

Insulating joint IK

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Monoblock insulating joints

- are boltless, rigid pipeline components, factory-welded and ready for installation
- a design which has proven successful throughout the world even for highest requirements
- maintenance-free
- suitable for underground installation without the need for special precautions or for above ground installation
- absolutely no impairment due to external influences

Mechanical properties

- the excellent mechanical properties are achieved by a rigid design of statically favorable form, using thermo-setting plastics free from cold flow as insulating materials
- the welded unit provides a safe and reliable connection even over extremely long period of operation without the risk of the secured and locked unit loosening or separating
- countless tests, prototype tests and empirical data gained during the course of many years of practical operation confirm the soundness and correctness of the complete welded design

Electrical properties

- the dimensioning and practical arrangement of the insulating sections within the overall design in addition to technical production factors, in conjunction with insulation materials of a suitable quality, result in the ideal overall electrical behavior of the insulating joints
- large external insulating length, thus eliminating the possibility of sparkover
- very good dielectric strength, substantially greater than is the case with conventional insulating flanges
- the average electrical resistance, measured at 1000 VDC, exceeds 40 Mohm
- a decisive factor in safe operating behavior, however, is linearity between the voltage applied and the resistive leakage current

Calculation

- in accordance with German standards such as EN 12007-3, EN 1594, TRBF, ASME code and other international standards, or in accordance with specific requirements
- if no other regulations are made, the RMA-company standards are valid. It's calculated on the basis of AD 2000 and for the strength characteristics of the design the working pressure, resp. the maximum test pressure is decisive
- additional forces such as bending moments and tensile forces etc. must be specified by the customer
- basically, all components of forces and force values occurring can be taken into consideration during design calculation
- a uniform assessment, valid simultaneously for all applications and requirements is not possible in practice

Scope of manufacture

- unrestricted, i.e. extending beyond the data and tables given
- the numerical values specified in the brochure are based upon assumed standard versions
- deviations and matching to specific operating conditions may be implemented at any time

Scope of application

- suitable for flow media such as mineral oil, crude oil, kerosene, gasoline, propane, butane, natural gas, coal gas, ethylene, nitrogen and drinking water etc.
- Media such as sour gas and oxygen necessitate special materials and design bases
- please always specify the medium and operating conditions
- standard versions up to maximum +80° C constant temperature
- special versions for district heating pipelines up to +150° C

Materials

- pipes, e.g. in accordance with EN, API, ASTM-A and other standards
- seamless rings made of plate material or of forged quality, depending upon requirements and design calculations
- seals of aging-resistant material, e.g. buna N, viton, EPDM and insulating materials made of tried and tested materials with application-specific properties

External coating

- unless otherwise specified, we apply PUR (Polyurethane) acc. to EN 10290 as a standard
- other types of coating are possible according to agreement and purpose

Examples:
bitumen primer and others

Internal lining

- as per standard without lining
- virtually all types of lining can be applied upon agreement, depending upon intended purpose
- electrically conductive media and deposits require an appropriate internal lining

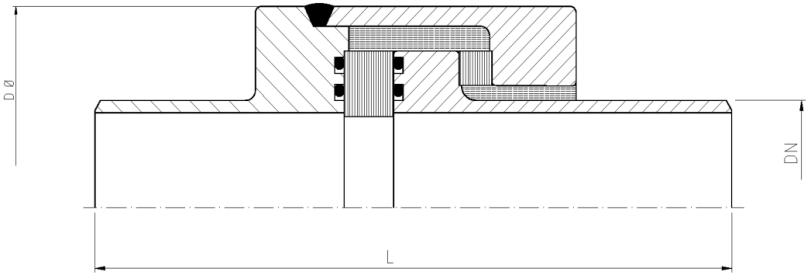
Tests/Inspections

- according to the agreed requirements, usually:
 - * a strength and tightness test with water
 - * an electrical breakdown test with 5000 V/1 minute, AC, 50 Hz (both before and after the hydrostatic pressure test)
 - * an electrical resistance test, standard 500 V. In special cases 1000 V DC
 - * checking the material certificates
 - * evaluation of the destructive and non-destructive tests
 - * dimensional checks
- depending upon the basis of the order, the tests are conducted either by our quality assurance department, by an official acceptance testing agency, by the customer himself or by an acceptance testing company authorized by the customer

Qualifications for insulating joints

- component testing in accordance with German regulations (VDTUV data sheet insulating joints 100)
- stress tests and bending tests
- multifunctional prototype tests in all ranges and other quality assurance tests
- Technical modifications reserved

DIN-standard version up to PN 100 or ANSI 600.
Other sizes and pressure ratings on request.

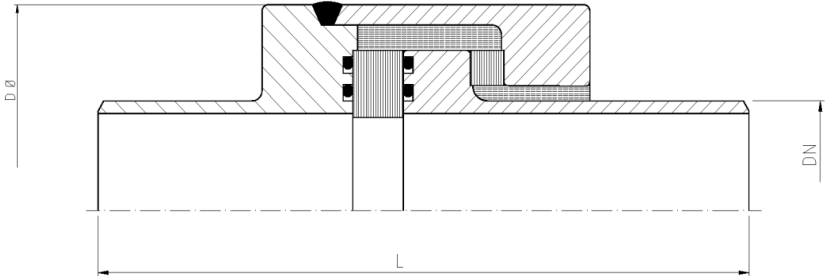


Dimensions & Weight table

Size		PN 10, 16			PN 25			PN 40			PN 70			PN 100					
DN		Overall length	Diameter	Weight	Overall length	Diameter	Weight	Overall length	Diameter	Weight	Overall length	Diameter	Weight	Overall length	Diameter	Weight			
[mm]	[inch]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]			
25	1"	- see Type ET - Type IK on request			500	115	7	500	115	7	500	115	7	500	115	7			
40	1½"				500	115	7,5	500	115	7,5	500	115	7,5	500	115	7,5	500	115	7,5
50	2"				700	140	11	700	140	11	700	140	11	700	140	11	700	140	11
65	2½"				700	160	16	700	160	16	700	160	16	700	160	16	700	160	16
80	3"				700	160	17	700	160	17	700	160	17	700	160	17	700	160	17
100	4"				700	194	29	700	194	29	700	194	29	700	194	29	700	194	29
125	5"				700	220	35	700	220	35	700	220	35	700	220	35	700	220	35
150	6"				700	273	45	700	273	45	700	273	45	700	273	45	700	273	45
200	8"				700	324	68	700	324	68	700	324	68	700	324	72	700	324	72
250	10"	700	356	49	700	370	80	700	370	80	700	380	105	700	384	115			
300	12"	700	419	65	700	425	115	700	425	115	700	425	130	700	434	173			
350	14"	700	446	76	700	450	120	700	425	120	700	454	135	700	476	190			
400	16"	700	500	100	700	505	130	700	510	155	700	510	180	1.000	527	250			
450	18"	700	550	120	700	460	145	700	560	178	700	570	230	1.000	586	340			
500	20"	700	620	146	700	612	170	700	612	205	1.000	625	295	1.000	645	415			
600	24"	1.000	710	215	1.000	716	265	1.000	716	315	1.200	733	475	1.200	770	645			
700	28"	1.000	823	281	1.000	816	345	1.000	822	410	1.200	850	630	1.500	886	970			
800	32"	1.000	920	352	1.200	918	460	1.200	928	540	1.500	968	940	1.500	1.005	1.295			
900	36"	1.200	1.032	480	1.200	1.023	550	1.200	1.033	670	1.500	1.076	1.140	1.500	1.115	1.670			
1.000	40"	1.200	1.127	516	1.200	1.128	660	1.200	1.144	870	1.500	1.190	1.295	1.500	1.222	2.040			
1.050	42"	1.200	1.180	570	1.200	1.180	700	1.200	1.194	910	1.500	1.240	1.540	1.800	1.287	2.470			
1.100	44"	1.500	1.235	690	1.500	1.230	860	1.500	1.244	1.075	1.500	1.294	1.740	1.800	1.340	2.650			
1.200	48"	1.500	1.340	880	1.500	1.338	980	1.500	1.366	1.400	1.500	1.416	2.250	1.800	1.474	3.450			

- ☐ larger nominal diameters and pressure ratings on request
- ☐ the above data refer to insulating joints designed and in accordance with AD 2000
- ☐ calculation and design in accordance with EN 12007-3 (up to 16 bar) and EN 1594 (over 16 bar), including TRBF 301, or on the basis of other requirements covered by the above groups
- ☐ safety factor S = 1,8 (F = 0,55)
- ☐ testing pressure, standard = 1,5-times nominal pressure or operating pressure
- ☐ electrical test, standard 5000 V/1minute (50 Hz), AC
- ☐ electrical resistance test, standard 500 V, DC
- ☐ please specify pipe connection dimensions and connection material when enquiring or ordering
- ☐ other versions and design data available on request
- ☐ beside the general design in accordance with AD 2000, ASME-code or other standards can also be taken as a basis, depending on the requirements for welding or testing

ASME-standard version up to ANSI Class 600.
Other sizes and pressure ratings on request.



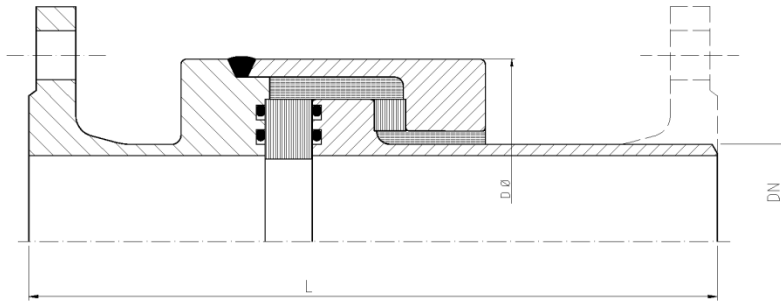
Dimensions & Weight table

Size		ANSI 150			ANSI 300			ANSI 400			ANSI 600		
DN		Overall length	Diameter	Weight	Overall length	Diameter	Weight	Overall length	Diameter	Weight	Overall length	Diameter	Weight
[mm]	[inch]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]	L [mm]	DØ [mm]	m [kg]
25	1"	- see Type ET - Type IK on request			500	114	7	500	114	7	500	114	7
40	1½"				500	114	7,5	500	114	7,5	500	114	7,5
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80	3"				700	160	17	700	160	17	700	160	17
100	4"				700	194	29	700	194	29	700	194	29
125	5"				700	220	35	700	220	35	700	220	38
150	6"				700	273	45	700	273	45	700	273	58
200	8"				700	324	74	700	324	84	700	324	86
250	10"	700	370	80	700	380	113	700	380	113	700	384	138
300	12"	700	425	115	700	425	148	700	425	148	1.000	434	234
350	14"	700	450	120	700	454	150	1.000	454	178	1.000	476	262
400	16"	700	505	136	1.000	510	205	1.000	510	252	1.000	527	296
450	18"	700	560	152	1.000	560	252	1.000	570	314	1.200	586	420
500	20"	1.000	612	235	1.000	612	328	1.200	625	383	1.200	645	530
600	24"	1.000	716	283	1.000	722	400	1.200	733	550	1.200	770	750
700	28"	1.000	816	355	1.200	828	565	1.500	850	786	1.500	886	1.120
800	32"	1.200	918	492	1.500	941	860	1.500	968	1.095	1.800	1.005	1.670
900	36"	1.500	1.023	690	1.500	1.046	1.085	1.800	1.076	1.460	1.800	1.115	2.120
1.000	40"	1.500	1.128	815	1.500	1.162	1.345	1.800	1.190	1.685	1.800	1.222	2.620
1.050	42"	1.800	1.180	960	1.800	1.212	1.575	2.000	1.240	2.085	2.200	1.287	3.230
1.100	44"	1.800	1.230	1.025	1.800	1.271	1.685	2.000	1.294	2.237	2.200	1.340	3.473
1.200	48"	2.000	1.338	1.240	2.000	1.384	2.150	2.000	1.416	3.100	2.500	1.474	4.730

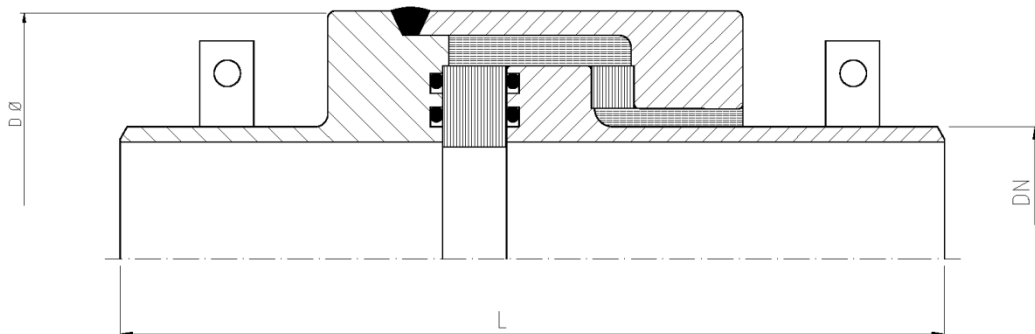
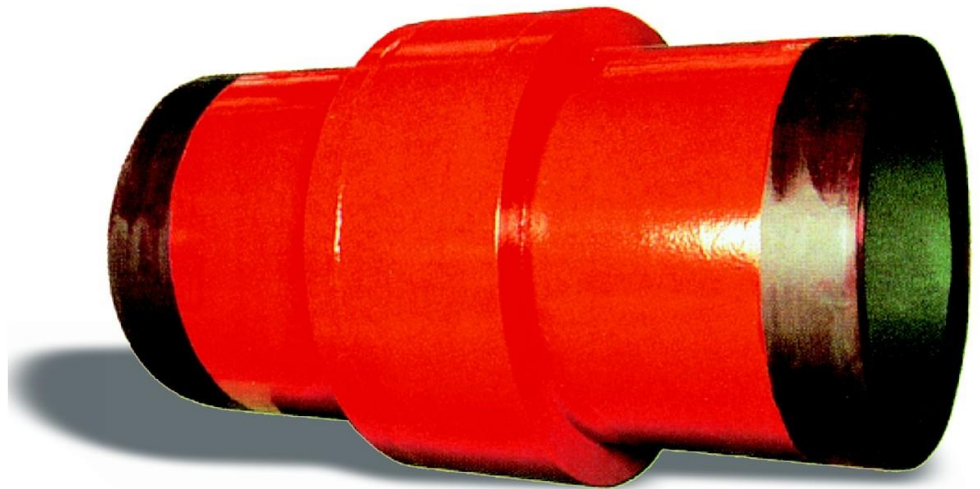
- larger nominal diameters and pressure ratings on request
- the above data refer to insulating joints designed in accordance with ASME Code Section VIII, Div. 1. Design factor F=0.5, other factors are possible
- testing pressure = 1.5 times design pressure or as specified
- electrical test, standard 5000 V/1 minute (50 Hz), AC
- electrical resistance test, standard 500 V, DC
- please specify the pipe connection dimensions and connection material when enquiring or ordering
- other versions, design data, calculation and design standards on request

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Further versions

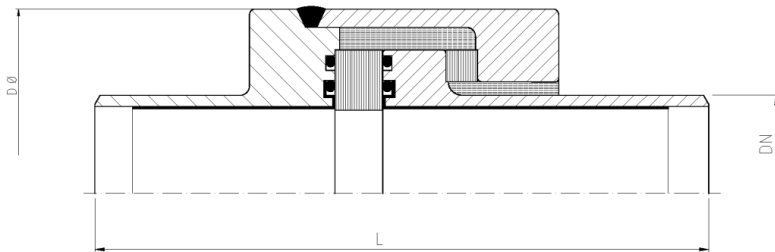


Insulating joint with flange connection on one or both sides.

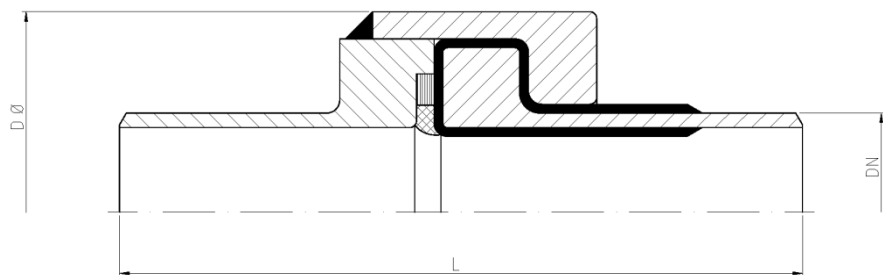


Insulating joint with connection for ex-proof spark gaps.

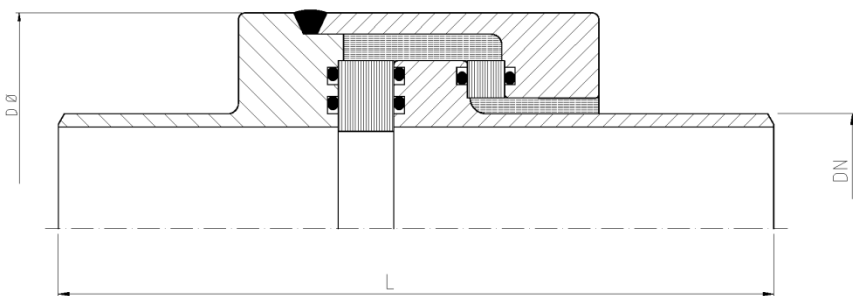
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Design with special internal lining up to the O-ring groove. For strongly electrically conductive media e.g. water, sea water, salt water, etc. Inside lining on one or two sides, depending on requirements on site.



Up to DN 300 inclusive, PN 25-100 according to EN 1594 design with lip seal, manufactured in series.



Design for highest requirements especially for large sizes and high pressure ratings.