EN

ALVENIUS®
PERFORMANCE IN PIPING

Pipe Systems with Quick Couplings

Product Catalogue for Snowmaking

Standard Range

Table of contents

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ALVENIUS®

Steel pipe systems for snowmaking

Alvenius' quick-coupled steel pipe system has all the properties needed for snowmaking in the most cost effective way. The complete FlowMax® system meets the requirement of maximum reliability and easy installation.

Maximum reliability, top-grade safety, resistance to corrosion and aggressive media, long service life and superb life cycle costs (LCC) are key benefits built into all Alvenius FlowMax® systems.

Alvenius FlowMax® pipes are spirally welded with unique pressure-equipment classed steel material. The pipes can be made thin-walled but yet strong.

The combination of the FlowMax® pipes low weight and the quick coupling makes the system extremely easy to assemble and handle. No welding, no special tools and no time-consuming training is required.

Pressure ratings

Pressure ratings on pipes in this catalogue are calculated according to DIN 2460. The ratings are only valid for a buried system and if installation instructions are followed.

The different pressure ratings mentioned on the following pages are according to EN 805 have the below definitions.

PFA is the allowable operating pressure, i.e. the design pressure p according to Appendix C of DIN2460.

This is the maximum hydrostatic pressure, exclusive of surge, that a component can safely withstand in permanent service. PFA supersedes the formerly used allowable nominal pressure PN of a pipeline and can be calculated in accordance with Annex C of DIN 2460.

PMA is the allowable maximum operating pressure, i.e. the maximum internal pressure, including surge which a component can safely withstand in service.

PMA can be expressed as follows: PMA = PFA x 1.2

This relationship holds on condition that the effective period of peak pressure action does not exceed 1 % of the pipeline’s service life. If this period exceeds 10 % of the pipeline’s service life, then PMA = PFA. Intermediate values are to be determined by interpolated.

PEA is the allowable site test pressure, i.e. the maximum hydrostatic pressure that a newly installed component can withstand for a relatively short period, when either fixed above ground level or laid and back-filled underground in order to measure the integrity and leak tightness of the pipe.

PEA can be expressed as follows: PEA = PFA + 5 bar.

Certifications and norms

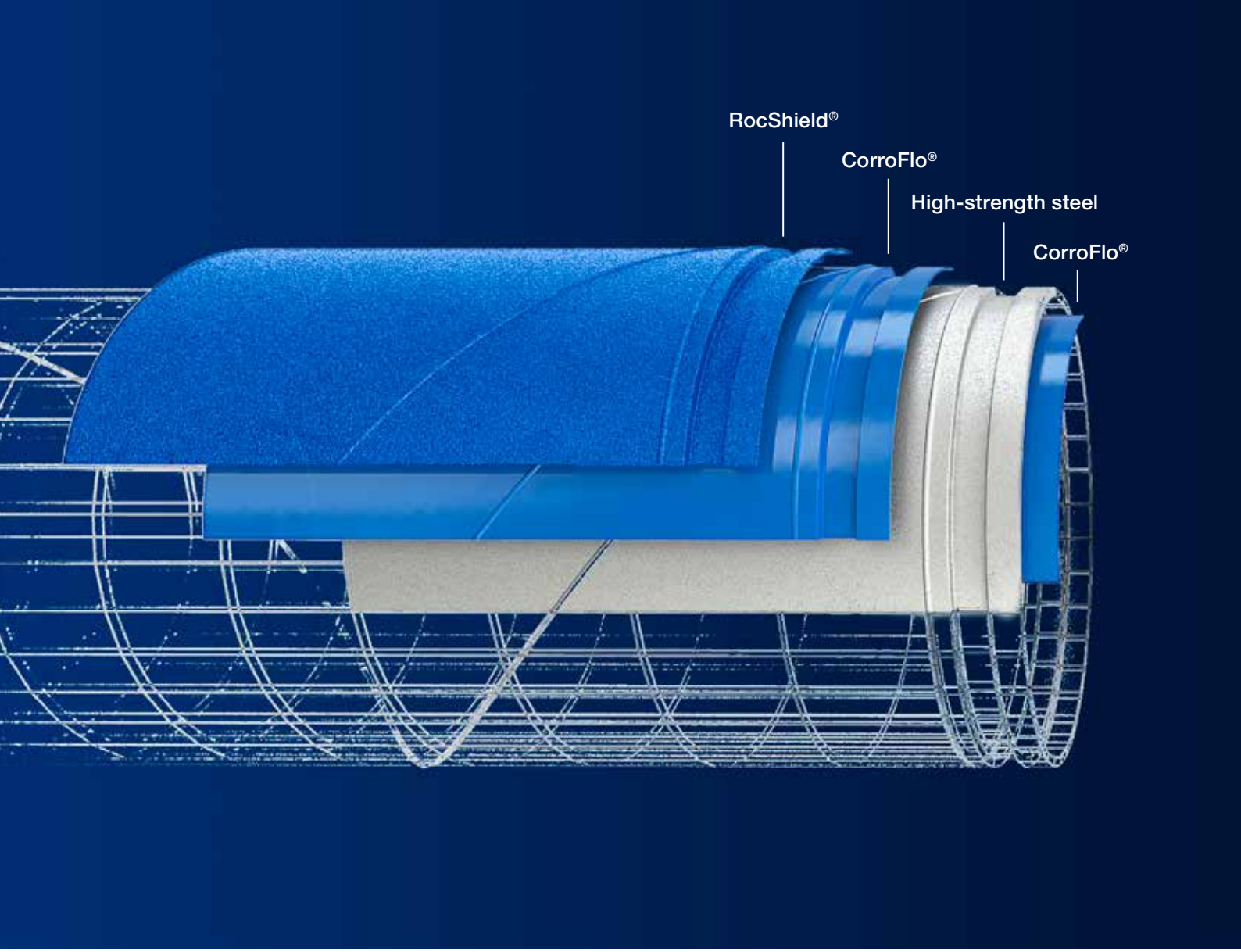
Alvenius is certified according to the quality standard ISO 9001, the environmental standard ISO 14001 and the welding quality standard ISO 3834-2.

FlowMax® pipes are designed and manufactured according to the pressure equipment directive PED 2014/68/EU and the SS-EN 13480 series. Tolerances are according to SS-EN 10217-1.

More information

This is an excerpt from Alvenius' standard range and includes the most common products used in a piping system for snowmaking.

Further information about the products and the complete range can be found in our standard product catalogue and at www.alvenius.com



Surface coatings for all conditions and needs

Demanding conditions, aggressive or abrasive media, the need for a cost-effective pipe system. No problem. Alvenius offers surface coatings to meet all needs and requirements.

Internal surface coating advantages

- Improved life cycle cost – extremely low flow resistance means lower energy consumption and lower overall costs
- Very good resistance to corrosion and chemicals
- Optimal hygiene properties – the smooth coating prevents the build-up of deposits inside the pipes

External surface coating advantages

- Resistance to external impact on the pipes
- Superior service life – proven by independent tests in extreme environments
- Ideal in aggressive environments thanks to the high resistance to acidic and alkaline liquids
- Very good resistance to corrosion
- The surface coating has an elongation at failure of up to 800%
- Flexible and easy to repair if damaged

HDG
HDG (Hot-Dip Galvanized) is an ideal surface coating for pipes that may need to be dismantled and reassembled as it provides a highly robust surface layer.

Such pipes are highly resistant to impact, wear and harsh weather conditions. What's more, the zinc layer "heals" if damaged.

CorroFlo®
Alvenius FlowMax® pipes are coated both internally and externally with CorroFlo®. These pipes are ideal for environments and applications where, for example, acidic water and aggressive chemicals are a problem.

Tests show that CorroFlo® meets the requirements for the extremely demanding corrosion class SS-EN ISO 12944, which applies to marine environments (C5-M) and underground (Im3).

Independent tests show that pipes coated with CorroFlo® offer a service life of more than 50 years.

RocShield®
For extra-durable wear and impact protection, the external surface of the pipes can be treated with RocShield® on top of the CorroFlo® coating.

RocShield® is a 500 µm LDPE layer that offers extreme resistance, making it suitable for pipes used in exposed environments.

The surface structure with its good gripping properties also offers easier and safer handling.

Pipe

Our standard pipes are available with different pressure ratings depending on your requirement. To make it possible to easily customize the system the pipes are available in different lengths. The pipes are designed and manufactured according to the pressure equipment directive PED 2014/68/EU and the SS-EN 13480 series. Tolerances are according to SS-EN 10217-1. Pressure ratings on pipes in this catalogue are calculated according to DIN 2460.

Dim	t [mm]	System	L [m]	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP & RC
76	2.0	CG	0.6	84	101	106	100073801	
76	2.0	CG	1.0	84	101	106	100075801	
76	2.0	CG	3.0	84	101	106	100077801	
76	2.0	CG	6.0	84	101	106	1149-01	
76	2.0	K10	0.5	84	101	106	100074101	
76	2.0	K10	1.0	84	101	106	100075101	
76	2.0	K10	2.0	84	101	106	100076101	
76	2.0	K10	3.0	84	101	106	100077101	
76	2.0	K10	5.8	40	48	53	100081101	
76	2.0	K10	6.0	40	48	53	100080101	
89	2.1	CG	0.6	122	147	152	122551801	122551809
89	2.1	CG	1.0	122	147	152	122091801	122091809
89	2.1	CG	3.0	122	147	152	122093801	122093829
89	2.1	CG	6.0	122	147	152	1151-01	1151-29
102	2.0	K10	0.5	40	48	53	100104101	
102	2.0	K10	1.0	40	48	53	100105101	
102	2.0	K10	2.0	40	48	53	100106101	
102	2.0	K10	3.0	40	48	53	100107101	
102	2.0	K10	5.8	40	48	53	100111101	
114	2.0	CG	3.0	56	67	72	100417801	100417829
114	2.0	CG	6.0	56	67	72	100422801	100422829
114	2.8	CG	0.6	129	155	160	4270-01	4270-09
114	2.8	CG	1.0	129	155	160	4271-01	4271-09
114	2.8	CG	3.0	129	155	160	4272-01	4272-29
114	2.8	CG	6.0	129	155	160	4274-01	4274-29
139	2.1	CG	6.0	78	93	98	1136-01	1136-29
139	2.8	CG	0.6	78	93	98	5390-01	5390-09
139	2.8	CG	1.0	105	127	132	5391-01	5391-09
139	2.8	CG	3.0	105	127	132	5392-01	5392-29
139	2.8	CG	6.0	105	127	132	4897-01	4897-29
152	2.0	K10	5.8	40	48	53	101240101	
152	2.1	K10	0.5	40	48	53	100144111	
152	2.1	K10	1.0	40	48	53	100145111	
152	2.1	K10	2.0	40	48	53	100146111	
152	2.1	K10	3.0	40	48	53	100147111	
152	2.1	K10	5.8	40	48	53	100160101	

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Dim = Dimension
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L = Length

Dim 2 = Second dimension
TP = Coated inside & outside with thermo-plastic in blue color (part.no ending with 09)
RC = Coated inside & outside with RocShiled® in blue color (part.no ending with 29)

Blue is the default color for snowmaking pipes. Other colors are available upon request.
Technical Specifications, see "Alvenius Pipe System Technical Data"

Pipe

Dim]	t [mm]	System	L [m]	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP & RC
168	2.1	CG	6.0	65	77	82	1137-01	1137-29
168	2.8	CG	0.6	88	105	110	122446801	122446809
168	2.8	CG	1.0	88	105	110	122762801	122762809
168	2.8	CG	3.0	88	105	110	122763801	122763829
168	2.8	CG	6.0	88	105	110	1138-01	1138-29
219	3.0	CG	6.0	44	53	58	100885801	100885829
219	3.6	CG	0.6	87	105	110	122920801	122920809
219	3.6	CG	1.0	87	105	110	122403801	122403809
219	3.6	CG	3.0	87	105	110	122404801	122404829
219	3.6	CG	6.0	87	105	110	122407801	122407829
273	3.6	CGB	3.0	72	87	92	5160-01	5160-29
273	3.6	CGB	6.0	72	87	92	4974-01	4974-29
273	4.4	CG	0.6	86	103	108	122343801	122343809
273	4.4	CGB	1.0	88	106	111	5138-01	5138-09
273	4.4	CGB	3.0	88	106	111	5139-01	5139-29
273	4.4	CGB	6.0	88	106	111	4793-01	4793-29
323	4.4	CG	3.0	73	87	92	122863801	122863829
323	4.4	CG	6.0	73	87	92	1143-01	1143-29
323	5.7	CG	0.6	95	114	119	122960801	122960809
323	5.7	CG	1.0	95	114	119	2732-01	2732-09
323	5.7	CG	3.0	95	114	119	122316801	122316829
323	5.7	CG	6.0	95	114	119	1144-01	1144-29

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Coupling

Including rubber gasket (EPDM).

Dim	System	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Painted
60	ST75	35	41	46	120930800
76	K10	40	48	53	120276109
89	ST75	35	41	46	120932800
89	ST77	80	80	100	120809800
102	K10	40	48	53	120290109
114	ST75	35	41	46	120933800
114	ST77	80	80	100	120943800
139	ST75	31	37	42	120937800
139	ST77	80	80	100	120813800
152	K10	40	48	53	120311109
168	ST75	31	37	42	120935800
168	ST77	80	80	100	120811800
219	ST75	31	37	42	120936800
219	ST77	80	80	100	120804800
273	ST77	80	80	100	120825800
323	ST77	80	80	100	120826800

Rubber gasket

EPDM rubber gasket as a spare part.

Dim	System	Part no.
60	CG	120803801
76	K10	120282101
89	CG	120449801
102	K10	120296101
114	CG	120805801
139	CG	120798801
152	K10	120315101
168	CG	120806801
219	CG	120807801
273	CG	120799801
323	CG	120800801

Mounting grease & Densotape

	Part no.
Mounting grease, can, 1000 g	300028000
Densotape, W=100 mm, L=10000 mm	800731000

Always use grease for maximal service life of your system

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Hydrant outlet

A hydrant outlet is an extended tee with a 2" or 1 ½" externally threaded outlet.

Dim	Dim 2	L [mm]	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. TP
89	2"	600	CG	Steel	80	80	100	2930-09
114	2"	600	CG	Steel	80	80	100	2931-09
139	2"	600	CG	Steel	80	80	100	2932-09
168	2"	600	CG	Steel	80	80	100	2933-09
219	2"	600	CG	Steel	80	80	100	2934-09
273	2"	600	CG	Steel	80	80	100	2935-09
323	2"	600	CG	Steel	80	80	100	122497809
89	1 ½"	600	CG	Steel	80	80	100	2936-09
114	1 ½"	600	CG	Steel	80	80	100	2937-09
139	1 ½"	600	CG	Steel	80	80	100	2938-09
168	1 ½"	600	CG	Steel	80	80	100	2939-09
219	1 ½"	600	CG	Steel	80	80	100	2940-09
273	1 ½"	600	CG	Steel	80	80	100	2941-09
323	1 ½"	600	CG	Steel	80	80	100	4796-09

Elbow

Elbows are used when the deflection offered by the coupling is insufficient.

Dim	Angle [°]	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
76	7.5	K10	Cast iron	40	48	53	1092-01	
76	15	K10	Cast iron	40	48	53	1091-01	
76	30	K10	Cast iron	40	48	53	1090-01	
76	45	K10	Cast iron	40	48	53	1089-01	
76	90	K10	Cast iron	40	48	53	1087-01	
89	7.5	CG	Steel	80	80	100	122508801	122508809
89	11.25	CG	Cast iron	80	80	100	122507801	122507809
89	22.5	CG	Cast iron	80	80	100	122510801	122510809
89	45	CG	Cast iron	80	80	100	122511801	122511809
89	90	CG	Cast iron	80	80	100	122513801	122513809
102	7.5	K10	Steel	40	48	53	110529101	
102	15	K10	Cast iron	40	48	53	110530111	
102	30	K10	Cast iron	40	48	53	110531111	
102	45	K10	Cast iron	40	48	53	110532111	
102	90	K10	Cast iron	40	48	53	110524111	
114	7.5	CG	Steel	80	80	100	122543801	122543809
114	11.25	CG	Cast iron	80	80	100	122542801	122542809
114	22.5	CG	Cast iron	80	80	100	122545801	122545809
114	45	CG	Cast iron	80	80	100	122546801	122546809
114	90	CG	Cast iron	80	80	100	122548801	122548809

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Technical Specifications, see "Alvenius Pipe System Technical Data"

Elbow

Dim	Angle [°]	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
139	7.5	CG	Steel	80	80	100	122600801	122600809
139	15	CG	Steel	80	80	100	122601801	122601809
139	30	CG	Steel	80	80	100	122602801	122602809
139	45	CG	Cast iron	80	80	100	122603801	122603809
139	90	CG	Cast iron	80	80	100	122604801	122604809
152	7.5	K10	Cast iron	40	48	53	112401101	
152	15	K10	Cast iron	40	48	53	112402101	
152	30	K10	Cast iron	40	48	53	112403101	
152	45	K10	Cast iron	40	48	53	112404101	
152	90	K10	Cast iron	40	48	53	112405101	
168	7.5	CG	Steel	80	80	100	122376801	122376809
168	11.25	CG	Cast iron	80	80	100	122380801	122380809
168	22.5	CG	Cast iron	80	80	100	122378801	122378809
168	45	CG	Cast iron	80	80	100	122379801	122379809
168	90	CG	Cast iron	80	80	100	122381801	122381809
219	7.5	CG	Steel	80	80	100	122641801	122641809
219	11.25	CG	Cast iron	80	80	100	122645801	122645809
219	22.5	CG	Cast iron	80	80	100	122643801	122643809
219	45	CG	Cast iron	80	80	100	122644801	122644809
219	90	CG	Cast iron	80	80	100	122646801	122646809
273	7.5	CG	Steel	80	80	100	122669801	122669809
273	11.25	CG	Cast iron	80	80	100	2601-01	2601-09
273	22.5	CG	Cast iron	80	80	100	2910-01	2910-09
273	45	CG	Cast iron	80	80	100	1082-01	1082-09
273	90	CG	Cast iron	80	80	100	1078-01	1078-09
323	7.5	CG	Steel	80	80	100	122697801	122697809
323	15	CG	Steel	80	80	100	122698801	122698809
323	30	CG	Steel	80	80	100	122699801	122699809
323	45	CG	Cast iron	80	80	100	122703801	122703809
323	90	CG	Cast iron	80	80	100	122702801	122702809

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Technical Specifications, see "Alvenius Pipe System Technical Data"

Tee

The standard range includes a wide selection of straight and reducer tees.

Dim	Dim 2	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
76	76	K10	Steel	40	48	53	111701101	
89	89	CG	Cast iron	80	80	100	122100801	122100809
102	102	K10	Cast iron	40	48	53	2050-01	
114	60	CG	Cast iron	80	80	100	122737801	122737809
114	114	CG	Cast iron	80	80	100	122105801	122105809
139	139	CG	Cast iron	80	80	100	122109801	122109809
152	152	K10	Cast iron	40	48	53	2389-01	
168	60	CG	Cast iron	80	80	100	122736801	122736809
168	76	CG	Cast iron	80	80	100	122720801	122720809
168	168	CG	Cast iron	80	80	100	122115801	122115809
219	168	CG	Cast iron	80	80	100	122731801	122731809
219	219	CG	Cast iron	80	80	100	122120801	122120809
273	273	CG	Cast iron	80	80	100	122735801	122735809
323	323	CG	Cast iron	80	80	100	122905801	122905809

Reducer

Reducers are used to connect pipes of different diameters.
The standard range includes a wide selection of reducers for connecting different diameters.

Dim	Dim 2	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
89	60	CG	Cast iron	80	80	100	122042801	
89	76	CG	Cast iron	80	80	100	122043801	
114	60	CG	Cast iron	80	80	100	122044801	
114	76	CG	Cast iron	80	80	100	122047801	
114	89	CG	Cast iron	80	80	100	122870801	122870809
139	89	CG	Cast iron	80	80	100	122897801	122897809
139	114	CG	Cast iron	80	80	100	122048801	122048809
168	60	CG	Cast iron	80	80	100	122858801	122858809
168	89	CG	Cast iron	80	80	100	122859801	122859809
168	114	CG	Cast iron	80	80	100	122876801	122876809
168	139	CG	Cast iron	80	80	100	122875801	122875809
219	114	CG	Cast iron	80	80	100	122890801	122890809
219	139	CG	Cast iron	80	80	100	122054801	122054809
219	168	CG	Cast iron	80	80	100	122877801	122877809
273	219	CG	Cast iron	80	80	100	122882801	122882809
323	273	CG	Cast iron	80	80	100	122207801	122207809

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Technical Specifications, see "Alvenius Pipe System Technical Data"

Connection pieces with thread

Adapter with thread used to connect pipes to, for example, threaded valves or a threaded pipe system.
OD 114, OD 139 and OD 168 is an end cap with 2" inside thread.

Dim	Dim 2	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
89	2"	CG	Cast iron	80	80	100	1127-01	1127-09
102	2"	K10	Steel	40	48	53	110227101	
114	2"	CG	Cast iron	80	80	100	1050-01	1050-09
139	2"	CG	Cast iron	80	80	100	1053-01	1053-09
168	2"	CG	Cast iron	80	80	100	1057-01	1057-09

Flanged adapter

Used to easily connect the system to other ØD pipe systems and flanged valves.

Dim	Flange DN/ DIN	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
89	80/2635	CG	Steel	40	48	53	111777801	111777809
89	80/2636	CG	Steel	63	76	81	111776801	111776809
114	100/2635	CG	Steel	40	48	53	111782801	111782809
114	100/2636	CG	Steel	63	76	81	111783801	111783809
139	125/2635	CG	Steel	40	48	53	111787801	111787809
139	125/2636	CG	Steel	63	76	81	111788801	111788809
168	150/2635	CG	Steel	40	48	53	111765801	111765809
168	150/2636	CG	Steel	63	76	81	111766801	111766809
219	200/2635	CG	Steel	40	48	53	111792801	111792809
219	200/2636	CG	Steel	63	76	81	111793801	111793809
273	250/2636	CG	Steel	63	76	81	111798801	111798809

End cap

Dim	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Hot-dip galvanized	Part no. TP
76	K10	Steel	40	48	53	110353101	
89	CG	Cast iron	80	80	100	122354801	122354809
102	K10	Steel	40	48	53	110357101	
114	CG	Cast iron	80	80	100	122355801	122355809
139	CG	Cast iron	80	80	100	122385801	122385809
152	K10	Steel	40	48	53	110361101	
168	CG	Cast iron	80	80	100	122383801	122383809
219	CG	Cast iron	80	80	100	122384801	122384809
273	CG	Cast iron	80	80	100	122369801	122369809
323	CG	Cast iron	80	80	100	122370801	122370809

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Technical Specifications, see "Alvenius Pipe System Technical Data"

Welding ring

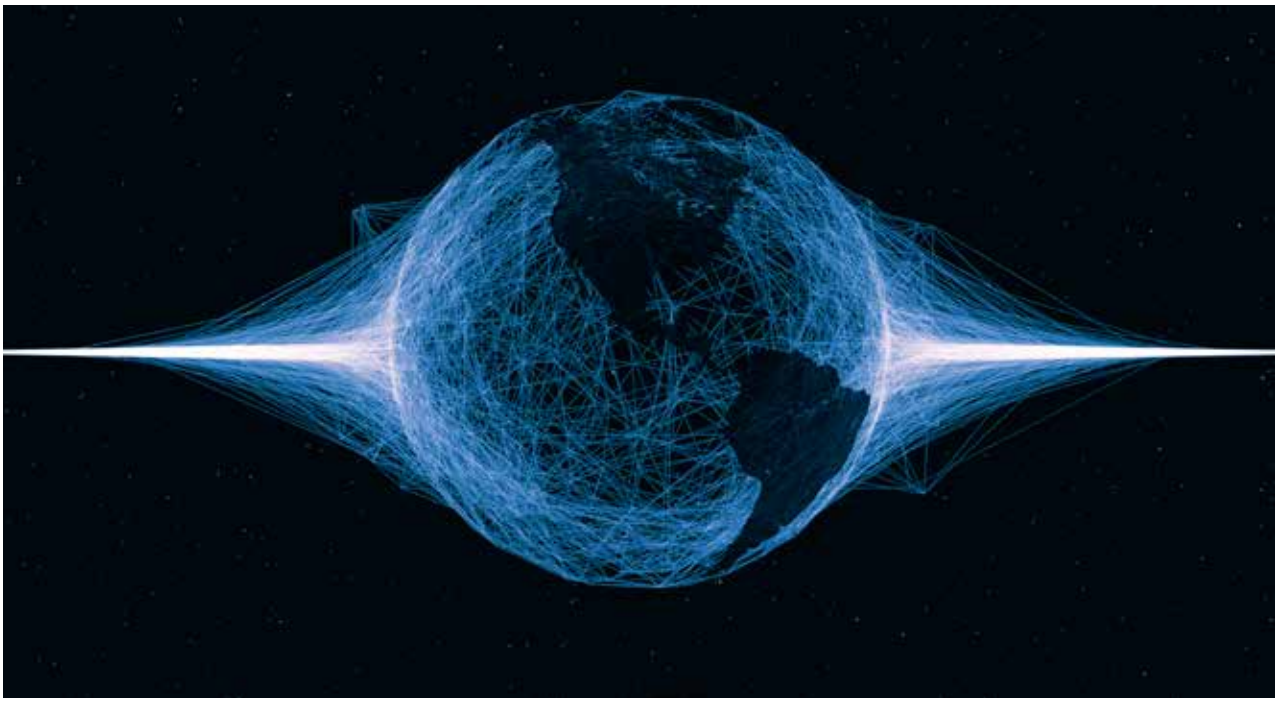
For adaptation of pipe pieces, there are loose welding rings in all dimensions. The welding rings are of the same type as the ends of the pipes and can be connected the rest of the system.

Dim	t [mm]	System	Material	PFA [bar]	PMA [bar]	PEA [bar]	Part no. Untreated
76	2.0	K10	Steel	40	48	53	121910100
89	2.2	CG	Steel	80	80	100	122985820
102	2.0	K10	Steel	40	48	53	121902100
114	2.7	CG	Steel	80	80	100	122851850
139	3.3	CG	Steel	80	80	100	122852840
152	2.5	K10	Steel	40	48	53	121904100
168	2.8	CG	Steel	80	80	100	122855860
219	3.6	CG	Steel	80	80	100	122865820
273	4.4	CG	Steel	80	80	100	2118-00
323	6.5	CG	Steel	80	80	100	122844850

Dim = Dimension
t = thickness
L = Length

Dim 2 = Second dimension
TP = Coated inside & outside with thermo-plastic in blue color (part.no ending with 09)
RC = Coated inside & outside with RocShiled® in blue color (part.no ending with 29)

Blue is the default color for snowmaking pipes. Other colors are available upon request.
Technical Specifications, see "Alvenius Pipe System Technical Data"



Alvenius was founded in 1951 and ever since we have focused on supplying the global market with high-quality quick coupling steel pipe systems.

Today, Alvenius focuses its expertise on the segments tunnels, mines, industry, fire protection and extinguishing, water and wastewater systems and artificial snow making.

We have a presence in Asia, Africa, the Middle East, North and South America, Europe and, of course, our domestic market Sweden.

Our international approach offers many advantages.

Above all else, it means that we understand the conditions and demands of your particular market – wherever that may be.

ALVENIUS®

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