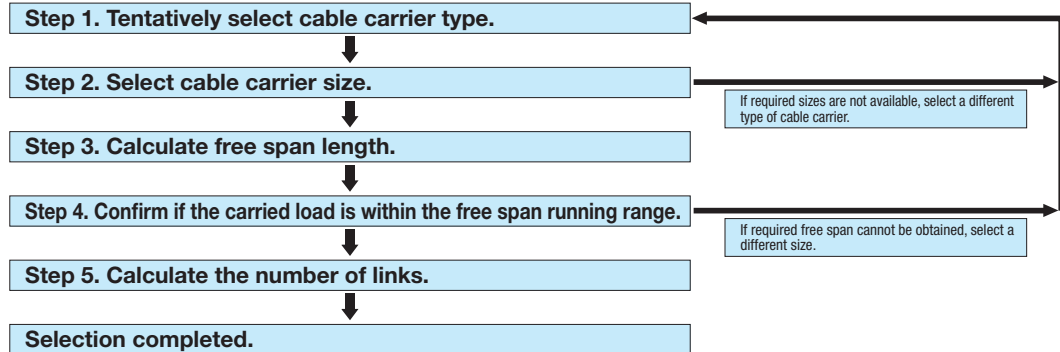


Cable Carriers - Overview

Cable Carrier Selection



Step 1. Tentatively select cable carrier type.

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

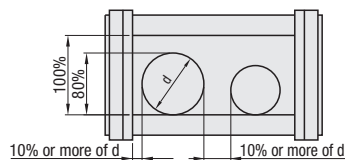
Type	Feature	Flap Open-Close System	Note																																
With Slit SE, SZ P600	Cables / hoses can be easily inserted in from both external and internal circumference sides. • Suitable for cleanroom environment. • Cable link assembly is not required.	Insert the cable into the opening.	<Dimensions> <table border="1"> <thead> <tr> <th colspan="2">Min.</th> <th colspan="2">Max.</th> </tr> <tr> <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> </tr> <tr> <td>MHPKS</td> <td>16x12</td> <td>9x9</td> <td>Ø7</td> </tr> <tr> <td>MHPUS</td> <td>27x12</td> <td>20x9</td> <td>Ø7</td> </tr> <tr> <td>FHPS</td> <td>26x20</td> <td>14x13</td> <td>Ø10</td> </tr> <tr> <td>MPSPS</td> <td>32x21</td> <td>20x15</td> <td>Ø12</td> </tr> <tr> <td>MPSCS</td> <td>28x25</td> <td>20x15</td> <td>Ø12</td> </tr> </tbody> </table> <Cleanliness Characteristics> <Noise Characteristics> 	Min.		Max.		WxB	CxA	WxB	CxA	SE, SZ	23x12.5	16x9.4	Ø7	MHPKS	16x12	9x9	Ø7	MHPUS	27x12	20x9	Ø7	FHPS	26x20	14x13	Ø10	MPSPS	32x21	20x15	Ø12	MPSCS	28x25	20x15	Ø12
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MPSCS	28x25	20x15	Ø12																																
Compact Type MHPKS P601	Space-saving design enables protection and guide even for only one cable / hose.	Flaps do not open.																																	
Flap Open-Close Type MHPUS P602	Flaps open on either side.	Flaps open from either right or left.																																	
Flap Open-Close Full Cover Type FHPS P603	Full Cover Type protects cables / hoses from dust.																																		
Low Friction, Low Noise Type MPSPS P605	Lower friction on cables / hoses achieves less noise.																																		
Low Particle, Low Noise Type MPSCS P604	Low particle generation contributes to meet Cleanroom Class 1000 standard and low noise level.																																		

<Selection Examples>
Select MPSCS to use in cleanroom environment.

Step 2. Select Cable Carrier size.

Select suitable Cable Carrier size for housing cables / hoses.

<Selection Examples>
One Ø20mm cable needs to be stored.
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.

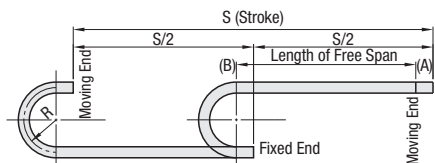


<Size Selection Tips>

- Height**
O.D. of the cable / hose must be 80% or less than the internal height of the cable carrier.
- Occupied Space**
Cable / hose must be within 60% of Cable Carrier Interior Content = Interior Height x Interior Width. (MPSPS and MPSCS can be stored up to 70% of interior content)
- Bending Radius**
When housing different types of cables / hoses together, please select the cable carrier bending radius to meet the maximum bending radius.
- Distance between the running cable / hose and internal wall**
The distance between the running cable / hose and Cable Carrier interior wall must be at least 10% of the running cable / hose O.D.
- Cable / Hose Mutual Distances**
The distance between adjacent cables / hoses must be at least 10% of the thicker cable O.D.

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.

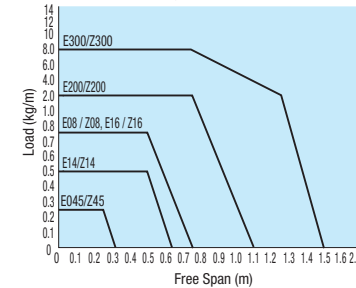
Step 4. Confirm the carried load and free span running range.

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.

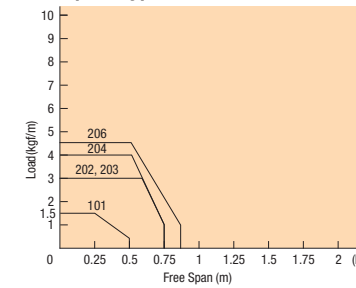
<Selection Examples>

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.

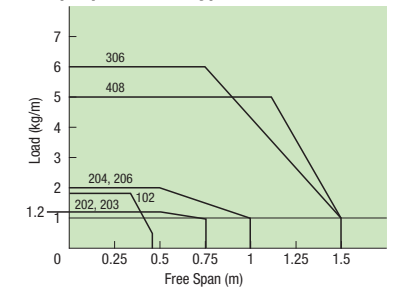
With Slit: SE, SZ



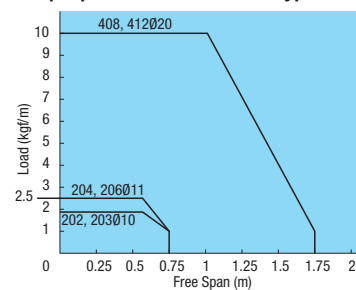
Compact Type: MHPKS



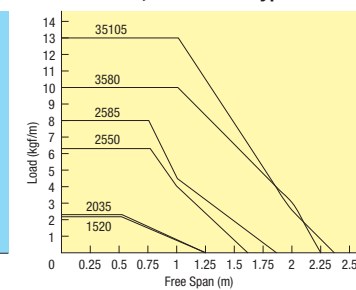
Flap Open-Close Type: MHPUS



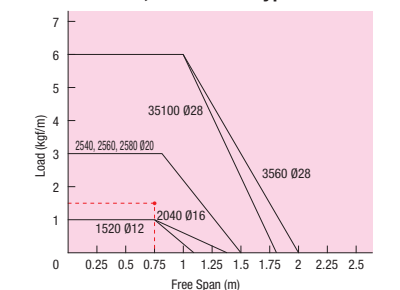
Flap Open-Close Full Cover Type: FHPS



Low Friction, Low Noise Type: MPSPS



Low Particle, Low Noise Type: MPSCS



Step 5. Calculate the number of links.

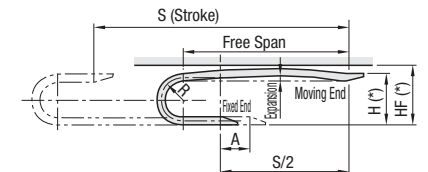
Calculate the number of links by the following formula.

$$n = \frac{S}{2} + \frac{K+A}{P}$$

- n: Number of Links (Round up the numbers after the decimal point.)
- 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 1500mm is required for MPSCS2510-60 and strokes, and the fixed end is set at a stroke intermediate point, $\frac{1500}{2} + 251.5 (\text{Arc} + \text{Allowance}) + 0 = 34$ (Required Number of Links)



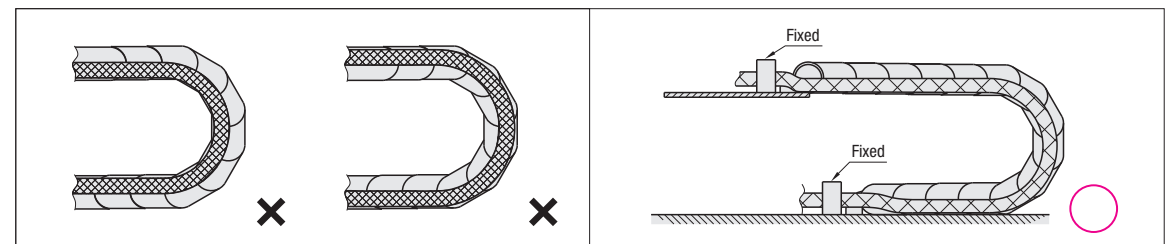
Note

- 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



Please arrange wiring to allow cable free movement.

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

* For Cable Carrier with With Slit on P599, cables can be tied at the comb teeth ends with cable ties.