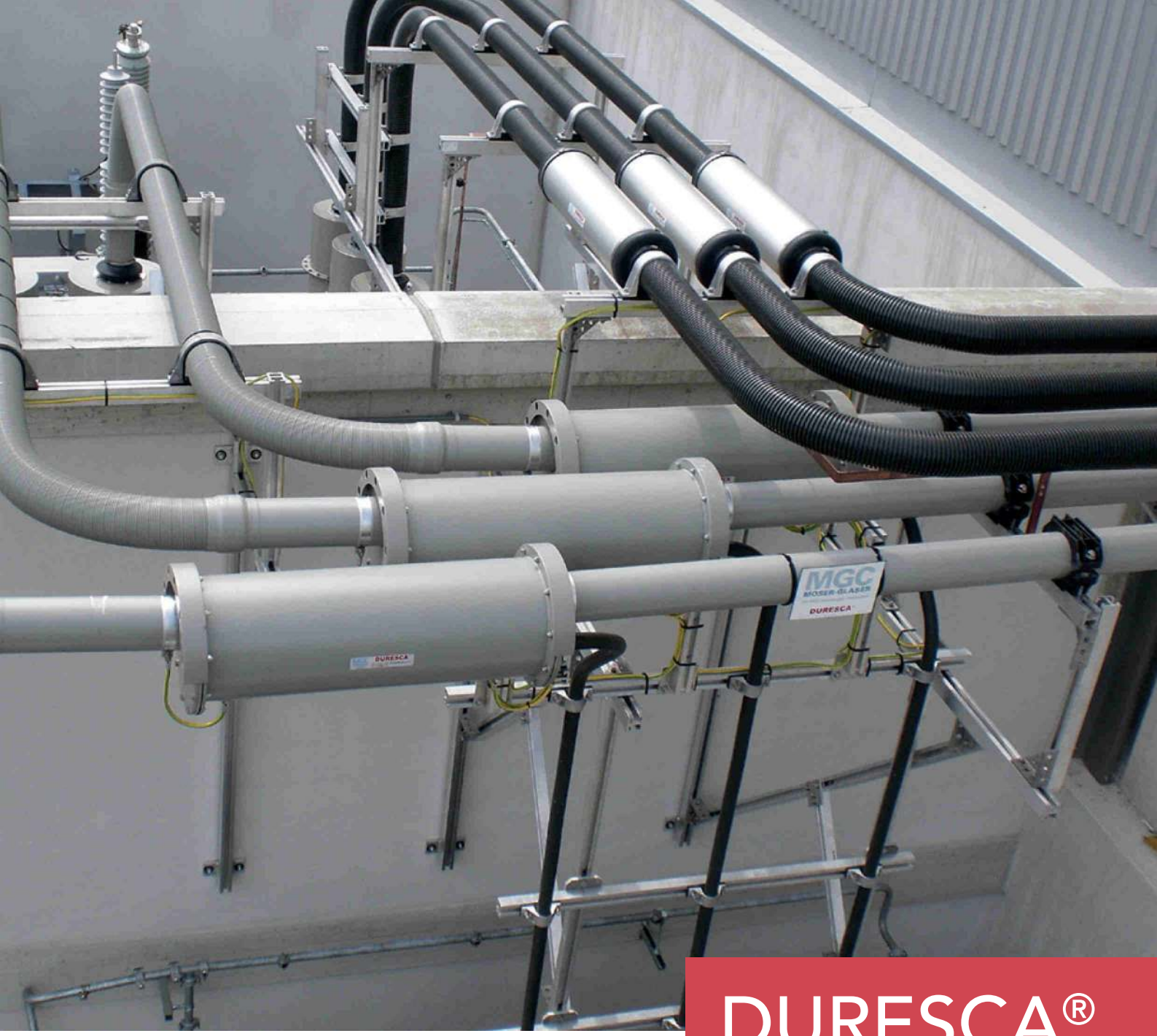


DURESCA®

DURESCA® Busbar system

For indoor and outdoor applications, type DE / type DG

MOSER GLASER

Current and voltage – our passion

Swiss quality combined with global experience



General description

MGC Moser-Glaser AG, founded in Basel in 1914, is a pioneer in the field of solid insulation. The RIP technology (resin impregnated paper) was developed by Moser Glaser in the late 1950s and has been sold under the brand name DURESCA® for busbars and later also for bushings.

Due to this long-standing expertise we have extensive know-how with more than 55 years of field experience. Given our core skill in RIP, we are focusing on the two business segments busbars and bushings. As Moser Glaser is certified in SN EN ISO 9001: 2015, 14001: 2015 and BS OHSAS 18001: 2007 we manufacture all products at our factory in Kaiseraugst, Switzerland.



Thanks to the size of our company with all departments under a single roof, we can offer a high level of responsiveness. As an independent producer of DURESCA® busbars and bushings, Moser Glaser is the ideal and valued partner for our global customers.





DURESCA® - Busbar system

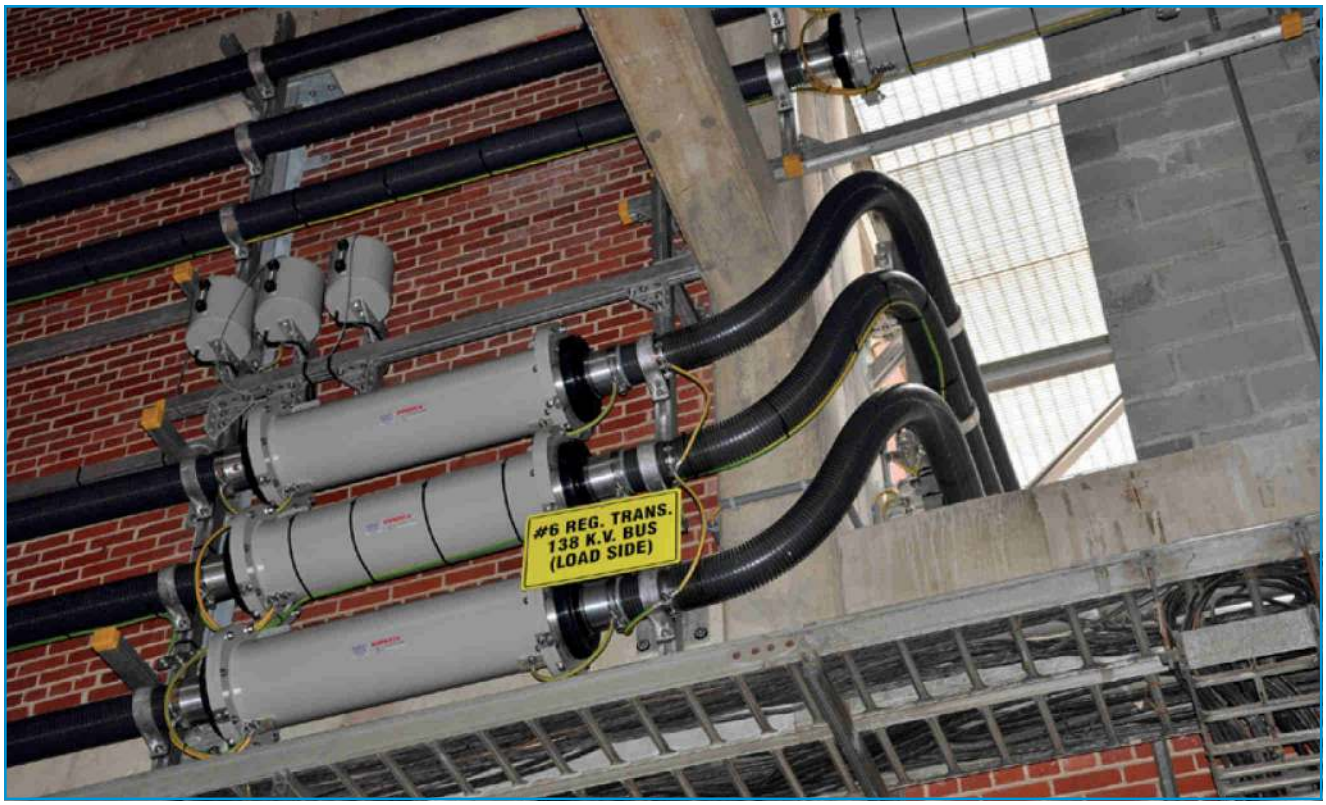
DURESCA® - today a synonym for a fully insulated busbar system for the transmission of energy in medium and high voltage equipments, such as transformer - switchgear connections or generator - generator breaker - transformer connections.

The DURESCA® busbar system provides a compact and a fully electrically shielded solution against a cable connection or conventional air-insulated busbars. It allows smaller bend radii in limited spaces. The individually insulated busbars are simple and quick to assemble and guarantee a long and maintenance-free operation, since each component passes through a routine test and therefore is delivered without any partial discharge.

The DURESCA® busbars also stand the test under extreme conditions, such as on offshore platforms, in petrochemical industries, in Siberia at -50°C, and also in the desert with maximum sun exposure and temperatures above 50°C.







USA - PEPCO Washington DC: 145kV - 1600A



Austria - GUD Linz: 12kV - 4500A



Switzerland - KW Löbbia: 17,5kV - 4000A



Japan - Tokuyama: 17,5kV - 5000A

DURESCA® Busbar systems for MV-applications

There are two types of the DURESCA® Busbar system available. The type DE has a high quality corrugated polyamide tube protecting the RIP insulation body. This tube has been tested under severe climatic conditions in a third-party lab and fulfills ASTM D-2565 standard. The DURESCA® Busbar type DE can be used indoors as well as outdoors. Moser Glaser has been using this protection tube for more than 30 years.

DURESCA® DE: copper ETP H

U_r / U_p / BIL	I_r [1]	PA ø mm	Conductor ø mm	Bend radius mm	Weight kg/m
12 / 28 / 75	1250	55	32	150	8.70
	1600	67	36	250	11.60
	2000	67	45	250	16.00
	2500	106	70x10	400	21.80
	3150	106	80x10	400	32.10
	5000[2]	146	110x15	550	46.40
17.5 / 38 / 95	1250	55	32	150	8.70
	1600	67	36	250	11.60
	2000	80	45	250	20.50
	2500	106	70x10	400	21.80
	3150	146	100x10	550	33.80
	5000[2]	146	110x15	550	46.40
24 / 50 / 125	1250	67	32	250	10.00
	1600	67	36	250	11.60
	2000	80	45	250	20.50
	2500	106	70x10	400	21.80
	3150	146	100x10	550	33.80
	5000[2]	146	110x15	550	46.40
36 / 70 / 170	1250	67	32	250	10.00
	1600	67	36	250	11.60
	2000	80	45	250	17.60
	2500	106	70x10	400	21.80
	3150	146	100x10	550	33.80
	4000	156	110x15	550	52.10
40.5 / 80 / 185	1600	80	45	250	17.60
	2000	80	45	250	17.60
	2500	106	70x10	400	21.80
	3150	146	100x10	550	33.80
	4000	156	110x15	550	52.10
52 / 95 / 250	1250	80	36	250	13.20
	2000	106	50	400	24.80
	2500	106	60x15	400	25.10
	3150	146	100x10	550	33.80
72.5 / 140 / 325	2000	106	50	400	24.80
	2500	146	80x10	550	31.70
	3150	192	110x15	750	61.10

[1] Maximum possible currents at given conductor cross sections

[2] Phase distance, minimum 730mm / Phase distance = 300mm -> 4600A / Phase distance = 350mm -> 4800A

DURESCA® DE: Aluminium EN AW-6101B T7

U_r / U_p / BIL	I_r [1)]	PA ø mm	Conductor ø mm	Bend radius mm	Weight kg/m
12 / 28 / 75	1000	67	30	250	4.50
	1250	67	36	250	5.30
	1600	67	45	250	6.10
	2000	80	55	250	8.90
	2500	106	80x15	400	11.80
	3150	146	110x15	550	18.60
	4000	156	120x20	550	26.80
	5000	192	155x20	750	32.40
17.5 / 38 / 95	1000	67	30	250	4.50
	1250	67	36	250	5.30
	1600	80	45	250	7.70
	2000	106	60	400	13.90
	2500	106	70x15	400	12.00
	3150	146	110x15	550	18.60
	4000	156	120x20	550	26.80
	5000	192	155x20	750	32.40
24 / 50 / 125	1000	67	30	250	4.50
	1250	67	36	250	5.30
	1600	80	45	250	7.70
	2000	106	60	400	12.00
	2500	106	70x15	400	12.00
	3150	146	110x15	550	18.60
	4000	156	120x20	550	26.80
	5000	192	155x20	750	32.40
36 / 70 / 170	1000	67	30	250	4.50
	1250	67	36	250	5.30
	1600	80	45	250	7.70
	2000	106	60	400	13.90
	2500	106	70x15	400	12.00
	3150	156	110x15	550	24.30
	4000	192	138x16	750	30.90
40.5 / 80 / 185	1000	67	30	250	4.50
	1250	80	40	250	7.30
	1600	80	45	250	7.70
	2000	106	60	400	13.90
	2500	146	80x15	550	20.40
	3150	156	110x15	550	24.30
	4000	192	138x16	750	30.90
52 / 95 / 250	1250	80	36	250	6.90
	1600	106	60	400	13.90
	2000	106	60	550	13.90
	2500	146	80x15	550	20.40
	3150	146	100x15	550	19.40
	4000	192	138x16	750	30.90
72.5 / 140 / 325	1600	106	50	400	12.60
	2500	146	80x15	550	20.40
	3150	192	120x20	750	39.90

[1)] Maximum possible currents at given conductor cross sections

DURESCA® Busbar systems for MV-applications

The DURESCA® Busbar type DG has a metallic protection tube instead of the polyamide tube. The straight busbars are protected with an aluminum tube, the bent parts with a flexible corrugated stainless-steel tube, thus increasing the mechanical protection of the busbar.

DURESCA® DG: copper ETP H

U_r / U_p / BIL	I_r [1)]	Al / CrNi ø mm	Conductor ø mm	Bend radius mm	Weight kg/m
12 / 28 / 75	1600	60 / 67	40	250	13.70
	2000	60 / 67	45	250	16.30
	3150	100 / 107	80x10	400	24.30
	4000	130 / 137	110x10	550	45.80
17.5 / 38 / 95	1600	60 / 67	40	250	13.70
	2000	60 / 67	45	250	16.30
	3150	100 / 107	80x10	400	24.30
	4000	130 / 137	110x10	550	45.80
24 / 50 / 125	1600	60 / 67	40	250	13.70
	2000	80 / 87	50	250	22.10
	2500	130 / 137	80x10	550	31.10
	3150	130 / 137	100x10	550	33.20
	4000	160 / 167	110x15	550	55.30
36 / 70 / 170	1600	60 / 67	36	250	11.90
	2000	100 / 107	50	400	26.00
	2500	100 / 107	70x10	400	22.90
40.5 / 80 / 185	1250	80 / 87	36	250	14.80
	1600	80 / 87	40	400	16.60
	2000	100 / 107	50	400	26.00
	2500	130 / 137	80x10	550	31.10
	3150	130 / 137	100x10	550	33.20
52 / 95 / 250	1250	80 / 87	36	250	14.80
	2000	100 / 107	50	400	26.00
	2500	130 / 137	80x10	550	31.10
	4000	160 / 167	110x15	550	55.30
72.5 / 140 / 325	2000	100 / 107	50	400	26.00
	2500	130 / 137	80x10	550	31.10
	4000	160 / 167	110x15	550	55.30

[1)] Maximum possible currents at given conductor cross sections

DURESCA® DG: Aluminium EN AW-6101B T7

U_r / U_p / BIL	I_r [1)]	Al / CrNi ø mm	Conductor ø mm	Bend radius mm	Weight kg/m
12 / 28 / 75	1250	60 / 67	40	250	5.90
	1600	60 / 67	45	250	6.40
	2000	80 / 87	55	400	10.40
	2500	100 / 107	80x15	400	12.90
	3150	130 / 137	110x15	550	18.00
	4000	160 / 167	138x16	550	25.10
	5000	200 / 207	170x16	750	35.40
	6300	250 / 267	226x15	1000	43.60
17.5 / 38 / 95	1250	60 / 67	40	250	5.90
	1600	60 / 67	45	250	6.40
	2000	80 / 87	55	400	10.40
	2500	100 / 107	80x15	400	12.90
	3150	130 / 137	110x15	550	18.00
	4000	160 / 167	138x16	550	25.10
	5000	200 / 207	170x16	750	35.40
	6300	250 / 267	226x15	1000	43.60
24 / 50 / 125	1250	60 / 67	40	250	5.90
	1600	80 / 87	50	400	9.80
	2000	100 / 107	70x15	400	13.10
	3150	130 / 137	100x15	550	18.00
	4000	160 / 167	138x16	550	25.10
	5000	200 / 207	170x16	750	35.40
	6300	250 / 267	226x15	1000	43.60
36 / 70 / 170	1250	60 / 67	36	250	5.50
	1600	80 / 87	45	250	9.30
	2000	100 / 107	70x15	400	13.10
	2500	130 / 137	100x15	550	18.00
	3150	130 / 137	100x15	550	18.00
	4000	160 / 167	130x15	550	22.50
	5000	200 / 207	170x16	750	35.40
40.5 / 80 / 185	1250	80 / 87	40	400	8.80
	3150	130 / 137	100x15	550	18.00
52 / 95 / 250	1000	80 / 87	36	400	8.50
	2000	100 / 107	60	400	14.80
	3150	160 / 167	120x15	550	26.50
	4000	200 / 207	138x16	750	40.70
72.5 / 140 / 325	1600	100 / 107	50	400	13.60
	2500	130 / 137	80x15	550	19.70
	3150	160 / 167	110x15	550	27.50
	4000	200 / 207	138x16	750	40.70

[1)] Maximum possible currents at given conductor cross sections

DURESCA® Busbar systems for HV-applications

Moser Glaser is the only manufacturer to offer fully insulated busbar systems up to 170kV.
On top of this comes the synergy between busbar systems and DURESCA® wall and transformer bushings up to 300kV with RIP insulation.





DURESCA® DE: Aluminium / Aluminum EN AW-6101B T7

U_r / U_p / BIL	I_r	PA ø mm	Conductor ø mm	Bend radius mm	Weight kg/m
123 / 230 / 550	1250	146	50	550	20.90
	1600	192	100x15	750	35.50
145 / 275 / 650	1250	146	50	550	20.90
	1600	192	100x15	750	35.50
170 / 325 / 750	1250	192	80x15	750	40.30
	1600	192	80x15	750	40.30

DURESCA® DG: Aluminium / Aluminum EN AW-6101B T7

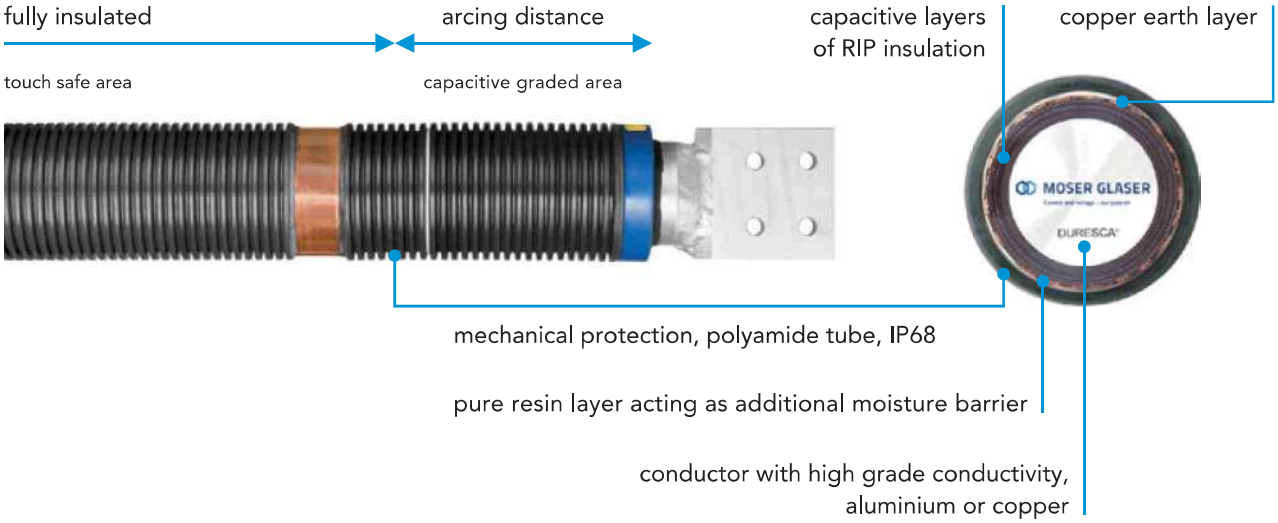
U_r / U_p / BIL	I_r	CrNi ø mm	Conductor ø mm	Bend radius mm	Weight kg/m
123 / 230 / 550	1250	130	50	550	24.40
	1600	160	70x15	550	33.20
145 / 275 / 650	1250	130	50	550	24.40
	1600	160	70x15	550	33.20
170 / 325 / 750	1250	160	55	750	34.80
	1600	200	100x15	1000	48.40

On request copper conductors can be used, e.g. for special systems with higher currents.

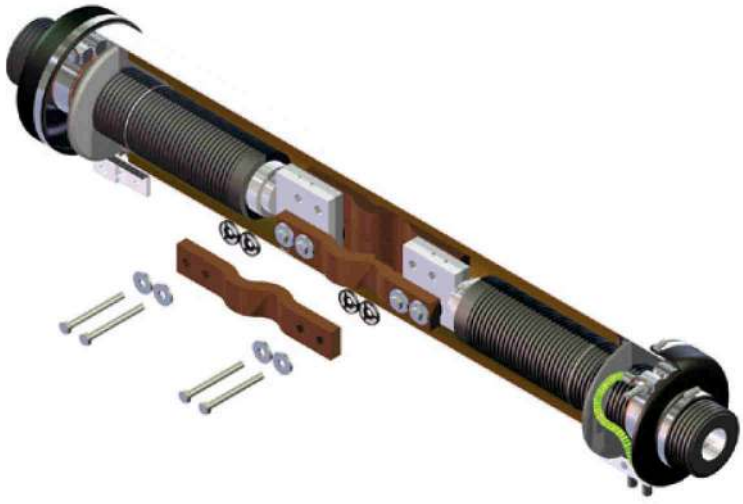
Main features of DURESCA® Busbar systems

Depending on the current, the busbar has either a round solid or a hollow conductor. The materials used are aluminum EN-AW-6101b T7 or electrolytic copper ETP H. The earth screen in copper with a cross-section of 50 mm² for an internal short circuit up to 8kA/1s, is also embedded in the insulation and makes the busbars touch safe.

The insulation surface of the busbar is covered by a protection tube which is either flat or corrugated. This pure resin layer between RIP and protective jacket is an additional protection against the penetration of moisture. With this construction, the busbars and sleeves have a protection class IP 68 and an impact resistance IK 10.



The maximum length of each busbar is 10 meters. If longer busbar connections are needed or if only smaller busbars can be produced due to limited space, the individual busbars are connected with insulating sleeves during assembly.



Each busbar and all fixing materials are custom made in our factory. This makes the assembly simple and it can be carried out without any special tools.

Connectorsfor DURESCA® Busbar systems

The DURESCA® Busbar system is suitable for all popular switchgear types.
The following table describes the appropriate conductor and tube dimensions.



Connex 4 conductor

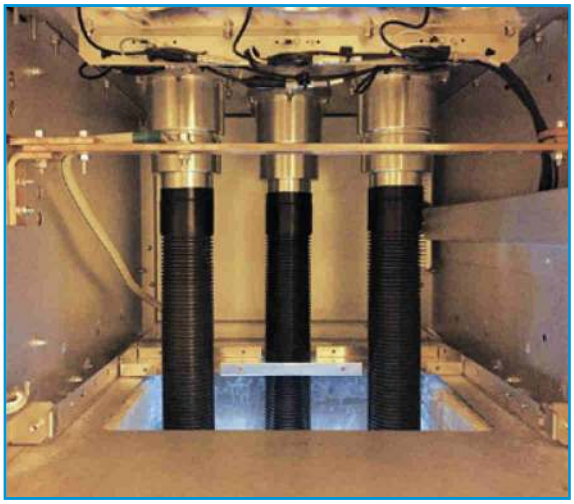


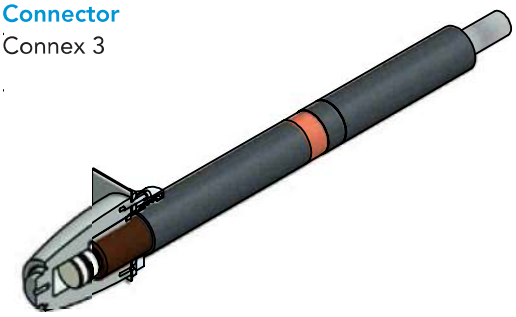
ABB ZX2 plug

Connectors

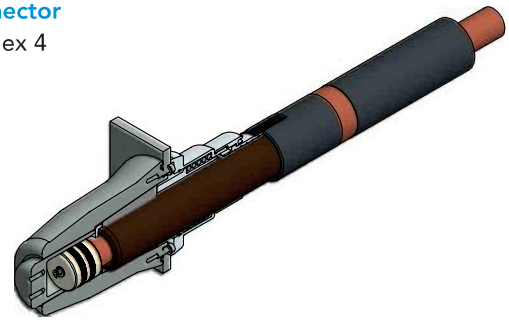
Switchgear	Plug	Current	Voltage	Conductor material		Protection tube
Typ	Typ	Ir [A]	Ur [kV]	Al ø mm	Cu ø mm	PA ø mm
Pfisterer	Connex 3	1250	36	36		67
	Connex 3	1600	36		36	67
	Connex 3	1600	40.5	45		80
	Connex 3	2000	40.5		45	80
	Connex 4	2000	52	60		106
	Connex 4	2500	52		60x15	106
	Connex 4	1600	72.5	50		106
	Connex 4	2000	72.5		50	106
Siemens	NX Plus	2000	52	60		106
	NX Plus	2500	52		60x15	106
Siemens NXPLUS C	NXPLUS C	1250	24		32	55
Schneider Electric GMA	NXPLUS C	1250	24		32	55
	NXPLUS C at higher currents in tandem configuration.					
Schneider Electric WS / WI	SF6	2500	36	70x15		106
	SF6	2500	40.5		70x10	106
SIEMENS 8DA / 8DB	SF6	1600	17.5	45		67
	SF6	2000	17.5		45	67
	SF6	1250	36	36		67
	SF6	1600	36		36	67
	SF6	2500	36	70x15		106
	SF6	2500	40.5		70x10	106
HICO	SF6	2500	36	70x15		106
	SF6	2500	40.5		70x10	106
ABB	ZX2	2000	40.5	60		106
	ZX2	2500	40.5		60x15	106

Connectors for DURESCA® Busbar systems

Connector
Connex 3



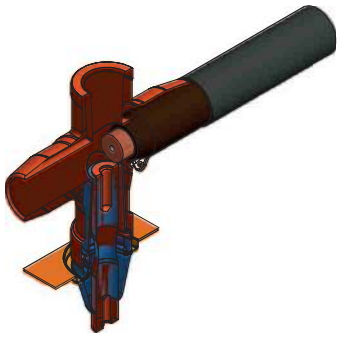
Connector
Connex 4



Connector
Siemens NX-Plus



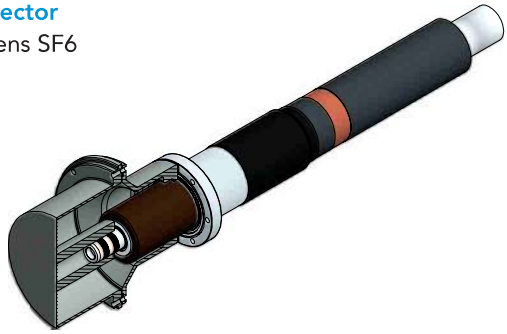
Connector
Siemens NX-Plus C



Connector
Schneider SF6



Connector
Siemens SF6



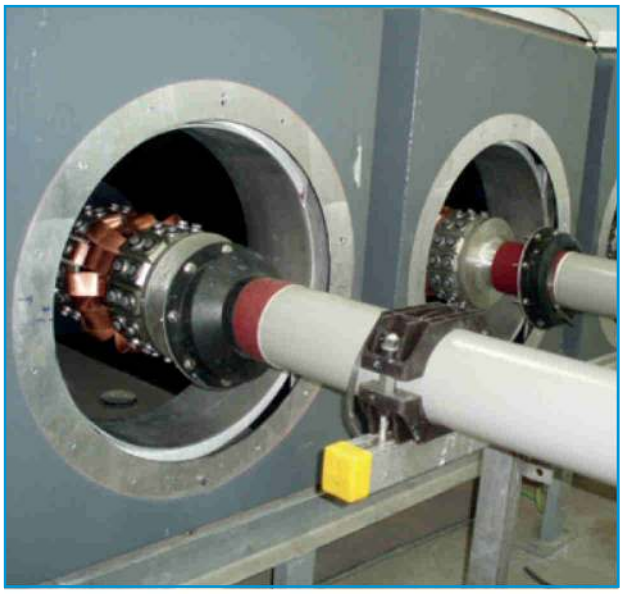
Connector
HICO SF6



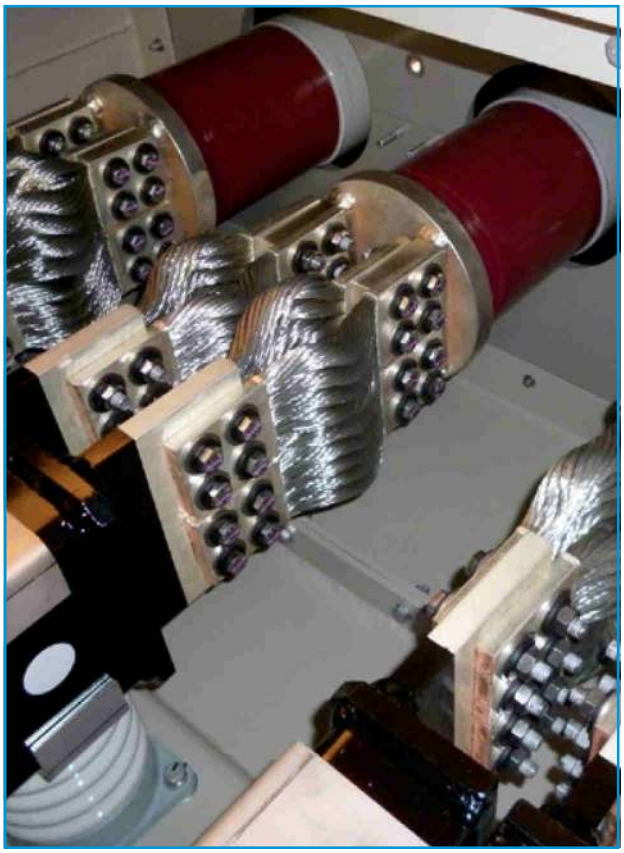
Connector
ABB SF6



Examples of DURESCA® connectors



Generator breaker



5000A generator connection



Copper braids to transformer



Copper braids to transformer

Standards and tests for DURESCA® Busbar systems

Every busbar is routine tested according to international standards, respectively to customer requirements, in our own labs.

The following routine tests are done:

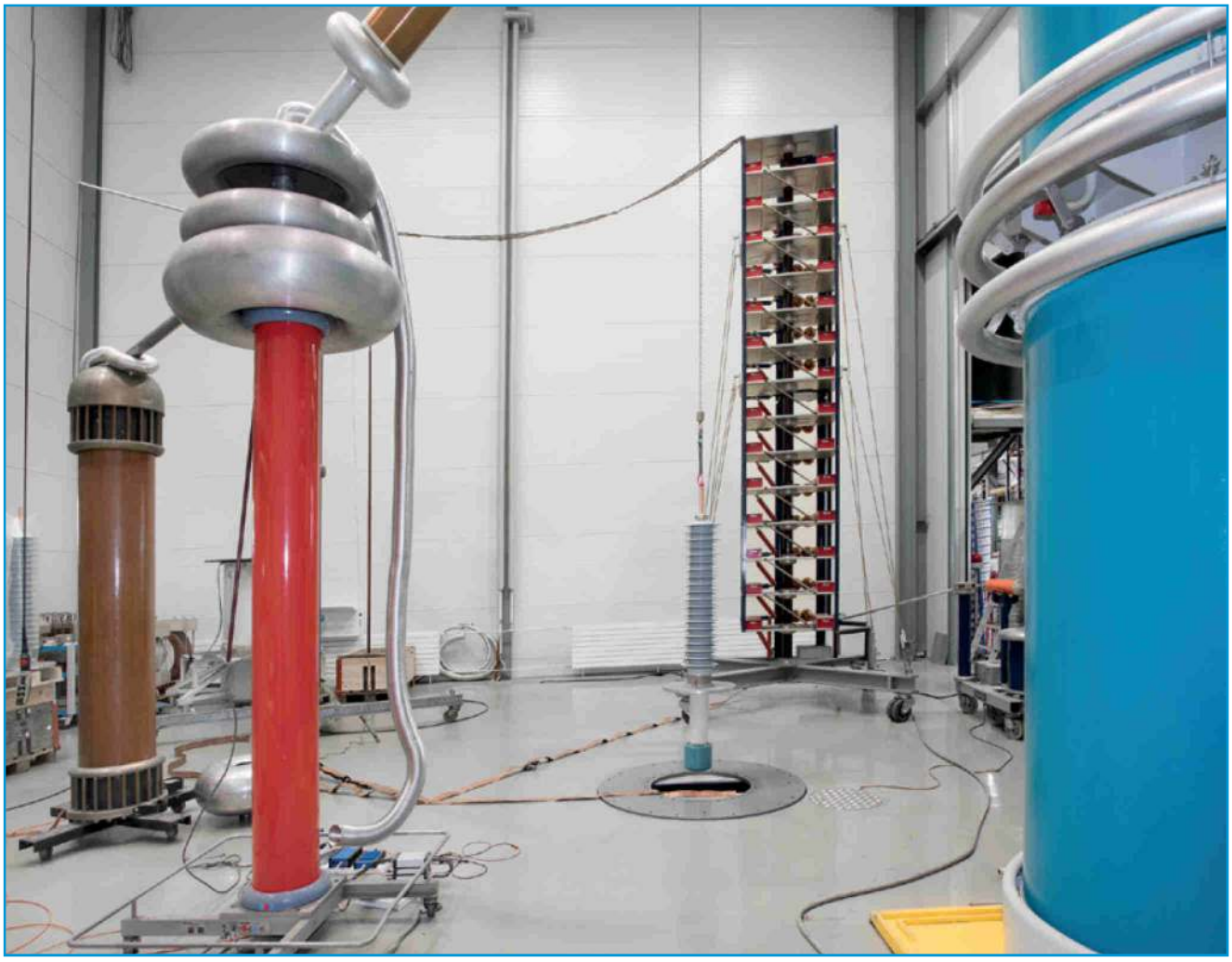
- Power frequency withstand voltage
- Partial discharge
- Capacitance and tangent delta
- Dimension control
- Leak tightness test of connectors for gas insulated switchgear panels

According to customer requests, Moser Glaser performs type tests as well:

- Routine tests
- Lightning impulse withstand voltage, dry (BIL)
- Repetition of routine tests
- Temperature rise test
- Proof of short time thermal stress

Other special tests upon request.

The Moser Glaser site in Kaiseraugst has various alternating voltage test equipment up to 800kV and impulse generators up to 2200kV available.



DURESCA®
Busbar system



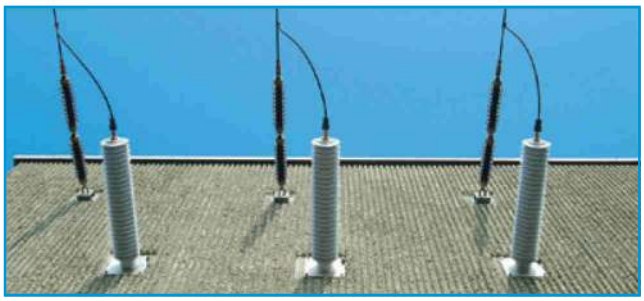
TIRESCA®
Busbar system



GASLINK®
SF_6 insulated busbar system



DURESCA®
Wall bushings



DURESCA®
Transformer bushings



ISO 9001
ISO 14001
OHSAS 18001
BUREAU VERITAS
Certification

Authorised Economic Operator

MOSER GLASER

Current and voltage – our passion

MGC Moser-Glaser Ltd.
Lerchenweg 21
4303 Kaiseraugst
Switzerland

+41 61 467 61 11
info@mgc.ch
www.mgc.ch

Member of PFIFFNER Group

This document has been drawn up with the utmost care. We can not however, guarantee that it is entirely complete, correct or up-to-date.
© Copyright Moser Glaser, Subject to change without notice. 2018.02

Represented by: