

Installation guidelines for TYTON-LOK[®] restrained joint pipeline systems

The information contained herein is intended as a simple and convenient summary of guidelines for installation of the TYTON-LOK system and does not replace the requirement for proper pipeline design. Incorrect installation and application of TYTON-LOK joints can result in serious injury.

The installer should ensure that pipeline design has been verified by a competent and qualified engineer and that TYTON-LOK gaskets are used only in genuine Tyco Water TYTON[®] brand pipes, fittings and valves. Failure to do so may void warranties.

Please refer to the Tyco Water Ductile Iron Pipeline systems Design Manual and/or Handling and Installation Manual for more complete details.

Limitations

- The TYTON-LOK system is not suitable for above ground applications.
- TYTON-LOK joints are not suitable for use with PN20 pipe. Use only with PN35, flange class, K9 or K12 pipes.
- A combination of TYTON-LOK joints and thrust blocks where both contribute to the overall restraint of the system, is not recommended.
- TYTON-LOK gaskets should only be used with genuine Tyco Water TYTON[®] brand pipes, fittings or valves. Do not use with other DI sockets.
- Do not use TYTON-LOK gaskets with pipe materials other than Ductile Iron.
- TYTON-LOK is not suitable for use on epoxy or fusion coated pipes and spigots or TYTONXTREME pipe.

Number of Restrained Joints

The attached table provides a conservative estimate of the number of TYTON-LOK gaskets required for installation of specific fittings. The number indicated includes *all* gaskets required to lock full length (5.5m) pipes installed either side of the fitting together with those used in the fitting. The estimates have been calculated using the Tyco Water Thrust Restraint Calculator with the following installation variables – Good Sand, Trench Type 3, Depth 0.6m, Pressure 1.6MPa, Safety Factor 1.5, pipe sleeved.

Where –

- fittings other than those listed in the attached table,
- configurations other than those listed in the attached table,
- pipe lengths other than 5.5m are used on either side of the fitting,
- fittings are in such proximity that the estimated number of gaskets for each fitting encroach or overlap,
- installation variables are different to those described,

refer to the Tyco Water Thrust Restraint Calculator, seek pipeline designers advice or contact your Tyco Water Regional Marketing Office for assistance.

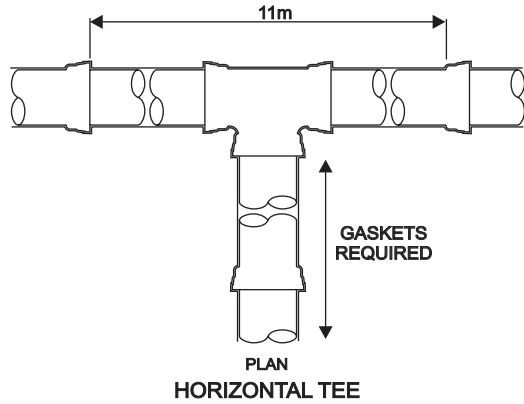
Installation Tips

- Complete joining instructions are provided in the Tyco Water Ductile Iron Pipeline Systems Handling & Installation Manual.
- Prior to inserting the TYTON-LOK gasket, the socket should be checked for cleanliness.
- When looping the gasket for insertion, the inner loop should be positioned between locking segments.
- Lubricate the TYTON-LOK gasket after being placed within the socket and 25mm of the spigot to be inserted.
- Where joint deflection is required, insert the spigot to the first witness mark only and then deflect the joint.
- Joints should be backed off after assembly to ensure that gasket teeth have locked properly.
- Pipelines using TYTON-LOK gaskets should be completely bled of air before application of the field test pressure.
- Marking tape is required for identification of restrained sections of pipelines. Use pink coloured polyethylene tape approximately 100mm wide, with the inscription: "WARNING - RESTRAINED PIPELINE - USE RESTRAINED FITTINGS ONLY"
- Do not reuse TYTON-LOK gaskets.

TOTAL TYTON-LOK GASKETS REQUIRED FOR RESTRAINING 5.5m LENGTHS OF PIPE TO BASIC FITTINGS

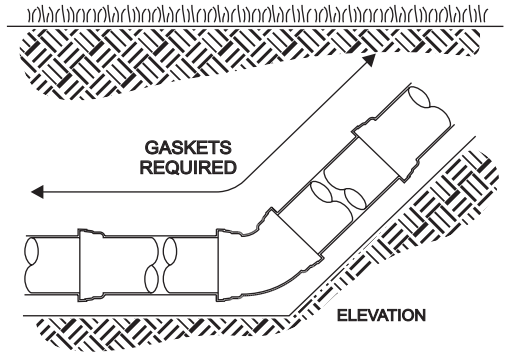
Tees & Tapers

Nominal Size DN	Branch Size dn	Tee Branch only	Taper Larger DN
100	100	3	-
150	100	1	4
150	150	5	-
200	100	1	7
200	150	4	4
200	200	7	-
225	100	1	8
225	150	3	6
225	200	6	3
225	225	8	-
250	100	1	10
250	150	2	7
250	200	6	4
250	225	7	3
250	250	9	-
300	100	1	12
300	150	1	10
300	200	5	8
300	225	6	6
300	250	8	5
300	300	11	-
375	100	1	15
375	150	1	14
375	200	3	12
375	225	5	10
375	250	6	9
375	300	9	6
375	375	13	-



Upward Bends

Nominal Size DN	Angle of Bend		
	11 ¼	22 ½	45
100	2	2	2
150	2	2	4
200	2	2	4
225	2	2	4
250	2	2	4
300	2	4	6
375	2	4	6



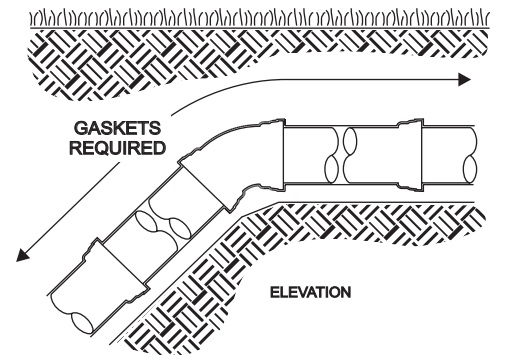
Dead Ends and Hydrant Bends

Nominal Size DN	Gaskets Required
100	6
150	8
200	10
225	11
250	12
300	14
375	16



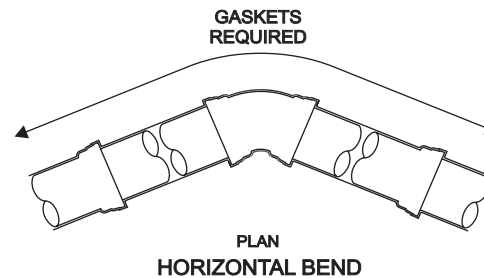
Downward Bends

Nominal Size DN	Angle of Bend		
	11 ¼	22 ½	45
100	2	4	6
150	2	4	8
200	2	4	8
225	4	6	10
250	4	6	10
300	4	6	12
375	4	8	14



Horizontal Bends

Nominal Size DN	Angle of Bend			
	11 ¼	22 ½	45	90
100	2	2	2	6
150	2	2	4	6
200	2	2	4	8
225	2	2	4	10
250	2	2	4	10
300	2	4	6	12
375	2	4	6	14



* ALL CALCULATIONS HAVE BEEN TAKEN FROM THE TYCO WATER THRUST RESTRAINT CALCULATOR USING THE FOLLOWING VARIABLES - GOOD SAND, TRENCH TYPE 3, DEPTH 0.6m, PRESSURE 1.6MPa, SAFETY FACTOR 1.5, SLEEVED. NUMBER OF GASKETS ASSUMES 5.5m LENGTHS ARE TO BE CONNECTED TO THE FITTING.

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