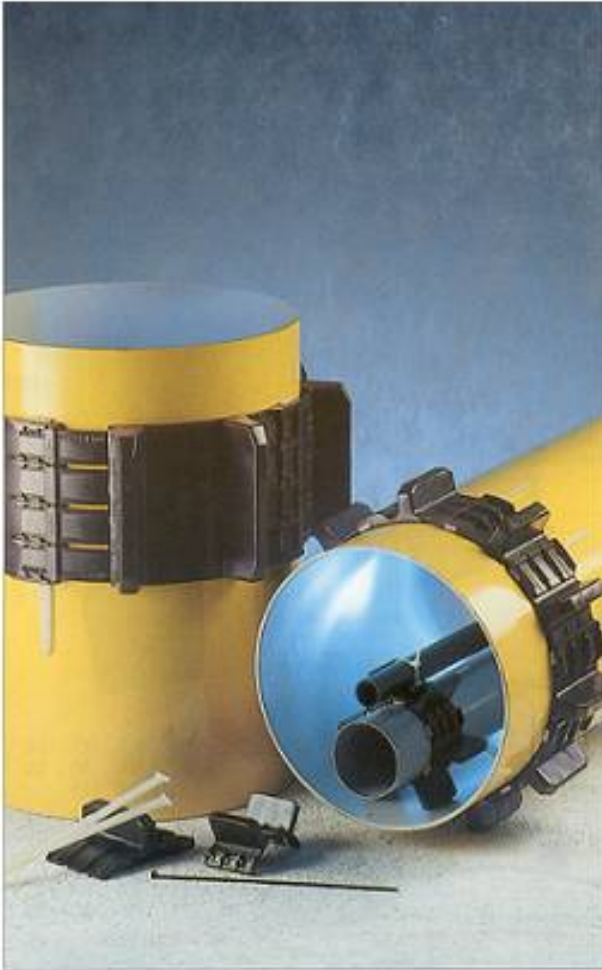


METALFREE PLASTIC INSULATORS MF



MF micro
MF mini
MF midi
MF maxi
MF maxi 0,5

In brief...

- **MF insulators (MF = metalfree)** are ideally suited for cathodically protected pipelines.
- Their patented construction means **speedier assembly times** - no more tooling around with screwdrivers or supplementary clamping implements!
- Only 5 different segment sizes - micro, mini, midi, maxi and maxi 0,5 - can cope with **all pipe diameters from ND 15 upwards**.
- The segments are linked and tightened by means of plastic pins. The flush fit of their corresponding shapes guarantees extreme endurance.



Société Internationale de Produits et Services Industriels

102 rue J.-B. Charcot

92400 Courbevoie - France

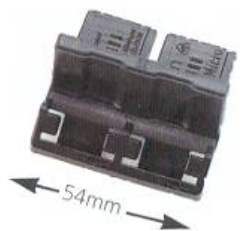
☎ : (33) 01 47 68 75 00

✉ : ipsi@ipsifrance.com

☎ : (33) 01 47 89 99 39

🌐 : www.ipsifrance.com

Segment sizes



MF micro

arc length 23-33 mm, width 54 mm, 1 skid per segment.
For small pipe diameters from 21 mm (3 segments) to ca. 80 mm (8 segments).

Skid heights (in mm) :
8 ; 12,5 ; 16,5 ; 21 ; 28 ; 33 ; 44 ; 50 ; 65 ; 75 ; 90 ; 100.



MF mini

arc length 49-65 mm, width 80 mm, 1 skid per segment.
For small pipe diameters from 40 mm (3 segments) to ca. 140 mm (7 segments).

Skid heights (in mm) :
12,5 ; 16,5 ; 21 ; 28 ; 33 ; 38 ; 44 ; 50 ; 65 ; 75 ; 90 ; 100 ; 125.



MF midi

arc length 110-150 mm, width 130 mm, 1 skid per segment.
For medium pipe diameters from ca. 110 mm (3 segments) to ca. 460 mm (10 segments).

Skid heights (in mm) :
16,5 ; 21 ; 28 ; 33 ; 38 ; 44 ; 50 ; 65 ; 75 ; 80 ; 90 ; 100 ; 110 ; 125.



MF maxi

arc length 339-435 mm, width 225 mm, 2 skids per segment.
For large pipe diameters from ca. 400 mm (4 segments) to as large as they come.

Skid heights (in mm) :
21 ; 28 ; 38 ; 50 ; 65 ; 75 ; 90 ; 100 ; 125.

MF maxi 0,5 (half segment of MF maxi)

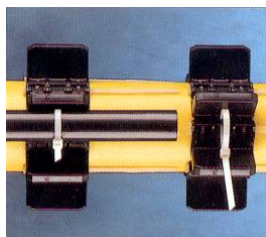
arc length 180-276 mm, width 225 mm, 1 skid per segment.
For in-between sizes, 390-550 mm (1 additional segment for Maxi).

Skid heights (in mm) :
21 ; 28 ; 38 ; 50 ; 65 ; 75 ; 90 ; 100 ; 125.

Protective pipe for cable can be attached



To find out the necessary number of segments for a particular pipe diameter use the table two pages on.



A cable pipe can be attached to all segments using quick-lock-binders (metalfree) or steel tightening clamps.



Société Internationale de Produits et services Industriels

102 rue J.-B. Charcot
92400 Courbevoie - France

☎ : (33) 01 47 68 75 00
✉ : ipsi@ipsifrance.com

📞 : (33) 01 47 89 99 39
🌐 : www.ipsifrance.com

**Segments assembly :
speed without tools**



individual segment



Pin with slant-rib profile



two interposed units previous to the pin's insertion



... and afterwards. The red lines indicate by just how much the segment have been tightened



completed insulator ring consisting of 8 MF midi segment units for diameter 276-376 mm.

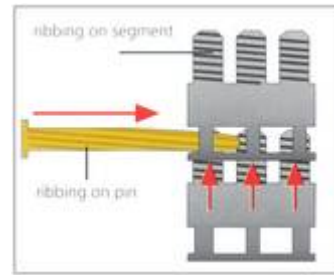
MF insulators : assembled without fuss or additional tools a straightforward affair.

Procedure :

1. The individual units are interposed until an insulator ring is completed around the pipe.

2. The segment units are connected and tightened using a plastic pin.

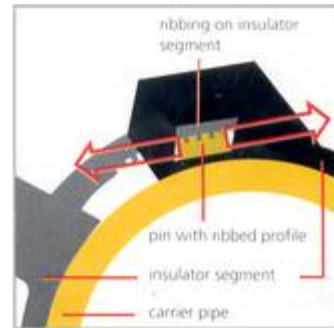
What happens is that the slant rib profile of the pin slots into the ribbing of the segments, pulling both together on the pin's insertion (see drawing 1).



Drawing 1 : the inside view.

3. Final tension is achieved by with drawing the pin and reinserting it until the complete ring grips the pipe tightly.

The **corresponding shapes** fit exactly to **ensure an enduring connection** i.e. an high load-bearing capacity (see drawing 2).



Drawing 2 : cross section view.



Société Internationale de Produits et services Industriels

102 rue J.-B. Charcot

92400 Courbevoie - France

☎ : (33°) 01 47 68 75 00

✉ : ipsi@ipsifrance.com

📞 : (33) 01 47 89 99 39

🌐 : www.ipsifrance.com

Material

MF insulators are made from highest quality original low pressure polyethylene (ND-PE, no reconstitutes).

This special polyethylene has the following technical features :

- high stress cracking resistance (18h according to ATM D 1693).
- high impact strength (15 kj/m² according to ISO 179/2C)
- very good compressive tenacity of ca. 10 N/mm²

- resistance to a constant temperature of 90°C and to short term heating up to 110°C

- outstanding dielectric strength (70-80 kmm, DIN VDE 0303)

- good sliding properties

MF insulators are made of black polyethylene and are ca. 15 times more UV resistant than insulators made of white polyethylene.

Diameters table

Number of segments	Diameter in mm					
	MF micro	MF mini	MF midi	MF maxi	MF maxi + maxi 0,5	MF maxi 0,5
3	21-29	46 - 62	104 - 141	325 - 395		195 - 235
3 + 1 x 0,5					390 - 460	
4	29-40	62 - 83	138 - 188	426 - 546		235 - 300
4 + 1 x 0,5					450 - 550	
5	38-49	77 - 104	172 - 235	532 - 682		275 - 365
6	46-60	92 - 125	207 - 282	638 - 819		
7	55-69	107 - 145	241 - 329	745 - 955		
8	61-80	123 - 166	276 - 376	851 - 1092		
9		138 - 187	310 - 423	957 - 1228		
10		153 - 205	344 - 470	1064 - 1365		
11		169 - 228	379 - 517	1170 - 1502		
12		184 - 249	413 - 564	1276 - 1838		
13				1383 - 1775		
14				1489 - 1911		
15				1595 - 2048		
16				1702 - 2184		
17				1808 - 2321		
18				1914 - 2457		
19				2020 - 2594		
20				2127 - 2731		
21				2233 - 2867		

Standards measurements in **bold type**

Maximum load-bearing capacity...

(insulators spacing)

... a complex and difficult problem influenced by factors such as (for example) skid height.

Increasing skid height reduces the load-bearing capacity as follows :

- From 50 mm up : by 20 %
- From 80 mm up : by 30 %
- From 100 mm up : by 50 %

1.000 N 3.000 N 7.500 N 30.000 N

Coupler-connected pipes need (independent of weight) at least 3 rings per pipe length to relieve the couplers.

In the case of polyethylene pipes, the manufacturer's instructions on maximum support spacing **must** be observed.



Société Internationale de Produits et services Industriels

102 rue J.-B. Charcot

92400 Courbevoie - France

☎ : (33°) 01 47 68 75 00

✉ : ipsi@ipsifrance.com

☎ : (33) 01 47 89 99 39

🌐 : www.ipsifrance.com