

SIMPLICITY. STRENGTH. LONGEVITY. SUCCESS.



DUCTILE IRON PIPE PRODUCTS

FOR PIPING PROJECTS ACROSS NORTH AMERICA

Snow-making

A reliable water supply for snow-making systems

The most important factor in the economics of regions dependent on winter sports is the certainty of snow. So, for winter sports resorts to be attractive and for that vital factor to be guaranteed, there are two essential requirements: the use of snow-making systems and hence an assurance that there will be snow on the ski runs for the skiers to swoop down.

For a snow-making system to operate satisfactorily, the main requirement is a reliable water supply able to meet all the demands that are made on it in high mountainous terrain and by pressures of up to 100 bars.

The ruggedness of the material and the socket system that allows for movement, together with the speed and ease of assembly and laying have made Tiroler Rohre the market leader all over the world in pipes and fittings for snow-making systems.

The advantages for you

- Maximum safety and reliability at operating pressures up to **100 bars**.
- Fast and uncomplicated laying; **no welding required**.
- A sophisticated and complete product range covering pipes, fittings and the VRS®-TIROFLEX® joint; sizes from DN 80 to DN 500.
- Deflectable to a max. of 5°, **which saves fittings**.
- Working life of > **50 years**.
- Good assortment of pipes and fittings **held in stock** so short delivery times are possible.
- **We are specialists** in the production of cast iron pipes and have had decades of experience; our list of reference projects speaks for itself.
- **Product quality monitored** to EN standards; member of various quality assurance associations; ISO 9001 certified.
- **Consultancy** at the planning stage and training courses for pipe layers given by experts.
- Technically and economically, **the most efficient pipe system** on the market. Laying rates of up to 400 m a day are possible.



Floodlit snow-making. Source: Bergbahnen Flachau

Reference projects

NORTH AMERICA

NORTHEAST REGION: Bristol Mountain, Greek Peak, Holiday Valley, Killington, Stratton. **SOUTHEAST REGION:** Liberty Mountain, Roundtop Mountain, Whitetail. **MIDWEST REGION:** Wilmot Mountain. **ROCKY MOUNTAIN REGION:** Aspen Mountain, Beaver Creek, Buttermilk, Durango, Howelsen Hill, Schweitzer Mountain, Ski Santa Fe, Snowbird, Steamboat, Vail Mountain, Whitefish Mountain. **PACIFIC WEST REGION:** Squaw Valley. **CANADA:** Georgina Recreation Centre, SkiBromont.

AUSTRIA

Bergbahn AG Kitzbühel, Silvretta Seilbahnen – Ischgl, Arlberger Bergbahnen, Schiliftzentrum Gerlos, Hochkrimmel Gerlosplatte, Gletscherbahnen Kaprun, Planai Hochwurzenbahnen, Gasteiner Bergbahnen, Annaberger Skibetriebe, Bergbahnen Saalbach Hinterglemm, Mayrhofner Bergbahnen, Bergbahnen Hochsöll, Bergbahnen Ellmau Going, Komperdell Seilbahnen – Serfaus, Bergbahnen Wagrain, Bergbahnen Flachau, Pitztaler Gletscherbahnen, Goldeck Spital/Drau, Ötztaler Gletscherbahnen – Sölden, ...

ITALY

Ista Cortina d'Ampezzo, Sofma Arabba, Alleghe Funivie, Sita Canazei, Madonna di Campiglio, Pinzolo, Fiemme 2013, Piz Sella, Funivie San Vigilio di Marebbe – Kronplatz, La Thuile, Courmayeur Mont Blanc, Pila – Aosta, Monterosa SKI, Breuil Cervinia Valtouranche, Ovindoli Magnola Impianti – L'Aquila, SITAS, Carosello 3000, Mottolino – Livigno, Pordoi spa, Sextner Dolomiten, Comelico, San Domenico SKI, Olangner Seilbahnen, Ladurns, Skiarea Valchiavenna, Abetone, Monte Amiata, Promotur, ...

SWITZERLAND

Bergbahnen Oberengadin – St. Moritz, Elsigen-Metsch – Adelboden, Flims Laax Falera, Zermatt Bergbahnen, Jungfraubahnen Grindelwald, Bivio – Graubünden, Brigels Bergbahnen, Crans Montana-Aminona, Darlux, Grächen Bergbahnen, Les Rasses, Männlichenbahn, Motta Naluns Bergbahnen Scuol, Savognin & Bivio, Vella, Obersaxen, Bergün, Flumserberg, Wildhaus, Unterwasser, Malbun/FL, Villars-Gryon, ...

GERMANY

Bayerische Zugspitzbahnen, Bergbahnen Ofterschwang, Hündlebahnen Oberstaufen, Alpspitzbahn Nesselwang, Wurmbergseilbahn Braunlage, Skiliftkarussell Winterberg, Mühlenkopfschanze + Skigebiet Willingen, Alpenbahnen Spitzingsee, Brauneckbahnen Lenggries, Berchtesgadener Bergbahnen, Todtnau Muggenbrunn, Feldbergbahn, ...

EASTERN EUROPE

Sochi – RUS, Gebele – AZ, Bukovel – UA, Almaaty – KZ, Borzhavskaja Jalyna – UA, Plaj – Skiareal Plesivec – CZ, Meander Skipark – SK, Smržovka – CZ, Krvavec – SLO, Szokolya – H, Bjelasnice Sarajevo – BiH, Arena Paltinis – RO, Aleko Spor – BG, Ski Kožuf – MK, Bialka Tatrza ska – PL, Winterpol Karpacz – PL, ...

NORWAY

Myrkdallen Fjellheiser, Bjorli, Gautefall, Granåsen – Trondheim, Hovden Schicenter, Hurdal, Kvitfjell Alpinanlegg, Norefjell, Oppdal, Sjusjøen, Skeikampen, Vassfjellet, Oslo – Holmenkollen, ...



Deflectable by up to 5°, which saves time and fittings



Can be brought to site with special equipment



Fast and very easy laying



No need for special bedding



Good assortment of pipes and fittings held in stock – Tiroler Rohre in Austria

Ductile cast iron pipes with internal and external coatings for an extremely long life

Internal coating

Cement mortar lining suitable for drinking water

External coating

Thermal sprayed zinc coating 200 g/m² in weight (active corrosion protection) plus cover coating (passive corrosion protection)

Possible cover coatings

- ZMU cement mortar coating (for stony, corrosive soils)
DN 80 – DN 50, pipe length=6 m, blue
- Cover coating PUR-LL (standard coating)
DN 80 – DN 500, pipe length=5 m, black
- Please enquire for alternative cover coatings and pipe lengths



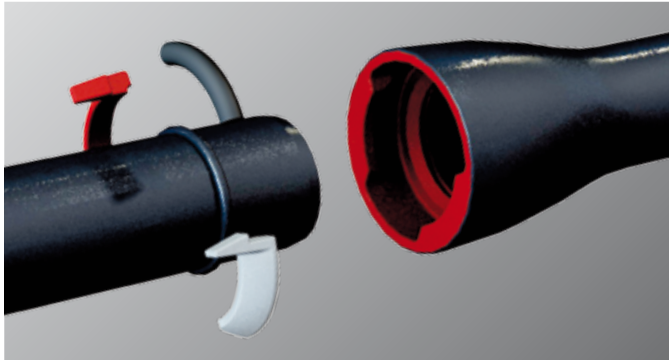
DN 80 TO DN 500 PRESSURE PIPES, OVERALL LENGTH 5 M, PUR-LL

DN	PFA 30	PFA 40	PFA 63	PFA 100
	Weight [kg]			
80	81,5	81,5	81,5	81,5
100	100,0	100,0	100,0	107,0
125	128,0	128,0	128,0	145,5
150	157,5	157,5	157,5	202,0
200	204,5	204,5	237,0	315,5
250	270,5	270,5	333,0	458,5
300	339,5	339,5	448,5	634,5
400	520,0	642,5	803,5	
500	712,0	993,5	1.049,2*	

Weights per pipe [kg] are theoretical standard values. Actual weights may differ! *Max. permitted PFA 50 bars

VRS®-TIROFLEX® socket joint

A very simple and secure restrained socket system



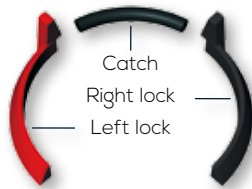
SPECIAL VRS®-TIROFLEX® SEALING RING AVAILABLE GIVING UP TO 25% LOWER INSERTION FORCES



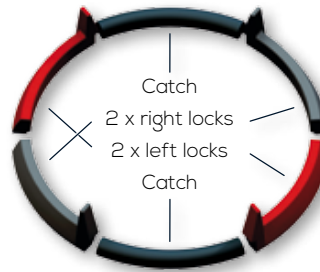
Cross-section of VRS®-TIROFLEX® sealing ring

LOCK SYSTEMS

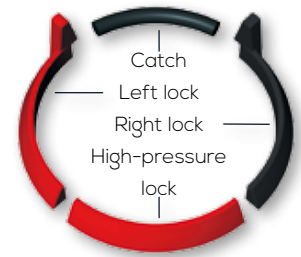
DN 80 to DN 250



DN 300 to DN 500



High-pressure lock
DN 200 and DN 250 for PN 100



CLAMPING RING

Clamping ring is for use on cut pipes.
Follow the installation instructions!
Tighten to a torque of at least 50 Nm.



Installation please see "Technical Information Application Area Artificial Snow-making and High Pressure Systems".

DN 80 to DN 300: PFA 100 bars
DN 400 to DN 500: PFA 30 bars

OPERATING PRESSURES FOR VRS®-TIROFLEX® JOINTED SNOW-MAKING SYSTEMS

DN	PFA	Deflection	Locks
80	100 bar	5°	2 locks + catch
100	100 bar	5°	2 locks + catch
125	100 bar	5°	2 locks + catch
150	100 bar	5°	2 locks + catch
200	100 bar	4°	2 locks + HP lock + catch
250	100 bar	4°	2 locks + HP lock + catch
300	100 bar	4°	4 locks + 2 catches
400	63 bar	3°	4 locks + 2 catches
500	50 bar	3°	4 locks + 2 catches

Please enquire for higher pressures

Fittings of ductile cast iron

Socket fittings:

VRS®-TIROFLEX® joints

DN 80 to DN 300:

PFA 100 bars

DN400 to DN 500:

PFA 30 bars. For higher pressures see table.

Internal and external coatings

Epoxy resin coating to EN 14 901

Weights per fitting [kg] are theoretical standard values.

Actual weights may differ!



RAL GÜTEZEICHEN
SCHWERER KORROSIONSSCHUTZ
VON ARMATUREN UND FORMSTÜCKEN

Member of the German Quality Association for Heavy Duty Corrosion Protection

FITTINGS FOR EVERY APPLICATION

DN	MMB								
	Outlets								
	Weight [kg]								
	80	100	125	150	200	250	300	400	500
80	16,1								
100	20,0	22,4							
125	25,1	28,1	31,0						
150	33,6	34,5	39,0	41,1					
200	46,2	47,3	50,0	54,3	63,1				
250	72,0	63,9	87,0	70,6	77,8	89,1			
300	93,0	80,2		88,6	96,6	109,0	127,4		
400	MB ²⁾						MB ²⁾	236,0 ¹⁾	
500									396,8 ¹⁾
MMR									
100	12,3								
125	15,9	16,7							
150	19,9	20,8	21,0						
200		29,6		30,4					
250				45,3	46,7				
300				57,0	58,9	62,8			
400							111,0 ¹⁾		
500								148,0 ¹⁾	

1) Max. permitted PFA 30 bars; 2) Max. permitted PFA 63 bars

MMB



MB



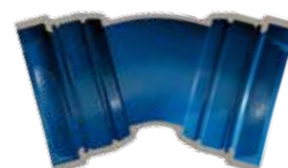
MMR



MK



MMK



DN	MK				MMK			
	Weight [kg]							
	11,25°	22,5°	30°	45°	11,25°	22,5°	30°	45°
80	8,4	8,7	8,9	9,1	10,1	10,2	10,4	11,0
100	11,1	11,6	11,9	12,3	14,0	14,3	14,7	14,7
125	15,1	15,9	16,2	17,0	18,6	19,4	20,3	20,8
150	20,1	21,5	22,4	24,2	23,3	24,3	25,2	26,3
200	32,7	35,3	36,5	39,7	38,2	39,2	41,4	41,5
250	51,0	53,0	57,0	60,5	52,3	56,9	59,3	65,1
300	71,0	73,0	82,0	87,3	70,4	78,6	79,9	86,4
400	125,0 ²⁾	138,8 ²⁾	157,2 ²⁾		116,0 ¹⁾	120,4 ¹⁾	137,0 ¹⁾	157,0 ¹⁾
500	220,0 ³⁾	222,0 ³⁾	224,0 ³⁾		171,5 ¹⁾	197,0 ¹⁾	205,5 ¹⁾	227,0 ¹⁾

1) Max. permitted PFA 30 bars; 2) Max. permitted PFA 63 bars 3) Max. permitted PFA 50 bars

DN	GDR		U
	L=400 mm	L=800 mm	
	Weight [kg]		
80	7,6	15,4	13,4
100	9,5	18,8	16,0
125	12,0	25,0	24,0
150	15,6	31,0	30,5
200	22,0	44,0	45,5
250		66,7	66,5
300		98,0	83,5
400		81,3*	115,0*
500		104,0*	185,0*

*Max. permitted PFA 30 bar

GDR



U



OPTIONS FOR FLANGED CONNECTIONS

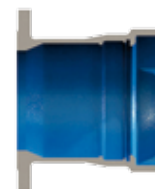
DN	F						EU					
	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100
	Weight [kg]						Weight [kg]					
80	7,5	7,5	7,5	7,5	11,9	11,2	10,2	10,2	10,2	10,2	12,3	15,2
100	8,5	8,5	10,4	10,4	14,1	15,7	12,2	12,2	12,7	12,7	16,3	20,7
125	11,2	12,4	13,1	14,3	20,0	22,8	15,5	15,5	17,0	17,0	26,8	25,0
150	19,3	19,3	21,0	21,0	31,9	28,0	19,9	19,9	22,1	22,1	31,5	33,4
200	25,2	25,2	26,0	30,8	46,6	55,4	28,7	28,9	29,6	34,6	49,0	56,4
250	35,1	35,2	37,7	45,4			40,6	39,7	44,3	51,9	67,5	86,4
300	46,0	44,8	49,1	62,0			52,3	52,1	56,1	69,9	84,9	120,0
400	104,0	109,0	114,0	154,0			85,5	89,0	102,0	127,5	from 2014	
500	146,0	156,0	161,0				125,0	140,5	151,0	162,0*	from 2014	

*Max. permitted PFA 30 bar

F



EU



OPTIONS FOR CONNECTIONS TO HYDRANTS

DN	ENH	HAS	P	ABS
	Weight [kg]			
80	7,3	10,5	4,1	5,2
100		13,8	4,4	5,4
125		17,8	6,7	6,0
150		23,1	9,2	6,5
200		34,8	14,5	7,4
250		54,0	27,2	9,1
300		72,0	49,4	9,7
400				17,0
500				20,0

ENH



P



HAS



ABS



NORTH AMERICAN CLIENTS

(through 2013)

NORTHEAST REGION

Bristol Mountain Resort (2)
Greek Peak Mountain Resort
Holiday Valley Resort
Killington Resort (1)
Stratton (1)

SOUTHEAST REGION

Liberty Mountain Resort (1)
Roundtop Mountain Resort (3)
Whitetail Resort (2)

MIDWEST REGION

Wilmot Mountain (3)

ROCKY MOUNTAIN REGION

Aspen Mountain (4)
Beaver Creek (1)
Buttermilk (4)
Durango
Howelsen Hill
Schweitzer Mountain
Ski Santa Fe
Snowbird Resort
Steamboat Resort (7)
Vail Mountain (3)
Whitefish Mountain

PACIFIC WEST REGION

Squaw Valley (2)

CANADA

Georgina Recreation Centre
SkiBromont (1)



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