

ECMEI



Electrical Insulators

ELSEWEDY
ELECTRIC



Introduction

In June 2008, Elsewedy cables has acquired

The Egyptian Company for Manufacturing Electrical insulators (ECMEI) , the distinctive company in the middle East in manufacturing ceramics insulator .

ECMEI was established on 1994 with an annual production capacity of 3000 tons and possibility to extend to 7000 tons under license of CERAM group who have wide range of products and long standing experience in high tension insulators of different applications .

ECMEI uses the state of art technology in the field of porcelain insulators and has high qualified specialized stats that can conceptualize. Design and modify according to customer requirements.

Our plant and machinery including lab equipment / instrument for material analysis, follow up production and electrical and mechanical test machines have been procured from international specialized manufacturer in Germany, England , France , Czech Republic and USA.

We have also ISO9001:2008 for Quality Management System ,ISO 14001:2004 for Environmental Management System , OHSAS 18001:2007 for Occupational Health and Safety ,ISO/IEC17025:2005 for High voltage testing lab .

Management system in accordance with international / European / National standard as well as customer specifications .

Our manufacture program is prepared to cover the requirements of electricity authority and other utilities in Egypt as well as other neighboring countries of different climatic conditions

The production comprises of the following type according to IEC/DIN/ANSI/.....standards .

- Cap & pin insulators for medium and high voltage with straight head design include Normal type , Open Profile type and Anti-Fog type up to 500 KV HVAC systems with electromechanical strength up to 210 KN .
- Long Rod insulators.
- Post insulators for indoor & outdoor use.
- Line post insulator.
- Pin insulators 15,25 and 36 KV applications.
- Stay insulator.
- Low Voltage pin insulator up to 1.1 KV
- Low Voltage Spool & Shackle insulators.
- Transformer Bushing.
- Low Voltage Distribution Transformer Bushings .
- And more.....

ECMEI

JUNE 2014

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Cap & Pin Anti-Fog

Cap and pin insulators are generally used on over head transmission and distribution network to evacuate bulk power over long distances.

The insulators could be in suspension or tension made in string form to insulate the conductor from tower.

Normal, Anti-fog and open profile can be used according to pollution degree.

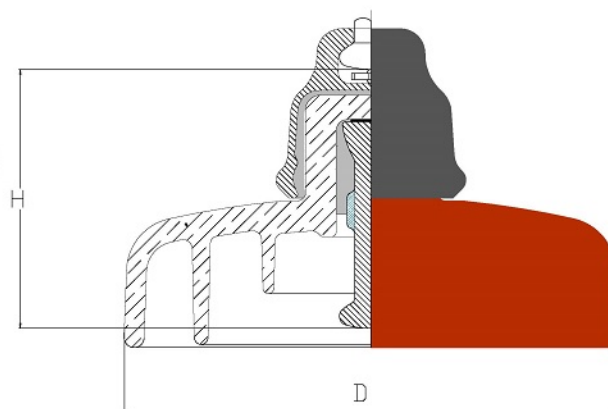
We manufacture Anti-fog type from 40 KN up to 210 KN electro-mechanical strength insulator from 190mm to 550 mm leakage path for networks up to 500 KV. In a straight head design, the insulator's pin includes zinc sleeve.

Every insulator is tested with hydraulic pressure and combination of high and power frequency electrical test ; followed with routine mechanical and electrical tests as per IEC standard after assembling with cement and metal parts.

Product No.				041-00	043-00	045-00	045-01	045-02	046-00	046-01	050-00	052-00
Porcelain Dia.(D)			mm	255	280	280	280	280	320	320	320	320
Spacing (H)			mm	110	146	170	146	146	146	146	175	175
Creep age Distance		Total Creepage	mm	320	440	440	440	440	470	470	550	550
		Protected Creepage	mm	220	320	320	320	320	320	320	400	400
Combined Electro Mechanical Strength			KN	40	90	120	120	120	80	120	160	210
Flash over	Power Frequency	Dry	KV	78	80	80	80	80	85	85	95	95
		Wet	KV	45	48	45	45	45	55	55	60	60
	Impulse	Positive	KV	120	125	125	125	125	145	145	150	150
		Negative	KV	125	130	130	130	130	150	150	155	155
Withstand Voltage	one minute power frequency	Dry	KV	70	75	70	70	70	80	80	90	90
		Wet	KV	40	42	40	40	40	45	45	50	50
	Impulse	Positive	KV	115	120	120	120	120	135	135	140	140
		Negative	KV	120	120	125	125	125	140	140	150	150
Visible Discharge Voltage			KV	9	18	18	18	18	18	18	18	18
Power frequency Puncture Voltage			KV	110	130	130	130	130	140	140	140	140
Ball Socket Size			mm	11	16	20	20	16	16	16	20	20
Net Weight (Approx.)			kg	3.7	7.5	7.5	7.5	7.5	9	9	12	12.3

* Due to continuous product improvements, some specifications could be changed without notice

* Other designs are available



Anti Fog Type

Cap & Pin (Normal & Open Profile)

Cap and pin insulators are generally used on over head transmission and distribution network to evacuate bulk power over long distances.

The insulators could be in suspension or tension made in string form to insulate the conductor from tower.

Normal, Anti-fog and open profile can be used according to pollution degree.

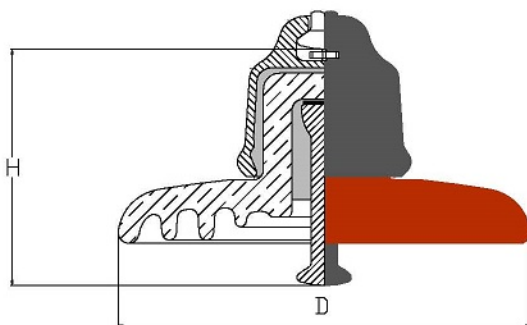
We manufacture Normal Profile type up to 120 KN electro-mechanical strength and up to 320 mm leakage path. Open profile type is up to 160 KN electro-mechanical strength and 295 mm leakage path, all in a straight head design, The Open profile's pin includes zinc sleeve; and for normal Profile's pin excludes zinc sleeve unless if required.

Every insulator is tested with hydraulic pressure and combination of high and power frequency electrical test; followed with routine mechanical and electrical tests as per IEC standard after assembling with cement and metal parts.

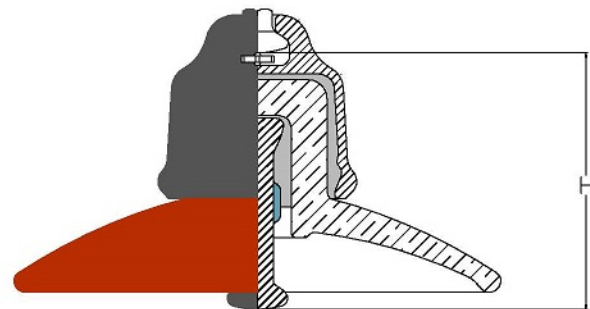
Product No.				040-00	044-00	049-00	053-00	
Porcelain Dia.(D)			mm	175	255	255	330	
Spacing (H)			mm	110	146	175	146	
Creepage Distance		Total Creepage		mm	190	320	395	295
		Protected Creepage		mm	100	165	204	150
Combined Electro Mechanical Strength			KN	40	90	160	80	
Flash over	Power Frequency	Dry		KV	55	75	80	75
		Wet		KV	37	45	47	45
	Impulse	Positive		KV	75	115	125	115
		Negative		KV	80	120	130	115
Withstand Voltage	one minute power frequency	Dry		KV	50	70	75	70
		Wet		KV	33	40	45	40
	Impulse	Positive		KV	70	110	115	110
		Negative		KV	75	115	120	110
Visible Discharge Voltage				KV	9	9	10	9
Power frequency Puncture Voltage				KV	90	110	130	125
Ball Socket Size				mm	11	16	20	16
Net Weight (Approx.)				kg	2.5	5	8.3	5.5

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Normal Type



Open Profile Type

Long Rod Insulator

Long rod insulators are applied on medium and high voltage overhead distribution and transmission lines for suspension or tension of conductor to tower bodies.

We produce long insulator with ball and socket coupling.

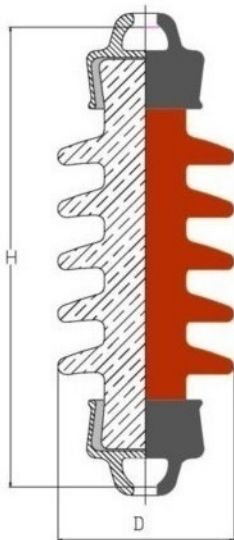
Long rod insulators are absolutely puncture-proof and excellent anti-pollution performance.

Long rod insulators are made with ceramic materials and it can be manufactured other voltage levels also with higher leakage path. It can also be supplied with customer's request.

Product No.				037-02	037-03	037-04	037-05	037-00	037-06	037-07	037-08	037-09
Type of insulator according to IEC433				L 70E 175	L 70E 245	L 70E 310	L 70E 380	L 90E 240	L 100E 380	L 100 E 411	L 100 E 550	L 120 E 550
Insulator length (H)		mm		340	410	460	550	390	580	611	895	915
Insulator diameter (D)		mm		180	180	180	180	150	190	150	190	200
Creepage distance		mm		400	500	650	800	550	800	1000	1200	1200
Type of coupling		mm		16	16	16	16	16	16	16	16	16
Mechanical breaking load		KN		70	70	70	70	90	100	100	100	120
Withstand Voltage	Power ferquency	Wet	KV	50	70	85	95	70	95	70	140	140
	Impulse		KV	125	170	200	250	170	250	170	325	325
Net Weight (Approx.)		kg		7	8	9.5	12	9	12.2	13.5	13.5	14

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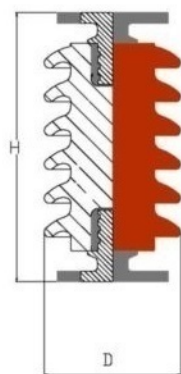
Post Insulator

The post insulators are used in medium voltage 12,25 KV with leakage path 440 mm up to 1047 mm with mechanical strength up to 4 KN and can be used both indoor and outdoor application.

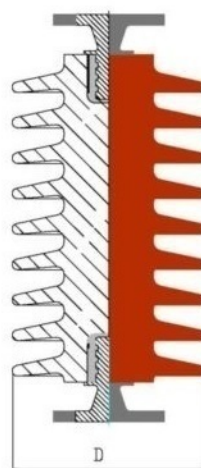
Product No.			029-00	029-01	030-00
Type			P70	P70s	P13
Rated Insulation voltage		KV	25	25	36
Total creepage distance		mm	440	500	1047
Height (H)		mm	250.5	257	380
Biggest Diameter		mm	127	131	180
Bending falling load		KN	4	4	4
Number of sheds		Nos.	6	6	9
Arcing Distance		mm	193	193	305
Withstand Voltage	one minute power frequency	Wet	KV	50	50
		Impulse	KV	130	130
Net Weight (Approx.)		kg	4.5	4.5	11

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P70
029-00



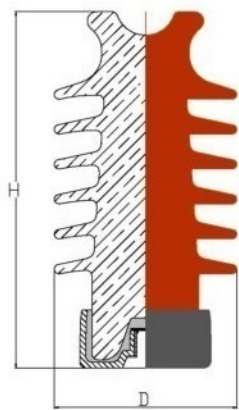
P13
030-00

Line Post Insulator

Line post insulators are applied on medium voltage overhead distribution lines (36 KV) for fixing conductors to tower bodies and used in the distribution systems of the town. We manufacture these insulators with leakage path from 560 mm up to 1320 mm supplied with its spindle which has mechanical strength up to 12.5 KN.

Product No.				090-00	090-01	090-02	090-03	090-07
Recommended voltage				KV	36	15	36	36
Insulator length (H)				mm	305	230	510	368
Insulator biggest diameter (D)				mm	152	145	185	178
Creepage distance				mm	580	340	1320	825
Dry arcing distance				mm	228	154	450	310
Stud size				mm	20	20	20	20
Cantilever strength				KN	12.5	12.5	12.5	12.5
Flashover voltage	Power ferquency	Dry	KV	110	80	175	125	155
		Wet	KV	85	60	150	100	135
	Impulse	Positive	KVp	180	130	290	210	300
		Negative	KVp	205	155	350	260	350
Withstand Voltage	Power ferquency	Dry	KV	90	60	160	100	150
		Wet	KV	65	45	135	80	130
	Impulse	Positive	KVp	150	110	250	170	270
		Negative	KVp	150	110	250	170	270
Net Weight (Approx.)			kg	7.5	4.5	21	10	22

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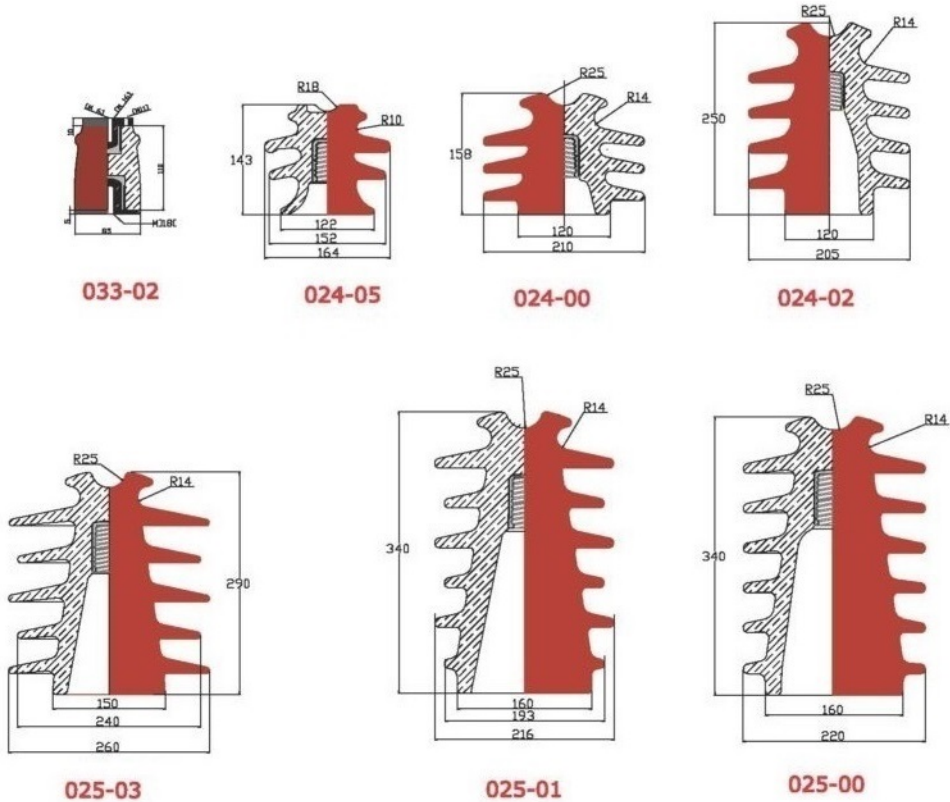
Pin Insulator

Pin insulators are used on medium voltage over head distribution lines (15, 25 and 36 KV) for fixing conductors to tower bodies to distribute power from substation to town and inside the town networks. The insulators are manufactured with leakage path from 325 mm up to 1400 mm. Supplied with its spindle which has mechanical strength up to 10 KN (bending strength) or subject to the client requirements.

Product No.				024-00	024-01	024-02	024-05	025-00	025-01	025-03	033-02	
Highest System voltage				KV	15	15	36	15	36	36	11	
Total creepage distance				mm	440	520	680	325	990	900	115	
*Cantilever strength				KN	10	10	10	10	10	10	4	
Flash over	Power Frequency	Dry		KV	85	100	110	45	120	105	120	44
		Wet		KV	45	50	60	40	100	85	100	25
	Impulse	Positive		KV	125	125	140	85	175	120	175	85
		Negative		KV	130	130	140	90	175	120	175	90
Withstand Voltage	one minute power frequency	Dry		KV	80	90	100	40	110	96	110	28
		Wet		KV	40	45	55	35	90	80	90	20
	Impulse	Positive		KV	120	120	130	75	170	125	170	75
		Negative		KV	120	120	130	75	170	125	170	75
Power frequency Puncture Voltage				KV	135	135	150	95	180	180	NA	
Net Weight (Approx.)				kg	5.4	5.5	7	2.7	12.5	12	11	1

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Stay Insulator

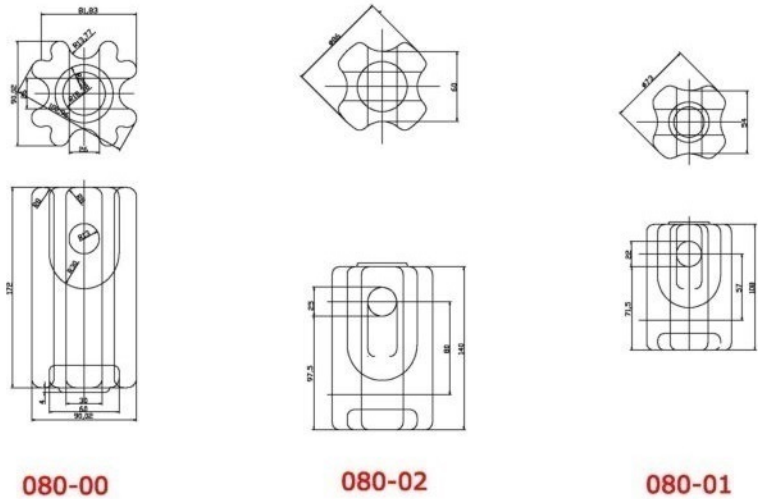
Stay insulators give protection in the event of accidentally broken live wire that can accidentally energizing a stay wire and remaining in contact with line which doesn't trip. In such cases. The bottom portion of the stay would have no voltage due to insulation, Stay insulator will normally installed in the middle of stay wire.

Three types of stay insulators are generally used for rural and railway these are

- (I) 1.1 KV stay
- (II) 15 KV stay
- (III) 36 KV stay

Product No.				080-00	080-01	080-02
Highest voltage			KV	36	1.1	15
Creepage distance			mm	76	48	57
Tensile strength			KN	89	53	80
Withstand Voltage	Power ferquency	Dry	KV	40	30	35
		Wet	KV	23	15	18
Net Weight (Approx.)			kg	1.9	0.7	1.5

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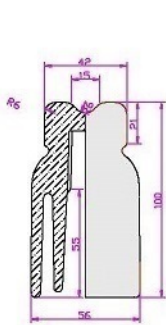
Low Voltage Pin Insulator

These insulators are fitted on low voltage overhead lines (1.1 KV) for fixing of conductor to poles and in the distribution system of the town with leakage path 150 mm up to 280 mm with bending load up to 18 KN depend on the spindle the client is going to fix it with.

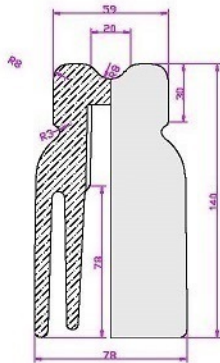
Product No.				026-00	027-01	055-00	
Creepage distance			mm	280	180	150	
Bending falling load			KN	10	8	12/18	
Withstand Voltage	Power frequency	Dry	KV	28	25	20	
		Wet	KV	18	14	10	
Lightning Impulse voltage			KV	75	55	40	
Power frequency puncture voltage			KV	40	40		
Net Weight (Approx.)			kg	1	0.5	0.7	

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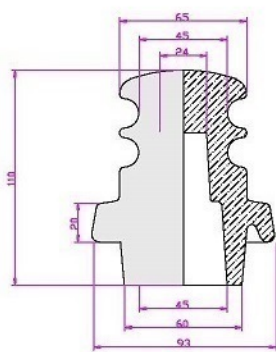
* Other designs are available



027-00



026-00



055-00

Low Voltage Spool & Shackle Insulator

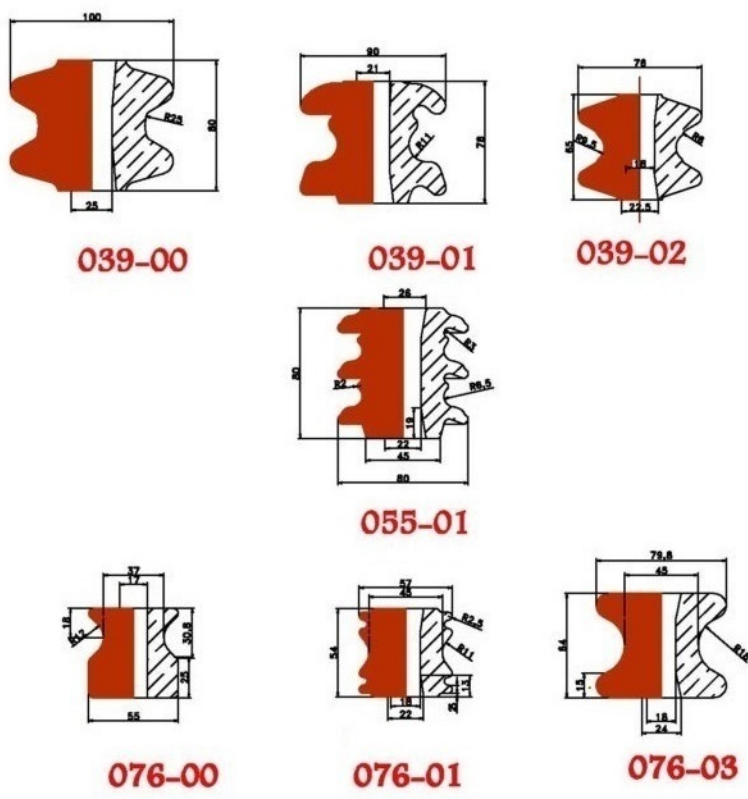
These insulators are applied on low voltage overhead distribution lines for fixing of conductors to poles.

This group of our manufacturing range includes low voltage insulators (Shackle,Spool) standardized in accordance with DIN and ANSI standard application.

Product No.				039-00	039-01	039-02	055-01	076-00	076-01	076-03
Creepage distance				mm	65	66	60	60	57	57
Mechanical strength				KN	8	8	6	8	12	12
Withstand Voltage	Power frequency	Dry	KV	22	23	22	20	18	18	20
		Wet	KV	9	10	8.5	9	6	6	8
Net Weight (Approx.)				kg	0.55	0.6	0.5	0.3	0.5	0.5

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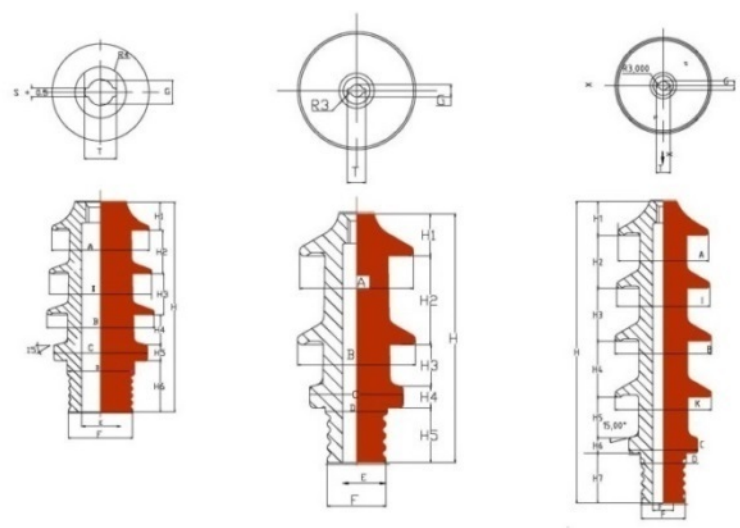
Transformer Bushings

Transformer bushing for outdoor and indoor are used as structure carrying on conductor through a partition from the transformer tank

Product No.			019-00	018-00	017-00	016-00	015-00	014-00	013-00	012-00
Transformer rating		KV/Amp.	10NI/250 Amp.	10NF/250 Amp.	10NF/630 Amp.	20NF/250 Amp.	20NF/630 Amp.	30NF/250 Amp.	30NF/630 Amp.	20NF/3150 Amp.
Dimensions	Dia. A	mm	95	135	145	145	155	145	165	190
	Dia.B	mm	100	140	150	155	165	155	175	210
	Dia .I	mm	0	0	0	150	160	150	170	200
	Dia .K	mm	0	0	0			155	160	
	Dia.C max	mm	111	111	128	111	128	111	128	187
	Dia.D max	mm	74	74	88	74	88	74	88	130
	Dia.E Min	mm	33	33	39	33	39	33	39	74
	Dia F	mm	70	70	80	70	85	70	85	125
	Dia G	mm	15±1	15±1	24.5±1	15±1	24.5±1	15±1	24.5±1	17±0.5
	T	mm	22±1	22±1	30.5±1	22±1	30.5±1	22±1	30.5±1	62±0.5
	H	mm	245	295	295	385	385	485	510	410
	H1	mm	37	50	50	55	55	55	60	55
	H2	mm	76	105	105	85	85	85	80	85
	H3	mm	42	50	70	90	90	85	85	80
	H4	mm	25	25	25	50	50	90	90	60
	H5	mm	65	65	65	25	25	65	70	30
	H6	mm	0	0	0	80	80	25	25	100
	H7	mm	0	0	0			80	100	
Visible discharge voltage		KV	12	12	12	12	12	12	12	12
Power frequency	Dry	KV	45	45	45	45	45	45	45	45
One minuite withstand voltage	Wet	KV	45	45	45	45	45	45	45	45
Impulse withstand voltage		KV	95	95	95	95	95	95	95	95
Net weight (Approx.)		KV	2.7	3.8	4.9	5.9	6.8	7.6	9.6	6

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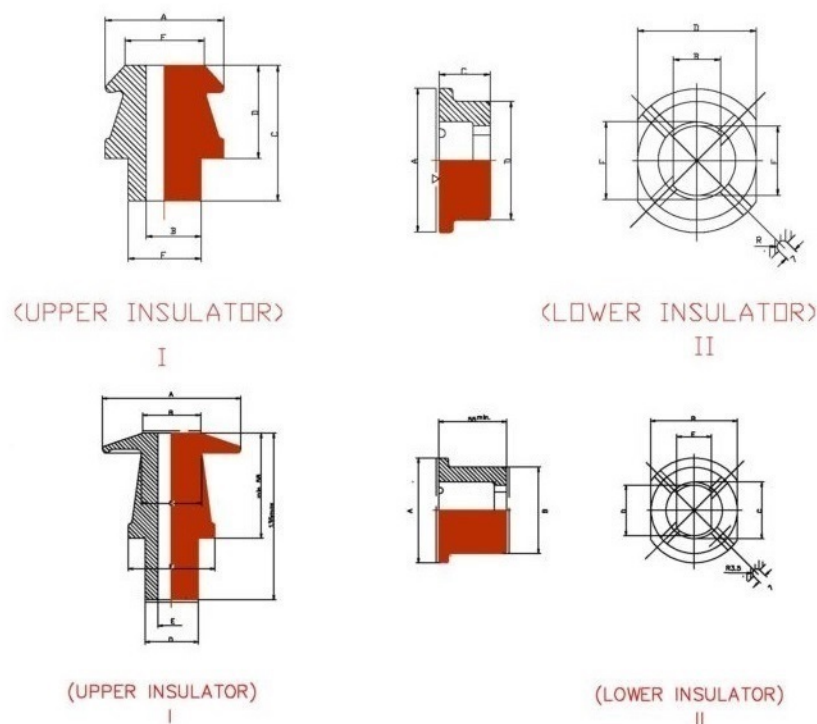


Low Voltage Distribution Transformer Bushing

The low voltage distribution transformer bushings with creepage distance up to 100 mm are manufactured which support the low voltage side of the transformer to carry the output cables up to 3150A.

Product No.			011-00	010-00	009-00	008-00	007-00	006-00	005-00	004-00	003-00	001-00
Transformer rating		KV/Amp.	1KV/250. Amp.	1KV/630 Amp.	1KV/1000 Amp.	1KV/2000 Amp.	1KV/3150 Amp.	3KV/630 Amp.	3KV/1000 Amp.	3KV/2000 Amp.	3KV/250. Amp.	3KV/3150 Amp.
Part			I II	I II	I II	I II	I II	I II	I II	I II	I II	I II
Dimensions	A	mm	50 60	70 85	90 110	104 125	125 150	90 85	110 110	125 125	75 70	145 150
	B	mm	14 20	22 28	32 37	44 51	50 61	47 70	65 90	80 105	32 60	100 125
	C	mm	70 30	80 30	85 36	85 35	85 35	45 46	65 57	80 70	30 40	100 90
	D	mm	45 50	55 70	55 90	55 104	55 125	43 41	53 46	66 64	37 26	86 80
	E	mm	27 26	53 41	53 46	66 64	86 80	22 28	32 37	44 51	14 20	50 61
	F	mm	32 30	47 46	65 57	80 71	100 90	70	90	105	60	125
Power frequency withstand voltage	Dry	KV	25	25	25	25	25	25	25	25	25	25
	Wet	KV	10	10	10	10	10	21	21	21	21	21
Impulse withstand voltage		KV						45	45	45	45	45
Net Weight (Approx.)		Kg	0.2 0.1	0.4 0.2	0.7 0.5	0.9 0.6	1.5 0.8	0.8 0.4	1.1 0.7	1.4 0.75	0.43 0.21	1.5 0.9

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Machinery & Tests



Chemical Lab



Grinding Process



Storage & Batching



Ball Milling



Body Preparation Department



Shaping by Jeggering



Shaping by CNC Machine



Drying Process



Kiln Department



Hydraulic Pressure Machine



Electrical Testing Department



High & Power Frequency Test Machine



ECMEI

Address: Area # (1/4) South (1-A)
El-Mogawra No. 9,
Postal code 44637, P.O.Box 1654
10th of Ramadan City - Egypt
Tel.: +2 015 412 560 Fax: +2 015 411 255
E-mail: ecmei@elsewedy.com
Info@ecmei.com
www.elsewedy.com
www.ecmei.com