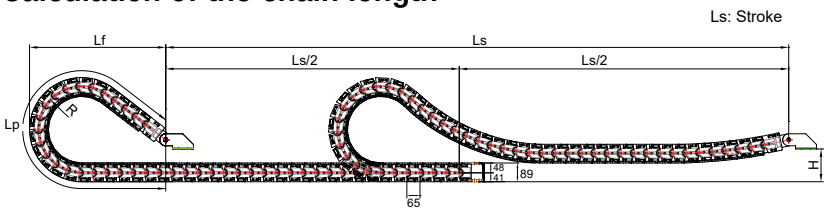


Ordering NO.

sb-SP/400.400
Cut to length (400 mm)

nsb 065S

Calculation of the chain length



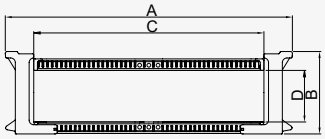
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

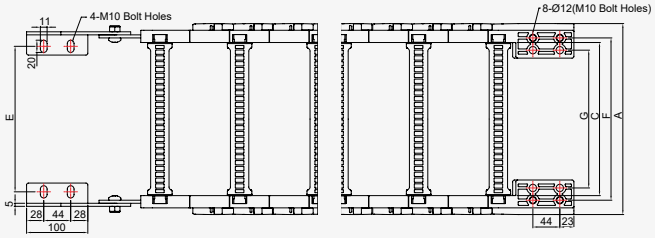
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
140	1,225	615	210
190	1,543	715	
220	1,734	775	
270	2,052	875	
390	2,814	1,115	

Accessories

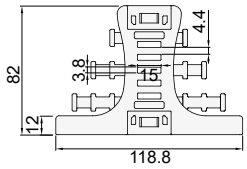
Free/Steel end bracket

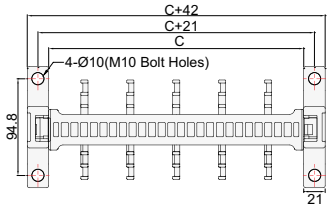




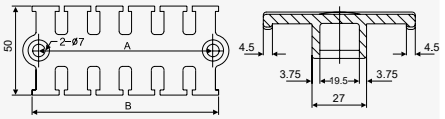
Moving Point Fixing Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	F F.EB Bolt hole width	G F.EB Bolt width
nsb-FEB065S /F nsb-FEB065S /M(SEB)(Steel	137	89	75	56	62.6	90	50
	162		100		87.6	115	75
	187		125		112.6	140	100
	212		150		137.6	165	125
	237		175		162.6	190	150
	252		190		177.6	205	165
	262		200		187.6	215	175
	292		230		217.6	245	205
	302		240		227.6	255	215
	312		250		237.6	265	225
	362		300		287.6	315	275
	412		350		337.6	365	325
	462		400		387.6	415	375

Ordering No.	C Frame	Hole Type
S-TW.EB060.75	75	M10 Bolt Holes
S-TW.EB060.100	100	
S-TW.EB060.125	125	
S-TW.EB060.150	150	
S-TW.EB060.175	175	
S-TW.EB060.190	190	
S-TW.EB060.200	200	
S-TW.EB060.230	230	
S-TW.EB060.240	240	
S-TW.EB060.250	250	
S-TW.EB060.300	300	
S-TW.EB060.350	350	
S-TW.EB060.400	400	

Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

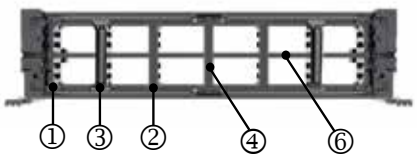
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

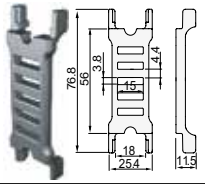
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 200mm and up

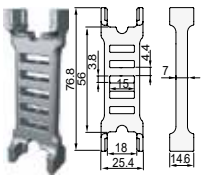
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



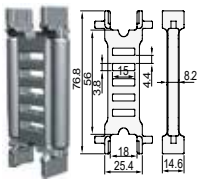
① sb-DV060/S



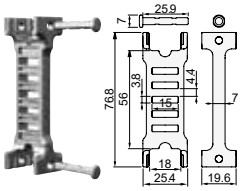
② sb-DV060/M



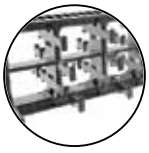
③ sb-DV060/R



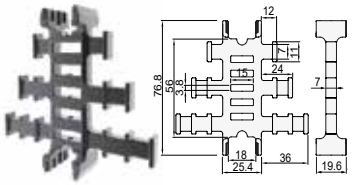
④ sb-DV060/T



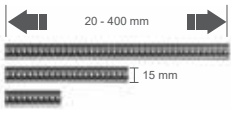
⑤ sb-DV060/W



System Tie Wrap



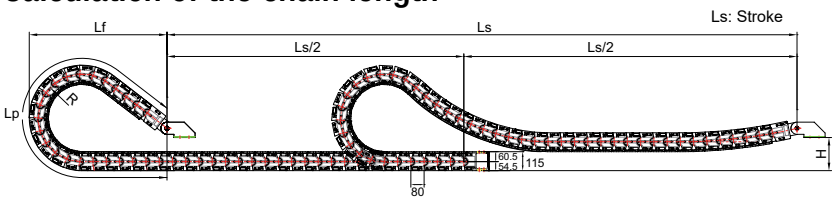
⑥ Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

nsb 080S

Calculation of the chain length



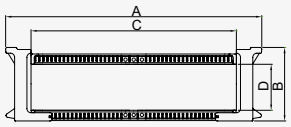
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

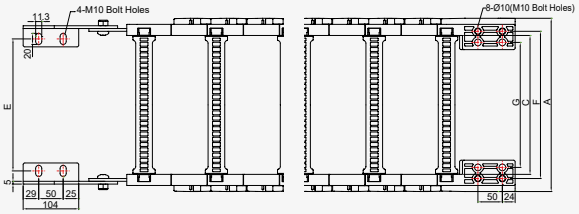
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
180	1,490	690	
200	1,617	730	
250	1,935	830	
300	2,253	930	260
350	2,571	1,030	
400	2,889	1,130	
500	3,524	1,330	

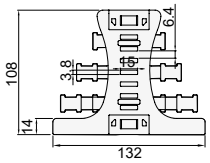
Accessories

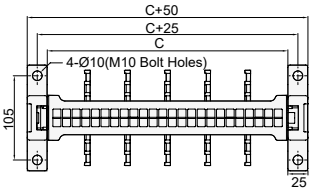
Free/Steel end bracket



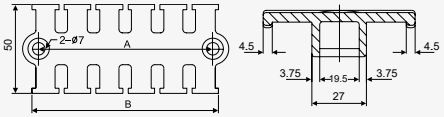


System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	F F.EB Bolt hole width	G F.EB Bolt width
NSB-FEB080S /F NSB-FEB080S /M(SEB)(Steel)	143 168 183 193 218 243 268 308 318 358 368 418 468 518 568 618 668	115	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78	63 88 103 113 138 163 188 228 238 278 288 338 388 438 488 538 588	104 129 144 154 179 204 229 269 279 319 329 379 429 479 529 579 629	47 72 87 97 122 147 172 212 222 262 272 322 372 422 472 522 572

Ordering No.	C Frame	Hole Type
S-TW.EB075.75	75	M10 Bolt Holes
S-TW.EB075.100	100	
S-TW.EB075.115	115	
S-TW.EB075.125	125	
S-TW.EB075.150	150	
S-TW.EB075.175	175	
S-TW.EB075.200	200	
S-TW.EB075.240	240	
S-TW.EB075.250	250	
S-TW.EB075.290	290	
S-TW.EB075.300	300	
S-TW.EB075.350	350	
S-TW.EB075.400	400	
S-TW.EB075.450	450	
S-TW.EB075.500	500	
S-TW.EB075.550	550	
S-TW.EB075.600	600	

Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

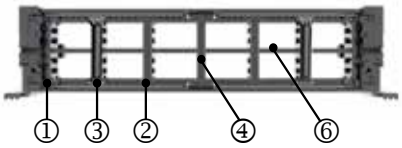
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

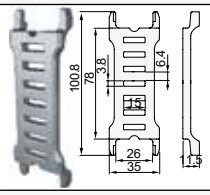
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 300mm and up

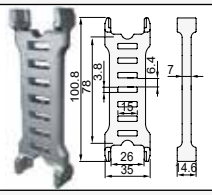
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



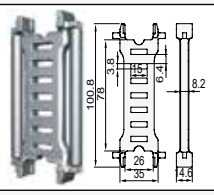
① sb-DV075/S



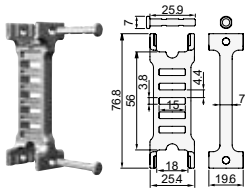
② sb-DV075/M



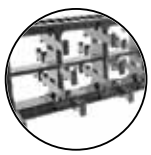
③ sb-DV075/R

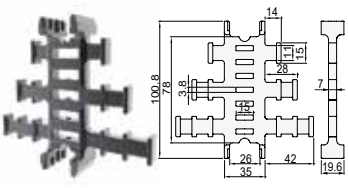


④ sb-DV075/T

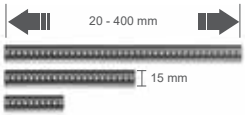


⑤ sb-DV075/W


System Tie Wrap



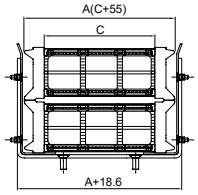
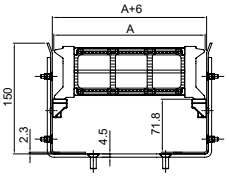
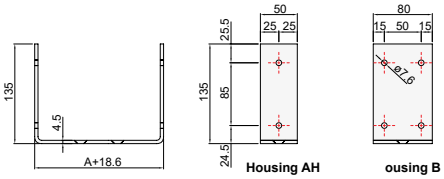
⑥Separators



Ordering NO.
sb-SP/600.600 Cut to length (600 mm)

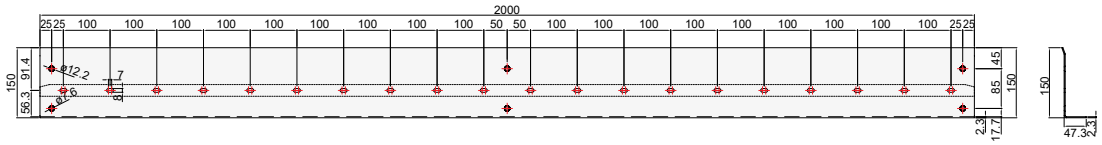
Guide channel

nsb 050S

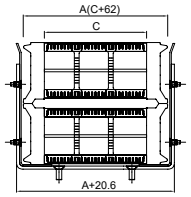
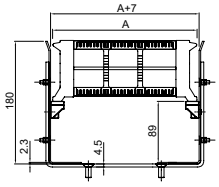
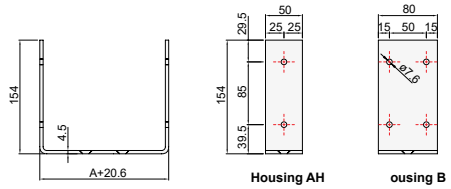
A- Zone	C-Zone	Housing (U-Shape)
		

A	C
104	50
129	75
154	100
179	125
194	140
204	150
219	165
229	175
244	190
254	200
294	240
304	250
354	300

Side Panel

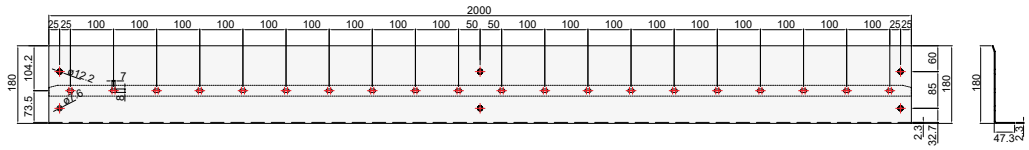


nsb 065S

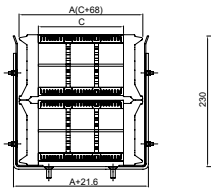
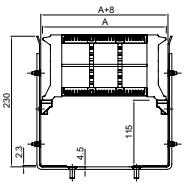
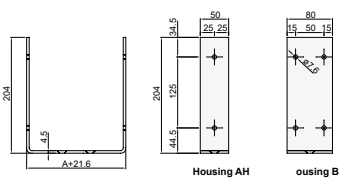
A- Zone	C-Zone	Housing (U-Shape)
		

A	C
137	100
162	125
187	150
212	175
237	190
252	200
262	240
302	250
312	300
362	350
412	400
462	

Side Panel

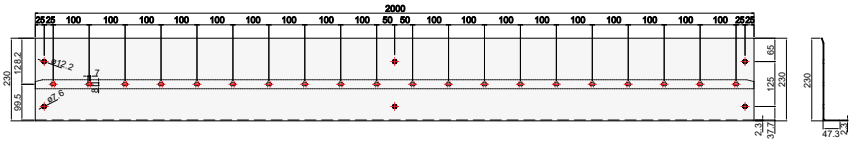


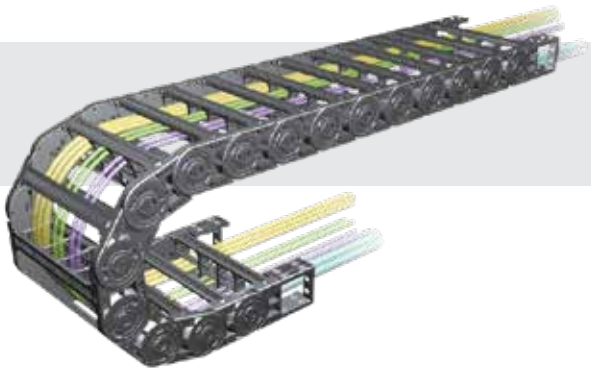
nsb 080S

A- Zone	C-Zone	Housing (U-Shape)
		

A	C
143	75
168	100
183	115
193	125
218	150
243	175
268	200
308	240
318	250
358	290
368	300
418	350
468	400
518	450
568	500
618	550
668	600

Side Panel





ST-N Series

Shift Cable Chain - Normal type

RoHS CE Ex

Ordering Information

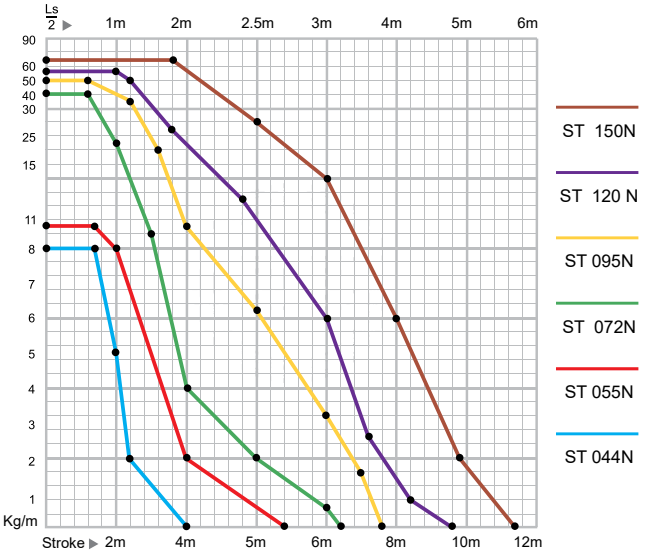
ST 044 N . 100 . R120

① ② ③

Specifications

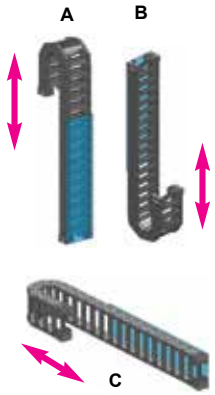
Material	Polyamide with reinforced glass fiber: UL94-HB
Noise Range	40dB
Speed	3m/s
Acceleration	10m/s²
Temperature	-30°C~+130°C
Special Production	ESD, UV
Certificate	CE, ATEX(Ex), RoHS

Unsupported Length



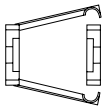
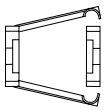
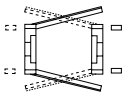
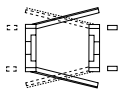
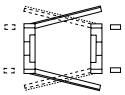
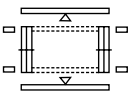
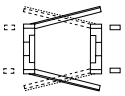
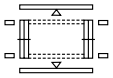
Other Length Restrictions

Type	Vertial standing (Max) A	Vertical Hanging (Max) B	Side Mounted Unsupported (Max) C
ST 044N	2.0m	40m	1.0m
ST 055N	3.0m	50m	1.0m
ST 072N	6.0m	100m	2.5m
ST 095N	6.0m	100m	3.0m
ST 120N	6.0m	120m	3.0m
ST 150N	7.0m	150m	4.0m



How to Choose Bending Radius

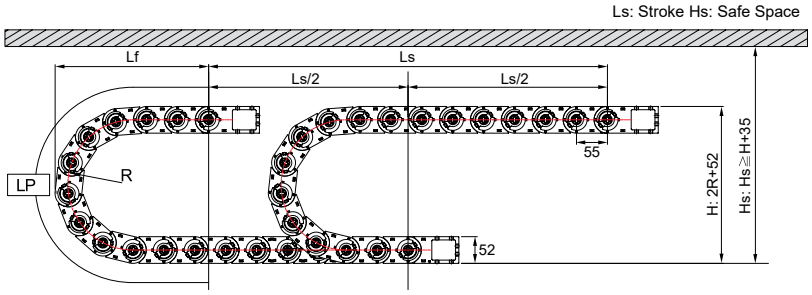
Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

① Pitch (mm)	② Inner Width	③ Bend-ing Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
044	35 50 55 75 100 125 150 175 200	50 70 90 120 150	56 71 76 96 121 146 171 196 221	38	35 50 55 75 100 125 150 175 200	26		0.93 0.97 1.00 1.06 1.17 1.30 1.43 1.78 1.94
055	35 50 55 75 100 125 150 175 200	65 75 100 125 150 200	56 71 76 96 121 146 171 196 221	52	35 50 55 75 100 125 150 175 200	40		1.12 1.15 1.18 1.23 1.31 1.41 1.51 1.78 1.92
072	50 75 100 125 140 150 175 200 250 300	72 100 120 145 200 250 300	82 107 132 157 172 182 197 207 222 232 272 282 332	66	50 75 100 125 140 150 165 175 190 200 240 250 300	45		2.10 2.20 2.30 2.43 2.51 2.56 2.62 2.66 2.93 3.11 3.21 3.24 3.60
095	75 100 125 150 175 190 200 250 300 350 400	135 150 200 230 280 400	113 138 163 188 213 228 238 278 288 338 388 438	82	75 100 125 150 175 190 200 240 250 300 350 400	56		3.11 3.17 3.37 3.49 3.60 3.71 3.79 4.00 4.05 4.31 4.69 5.05
120	75 100 125 150 175 200 250 300 350 400 450 500 550 600	180 200 250 300 350 400 500	117 142 167 192 217 242 292 342 392 442 492 542 592 642	108	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78	 	4.41 4.53 4.67 4.78 4.93 5.17 5.47 5.88 6.30 6.73 7.07 7.30 8.13 8.30
150	75 100 125 150 175 200 250 300 350 400 450 500 550 600	205 305 405 505 605	121 146 171 196 221 246 296 346 396 446 496 546 596 646	140	75 100 125 150 175 200 250 300 350 400 450 500 550 600	110	 	5.85 5.96 6.08 6.18 6.30 6.51 6.78 7.14 7.51 7.88 8.18 8.37 9.11 9.26

See page 65 - 66 for accessories

ST 044N

Calculation of the chain length



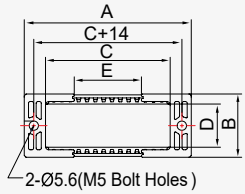
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

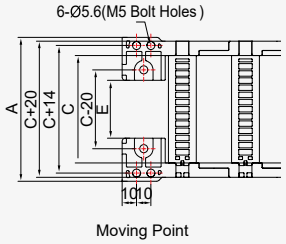
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
50	333	157	138
70	396	177	178
90	459	197	218
120	553	227	278
150	648	257	338

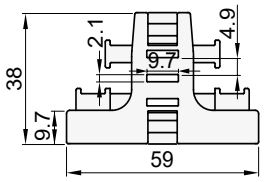
Accessories

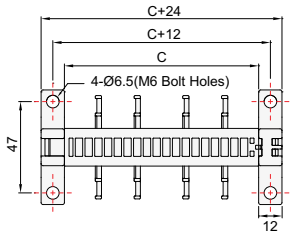
Free end bracket



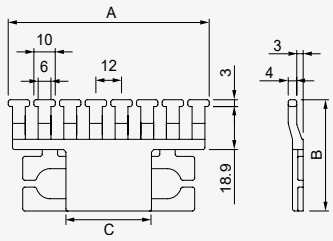


System tie wrap





Tie wrap



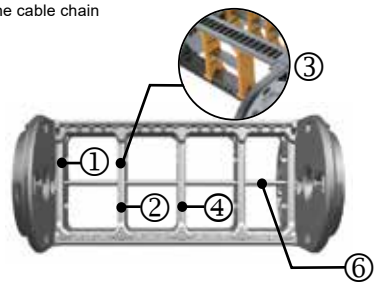
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame (Inner)	D Height (Inner)	E M.EB Bolt hole width
ST-FEB044N/S	60.4 75.4 80.4 100.4 125.4 150.4 175.4 200.4 225.4	38	35 50 55 75 100 125 150 175 200	26	0.4 15.4 20.4 40.4 65.4 90.4 115.4 140.4 165.4

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.50	50	
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TWEB028.100	100	
S-TW.EB028.125	125	
S-TW.EB028.150	150	
S-TW.EB028.175	175	
S-TW.EB028.200	200	

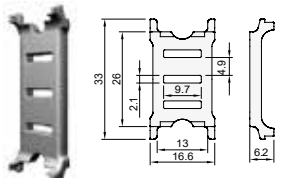
Ordering No.	A	B	C
S-TW036/025CR.35	46	35.4	-
S-TW036/025CR.50	69	48.9	15
S-TW036/025CR.55	70	48.9	20
S-TW036/025CR.75	94	48.9	40
S-TW036/025CR.100	118	48.9	65
S-TW036/025CR.125	142	48.9	90

Dividers

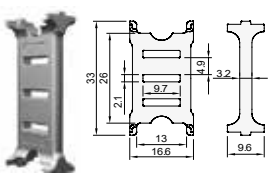
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**T** divider can be used at center position to support frame longer than 125mm and up
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



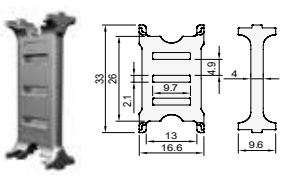
① sb-DV028/S



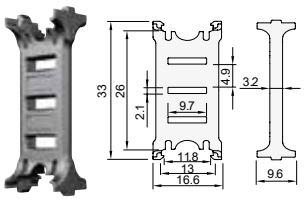
② sb-DV028/M1



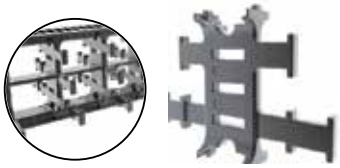
③ sb-DV028/M2



④ sb-DV028/T

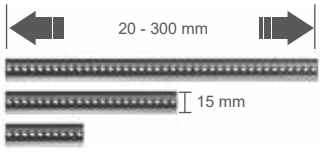


⑤ sb-DV028/W



Tie Wrap Divider

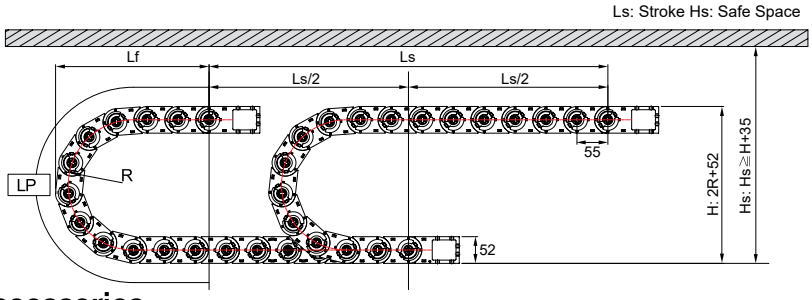
⑥ Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	52
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

ST 055N

Calculation of the chain length



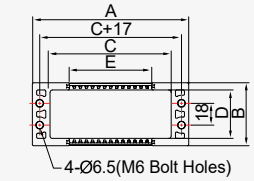
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

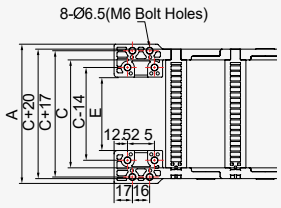
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
65	424	201	182
75	456	211	202
100	535	236	252
125	613	261	302
150	692	286	352
200	849	336	452

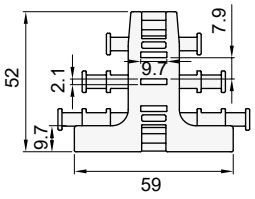
Accessories

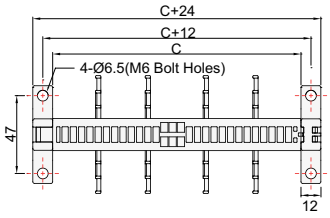
Free end bracket



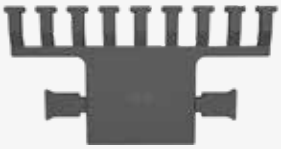


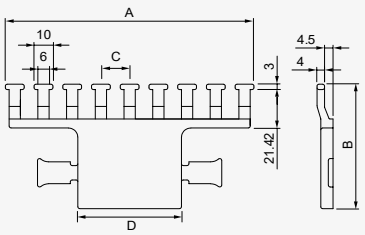
System tie wrap





Tie wrap





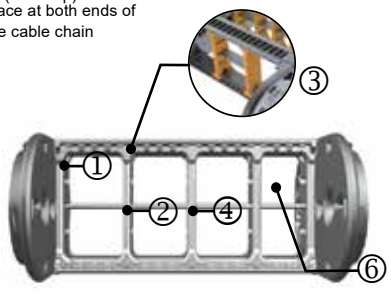
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB055N	64 79 84 104 129 154 179 204 229	52	35 50 55 75 100 125 150 175 200	40	3 18 23 43 68 93 118 143 168

Ordering No.	C Frame	Hole Type
S-TW.EB035.35	35	M6 Bolt Holes
S-TW.EB035.50	50	
S-TW.EB035.55	55	
S-TW.EB035.75	75	
S-TW.EB035.100	100	
S-TW.EB035.125	125	
S-TW.EB035.150	150	
S-TW.EB035.175	175	
S-TW.EB035.200	200	

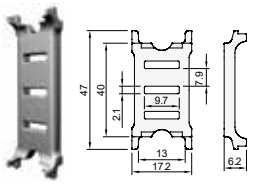
Ordering No.	A	B	C	D
S-TW050/035N.50	82	64.5	12.00	5
S-TW050/035N.55	82		12.00	10
S-TW050/035N.75	107		12.13	30
S-TW050/035N.100	132		15.25	55
S-TW050/035N.125	157		14.70	80
S-TW050/035N.150	182		14.35	105
S-TW050/035N.175	203		12.31	130
S-TW050/035N.200	232		13.88	155

Dividers

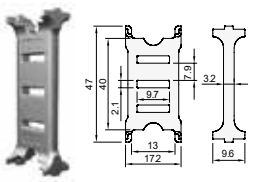
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**T** divider can be used at center position to support frame longer than 125mm and up
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



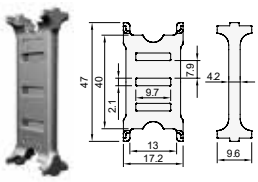
① sb-DV035/S



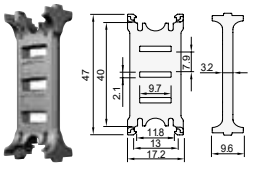
② sb-DV035/M1



③ sb-DV035/M2

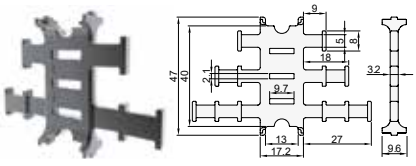


④ sb-DV035/T

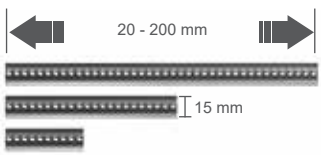


⑤ sb-DV035/W

System Tie Wrap



Separators

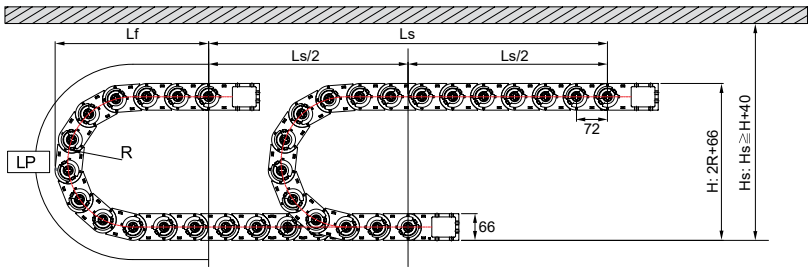


Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

ST 072N

Calculation of the chain length

Ls: Stroke Hs: Safe Space



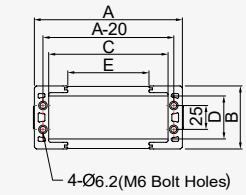
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

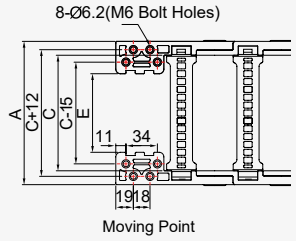
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
72	514	249	210
100	603	277	266
120	665	297	306
145	743	322	356
200	916	377	466
250	1,074	427	566
300	1,230	477	666

Accessories

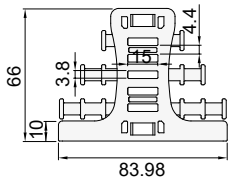
Free end bracket

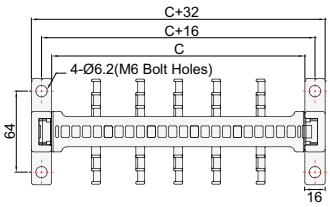




Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB072N/S	82 107 132 157 172 182 197 207 222 232 272 282 332	66	50 75 100 125 140 150 175 200 250 300	45	10 35 60 85 100 110 125 135 150 160 200 210 260

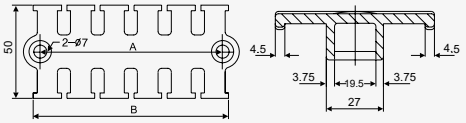
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB045.50	50	M6 Bolt Holes
S-TW.EB045.75	75	
S-TW.EB045.100	100	
S-TW.EB045.125	125	
S-TW.EB045.140	140	
S-TW.EB045.150	150	
S-TW.EB045.165	165	
S-TW.EB045.175	175	
S-TW.EB045.190	190	
S-TW.EB045.200	200	
S-TW.EB045.240	240	
S-TW.EB045.250	250	
S-TW.EB045.300	300	

Tie wrap



Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

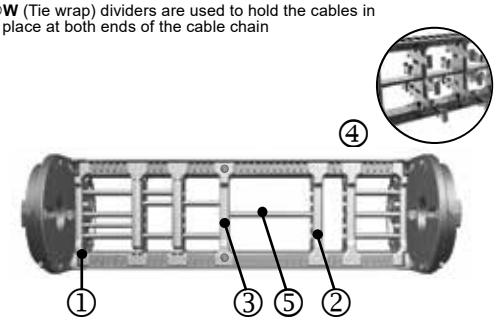
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

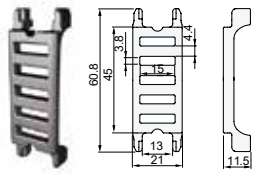
②**M** divider is used to separate individual cables

④**T** divider can be used at center position to support frame longer than 200mm and up

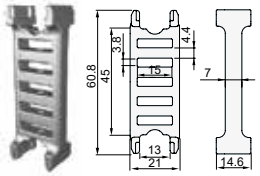
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



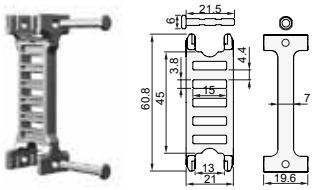
① sb-DV045/S



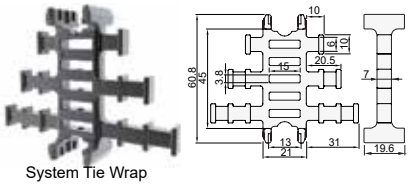
② sb-DV045/M



③ sb-DV045/T

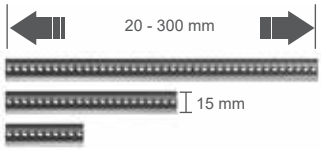


④ sb-DV045/W



System Tie Wrap

⑤ Separators

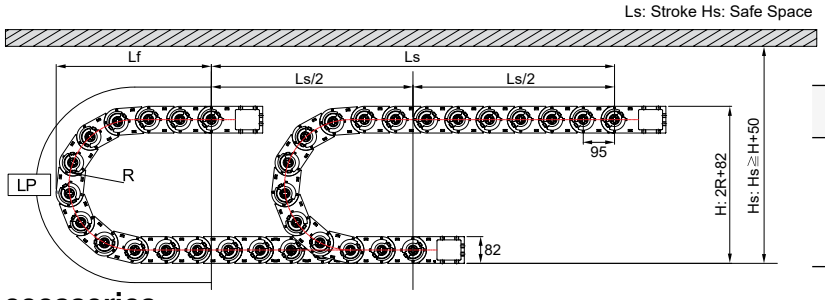


Ordering NO.

sb-SP/400.400
Cut to length (400 mm)

ST 095N

Calculation of the chain length



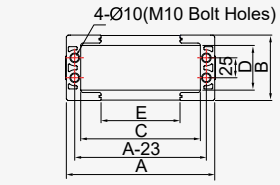
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

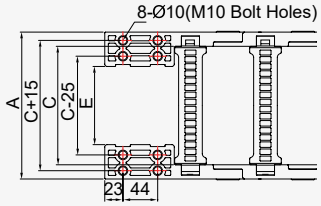
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
135	805	364	352
150	855	374	382
200	1,010	428	482
230	1,110	459	542
280	1,260	505	642
400	1,640	629	882

Accessories

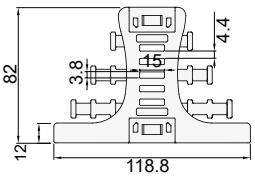
Free end bracket

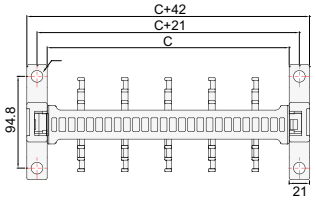




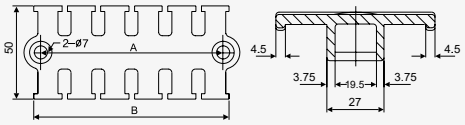
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB095N/S	113 138 163 188 213 228 238 268 278 288 338 388 438	82	75 100 125 150 175 200 250 300 350 400	56	24 49 74 99 124 139 149 179 189 199 249 299 349

Ordering No.	C Frame
S-TW.EB060.75	75
S-TW.EB060.100	100
S-TW.EB060.125	125
S-TW.EB060.150	150
S-TW.EB060.175	175
S-TW.EB060.190	190
S-TW.EB060.200	200
S-TW.EB060.230	230
S-TW.EB060.240	240
S-TW.EB060.250	250
S-TW.EB060.300	300
S-TW.EB060.350	350
S-TW.EB060.400	400

Hole Type: M10 Bolt Holes

Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

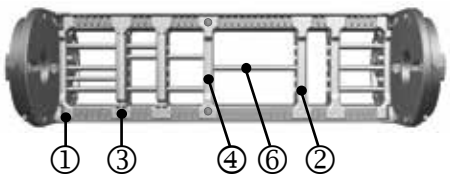
①**S** divider is used to fix a separator that is the same length as the frame

② **M** divider is used to separate individual cables

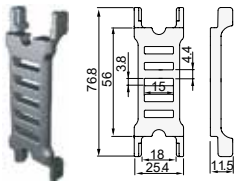
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 200mm and up

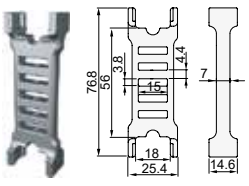
⑤ **W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



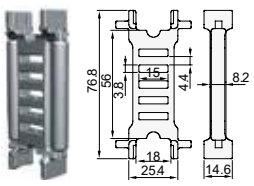
① sb-DV060/S



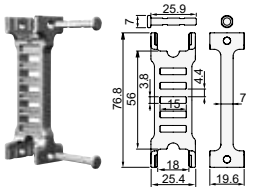
② sb-DV060/M



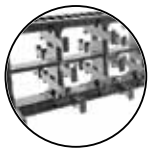
③ sb-DV060/R



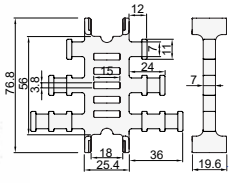
④ sb-DV060/T



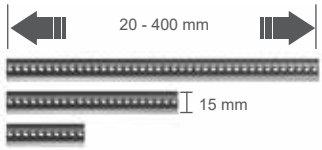
⑤ sb-DV060/W



System Tie Wrap



⑥ Separators

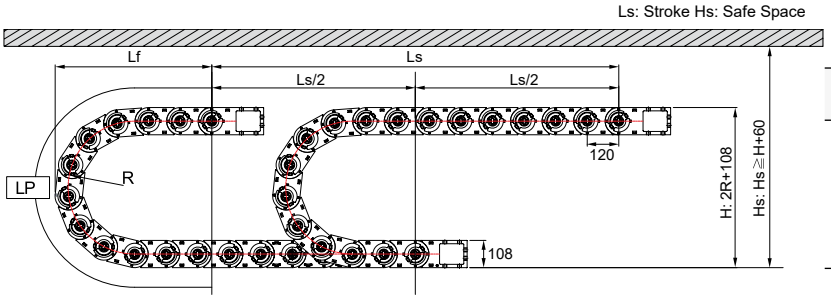


Ordering NO.

sb-SP/400.400
Cut to length (400 mm)

ST 120N

Calculation of the chain length



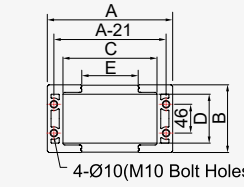
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

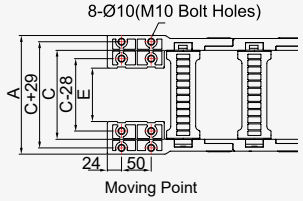
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
180	1,046	474	468
200	1,109	494	508
250	1,266	544	608
300	1,423	594	708
350	1,580	644	808
400	1,737	694	908
500	2,051	794	1,108

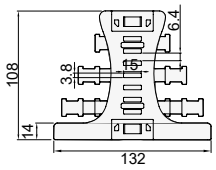
Accessories

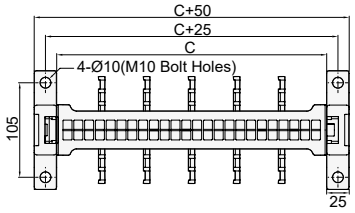
Free end bracket



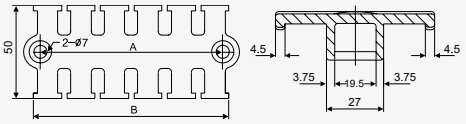


System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB120N/S	125 150 165 175 200 225 250 290 300 340 350 400 450 500 550 600 650	108	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78	15 40 55 65 90 115 140 180 190 230 240 290 340 390 440 490 540

Ordering No.	C Frame
S-TW.EB075.75	75
S-TW.EB075.100	100
S-TW.EB075.115	115
S-TW.EB075.125	125
S-TW.EB075.150	150
S-TW.EB075.175	175
S-TW.EB075.200	200
S-TW.EB075.240	240
S-TW.EB075.250	250
S-TW.EB075.290	290
S-TW.EB075.300	300
S-TW.EB075.350	350
S-TW.EB075.400	400
S-TW.EB075.450	450
S-TW.EB075.500	500
S-TW.EB075.550	550
S-TW.EB075.600	600

Hole Type
M10 Bolt Holes

Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

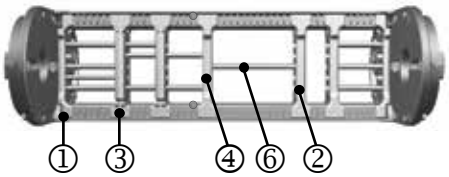
①**S** divider is used to fix a separator that is the same length as the frame

②**M1** divider is used to separate individual cables

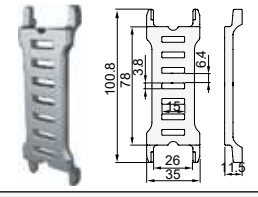
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 300mm and up

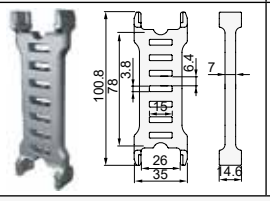
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



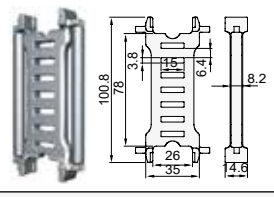
① sb-DV075 /S



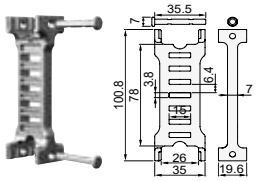
② sb-DV075/M



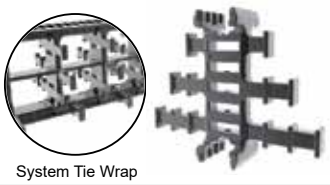
③ sb-DV075/R

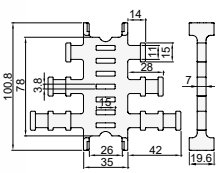


④ sb-DV075/T

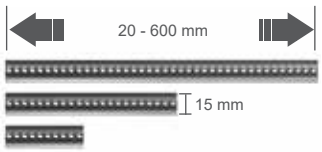


⑤ sb-DV075/W





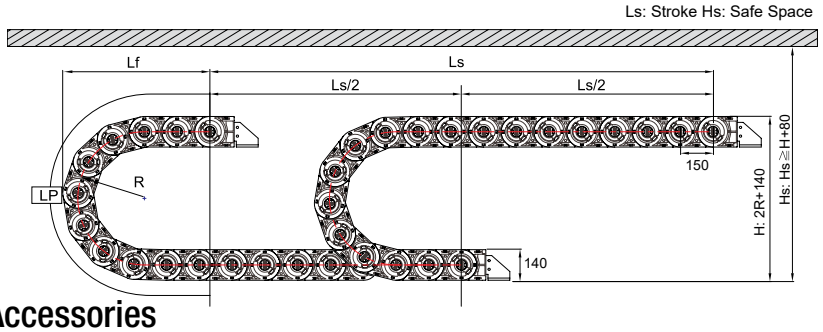
⑥Separators



Ordering NO.
sb-SP/600.600 Cut to length (600 mm)

ST 150N

Calculation of the chain length



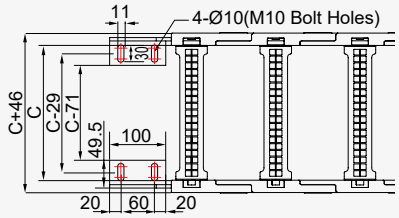
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
205	1,215	561	550
305	1,510	651	750
405	1,807	743	950
505	2,106	835	1,150
605	2,405	928	1,350

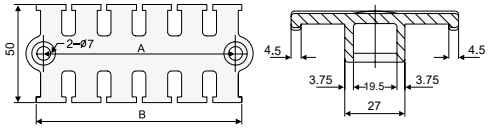
Accessories

Steel end bracket



Moving Point

Tie wrap



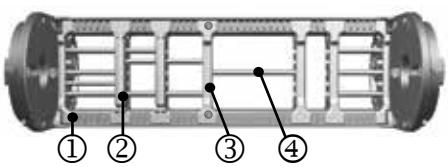
Ordering No.	B Height (Outer)	C Frame	D Height (Inner)	Ordering No.	A	B
ST-SEB150N	140	75 100 125 150 175 200 250 300 350 400 450 500 550 600	110	S-TW50 S-TW75 S-TW100 S-TW125 S-TW150	58 75 98 122 141	65 82 105 129 148

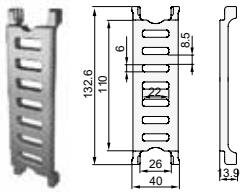
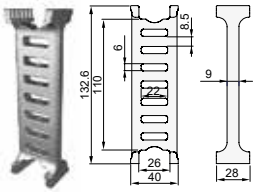
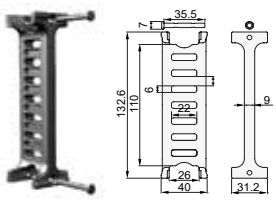
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

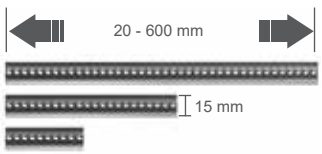
②**M** divider is used to separate individual cables

③**T** divider can be used at center position to support frame longer than 300mm and up



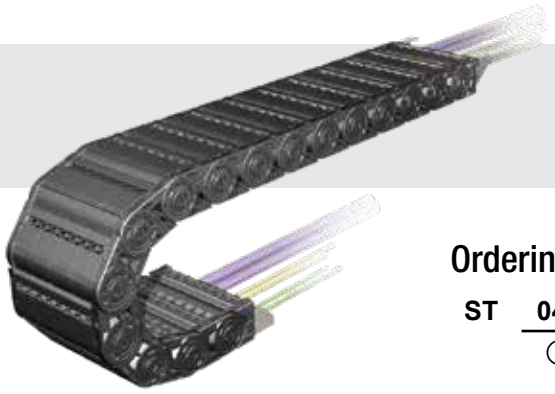
① sb-DV/S100/S	② sb-DV100/M	③ sb-DV100/T
		

⊕ Separators



Ordering NO
sb-SP/600.600 Cut to length (600 mm)

Note



ST-E Series

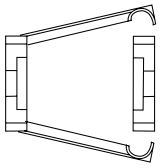
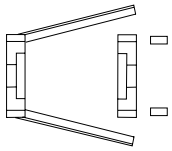
Shift Cable Chain - Enclosed type

RoHS CE Ex

Ordering Information

ST 044 E . 100 . R120

① ② ③

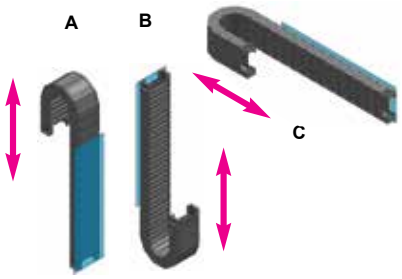
① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
044	35 55 75 100	70 90 120 150	56 76 96 121	38	35 55 75 100	24.5		1.03 1.21 1.37 1.58
055	50 75 100 125 150	100 125 150 200	71 96 121 146 171	52	50 75 100 125 150	38.5		1.36 1.56 1.76 1.97 2.21
072	50 75 100 125 150	120 145 200 250 300	82 107 132 157 182	66	50 75 100 125 150	44		2.37 2.61 2.85 3.09 3.33
095	100 125 150 175 200	150 200 230 280 400	138 163 188 213 238	82	100 125 150 175 200	55		3.55 3.79 4.04 4.29 4.53
120	150 200 250 290 300	200 250 300 350 400 500	192 242 292 342	108	150 200 250 300	76		5.79 6.43 7.07 7.71
150	200 250 300 350 400	305 405 505 605	246 296 346 396 446	140	200 250 300 350 400	110		8.16 8.76 10.50 12.33 14.16

Other Length Restrictions

Type	Vertial standing (Max) A	Vertical Hanging (Max) B	Side Mounted Unsupported (Max) C
ST 044N	2.0m	40m	1.0m
ST 055N	3.0m	50m	1.0m
ST 072N	6.0m	100m	2.5m
ST 095N	6.0m	100m	3.0m
ST 120N	6.0m	120m	3.0m
ST 150N	7.0m	150m	4.0m

How to Choose Bending Radius

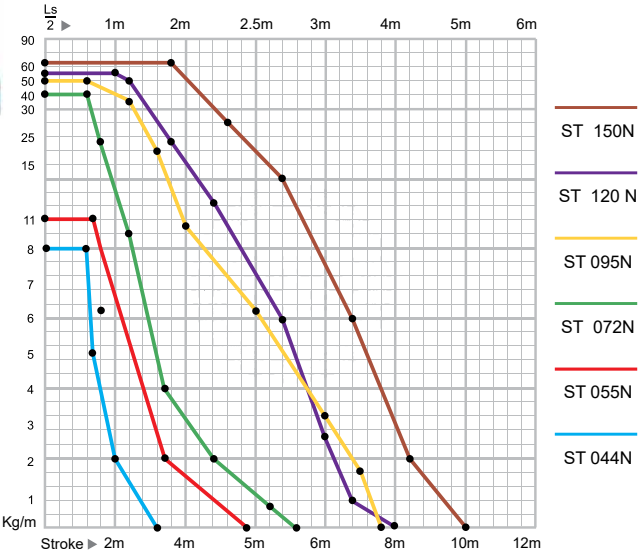
Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose



Specifications

Material	CPS-Amid(PA6+GF)
Noise Range	40dB
Speed	3m/s
Acceleration	10m/s²
Temperature	-30°C~+130°C
Special Production	ESD, UV
Certificate	CE, ATEX(Ex), RoHS

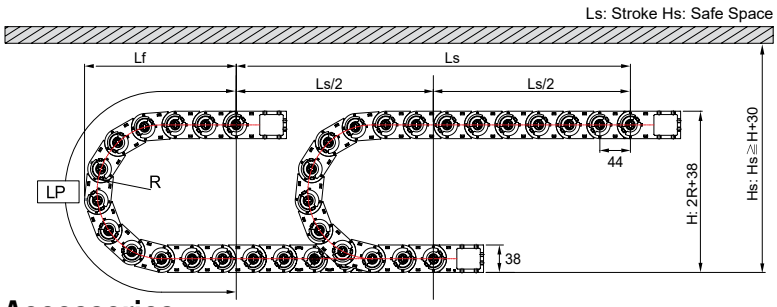
Unsupported Length



See page 65 - 66 for accessories

ST 044E

Calculation of the chain length



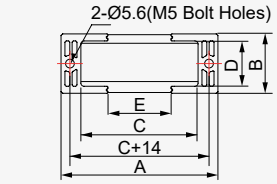
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

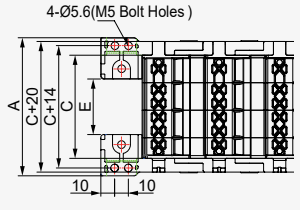
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
70	396	177	178
90	459	197	218
120	553	227	278
150	648	257	338

Accessories

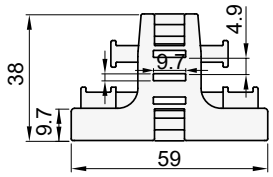
Free end bracket

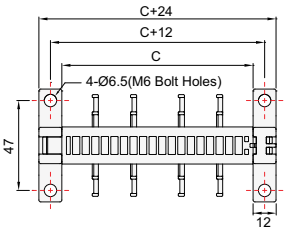




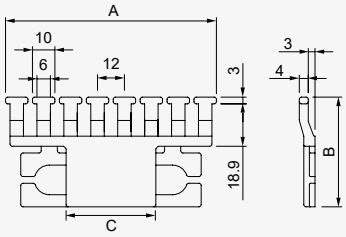
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB044E	60.4 80.4 100.4 125.4	38	35 55 75 100	24.5	0.4 20.4 40.4 65.4

Ordering No.	C Frame	Hole Type
S-TW.EB028.35 S-TW.EB028.55 S-TW.EB028.75 S-TW.EB028.100	35 55 75 100	M6 Bolt Holes

Ordering No.	A	B	C
S-TW036/025CR.35	46	35.4	-
S-TW036/025CR.55	70	48.9	20
S-TW036/025CR.75	94	48.9	40
S-TW036/025CR.100	118	48.9	65

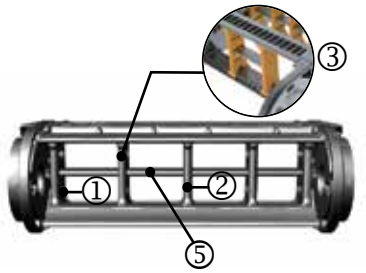
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

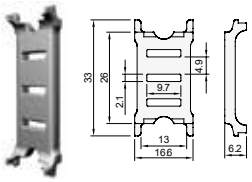
②**M1** divider is used to separate individual cables

③**M2** divider is used to fasten a separator that is shorter than the frame length

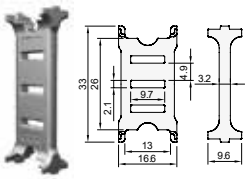
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



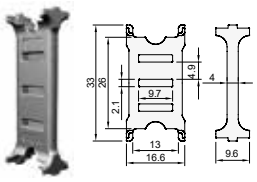
① sb-DV028/S



② sb-DV028/M1



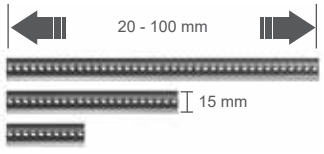
③ sb-DV028/M2



④sb-DV028/W

System Tie Wrap

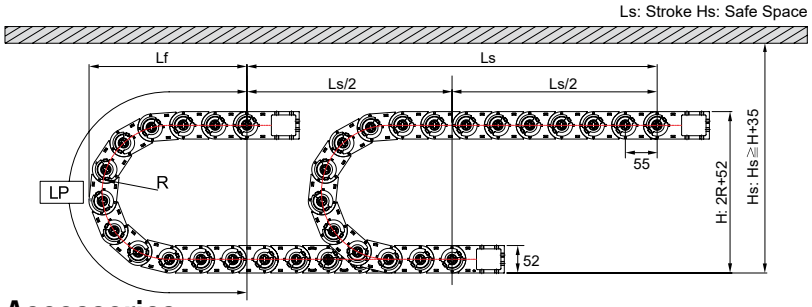
⑤ Separators



Ordering NO.	Frame
S-SP/M.35 S-SP/M.55 S-SP/M.75 S-SP/M.100	35 55 75 100

ST 055E

Calculation of the chain length



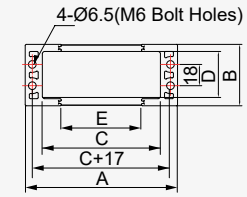
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

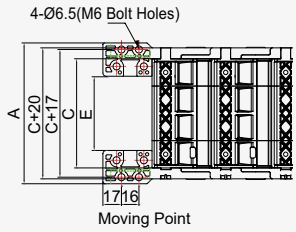
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
100	535	236	252
125	613	261	302
150	692	286	352
200	849	336	452

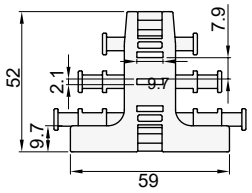
Accessories

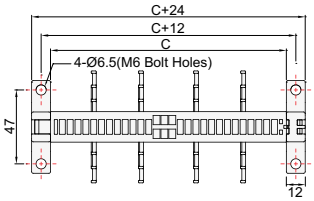
Free end bracket



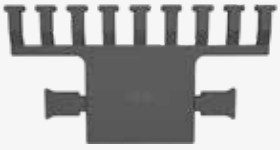


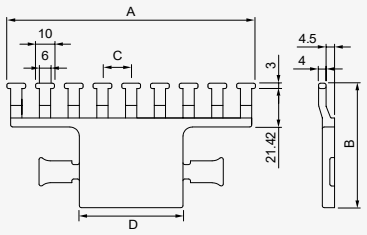
System tie wrap





Tie wrap





Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB055E	79 104 129 154 179	52	50 75 100 125 150	38.5	18 43 68 93 118

Ordering No.	C Frame	Hole Type
S-TW.EB035.50	50	M6 Bolt Holes
S-TW.EB035.75	75	
S-TW.EB035.100	100	
S-TW.EB035.125	125	
S-TW.EB035.150	150	

Ordering No.	A	B	C	D
S-TW050/035N.50	82	64.5	12.00	5
S-TW050/035N.75	107		12.13	30
S-TW050/035N.100	132		15.25	55
S-TW050/035N.125	157		14.70	80
S-TW050/035N.150	182		14.35	105

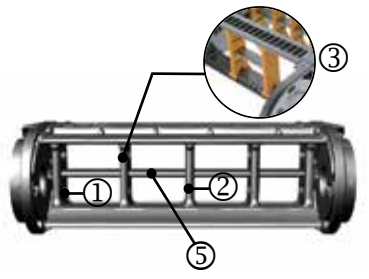
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

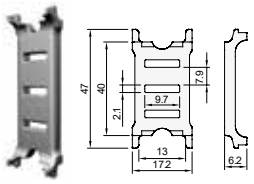
②**M1** divider is used to separate individual cables

③**M2** divider is used to fasten a separator that is shorter than the frame length

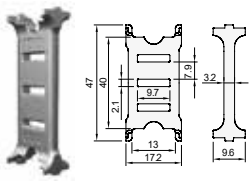
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



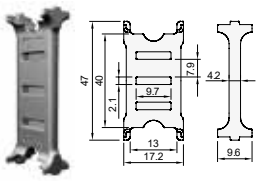
sb-DV035/S



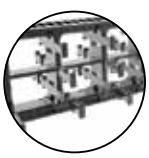
sb-DV035/M1

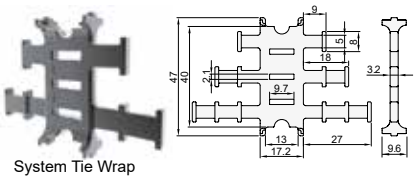


sb-DV035/M2



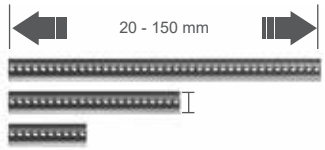
sb-DV035/W





System Tie Wrap

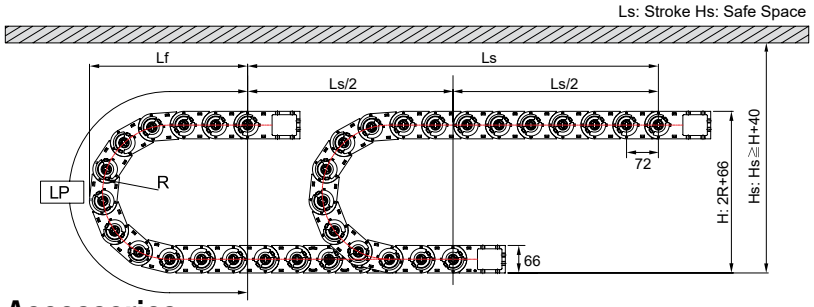
⑤ Separators



Ordering NO.	Frame
S-SP/M.50	50
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150

ST 072E

Calculation of the chain length



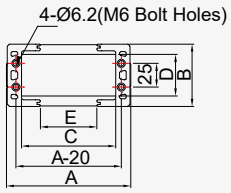
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

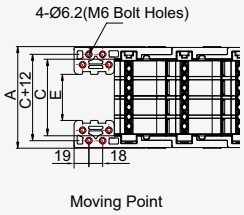
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
120	665	297	306
145	743	322	356
200	916	377	466
250	1,074	427	566
300	1,230	477	666

Accessories

Free end bracket

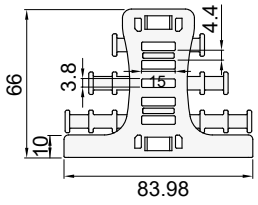


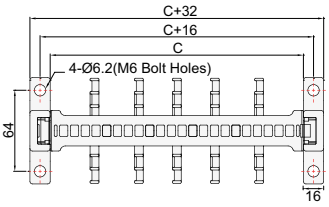


Moving Point

Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB072E	82 107 132 157 182	66	50 75 100 125 150	44	10 35 60 85 110

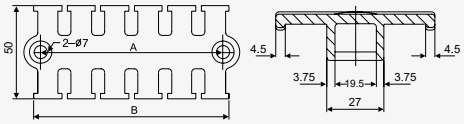
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB045.50 S-TW.EB045.75 S-TW.EB045.100 S-TW.EB045.125 S-TW.EB045.150	50 75 100 125 150	M6 Bolt Holes

Tie wrap



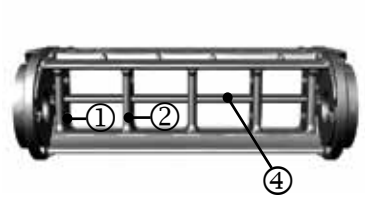
Ordering No.	A	B
S- TW50 S-TW75 S-TW100 S-TW125 S-TW150	58 75 98 122 141	65 82 105 129 148

Dividers

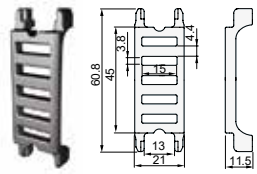
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

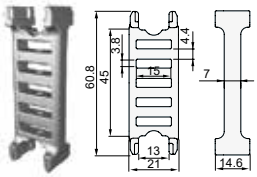
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



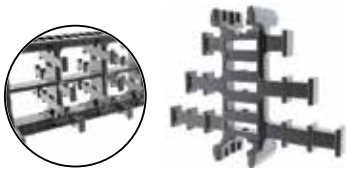
① sb-DV045/S



② sb-DV045/M

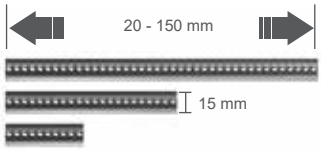


③ sb-DV045/W



System Tie Wrap

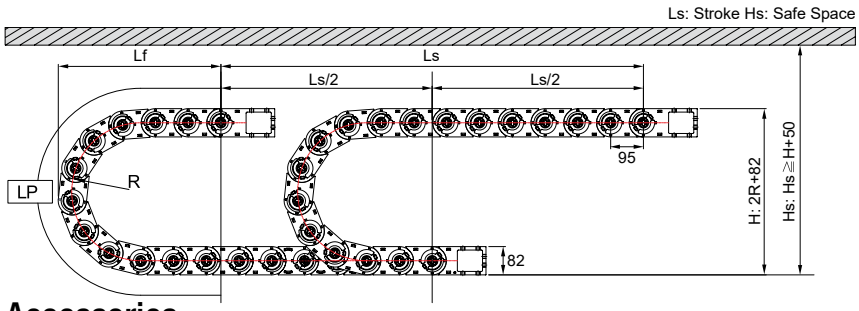
⊕Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

ST 095E

Calculation of the chain length



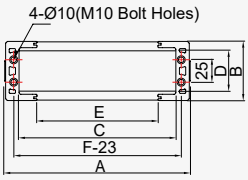
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

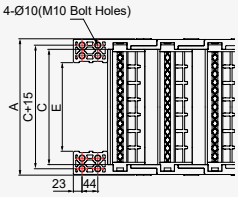
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
150	855	374	382
200	1,010	428	482
230	1,110	459	542
280	1,260	505	642
400	1,640	629	882

Accessories

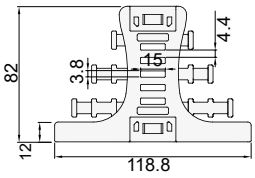
Free end bracket

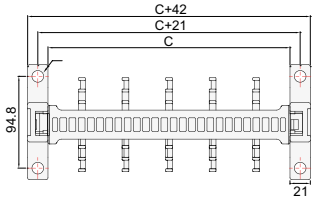




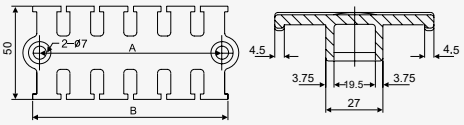
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB095E sb-FEB/WH060	138 163 188 213 238	82	100 125 150 175 200	56	49 74 99 124 149

Ordering No.	C Frame	Hole Type
S-TW.EB060.100	100	M10 Bolt Holes
S-TW.EB060.125	125	
S-TW.EB060.150	150	
S-TW.EB060.175	175	
S-TW.EB060.200	200	

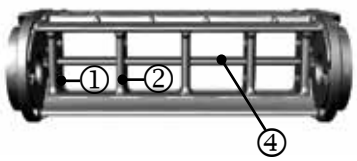
Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

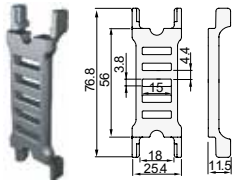
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

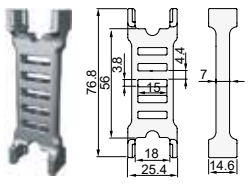
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



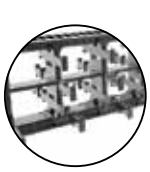
① sb-DV060/S

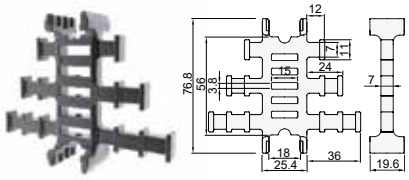


② sb-DV060/M



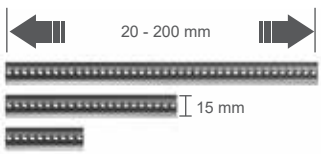
③ sb-DV060/W





System Tie Wrap

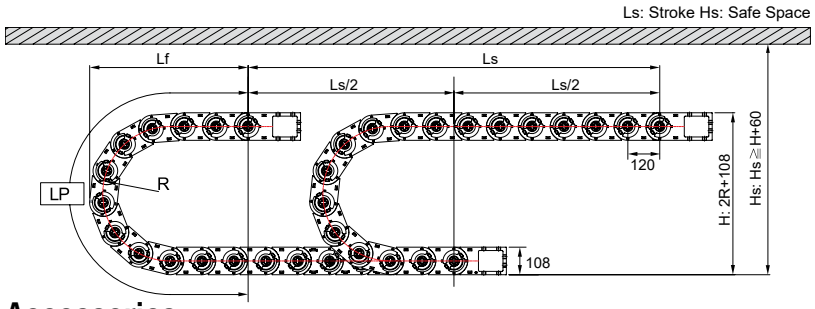
④Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

ST 120E

Calculation of the chain length



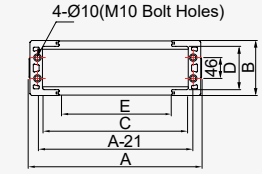
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

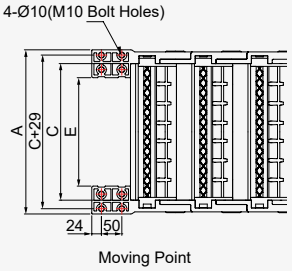
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
200	1,109	494	508
250	1,266	544	608
300	1,423	594	708
350	1,580	644	808
400	1,737	694	908
500	2,051	794	1,108

Accessories

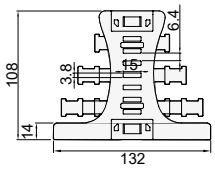
Free end bracket

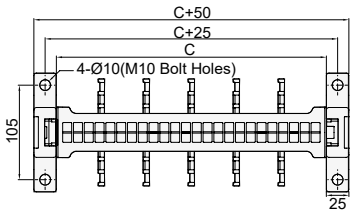




Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB120E sb-FEB/WH075	200 250 300 350	108	150 200 250 300	76	90 140 190 240

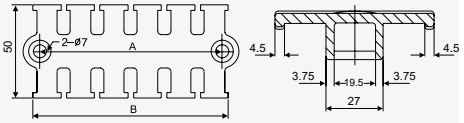
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB075.150 S-TW.EB075.200 S-TW.EB075.250 S-TW.EB075.300	150 200 250 300	M10 Bolt Holes

Tie wrap



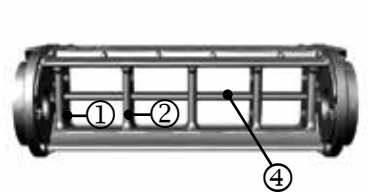
Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

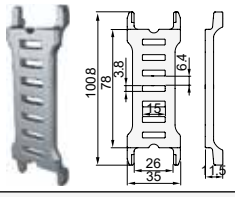
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

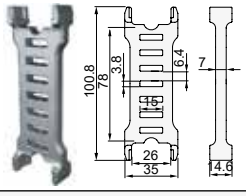
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chaine size



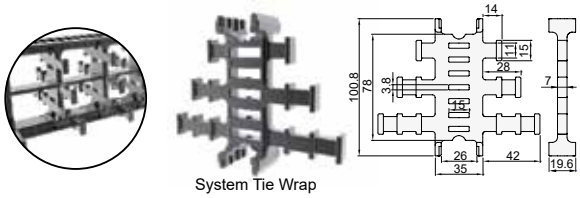
① sb-DV075/S



② sb-DV075/M

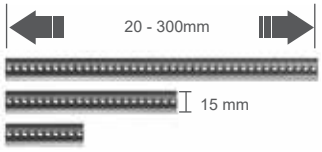


③ sb-DV075/W



System Tie Wrap

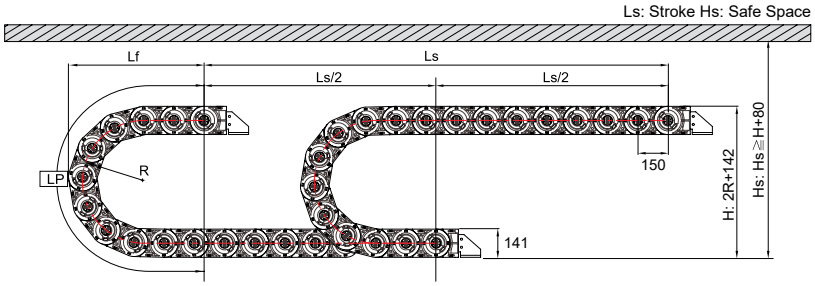
④ Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

ST 150E

Calculation of the chain length



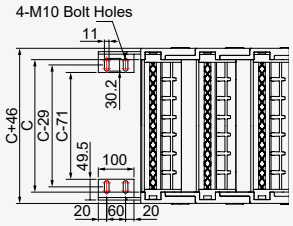
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
305	1,510	651	752
405	1,807	743	952
505	2,106	835	1,152
605	2,405	928	1,352

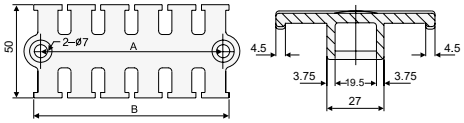
Accessories

Steel end bracket



Ordering No.	B Height (Outer)	C Frame	D Height (Inner)
ST-SEB150E/B(Steel)	141	200 250 300 350 400	110

Tie wrap (TW)

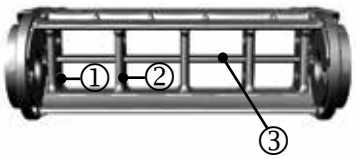


Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

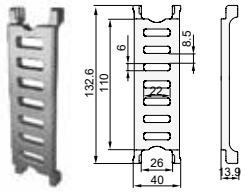
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

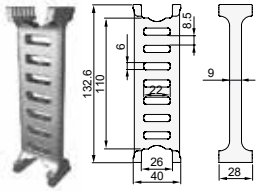
②**M** divider is used to separate individual cables



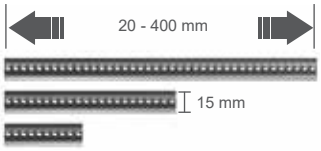
① sb-DV/S100/S



② sb-DV100/M



③ Separators



Ordering NO.

sb-SP/600.600
Cut to length (600 mm)

ST-S Series

Shift Cable Chain - Long Travel Type

Ordering Information

ST 044 S . 100 . R120

① ② ③

① Normal type (N)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
044	35 50 55 75 100 125 150 175 200	70 90 120 150	74 89 94 114 139 164 189 214 239	38.5	35 50 55 75 100 125 150 175 200	26		1.03 1.08 1.10 1.17 1.26 1.40 1.52 1.81 1.98

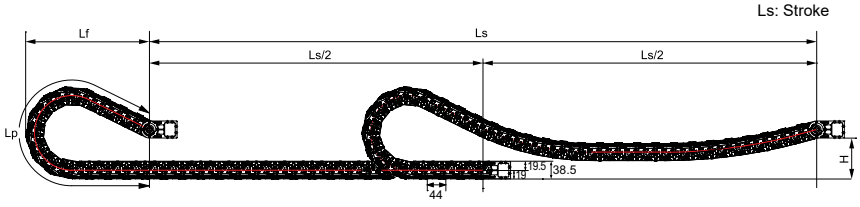
Specifications

Material	Polyamide with reinforced glass fiber: UL94-HB
Noise Range	40dB
Speed	3 m/s
Acceleration	10 m/s²
Temperature	-30°C~+130°C
Certificate	CE, ATEX(Ex), RoHs

Calculation of the chain length

$$[\ L = \frac{Ls}{2} + Lp\ ]$$

(Unit : mm)

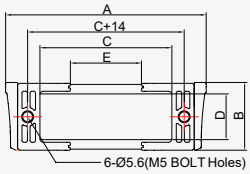


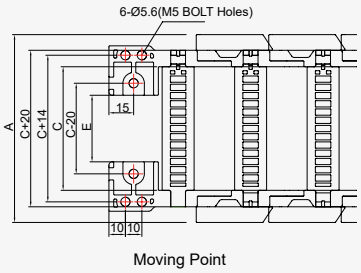
Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
70 90 120 150	544 662 926 1,190	249 289 393 497	110

Accessories

See page 65 - 66 for accessories

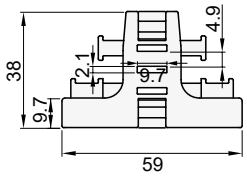
Free end bracket

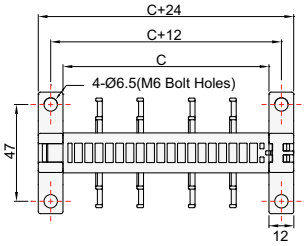




Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB120E sb-FEB/WH075	74 89 94 114 139 164 189 214 239	38.5	35 50 55 75 100 125 150 175 200	26	0.4 15.4 20.4 40.4 65.4 90.4 115.4 140.4 165.4

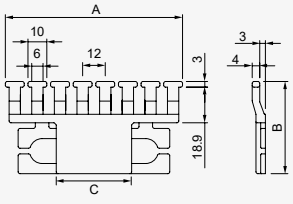
System tie wrap





Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.50	50	
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	
S-TW.EB028.125	125	
S-TW.EB028.150	150	
S-TW.EB028.175	175	
S-TW.EB028.200	200	

Tie wrap



Ordering No.	A	B	C
S- TW036/025CR.35	46	35.4	-
S- TW036/025CR.50	69	48.9	15
S- TW036/025CR.55	70	48.9	20
S- TW036/025CR.75	94	48.9	40
S- TW036/025CR.100	118	48.9	65
S- TW036/025CR.125	142	48.9	90

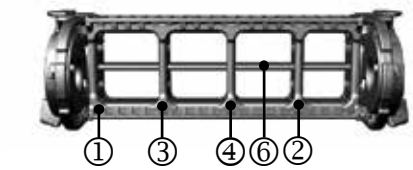
Dividers

① **S** divider is used to fix a separator that is the same length as the frame

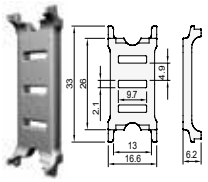
② **M1** divider is used to separate individual cables

③ **M2** divider is used to fasten a separator that is shorter than the frame length

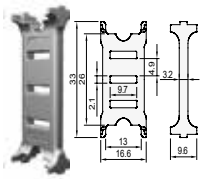
④ **T** divider can be used at center position to support frame longer than 125mm and up



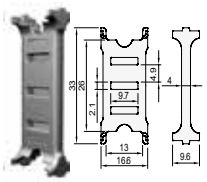
① sb-DV028/S



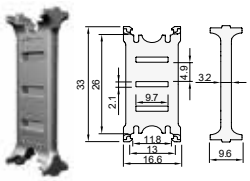
② sb-DV028/M1



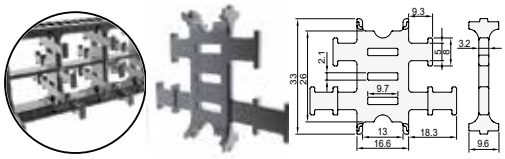
③ sb-DV028 /M2



④ sb-DV028/T

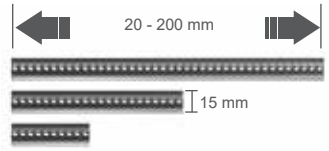


⑤ sb-DV028/W



System Tie Wrap

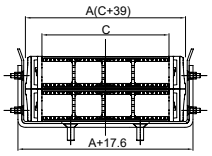
⑥ Separators



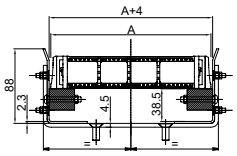
Ordering NO	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

Guide channel

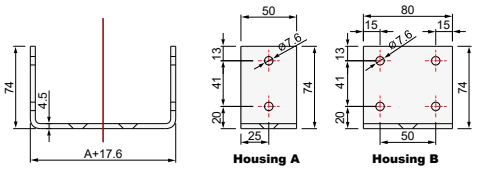
A- Zone



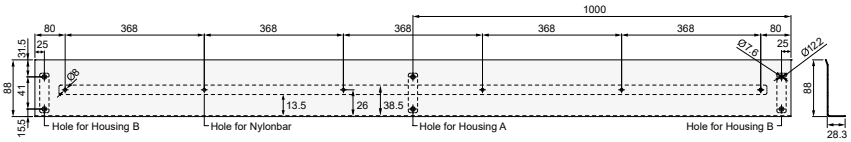
C-Zone

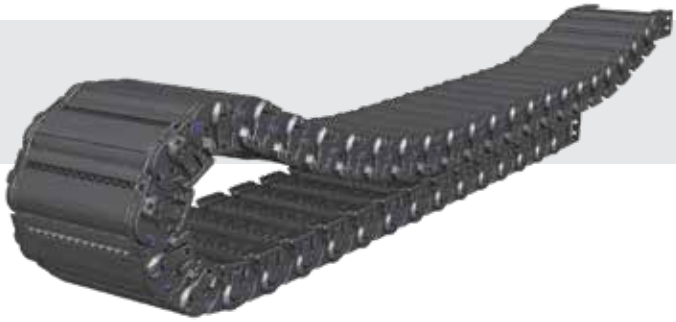


Housing (U-Shape)



Side Panel





ST-ES Series

Shift Cable Chain - Enclosed Long Travel Type

Ordering Information

ST 044 ES . 100 . R120

① ② ③

See page 65 - 66 for accessories

① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
044	35 55 75 100	70 90 120 150	74 94 114 139	38.5	35 55 75 100	26		1.18 1.37 1.53 1.74
072	50 75 100 125 150	120 145 200 250 300	105 130 155 180 205	71.8	50 75 100 125 150	44		2.77 3.01 3.25 3.49 3.73
095	100 125 150 175 200	150 200 230 280 400	162 187 212 237 262	89	100 125 150 175 200	55		4.16 4.41 4.65 4.90 5.15
120	150 200 250 300	200 250 300 350 400 500	218 268 318 368	115	150 200 250 300	76		6.28 6.92 7.56 8.20

How to Choose Bending Radius

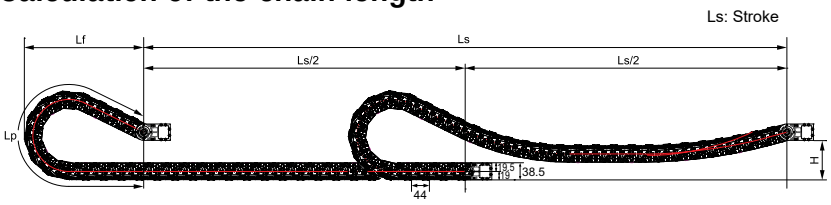
Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

Specifications

Material	Polyamide with reinforced glass fiber: UL94-HB
Noise Range	40dB
Speed	3m/s
Acceleration	10m/s^2
Temperature	-30°C~+130°C
Certificate	CE, ATEX(Ex), RoHS

ST 044ES

Calculation of the chain length



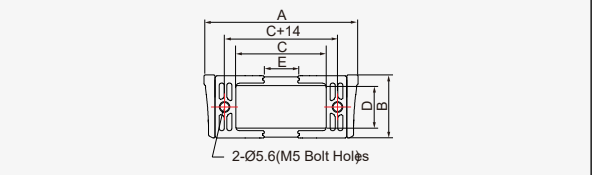
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

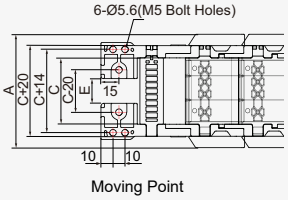
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
70	544	249	110
90	662	289	
120	926	393	
150	1,190	497	

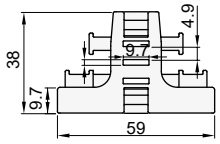
Accessories

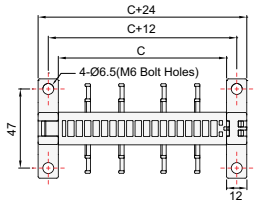
Free end bracket



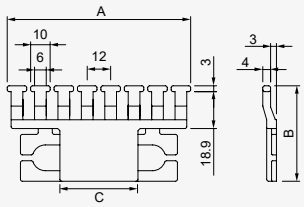


System tie wrap





Tie wrap



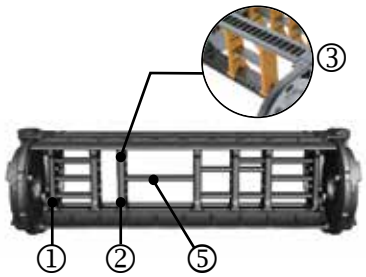
Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB044E	74 94 114 139	38.5	35 55 75 100	26	0.4 20.4 40.4 65.4

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	

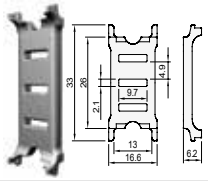
Ordering No.	A	B	C
S- TW036/025CR.35	46	35.4	-
S- TW036/025CR.55	70	48.9	20
S- TW036/025CR.75	94	48.9	40
S- TW036/025CR.100	118	48.9	65

Dividers

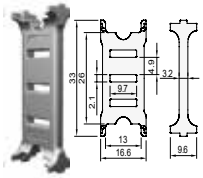
①**S** divider is used to fix a separator that is the same length as the frame
②**M1** divider is used to separate individual cables
③**M2** divider is used to fasten a separator that is shorter than the frame length
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



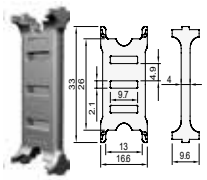
① sb-DV028/S



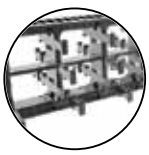
② sb-DV028/M1

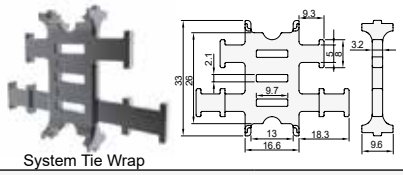


③ sb-DV028/M2

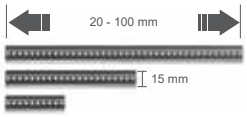


④sb-DV028/W





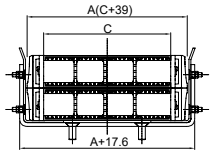
⑤Separators

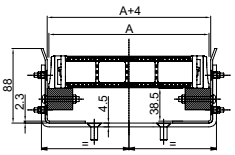


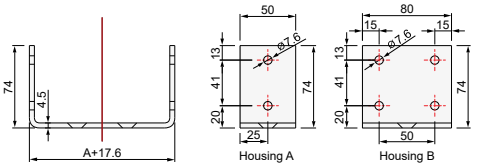
Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100

Guide channel

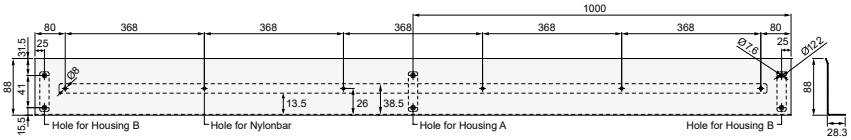
A- Zone	C-Zone	Housing (U-Shape)





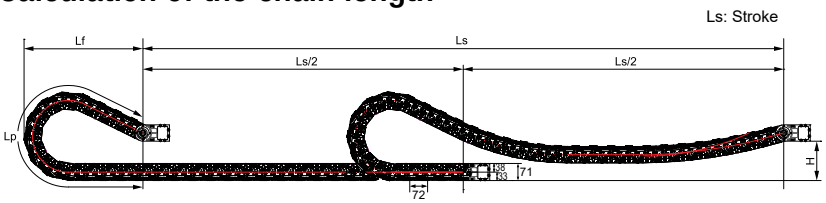


Side Panel



ST 072ES

Calculation of the chain length



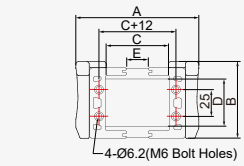
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

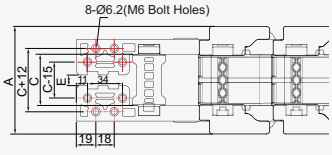
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
120	917	420	180
145	1,063	470	
200	1,400	580	
250	1,840	752	
300	2,280	924	

Accessories

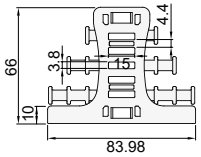
Free end bracket

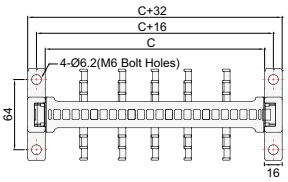




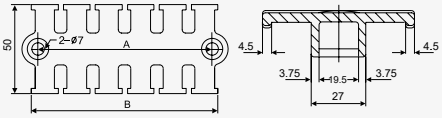
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB072	105 130 155 180 205	71.8	50 75 100 125 150	44	10 35 60 85 110

Ordering No.	C Frame	Hole Type
S-TW.EB045.50	50	M6 Bolt Holes
S-TW.EB045.75	75	
S-TW.EB045.100	100	
S-TW.EB045.125	125	
S-TW.EB045.150	150	

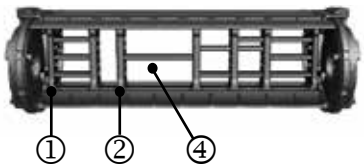
Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

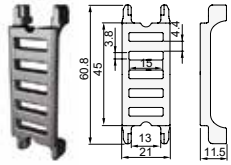
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

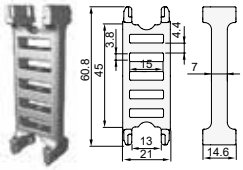
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



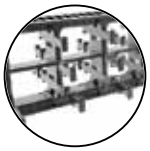
① sb-DV045/S

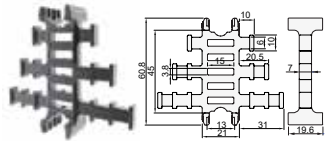


② sb-DV045/M



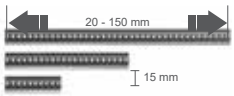
③ sb-DV045/W





System Tie Wrap

⊕ Separators

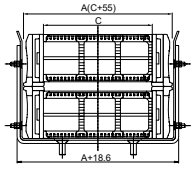


Ordering NO.

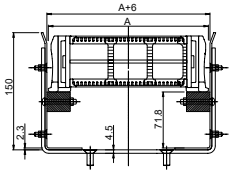
sb-SP/400.400
Cut to length (400 mm)

Guide channel

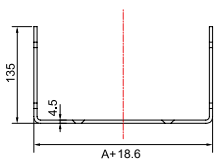
A- Zone

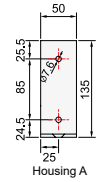


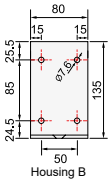
C-Zone



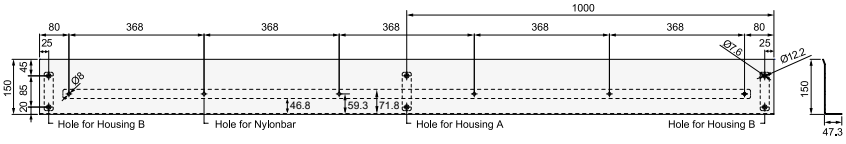
Housing (U-Shape)







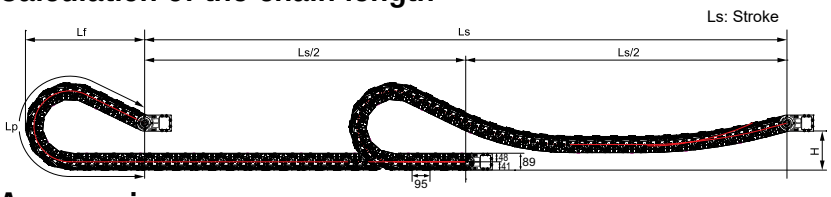
Side Panel



ST 095ES

Calculation of the chain length

$$[\ L = \frac{Ls}{2} + Lp\ ]$$

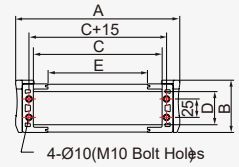


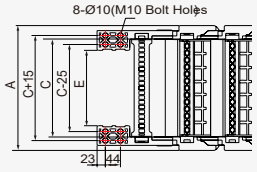
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
150	1,178	534	210
200	1,479	634	
230	1,666	694	
280	2,146	889	
400	3,232	1,319	

Accessories

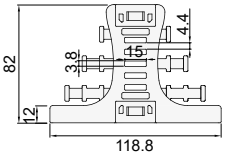
Free end bracket

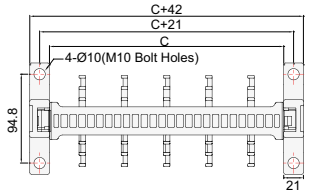




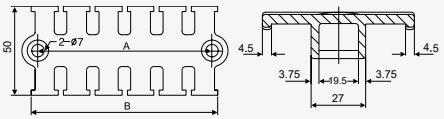
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB095	162	89	100	55	49
	187		125		74
	212		150		99
	237		175		124
	262		200		149

Ordering No.	C Frame	Hole Type
S-TW.EB060.100	100	M10 Bolt Holes
S-TW.EB060.125	125	
S-TW.EB060.150	150	
S-TW.EB060.175	175	
S-TW.EB060.200	200	

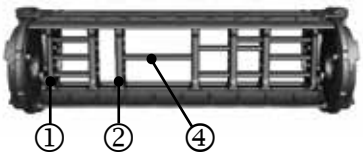
Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

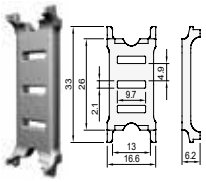
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

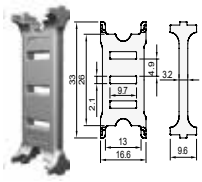
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



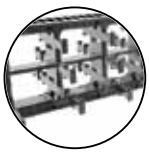
① sb-DV060/S

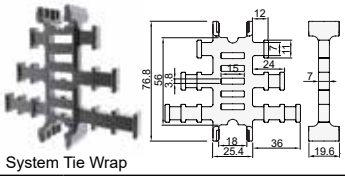


② sb-DV060/M



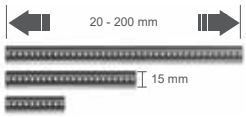
③ sb-DV060/W





System Tie Wrap

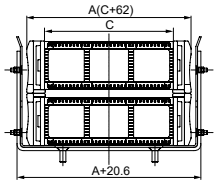
④Separators

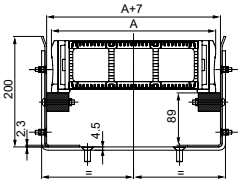


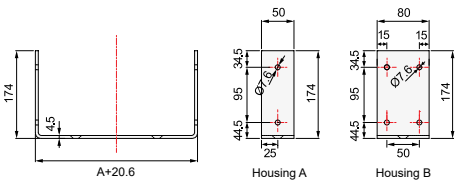
Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

Guide channel

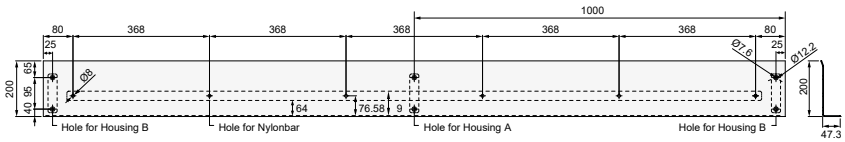
A- Zone	C-Zone	Housing (U-Shape)







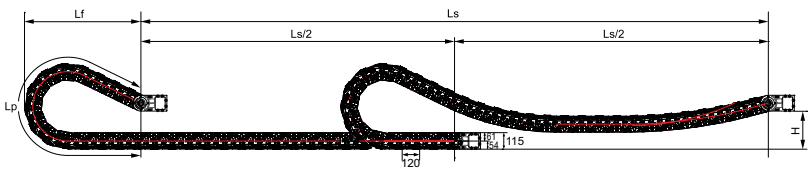
Side Panel



ST 120ES

Calculation of the chain length

Ls: Stroke



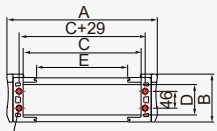
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

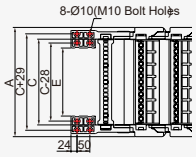
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
200	1,559	694	260
250	1,864	794	
300	2,178	894	
350	2,701	1,114	
400	3,225	1,334	
500	4,062	1,654	

Accessories

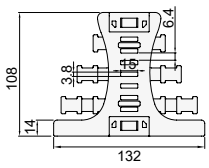
Free end bracket

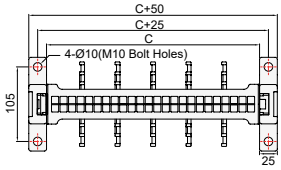




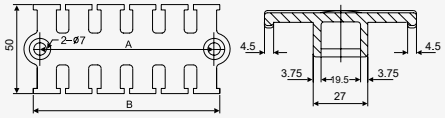
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB120E	218 268 318 368	115	150 200 250 300	76	90 140 190 240

Ordering No.	C Frame	Hole Type
S-TW.EB075.150	150	M10 Bolt Holes
S-TW.EB075.200	200	
S-TW.EB075.250	250	
S-TW.EB075.300	300	

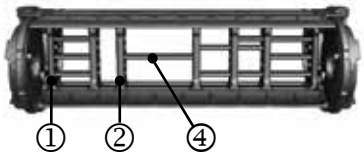
Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

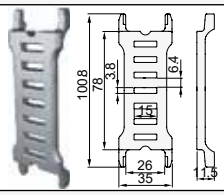
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

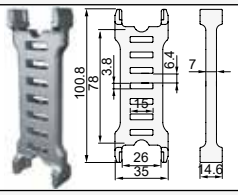
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



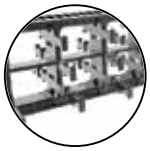
① sb-DV075/S

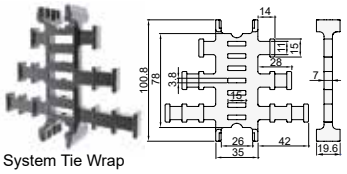


② sb-DV075/M



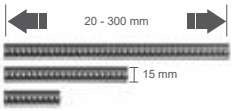
③ sb-DV075/W





System Tie Wrap

Separators

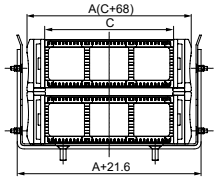


Ordering NO.

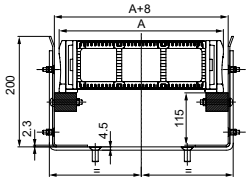
sb-SP/400.400
Cut to length (400 mm)

Guide channel

A- Zone

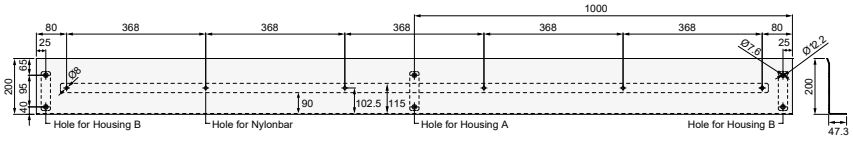


C-Zone



Housing (U-Shape)

Side Panel



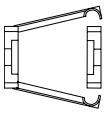
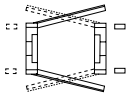
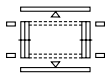
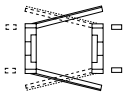
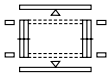
ST-RS Series

Shift Cable Chain - Roller Skid/Sliding Type

Ordering Information

ST 044 RS . 100 . R120

① ② ③

① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
044	35 50 55 75 100 125 150 175 200	70 90 120 150	73 88 93 113 138 163 188 213 238	40.5	35 50 55 75 100 125 150 175 200	26		1.09 1.15 1.17 1.24 1.33 1.47 1.59 1.88 2.05
072	50 75 100 125 140 150 175 200 250 300	100 120 145 200 250 300	104 129 154 179 194 204 219 229 244 254 294 304 354	69	50 75 100 125 140 150 165 175 190 200 240 250 300	45		2.59 2.67 2.77 2.91 3.02 3.05 3.12 3.17 3.42 3.59 3.91 3.99 4.34
095	75 100 125 150 175 190 200 240 250 300 350 400	135 150 200 230 280 400	143 168 193 218 243 258 268 308 318 368 418 468	90	75 100 125 150 175 190 200 240 250 300 350 400	56		3.48 3.55 3.73 3.84 3.96 4.07 4.14 4.36 4.41 4.67 5.03 5.43
120	75 100 125 150 175 200 250 300 350 400 450 500 550 600	180 200 250 300 350 400 500	143 168 193 218 243 268 318 368 418 468	117	75 100 125 150 175 200 250 300 350 400	78		4.75 4.87 5.02 5.10 5.28 5.52 5.82 6.25 6.67 6.96
			518 568 618 668		450 500 550 600			7.42 7.65 8.49 8.66
150	75 100 115 125 150 175 200 240 250 290 300 350 400 450 500 550 600	305 405 505 605	162 187 202 212 237 262 287 327 337 377 387 437 487	145	75 100 115 125 150 175 200 240 250 290 300 350 400	110		7.87 7.98 8.06 8.11 8.18 8.34 8.55 8.76 8.81 9.11 9.18 9.55 9.98
			537 587 637 687		450 500 550 600			10.21 10.41 11.14 11.29

How to Choose Bending Radius

Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

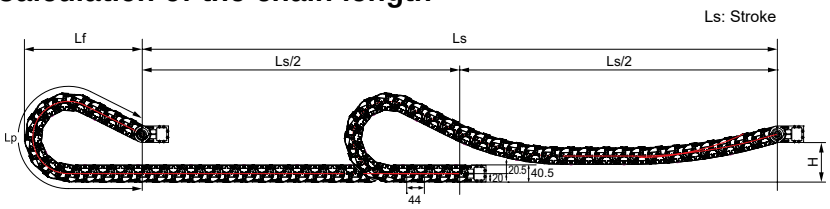
Specifications

Material	Polyamide with reinforced glass fiber : UL94-HB
Noise Range	40dB
Speed	3m/s
Acceleration	10m/s²
Temperature	-30°C~+130°C
Certificate	CE, ATEX(Ex), RoHS

See page 65 - 66 for accessories

ST 044RS

Calculation of the chain length



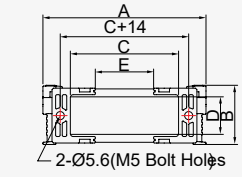
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

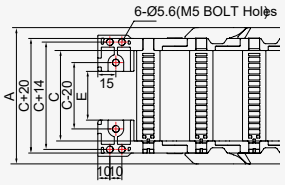
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
70	544	249	110
90	662	289	
120	926	393	
150	1,190	497	

Accessories

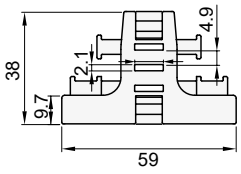
Free end bracket

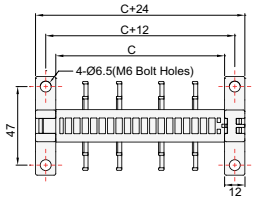




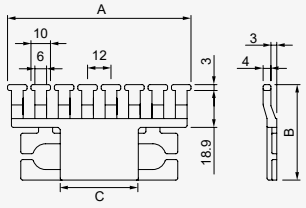
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB044N/S	73 88 93 113 138 163 188 213 238	40.5	35 50 55 75 100 125 150 175 200	26	0.4 15.4 20.4 40.4 65.4 90.4 115.4 140.4 165.4

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.50	50	
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	
S-TW.EB028.125	125	
S-TW.EB028.150	150	
S-TW.EB028.175	175	
S-TW.EB028.200	200	

Ordering No.	A	B	C
S- TW036/025CR.35	46	35.4	-
S- TW036/025CR.50	69	48.9	15
S- TW036/025CR.55	70	48.9	20
S- TW036/025CR.75	94	48.9	40
S- TW036/025CR.100	118	48.9	65
S- TW036/025CR.125	142	48.9	90

Dividers

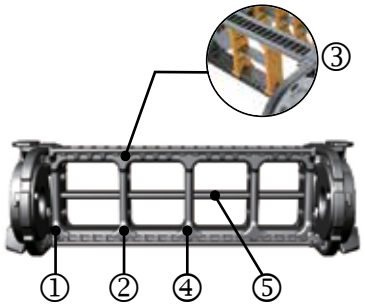
①**S** divider is used to fix a separator that is the same length as the frame

②**M1** divider is used to separate individual cables

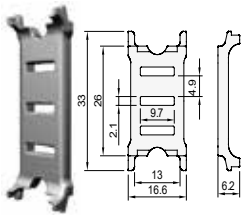
③**M2** divider is used to fasten a separator that is shorter than the frame length

④**T** divider can be used at center position to support frame longer than 125mm and up

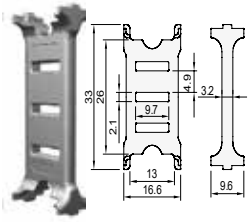
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



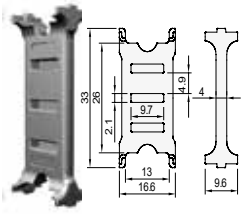
① sb-DV028/S



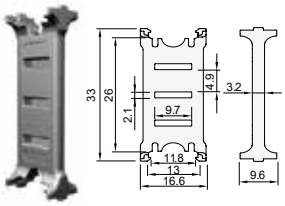
② sb-DV028/M1



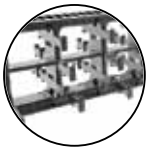
③ sb-DV028/M2



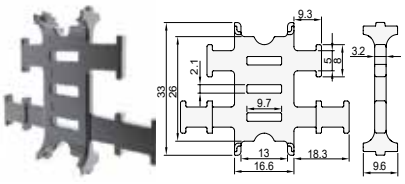
④ sb-DV028/T



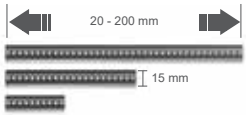
⑤ sb-DV028/W



System Tie Wrap



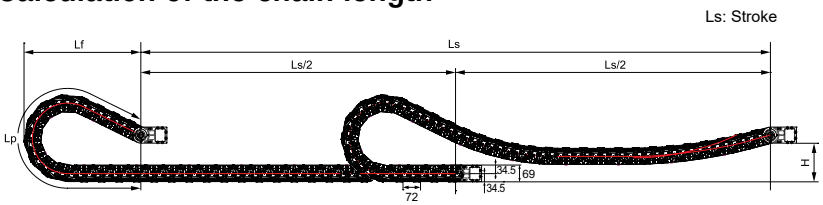
⑥ Separators



Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.50	50
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

ST 072RS

Calculation of the chain length



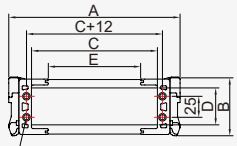
$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad Lp \quad]$$

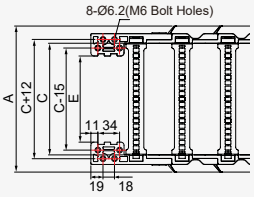
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
100	806	380	180
120	917	420	
145	1,063	470	
200	1,400	580	
250	1,840	752	
300	2,280	924	

Accessories

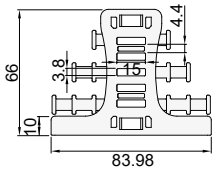
Free end bracket

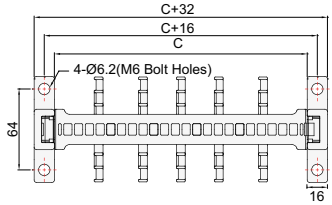




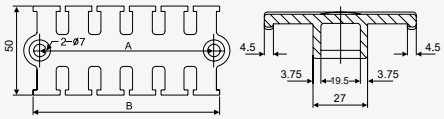
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB072N/S	104 129 154 179 194 204 219 229 244 254 294 304 354	69	50 75 100 125 140 150 175 200 250 300	45	10 35 60 85 100 110 125 135 150 160 200 210 260

Ordering No.	C Frame	Hole Type
S-TW.EB045.50	50	M6 Bolt Holes
S-TW.EB045.75	75	
S-TW.EB045.100	100	
S-TW.EB045.125	125	
S-TW.EB045.140	140	
S-TW.EB045.150	150	
S-TW.EB045.165	165	
S-TW.EB045.175	175	
S-TW.EB045.190	190	
S-TW.EB045.200	200	
S-TW.EB045.240	240	
S-TW.EB045.250	250	
S-TW.EB045.300	300	

Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

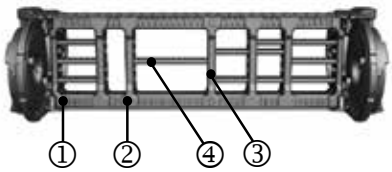
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

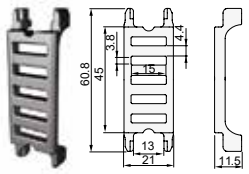
②**M** divider is used to separate individual cables

③**T** divider can be used at center position to support frame longer than 200mm and up

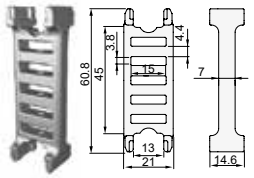
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



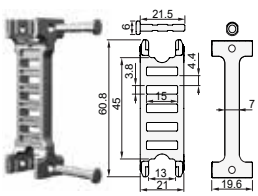
① sb-DV045/S



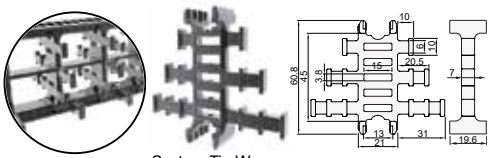
② sb-DV045/M



③ sb-DV045/T

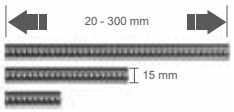


④ sb-DV045/W



System Tie Wrap

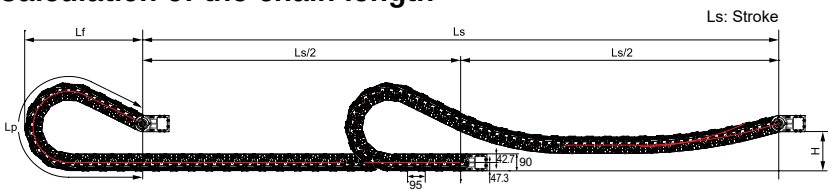
Separators



Ordering NO.
sb-SP/400.400 Cut to length (400 mm)

ST 095RS

Calculation of the chain length



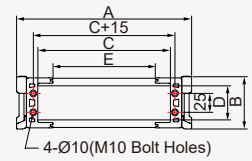
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

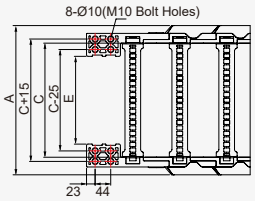
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
135	1,091	504	210
150	1,178	534	
200	1,479	634	
230	1,666	694	
280	2,146	889	
400	3,232	1,319	

Accessories

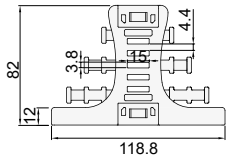
Free end bracket

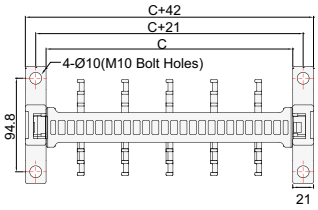




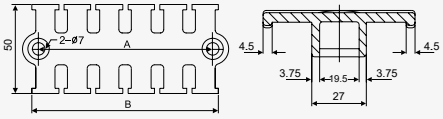
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width	Ordering No.	C Frame	Hole Type	Ordering No.	A	B
ST-FEB095N/S	143	90	75	56	24	S-TW.EB060.75	75	M10 Bolt Holes	S-TW50	58	65
	168		100		49	S-TW.EB060.100	100		S-TW75	75	82
	193		125		74	S-TW.EB060.125	125		S-TW100	98	105
	218		150		99	S-TW.EB060.150	150		S-TW125	122	129
	243		175		124	S-TW.EB060.175	175		S-TW150	141	148
	258		190		139	S-TW.EB060.190	190				
	268		200		149	S-TW.EB060.200	200				
	298		230		179	S-TW.EB060.230	230				
	308		240		189	S-TW.EB060.240	240				
	318		250		199	S-TW.EB060.250	250				
	368		300		249	S-TW.EB060.300	300				
	418		350		299	S-TW.EB060.350	350				
	468		400		349	S-TW.EB060.400	400				

Dividers

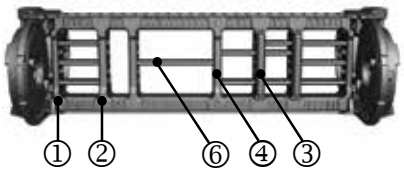
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

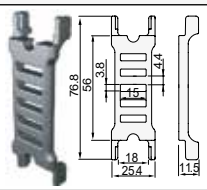
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 200mm and up

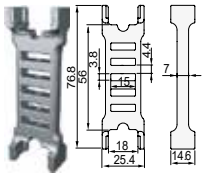
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



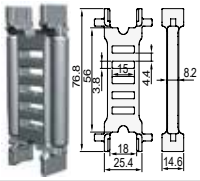
① sb-DV060/S



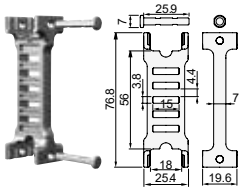
② sb-DV060/M



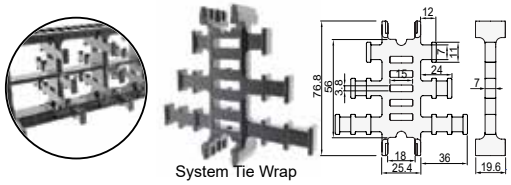
③ sb-DV060/R



④ sb-DV060/T

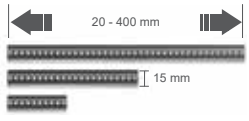


⑤ sb-DV060/W



System Tie Wrap

⑥ Separators



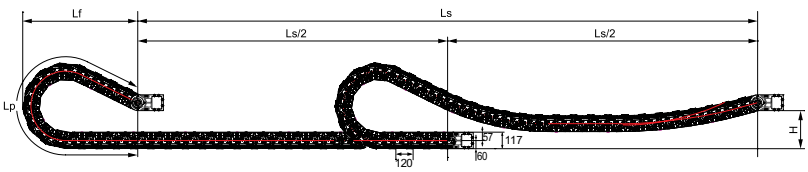
Ordering NO.

sb-SP/400.400
Cut to length (400 mm)

ST 120RS

Calculation of the chain length

Ls: Stroke



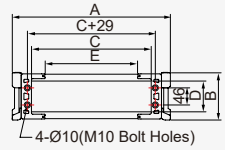
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

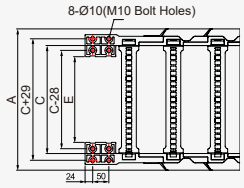
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
180	1,441	654	
200	1,559	694	
250	1,864	794	
300	2,178	894	260
350	2,701	1,114	
400	3,225	1,334	
500	4,062	1,654	

Accessories

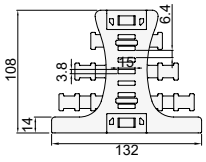
Free end bracket

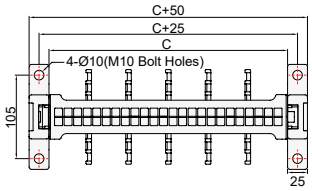




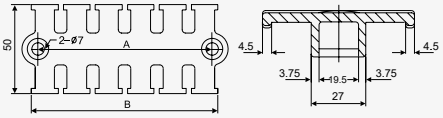
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB120N/S	143 168 183 193 218 243 268 308 318 358 368 418 468 518 568 618 668	117	75 100 125 150 175 200 250 300 350 400 450 500 550 600	78	15 40 55 65 90 115 140 180 190 230 240 290 340 390 440 490 540

Ordering No.	C Frame	Hole Type
S-TW.EB075.75	75	M10 Bolt Holes
S-TW.EB075.100	100	
S-TW.EB075.115	115	
S-TW.EB075.125	125	
S-TW.EB075.150	150	
S-TW.EB075.175	175	
S-TW.EB075.200	200	
S-TW.EB075.240	240	
S-TW.EB075.250	250	
S-TW.EB075.290	290	
S-TW.EB075.300	300	
S-TW.EB075.350	350	
S-TW.EB075.400	400	
S-TW.EB075.450	450	
S-TW.EB075.500	500	
S-TW.EB075.550	550	
S-TW.EB075.600	600	

Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

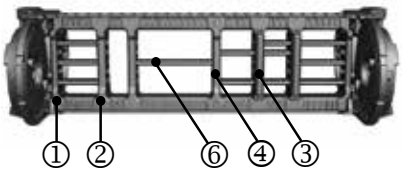
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

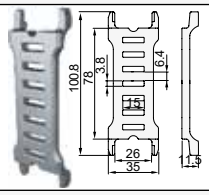
③**R** Side position roller divider to protect abrasion of moving cable at inner side of chain

④**T** divider can be used at center position to support frame longer than 300mm and up

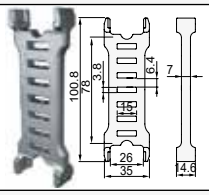
⑤**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



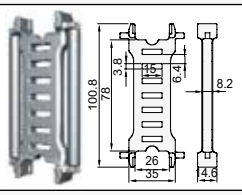
① sb-DV075/S



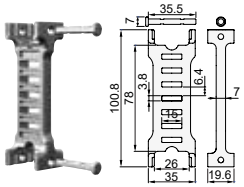
② sb-DV075/M



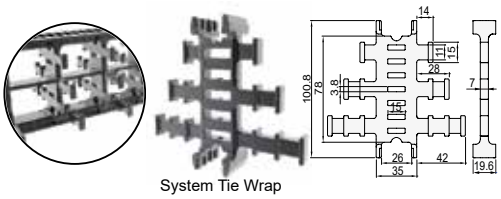
③ sb-DV075/R



④ sb-DV075/T

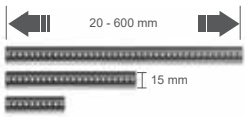


⑤ sb-DV075/W



System Tie Wrap

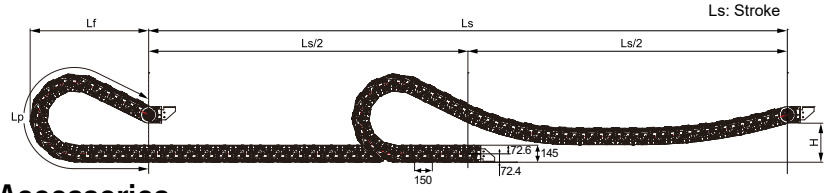
⑥Separators



Ordering NO
sb-SP/600.600 Cut to length (600 mm)

ST 150RS

Calculation of the chain length



Ls: Stroke

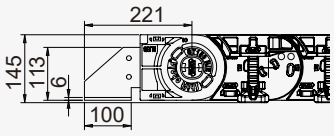
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

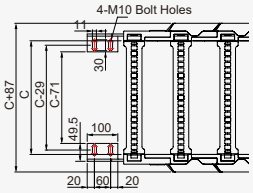
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
305	2,272	985	400
405	3,161	1,335	
505	4,050	1,685	
605	4,940	2,035	

Accessories

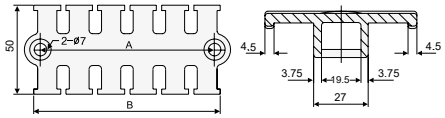
Steel end bracket





Moving Point

Tie wrap



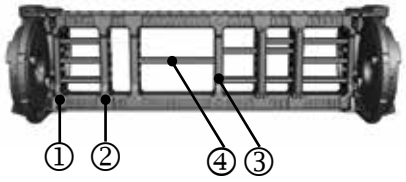
Ordering No.	B Height (Outer)	C Frame	D Height (Inner)	Hole Type	Ordering No.	A	B
ST-SEB150N	145	75 100 115 125 150 175 200 240 250 290 300 350 400 450 500 550 600	110	M10 Bolt Holes	S- TW50 S-TW75 S-TW100 S-TW125 S-TW150	58 75 98 122 141	65 82 105 129 148

Dividers

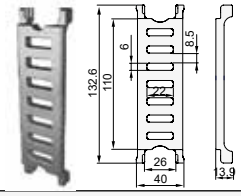
①**S** divider is used to fix a separator that is the same length as the frame

②**M1** divider is used to separate individual cables

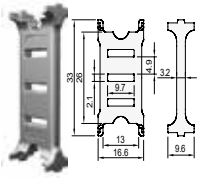
③**T** divider can be used at center position to support frame longer than 300mm and up



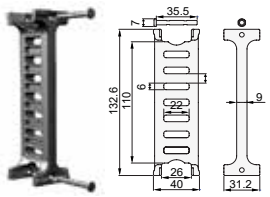
① sb-DV100/S



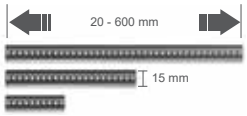
② sb-DV100/M



③ sb-DV100/T



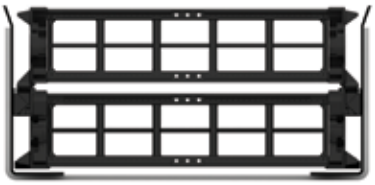
④Separators



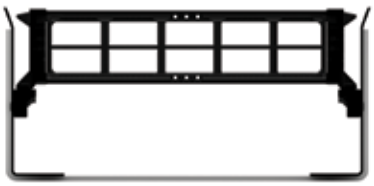
Ordering NO.
sb-SP/600.600 Cut to length (600 mm)

Guide channel

Size (Unit : mm)	ST 044RS	ST 072RS	ST 095RS	ST 120RS	ST 150RS
A	73 88 93 113 138 163 188 213 238	104 129 154 179 194 204 219 229 244 254 294 304 354	143 168 193 218 243 258 268 308 318 368 418 468	143 168 183 193 218 243 268 308 318 358 368 418 468 518 568 618 668	162 187 202 212 237 262 287 327 337 377 387 437 487 537 587 637 687
B	40.5	69	90	117	145
C	35 50 55 75 100 125 150 175 200	50 75 100 125 140 150 165 175 190 200 240 250 300	75 100 125 150 175 190 200 240 250 300 350 400	75 100 115 125 150 175 200 240 250 290 300 350 400 450 500 550 600	75 100 115 125 150 175 200 240 250 290 300 350 400 450 500 550 600
D	26	45	56	78	110



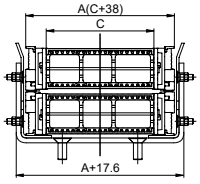
A- Zone



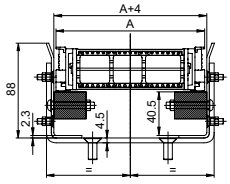
C- Zone

ST 044RS

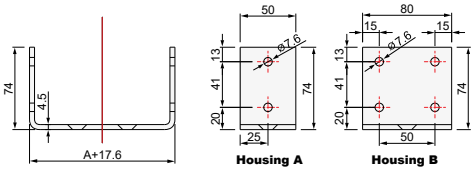
A- Zone



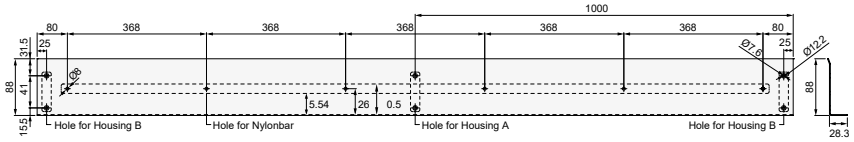
C-Zone



Housing (U-Shape)

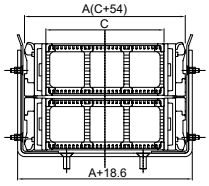


Side Panel

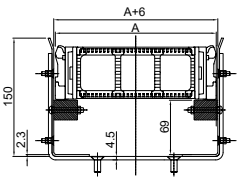


ST 072RS

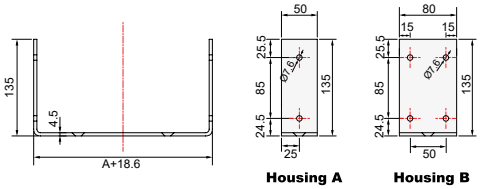
A- Zone



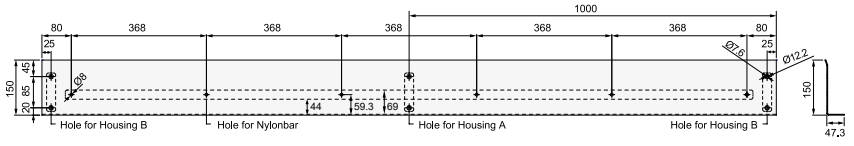
C-Zone



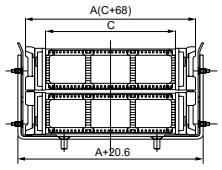
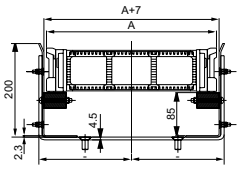
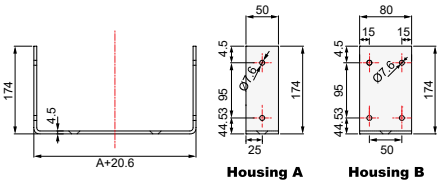
Housing (U-Shape)



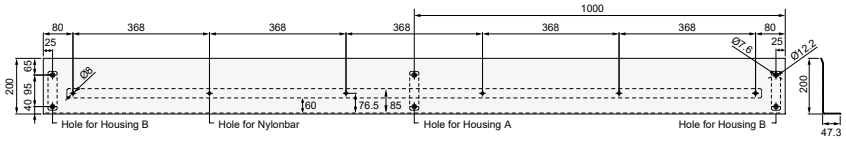
Side Panel



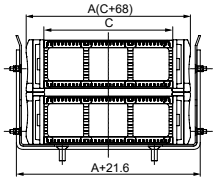
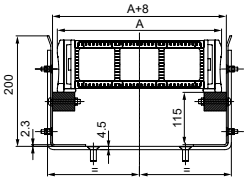
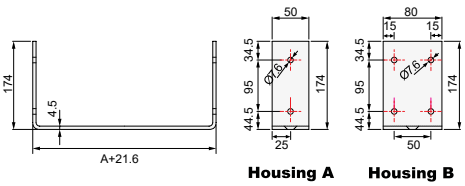
ST 095RS

A- Zone	C-Zone	Housing (U-Shape)
		

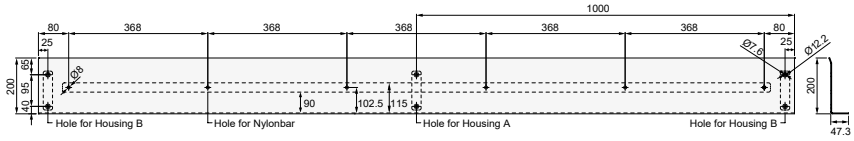
Side Panel



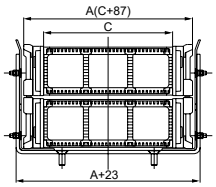
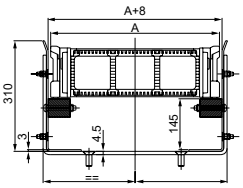
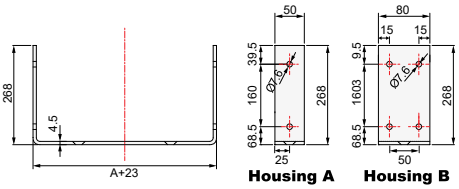
ST 120RS

A- Zone	C-Zone	Housing (U-Shape)
		

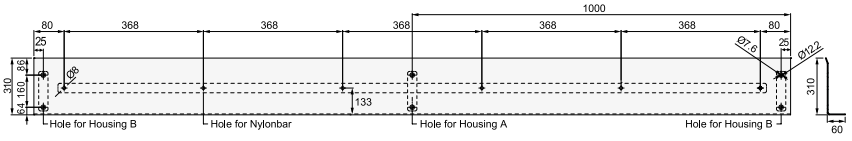
Side Panel

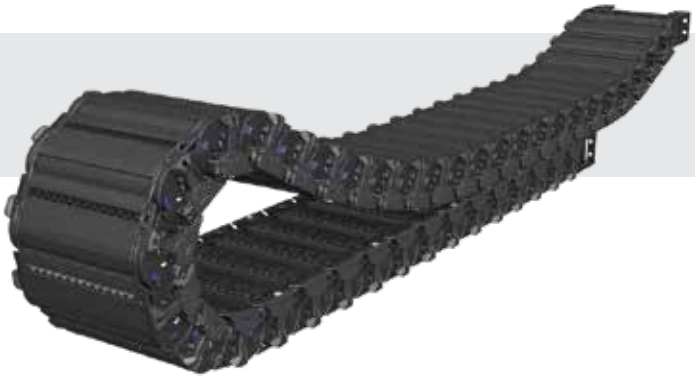


ST 150RS

A- Zone	C-Zone	Housing (U-Shape)
		

Side Panel





ST-ERS Series

Long traval type with Built In Roller Wheels

Ordering Information

ST 044 ERS . 100 . R120

① ② ③

① Pitch (mm)	② Inner Width	③ Bending Radius	Size (Unit : mm) A	B	C	D	Frame type	Weight (kg/m)
044	35 55 75 100	70 90 120 150	73 93 113 138	40.5	35 55 75 100	24.5		1.07 1.16 1.23 1.33
072	50 75 100 125 150	120 145 200 250 300	104 129 154 179 204	69	50 75 100 125 150	44		2.53 2.65 2.77 2.89 3.01
095	100 125 150 175 200	150 200 230 280 400	168 193 218 243 268	85	100 125 150 175 200	55		4.20 4.45 4.70 4.95 5.19
120	150 200 250 300	200 250 300 350 400 500	218 268 318 368	112	150 200 250 300	76		5.17 5.48 5.78 6.09

See page 65 - 66 for accessories

How to Choose Bending Radius

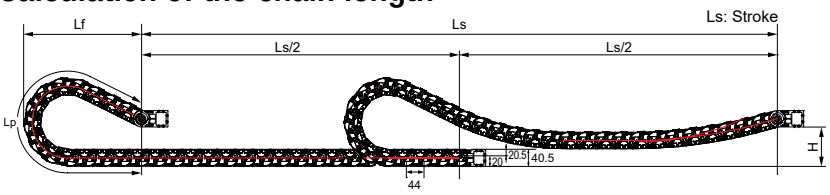
Bending Radius	The biggest Cable inserted	Multiply 8~10 by the OD of the biggest cable
	The biggest Hydraulic Hose inserted	Multiply 15~20 by the OD of the biggest hose

Specifications

Material	Polyamide with reinforced glass fiber: UL94-HB
Speed	3m/s
Acceleration	10m/s^2
Temperature	-30°C~+130°C
Certificate	CE, ATEX(Ex), RoHS

ST 044ERS

Calculation of the chain length



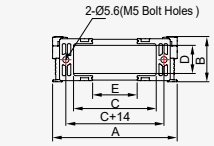
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

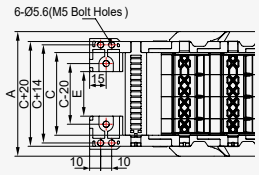
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
70	544	249	110
90	662	289	
120	926	393	
150	1,190	497	

Accessories

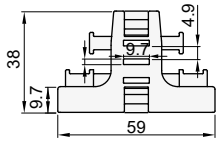
Free end bracket

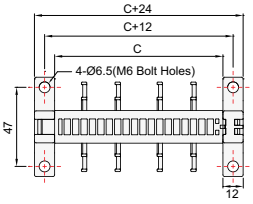




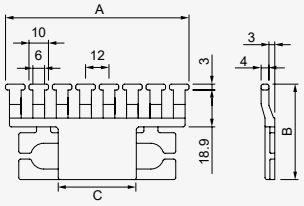
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB044E	73 93 113 138	40.5	35 55 75 100	24.5	0.4 20.4 40.4 65.4

Ordering No.	C Frame	Hole Type
S-TW.EB028.35	35	M6 Bolt Holes
S-TW.EB028.55	55	
S-TW.EB028.75	75	
S-TW.EB028.100	100	

Ordering No.	A	B	C
S- TW036/025CR.35	46	35.4	-
S- TW036/025CR.55	70	48.9	20
S- TW036/025CR.75	94	48.9	40
S- TW036/025CR.100	118	48.9	65

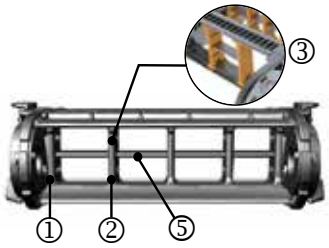
Dividers

①**S** divider is used to fix a separator that is the same length as the frame

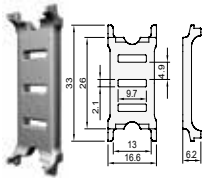
②**M1** divider is used to separate individual cables

③**M2** divider is used to fasten a separator that is shorter than the frame length

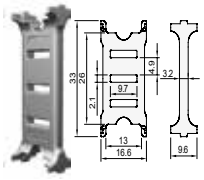
④**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



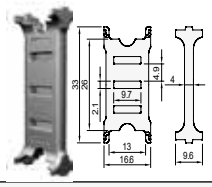
① sb-DV028/S



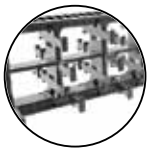
② sb-DV028/M1

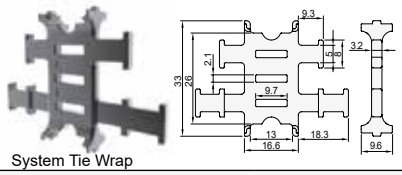


③ sb-DV028/M2



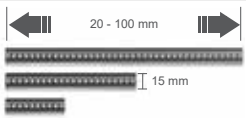
④sb-DV028/W





System Tie Wrap

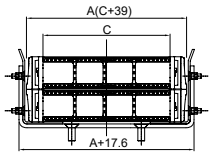
⑤Separators



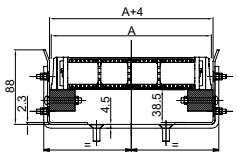
Ordering NO.	Frame
S-SP/M.35	35
S-SP/M.55	55
S-SP/M.75	75
S-SP/M.100	100

Guide channel

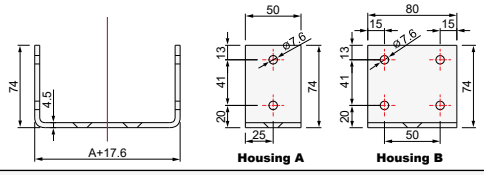
A- Zone



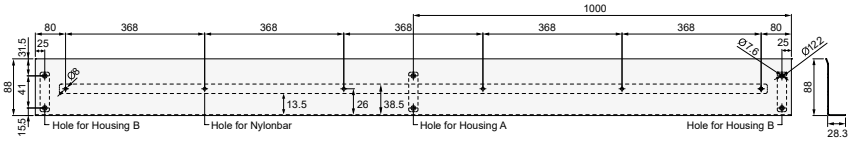
C-Zone



Housing (U-Shape)

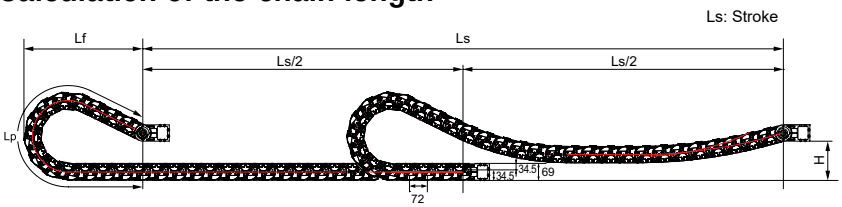


Side Panel



ST 072ERS

Calculation of the chain length



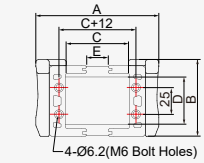
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

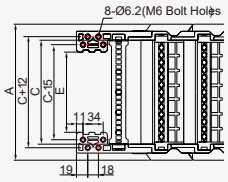
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
120	917	420	180
145	1,063	470	
200	1,400	580	
250	1,840	752	
300	2,280	924	

Accessories

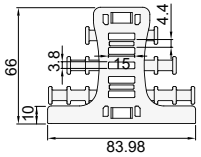
Free end bracket

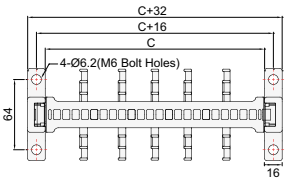




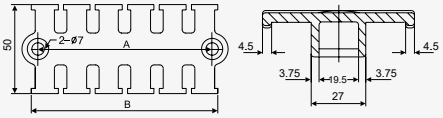
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB072	104	69	50	44	10
	129		75		35
	154		100		60
	179		125		85
	204		150		110

Ordering No.	C Frame	Hole Type
S-TW.EB045.50	50	M6 Bolt Holes
S-TW.EB045.75	75	
S-TW.EB045.100	100	
S-TW.EB045.125	125	
S-TW.EB045.150	150	

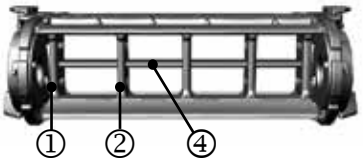
Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

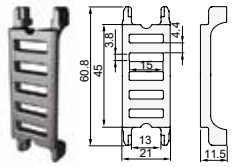
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

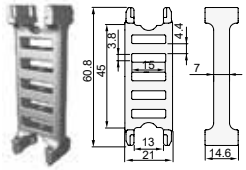
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



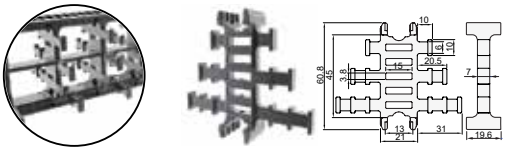
① sb-DV045/S



② sb-DV045/M

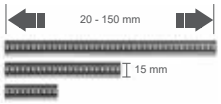


③ sb-DV045/W



System Tie Wrap

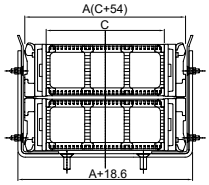
⊕ Separators



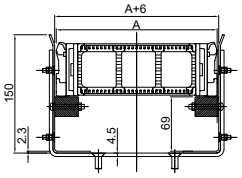
Ordering NO.
sb-SP/400.400 Cut to length(400 mm)

Guide channel

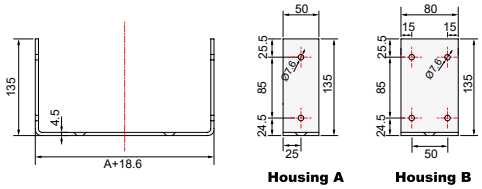
A- Zone



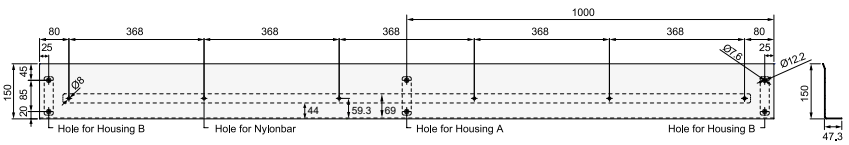
C-Zone



Housing (U-Shape)

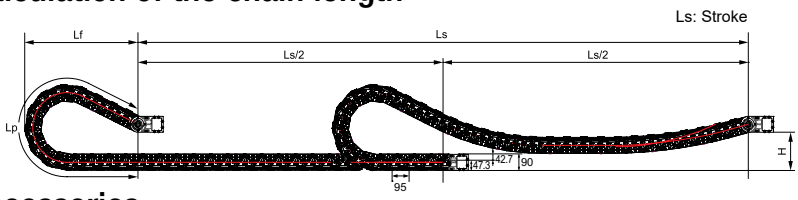


Side Panel



ST 095ERS

Calculation of the chain length



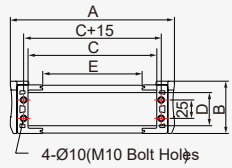
$$[\quad L = \frac{Ls}{2} + Lp \quad]$$

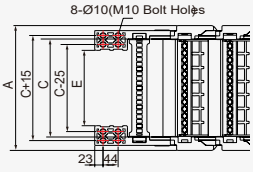
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
150	1,178	534	210
200	1,479	634	
230	1,666	694	
280	2,146	889	
400	3,232	1,319	

Accessories

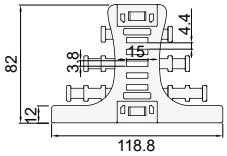
Free end bracket

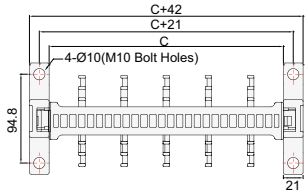




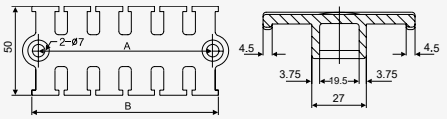
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB095	168	90	100	55	49
	193		125		74
	218		150		99
	243		175		124
	268		200		149

Ordering No.	C Frame	Hole Type
S-TW.EB060.100	100	M10 Bolt Holes
S-TW.EB060.125	125	
S-TW.EB060.150	150	
S-TW.EB060.175	175	
S-TW.EB060.200	200	

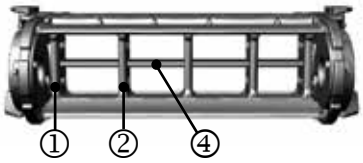
Ordering No.	A	B
S- TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

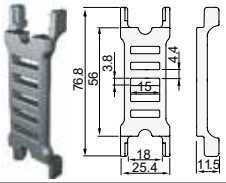
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

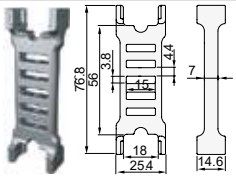
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



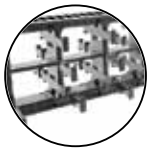
① sb-DV060/S

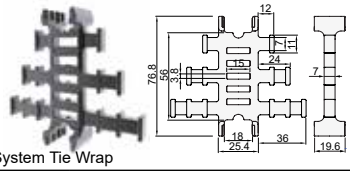


② sb-DV060/M



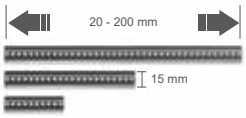
③ sb-DV060/W





System Tie Wrap

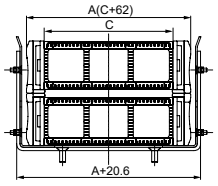
④Separators



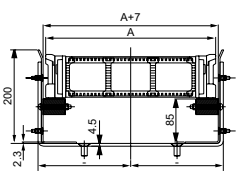
Ordering NO.
sb-SP/400.400 Cut to length(400 mm)

Guide channel

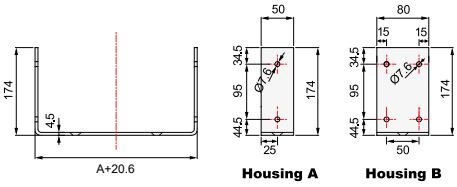
A- Zone



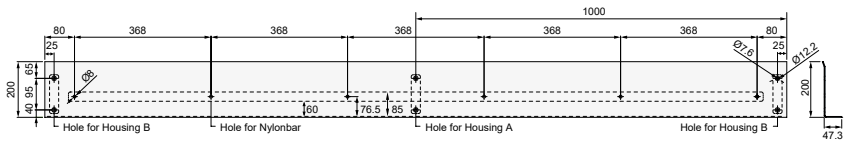
C-Zone



Housing (U-Shape)



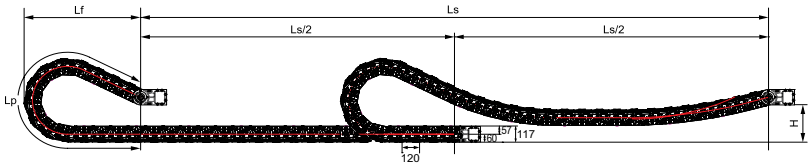
Side Panel



ST 120ERS

Calculation of the chain length

Ls: Stroke



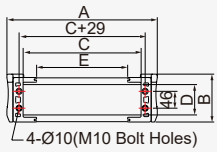
$$[\ L = \frac{Ls}{2} + Lp\ ]$$

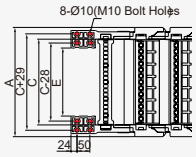
(Unit : mm)

Bending Radius (R)	L p Loop Length	L f Loop Projection	H Moving Height
200	1,559	694	260
250	1,864	794	
300	2,178	894	
350	2,701	1,114	
400	3,225	1,334	
500	4,062	1,654	

Accessories

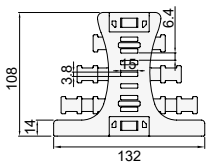
Free end bracket

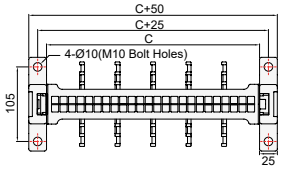




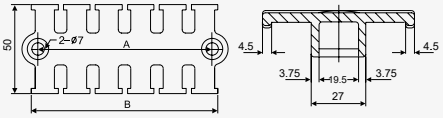
Moving Point

System tie wrap





Tie wrap



Ordering No.	A Width (Outer)	B Height (Outer)	C Frame	D Height (Inner)	E M.EB Bolt hole width
ST-FEB120RE	218 268 318 368	117	150 200 250 300	76	90 140 190 240

Ordering No.	C Frame	Hole Type
S-TW.EB075.150	150	M10 Bolt Holes
S-TW.EB075.200	200	
S-TW.EB075.250	250	
S-TW.EB075.300	300	

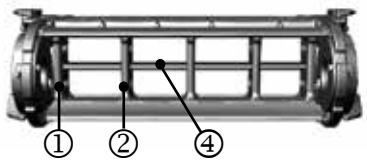
Ordering No.	A	B
S-TW50	58	65
S-TW75	75	82
S-TW100	98	105
S-TW125	122	129
S-TW150	141	148

Dividers

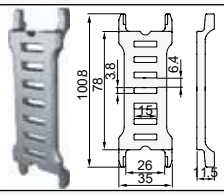
①**S** divider is used to fix a separator that is the same length as the frame

②**M** divider is used to separate individual cables

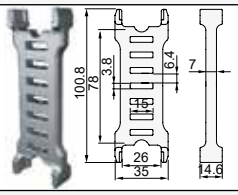
③**W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain



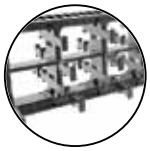
① sb-DV075/S

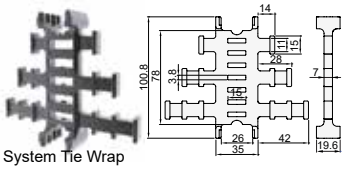


② sb-DV075/M



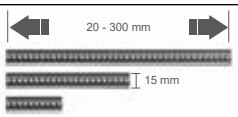
③ sb-DV075/W





System Tie Wrap

Separators

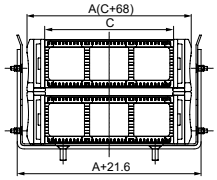


Ordering NO.

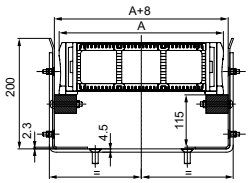
sb-SP/400.400
Cut to length(400 mm)

Guide channel

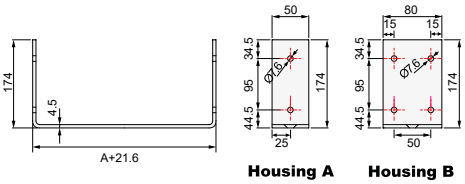
A- Zone



C-Zone

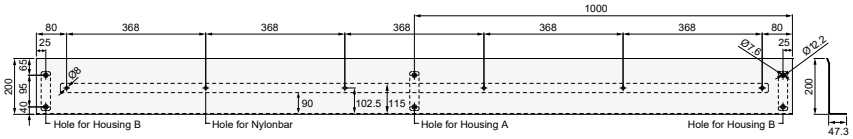


Housing (U-Shape)



Housing A **Housing B**

Side Panel



Accessories

Type	Series Part#	① Inner Width (Inner frame size)	Free End Bracket 	System Tie Wrap 	Divider 	Separator 	Tie Wrap 
CPS Mini	CPS015	06 / 10 / 15 / 20	S-TEB015. ①	-	-	-	-
	CPS020	15 / 20 / 30 / 40	S-TEB020.①	-	-	-	-
	CPS030	15 / 25 / 35 / 50	S-TEB030.①	-	S-DV030	-	-
	CPS033	27 / 37 / 47 / 67 / 77	S-EEB033	-	S-DV033	-	S-TW033/020CR.①
ST-N Series	ST044N	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	ST-FEB044N/S	S-TW.EB028.①	sb-DV028/② (②: S / M1 / M2 / T / W)	S-SP/M. ①	S-TW036/025CR. ① (*35~125 only)
	ST055N		ST-FEB055N	S-TW.EB035. ①	sb-DV035/② (②: S / M1 / M2 / T / W)		S-TW050/035N. ① (*50~200 only)
	ST 072N	50 / 75 / 100 / 125 / 140 / 150 / 175 / 200 / 250 / 300	ST-FEB072N/S	S-TW.EB045. ①	sb-DV045/② (②: S / M / T / W)	sb-SP/400.400 Cut to length (400 mm)	S-TW ① (*50~150 only)
	ST 095N	75 / 100 / 125 / 150 / 175 / 200 / 230 / 240 / 250 / 300 / 350 / 400	ST-FEB095N/S	S-TW.EB060. ①	sb-DV060/② (②: S / M / R / T / W)		S-TW ① (50 / 75 / 100 / 125 / 150 only)
	ST 120N	75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600	ST-FEB120N/S	S-TW.EB075. ①	sb-DV075/② (②: S / M / R / T / W)	sb-SP/600.600 Cut to length (600 mm)	S-TW ① (50 / 75 / 100 / 125 / 150 only)
	ST 150N		ST-SEB150N ④ (④: B1 / B2 / B3)	-	sb-DV/S100/② (②: S / M / T)		
ST-E Series	ST 044E	35 / 55 / 75 / 100	ST-FEB044E	S-TW.EB028. ①	sb-DV028/② (②:S / M1 / M2 / T / W)	S-SP/M. ③ (③:35 / 50 / 75 / 100)	S-TW036/025CR. ①
	ST 055E	50 / 75 / 100 / 125 / 150	ST-FEB055E	S-TW.EB035. ①	sb-DV035/② (②: S / M1 / M2 / W)	S-SP/M. ①	S-TW050/035N. ①
	ST 072E	50 / 75 / 100 / 125 / 150	ST-FEB072E	S-TW.EB045. ①	sb-DV045/② (②: S / M / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	ST 095E	100 / 125 / 150 / 175 / 200	ST-FEB095E	S-TW.EB060. ①	sb-DV060/② (②: S / M /W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	ST 120E	150 / 200 / 250 / 300	ST-FEB120E	S-TW.EB075. ①	sb-DV075/② (S / M / W)		S-TW ① (*50 / 75 / 100 / 125 / 150 only)
	ST 150E	200 / 250 / 300 / 350 / 400	ST-SEB150E/④ (④: B1 / B2 / B3)(Steel)	-	sb-DV/S100/S sb-DV100/M	sb-SP/600.600 Cut to length (600 mm)	S-TW ① (*50 / 75 / 100 / 125 / 150 only)
ST-S Series	ST 044S	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	ST-FEB120E	S-TW.EB028. ①	sb-DV028/② (②: S / M1 / M2 / T / W)	S-SP/M. ①	S- TW036/025CR. ① (*35~125 only)
ST-ES Series	ST 044ES	35 / 55 / 75 / 100	ST-FEB044E	S-TW.EB028. ①	sb-DV028/② (②: S / M1 / M2 / W)	S-SP/M. ①	S- TW036/025CR. ①
	ST 072ES	50 / 75 / 100 / 125 / 150	ST-FEB072	S-TW.EB045. ①	sb-DV045/② (②: S / M / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ①
	ST 095ES	100 / 125 / 150 / 175 / 200	ST-FEB095	S-TW.EB060. ①	sb-DV060/② (②: S / M / W)		S- TW ①
	ST 120ES	150 / 200 / 250 / 300	ST-FEB120E	S-TW.EB075. ①	sb-DV075/② (②: S / M / W)		S- TW ①
ST-RS Series	ST 044RS	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	ST-FEB044N/S	S-TW.EB028. ①	sb-DV028/ ② (②: S / M1 / M2 / T / W)	S-SP/M. ①	S- TW036/025CR. ① (*35~125 only)
	ST 072RS	50 / 75 / 100 / 125 / 140 / 150 / 175 / 200 / 240 / 250 / 300	ST-FEB072N/S	S-TW.EB045. ①	sb-DV045/ ② (②: S / M / T / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ① (*50~150 only)
	ST 095RS	75 / 100 / 125 / 150 / 175 / 190 / 200 / 230 / 250 / 300 / 350 / 400	ST-FEB095N/S	S-TW.EB060. ①	sb-DV060/ ② (②: S / M / R / T / W)		S- TW ① (*50~150 only)
	ST 120RS	75 / 100 / 125 / 150 / 175 / 200 / 240 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600	ST-FEB120N/S	S-TW.EB075. ①	sb-DV075/ ② (②: S / M / R / T / W)	sb-SP/600.600 Cut to length (600 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	ST 150RS	75 / 100 / 115 / 125 / 150 / 175 / 200 / 240 / 250 / 290 / 300 / 350 / 400 / 450 / 500 / 550 / 600	ST-SEB150N ④ (④: B1 / B2 / B3)	-	sb-DV100/ ② (②: S / M / T)	sb-SP/600.600 Cut to length (600 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
ST-ERS Series	ST 044ERS	35 / 55 / 75 / 100	ST-FEB044E	S-TW.EB028. ①	sb-DV028/ ② (②: S / M1 / M2 / W)	S-SP/M. ①	S- TW036/025CR. ①
	ST 072ERS	50 / 75 / 100 / 125 / 150	ST-FEB072	S-TW.EB045. ①	sb-DV045/ ② (②: S / M / W)	sb-SP/400.400 Cut to length(400 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	ST 095ERS	100 / 125 / 150 / 175 / 200	ST-FEB095	S-TW.EB060. ①	sb-DV060/ ② (②: S / M / W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	ST 120ERS	150 / 200 / 250 / 300	ST-FEB120RE	S-TW.EB075. ①	sb-DV060/ ② (②: S / M / W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)

② **Divider**

S : divider is used to fix a separator that is the same length as the frame
M : divider is used to separate individual cables
M1 : divider is used to separate individual cables
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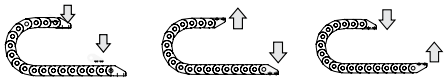
T : divider can be used at center position to support frame longer than 125mm and up
R : Side position roller divider to protect abrasion of moving cable at inner side of chain
W : (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chaine size

④**End Bracket**



Accessories

Type	Series Part#	① Inner Width (Inner frame size)	Free End Bracket 	System Tie Wrap 	Divider 	Separator 	Tie Wrap 
nsb - CR Series	nsb 020CR	20 / 40	nsb-FEB020CR	-	sb-DV018CR	-	sb-TW018CR.①
	nsb 022CR	16 / 27 / 37 / 47 / 67 / 77	nsb-FEB022CR	-	sb-DV020CR	-	sb-TW020CR.①
	nsb 028CR	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	nsb-FEB028CR	S-TW.EB028. ①	sb-DV028/ ② (S / M1 / M2 / T / W)	S-SP/M. ①	S-TW036/025CR. ① (*35~125 only)
	nsb 035CR	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	nsb-FEB035CR	S-TW.EB035. ①	sb-DV035/ ② (S / M1 / M2 / T / W)	S-SP/M. ①	S-TW050/035N. ① (*50~200 only)
	nsb 045CR	50 / 75 / 100 / 125 / 150 / 175 / 200 / 240 / 250 / 300	nsb-FEB045CR	S-TW.EB045. ①	sb-DV045/ ② (S / M / T / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ① (*50~150 only)
	nsb 060CR	75 / 100 / 125 / 150 / 175 / 190 / 200 / 250 / 300 / 350 / 400	nsb-FEB060CR	S-TW.EB060. ①	sb-DV060/ ② (S / M / R / T / W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	nsb 075CR	75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600	nsb-FEB075CR	S-TW.EB075. ①	sb-DV075/ ② (S / M / R / T / W)	sb-SP/600.600 Cut to length (600 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
nsb - N Series	nsb 028N	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	nsb-FEB028N	S-TW.EB028. ①	sb-DV028/ ② (S / M1 / M2 / T / W)	S-SP/M. ①	S-TW036/025CR. ①
	nsb 035N	35 / 50 / 55 / 75 / 100 / 125 / 150 / 175 / 200	nsb-FEB035N	S-TW.EB028. ①	sb-DV035/ ② (S / M1 / M2 / T / W)	S-SP/M. ①	S-TW050/035N. ①
	nsb 045N	50 / 75 / 100 / 125 / 140 / 150 / 175 / 200 / 250 / 300	nsb-FEB045N	S-TW.EB045. ①	sb-DV045/ ② (S / M / T / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ① (*50~150 only)
	nsb 060N	75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 350 / 400	nsb-FEB060N	S-TW.EB060. ①	sb-DV060/ ② (S / M / R / T / W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	nsb 075N	75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600	nsb-FEB075N	S-TW.EB075. ①	sb-DV075/ ② (S / M / R / T / W)	sb-SP/600.600 Cut to length (600 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
nsb - E Series	nsb 028E	35 / 55 / 75 / 100	nsb-FEB028E	S-TW.EB028. ①	sb-DV028/ ② (S / M1 / M2 / W)	S-SP/M. ①	S- TW036/025CR. ①
	nsb 035E	50 / 75 / 100 / 125 / 150	nsb-FEB035E	S-TW.EB035. ①	sb-DV035/ ② (S / M1 / M2 / W)	S-SP/M. ①	S-TW050/035N. ①
	nsb 045E	75 / 100 / 125 / 150	nsb-FEB045E	S- TW.EB045. ①	sb-DV045/ ② (S / M / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ①
	nsb 060E	100 / 150 / 200	nsb-FEB060E	S-TW.EB060. ①	sb-DV060/ ② (S / M / R / W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	nsb 075E	150 / 200 / 300	nsb-FEB075E	S-TW.EB075. ①	sb-DV075/ ② (S / M / R / W)	sb-SP/600.600 Cut to length (600 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
nsb - S Series	nsb 050S	50 / 75 / 100 / 125 / 150 / 175 / 190 / 200 / 250 / 300	nsb-FEB050S /F nsb-FEB050S/ M(SEB)(Steel)	S-TW.EB045. ①	sb-DV045/ ② (S / M / T / W)	sb-SP/400.400 Cut to length (400 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	nsb 065S	75 / 100 / 125 / 150 / 175 / 190 / 200 / 230 / 240 / 250 / 300 / 350 / 400	nsb-FEB065S /F nsb-FEB065S/ M(SEB)(Steel)	S-TW.EB060. ①	sb-DV060/ ② (S / M / R / T / W)		S- TW ① (*50 / 75 / 100 / 125 / 150 only)
	nsb 080S	75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600	NSB-FEB080S /F NSB-FEB080S/ M(SEB)(Steel)	S-TW.EB075. ①	sb-DV075/ ② (S / M / R / T / W)	sb-SP/600.600 Cut to length (600 mm)	S- TW ① (*50 / 75 / 100 / 125 / 150 only)

② **Divider**
S : divider is used to fix a separator that is the same length as the frame
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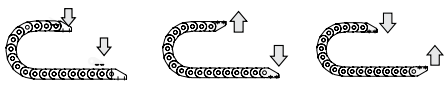
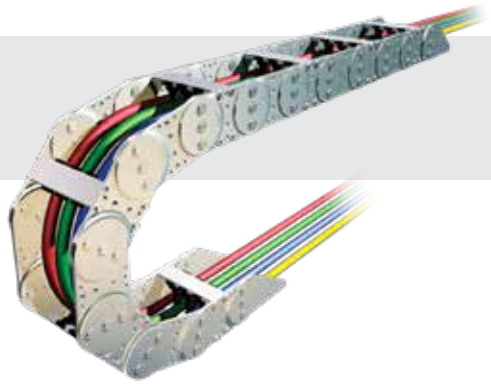
④**End Bracket**



B1 **B2** **B3**



SK Series

Steel Cable Chain

- Highly durable cable chains made of steel and aluminum
- Smaller Link Plate design provide more stability
- Customized holes and frames can give stronger supporting power
- For various industrial applications like conveying machinery etc.

Ordering Information

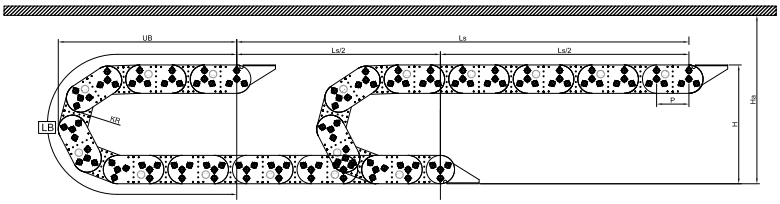
SKS 70 . BST 84 . KR 125 / F – XXXL

① ② ③ Length(mm)

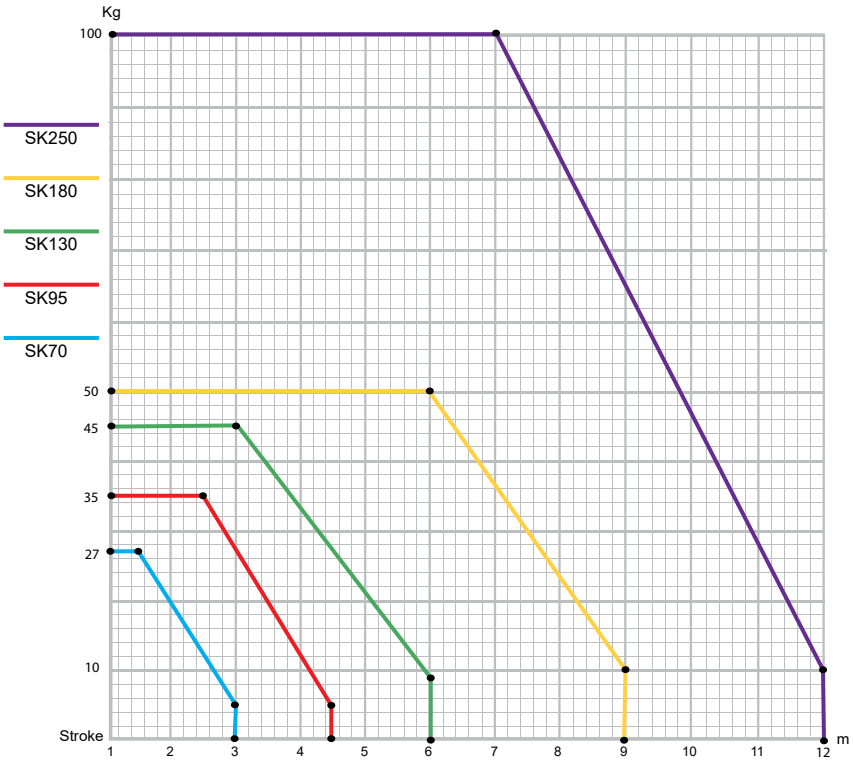
Calculation of the chain length

$$[\quad L \quad = \quad \frac{Ls}{2} \quad + \quad LB \quad]$$

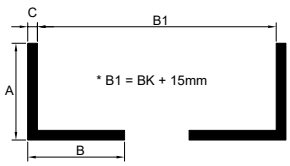
Ls: Stroke UB: Loop Projection



Unsupported Length



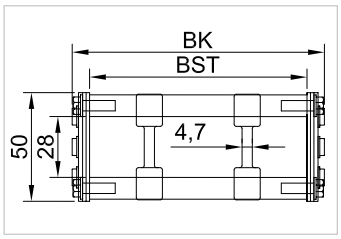
Guide Channel

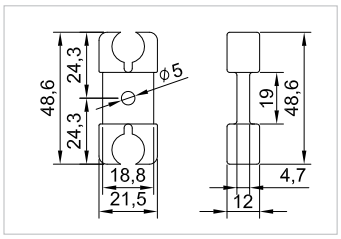


	SK70	SK95	SK130	SK180	SK250
A	30	50	65	90	100
B	30	50	65	90	100
C	3	4	5	6	7

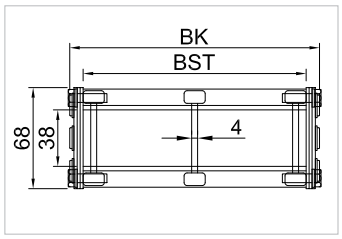
① Pitch (mm)	② Inner Width (Frame width) (BST)	③ Bending Radius (KR)	Loop Length (LB)	Safe Space (Ha)	Moving Height (H)	Q'ty of Divider	Outside width (BK)
70	84 109 134 159 184 234 284 334	75 90 125 145 200	515 560 670 735 910	210 240 310 350 460	200 230 300 340 450	2 2 3 3 4 5 6 7	100 125 150 175 200 250 300 350
95	82 107 132 157 182 232 282 332 382 432 482 532 582	125 145 200 250 300	770 835 1,000 1,165 1,320	330 370 480 580 680	318 358 468 568 668	1 1 2 3 4 5 6 7 8 9 10 11 12	100 125 150 175 200 250 300 350 400 450 500 550 600
130	176 226 276 326 376 426 476 526 576 626 676 726 776	150 200 250 300 340 400 500	990 1140 1300 1460 1580 1770 2100	410 510 610 710 790 910 1110	394 494 594 694 774 894 1094	3 4 5 5 6 6 7 8 9 10 11 12 12	200 250 300 350 400 450 500 550 600 650 700 750 800
180	171 221 271 321 371 421 471 571 671 771 871 971 1,071	250 300 400 500 600 700 800	1,500 1,660 1,980 2,290 2,600 2,920 3,230	650 750 950 1,150 1,350 1,550 1,750	640 740 940 1,140 1,340 1,540 1,740	2 3 4 5 6 7 8 9 10 11 12 13 14	200 250 300 350 400 450 500 600 700 800 900 1,000 1,100
250	264 364 464 564 664 764 864 964 1064 1164	350 400 450 600 750	2100 2255 2410 2880 3350	950 1050 1150 1450 1750	950 1020 1120 1420 1720	UP / Down 3 / 2 4 / 3 5 / 4 6 / 5 7 / 6 8 / 7 9 / 8 10 / 9 11 / 10 12 / 11	300 400 500 600 700 800 900 1000 1100 1200

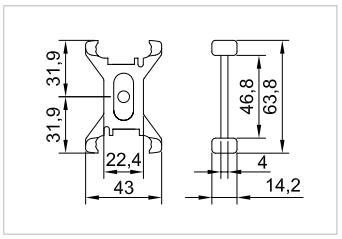
Solid Bar Type



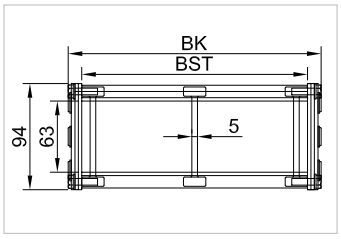


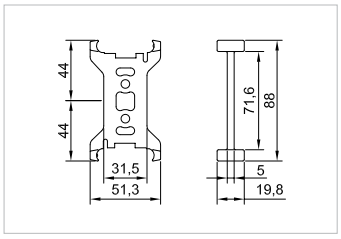
KS70



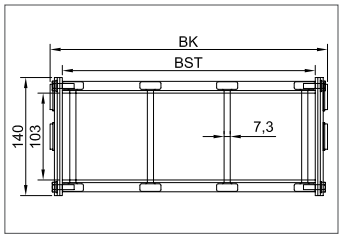


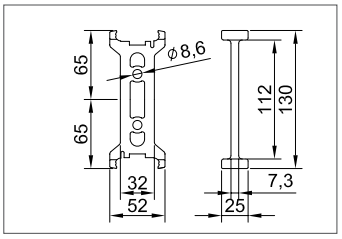
KS95



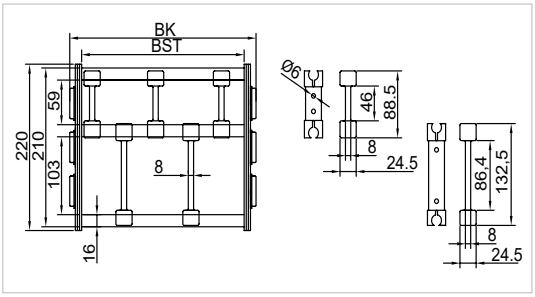


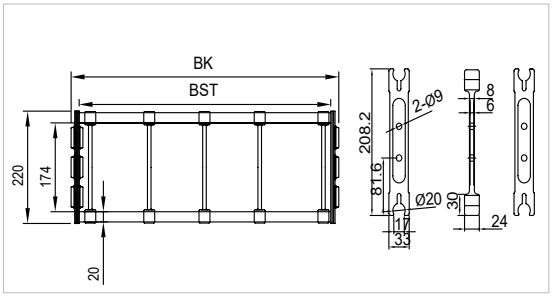
KS130





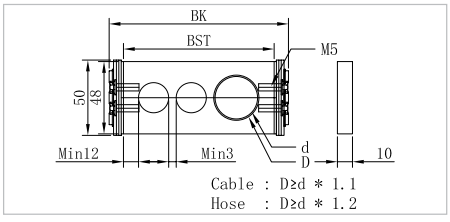
KS180





KS250

Hole Bar Type



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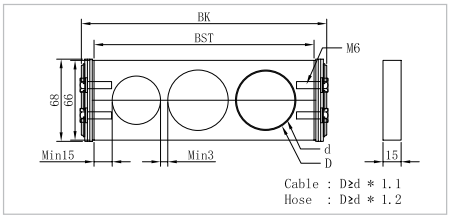

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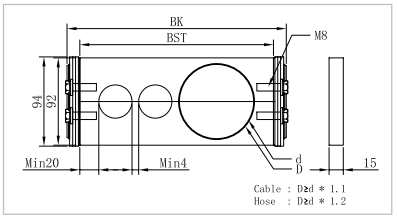

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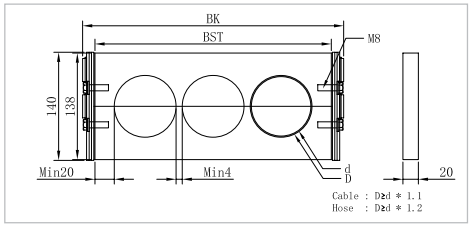

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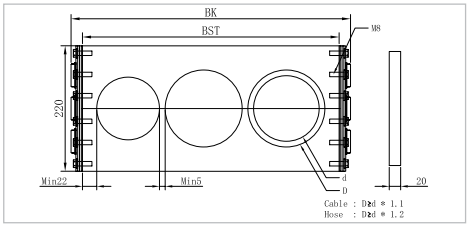
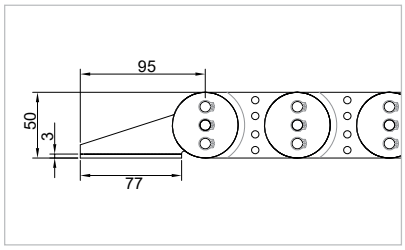


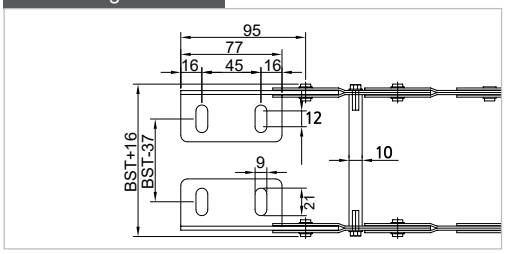
KS250

Bracket

KS70



Fixing End



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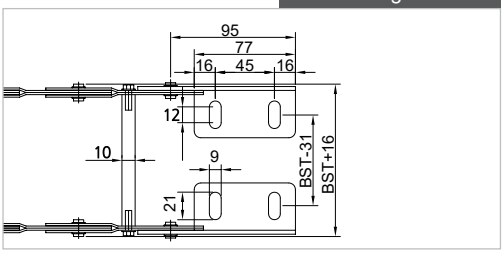
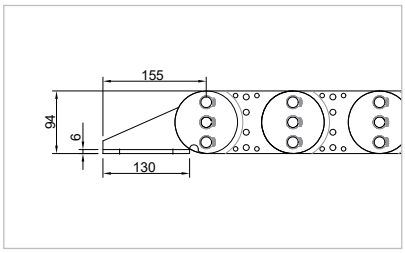


KS95



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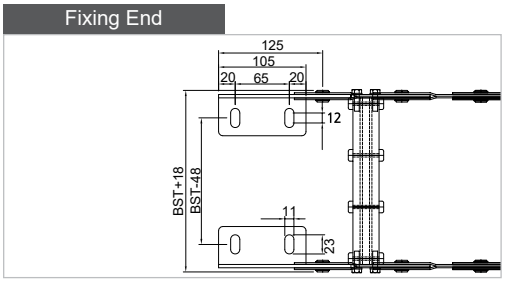

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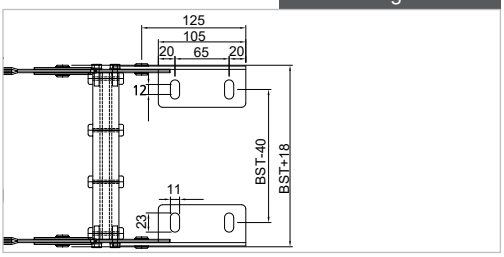
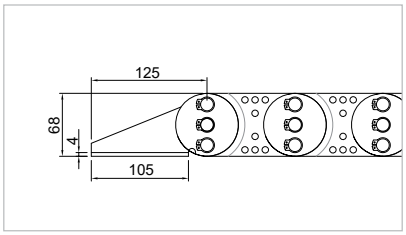


KS130



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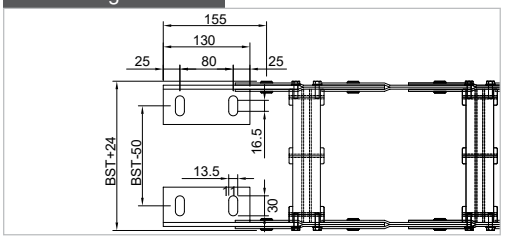

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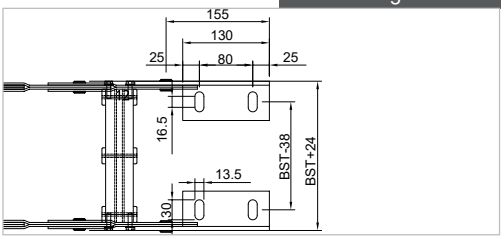
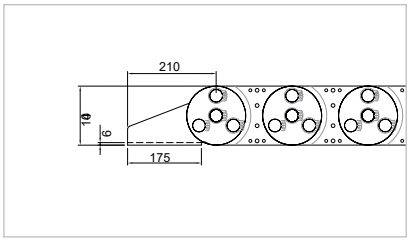


KS180



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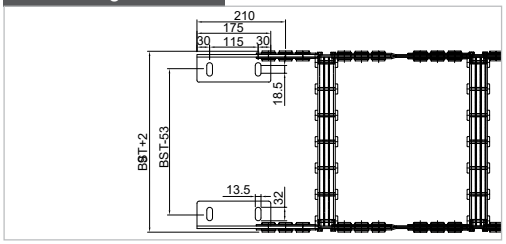
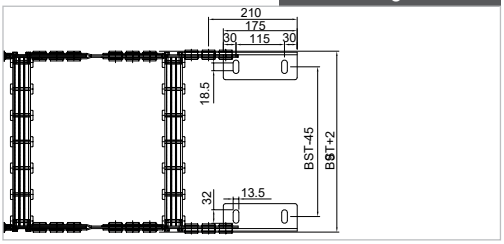
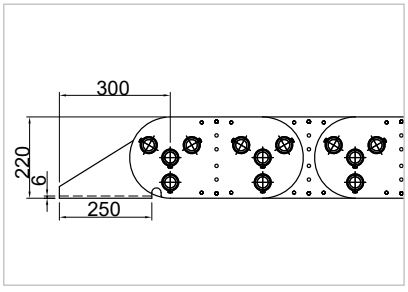


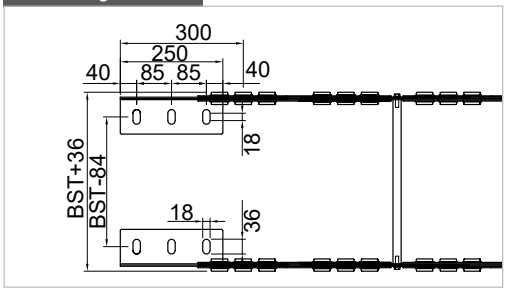
Moving End



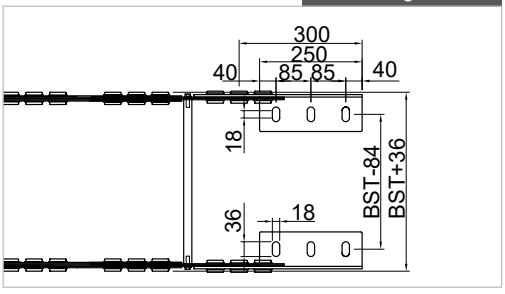
KS250



Fixing End



Moving End



RV Series

Revoliving Chain

RoHS CE

Ordering Information

RV 048 CR . 200 . A

① ② ③

(Unit : mm)

① Pitch (mm)	② Inner Height	③ Application Type of Ball Caster	Size (Unit : mm) A (A1)	B	C	D(D1)	Application for Ball Caster Type A Minimum distance (L)	Type A Minimum reverse bending (R))	Type B Minimum distance (L')	Type B Minimum reverse bending (R')
020	16 27 37 47 67 77	Type A or B	30 41 51 61 81 91	28	16 27 37 47 67 77	22	130	40	150	30
028	35 55 75 100 125		59(65) 79(85) 99(105) 124(130) 149(155)	38	35 55 75 100 125	28(25)	170	70	200	50
040	50 75 100 110 125 150 175 200		78 (86) 103 (111) 128 (136) 138 (146) 153 (161) 178 (186) 203 (211) 228 (236)	52	50 75 100 110 125 150 175 200	40(37)	230	120	340	70
048	50 75 100 125 150 175 200		78(86) 103(111) 128(136) 153(161) 178(186) 203(211) 228(236)	65	50 75 100 125 150 175 200	53(50)	300	160	450	90
060	50 75 100 125 150 175 200 250 300		90(97) 115(122) 140(147) 165(172) 190(197) 215(222) 240(247) 290(297) 340(347)	82	50 75 100 125 150 175 200 250 300		400	165	485	120

Specifications

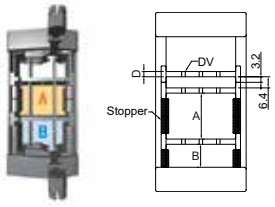
Material	CPS-Amid(PA6+GF)
Speed	3m/s
Acceleration	10m/s^2
Temperature	-30°C~+130°C
Certificate	CE, ATEX(Ex), RoHS

Stopper System

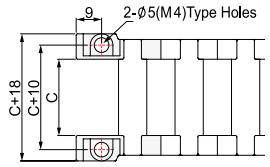
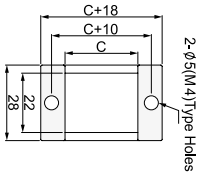
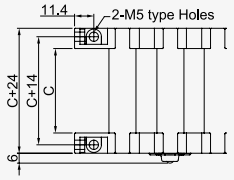
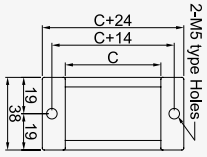
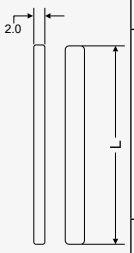
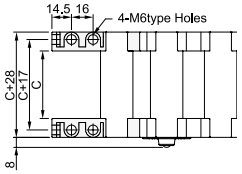
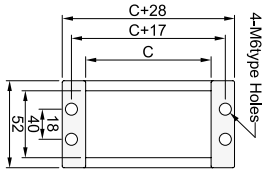
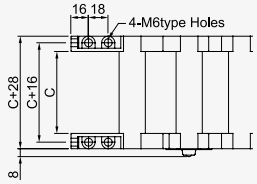
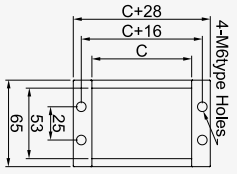
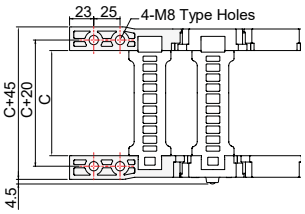
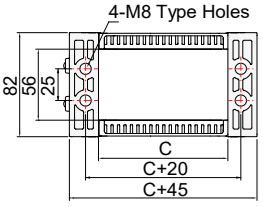
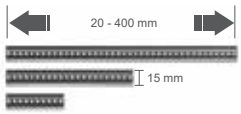
Stoper decides the location of divider which is settled in side of cable chain and control the position of divider according to the inserted cable's size and quantity.
The items are classified as ST-M1, ST-M2, ST-S1, ST-S2 and please refer following drawings.

	ST-M1.10	ST-M2.10	ST-S1.05	ST-S2.05
Ordering No.	CPS 036N	CPS 050N	CPS 068, 077	CPS 095, 120
A	5, 10, 15, 20			
B	16	24	27.8	35.4
C	1.5		1.8	

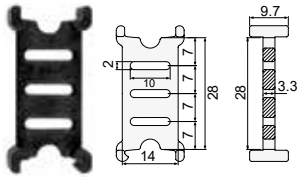
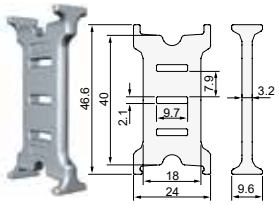
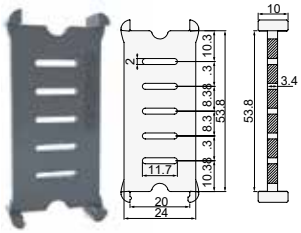
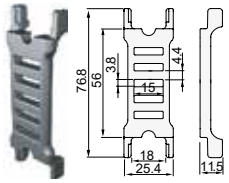
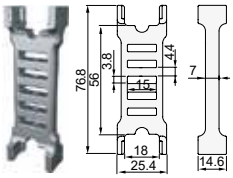
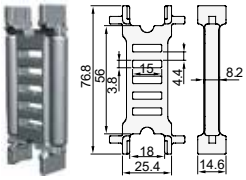
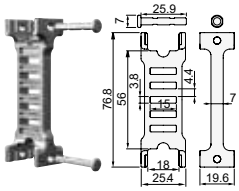
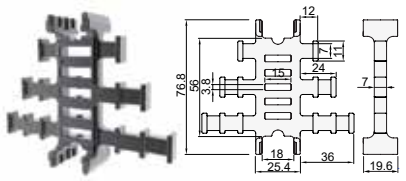
Application method stopper



A	6.4+10XStopper Q'ty
B	3.2+10XStopper Q'ty
D	RV028CR : 3.3mm RV040CR : 3.2mm RV048CR : 3.5mm

	Bracket type			Separators			
	Moving point	Front point	C			Ordering NO.	Length (L)
RV020CR			16 27 37 47 67 77	N/A	N/A	N/A	N/A
RV028CR			35 55 75 100 125			S-SP/M.35 S-SP/M.55 S-SP/M.75 S-SP/M.100 S-SP/M.125	35 55 75 100 125
RV040CR			50 75 100 110 125 150 175 200			S-SP/M.50 S-SP/M.75 S-SP/M.100 S-SP/M.110 S-SP/M.125 S-SP/M.150 S-SP/M.175 S-SP/M.200	50 75 100 110 125 150 175 200
RV048CR			50 75 100 125 150 175 200			S-SP/M.50 S-SP/M.75 S-SP/M.100 S-SP/M.125 S-SP/M.150 S-SP/M.175 S-SP/M.200	50 75 100 125 150 175 200
RV060CR			75 100 125 150 175 190 200 240 250 300 350 400			S-SP/M.75 S-SP/M.100 S-SP/M.125 S-SP/M.150 S-SP/M.175 S-SP/M.200 S-SP/M.250 S-SP/M.300 S-SP/M.350 S-SP/M.400	75 100 125 150 175 200 250 300 350 400

Dividers

RV020CR	RV028CR	RV028CR	RV048CR
N/A			
	Ordering NO. : S-DV036/025CR/028CR	Ordering NO. : S-DV050N/035CR/040CR	Ordering NO. : S-DV048CR
RV060CR	 **S** divider is used to fix a separator that is the same length as the frame	 **M** divider is used to separate individual cables	 **R** Side position roller divider to protect abrasion of moving cable at inner side of chain
	Ordering NO. : sb-DV060/S	Ordering NO. : sb-DV060/M	Ordering NO. : sb-DV060/R
	 **T** divider can be used at center position to support frame longer than 200mm and up	 **W** (Tie wrap) dividers are used to hold the cables in place at both ends of the cable chain
	Ordering NO. : sb-DV060/T	Ordering NO. : sb-DV060/W	

HX Series

Helix Chain

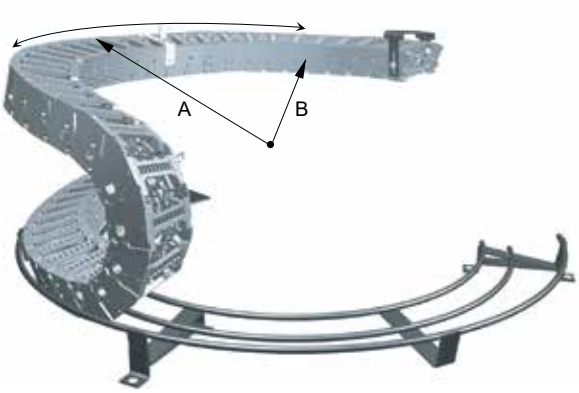
Ordering Information

HX 3553 . 075 . R 90

① ② ③

(Unit : mm)

① Helix Chain	② Inner Width	③ Bending Radius	Pitch	A	B
3553	75	90 140	53	418	315
6075	100	110 135 185 235	75	608	468



Specifications

Material	Polyamide with reinforced glass fiber: UL94-HB
Speed	When the rotation speed up to 4m/sec.
Temperature	-30°C~+130°C
Certificate	CE, RoHS

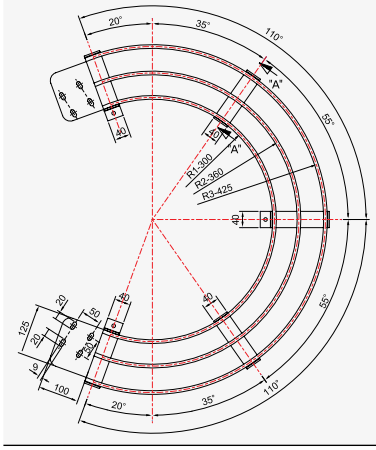
Calculation of required Number of Links

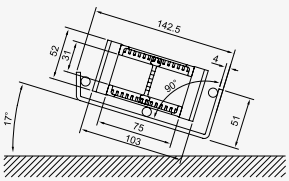
$$N = \left(\frac{\pi \times Or \times B}{360° \times P} \right) + \frac{Lp}{P}$$

N : Number of Links **Or** : Outer Radius **B** : Rotation angle **P** : Chain pitch **Lp** : π R+6p

Guide Channel

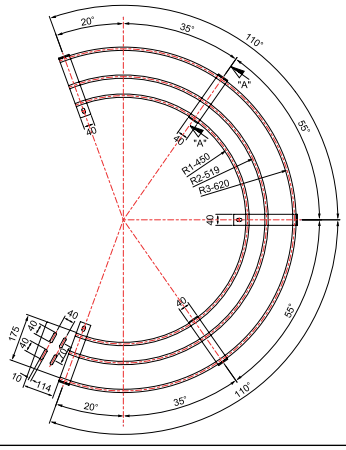
HX3553

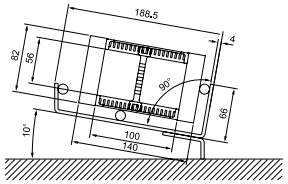




SECTION "A - A"

HX6075

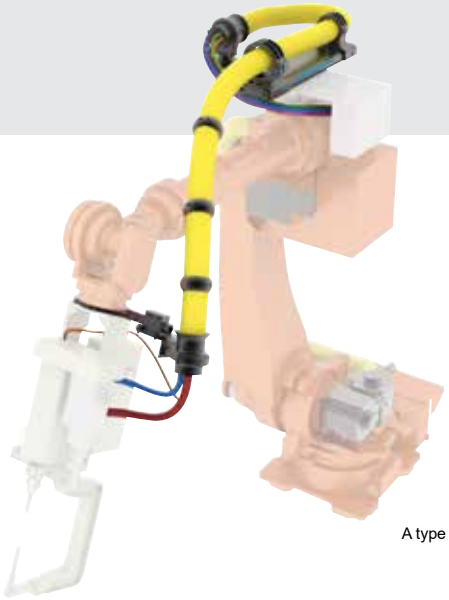




SECTION "A - A"

Note

Dress Pack



A type

B type

Dress Pack (A Type)

Ordering Information

ROBOWAY - 70 - B - A

①

① Size	36, 48, 56, 70
Components	RW(1set), PAM(CPS FLEX 5m), RKTP(4pcs), RKS(2pcs), RKC(2pcs), RKSC(2pcs), RKR(1pcs), VCG(2pcs), RCS(1pcs),

Dress Pack (B Type)

Ordering Information

ROBOWAY - 48 - B - B

①

① Size	48,56,70
Components	PAM(CPS FLEX 5m), RKTP(4pcs), RKS(3pcs), RKC(3pcs), RKSC(2pcs), RKR(1pcs), VCG(2pcs), RCS(1pcs), RPS(1pcs), RBP(1pcs)

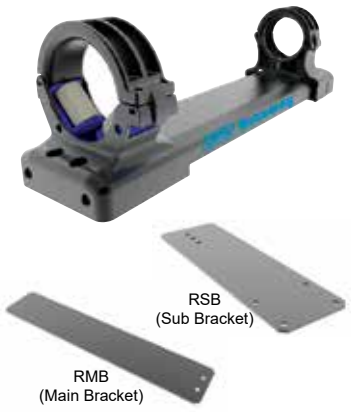
Retractor

Ordering Information

RW - 48 . 400 L

① ②

① Size	② L Stroke
36	300/400/
48	500/600/
56	350/450/
70	550/650



Parts for B Type

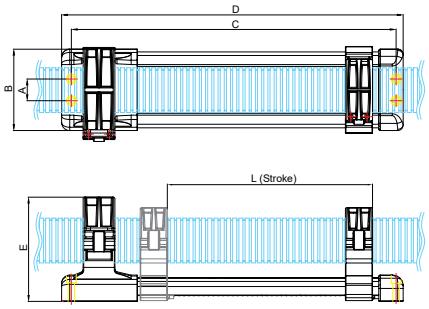
RPS
(Pillar Support)

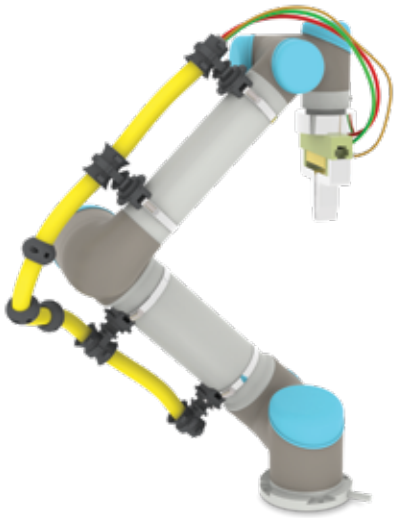
RBP
(Bed Plate)

RCS
(Column Support)

Size Information

A Bolt hole width	B Width	C Bolt hole width	D Lengtht	E Height
30	96	L+170	L+202	137
30	96	L+170	L+202	137
40	150	L+215.5	L+249	192
40	150	L+215.5	L+249	192

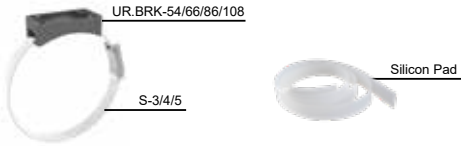




PAR/PAM(CPSFLEX)
M4 X 10(Wrench bolt)
M4(Lock nut)

Dress Packs for Universal Robot

UR. Band



Part name	Robot type	Arm Size	Components
UR3.BAND 054	UR3	Lower (Ø50~Ø70)	S-3(Steel Band), UR.BRK-54(Bracket), Silicon Pad
UR3.BAND 066		Upper (Ø50~Ø70)	S-3(Steel Band), UR.BRK-66(Bracket), Silicon Pad
UR5.BAND 075	UR5	Lower (Ø70~90)	S-4(Steel Band), UR.BRK-86(Bracket), Silicon Pad
UR5.BAND 085		Upper (Ø70~90)	S-4(Steel Band), UR.BRK-86(Bracket), Silicon Pad
UR10.BAND 086	UR10	Lower (Ø70~90)	S-4(Steel Band), UR.BRK-86(Bracket), Silicon Pad
UR10.BAND 108		Upper (Ø90~110)	S-5(Steel Band), UR.BRK-108(Bracket), Silicon Pad

UR. Velcro

Part name	Robot type	Arm Size	Components
UR3.VELCRO	UR3	Upper arm (A Ø55~Ø66)	V-3(Velcro Band), UR.BRK-54(Bracket)
		Lower arm (A Ø55~Ø66)	V-3(Velcro Band), UR.BRK-66(Bracket)
UR5.VELCRO	UR5	Upper arm (B Ø66~90)	V-4(Velcro Band), UR.BRK-86(Bracket)
		Lower arm (B Ø66~90)	V-4(Velcro Band), UR.BRK-86(Bracket)
UR10.VELCRO	UR10	Upper arm (B Ø66~90)	V-4(Velcro Band), UR.BRK-86(Bracket)
		Lower arm (C Ø108~145)	V-5(Velcro Band), UR.BRK-108(Bracket)

Part name	Robot Descriptions to be appied	Kit components
DP-UR3	UR3 robot type, Ø54 & Ø66 size of robot arm, Max. 3kg carried	UR3.BAND-054(2set.) UR3 BAND-066(2set.) RKC-22/28(4ea). RKR-22/28(4ea). RKD-22/28(2ea.) RKS-22/28(2ea.) RKSC-22/28(2ea.) RKTP-22/28(2ea.) VCG-22/28(2ea.)PAR/PAM(1M) M4 X 10(40ea.) M4(24ea.)
DP-UR5	UR5 robot type, Ø75 & Ø86 size of robot arm, Max. 5kg carried	UR5.BAND-075(2set.) UR3 BAND-085(2set.) RKC-22/28(4ea.) RKR-22/28(4ea.) RKD-22/28(2ea.) RKS-22/28(2ea.) RKSC-22/28 2ea, RKTP-22/28 2ea. VCG-22/28 2ea, PAR/PAM 1M, M4 X 10 40ea. M4 24ea.
DP-UR10	UR10 robot type, Ø86 & Ø108 size of robot arm, Max. 10kg carried	UR10.BAND-086 1set. UR3 BAND-108 1set. RKC-22/28 4ea. RKR-22/28 4ea. RKD-22/28 2ea. RKS-22/28 2ea. RKSC-22/28 2ea, RKTP-22/28 2ea. VCG-22/28 2ea, PAR/PAM 1M, M4 X 10 40ea. M4 24ea.

Ordering Information

RKC - 70 : 10 EA

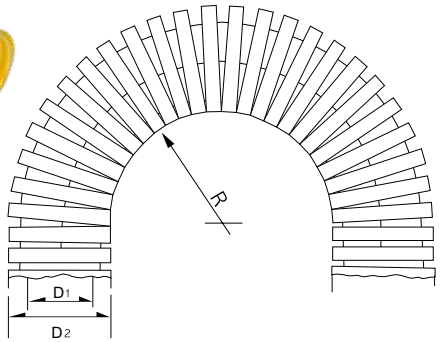
① ②

	① Part name	② Conduit Size	Dimension				description
			Width	Height	Length	Outer Diameter	
	RKTP (Abrasion protector)	22 28 36 48 56 70	28.0 30.0 30.0 30.0 40.0 40.0	46.4 53.0 62.0 80.0 93.2 108.0	-	46.4 53.0 62.0 80.0 93.2 108.0	Made of reinforced polyamide 6. Protect abrasion and damage of tube when tube bumps on robot arm.
	RKTC (Abrasion protector)	48 56 70	50.0 60.0 60.0	78.0 90.2 105	-	78.0 90.2 105	If robot tube got damaged such as cut or stretched condition, you don't need to replace total tube by using RKTC as it can cover damaged area.
	RKC (Bractket)	22 28 36 48 56 70	30.0 30.0 45.0 49.5 40.0 40.0	50.0 59.5 88.3 105.0 138.1 145.5	49.0 58.8 90.2 128.2 150.1 164.9	45.0 53.5 76.0 94.0 116.2 131.0	Tube clamp in combination with RKS+RKRC or RKD+RKRC to holds tube's movement while robot operates.
 	RKS (Tube Ball Joint)	22 28 36 48 56 70	50.0 60.0 100.3 89 102 102	23.0 27.0 80.5 92.3 105.3 120.1	23.0 27.0 80.5 92.3 105.3 120.1	23.0 27.0 80.5 92.3 105.3 120.1	Tube ball joint to strengthen tube's flexibility and release tube's tension loaded by robot operation.
	RKD (Ball Joint Sleeve)	22 28 36	40.0 63.5 120.0	22.0 30.0 83.0	22.0 30.0 83.0	22.0 30.0 83.0	Tube ball joint, however, its shape is a little bit different as ball joint direction is bidirectional unlike RKS.
	RKSC (Strain Relief Insert)	22 28 36 48 56 70	10.5 13.0 20.6 22.0 26.0 26.0	29.5 34.5 44.6 67.5 81.2 96.0	-	29.5 34.5 44.6 67.5 81.2 96.0	22~36 of RKSC : It clamp for VCG. 48~70 of RKSC : It clamp for Tube and RKS.
	RKR (swivel plate)	22 28 36 48 56 70	43.0 55.0 98.0 98.0 98.0 98.0	18.5 23.0 42.0 42.0 42.0 42.0	-	43.0 55.0 98.0 98.0 98.0 98.0	RKR in combination with RKC is to release tube's tension and fatigue as it can rotate with robot-arm movement.
	VCG (Cable star)	22 28 36 48 56 70	10.5 13.0 20.6 24.0 34.0 34.0	25.5 30.5 40.6 62.5 75.8 90.0	-	25.5 30.5 40.6 62.5 75.8 90.0	Clamp for robot cables/hoses at end position of tube.

CPSFLEX

Corrugated Tube

- Polyamide with reinforced glass fiber: UL94-HB
- Perfect for fast moving environment
- Good to use for machinery center, assembly loader, wood work machine and more
- IP 68 acc. EN 60529 protection except split type.



Ordering Information

PAH	–	10	B
①		②	③

(Unit : mm)

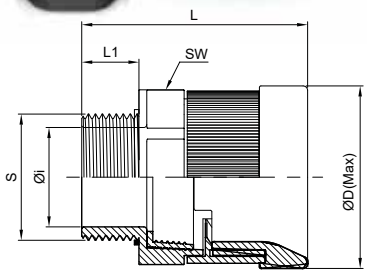
① Type	② Size	③ Color	Inner Diameter (D1)	Outer Diameter (D2)	Bending Radius(R) mm ± 10%	Packing meter / roll	Material	Version	Temperature range	Self-extinguishing UL-94	Resistance	Application
CPS	07	B = Black G = Gray U = UV-Resistant (Only Black)	6.4	10.0	15	50/100	High Quality Polyamide 6 Level	standard version medium-wall, very flexible	-40°C to +105°C short term +130°C	UL94-HB Halogen-Free	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Machine tool, Industrial & Automatic Machinery etc.
	10		9.6	13.0	20	50						
RAH	12	B = Black G = Gray U = UV-Resistant (Only Black)	11.8	15.8	30	50	High Quality Polyamide 6 Level		-40°C to +105°C short term +150°C	UL94-Vo Halogen-Free UL File No.E191879 VDE License No.135369		Rolling Stock, Machine tool, industrial & Automatic Machinery etc.
	16		15.9	21.2	40	50						
	22		21.7	28.5	45	50						
	28		27.8	34.5	55	50						
	36		36.0	42.5	60	30						
PAH	48	B = Black G = Gray U = UV-Resistant (Only Black)	46.5	54.5	70	30	High Quality Polyamide 6 Level					Machine tool, industrial & Automatic Machinery, Rolling Stock Rail Road, etc.
	56		56.3	67.2	110	30						
	70		70.0	82.5	160	10						
	95		91.5	106.0	210	10						
POH	07	B = Black G = Gray U = UV-Resistant (Only Black)	6.0	10.0	20	50/100	High Quality Polyamide 6 Level	reinforced version thick-wall, flexible		UL94-HB Halogen-Free		Machine tool, Shipbuilding Industrial Machinery, Heavy Industry etc.
	10		9.0	13.0	25	50						
	12		11.5	15.8	35	50						
	16		15.5	21.2	45	50						
	22		21.3	28.5	50	50						
	28		26.8	34.5	60	50						
	36		35.2	42.5	70	30						
	48		46.0	54.5	80	30						
	56		55.3	67.2	110	30						
	70		69.0	82.5	160	10						
	95		91.5	106.0	210	10						
PES	07	B = Black G = Gray	6.0	10.0	15	50/100	Soft Polyethylene (PE)	simple version light-weight, flexible	-15°C to +60°C short term +80°C	-	acid, sea water, ammonia etc	Chemical Machinery, Acid areas, Industrial Machinery etc.
	10		9.0	13.0	20	50						
	12		11.5	15.8	30	50						
	16		15.5	21.2	40	50						
	22		21.3	28.5	45	50						
PPS	28	B = Black G = Gray U = UV-Resistant (Only Black)	26.8	34.5	55	50	Polypropylene (PP)					
	36		35.2	42.5	60	30						
	48		46.0	54.5	70	30						
	56		55.3	67.2	110	30						
	70		69.0	82.5	160	10						
	95		91.5	106.0	210	10						
CPSS	07	B = Black G = Gray	6.4	10.0	15	50/100	High Quality Polyamide 6 Level	Split type standard version medium-wall, very flexible	-40°C to +105°C short term +130°C	UL94-HB Halogen-Free	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Machine tool, Industrial & Automatic Machinery etc.
	10		9.6	13.0	20	50						
	12		11.8	15.8	30	50						
	16		15.9	21.2	40	50						
	22		21.7	28.5	45	50						
	28		27.8	34.5	55	50						
PESS	36	B = Black G = Gray	36.0	42.5	60	30	Soft Polyethylene (PE)	Split type simple version light-weight, flexible	-15°C to +60°C short term +80°C	-	acid, sea water, ammonia etc	Chemical Machinery, Acid areas, Industrial Machinery etc.
	48		46.5	54.5	70	30						
	56		56.3	67.2	110	30						
	70		70.0	82.5	160	10						
	95		91.5	106.0	210	10						
PAM	07	B = Black Y = Yellow U = UV-Resistant (Only Black)	6.4	10.0	15	50/100	High Quality Polyamide 11/12	medium -wall very flexible to highly flexible	-50°C to +95°C short term +150°C	UL94-V2 Halogen-Free	alcohol, benzol, mineral oil, diesel fuel, etc	Robots (Welding robot)
	10		9.6	13.0	20	50						
	12		11.8	15.8	30	50						
	16		15.9	21.2	40	50						
	22		21.7	28.5	45	50						
	28		27.8	34.5	55	50						
PAR	36	B = Black Y = Yellow U = UV-Resistant (Only Black)	36.0	42.5	60	30	High Quality Polyamide 12			UL94-V2 Halogen-Free		Robots (Heandling robot, Rotating machinery)
	48		46.5	54.5	70	30						
	56		56.3	67.2	110	30						
	70		70.0	82.5	160	10						
	95		91.5	106.0	210	10						

PNC

Straight Fittings

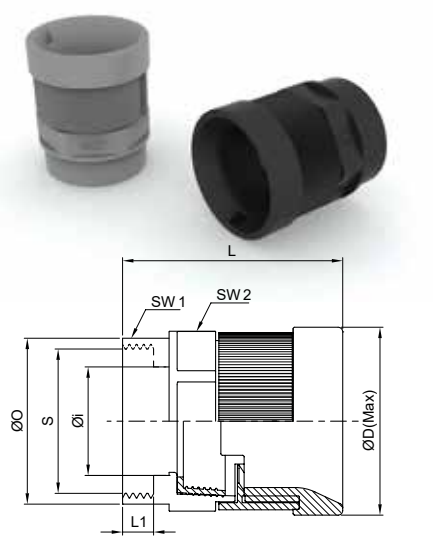
Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray (Light Gray Avaliable in PF Thread Type)
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector		



(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L 1	L	Øi	ØD	SW
	Black	Gray								
PF Thread (JIS B0202)	PNC-G07B	PNC-G07G	G1/4"	07	12.9	11.0	34.0	8.5	25.0	14.0
	PNC-G10B	PNC-G10G	G1/2"	10	20.5	13.0	43.5	12.0	25.0	19.7
	PNC-G12B	PNC-G12G	G1/2"	12	20.5	13.0	43.1	15.0	27.6	22.8
	PNC-G16B	PNC-G16G	G1/2"	16	20.5	13.0	45.0	15.2	33.0	28.0
	PNC-G22B	PNC-G22G	G3/4"	22	26.4	15.0	54.7	22.0	43.0	37.5
	PNC-G28B	PNC-G28G	G1"	28	32.6	15.0	62.4	27.0	48.8	43.0
	PNC-G36B	PNC-G36G	G1 1/4"	36	41.7	19.0	76.0	34.1	60.6	52.2
	PNC-G42B	PNC-G42G	G1 1/2"	48	47.4	21.0	81.4	42.0	71.8	64.0
	PNC-G48B	PNC-G48G	G2"	48	59.0	20.7	80.5	50.0	71.8	64.0
Metric Thread (EN 60423)	PNC-M107B	PNC-M107G	M12 X 1.5	07	11.8	11.0	34.0	8.5	25.0	14.0
	PNC-M127B	PNC-M127G	M16 X 1.5	07	15.8	11.0	34.0	8.5	25.0	14.0
	PNC-M167B	PNC-M167G	M20 X 1.5	07	19.8	11.0	34.0	8.5	25.0	14.0
	PNC-M10B	PNC-M10G	M12 X 1.5	10	11.8	13.0	43.5	7.5	25.0	19.7
	PNC-M120B	PNC-M120G	M16 X 1.5	10	15.8	13.0	43.5	10.0	25.0	19.7
	PNC-M20B	PNC-M20G	M20 X 1.5	10	19.8	13.0	43.5	12.0	25.0	19.7
	PNC-M102B	PNC-M102G	M12 X 1.5	12	11.8	13.0	43.1	8.0	27.6	22.8
	PNC-M12B	PNC-M12G	M16 X 1.5	12	15.8	13.0	43.1	12.0	27.6	22.8
	PNC-M202B	PNC-M202G	M20 X 1.5	12	19.8	13.0	43.1	15.2	27.6	22.8
	PNC-M126B	PNC-M126G	M16 X 1.5	16	15.8	13.0	45.0	12.0	33.0	28.0
	PNC-M16B	PNC-M16G	M20 X 1.5	16	19.8	13.0	45.0	15.2	33.0	28.0
	PNC-M226B	PNC-M226G	M25 X 1.5	16	24.7	13.0	45.0	17.5	33.0	28.0
	PNC-M22B	PNC-M22G	M25 X 1.5	22	24.7	15.0	54.7	20.5	43.0	37.5
	PNC-M3222B	PNC-M3222G	M32 X 1.5	22	31.7	15.0	54.7	22.0	43.0	37.5
	PNC-M28B	PNC-M28G	M32 X 1.5	28	31.7	15.0	62.4	27.0	48.8	43.0
	PNC-M4028B	PNC-M4028G	M40 X 1.5	28	39.6	15.0	62.4	30.5	48.8	43.0
	PNC-M36B	PNC-M36G	M40 X 1.5	36	39.6	19.0	76.0	33.0	60.6	52.2
	PNC-M5036B	PNC-M5036G	M50 X 1.5	36	49.6	19.0	76.6	41.3	60.6	52.2
	PNC-M48B	PNC-M48G	M50 X 1.5	48	49.6	21.0	81.4	42.0	71.8	64.0
	PNC-M6348B	PNC-M6348G	M63 X 1.5	48	62.6	21.0	81.4	50.0	71.8	64.0
Pg Thread (DIN 40430)	PNC-P077B	PNC-P077G	Pg 07	07	12.2	11.0	34.0	8.5	16.8	14.0
	PNC-P097B	PNC-P097G	Pg 09	07	14.9	11.0	34.0	8.5	25.0	14.0
	PNC-P117B	PNC-P117G	Pg 11	07	18.4	11.0	34.0	8.5	25.0	14.0
	PNC-P137B	PNC-P137G	Pg 13.5	07	20.2	11.0	34.0	8.5	25.0	14.0
	PNC-P070B	PNC-P070G	Pg 07	10	12.2	13.0	43.5	7.5	25.0	19.7
	PNC-P09B	PNC-P09G	Pg 09	10	14.9	13.0	43.5	10.0	25.0	19.7
	PNC-P110B	PNC-P110G	Pg 11	10	18.4	13.0	43.5	12.0	25.0	19.7
	PNC-P130B	PNC-P130G	Pg 13.5	10	20.2	13.0	43.5	12.0	25.0	19.7
	PNC-P160B	PNC-P160G	Pg 16	10	22.3	13.0	43.5	12.0	25.0	19.7
	PNC-P0912B	PNC-P0912G	Pg 09	12	14.9	13.0	43.1	12.0	27.6	22.8
	PNC-P11B	PNC-P11G	Pg 11	12	18.4	13.0	43.1	14.0	27.6	22.8
	PNC-P132B	PNC-P132G	Pg 13.5	12	20.2	13.0	43.1	15.0	27.6	22.8
	PNC-P162B	PNC-P162G	Pg 16	12	22.3	13.0	43.1	15.0	27.6	22.8
	PNC-P136B	PNC-P136G	Pg 13.5	16	20.2	13.0	45.0	15.2	33.0	28.0
	PNC-P16B	PNC-P16G	Pg 16	16	22.3	13.0	45.0	15.2	33.0	28.0
	PNC-P216B	PNC-P216G	Pg 21	16	28.0	13.0	45.0	17.5	33.0	28.0
	PNC-P163B	PNC-P163G	Pg 16	22	22.3	15.0	54.7	18.0	43.0	37.5
	PNC-P21B	PNC-P21G	Pg 21	22	28.0	15.0	54.7	22.0	43.0	37.5
	PNC-P29B	PNC-P29G	Pg 29	28	36.8	15.0	62.4	30.5	48.8	43.0
	PNC-P36B	PNC-P36G	Pg 36	36	46.7	19.0	75.0	40.9	60.6	52.2
	PNC-P48B	PNC-P48G	Pg 48	48	59.0	21.0	81.4	50.0	71.8	64.0
NPT Thread (ANSI/ASME B1.20.1)	PNC-N10B	PNC-N10G	NPT 1/2"	10	20.5	13	43.5	12.0	25.0	19.7
	PNC-N12B	PNC-N12G	NPT 1/2"	12	20.5	13	43.1	15.0	27.6	22.8
	PNC-N16B	PNC-N16G	NPT 1/2"	16	20.5	13	45.0	15.2	33.0	28.0
	PNC-N22B	PNC-N22G	NPT 3/4"	22	26.0	15	54.7	22.0	43.0	37.5
	PNC-N28B	PNC-N28G	NPT 1"	28	32.7	15	62.4	27.0	48.8	43.0



PIC

Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector		

(Unit : mm)

	Ordering No.		Thread	Tube Size	Shell Size	L 1	L	Øi	ØO	ØD	SW
	Black	Gray									
UNEF Thread (ASME B1.1)	PIC-U1010B	PIC-U1010G	1/2-28UNEF	10	8S, 10S	12.1	44.8	10.0	18.6	25.0	19.7
	PIC-U1210B	PIC-U1210G	5/8-24UNEF	10	10SL, 12S	12.1	44.9	13.0	20.6	25.0	19.7
	PIC-U1410B	PIC-U1410G	3/4-20UNEF	10	14, 14S	12.1	44.9	13.0	23.3	25.0	19.7
	PIC-U1212B	PIC-U1212G	5/8-24UNEF	12	10SL, 12S	10.0	43.3	13.0	20.6	27.6	22.8
	PIC-U1412B	PIC-U1412G	3/4-20UNEF	12	14, 14S	10.0	43.6	13.0	24.0	27.6	22.8
	PIC-U1812B	PIC-U1812G	1-20UNEF	12	18	10.0	43.8	13.0	31.0	27.6	22.8
	PIC-U2012B	PIC-U2012G	1 3/16-18UNEF	12	20, 22	10.0	43.3	13.0	35.5	27.6	22.8
	PIC-U1616B	PIC-U1616G	7/8-20UNEF	16	16, 16S	10.0	46.4	17.5	28.0	33.0	28.0
	PIC-U1816B	PIC-U1816G	1-20UNEF	16	18	10.0	46.4	17.5	31.0	33.0	28.0
	PIC-U2016B	PIC-U2016G	1 3/16-18UNEF	16	20,22	10.0	46.0	17.5	35.5	33.0	28.0
	PIC-U2316B	PIC-U2316G	1 3/8-8UNEF	16	20,22	10.0	44.7	17.5	40.0	33.0	28.0
	PIC-U2816B	PIC-U2816G	1 7/16-18UNEF	16	24, 28	10.0	45.9	17.5	42.0	33.0	28.0
	PIC-U2222B	PIC-U2222G	1 3/16-18UNEF	22	20, 22	9.5	55.2	20.0	35.2	43.0	37.5
	PIC-U2822B	PIC-U2822G	1 7/16-18UNEF	22	24,28	9.5	55.2	20.0	41.7	43.0	37.5
	PIC-U3622B	PIC-U3622G	2-18UNS	22	36	9.5	54.7	19.7	56.2	43.0	37.5
	PIC-U2828B	PIC-U2828G	1 7/16-18UNEF	28	24,28	9.2	62.8	28.0	42.0	48.8	43.0
	PIC-U3228B	PIC-U3228G	1 3/4-18UNS	28	32	9.4	62.5	28.0	50.3	48.8	43.0
	PIC-U3628B	PIC-U3628G	2-18UNS	28	36	10.0	62.5	28.0	56.5	48.8	43.0
	PIC-U3636B	PIC-U3636G	2-18UNS	36	36	19.3	76.2	35.0	54.5	60.6	52.2

	Ordering No.		Thread	Tube Size	L 1	L	Øi	ØO	ØD	SW
	Black	Gray								
Metric Thread (EN 60423)	PIC-M12B	PIC-M12G	M16 X 1.5	12	10	43.8	13.0	20.6	27.6	22.8
	PIC-M226B	PIC-M226G	M25 X 1.5	16	10.2	44.9	17.5	35.5	33.0	28.0
Pg Thread (DIN 40430)	PIC-P11B	PIC-P11G	Pg11	12	10	43.0	13.0	20.6	27.6	22.8
	PIC-P132B	PIC-P132G	Pg13.5	12	10	43.0	13.0	30.8	27.6	22.8
	PIC-P16B	PIC-P16G	Pg16	16	10	44.7	17.5	28.0	33.0	28.0
	PIC-P21B	PIC-P21G	Pg21	22	9.5	53.1	20.0	35.5	43.0	37.5

PIPC

Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Pipe with connector.		

(Unit : mm)

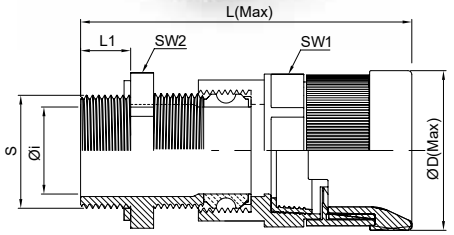
	Ordering No.		Thread	Tube Size	S	L1	L	Øi	ØO	ØD	SW
	Black	Gray									
PF Thread (JIS B0202)	PIPC-G16B	PIPC-G16G	G1/2"	16	18.6	10.0	44.7	17.5	28.0	33.0	28.0
	PIPC-G22B	PIPC-G22G	G3/4"	22	24.1	10.0	53.1	20.0	35.0	43.0	37.5
	PIPC-G28B	PIPC-G28G	G1"	28	30.2	10.0	61.4	28.0	41.5	48.8	43.0
	PIPC-G36B	PIPC-G36G	G1 1/4"	36	38.9	19.5	74.5	31.3	53.0	60.6	52.2
	PIPC-G42B	PIPC-G42G	G1 1/2"	48	44.8	27.6	87.8	36.0	53.0	71.8	64.0
	PIPC-G48B	PIPC-G48G	G2"	48	56.6	27.6	87.8	45.0	66.0	71.8	64.0

PNCC

Straight Fittings

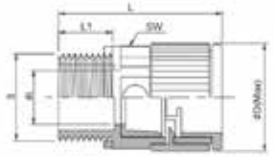
Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector, Connector to avoid the cutoff of the cable in the machine.		



(Unit : mm)

	Ordering No.		Thread	Tube Size	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
	Black	Gray										
PF Thread (JIS B0202)	PNCC-G10B	PNCC-G10G	G1/2"	10	3.5	6.5	20.9	15.0	72.3	25.0	19.7	22.6
	PNCC-G12B	PNCC-G12G	G1/2"	12	4.0	8.0	20.9	15.0	72.4	27.6	22.8	25.5
	PNCC-G16B	PNCC-G16G	G1/2"	16	7.0	12.3	20.9	15.0	75.1	33.0	28.0	25.4
	PNCC-G1622B	PNCC-G1622G	G1/2"	22	12.0	15.2	20.9	15.0	87.4	43.0	37.5	34.0
	PNCC-G22B	PNCC-G22G	G3/4"	22	12.0	18.0	26.4	15.0	87.4	43.0	37.5	34.0
	PNCC-G228B	PNCC-G228G	G3/4"	28	18.0	20.3	26.4	15.0	87.4	43.0	43.0	43.4
	PNCC-G28B	PNCC-G28G	G1"	28	18.0	26.0	33.2	15.0	95.2	48.8	43.0	43.4
	PNCC-G36B	PNCC-G36G	G1 1/4"	36	22.0	33.0	41.9	19.0	120.2	60.6	52.2	51.6
	PNCC-G48B	PNCC-G48G	G2"	48	36.0	42.0	60.0	19.0	130.0	71.8	64.0	67.0
Metric Thread (EN 60423)	PNCC-M10B	PNCC-M10G	M12 X 1.5	10	3.5	6.5	12.0	15.0	72.3	25.0	19.7	22.6
	PNCC-M120B	PNCC-M120G	M16 X 1.5	10	3.5	6.5	16.0	15.0	72.3	25.0	19.7	22.6
	PNCC-M102B	PNCC-M102G	M12 X 1.5	12	4.0	7.1	12.0	15.0	72.4	27.6	22.8	25.5
	PNCC-M12B	PNCC-M12G	M16 X 1.5	12	4.0	8.0	16.0	15.0	72.4	27.6	22.8	25.5
	PNCC-M162B	PNCC-M162G	M20 X 1.5	12	4.0	8.0	20.0	15.0	72.4	27.6	22.8	25.5
	PNCC-M126B	PNCC-M126G	M16 X 1.5	16	7.0	10.9	16.0	15.0	75.1	33.0	28.0	25.4
	PNCC-M16B	PNCC-M16G	M20 X 1.5	16	7.0	12.3	20.0	15.0	75.1	33.0	28.0	25.4
	PNCC-M1622B	PNCC-M1622G	M20 X 1.5	22	12.0	14.5	20.0	15.0	87.4	43.0	37.5	34.0
	PNCC-M22B	PNCC-M22G	M25 X 1.5	22	12.0	18.0	25.0	15.0	87.5	43.0	37.5	34.0
	PNCC-M228B	PNCC-M228G	M25 X 1.5	28	18.0	19.5	25.0	15.0	95.3	48.8	43.0	43.4
	PNCC-M28B	PNCC-M28G	M32 X 1.5	28	18.0	26.0	32.0	15.0	95.3	48.8	43.0	43.4
	PNCC-M36B	PNCC-M36G	M40 X 1.5	36	22.0	33.0	40.0	19.0	120.2	60.6	52.2	51.6
	PNCC-M48B	PNCC-M48G	M50 X 1.5	48	36.0	42.0	50.0	19.0	122.8	71.8	64.0	67.0
Pg Thread (DIN 40430)	PNCC-P07B	PNCC-P07G	Pg07	10	3.5	6.5	12.5	15.0	72.3	25.0	19.7	22.6
	PNCC-P09B	PNCC-P09G	Pg09	10	3.5	6.5	15.2	15.0	72.3	25.0	19.7	22.6
	PNCC-P072B	PNCC-P072G	Pg07	12	4.0	8.0	20.9	15.0	72.4	27.6	22.8	25.5
	PNCC-P092B	PNCC-P092G	Pg09	12	4.0	8.0	20.9	15.0	72.4	27.6	22.8	25.5
	PNCC-P11B	PNCC-P11G	Pg11	12	4.0	8.0	20.9	15.0	72.4	27.6	22.8	25.5
	PNCC-P132B	PNCC-P132G	Pg13.5	12	4.0	8.0	20.9	15.0	72.4	27.6	22.8	25.5
	PNCC-P162B	PNCC-P162G	Pg16	12	4.0	8.0	20.9	15.0	72.4	27.6	22.8	25.5
	PNCC-P096B	PNCC-P096G	Pg09	16	7.0	10.6	15.2	15.0	75.1	33.0	28.0	25.4
	PNCC-P116B	PNCC-P116G	Pg11	16	7.0	12.3	18.6	15.0	75.1	33.0	28.0	25.4
	PNCC-P13B	PNCC-P13G	Pg13.5	16	7.0	12.3	20.4	15.0	75.1	33.0	28.0	25.4
	PNCC-P16B	PNCC-P16G	Pg16	16	7.0	12.3	22.5	15.0	75.1	33.0	28.0	25.4
	PNCC-P122B	PNCC-P122G	Pg11	22	12.0	13.9	18.6	15.0	87.5	43.0	37.5	34.0
	PNCC-P1322B	PNCC-P1322G	Pg13.5	22	12.0	14.8	20.4	15.0	87.5	43.0	37.5	34.0
	PNCC-P1622B	PNCC-P1622G	Pg16	22	12.0	17.3	22.5	15.0	87.5	43.0	37.5	34.0
	PNCC-P21B	PNCC-P21G	Pg21	22	12.0	18.0	28.3	15.0	87.5	43.0	37.5	34.0
	PNCC-P218B	PNCC-P218G	Pg21	28	18.0	22.5	28.3	15.0	95.3	48.8	43.0	43.4
	PNCC-P29B	PNCC-P29G	Pg29	28	18.0	26.0	37.0	15.0	95.3	48.8	43.0	43.4
	PNCC-P36B	PNCC-P36G	Pg36	36	22.0	33.0	47.0	19.0	120.2	60.6	52.2	51.6
	PNCC-P48B	PNCC-P48G	Pg48	48	36.0	42.0	59.3	19.0	122.8	71.8	64.0	67.0



TNC

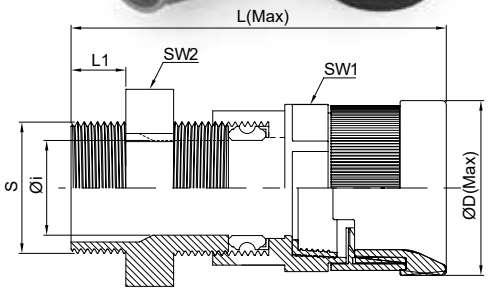
Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector.		

(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L1	L	Øi	ØD	SW
	Black	Gray								
PF Thread (JIS B0204)	TNC-G56B	TNC-G56G	G2"	56	59.6	24.0	64.3	49.6	93.0	78.0
	TNC-G70B	TNC-G70G	G2 1/2"	70	75.1	30.0	75.2	67.0	121.0	94.5
	TNC-G95B	TNC-G95G	G4"	95	113.0	40.0	92.2	98.0	151.0	118.5



PNCCL

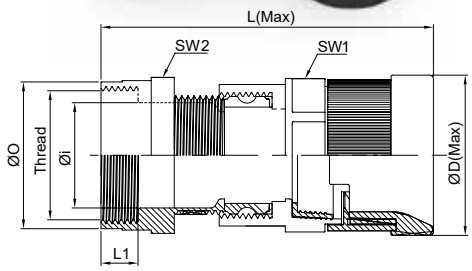
Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector, Connector to avoid the cutoff of the cable in the machine.		

(Unit : mm)

	Ordering No.		Thread	Tube Size	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
	Black	Gray										
PF Thread (JIS B0202)	PNCCL-G10B	PNCCL-G10G	G1/2"	10	3.5	6.5	20.9	9.0	64.7	25.0	19.7	22.6
	PNCCL-G12B	PNCCL-G12G	G1/2"	12	4.0	8	20.9	9.0	66.4	27.6	22.8	25.5
	PNCCL-G16B	PNCCL-G16G	G1/2"	16	7.0	12.3	20.9	9.0	69.1	33.0	28.0	25.4
Metric Thread (EN 60423)	PNCCL-M10B	PNCCL-M10G	M12 X 1.5	10	3.5	6.5	12.0	9.0	64.7	25.0	19.7	22.6
	PNCCL-M120B	PNCCL-M120G	M16 X 1.5	10	3.5	6.5	16.0	9.0	64.7	25.0	19.7	22.6
	PNCCL-M102B	PNCCL-M102G	M12 X 1.5	12	4.0	7.1	12.0	9.0	66.4	27.6	22.8	25.5
	PNCCL-M12B	PNCCL-M12G	M16 X 1.5	12	4.0	8.0	16.0	9.0	66.4	27.6	22.8	25.5
	PNCCL-M162B	PNCCL-M162G	M20 X 1.5	12	4.0	8.0	20.0	9.0	66.4	27.6	22.8	25.5
	PNCCL-M126B	PNCCL-M126G	M16 X 1.5	16	7.0	10.9	16.0	9.0	69.1	33.0	28.0	25.4
	PNCCL-M16B	PNCCL-M16G	M20 X 1.5	16	7.0	12.3	20.0	9.0	69.1	33.0	28.0	25.4
	PNCCL-M216B	PNCCL-M216G	M25 X 1.5	16	7.0	12.3	25.0	9.0	69.1	33.0	28.0	25.4
Pg Thread (DIN 40430)	PNCCL-P09B	PNCCL-P09G	Pg09	10	3.5	6.5	15.2	9.0	64.7	25.0	19.7	22.6
	PNCCL-P092B	PNCCL-P092G	Pg09	12	4.0	8.0	20.9	9.0	66.4	27.6	22.8	25.5
	PNCCL-P11B	PNCCL-P11G	Pg11	12	4.0	8.0	20.9	9.0	66.4	27.6	22.8	25.5
	PNCCL-P132B	PNCCL-P132G	Pg13.5	12	4.0	8.0	20.9	9.0	66.4	27.6	22.8	25.5
	PNCCL-P162B	PNCCL-P162G	Pg16	12	4.0	8.0	20.9	9.0	66.4	27.6	22.8	25.5
	PNCCL-P116B	PNCCL-P116G	Pg11	16	7.0	12.3	18.6	9.0	69.1	33.0	28.0	25.4
	PNCCL-P13B	PNCCL-P13G	Pg13.5	16	7.0	12.3	20.4	9.0	69.1	33.0	28.0	25.4
	PNCCL-P16B	PNCCL-P16G	Pg16	16	7.0	12.3	22.5	9.0	69.1	33.0	28.0	25.4



PICC

Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector, Connector to avoid the cutoff of the cable in the machine.		

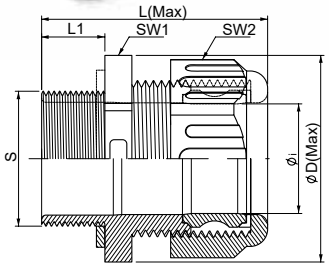
(Unit : mm)

	Ordering No.		Thread	Tube Size	Shell Size	Øi (Min)	Øi (Max)	L1	L	ØO	ØD	SW1	SW2
	Black	Gray											
UNEF Thread (ASME B1.1)	PICC-U1010B	PICC-U1010G	1/2-28UNEF	10	8S, 10S	3.5	6.5	10.0	70.7	17.4	25.0	19.7	22.6
	PICC-U1210B	PICC-U1210G	5/8-24UNEF	10	10SL, 12S	3.5	6.5	10.0	70.7	19.6	25.0	19.7	22.6
	PICC-U1410B	PICC-U1410G	3/4-20UNEF	10	14, 14S	3.5	6.5	10.0	70.7	23.0	25.0	19.7	22.6
	PICC-U1212B	PICC-U1212G	5/8-24UNEF	12	10SL, 12S	4.0	8.0	10.0	72.4	19.6	27.6	22.8	25.5
	PICC-U1412B	PICC-U1412G	3/4-20UNEF	12	14, 14S	4.0	8.0	10.0	72.4	23.0	27.6	22.8	25.5
	PICC-U1812B	PICC-U1812G	1-20UNEF	12	18	4.0	8.0	10.0	72.4	30.0	27.6	22.8	25.5
	PICC-U1616B	PICC-U1616G	7/8-20UNEF	16	16, 16S	7.0	12.3	10.0	75.1	27.0	33.0	28.0	25.4
	PICC-U1816B	PICC-U1816G	1-20UNEF	16	18	7.0	12.3	10.0	75.1	30.0	33.0	28.0	25.4
	PICC-U2016B	PICC-U2016G	1 3/16-18UNEF	16	20, 22	7.0	12.3	10.0	75.1	34.5	33.0	28.0	25.4
	PICC-U2816B	PICC-U2816G	1 7/16-18UNEF	16	24, 28	7.0	12.3	10.0	75.1	41.0	33.0	28.0	25.4
	PICC-U2222B	PICC-U2222G	1 3/16-18UNEF	22	20, 22	12.0	18.0	10.0	87.5	34.5	43.0	37.5	34.0
	PICC-U2822B	PICC-U2822G	1 7/16-18UNEF	22	24, 28	12.0	18.0	10.0	87.5	41.0	43.0	37.5	34.0
	PICC-U2828B	PICC-U2828G	1 7/16-18UNEF	28	24, 28	18.0	26.0	10.0	94.8	41.0	48.8	43.0	43.4
	PICC-U3228B	PICC-U3228G	13/4-18UNS	28	32	18.0	26.0	10.0	94.8	49.0	48.8	43.0	43.4
	PICC-U3628B	PICC-U3628G	2-18UNS	28	36	18.0	26.0	10.0	94.8	55.5	48.8	43.0	43.4
	PICC-U3636B	PICC-U3636G	2-18UNS	36	36	22.0	33.0	14.0	120.1	55.5	60.6	52.2	53.0

FCG
Cable Glands

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Connector for control box radio box or cables from electric machine. Water & Dust, Oil proof halogen free.		



(Unit : mm)

	Ordering No.		Thread	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
	Black	Gray									
PF Thread (JIS B0202)	FCG-G10B	FCG-G10G	G1/2"	3.5	6.5	20.9	15.0	43.9	24.4	22.6	18.0
	FCG-G12B	FCG-G12G	G1/2"	4.0	8.0	20.9	15.0	46.2	28.8	25.5	21.3
	FCG-G16B	FCG-G16G	G1/2"	7.0	12.3	20.9	15.0	47.2	28.6	25.4	25.4
	FCG-G1622B	FCG-G1622G	G1/2"	12.0	15.2	20.9	15.0	53.4	38.2	34.0	34.0
	FCG-G22B	FCG-G22G	G3/4"	12.0	18.0	26.4	15.0	53.4	38.2	34.0	34.0
	FCG-G228B	FCG-G228G	G3/4"	18.0	20.3	26.4	15.0	53.4	49.0	43.4	43.4
	FCG-G28B	FCG-G28G	G1"	18.0	26.0	33.2	15.0	53.4	49.0	43.4	43.4
	FCG-G36B	FCG-G36G	G1 1/4"	22.0	33.0	41.9	19.0	67.7	59.0	53.0	51.6
	FCG-G48B	FCG-G48G	G2"	36.0	42.0	59.6	19.0	69.7	74.0	66.5	67.0
Metric Thread (EN 60423)	FCG-M10B	FCG-M10G	M12 X 1.5	3.5	6.5	12.0	15.0	43.9	25.4	22.6	18.0
	FCG-M120B	FCG-M120G	M16 X 1.5	3.5	6.5	16.0	15.0	43.9	25.4	22.6	18.0
	FCG-M102B	FCG-M102G	M12 X 1.5	4.0	7.1	12.0	15.0	46.2	28.8	25.5	21.3
	FCG-M12B	FCG-M12G	M16 X 1.5	4.0	8.0	16.0	15.0	46.2	28.8	25.5	21.3
	FCG-M162B	FCG-M162G	M20 X 1.5	4.0	8.0	20.0	15.0	46.2	28.8	25.5	21.3
	FCG-M126B	FCG-M126G	M16 X 1.5	7.0	10.9	16.0	15.0	47.2	28.6	25.4	25.4
	FCG-M16B	FCG-M16G	M20 X 1.5	7.0	12.3	20.0	15.0	47.2	28.6	25.4	25.4
	FCGM1622B	FCGM1622G	M20 X 1.5	12.0	14.5	20.0	15.0	53.4	38.2	34.0	34.0
	FCG-M22B	FCG-M22G	M25 X 1.5	12.0	18.0	25.0	15.0	53.4	38.2	34.0	34.0
	FCG-M228B	FCG-M228G	M25 X 1.5	18.0	19.5	25.0	15.0	53.4	49.0	43.4	43.4
	FCG-M28B	FCG-M28G	M32 X 1.5	18.0	26.0	32.0	15.0	53.4	49.0	43.4	43.4
	FCG-M36B	FCG-M36G	M40 X 1.5	22.0	33.0	40.0	19.0	67.7	59.0	53.0	51.6
	FCG-M48B	FCG-M48G	M50 X 1.5	36.0	42.0	50.0	19.0	69.7	74.0	66.5	67.0
Pg Thread (DIN 40430)	FCG-P07B	FCG-P07G	Pg07	3.5	6.5	12.5	15.0	43.9	25.4	22.6	18.0
	FCG-P09B	FCG-P09G	Pg09	3.5	6.5	15.2	15.0	43.9	25.4	22.6	18.0
	FCG-P072B	FCG-P072G	Pg07	4.0	8.0	12.5	15.0	46.2	28.8	25.5	21.3
	FCG-P092B	FCG-P092G	Pg09	4.0	8.0	15.2	15.0	46.2	28.8	25.5	21.3
	FCG-P11B	FCG-P11G	Pg11	4.0	8.0	18.6	15.0	46.2	28.8	25.5	21.3
	FCG-P132B	FCG-P132G	Pg13.5	4.0	8.0	20.4	15.0	46.2	28.8	25.5	21.3
	FCG-P162B	FCG-P162G	Pg16	4.0	8.0	22.5	15.0	46.2	28.8	25.5	21.3
	FCG-P096B	FCG-P096G	Pg09	7.0	10.6	15.2	15.0	47.2	28.6	25.4	25.4
	FCG-P116B	FCG-P116G	Pg11	7.0	12.3	18.6	15.0	47.2	28.6	25.4	25.4
	FCG-P13B	FCG-P13G	Pg13.5	7.0	12.3	20.4	15.0	47.2	28.6	25.4	25.4
	FCG-P16B	FCG-P16G	Pg16	7.0	12.3	22.5	15.0	47.2	28.6	25.4	25.4
	FCG-P122B	FCG-P122G	Pg11	12.0	13.9	18.6	15.0	53.4	38.2	34.0	34.0
	FCG-P1322B	FCG-P1322G	Pg13.5	12.0	14.8	20.4	15.0	53.4	38.2	34.0	34.0
	FCG-P1622B	FCG-P1622G	Pg16	12.0	17.3	22.5	15.0	53.4	38.2	34.0	34.0
	FCG-P21B	FCG-P21G	Pg21	12.0	18.0	28.3	15.0	53.4	38.2	34.0	34.0
	FCG-P218B	FCG-P218G	Pg21	18.0	22.5	28.3	15.0	53.4	49.0	43.4	43.4
	FCG-P29B	FCG-P29G	Pg29	18.0	26.0	37.0	15.0	53.4	49.0	43.4	43.4
	FCG-P36B	FCG-P36G	Pg36	22.0	33.0	47.0	19.0	67.7	59.0	53.0	51.6
	FCG-P48B	FCG-P48G	Pg48	36.0	42.0	59.3	19.0	69.7	74.0	66.5	67.0

FCGL

Cable Glands

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Connector for control box radio box or cables from electric machine. Water & Dust, Oil proof halogen free.		

(Unit : mm)

	Ordering No.		Thread	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
	Black	Gray									
PF Thread (JIS B0202)	FCGL-G10B	FCGL-G10G	G1/2"	3.5	6.5	20.9	9.0	37.9	25.4	22.6	18.0
	FCGL-G12B	FCGL-G12G	G1/2"	4.0	8.0	20.9	9.0	40.2	28.8	25.5	21.3
	FCGL-G16B	FCGL-G16G	G1/2"	7.0	12.3	20.9	9.0	41.2	28.6	25.4	25.4
Metric Thread (EN 60423)	FCGL-M10B	FCGL-M10G	M12 X 1.5	3.5	6.5	12.0	9.0	37.9	25.4	22.6	18.0
	FCGL-M120B	FCGL-M120G	M16 X 1.5	3.5	6.5	16.0	9.0	37.9	25.4	22.6	18.0
	FCGL-M102B	FCGL-M102G	M12 X 1.5	4.0	7.1	12.0	9.0	40.2	28.8	25.5	21.3
	FCGL-M12B	FCGL-M12G	M16 X 1.5	4.0	8.0	16.0	9.0	40.2	28.8	25.5	21.3
	FCGL-M162B	FCGL-M162G	M20 X 1.5	4.0	8.0	20.0	9.0	40.2	28.8	25.5	21.3
	FCGL-M126B	FCGL-M126G	M16 X 1.5	7.0	10.9	16.0	9.0	41.2	28.6	25.4	25.4
	FCGL-M16B	FCGL-M16G	M20 X 1.5	7.0	12.3	20.0	9.0	41.2	28.6	25.4	25.4
	FCGL-M216B	FCGL-M216G	M25 X 1.5	7.0	12.3	25.0	9 .0	41.2	28.6	25.4	25.4
Pg Thread (DIN 40430)	FCGL-P09B	FCGL-P09G	Pg09	3.5	6.5	15.2	9.0	37.9	25.4	22.6	18.0
	FCGL-P092B	FCGL-P092G	Pg09	4.0	8.0	15.2	9.0	40.2	28.8	25.5	21.3
	FCGL-P11B	FCGL-P11G	Pg11	4.0	8.0	18.6	9.0	40.2	28.8	25.5	21.3
	FCGL-P132B	FCGL-P132G	Pg13.5	4.0	8.0	20.4	9.0	40.2	28.8	25.5	21.3
	FCGL-P162B	FCGL-P162G	Pg16	4.0	8.0	22.5	9.0	40.2	28.8	25.5	21.3
	FCGL-P116B	FCGL-P116G	Pg11	7.0	12.3	18.6	9.0	41.2	28.6	25.4	25.4
	FCGL-P13B	FCGL-P13G	Pg13.5	7.0	12.3	20.4	9.0	41.2	28.6	25.4	25.4
	FCGL-P16B	FCGL-P16G	Pg16	7.0	12.3	22.5	9 .0	41.2	28.6	25.4	25.4

TICG

Cable Glands

Specifications

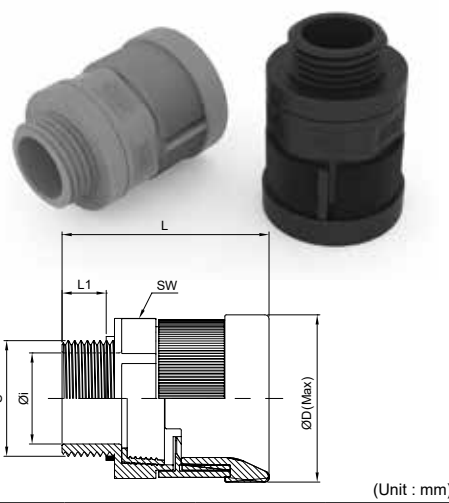
Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Connector for control box radio box or cables from electric machine. Water & Dust, Oil proof halogen free.		

(Unit : mm)

	Ordering No.		Thread	Shell Size	Øi (Min)	Øi (Max)	L1	L	ØO	ØD	SW1	SW2
	Black	Gray										
UNEF Thread (ASME B1.1)	TICG-U1010B	TICG-U1010G	1/2-28UNEF	8S, 10S	3.5	6.5	10.0	43.9	18.4	25.4	22.6	18.0
	TICG-U1210B	TICG-U1210G	5/8-24UNEF	10SL, 12S	3.5	6.5	10.0	43.9	20.6	25.4	22.6	18.0
	TICG-U1410B	TICG-U1410G	3/4-20UNEF	14, 14S	3.5	6.5	10.0	43.9	24.0	25.4	22.6	18.0
	TICG-U1610B	TICG-U1610G	7/8-20UNEF	16, 16S	3.5	6.5	10.0	43.9	28.0	25.4	22.6	18.0
	TICG-U1810B	TICG-U1810G	1-20UNEF	18	3.5	6.5	10.0	43.9	31.0	25.4	22.6	18.0
	TICG-U2010B	TICG-U2010G	1 3/16-18UNEF	20, 22	3.5	6.5	10.0	43.9	35.5	25.4	22.6	18.0
	TICG-U2810B	TICG-U2810G	1 7/16-18UNEF	24, 28	3.5	6.5	10.0	43.9	42.0	25.4	22.6	18.0
	TICG-U1212B	TICG-U1212G	5/8-24UNEF	10SL, 12S	4.0	8.0	10.0	46.2	20.6	28.8	25.5	21.3
	TICG-U1412B	TICG-U1412G	3/4-20UNEF	14, 14S	4.0	8.0	10.0	46.2	24.0	28.8	25.5	21.3
	TICG-U1612B	TICG-U1612G	7/8-20UNEF	16, 16S	4.0	8.0	10.0	46.2	28.0	28.8	25.5	21.3
	TICG-U1812B	TICG-U1812G	1-20UNEF	18	4.0	8.0	10.0	46.2	31.0	28.8	25.5	21.3
	TICG-U2012B	TICG-U2012G	1 3/16-18UNEF	20, 22	4.0	8.0	10.0	46.2	35.5	28.8	25.5	21.3
	TICG-U2812B	TICG-U2812G	1 7/16-18UNEF	24, 28	4.0	8.0	10.0	46.2	42.0	28.8	25.5	21.3
	TICG-U1616B	TICG-U1616G	7/8-20UNEF	16, 16S	7.0	12.3	10.0	47.2	28.0	28.6	25.4	25.4
	TICG-U1816B	TICG-U1816G	1-20UNEF	18	7.0	12.3	10.0	47.2	31.0	28.6	25.4	25.4
	TICG-U2016B	TICG-U2016G	1 3/16-18UNEF	20, 22	7.0	12.3	10.0	47.2	35.5	28.6	25.4	25.4
	TICG-U2816B	TICG-U2816G	1 7/16-18UNEF	24, 28	7.0	12.3	10.0	47.2	42.0	28.6	25.4	25.4
	TICG-U2222B	TICG-U2222G	1 3/16-18UNEF	20, 22	12.0	18.0	10.0	53.4	35.5	38.2	34.0	34.0
	TICG-U2822B	TICG-U2822G	1 7/16-18UNEF	24, 28	12.0	18.0	10.0	53.4	42.0	38.2	34.0	34.0
	TICG-U3222B	TICG-U3222G	1 3/4-18UNS	32	12.0	18.0	10.0	53.4	50.0	38.2	34.0	34.0
	TICG-U3622B	TICG-U3622G	2-18UNS	36	12.0	18.0	10.0	53.4	56.5	38.2	34.0	34.0
	TICG-U3228B	TICG-U3228G	1 3/4-18UNS	32	18.0	26.0	10.0	53.4	50.0	49.0	43.4	43.4
	TICG-U3628B	TICG-U3628G	2-18UNS	36	18.0	26.0	10.0	67.7	56.5	59.0	53.0	51.6
	TICG-U3636B	TICG-U3636G	2-18UNS	36	22.0	33.0	10.0	69.7	56.5	74.0	66.5	67.0

PNCL

Straight Fittings



Specifications

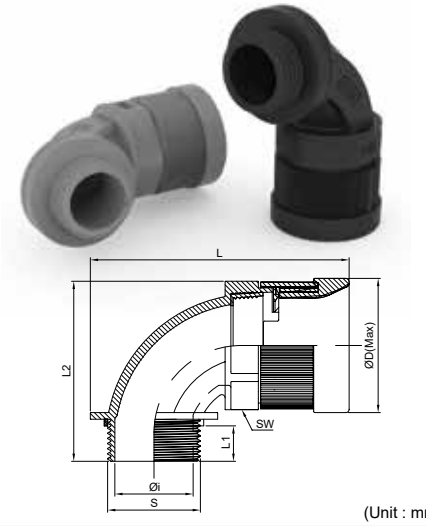
Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector, Connector for jointing into Limit-Switch.		

(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L 1	L	Øi	ØD	SW
	Black	Gray								
PF Thread (JIS B0202)	PNCL-G10B	PNCL-G10G	G1/2"	10	20.5	8.0	43.5	12.0	25.0	19.7
	PNCL-G12B	PNCL-G12G	G1/2"	12	20.5	8.0	43.1	15.0	27.6	22.8
	PNCL-G16B	PNCL-G16G	G1/2"	16	20.5	8.0	45.0	15.2	33.0	28.0
Metric Thread / Straight (EN 60423)	PNCL-M10B	PNCL-M10G	M12 X 1.5	10	11.8	8.0	43.5	7.5	25.0	19.7
	PNCL-M120B	PNCL-M120G	M16 X 1.5	10	15.8	8.0	43.5	10.0	25.0	19.7
	PNCL-M20B	PNCL-M20G	M20 X 1.5	10	19.8	8.0	43.5	12.0	25.0	19.7
	PNCL-M102B	PNCL-M102G	M12 X 1.5	12	11.8	8.0	43.1	8.0	27.6	22.8
	PNCL-M12B	PNCL-M12G	M16 X 1.5	12	15.8	8.0	43.1	12.0	27.6	22.8
	PNCL-M202B	PNCL-M202G	M20 X 1.5	12	19.8	8.0	43.1	15.2	27.6	22.8
	PNCL-M126B	PNCL-M126G	M16 X 1.5	16	15.8	8.0	45.0	12.0	33.0	28.0
	PNCL-M16B	PNCL-M16G	M20 X 1.5	16	19.8	8.0	45.0	15.2	33.0	28.0
	PNCL-M226B	PNCL-M226G	M25 X 1.5	16	24.7	8.0	45.0	17.5	33.0	28.0
Pg Thread / Straight (DIN 40430)	PNCL-P09B	PNCL-P09G	Pg09	10	14.9	8.0	43.5	10.0	25.0	19.7
	PNCL-P160B	PNCL-P160G	Pg16	10	22.3	8.0	43.5	12.0	25.0	19.7
	PNCL-P0912B	PNCL-P0912G	Pg09	12	14.9	8.0	43.1	12.0	27.6	22.8
	PNCL-P11B	PNCL-P11G	Pg11	12	18.4	8.0	43.1	14.0	27.6	22.8
	PTNCL-P136B	PNCL-P136G	Pg13.5	16	20.2	8.0	45.0	15.2	33.0	28.0
	PNCL-P16B	PNCL-P16G	Pg16	16	22.3	8.0	45.0	15.2	33.0	28.0

PWCL

Elbow 90° Connector

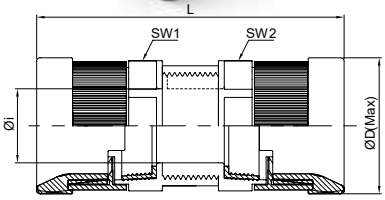


Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector, Connector for jointing into Limit-Switch.		

(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L 1	L2	L	Øi	ØD	SW
	Black	Gray									
PF Thread (JIS B0202)	PWCL-G10B	PWCL-G10G	G1/2"	10	20.5	8.0	50.3	66.2	15.0	25.0	19.7
	PWCL-G12B	PWCL-G12G	G1/2"	12	20.5	8.0	50.5	64.9	15.0	27.6	22.8
	PWCL-G16B	PWCL-G16G	G1/2"	16	20.5	8.0	55.3	71.6	15.3	33.0	28.0
Metric Thread / 90°Elbow (EN 60423)	PWCL-M10B	PWCL-M10G	M12 X 1.5	10	11.8	8.0	50.2	66.4	8.0	24.9	19.7
	PWCL-M12B	PWCL-M12G	M16 X 1.5	12	15.8	8.0	50.2	64.9	12.0	27.6	22.8
	PWCL-M202B	PWCL-M202G	M20 X 1.5	12	19.8	8.0	50.2	64.7	12.0	27.6	22.8
	PWCL-M16B	PWCL-M16G	M20 X 1.5	16	19.8	8.0	55.5	71.6	15.2	33.0	28.0
Pg Thread / 90°Elbow (DIN 40430)	PWCL-P09B	PWCL-P09G	Pg09	10	14.9	8.0	50.5	66.4	11.0	24.9	19.7
	PWCL-P110B	PWCL-P110G	Pg11	10	18.4	8.0	50.0	66.4	13.0	24.9	19.7
	PWCL-P130B	PWCL-P130G	Pg13.5	10	20.2	8.0	50.2	66.4	15.0	24.9	19.7
	PWCL-P11B	PWCL-P11G	Pg11	12	18.4	8.0	50.4	64.7	13.0	27.6	22.8
	PWCL-P132B	PWCL-P132G	Pg13.5	12	20.2	8.0	50.6	64.9	15.0	27.6	22.8
	PWCL-P162B	PWCL-P162G	Pg16	12	22.3	8.0	50.9	64.8	15.0	27.6	22.8
	PWCL-P136B	PWCL-P136G	Pg13.5	16	20.2	8.0	55.7	70.3	15.2	33.0	28.0
	PWCL-P16B	PWCL-P16G	Pg16	16	22.3	8.0	55.7	70.6	17.5	33.0	28.0



PNSC

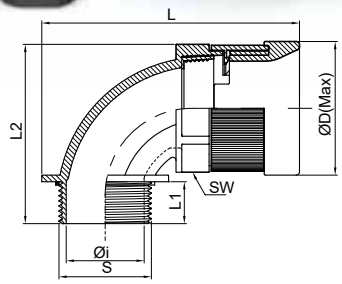
Connector for tube to tube *Under development

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	The connector which can connect tube and tube each other.		

(Unit : mm)

Ordering No.		Tube Size	L	Øi	ØD	SW1	SW2
Black	Gray						
PNSC-10B	PNSC-10G	10 + 10	78.4	8.0	25.0	19.7	19.7
PNSC-12B	PNSC-12G	12 + 12	78.9	11.0	27.6	22.8	22.8
PNSC-16B	PNSC-16G	16 + 16	82.7	12.5	33.0	28.0	28.0
PNSC-22B	PNSC-22G	22 + 22	109.2	19.0	43.0	37.5	37.5
PNSC-28B	PNSC-28G	28 + 28	117.2	22.0	48.8	43.0	43.0
PNSC-36B	PNSC-36G	36 + 36	140.6	30.0	60.6	52.2	52.2
PNSC-48B	PNSC-48G	48 + 48	149.8	42.0	71.8	64.0	64.0



PWC

Elbow 90° Connector

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray (Light Gray Avaliable in PF Thread Type)
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector		

(Unit : mm)

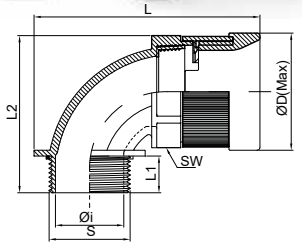
	Ordering No.		Thread	Tube Size	S	L 1	L 2	L	Øi	ØD	SW
	Black	Gray									
PF Thread (JIS B0202)	PWC-G10B	PWC-G10G	G1/2"	10	20.5	13.0	50.3	66.2	15.0	25.0	19.7
	PWC-G12B	PWC-G12G	G1/2"	12	20.5	13.0	50.5	64.9	15.0	27.6	22.8
	PWC-G16B	PWC-G16G	G1/2"	16	20.5	13.0	55.3	71.6	15.3	33.0	28.0
	PWC-G22B	PWC-G22G	G3/4"	22	26.2	15.0	66.1	88.4	20.6	43.0	37.5
	PWC-G28B	PWC-G28G	G1"	28	32.6	15.0	76.0	104.8	27.1	48.8	43.0
	PWC-G368B	PWC-G368G	G1 1/4"	28	41.3	15.0	76.0	104.8	30.4	48.8	43.0
	PWC-G36B	PWC-G36G	G1 1/4"	36	41.5	19.0	96.6	131.4	33.8	60.6	52.2
	PWC-G42B	PWC-G42G	G1 1/2"	48	47.4	19.0	109.1	147.6	41.2	71.8	64.0
	PWC-G48B	PWC-G48G	G2"	48	59.0	19.0	108.4	147.1	50.2	71.8	64.0
Metric Thread tt(EN 60423)	PWC-M107B	PWC-M107G	M12 X 1.5	07	11.8	11.0	36.6	47.0	7.5	18.0	14.0
	PWC-M10B	PWC-M10G	M12 X 1.5	10	11.8	13.0	50.2	66.4	8.0	24.9	19.7
	PWC-M12B	PWC-M12G	M16 X 1.5	12	15.8	13.0	50.2	64.9	12.0	27.6	22.8
	PWC-M202B	PWC-M202G	M20 X 1.5	12	19.8	13.0	50.2	64.7	12.0	27.6	22.8
	PWC-M16B	PWC-M16G	M20 X 1.5	16	19.8	13.0	55.5	71.6	15.2	33.0	28.0
	PWC-M22B	PWC-M22G	M25 X 1.5	22	24.7	15.0	66.4	88.2	18.0	43.0	37.5
	PWC-M28B	PWC-M28G	M32 X 1.5	28	31.7	15.0	76.0	105.1	27.0	48.8	43.0
	PWC-M36B	PWC-M36G	M40 X 1.5	36	39.6	19.0	96.5	130.4	33.8	60.6	52.2
	PWC-M48B	PWC-M48G	M50 X 1.5	48	49.6	19.0	109.1	145.7	42.0	71.8	64.0
Pg Thread (DIN 40430)	PWC-P077B	PWC-P077G	Pg07	07	12.2	11.0	36.8	47.0	7.5	18.0	14.0
	PWC-P097B	PWC-P097G	Pg09	07	14.9	11.0	36.8	47.0	8.5	18.0	14.0
	PWC-P09B	PWC-P09G	Pg09	10	14.9	13.0	50.5	66.4	11.0	24.9	19.7
	PWC-P110B	PWC-P110G	Pg11	10	18.4	13.0	50.0	66.4	13.0	24.9	19.7
	PWC-P130B	PWC-P130G	Pg13.5	10	20.2	13.0	50.2	66.4	15.0	25.0	19.7
	PWC-P11B	PWC-P11G	Pg11	12	18.4	13.0	50.4	64.7	13.0	27.6	22.8
	PWC-P132B	PWC-P132G	Pg13.5	12	20.2	13.0	50.6	64.9	15.0	27.6	22.8
	PWC-P162B	PWC-P162G	Pg16	12	22.3	13.0	50.9	64.8	15.0	27.6	22.8
	PWC-P136B	PWC-P136G	Pg13.5	16	20.2	13.0	55.7	70.3	15.2	33.0	28.0
	PWC-P16B	PWC-P16G	Pg16	16	22.3	13.0	55.7	70.6	17.5	33.0	28.0
	PWC-P163B	PWC-P163G	Pg16	22	22.3	15.0	66.4	88.4	18.0	43.0	37.5
	PWC-P21B	PWC-P21G	Pg21	22	28.0	15.0	66.4	87.5	22.3	43.0	37.5
	PWC-P29B	PWC-P29G	Pg29	28	36.8	15.0	76.0	105.0	30.5	48.8	43.0
	PWC-P36B	PWC-P36G	Pg36	36	46.7	19.0	96.8	130.5	34.6	60.6	52.2
	PWC-P48B	PWC-P48G	Pg48	48	59.0	19.0	109.0	147.5	50.3	71.8	64.0

SPWC

*Under development Elbow 90° Connector

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction etc.		



(Unit : mm)

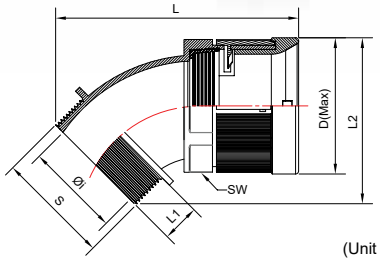
	Ordering No.		Thread	Tube Size	S	L1	L2	L	Øi	ØD	SW
	Black	Gray									
Pg Thread (DIN 40430)	SPWC-P077B	SPWC-P077G	Pg07	07	12.5	12.0	37.8	47.0	6.0	18.0	14.0
	SPWC-P09B	SPWC-P09G	Pg09	10	15.2	14.0	51.5	66.4	10.0	24.9	19.7
	SPWC-P11B	SPWC-P11G	Pg11	12	18.6	14.0	51.4	64.7	14.0	27.6	22.8
	SPWC-P136B	SPWC-P136G	Pg13.5	16	20.4	14.0	56.7	70.3	15.0	33.0	28.0
	SPWC-P16B	SPWC-P16G	Pg16	16	22.5	14.0	56.7	70.6	15.2	33.0	28.0
	SPWC-P21B	SPWC-P21G	Pg21	22	28.3	16.0	67.4	87.5	22.0	43.0	37.5
	SPWC-P29B	SPWC-P29G	Pg29	28	37.0	16.0	77.0	105.0	30.5	48.8	43.0
	SPWC-P36B	SPWC-P36G	Pg36	36	47.0	20.0	97.8	130.5	36.0	60.6	52.2
	SPWC-P48B	SPWC-P48G	Pg48	48	59.3	20.0	110.0	147.5	52.4	71.8	64.0
Metric Thread (EN 60423)	SPWC-M107B	SPWC-M107G	M12 X 1.5	07	12.0	12.0	37.6	47.0	7.5	18.0	14.0
	SPWC-M10B	SPWC-M10G	M12 X 1.5	10	12.0	14.0	51.2	66.4	7.5	24.9	19.7
	SPWC-M12B	SPWC-M12G	M16 X 1.5	12	16.0	14.0	51.2	64.9	12.0	27.6	22.8
	SPWC-M16B	SPWC-M16G	M20 X 1.5	16	20.0	14.0	56.5	71.6	15.2	33.0	28.0
	SPWC-M22B	SPWC-M22G	M25 X 1.5	22	25.0	16.0	67.4	88.2	20.6	43.0	37.5
	SPWC-M28B	SPWC-M28G	M32 X 1.5	28	32.0	16.0	77.0	105.1	27.0	48.8	43.0
	SPWC-M36B	SPWC-M36 G	M40 X 1.5	36	40.0	20.0	97.5	130.4	33.0	60.6	52.2
	SPWC-M48B	SPWC-M48G	M50 X 1.5	48	50.0	20.0	110.1	145.7	42.0	71.8	64.0

SPAC

*Under development Elbow 45° Connector

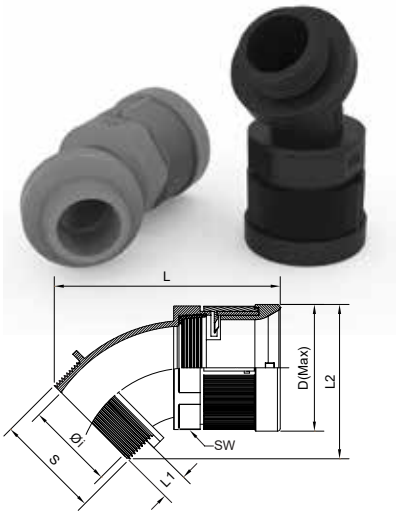
Specifications

Material	High Quality Polyamide 6 + Brass Nickel plated	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction etc.		



(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L1	L2	L	Øi	ØD	SW
	Black	Gray									
Pg Thread (DIN 40430)	SPAC-P09B	SPAC-P09G	Pg09	10	15.2	14.0	32.3	60.6	10.0	24.9	19.7
	SPAC-P11B	SPAC-P11G	Pg11	12	18.6	14.0	37.2	63.0	14.0	27.6	22.8
	SPAC-P136B	SPAC-P136G	Pg13.5	16	20.4	14.0	42.1	67.0	15.0	33.0	28.0
	SPAC-P16B	SPAC-P16G	Pg16	16	22.5	14.0	42.8	68.3	15.2	33.0	28.0
	SPAC-P21B	SPAC-P21G	Pg21	22	28.3	16.0	52.7	82.7	22.0	43.0	37.5
	SPAC-P29B	SPAC-P29G	Pg29	28	37.0	16.0	58.8	95.1	30.5	48.8	43.0
	SPAC-P36B	SPAC-P36G	Pg36	36	47.0	20.0	74.3	115.0	36.0	60.6	52.2
	SPAC-P48B	SPAC-P48G	Pg48	48	59.3	20.0	85.6	126.9	52.4	71.8	64.0
Metric Thread (EN 60423)	SPAC-M10B	SPAC-M10G	M12 X 1.5	10	12.0	14.0	32.5	59.4	7.5	24.9	19.7
	SPAC-M12B	SPAC-M12G	M16 X 1.5	12	16.0	14.0	36.6	62.0	12.0	27.6	22.8
	SPAC-M16B	SPAC-M16G	M20 X 1.5	16	20.0	14.0	40.7	67.2	15.2	33.0	28.0
	SPAC-M22B	SPAC-M22G	M25 X 1.5	22	25.0	16.0	51.0	81.0	20.6	43.0	37.5
	SPAC-M28B	SPAC-M28G	M32 X 1.5	28	32.0	16.0	57.3	93.5	27.0	48.8	43.0
	SPAC-M36B	SPAC-M36G	M40 X 1.5	36	40.0	20.0	71.5	112.5	33.0	60.6	52.2
	SPAC-M48B	SPAC-M48G	M50 X 1.5	48	50.0	20.0	82.3	123.5	42.0	71.8	64.0



PACL

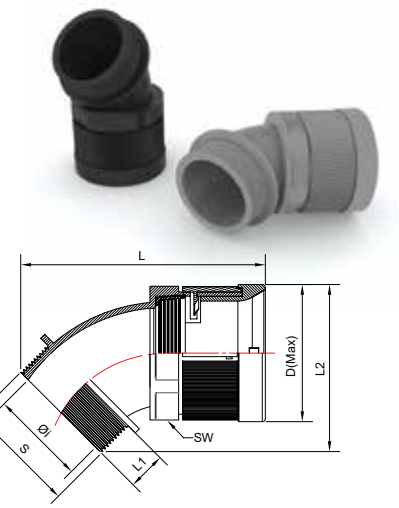
Elbow 45° Connector

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector, Connector for jointing into Limit-Switch.		

(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L1	L2	L	Øi	ØD	SW
	Black	Gray									
PF Thread / 45°Elbow (JIS B0202)	PACL-G10B	PACL-G10G	G1/2"	10	20.5	8.0	35.0	61.6	15.0	25.0	19.7
	PACL-G12B	PACL-G12G	G1/2"	12	20.5	8.0	36.9	62.7	15.0	27.6	22.8
	PACL-G16B	PACL-G16G	G1/2"	16	20.5	8.0	40.4	66.3	15.2	33.0	28.0
Metric Thread / 45°Elbow (EN 60423)	PACL-M10B	PACL-M10G	M12 X 1.5	10	11.8	8.0	31.5	58.4	8.0	24.9	19.7
	PACL-M12B	PACL-M12G	M16 X 1.5	12	15.8	8.0	35.6	61.0	12.0	27.6	22.8
	PACL-M16B	PACL-M16G	M20 X 1.5	16	19.8	8.0	39.7	66.2	15.3	33.0	22.8
Pg Thread / 45°Elbow (DIN 40430)	PACL-P09B	PACL-P09G	Pg09	10	14.9	8.0	31.3	59.6	11.1	24.9	19.7
	PACL-P110B	PACL-P110G	Pg11	10	18.4	8.0	33.5	60.6	15.0	24.9	19.7
	PACL-P130B	PACL-P130G	Pg13.5	10	20.2	8.0	35.4	61.5	15.1	25.0	19.7
	PACL-P11B	PACL-P11G	Pg11	12	18.4	8.0	36.2	62.0	14.1	27.6	22.8
	PACL-P136B	PACL-P136G	Pg13.5	16	20.2	8.0	41.1	66.0	15.3	33.0	28.0
	PACL-P16B	PACL-P16G	Pg16	16	22.3	8.0	41.8	67.3	17.6	33.0	28.0



PAC

Elbow 45° Connector

Specifications

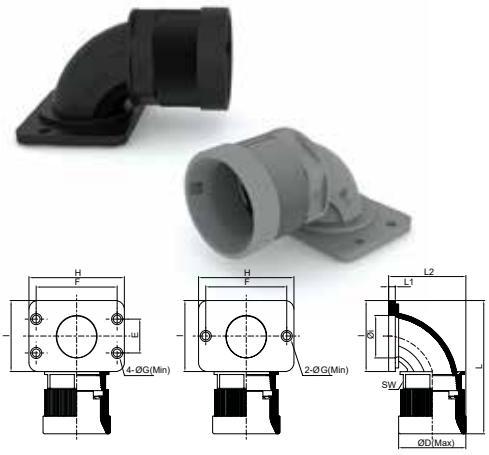
Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray (Light Gray Avaliable in PF Thread Type)
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Joint box with connector		

(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L 1	L2	L	Øi	ØD	SW
	Black	Gray									
PF Thread (JIS B0202)	PAC-G10B	PAC-G10G	G1/2"	10	20.5	13.0	35.0	61.6	15.0	25.0	19.7
	PAC-G12B	PAC-G12G	G1/2"	12	20.5	13.0	36.9	62.7	15.0	27.6	22.8
	PAC-G16B	PAC-G16G	G1/2"	16	20.5	13.0	40.4	66.3	15.2	33.0	28.0
	PAC-G22B	PAC-G22G	G3/4"	22	26.2	15.0	50.1	80.9	22.0	43.0	37.5
	PAC-G28B	PAC-G28G	G1"	28	33.0	15.0	54.4	93.5	27.1	48.8	43.0
	PAC-G36B	PAC-G36G	G1 1/4"	36	41.6	19.0	71.3	111.5	34.1	60.6	52.2
	PAC-G42B	PAC-G42G	G1 1/2"	48	47.4	19.0	80.1	121.9	41.1	71.8	64.0
	PAC-G48B	PAC-G48G	G2"	48	59.0	19.0	84.1	125.9	50.0	71.8	64.0
Metric Thread (EN 60423)	PAC-M10B	PAC-M10G	M12 X 1.5	10	11.8	13.0	31.5	58.4	8.0	24.9	19.7
	PAC-M12B	PAC-M12G	M16 X 1.5	12	15.8	13.0	35.6	61.0	12.0	27.6	22.8
	PAC-M202B	PAC-M202G	M20 X 1.5	12	19.8	13.0	37.2	62.7	15.1	27.6	22.8
	PAC-M16B	PAC-M16G	M20 X 1.5	16	19.8	13.0	39.7	66.2	15.3	33.0	28.0
	PAC-M22B	PAC-M22G	M25 X 1.5	22	24.7	15.0	50.0	80.0	20.4	43.0	37.5
	PAC-M28B	PAC-M28G	M32 X 1.5	28	31.7	15.0	56.3	92.5	27.2	48.8	43.0
	PAC-M36B	PAC-M36G	M40 X 1.5	36	39.6	19.0	70.5	111.5	34.0	60.6	52.2
	PAC-M48B	PAC-M48G	M50 X 1.5	48	49.6	19.0	81.3	122.5	42.0	71.8	64.0
Pg Thread (DIN 40430)	PAC-P09B	PAC-P09G	Pg09	10	14.9	13.0	31.3	59.6	11.1	24.9	19.7
	PAC-P110B	PAC-P110G	Pg11	10	18.4	13.0	33.5	60.6	15.0	24.9	19.7
	PAC-P130B	PAC-P130G	Pg13.5	10	20.2	13.0	35.4	61.5	15.1	25.0	19.7
	PAC-P11B	PAC-P11G	Pg11	12	18.4	13.0	36.2	62.0	14.1	27.6	22.8
	PAC-P136B	PAC-P136G	Pg13.5	16	20.2	13.0	41.1	66.0	15.3	33.0	28.0
	PAC-P16B	PAC-P16G	Pg16	16	22.3	13.0	41.8	67.3	17.6	33.0	28.0
	PAC-P21B	PAC-P21G	Pg21	22	28.0	15.0	51.7	81.7	22.2	43.0	37.5
	PAC-P29B	PAC-P29G	Pg29	28	36.8	15.0	57.8	94.1	31.0	48.8	43.0
	PAC-P36B	PAC-P36G	Pg36	36	46.7	19.0	73.3	114.0	40.3	60.6	52.2
	PAC-P48B	PAC-P48G	Pg48	48	58.8	19.0	84.6	125.9	50.1	71.8	64.0

PWOC

Flange Type 90° Connector



Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Control box with connector.		

(Unit : mm)

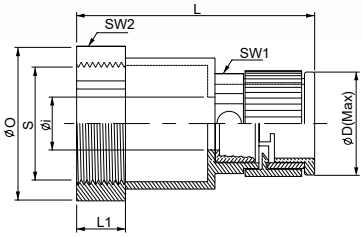
Ordering No.		Tube Size	E	F	G	H	I	L1	L2	L	Øi	ØD	SW
Black	Gray												
PWOC-12B	PWOC-12G	12	-	36.5	5.5	45.0	32.0	5.2	42.5	68.1	15.0	27.6	22.8
PWOC-16B	PWOC-16G	16	-	36.5	5.5	44.0	32.0	5.2	47.2	72.1	17.5	33.0	28.0
PWOC-22B	PWOC-22G	22	30.5	53.5	5.5	65.0	45.0	5.2	55.8	90.0	22.0	43.0	37.5
PWOC-28B	PWOC-28G	28	31.0	55.0	6.0	65.0	45.0	6.0	66.2	104.5	30.5	48.8	43.0
PWOC-36B	PWOC-36G	36	30.5	72.6	7.0	86.0	64.0	6.0	84.5	134.4	34.0	60.6	52.2
PWOC-48B	PWOC-48G	48	30.5	73.0	7.0	86.0	78.0	6.0	95.6	150.8	50.0	71.8	64.0

TIS

Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Transparency
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Sencer with connector.		

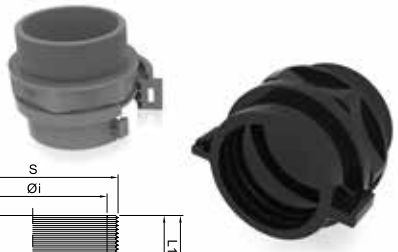


(Unit : mm)

	Ordering No.		Tube Size	S	L 1	L	Øi	ØO	ØD	SW1	SW2
	Black	Gray									
Metric Thread (EN 60423)	TIS-M08T	M8 X 1.0	10	7.7	12.8	61.5	5.0	17.5	23.0	20.0	16.0
	TIS-M12T	M12 X 1.0	10	11.6	12.8	61.5	9.0	20.0	23.0	20.0	18.3
	TIS-M18T	M18 X 1.0	10	17.7	12.8	61.5	9.0	24.0	23.0	20.0	22.0
	TIS-M30T	M30 X 1.5	10	28.5	12.8	61.5	9.0	38.0	23.0	20.0	34.0

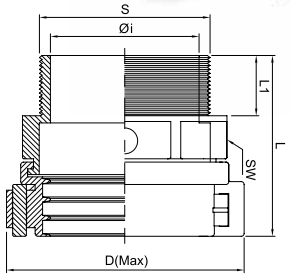
TNRC

Straight Fittings



Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 66 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Applied in control box or moving point.		

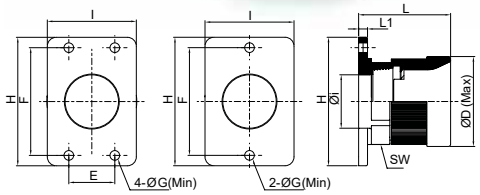


(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L 1	L	Øi	ØD	SW
	Black	Gray								
PF Thread (JIS B0202)	TNRC-G22B	TNRC-G22G	G3/4"	22	26.4	15.0	50.8	19.4	50.6	37.5
	TNRC-G28B	TNRC-G28G	G1"	28	33.2	15.0	47.4	26.2	57.7	43.0
	TNRC-G36B	TNRC-G36G	G1 1/4"	36	41.6	19.0	60.0	35.0	70.0	52.2
	TNRC-G48B	TNRC-G48G	G2"	48	58.7	21.0	63.3	51.0	85.0	64.1

PNOC

Straight Fittings of flange type



Specifications

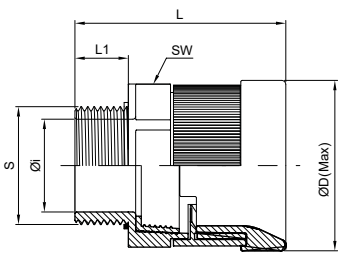
Material	High Quality Polyamide 6	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phos-phorous and cadmium	Color	Black & Gray
Application	Machine tool, Shipbuilding, Tramway, Industrial / Automatic Machinery, Printing Machine etc. Pipe with connector.		

(Unit : mm)

Ordering No.		Tube Size	E	F	G	H	I	L1	L	Øi	ØD	SW
Black	Gray											
PNOC-12B	PNOC-12G	12	-	36.5	5.5	46.0	32.0	5.0	35.1	15.0	27.6	22.8
PNOC-16B	PNOC-16G	16	-	36.5	5.5	46.0	32.0	5.0	37.0	17.5	33.0	28.0
PNOC-22B	PNOC-22G	22	30.5	53.5	5.5	65.0	45.0	5.0	44.7	22.0	43.0	37.5
PNOC-28B	PNOC-28G	28	31.0	54.8	6.5	64.8	45.0	6.0	53.4	27.0	48.8	43.0
PNOC-36B	PNOC-36G	36	31.0	73.2	6.5	86.6	60.0	6.0	63.1	40.1	60.6	52.2
PNOC-48B	PNOC-48G	48	30.5	73.2	6.5	86.6	73.0	6.0	66.4	50.0	71.8	64.0

SPNC

Straight Fittings



Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction etc		

(Unit : mm)

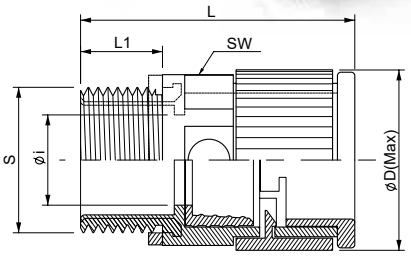
	Ordering No.		Thread	Tube Size	S	L 1	L	Øi	ØD	SW
	Black	Gray								
Pg Thread (DIN 40430)	SPNC-P09B	SPNC-P09G	Pg09	10	15.2	14.0	43.0	10.0	25.0	19.7
	SPNC-P11B	SPNC-P11G	Pg11	12	18.6	14.0	43.0	14.0	27.6	22.8
	SPNC-P132B	SPNC-P132G	Pg13.5	12	20.4	14.0	43.0	15.0	27.6	22.8
	SPNC-P136B	SPNC-P136G	Pg13.5	16	20.4	14.0	44.0	15.2	33.0	28.0
	SPNC-P16B	SPNC-P16G	Pg16	16	22.5	16.0	44.0	15.2	33.0	28.0
	SPNC-P21B	SPNC-P21G	Pg21	22	28.3	16.0	52.0	22.0	43.0	37.5
	SPNC-P29B	SPNC-P29G	Pg29	28	37.0	16.0	56.0	30.5	48.8	43.0
	SPNC-P36B	SPNC-P36G	Pg36	36	47.0	20.0	68.0	36.0	60.6	52.2
	SPNC-P48B	SPNC-P48G	Pg48	48	59.3	22.0	75.0	52.4	71.8	64.0
Metric Thread (EN 60423)	SPNC-M10B	SPNC-M10G	M12 X 1.5	10	12.0	14.0	43.0	7.5	25.0	19.7
	SPNC-M12B	SPNC-M12G	M16 X 1.5	12	16.0	14.0	43.0	12.0	27.6	22.8
	SPNC-M16B	SPNC-M16G	M20 X 1.5	16	20.0	14.0	44.0	15.2	33.0	28.0
	SPNC-M22B	SPNC-M22G	M25 X 1.5	22	25.0	16.0	52.0	20.6	43.0	37.5
	SPNC-M28B	SPNC-M28G	M32 X 1.5	28	32.0	16.0	56.0	27.0	48.8	43.0
	SPNC-M36B	SPNC-M36G	M40 X 1.5	36	40.0	20.0	77.0	33.0	60.6	52.2
	SPNC-M48B	SPNC-M48G	M50 X 1.5	48	50.0	22.0	75.0	42.0	71.8	64.0

SNC

Straight Fittings

Specifications

Material	High Quality Polyamide 6 + Brass Nickel plated	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phos-phorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction etc.		



(Unit : mm)

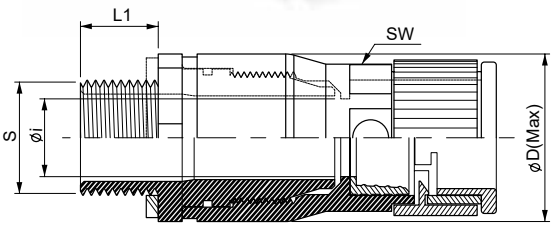
	Ordering No.		Thread	Tube Size	S	L1	L	Øi	ØD	SW
	Black	Gray								
PF Thread (JIS B0202)	SNC-P09B	SNC-P09G	Pg09	10	15.2	13	42	10	25	19.8
	SNC-P11B	SNC-P11G	Pg11	12	18.6	13	42	12	25	22.7
	SNC-P132B	SNC-P132G	Pg13.5	12	20.4	13	42	12	25	22.7
	SNC-P136B	SNC-P136G	Pg13.5	16	20.4	13	43	14	30	28.0
	SNC-P16B	SNC-P16G	Pg16	16	22.5	15	43	15	30	28.0
	SNC-P21B	SNC-P21G	Pg21	22	28.3	15	51	19	41	37.5
	SNC-P29B	SNC-P29G	Pg29	28	37.0	15	55	26	47	43.0
	SNC-P36B	SNC-P36G	Pg36	36	47.0	19	67	33	56	52.2
	SNC-P48B	SNC-P48G	Pg48	48	59.3	21	74	48	68	64.1
Metric Thread (EN 60423)	SNC-M10B	SNC-M10G	M12 X 1.5	10	12	13	42	7	25	19.8
	SNC-M12B	SNC-M12G	M16 X 1.5	12	16	13	42	10	25	22.7
	SNC-M16B	SNC-M16G	M20 X 1.5	16	20	13	43	14	30	28.0
	SNC-M22B	SNC-M22G	M25 X 1.5	22	25	15	51	16	41	37.5
	SNC-M28B	SNC-M28G	M32 X 1.5	28	32	15	55	23	47	43.0
	SNC-M36B	SNC-M36G	M40 X 1.5	36	40	19	67	31	56	52.2
	SNC-M48B	SNC-M48G	M50 X 1.5	48	50	21	74	40	68	64.1

SNIC

Straight Fittings

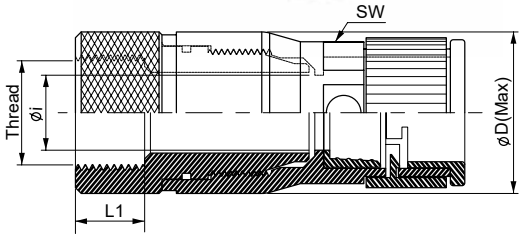
Specifications

Material	High Quality Polyamide 6 + Brass Nickel plated	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phos-phorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction. Protection from electrical signals and electromagnetic waves.		



(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L1	Øi	ØD	SW
	Black	Gray							
Pg Thread (DIN 40430)	SNIC-P09B	SNIC-P09G	Pg09	10	15.2	13	10	25	19.8
	SNIC-P11B	SNIC-P11G	Pg11	12	18.6	13	12	25	22.7
	SNIC-P136B	SNIC-P136G	Pg13.5	16	20.4	13	14	30	28.0
	SNIC-P16B	SNIC-P16G	Pg16	16	22.5	13	15	30	28.0
	SNIC-P21B	SNIC-P21G	Pg21	22	28.3	15	19	41	37.5
	SNIC-P29B	SNIC-P29G	Pg29	28	37.0	15	26	47	43.0
	SNIC-P36B	SNIC-P36G	Pg36	36	47.0	17	33	56	52.2
	SNIC-P48B	SNIC-P48G	Pg48	48	59.3	17	48	68	64.1
Metric Thread (EN 60423)	SNIC-M10B	SNIC-M10G	M12 X 1.5	10	12	13	7	25	19.8
	SNIC-M12B	SNIC-M12G	M16 X 1.5	12	16	13	10	25	22.7
	SNIC-M16B	SNIC-M16G	M20 X 1.5	16	20	13	14	30	28.0
	SNIC-M22B	SNIC-M22G	M25 X 1.5	22	25	15	16	41	37.5
	SNIC-M28B	SNIC-M28G	M32 X 1.5	28	32	15	23	47	43.0
	SNIC-M36B	SNIC-M36G	M40 X 1.5	36	40	17	31	56	52.2
	SNIC-M48B	SNIC-M48G	M50 X 1.5	48	50	17	40	68	64.1



SICC

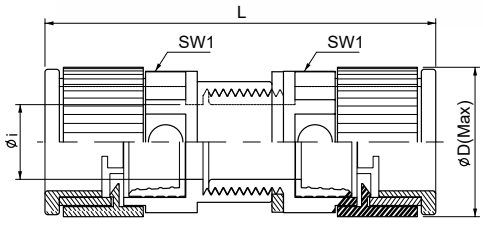
Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phos-phorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction. Protection from electrical signals and electromagnetic waves.		

(Unit : mm)

	Ordering No.		Thread	Tube Size	Shell Size	L1	Øi	ØD	SW
	Black	Gray							
UNEF Thread (ASME B1.1)	SICC-U1010B	SICC-U1010G	1/2-28UNEF	10	8S, 10S	10	9	25	19.8
	SICC-U1210B	SICC-U1210G	5/8-24UNEF	10	10SL, 12S	10	9	25	19.8
	SICC-U1410B	SICC-U1410G	3/4-20UNEF	10	14, 14S	10	9	25	19.8
	SICC-U1212B	SICC-U1212G	5/8-24UNEF	12	10SL, 12S	10	11	25	22.7
	SICC-U1412B	SICC-U1412G	3/4-20UNEF	12	14, 14S	10	11	25	22.7
	SICC-U1612B	SICC-U1612G	7/8-20UNEF	12	16, 16S	10	11	25	22.7
	SICC-U1812B	SICC-U1812G	1-20UNEF	12	18	10	11	25	22.7
	SICC-U1616B	SICC-U1616G	7/8-20UNEF	16	16, 16S	10	13	30	28.0
	SICC-U1816B	SICC-U1816G	1-20UNEF	16	18	10	13	30	28.0
	SICC-U2016B	SICC-U2016G	1 3/16-18UNEF	16	20, 22	10	13	30	28.0
	SICC-U2316B	SICC-U2316G	1 3/8-18UNEF	16	20, 22	10	13	30	28.0
	SICC-U2816B	SICC-U2816G	1 7/16-18UNEF	16	24, 28	10	13	30	28.0
	SICC-U2222B	SICC-U2222G	1 3/16-18UNEF	22	20, 22	10	18	41	37.5
	SICC-U2822B	SICC-U2822G	1 7/16-18UNEF	22	24, 28	10	18	41	37.5
	SICC-U2828B	SICC-U2828G	1 7/16-18UNEF	28	24, 28	10	25	47	43.0
	SICC-U3622B	SICC-U3622G	2-18UNS	22	36	10	18	41	37.5
	SICC-U3228B	SICC-U3228G	13/4-18UNS	28	32	10	25	47	43.0
	SICC-U3628B	SICC-U3628G	2-18UNS	28	36	10	25	47	43.0
	SICC-U3636B	SICC-U3636G	2-18UNS	36	36	10	32	56	52.2



TNSC

Straight Fittings

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 68 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phos-phorous and cadmium	Color	Black & Gray
Application	The connector which can connect tube and tube each other.		

(Unit : mm)

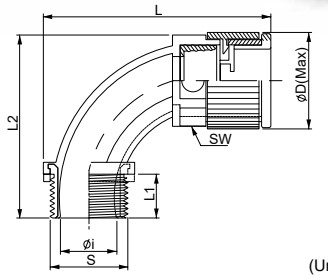
Ordering No.		Tube Size	L	Øi	ØD	SW1	SW2
Black	Gray						
TNSC-10B	TNSC-10G	10 + 10	70	8.0	25	19.8	19.8
TNSC-12B	TNSC-12G	12 + 12	71	11.0	25	22.7	22.7
TNSC-16B	TNSC-16G	16 + 16	72	12.5	30	28.0	28.0
TNSC-22B	TNSC-22G	22 + 22	90	19.0	41	37.5	37.5
TNSC-28B	TNSC-28G	28 + 28	100	22.0	47	43.0	43.0
TNSC-36B	TNSC-36G	36 + 36	122	30.0	56	52.2	52.2
TNSC-48B	TNSC-48G	48 + 48	133	42.0	68	64.1	64.1

SWC

Elbow 90° Connector

Specifications

Material	High Quality Polyamide 6 + Brass Nickel plated	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction etc.		



(Unit : mm)

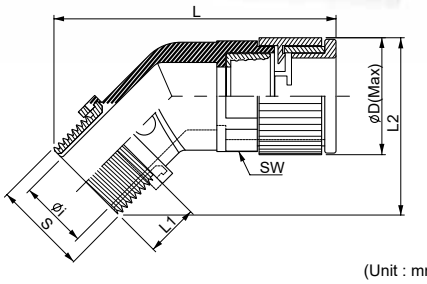
	Ordering No.		Thread	Tube Size	S	L1	L2	L	Øi	ØD	SW
	Black	Gray									
Pg Thread (DIN 40430)	SWC-P077B	SWC-P077G	Pg07	07	12.5	11	33	41	6	17	14.2
	SWC-P09B	SWC-P09G	Pg09	10	15.2	13	53	62	8	25	19.8
	SWC-P11B	SWC-P11G	Pg11	12	18.6	13	53	60	9	25	22.7
	SWC-P136B	SWC-P136G	Pg13.5	16	20.4	13	62	66	12	30	28.0
	SWC-P16B	SWC-P16G	Pg16	16	22.5	13	62	66	12	30	28.0
	SWC-P21B	SWC-P21G	Pg21	22	28.3	15	71	81	18	41	37.5
	SWC-P29B	SWC-P29G	Pg29	28	37.0	15	77	96	25	47	43.0
	SWC-P36B	SWC-P36G	Pg36	36	47.0	19	97	119	31	56	52.2
	SWC-P48B	SWC-P48G	Pg48	48	59.3	19	112	141	42	68	64.1
Metric Thread (EN 60423)	SWC-M107B	SWC-M107G	M12 X 1.5	07	12	11	33	41	6	17	14.2
	SWC-M10B	SWC-M10G	M12 X 1.5	10	12	13	53	62	6	25	19.8
	SWC-M12B	SWC-M12G	M16 X 1.5	12	16	13	53	60	9	25	22.7
	SWC-M16B	SWC-M16G	M20 X 1.5	16	20	13	62	66	12	30	28.0
	SWC-M22B	SWC-M22G	M25 X 1.5	22	25	15	71	81	16	41	37.5
	SWC-M28B	SWC-M28G	M32 X 1.5	28	32	15	77	96	23	47	43.0
	SWC-M36B	SWC-M36 G	M40 X 1.5	36	40	19	97	119	31	56	52.2
	SWC-M48B	SWC-M48G	M50 X 1.5	48	50	19	112	141	41	68	64.1

SAC

Elbow 45° Connector

Specifications

Material	High Quality Polyamide 6 + Brass Nickel plated	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Tramway Vehicle Construction etc.		

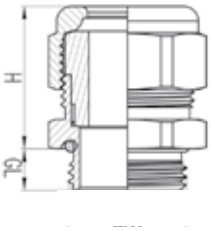


(Unit : mm)

	Ordering No.		Thread	Tube Size	S	L1	L2	L	Øi	ØD	SW
	Black	Gray									
Pg Thread (DIN 40430)	SAC-P09B	SAC-P09G	Pg09	10	15.2	13	34	62	8	25	19.8
	SAC-P11B	SAC-P11G	Pg11	12	18.6	13	39	68	9	25	22.7
	SAC-P136B	SAC-P136G	Pg13.5	16	20.4	13	45	68	12	30	28.0
	SAC-P16B	SAC-P16G	Pg16	16	22.5	13	46	68	12	30	28.0
	SAC-P21B	SAC-P21G	Pg21	22	28.3	15	58	82	18	41	37.5
	SAC-P29B	SAC-P29G	Pg29	28	37.0	15	63	92	25	47	43.0
	SAC-P36B	SAC-P36G	Pg36	36	47.0	20	77	104	31	56	52.2
	SAC-P48B	SAC-P48G	Pg48	48	59.3	20	92	125	47	68	64.1
Metric Thread (EN 60423)	SAC-M10B	SAC-M10G	M12 X 1.5	10	12	13	33	58	6	25	19.8
	SAC-M12B	SAC-M12G	M16 X 1.5	12	16	13	38	62	9	25	22.7
	SAC-M16B	SAC-M16G	M20 X 1.5	16	20	13	45	67	12	30	28.0
	SAC-M22B	SAC-M22G	M25 X 1.5	22	25	15	56	80	16	41	37.5
	SAC-M28B	SAC-M28G	M32 X 1.5	28	32	15	61	92	23	47	43.0
	SAC-M36B	SAC-M36G	M40 X 1.5	36	40	20	74	104	31	56	52.2
	SAC-M48B	SAC-M48G	M50 X 1.5	48	50	20	89	125	40	68	64.1

MCG

Cable Glands



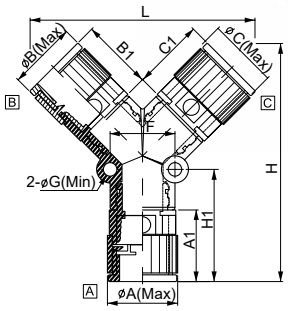
Specifications

Material	Nickel Brass Plating (O-R ing Material, Seal Material: Silicone	Degrees of Protection	IP 68 (EN 60529)
Temperature Range	-40 °C to +105°C	Short Term	up to +200° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Railroad cars, Machine Tools, Industrial machines, Automated machines, Shipyard industry, etc.		

	Ordering No.	Thread	Øi (Min)	Øi (Max)	H	GL	SW
Pg Thread (DIN 40430)	MCG-P0705LW	Pg 07	3.0	5.0	21.0	10	17
	MCG-P0707LW	Pg 07	4.0	6.5	21.0	10	17
	MCG-P0906LW	Pg 09	4.0	6.0	24.0	10	20
	MCG-P0907LW	Pg 09	4.5	7.0	24.0	10	20
	MCG-P0908LW	Pg 09	5.0	8.0	24.0	10	20
	MCG-P0909LW	Pg 09	6.0	9.0	24.0	10	20
	MCG-P0910LW	Pg 09	7.0	10.0	24.0	10	20
	MCG-P1107LW	Pg 11	4.5	7.00	25.5	10	20/22
	MCG-P1108LW	Pg 11	5.0	8.0	25.5	10	20/22
	MCG-P1109LW	Pg 11	6.0	9.0	25.5	10	20/22
	MCG-P1110LW	Pg 11	7.0	10.0	25.5	10	20/22
	MCG-P13512LW	Pg 13.5	8.0	12.0	28.5	10	24
	MCG-P13513LW	Pg 13.5	9.0	13.0	28.5	10	24
	MCG-P2112LW	Pg 21	8.0	12.0	28.5	12	32
	MCG-P2113LW	Pg 21	9.0	13.0	28.5	12	32
	MCG-P2115LW	Pg 21	11.0	15.0	30.0	12	32
	MCG-P2117LW	Pg 21	13.0	17.0	30.0	12	32
	MCG-P2118LW	Pg 21	14.0	18.0	30.0	12	32
	MCG-P2915LW	Pg 29	11.0	15.0	31.0	12	40
	MCG-P2917LW	Pg 29	13.0	17.0	31.0	12	40
	MCG-P2918LW	Pg 29	14.0	18.0	31.0	12	40
	MCG-P2921LW	Pg 29	17.0	21.0	32.0	12	40
	MCG-P2922LW	Pg 29	18.0	22.0	32.0	12	40
	MCG-P3621LW	Pg 36	17.0	21.0	32.5	15	50
	MCG-P3622LW	Pg 36	18.0	22.0	32.5	15	50
	MCG-P3626LW	Pg 36	21.0	26.0	37.5	15	50
	MCG-P3628LW	Pg 36	24.0	28.0	37.5	15	50
	MCG-P3628WCR	Pg 36	22.0	28.0	49.0	15	50
	MCG-P3630LW	Pg 36	25.0	30.0	37.5	15	50
Pg Thread (DIN 40430)	MCG-P4232LW	Pg 42	26.0	31.0	39.5	15	60
	MCG-P4236LW	Pg 42	31.0	35.5	39.5	15	60
	MCG-P4240LW	Pg 42	36.0	40.0	39.5	15	60
	MCG-P4845LW	Pg 48	39.0	45.0	40.0	15	68
Metric Thread (DIN 40430)	MCG-M1205LW	M12X15	3.0	5.0	21.0	10	17
	MCG-M1207LW	M12X15	4.0	5.0	21.0	10	17
	MCG-M1606LW	M16X15	4.0	6.0	24.0	10	20
	MCG-M1607LW	M16X15	4.5	7.0	24.0	10	20
	MCG-M1608LW	M16X15	5.0	8.0	24.0	10	20
	MCG-M1609LW	M16X15	6.0	9.0	24.0	10	20
	MCG-M1610LW	M16X15	7.0	10.0	24.0	10	20
	MCG-M2007LW	M20X15	4.5	7.0	25.5	10	20/22
	MCG-M2008LW	M20X15	5.0	8.0	25.5	10	20/22
	MCG-M2009LW	M20X15	6.0	9.0	25.5	10	20/22
	MCG-M2010LW	M20X15	7.0	10.0	25.5	10	20/22
	MCG-M2012LW	M20X15	8.0	12.0	28.5	10	24
	MCG-M2013LW	M20X15	9.0	13.0	28.5	10	24
	MCG-M2512LW	M25X15	8.0	12.0	28.5	12	24/30
	MCG-M2513LW	M25X15	9.0	13.0	28.5	12	24/30
	MCG-M2515LW	M25X15	11.0	15.0	30.0	12	30
	MCG-M2517LW	M25X15	13.0	17.0	30.0	12	30
	MCG-M2518LW	M25X15	14.0	18.0	30.0	12	30
	MCG-M3215LW	M32X15	11.0	15.0	31.0	12	30/36
	MCG-M3217LW	M32X15	13.0	17.0	31.0	12	30/36
	MCG-M3218LW	M32X15	14.0	18.0	31.0	12	30/36
	MCG-M3221LW	M32X15	17.0	21.0	32.0	12	36
	MCG-M3222LW	M32X15	18.0	22.0	32.0	12	36
	MCG-M4021LW	M40X15	17.0	21.0	32.5	15	36/45
	MCG-M4022LW	M40X15	18.0	22.0	32.5	15	36/45
	MCG-M4026LW	M40X15	21.0	26.0	37.5	15	50
	MCG-M4028LW	M40X15	24.0	28.0	37.5	15	50
	MCG-M4030LW	M40X15	25.0	30.0	37.5	15	50
	MCG-M5032LW	M50X15	26.0	31.0	39.5	15	57
	MCG-M5036LW	M50X15	31.0	35.5	39.5	15	57
	MCG-M5040LW	M50X15	36.0	40.0	39.5	15	57
	MCG-M6345LW	M63X15	39.0	45.0	40.0	15	68

TVC

Y Type Connector



Specifications

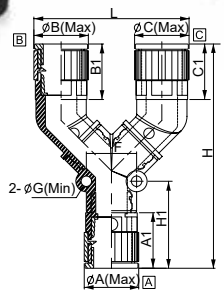
Material	High Quality Polyamide 6	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Feature	CPS distributors guarantee elegant layout and save on cost instead of using distribution boxes. Nominal width from 28, reduceable to 10.		

(Unit : mm)

Ordering No.		A	B	C	ØA	A1	ØB	B1	ØC	C1	ØG	F	H1	H	L
Black	Gray														
TVC-101010B	TVC-101010G	10	10	10	23	26.6	23	26.6	23	26.6	5.0	24	41.6	86	80.0
TVC-121010B	TVC-121010G	12	10	10	25	26.5	23	26.6	23	26.6	5.0	24	41.5	86	80.0
TVC-121210B	TVC-121210G	12	12	10	25	26.5	25	26.5	23	26.6	5.0	24	41.5	88	83.0
TVC-121212B	TVC-121212G	12	12	12	25	26.5	25	26.5	25	26.5	5.0	24	41.5	88	83.0
TVC-161010B	TVC-161010G	16	10	10	30	28.5	23	26.6	23	26.6	5.0	24	43.5	88	83.0
TVC-161210B	TVC-161210G	16	12	10	30	28.5	25	26.5	23	26.6	5.0	24	43.5	90	81.0
TVC-161212B	TVC-161212G	16	12	12	30	28.5	25	26.5	25	26.5	5.0	24	43.5	90	83.0
TVC-161616B	TVC-161616G	16	16	16	30	28.5	30	28.5	30	28.5	5.0	24	43.5	93	89.8
TVC-222222B	TVC-222222G	22	22	22	41	33.3	41	33.3	41	33.3	5.6	39	48.2	112	112.0
TVC-282222B	TVC-282222G	28	22	22	47	39.0	41	33.3	41	33.3	5.6	39	53.9	118	112.0
TVC-282822B	TVC-282822G	28	28	22	47	39.0	47	39.0	41	33.3	5.6	39	53.9	124	118.0
TVC-282828B	TVC-282828G	28	28	28	47	39.0	47	39.0	47	39.0	5.6	39	53.9	124	124.0

TYC

Y Type Connector



Specifications

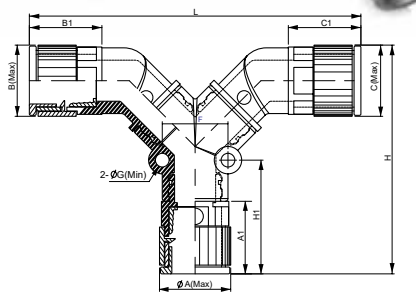
Material	High Quality Polyamide 6	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Transparency
Feature	CPS distributors guarantee elegant layout and save on cost instead of using distribution boxes. Nominal width from 28, reduceable to 10.		

(Unit : mm)

Ordering No.		A	B	C	ØA	A1	ØB	B1	ØC	C1	ØG	F	H1	H	L
Black	Gray														
TYC-101010B	TYC-101010G	10.0	10.0	10.0	23.0	26.6	23.0	24.0	23.0	24.0	5.0	24.0	41.6	104.0	67.0
TYC-121010B	TYC-121010G	12.0	10.0	10.0	25.0	26.5	23.0	24.0	23.0	24.0	5.0	24.0	41.5	104.0	67.0
TYC-121210B	TYC-121210G	12.0	12.0	10.0	25.0	26.5	25.0	24.4	23.0	24.0	5.0	24.0	41.5	107.0	69.7
TYC-121212B	TYC-121212G	12.0	12.0	12.0	25.0	26.5	25.0	24.4	25.0	24.4	5.0	24.0	41.5	107.0	73.5
TYC-161010B	TYC-161010G	16.0	10.0	10.0	30.0	28.5	23.0	24.0	23.0	24.0	5.0	24.0	43.5	105.7	67.0
TYC-161210B	TYC-161210G	16.0	12.0	10.0	30.0	28.5	25.0	24.4	23.0	24.0	5.0	24.0	43.5	108.7	69.7
TYC-161212B	TYC-161212G	16.0	12.0	12.0	30.0	28.5	25.0	24.4	25.0	24.4	5.0	24.0	43.5	108.7	73.0
TYC-161616B	TYC-161616G	16.0	16.0	16.0	30.0	28.5	30.0	26.0	30.0	26.0	5.0	24.0	43.5	110.8	83.0
TYC-222222B	TYC-222222G	22.0	22.0	22.0	41.0	33.3	41.0	33.5	41.0	33.5	5.6	39.0	48.2	134.5	108.0
TYC-282222B	TYC-282222G	28.0	22.0	22.0	47.0	39.0	41.0	33.5	41.0	33.5	5.6	39.0	53.9	142.0	108.0
TYC-282822B	TYC-282822G	28.0	28.0	22.0	47.0	39.0	47.0	39.5	41.0	33.5	5.6	39.0	53.9	150.0	111.0
TYC-282828B	TYC-282828G	28.0	28.0	28.0	47.0	39.0	47.0	39.5	47.0	39.5	5.6	39.0	53.9	150.0	114.0

TTC

T Type Connector



Specifications

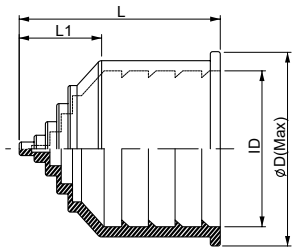
Material	High Quality Polyamide 6	Degrees of Protection	IP 67 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	CPS distributors guarantee elegant layout and save on cost instead of using distribution boxes. Nominal width from 28, reduceable to 10.		

(Unit : mm)

Ordering No.		A	B	C	ØA	A1	ØB	B1	ØC	C1	ØG	F	H1	H	L
Black	Gray														
TTC-101010B	TTC-101010G	10.0	10.0	10.0	23.0	26.6	23.0	24.0	23.0	24.0	5.0	24.0	41.6	81.0	114.0
TTC-121010B	TTC-121010G	12.0	10.0	10.0	25.0	26.5	23.0	24.0	23.0	24.0	5.0	24.0	41.5	81.0	114.0
TTC-121210B	TTC-121210G	12.0	12.0	10.0	25.0	26.5	25.0	24.4	23.0	24.0	5.0	24.0	41.5	83.0	118.0
TTC-121212B	TTC-121212G	12.0	12.0	12.0	25.0	26.5	25.0	24.4	25.0	24.4	5.0	24.0	41.5	83.0	120.0
TTC-161010B	TTC-161010G	16.0	10.0	10.0	30.0	28.5	23.0	24.0	23.0	24.0	5.0	24.0	43.5	82.0	114.0
TTC-161210B	TTC-161210G	16.0	12.0	10.0	30.0	28.5	25.0	24.4	23.0	24.0	5.0	24.0	43.5	85.0	118.0
TTC-161212B	TTC-161212G	16.0	12.0	12.0	30.0	28.5	25.0	24.4	25.0	24.4	5.0	24.0	43.5	85.0	120.0
TTC-161616B	TTC-161616G	16.0	16.0	16.0	30.0	28.5	30.0	26.0	30.0	26.0	5.0	24.0	43.5	90.0	124.0
TTC-222222B	TTC-222222G	22.0	22.0	22.0	41.0	33.3	41.0	33.5	41.0	33.5	5.6	39.0	48.2	110.0	156.0
TTC-282222B	TTC-282222G	28.0	22.0	22.0	47.0	39.0	41.0	33.5	41.0	33.5	5.6	39.0	53.9	116.0	156.0
TTC-282822B	TTC-282822G	28.0	28.0	22.0	47.0	39.0	47.0	39.5	41.0	33.5	5.6	39.0	53.9	120.0	165.0
TTC-282828B	TTC-282828G	28.0	28.0	28.0	47.0	39.0	47.0	39.5	47.0	39.5	5.6	39.0	53.9	120.0	174.0

FEC

CPSFIX Series



Specifications

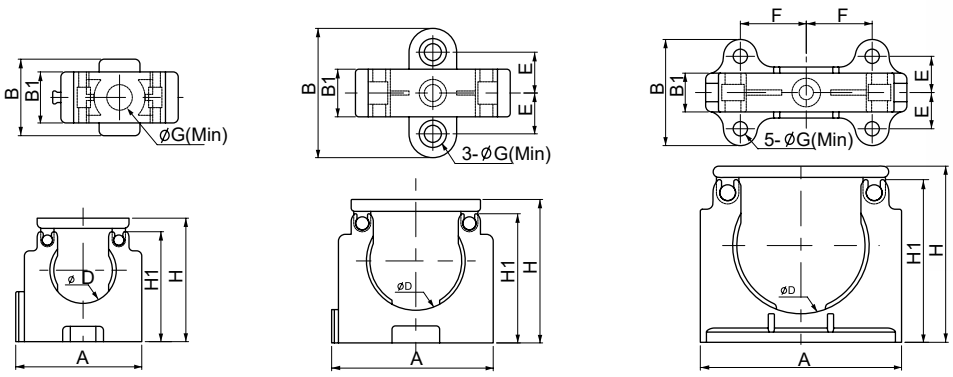
Material	N.B.R (Nitrile-Gutadiene Rubber)	Degrees of Protection	IP 66 (EN 60529)
Properties	Tube terminal, assembled by just putting on	Color	Black & Gray
For tube type	Corrugated tubes, type of CPSFLEX		

(Unit : mm)

Ordering No.		Tube Size	Min	Max	L1	L	ID	ØD
Black	Gray							
FEC-07B	FEC-07G	07	2.0	7.0	8.0	24.0	10.0	16.0
FEC-10B	FEC-10G	10	3.0	10.0	11.0	33.0	12.5	17.0
FEC-12B	FEC-12G	12	4.2	12.0	11.0	33.0	16.0	23.5
FEC-16B	FEC-16G	16	6.0	16.0	12.5	34.5	21.2	29.0
FEC-22B	FEC-22G	22	6.0	22.0	16.0	43.0	28.5	37.0
FEC-28B	FEC-28G	28	6.0	28.0	16.0	43.0	34.5	43.0
FEC-36B	FEC-36G	36	6.0	36.0	24.0	58.5	42.5	52.0
FEC-48B	FEC-48G	48	6.0	48.0	24.0	58.5	54.5	64.0
FEC-56B	FEC-56G	56	9.0	56.0	29.0	71.0	67.2	76.7
FEC-70B	FEC-70G	70	10.0	70.0	36.0	86.0	82.5	92.0
FEC-95B	FEC-95G	95	13.0	95.0	45.0	110.0	106.0	115.5

NFH

Tube clip



Specifications

Material	High Quality Polyamide 6	Degrees of Protection	-
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray
Application	Fixing tubes By making more screw holes, the clip is more stable and the hinge cover is easy to use. This new clip was developed to facilitate straight arrangement and be installable at any size.		

(Unit : mm)

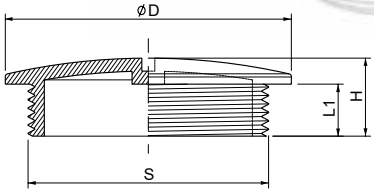
Ordering No.		Tube Size	ØD	A	H	H1	B	B1	E	F	ØG	Bolt
Black	Gray											
NFH-07B	NFH-07G	07	10.0	16.6	20.5	17.9	14.5	10.0	-	-	5.0	1-M4
NFH-10B	NFH-10G	10	13.0	23.0	24.2	21.6	15.0	10.0	-	-	5.0	1-M4
NFH-12B	NFH-12G	12	16.0	27.5	25.7	22.5	33.0	14.0	11.30	-	5.4	3-M5
NFH-16B	NFH-16G	16	21.5	34.2	33.0	29.5	36.0	14.0	12.00	-	5.4	3-M5
NFH-22B	NFH-22G	22	29.0	45.5	42.2	38.0	38.0	14.0	12.00	-	6.4	3-M6
NFH-28B	NFH-28G	28	35.0	55.0	49.8	45.3	37.0	14.0	12.50	17.00	6.4	5-M6
NFH-36B	NFH-36G	36	42.0	66.0	59.5	54.3	41.5	14.0	13.50	18.75	6.4	5-M6
NFH-48B	NFH-48G	48	54.0	84.9	73.2	66.9	41.5	14.0	13.50	28.00	6.4	5-M6
NFH-56B	NFH-56G	56	66.8	98.6	86.3	79.7	52.0	19.0	17.75	32.30	6.4	5-M6
NFH-70B	NFH-70G	70	82.0	121.0	105.8	97.6	63.0	23.0	21.50	39.50	8.4	5-M8
NFH-95B	NFH-95G	95	105.6	155.4	136.3	125.8	82.0	30.0	28.00	51.70	8.4	5-M8

BBS

Fitting Screw

Specifications

Material	High Quality Polyamide 6	Degrees of Protection	IP 66 (EN 60529)
The max. Instantaneous Temperature	-40 °C to +105°C	Short Term	up to +150° C
Self-Extinguishing	UL94-HB / Free of Halogen Phosphorous and cadmium	Color	Black & Gray

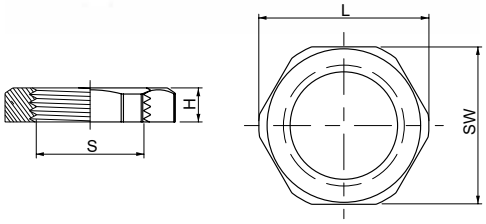


(Unit : mm)

	Ordering No.		Thread	S	L 1	H	ØD
	Black	Gray					
Pg Thread (DIN 40430)	BBS-P07W	BBS-P07G	Pg07	12.5	6.0	8.0	15.0
	BBS-P09W	BBS-P09G	Pg09	15.2	6.0	9.0	19.0
	BBS-P11W	BBS-P11G	Pg11	18.6	6.0	10.0	22.0
	BBS-P13W	BBS-P13G	Pg13.5	20.4	6.0	10.0	25.0
	BBS-P16W	BBS-P16G	Pg16	22.5	6.0	10.0	27.0
	BBS-P21W	BBS-P21G	Pg21	28.3	8.0	12.0	33.0
	BBS-P29W	BBS-P29G	Pg29	37.0	8.0	12.0	44.0
	BBS-P36W	BBS-P36G	Pg36	47.0	10.0	15.0	55.0

FLN

Hexagon nut



Specifications

Material	Polyamide	Degrees of Protection	-
Properties	Tube terminal, assembled by just putting on	Color	Black & Gray
For tube type	Corrugated tubes, type of CPSFLEX		

(Unit : mm)

	Ordering No.		Thread	S	H	L	SW
	Black	Gray					
PF Thread (JIS B0202)	FLN-G07B	FLN-G07G	G1/4"	13.0	6.0	20.7	19.0
	FLN-G10B	FLN-G10G	G1/2"	20.9	6.0	29.5	27.3
	FLN-G12B	FLN-G12G	G1/2"	20.9	6.0	29.5	27.3
	FLN-G16B	FLN-G16G	G1/2"	20.9	6.0	29.5	27.3
	FLN-G22B	FLN-G22G	G3/4"	26.4	6.8	38.4	36.0
	FLN-G28B	FLN-G28G	G1"	33.2	6.8	47.8	44.0
	FLN-G36B	FLN-G36G	G1 1/4"	41.9	8.0	52.3	49.0
	FLN-G42B	FLN-G42G	G1 1/2"	47.8	8.0	72.3	65.0
	FLN-G48B	FLN-G48G	G2"	59.6	8.0	76.5	70.0
Metric Thread (EN 60423)	FLN-M10B	FLN-M10G	M12 X 1.5	12.0	6.0	18.6	17
	FLN-M12B	FLN-M12G	M16 X 1.5	16.0	6.0	24.0	22
	FLN-M16B	FLN-M16G	M20 X 1.5	20.0	6.0	28.0	26
	FLN-M22B	FLN-M22G	M25 X 1.5	25.0	6.8	35.6	33
	FLN-M28B	FLN-M28G	M32 X 1.5	32.0	6.8	43.6	40
	FLN-M36B	FLN-M36G	M40 X 1.5	40.0	8.0	54.0	50
	FLN-M48B	FLN-M48G	M50 X 1.5	50.0	8.0	65.4	60
Pg Thread (DIN 40430)	FLN-P07B	FLN-P07G	Pg07	12.5	4.0	21.1	19.0
	FLN-P09B	FLN-P09G	Pg09	15.2	4.0	23.9	22.0
	FLN-P11B	FLN-P11G	Pg11	18.6	6.0	25.8	24.0
	FLN-P13B	FLN-P13G	Pg13.5	20.4	6.0	28.7	27.0
	FLN-P16B	FLN-P16G	Pg16	22.5	6.0	32.1	30.3
	FLN-P21B	FLN-P21G	Pg21	28.3	6.8	38.5	36.0
	FLN-P29B	FLN-P29G	Pg29	37.0	6.8	49.7	46.0
	FLN-P36B	FLN-P36G	Pg36	47.0	8.0	66.5	60.0
	FLN-P48B	FLN-P48G	Pg48	59.3	8.0	78.1	70.2

SLN

Fitting Steel Nut

(Unit : mm)

PF Thread (JIS B0202)	Metric Thread (EN 60423)	Pg Thread (DIN 40430)
SLN-G07		SLN-P07
SLN-G10	SLN-M10	SLN-P09
SLN-G12	SLN-M12	SLN-P11
SLN-G16	SLN-M16	SLN-P13
SLN-G22	SLN-M22	SLN-P16
SLN-G28	SLN-M28	SLN-P21
SLN-G36	SLN-M36	SLN-P29
SLN-G42	SLN-M48	SLN-P36
SLN-G48		SLN-P48

FWH

Fitting Washer

(Unit : mm)

PF(G) Thread	Metric Thread	Pg Thread
-	-	FWH-P07
FWH-G10	FWH-M10	FWH-P09
FWH-G12	FWH-M12	FWH-P11
FWH-G16	FWH-M16	FWH-P13
FWH-G22	FWH-M22	FWH-P16
FWH-G28	FWH-M28	FWH-P21
FWH-G36	FWH-M36	FWH-P29
FWH-G42	-	FWH-P36
FWH-G48	FWH-M48	FWH-P48