

DURESCA®

DM Condenser bushings, 36 - 300kV

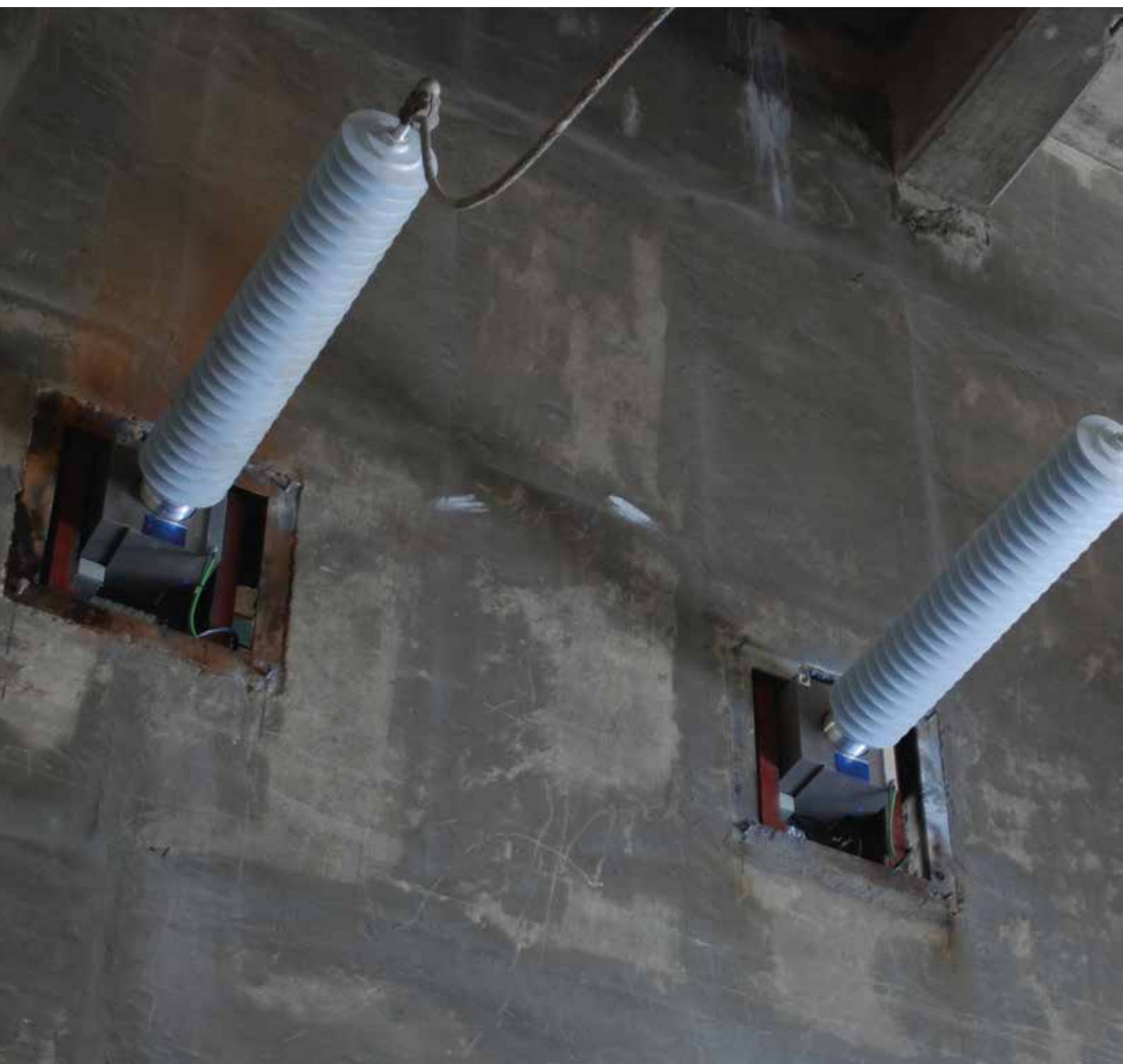
Through wall bushings for indoor and outdoor applications,
Resin Impregnated Paper IEC 60137-2008 and IEEE C57.19.01.00-2004



MOSER GLASER

Current and voltage – our passion

Swiss quality combined with global experience



General information

Moser Glaser researched a way to increase the dielectric characteristics of its High Voltage equipment. As a result Moser Glaser invented the Epoxy Resin Impregnated Paper (ERIP) technology in 1958.

With more than 50 years of experience in development of the ERIP technology, Moser Glaser offers through wall bushings DURESCA® DM from 36 to 300kV.

- ERIP bushings can be applied at any position from 0° to 90° from vertical and allow for safe horizontal transport and storage.
- Moser Glaser pioneered the standardization of Silicone Rubber Insulators on bushings, bringing a high level in safety and reliability to the Electric Utility industry and increasing the performance of the bushing in heavily polluted environments.
- Weight reduced as well as flexible sheds, increase its tolerance to vandalism, or earthquakes. No risk of porcelain break during shipping or handling; no collateral damage.

STANDARD RATINGS

DM / DMI / DM2I		36	52	72.5	100	123	145	170	245-300
Highest voltage for equipment IEC	kV	36	52	72.5	100	123	145	170	300
Rated phase-to-earth voltage IEC	kV	21	30	42	58	71	84	98	141
Nominal system voltage IEEE	kV	34.5	46	69	92	115	138	161	230
Rated line-to-ground voltage IEEE	kV	22	29	44	73	88	88	102	146
Rated lightning impulse voltage	kV	200	250	350	450	550	650	750	1050
Rated switching impulse withstand voltage	kV	-	-	-	-	-	-	-	850
Max Rated continuous current with Alu conductor	A	6300	4000	4000	4000	3150	3150	3150	2000
Max Rated continuous current with Cu conductor	A	5000	4000	4000	4000	4000	4000	3150	2000
Rated frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Dry/wet power frequency	kV	80	95	140	185	230	275	325	460

Common specifications

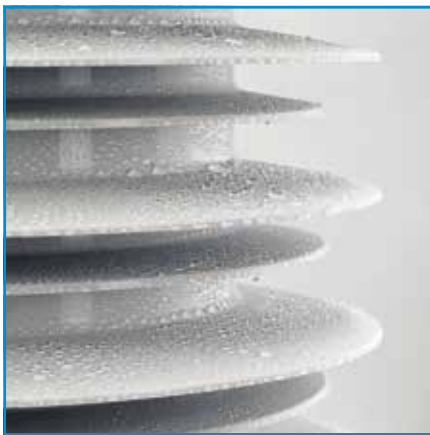
Insulation:	Capacitive fine graded, RIP Resin Impregnated Paper
Ambient temperature:	-40 up to +40°, others values possible in request
Altitude:	Up to 1000m above sea level
Application:	Wall or roof, indoor or outdoor



Features

Moser Glaser at a glance

- The longest experience with ERIP technology
- Silicone Insulators in standard
- High level of customization
- Short lead-times
- Reliable design > 30 years life time
- Made in Switzerland



Silicone housing

DURESCA® wall bushings DMI, DM2I are delivered in standard with silicone housing which demonstrates superior's electrical and mechanical characteristics.

Moser Glaser standardized on a minimum of 31mm/kV SCD or 53.7mm/kV USCD.

ERIP active part

The insulation lays directly on the conductor or tube and consists of crepe paper dried under vacuum and impregnated with epoxy resin. Conductive grading layers are embedded during the winding of the insulation for the best field control. This guarantees the highest operational and human safety.

Specific for indoor application DM, DMI

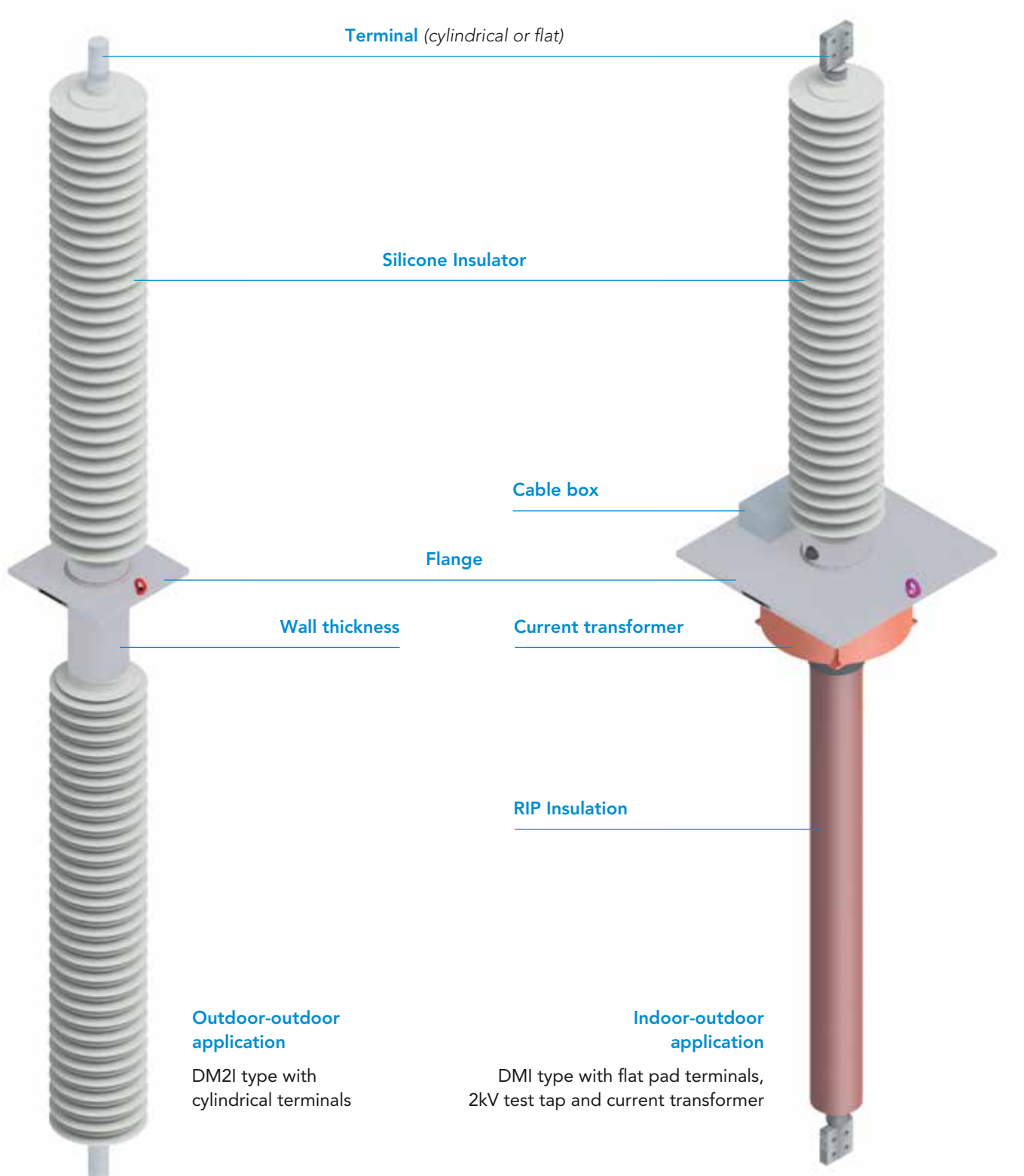
To protect the RIP body for indoor application, a high quality coating is applied with a thickness of 30 – 40 µm. This coating is resistant to water, dilute acids and chemicals and has excellent resistance against abrasion



Wall bushing equipped with a current transformer

- Several ratios possible
- Easily accessible secondary terminals
- Compact size
- Up to 4 cores
- Suitable for very high short-time current

Design



Common characteristics

Conductor

Can be in aluminium EN AW-6101B T7 (AC041) or Electrolyte copper (Cu-ETP).

Terminals

Terminals are available either cylindrical or flat. Additional treatment like silver or tin plating is possible on request.

Short-time current level

The bushings withstand a thermal short-time current of 25x rated continuous current for a maximum of 1 second. Others ratings on request.

Mounting flange

- Made of corrosion free aluminium.
- Standard configuration is with a squared flange with 4 fixing holes, a M12 hole is also offered for the grounding of the flange and also equipped with a lifting hole.
- In accessory the bushing can be equipped with a test tap.
- The grounding is done through the cap. Test voltage is 2kV, 50Hz for 72sec.



Wall thickness

In standard 300 or 500mm, special dimensions are available on request.

Replacement bushings

In addition to the standard range, our design, combined with our production process, allows a wide flexibility and adaptability to provide customized solutions.

Bushings can be offered also for a roof mounting application.

In case of silicone housing at indoor side, they will be oriented at the same direction as the outdoor part.

Ordering number

STANDARD RATINGS	
Type:	DM Indoor-indoor / DMI Outdoor-indoor / DM2I Outdoor-outdoor
Voltage:	34.5 to 300kV
Current:	630 to 6300A
Wall thickness:	300 or 500mm (or other)
Terminal type:	C1 to C6
Conductor:	Aluminium or Copper
Test tap:	With / without
Example:	DM2I 145kV / 1250A / 300mm / C1 / Aluminium / without test tap

Diagnosis measurement system

General description:

The measuring system is designed to record and evaluate status data of the grid and of the equipment to be monitored, as well as to record the course of events when exceptional conditions occur. Data are stored and analysed over a period of up to 10 years. In addition, the measuring system can communicate using two communications interfaces:

Over a USB interface, it is possible to make both an online check as well as to read out data that has been stored. Further, the measuring system has two potential-free relay contacts which can be used for generating alerts when exceptional operating states occur. For connection to the data logger, the high voltage capacity of the device to be monitored has to be tapped off. For devices which are already in operation, the measuring system may be used with reduced functionality.



Access to data

- Online via USB
- Via two potential-free relay contacts for signal evaluation
- In accessory the bushing can be equipped with a test tap
- Read-out of stored data via USB

Measurement signals

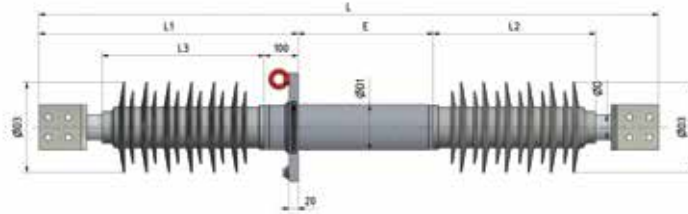
- Voltage: 3 ports
- Current: 3 ports
- Temperature: 3 ports
- Pressure: 1 port

Signal analysis

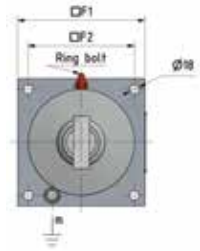
- True RMS
- Phase angle
- FFT
- Overvoltages (BIL / SIL)
- Evaluation of dynamic processes such as disconnector operation
- Terminals are available either cylindrical or flat

Technical data and dimensions for wall bushings with aluminium conductor

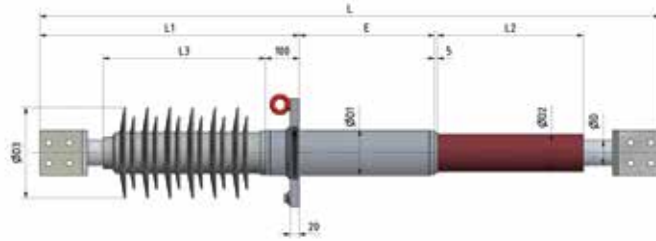
DM2I
Outdoor - outdoor



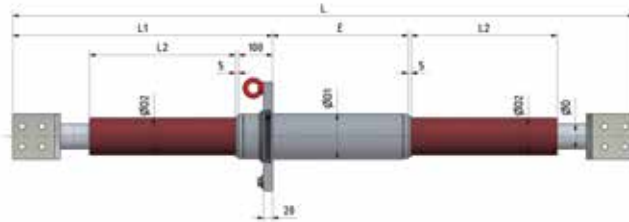
Mounting flange



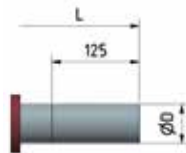
DMI
Outdoor-indoor



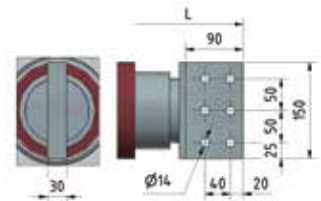
DM
Indoor - indoor



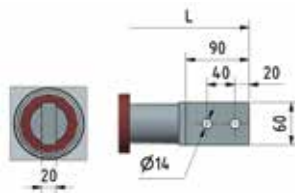
Al Cylindrical
C1



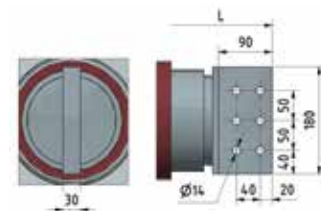
Al Flat pad
C4



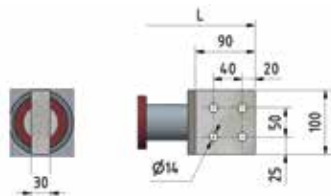
Al Flat pad
C2



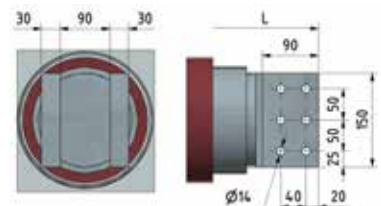
Al Flat pad
C5



Al Flat pad
C3



Al Flat pad
C6

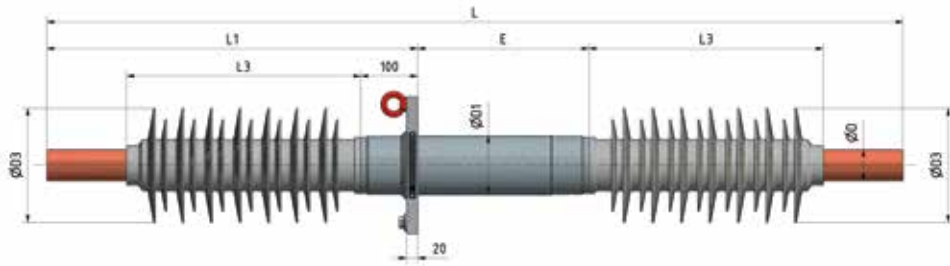


Ir	Terminal	lth (t=1s)	ld	L (1)	E	L1	L2	L3	Ø D1	Ø D2	Ø D3	F1	F2	C1 ØD	Cantilever Test Load	DM		DMI		DM2I					
A	Type	kA	kA	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	N	kg	Drawing #	kg	Drawing #	kg	Drawing #				
Um 36kV / Up 80kV / UBil 200kV																									
630-2000	C1	50	125	1500	300 or 500	650	375	410	103	85	200	240	200	55	2000	19	701.16.0011	22	701.16.0012	25	701.16.0013				
630-1250	C2	31.5	80						410	103	85	200	240	200		2000		19				22		25	
1600-2000	C3	50	125						410	103	85	200	240	200		2000		19				22		25	
2500-3150	C3	80	200						410	170	150	272	350	300		3150		41				44		47	
4000	C4	100	250						410	170	150	272	350	300		3150		41				55		58	
5000	C5	100	250						410	220	200	321	400	350		3150		60				63		66	
6300	C6	100	250						410	220	200	321	400	350		3150		60				63		66	
Um 52kV / Up 95kV / UBil 250kV																									
630-1600	C1	40	100	1700	300 or 500	750	470	510	103	85	200	240	200	50	1600	21	701.16.0017	25	701.16.0015	29	701.16.0016				
630-1250	C2	31.5	80						510	103	85	200	240	200		2500		21				25		29	
1600	C3	40	100						510	103	85	200	240	200		2500		21				25		29	
2000	C3	50	125						510	103	85	200	240	200		2500		21				25		29	
2500-3150	C3	80	200						510	170	150	272	350	300		3150		49				55		61	
4000	C4	100	250						510	220	200	321	350	350		3150		75				84		93	
Um 72.5kV / Up 140kV / UBil 350kV																									
630-1250	C1	31.5	80	2100		300 or 500	950	670	710	103	85	200	240	200	40	2000		23		701.16.0018		29	701.16.0019	34	701.16.0020
630-1250	C2	31.5	80						710	103	85	200	240	300		2000	23		29			34			
1600-2000	C3	50	125						710	135	115	233	350	300		3150	46		50			58			
2500	C3	63	160						710	170	150	272	350	300		4000	59		69			78			
3150	C3	80	200						710	170	150	272	350	300		4000	59		69			78			
4000	C4	100	250						710	220	200	321	400	350		4000	92		104			116			
Um 100kV / Up 185kV / UBil 450kV																									
630-1600	C1	40	100	2600	300 or 500		1200	920	960	135	115	233	350	300	50	2000	52	701.16.0021	63		701.16.0022	74		701.16.0023	
630-1250	C2	31.5	80						960	135	115	233	350	300		2000	52			63			74		
1600-2000	C3	50	125						960	170	150	272	350	300		3150	75			88			101		
2500	C3	63	160						960	170	150	272	350	300		3150	75			88			101		
3150	C3	80	200						960	220	200	321	400	350		4000	113			129			145		
4000	C4	100	250						960	220	200	321	400	350		4000	113			129			145		
Um 123kV / Up 230kV / UBil 550kV																									
630-1600	C1	40	100	3000		300 or 500	1400	1120	1160	135	115	233	350	300	50	3150	59		701.16.0024	72		701.16.0025	85		701.16.0026
630-1250	C2	31.5	80						1160	135	115	233	350	300		3150	59			72			85		
2000	C3	50	125						1160	170	150	272	350	300		4000	86			101			116		
1600-2500	C3	63	160						1160	170	150	272	350	300		4000	86			101			116		
3150	C3	80	200						1160	220	200	321	400	350		4000	134			154			174		
Um 145kV / Up 275kV / UBil 650kV																									
630-1250	C1	31.5	80	3400	300 or 500		1600	1320	1360	135	115	233	350	300	50	3150	67	701.16.0027		82	701.16.0028		93	701.16.0029	
630-1250	C2	31.5	80							1360	135	115	233	350	300		3150			67					
1600-2000	C3	50	125						1360	170	150	272	350	300		4000	98			116			134		
2500	C3	63	160						1360	220	200	321	400	350		4000	156			178			200		
3150	C3	80	200						1360	220	200	321	400	350		4000	156			178			200		
Um 170kV / Up 325kV / UBil 750kV																									
630-2000	C1	50	125	3800		300 or 500	1800	1520	1560	170	150	272	350	300	60	5000	117		701.16.0030	137		701.16.0031	157		701.16.0032
630-1250	C2	31.5	80							1560	170	150	272	350	300		5000			117					
1600-2000	C3	50	125						1560	170	150	272	350	300		5000	117			137			157		
2500	C3	63	160						1560	220	200	321	400	350		5000	170			203			165		
3150	C3	80	200						1560	220	200	321	400	350		5000	170			203			165		
Um 245 or 300kV / Up 460kV / UBil 1050kV																									
630-1250	C2	31.5	80	5200	300 or 500		2500	2220	2260	220	200	321	400	350		5000	251	701.16.0033		289	701.16.0034		327	701.16.0035	
1600	C3	40	100							2260	220	200	321	400	350		5000			251					
2000	C3	50	125						2260	220	200	321	400	350		5000	251			289			327		

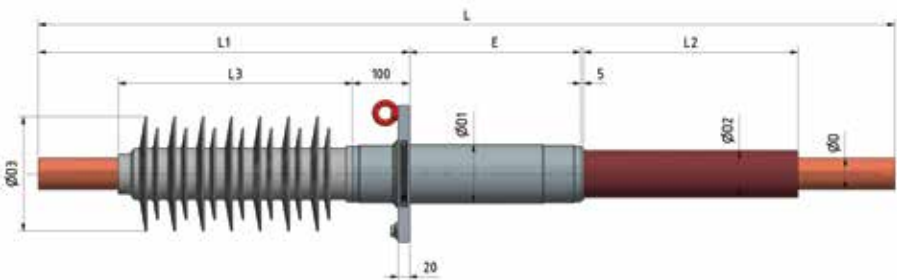
(1) For wall thickness 500m add 200mm to the dimension L

Technical data and dimensions for wall bushings with copper conductor

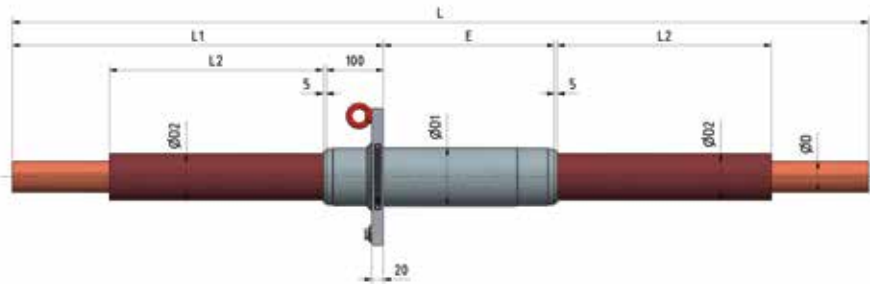
DM21
Outdoor - outdoor



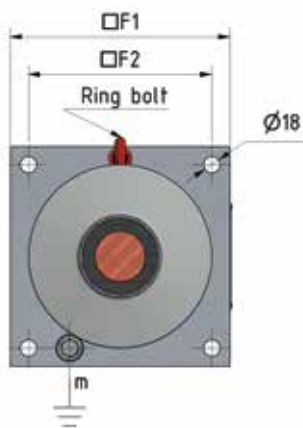
DMI
Outdoor - indoor



DM
Indoor - indoor



Mounting flange



Wall bushings with copper conductor are available with flat pad connector upon request.

Ir	Terminal	Ith (t=1s)	Id	L (1)	E	L1	L2	L3	Ø D1	Ø D2	Ø D3	F1	F2	C1 ØD	Cantilever Test Load	DM		DMI		DM2I				
A	Type	kA	kA	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	N	kg	Drawing #	kg	Drawing #	kg	Drawing #			
Um 36kV / Up 80kV / UBil 200kV																								
630-2500	C1	63	160	1500	300 or 500	650	375	410	103	85	200	240	200	55	4000	43	701.17.0003	46	701.17.0004	49	701.17.0005			
701.17.0005																								
Um 52kV / Up 95kV / UBil 250kV																								
630-2500	C1	63	160	1700	300 or 500	1200	920	510	135	85	233	240	200	50	2500	43	701.17.0006	46	701.17.0007	50	701.17.0008			
Um 72.5kV / Up 140kV / UBil 350kV																								
630-1600	C1	40	100	2100	300 or 500	950	670	710	103	85	200	240	200	40	2000	40	701.17.0009	46	701.17.0010	51	701.17.0011			
Um 100kV / Up 185kV / UBil 450kV																								
630-2000	C1	40	100	2600	300 or 500	1200	920	960	135	115	233	350	300	50	2000	84	701.17.0012	94	701.17.0013	105	701.17.0014			
Um 123kV / Up 230kV / UBil 550kV																								
630-2000	C1	40	100	3000	300 or 500	1400	1120	1160	135	115	233	350	300	50	3150	96	701.17.0015	109	701.17.0016	122	701.17.0017			
Um 145kV / Up 275kV / UBil 650kV																								
630-1600	C1	40	100	3400	300 or 500	1600	1320	1360	135	115	233	350	300	50	3150	89	701.17.0018	105	701.17.0019	120	701.17.0020			
Um 170kV / Up 325kV / UBil 750kV																								
630-2500	C1	62.5	156	3800	300 or 500	1800	1520	2260	170	150	272	350	300	60	5000	183	701.17.0021	204	701.17.0022	225	701.17.0023			

(1) For wall thickness 500mm add 200mm to the dimension L

DURESCA®
Busbar system



TIRESCA®
Busbar system



GASLINK®
SF₆ insulATED busbar system



DURESCA®
Wall bushings



DURESCA®
Transformer bushings



MOSER GLASER

Current and voltage – our passion

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Represented by: