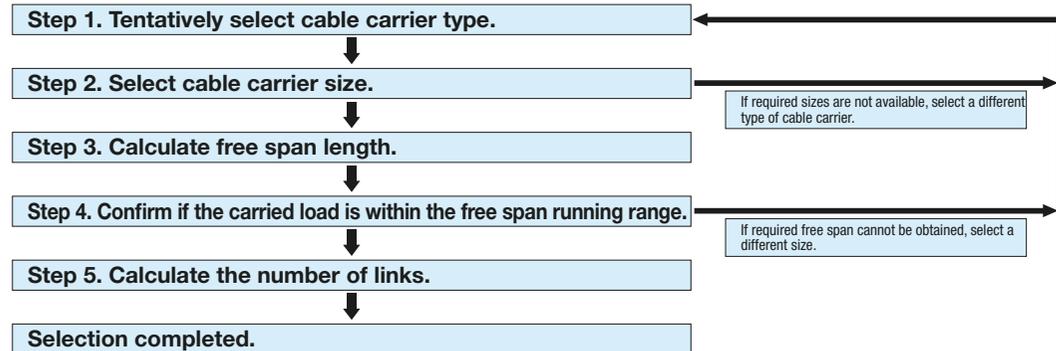


Cable Carriers - Overview

Cable Carrier Selection



Step 1. Tentatively select cable carrier type.

Please tentatively select types referring to the following features, open-close methods and sizes.

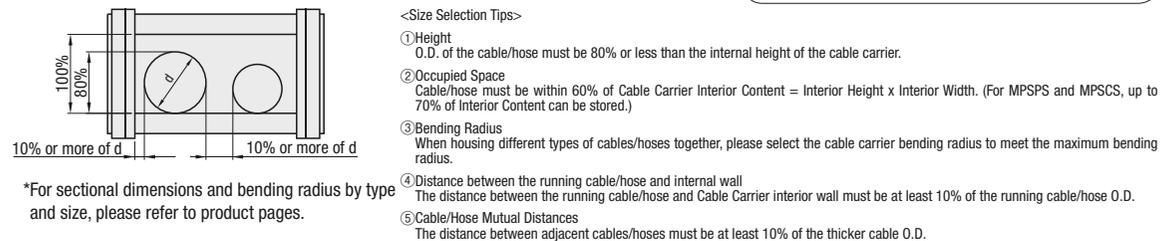
Type	Features	Flap Open-Close System	Note																																																																
Slit Type SE, SZ P668	Cables/hoses can be easily inserted in from both external and internal circumference sides. • Available in cleanroom environment. • Cable link assembly is not required.	Insert the cable into the opening.	<p><Dimensions></p> <table border="1"> <thead> <tr> <th colspan="2">Min.</th> <th colspan="2">Carried Load Max. Diameter</th> <th colspan="2">Max.</th> <th colspan="2">Carried Load Max. Diameter</th> </tr> <tr> <th>WxB</th> <th>CxA</th> <th>WxB</th> <th>CxA</th> <th>WxB</th> <th>CxA</th> <th>WxB</th> <th>CxA</th> </tr> </thead> <tbody> <tr> <td>SE - SZ</td> <td>23x12.5</td> <td>16x9.4</td> <td>Ø7</td> <td>120x64</td> <td>96x48.5</td> <td>Ø25</td> <td></td> </tr> <tr> <td>MHPKS</td> <td>16x12</td> <td>9x9</td> <td>Ø7</td> <td>59x22</td> <td>44x16</td> <td>Ø12</td> <td></td> </tr> <tr> <td>MHPUS</td> <td>27x12</td> <td>20x9</td> <td>Ø7</td> <td>117x40</td> <td>97x24.5</td> <td>Ø19</td> <td></td> </tr> <tr> <td>FHPS</td> <td>26x20</td> <td>14x13</td> <td>Ø10</td> <td>117x40</td> <td>97x25</td> <td>Ø20</td> <td></td> </tr> <tr> <td>MPSPS</td> <td>32x21</td> <td>20x15</td> <td>Ø12</td> <td>101x50</td> <td>80x35</td> <td>Ø28</td> <td></td> </tr> <tr> <td>MPSCS</td> <td>28x25</td> <td>20x15</td> <td>Ø12</td> <td>113x55</td> <td>100x35</td> <td>Ø28</td> <td></td> </tr> </tbody> </table> <p><Cleanliness Characteristics></p> <p><Noise Characteristics></p>	Min.		Carried Load Max. Diameter		Max.		Carried Load Max. Diameter		WxB	CxA	WxB	CxA	WxB	CxA	WxB	CxA	SE - SZ	23x12.5	16x9.4	Ø7	120x64	96x48.5	Ø25		MHPKS	16x12	9x9	Ø7	59x22	44x16	Ø12		MHPUS	27x12	20x9	Ø7	117x40	97x24.5	Ø19		FHPS	26x20	14x13	Ø10	117x40	97x25	Ø20		MPSPS	32x21	20x15	Ø12	101x50	80x35	Ø28		MPSCS	28x25	20x15	Ø12	113x55	100x35	Ø28	
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Compact Type MHPKS P669	Space-saving design enables protection and guide even for only one cable/hose.	Flaps do not open.																																																																	
Flap Open-Close Type MHPUS P670	Flaps open on either side.	Flaps open from either right or left.																																																																	
Flap Open-Close Full Cover Type FHPS P671	Full Cover Type protects cables/hoses from dust.																																																																		
Low Friction, Low Noise Type MPSPS P673	Lower friction on cables/hoses achieves smaller noise.																																																																		
Low Particle Generation, Low Noise Type MPSCS P672	Low particle generation contributes to meet Cleanroom Class 1000 standard and low noise level.																																																																		

<Selection Examples>
Select MPSCS to use in clean room environment.

Step 2. Select cable carrier size.

Select suitable cable carrier size for housing cables/hoses.

<Selection Examples>
One Ø20mm cable needs to be housed.
Select MPSCS2540-60 (Interior Height 25mm) because 20/0.8=25 or more interior height is required for the condition that the cable O.D. must be within 80% of interior height.



Step 3. Calculate free span length.

Calculate the length of free span by required moving stroke and the position of fixed end.

<Selection Examples>
1500mm is required for strokes. Free span length requires 1500/2=750mm as the fixed end can be set at a stroke intermediate point.

<Free Span Length>
Distance between the cable carrier moving end (A) and bending radius arc origin point (B).

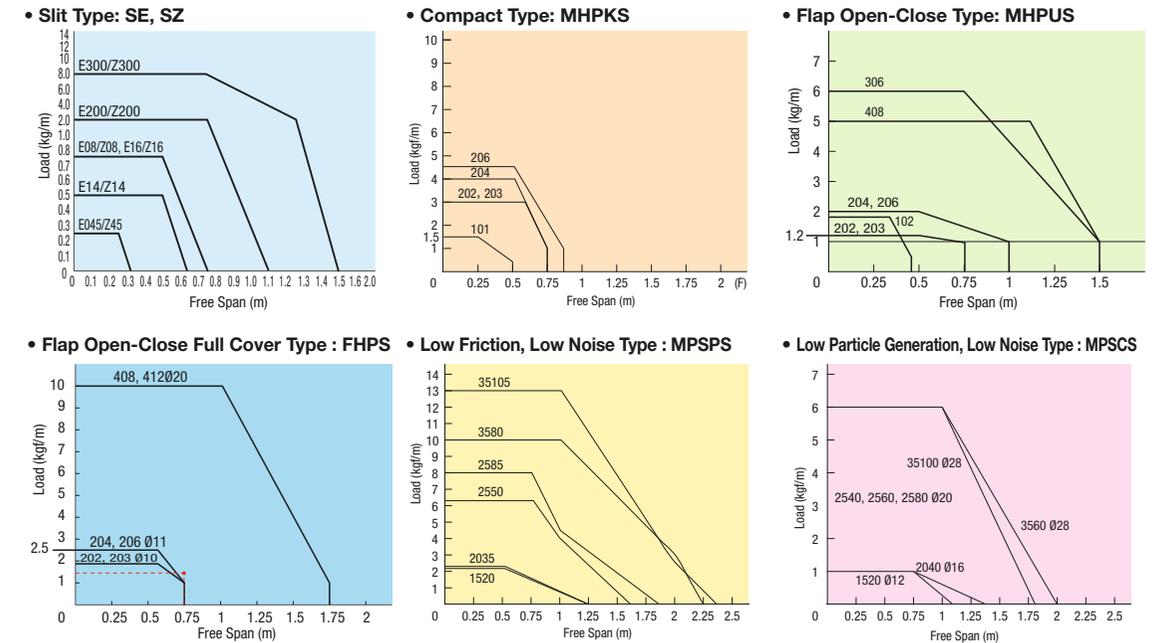
When positioning the fixed end in the center of the moving stroke, Free Span Length = Moving Stroke/2

*Possible to minimize the quantity of Cable Carrier Links by setting the fixed end at the intermediate point of moving stroke.

Step 4. Confirm the carried load and free span running range.

The relationship between the free span length and bearable load (weight of cables/hoses stored) depends on cable carrier types. Please check if housed cables / hoses weight falls within the free span travel allowable range (inside the line graph) in the graph below.

<Selection Examples>
Cable weight is 1.5kg/m. When free span length is 0.75m, it is applicable because 1.5kg falls within the weight capacity line in the graph.



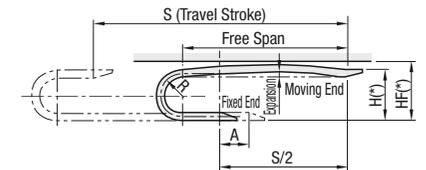
Step 5. Calculate the number of links.

Calculate the number of links by the following formula.

$$n = \frac{S + K + A}{P}$$

n : Number of Links
S : Travel Stroke
K : Arc + Margin (*)
A : Distance from an intermediate point (mm) when fixed end is not set at a travel stroke intermediate point.
(0 when at an intermediate point)
P : Pitch (*)

<Selection Examples>
As 2000mm is required for FHPS408-70 and strokes, and the fixed end is set at a stroke intermediate point.
 $\frac{2000}{2} + 319.8 (\text{Arc} + \text{Allowance}) + 0 = 1000 + 319.8 = 1319.8$
 $\frac{1319.8}{45 (\text{Pitch})} \approx 29.33$
~ 30 (Required Number of Links) + 2 (Number of Spare Links) *1



*1 About Number of Spare Links
• In the case of new designs, there may be a possibility that carrier links run short.
• It is recommended that links are selected longer by one or two links, and are adjusted (removed) at the time of installing (removing) device.
• For installation, see product pages.

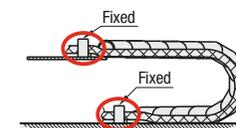
Ⓜ Drawing mark "HF" indicates a height with a potential bow that may occur when no cable hoses are inserted.

*For K (Arc + Allowance), P (Pitch) and H/HF (Physical Height), see product pages.

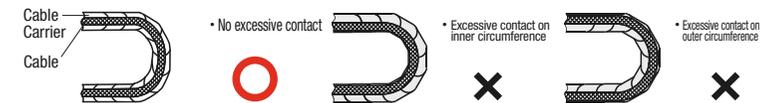
Cautions on cable installation and mounting

• Fix the cable on both ends of cable carrier.

• In all the stroke ranges, check if the cable is not making excessive contact on inner and outer circumference of cable carrier.



Please arrange wiring to allow cable free movement.



Please fix cables at both moving and fixed ends so that no undue tension force applies.

* Cables can be tied with cable ties at the comb teeth ends with the Slit Type Cable Carrier on P667.