INSULATOR CATALOG

APPROVED EGY-TEC. CO.

APPROVED EGY-TEC. CO.
Approved Egyptian Technology Company

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APPROVED EGY-TEC. CO. Centering Insulators

GENERAL INFORMATION

High Density Polyethylene (HDPE) insulators are universally applicable in the installation of pipelines when the carrier pipe runs inside a casing. Plastic insulators provide many advantages for these applications:

Easy penetration of carrier pipe. The coefficient of friction of the insulators is reduced to a minimum because they are made of plastic.

A wide range of skid heights ensures concentricity of the carrier pipe in the casing if required.

The minimized friction prevents damage to the casing coating and insulation of the pipes.

Excellent insulation characteristics of materials used. All requirements of cathodic pipe protection are met.

Insulators are suitable for all pipe diameters from 25 mm upwards and many skid heights are available to suit specific requirements.

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TECHNICAL DATA

Materials

High Density Polyethylene (HDPE) have a good friction coefficient due to steel wax like surface. The sliding friction coefficient is approx. 0.2 as for steel has a coefficient of approx. 0.5. In comparison to this, steel on steel is approx. 0.5. Therefore, the abrasion is reduced to a minimum. The material is strong and yet flexible and is therefore resistant to stress cracking. Flexibility of the body, stability of the skid form and excellent dielectric insulation are some of the good characteristics of this material.

Installation notes

Insulator rings are normally installed with the following spacing between the rings:

- Pipe diameter up to 300 mm in 2.0 m support distance.
- Pipe diameter of more than 300 mm in 1.8 m support distance.

In particular cases, the ring distance may be modified after having examined the installation situation.

Load Capacity

Type	Max. static load per ring
PA/PE 1,2,3 and 4	400 kg
PA/PE 5 and 6	500 kg
AZ/AC	400 kg
MA1 and MA2	2000 kg

The load capacity data is applicable for a skid height of up to 75 mm. For skid heights above 75 mm, these values need to be multiplied with a factor of 0.75.

If you cannot determine the type according to our tables, please specify:

- the outer diameter of the carrier pipe (inclusive coating) in mm.
- the inner diameter of the casing pipe in mm.

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APPROVED EGY-TEC. CO. Insulator Rings Type PA/PE

GENERAL INFORMATION

Pipe outer diameter from 25 mm to 178 mm

Type PA/PE insulators are available for a pipe outer diameter from 25 mm to 178 mm. They consist of two half shells. The nuts and bolts required for assembly are included in every delivery.

The type code indicates the carrier pipe O.D. in inch and the skid height in mm (e.g. PA/PE 4-55 = carrier pipe 4", skid height 55 mm).

The skid height is calculated from the difference in diameter of the carrier pipe and the casing. It is important to consider the actual dimensions, including coatings, rather than the nominal sizes.

Sectional drawing of segment.
PA/PE 1 to PA/PE 4
Ring with a total of 4 skids

Sectional drawing of segment.
PA/PE 5 and PA/PE 6
Ring with a total of 6 skids

SELECTION TABLE

Nominal Size		Outer diameter in mm		Type	Skid height in mm including basic element	Width in mm	Number of segments	Number of skids	Bolts DIN 912 Qty/Size
mm	Inch	Min.	Max.						
25	1	30	38	PA/PE 1-49 PA/PE 1-68 PA/PE 1-88	49 68 88	80	2	4	4 M 6 x 60
50	2	60	67	PA/PE 2-36 PA/PE 2-55 PA/PE 2-75	36 55 75	80	2	4	4 M 6 x 60
80	3	89	96	PA/PE 3-38 PA/PE 3-68 PA/PE 3-88	38 68 88	130	2	4	4 M 6 x 60
100	4	106	120	PA/PE 4-25 PA/PE 4-55 PA/PE 4-75	25 55 75	130	2	4	4 M 6 x 60
125	5	135	142	PA/PE 5-38 PA/PE 5-68 PA/PE 5-88	38 68 88	130	2	6	4 M 6 x 60
150	6	160	178	PA/PE 6-25 PA/PE 6-55 PA/PE 6-75	25 55 75	130	2	6	4 M 6 x 60

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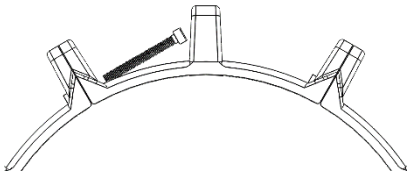
APPROVED EGY-TEC. CO. Insulator Segments Type AZ/AC

GENERAL INFORMATION

Pipe outer diameter from 219 mm to 330 mm
AZ/AC insulator rings are used for a pipe O.D. from 219 to 330 mm and consist of several segments. The number of segments depends on the carrier pipe's O.D. The nuts and bolts required for assembly are included.
The universal applicability of type AZ/AC provides two special advantages:

- Variable ring diameter, which is especially important for thick-walled pipes whose O.D. substantially deviates from the nominal size (e.g. AZ/AC pressure pipe ND 16, vitrified clay pipes);
- Only one segment size is required to assemble O.D 219 to O.D 330 insulator rings - a decisive edge in stock-keeping.

The skid height is calculated from the difference in diameter of the carrier pipe and the casing pipe.
The segments can be assembled with the corrosion protected steel bolts DIN 912 and nuts DIN 562 supplied.
The following table gives the technical details on available sizes, skid heights of the various types and carrier pipe diameters.



Sectional drawing of AZ/AC

SELECTION TABLE

Type	Skid height	Width	Number of bolts per segment
AZ/AC	55	130	2 M6 x 60
AZ/AC	100	130	2 M6 x 60

Outer of carrier pipe in mm		Number of segments per ring	Bolts
Min.	Max.	AZ/AC	Qty/Size
219	226	4	8 M 6 x 60
273	280	5	10 M 6 x 60
323	330	6	12 M 6 x 60

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APPROVED EGY-TEC. CO. Insulator Rings Segments Type MA1/MA2

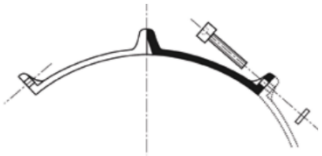
GENERAL INFORMATION

Pipe outer diameter from 400 mm
Starting with a pipe OD of 402 mm, MA1 insulator rings consisting of two segments sizes (MA1 and MA2) and various skid heights are used to suit the respective pipe OD.
The special advantage of these insulators Is their universal applicability. The following rule is used to determine the composition of suitable insulator rings:
For every 100 mm of pipe outer diameter 1 MA segment for every 50 mm of pipe outer diameter = 1 MA2 segment

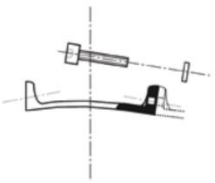
Example:

Carrier pipe OD 559 = 5 MA1 segments
+1 MA2 segment.

The skid height of the segments is calculated from the difference in diameter of the carrier pipe and the casing pipe for an example calculation refer to type PA/PE.
The segments can be assembled with the corrosion protected steel bolts DIN 912 and nuts DIN 562 supplied.
The following table gives the technical details on available sizes, skid heights of the various types and carrier pipe diameters.



Sectional drawing of MA1 segment



Sectional drawing of MA2 segment

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SELECTION TABLE

Type	Skid height in mm	Width in mm	Number of skids	Number of bolts per segment
MA1/36	36	160	3	2 M 6 x 60
MA1/55	55	160	3	2 M 6 x 60
MA1/125	125	160	3	2 M 6 x 60
MA2/36	36	160	2	2 M 6 x 60
MA2/55	55	160	2	2 M 6 x 60
MA2 as half a segment				

Nominal diameter		Outer of carrier pipe in mm		Number of segments per ring		Bolts Qty/size - length
ND	inch	Min.	Max	MA1	MA2	
350	14	350	370	3	1	8 M 6 x 60
400	16	402	420	4		8 M 6 x 60
450	18	450	485	4	1	10 M 6 x 60
500	20	500	530	5		10 M 6 x 60
550	22	548	599	5	1	12 M 6 x 60
600	24	600	653	6		12 M 6 x 60
650	26	654	699	6	1	14 M 6 x 60
700	28	700	749	7		14 M 6 x 60
750	30	750	799	7	1	16 M 6 x 60
800	32	800	849	8		16 M 6 x 60
850	34	850	899	8	1	18M 6 x 60
875	35	875	924	9		18 M 6 x 60
900	36	900	949	9		18 M 6 x 60
950	38	950	994	9	1	20 M 6 x 60
1000	40	995	1044	10		20 M 6 x 60
1050	42	1045	1097	10	1	22 M 6 x 60
1100	44	1098	1149	11		22 M 6 x 60
1150	46	1150	1199	11	1	24 M 6 x 60
1200	48	1200	1249	12		24 M 6 x 60

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