Gasketed Sewer Pipe

Storm and Sanitary pipe for use with STI Gasketed Sewer Fittings.

ROYAL Municipal Solutions

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Royal Municipal Solutions Gasketed Sewer Pipe with our specially designed Double Seal Locked-In (DSLI™) gasket is an extremely durable pipe with a leak proof joint. The combination of chemical resistance, long term strength and high stiffness account for why PVC is the most popular pipe material for sanitary and storm sewer applications.

Gasketed Sewer pipe can service the following applications:

- gravity storm and sanitary lines
- gravity industrial lines
- private drain connectionse

Our Gasketed Sewer Pipe is available in Standard Dimension Ratios (SDR) 26, 28 and 35 in the following sizes: SDR 26 in 100mm - 450mm (4" - 18"), SDR 28 in 100mm - 150mm (4" - 6"), SDR 35 in 100mm - 675mm (4" - 27") and in 4.27 metre (14') lengths. The gasket is a Double Seal Locked-In (DSLI™) gasket that is installed during the manufacturing process. Royal Municipal Solutions offers a complete line of fabricated and injection moulded fittings to complement our Gasketed Sewer Pipe.

Royal Municipal Solutions Gasketed Sewer Pipe shall be manufactured with a nominal size of 100mm (4") to 675mm (27") and with Standard Dimension Ratios (SDR) 26, 28 or 35, and shall be certified to CSA B182.2 (PVC Sewer Pipe and Fittings (PSM Type)) and conform to all the requirements of ASTM D3034 (Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings) and F679 (Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings).

Royal Building Products, Municipal Solutions is recognized for its high quality products. Our state-of-the-art extrusion equipment and computerized material handling system ensure consistency. Our quality control testing guarantees that the pipe you install will outperform the application.

Installation

Royal Municipal Solutions Gasketed Sewer Pipe weighs a fraction of the weight of traditional pipe products, therefore handling and installation costs are reduced substantially. Our pipe can be easily cut in the field and the joint assembly can be handled in the trench without using heavy equipment.

Colour Coding

Royal Municipal Solutions SDR 26 and 35 pipe is colour coded green. Royal Municipal Solutions SDR 28 Gasketed Sewer pipe is available in green and white. Fabricated fittings are green and injection moulded fittings are white.

Joining

Both bell and spigot shall be clean of all debris. Lubricant must only be applied to the spigot end of the pipe (do not lubricate the gasket). The pipes are then placed in straight alignment, push the spigot into the bell to the insertion line marked on the pipe. Pipe assembly can be completed by hand using a bar and block, lever pullers or hydraulic jacks. Royal's factory-installed gaskets eliminate the problems of rolling or fish mouthing. Care should be taken to avoid over insertion into the pipe bell beyond the spigot insertion line.

Lubricant

Royal Municipal Solutions Gasketed Sewer Pipe must be assembled with Royal non-toxic, water-soluble lubricant which is listed by the National Sanitation Foundation (NSF).

Certifications

Royal Municipal Solutions Gasketed Sewer Pipe proudly meets the following standards:

Certified to B182.2

D3034 F679

OPS 1841 OPSD 806.040

NQ 3624-130 NQ 3624-135

Fittings

Royal Municipal Solutions carries a complete line of fabricated and injection moulded fittings to complement our Gasketed Sewer Pipe. Our fabricated and injection moulded fittings are third-party certified to CSA B182.2.

Fabricated Fittings

Fabricated fittings shall be manufactured with a nominal size of 100mm (4") to 900mm (36") from SDR 26 or SDR 35 pipe and shall be third-party certified to CSA B182.2 and conform to the requirements of ASTM F1336 (Poly (VInyl Chloride) (PVC) Gasketed Sewer Fittings). Injection moulded fittings both SDR 26 and SDR 35 shall be certified to CSA B182.2 (Plastic Drain and Sewer Pipe and Pipe Fittings) and conform to the requirements of ASTM D3034 and F679.

Injection Moulded Fittings

STI gasketed sewer injection moulded fittings are light weight and easy to handle. They are available in 100mm - 300mm (4" - 12") diameters and have a Standard Dimension Ratio (SDR) of 26 or 35. Our injection moulded fittings are CSA certified to the CSA B182.1 and/or B182.2 Standards and meet the requirements of the ASTM D3034, F679 and F1336 Standards.

Benefits to Using Gasketed Sewer Pipe

There are many advantages for using our Gasketed Sewer Pipe. Our pipe is corrosion resistant, durable and cost effective.

Toughness and Durability

Gasketed Sewer Pipe is both tough and resilient, this pipe will not allow root penetration and will not be damaged by the impacts associated with normal field handling. Its resistance to abrasion, scouring and gouging is superior to that of other pipe materials. Gasketed Sewer Pipe is corrosion resistant and not affected by sewer gasses, chemicals and hydrogen sulphide acids normally found in domestic sewer effluent or legally discharged industrial fluids.

Smooth Interior

Gasketed Sewer Pipe has smooth interior walls with a Manning's coefficient "n" of 0.009 compared to 0.013 for concrete pipe. The resulting higher flow rates allow for the usage of smaller diameter pipe and flatter grades than would be possible with other pipe materials.

Abrasion

Based upon years of experience, PVC pipe has proven to have exceptional resistance to abrasion. Studies in Europe and North America have established PVC pipe's abrasion resistance. While the testing methods have varied substantially, the results have been consistent. The nature and resiliency of PVC pipe cause it to gradually erode over a broad area rather than develop the characteristic localized pitting and rapid failure of most other piping materials.

System Integrity

Gasketed Sewer Pipe, when properly installed, helps to eliminate infiltration and leakage associated with the sewer system. Gasketed Sewer Pipe joints are tested for joint tightness up to 345kPa (50psi) hydrostatic pressure. Our water tight joints help to eliminate costly extraneous flows entering the sewer system and contamination from leakage of the sewer systems.

Biological Attack

The performance of PVC pipe in severe environments has been studied since the 1950's. PVC pipe will not deteriorate or break down under biological attack from micro and macro-organisms. There has not been a single documented case in which buried PVC pipe products have suffered degradation or deterioration due to biological attack.

Product Quality

In Royal's extrusion facilities, each operator is responsible for quality. Our operators check the wall thickness and outside diameter of every length of pipe produced. Every two hours, random samples are cut from the production line and sent to our quality control laboratory for testing in accordance with CSA and ASTM requirements. No pipe enters our yard without the seal of approval from our quality control team.

PVC Material
The PVC material used in the manufacture of our pipe meets the physical properties of PVC class 12364 as specified in ASTM D1784.

Quality Control and Assurance
Our Gasketed Sewer Pipe undergoes extensive testing and inspection in our manufacturing facilities. The following testing assures outstanding product quality.

Extrusion Quality Test
Specimens shall be tested in accordance with ASTM D2152. The pipe will not flake or disintegrate after being immersed in anhydrous acetone for 20 minutes.

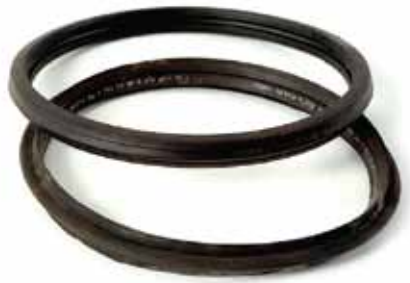
Joint Tightness Test
Elastomeric gasket joints made with pipe and fittings or with bell end of pipe meet the requirements of ASTM D3212, except that the internal hydrostatic pressure shall be 100kPa (15psi).

Compression Test
Three specimens of the pipe, each about 50mm (2") long are flattened between parallel plates in a suitable press until the distance between the plates is 40% of the original outside diameter of the pipe. The rate of loading is uniform and the compression is completed within 2 to 5 minutes. Upon removal of the load, the specimens are examined for evidence of splitting, cracking or breaking. This test methodology is in accordance with CSA B182.2.

Impact Resistance Test
Samples of pipe to be tested for low temperature impact resistance are conditioned at 0°C (±2°C) for a period of at least 16 hours. After conditioning, five samples are tested in accordance with the values shown in the table below. There shall be no evidence of shattering, cracking or splitting of the wall when the pipe is tested in accordance to CSA B182.2.

Pipe Stiffness
The minimum pipe stiffness for SDR 26 pipe shall be 800kPa (115psi), SDR 28 pipe shall be 625kPa (90psi) and for SDR 35 pipe 320kPa (46psi), when tested at 5% deflection in accordance with ASTM D2412.

DSLI™ Gasket System



Royal Municipal Solutions uses the Double Seal Locked-In (DSLI™) Gasket System on our Gasketed Sewer Pipe. This gasket joint is the most reliable in the marketplace.

One of the most critical components of a sewer system is the integrity of the gasketed joint. For this reason, Royal Municipal Solutions has chosen the highest quality gasket seal available. Our factory installed elastomeric gaskets create a joint that has a superior seal. There is no need to worry about the gasket twisting or flipping when the spigot end of the pipe is inserted.

The patented Double Seal Locked-In (DSLI™) gasket provides two major benefits:

1. The Double Seal gasket increases joint tightness with an increase of pressure.
2. The patented steel reinforced Locked-In gasket provides an error-free installation preventing fall-out, rollover or fish mouthing, even when joining under adverse conditions.

Nitrile gaskets available upon request.

Visit our web site royalbuildingproducts.com for additional marketing materials as well as other innovative and industry leading products. Royal Building Products continues to work together to build neighborhoods of lasting value.

Long Term Deflection (%)															
ASTM Embedment Material Classification	Proctor Density (AASHTOT-99)	Height of Cover m (ft)													
		0.9 (3.0)	1.5 (5.0)	2.4 (8.0)	3.0 (10.0)	3.7 (12.0)	4.3 (14.0)	4.9 (16.0)	5.5 (18.0)	6.1 (20.0)	6.7 (22.0)	7.3 (24.0)	7.9 (26.0)	8.5 (28.0)	9.1 (30.0)
Class I - Manuftrd. Granular Angular	90%	0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
Class II - Clean Sand & Gravel	90%	0.2	0.3	0.5	0.7	0.8	0.9	1.1	1.2	1.3	1.4	1.6	1.7	1.8	2.0
	80%	0.9	1.4	2.3	3.2	3.6	4.1	5.0	5.5	6.0	6.4	7.3	7.7	8.2	9.1
	90%	0.2	0.4	0.6	0.8	0.9	1.1	1.2	1.4	1.6	1.7	1.9	2.1	2.2	2.3
Class III - Sand & Gravel with Fines	85%	0.7	0.9	1.7	2.2	2.6	3.0	3.5	3.9	4.3	4.8	5.2	5.6	6.0	6.5
	75%	1.1	1.8	2.9	3.8	4.5	5.5	6.8	8.5	9.9	11.3	12.7	14.1	15.5	16.8
	65%	1.3	2.4	3.6	4.7	5.5	6.8	8.5	9.6	11.4	13.0	14.5	16.0	17.3	18.0
Class IV - Silt and Clay	85%	0.7	0.9	1.7	2.2	2.6	3.0	3.5	3.9	4.3	4.8	5.2	5.6	6.0	6.5
	75%	1.3	2.3	3.3	4.3	5.0	6.5	7.8	9.5	10.6	12.2	13.5	15.0	16.3	17.0
	65%	1.3	2.4	3.6	4.7	5.5	8.0	10.5	12.5	15.0	17.6	20.0	22.0	24.0	26.0

Soil conditions are acceptable for this height of cover.

Soil conditions are not recommeded for this height of cover.

Notes:

1. Test data indicates no pipe installed under conditions specified will deflect more than is indicated; the pipe will deflect less than the amount indicated if specified density is obtained.
2. Bedding classifications are in accordance with ASTM D2321.
3. For burial depths not shown, please contact Royal Building Products, Municipal Solutions Technical Services department.

Dimensions				
Standard Dimension Ratio (SDR)	Nominal Size mm (in)	Average Inside Diameter mm (in)	Average Wall Thickness mm (in)	Average Outside Diameter mm (in)
SDR 28	100 (4)	99 (3.899)	4 (0.171)	107 (4.215)
	135 (5)	133 (5.218)	5 (0.211)	143 (5.640)
	150 (6)	147 (5.799)	6 (0.253)	159 (6.275)
SDR 35	100 (4)	101 (3.957)	3 (0.129)	107 (4.215)
	135 (5)	135 (5.298)	4 (0.171)	143 (5.640)
	150 (6)	150 (5.893)	5 (0.191)	159 (6.275)
	200 (8)	201 (7.894)	6 (0.253)	213 (8.400)
	250 (10)	251 (9.866)	8 (0.317)	267 (10.500)
	300 (12)	298 (11.740)	10 (0.380)	318 (12.500)
	375 (15)	365 (14.378)	12 (0.461)	389 (15.300)
	450 (18)	446 (17.573)	14 (0.564)	475 (18.701)
	525 (21)	526 (20.713)	17 (0.667)	560 (22.047)
	600 (24)	592 (23.303)	19 (0.750)	630 (24.803)
	675 (27)	667 (26.263)	21 (0.845)	710 (27.953)
SDR 26	100 (4)	99 (3.873)	4 (0.171)	107 (4.215)
	135 (5)	135 (5.298)	4 (0.171)	143 (5.640)
	150 (6)	147 (5.769)	6 (0.253)	159 (6.275)
	200 (8)	195 (7.716)	9 (0.342)	213 (8.400)
	250 (10)	245 (9.652)	11 (0.424)	267 (10.500)
	300 (12)	292 (11.488)	13 (0.506)	318 (12.500)
	375 (15)	359 (14.392)	15 (0.604)	389 (15.300)
	450 (18)	437 (17.205)	19 (0.748)	475 (18.701)

Our various pipe and fittings solutions have been manufactured to meet the needs of our customers and their applications. Contact one of the below Sales Centres for more information:

- Municipal Pipe & Fittings Solutions
- Plumbing Pipe & Fittings Solutions
- Electrical Pipe & Fittings Solutions
- Industrial Pipe & Fittings Solutions
- Irrigation Pipe & Fittings Solutions

Sales & Distribution Centres:

Surrey, BC, Canada
T/F 1.800.663.0696
F 1.800.663.6564

Woodbridge, ON, Canada
T/F 1.866.769.7473
F 905.856.3986

Laval, QC, Canada
T/F 1.800.465.9754
F 450.688.6624

Distribution Centres:

Calgary, AB, Canada
T/F 1.800.663.0696
F 1.800.663.6564

Winnipeg, MB, Canada
T/F 1.800.663.0696
F 1.800.663.6564

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