TYTON® DUCTILE IRON PIPE SYSTEMS
PN35 RUBBER RING JOINT DN100-750

For Potable Water, Raw Water, Sewer and Aggresive Fluids

DIMAX
Quality you demand

THE BENEFITS OF DUCTILE IRON

Pressure Class PN 35 matches the maximum flange table rating of the most common water industry applications.

Peace of mind considering water hammer, rogue surges, cyclic stresses, varying soil loads, unpredictable traffic loads, and all unforseen rigours of a pipe system in construction, operation and maintenance.

Beam strength, heavy duty ring stiffness and critical buckling resistance across the entire size range.

Operational savings and benefits via larger bores with reduced headlosses, reduced pumping costs and increased flows.

DN 100-750

EXTERNAL ZINC & EPOXY COATING

The external barrel is protected with a 200g/m2 metallic zinc layer comprising of 99% pure zinc and finished with an epoxy layer of 100μm DFT providing active corrosion protection. Active protection means the pipe continues to be protected in the case of superficial damage to the external coating.

INTERNAL CEMENT, SEAL COAT & POLYURATHANE LININGS

Dimax cement linings are centrifugally applied. The pipes are spun with high radial acceleration, around 100g and are simultaneously vibrated, producing a very dense smooth lining of extremely low permeability.

From years of proven in service experience, Dimax cement linings are proven to be hydraulically smooth with Colebrook-White k factors for all new pipes commonly in the order of 0.01-0.03mm.

Dimax cement mortar protects the ductile iron actively due to the chemistry at the iron and cement interface. The cement mortar forms a passive film that inhibits oxidation of the pipe surface.

TYTON XCEL

TYTON XCEL is synonymous with the introduction of pressure class DI Pipe into Australia. Efficiency gains and cost savings are achieved without sacrificing the time proven superior performance capabilities associated with ductile iron.

Lining Opions
The standard lining is a centrifugally spun cement mortar lining made up of Type SR (Sulphate Resisting) cement.

An additional Seal Coat applied to the cement lining surface is available as an option to inhibit the leaching of lime where very aggressive, soft waters of low hardness (total alkalinity <30mg/L) or high dissolved C02 are being conveyed.

For the conveyance of potable water, recycled water & raw water

TYTON XTREME

TYTON XTREME incorporates a highly wear resistant Calcium Aluminate Cement (CAC) mortar lining.

This lining protects the internal surface from corrosion, tuberculation and bacteriogenic acid attack when conveying aggressive fluids common in sewage and wastewater pipelines. Perfectly watertight & prevents root ingress.

For the conveyance of wastewater including:

- Gravity & Pressure Sewer effluent
- Domestic waste waters
- Mining slurries & process water
- Fluids between pH4 and pH12

TYTON XCEED

When it comes to highly aggressive fluids Polyurethane (PU) is the lining which simply exceeds all expectation.

TYTON XCEED's PU lining is applied in accordance with EN15655 and has an average thickness of 1500μm.

For the conveyance of potable water, wastewater & sewer including:

- Very soft water (hardness less than 1mg/L) combined with extremely long residence times

- Mineral water, i.e. water whose chemical specifications must remain unchanged between the pipeline inlet and outlet

- Aggressive conveyants including septic sewage, high CO2, chlorides, sulphates & brine

- Resistivity range of pH1-13

TYTON® DUCTILE IRON PIPE SYSTEMS
PN35 RUBBER RING JOINT DN100-750

For Potable Water, Raw Water and
Sewerage Rising Mains Applications

DIMAX
Quality you demand

NOMINAL SIZE		Symbol	Units	100	150	200	225	250	300	375	450	500	600	750
KEY METRICS	Nominal pressure	PN	Nom	35	35	35	35	35	35	35	35	35	35	35
	Mean external diameter	Øy	mm	122	177	232	259	286	345	426	507	560	667	826
	Effective laying length	L_e	m	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70
	Joint defelection	°	deg	3.5	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5	1
UNLINED PIPE	Mean internal diameter	DI	mm	112	167	222	249	276	333	412	491	542	647	801
	Pipe barrel mass per metre	m_u	kg/m	12.7	19.0	25.1	28.1	32.3	44.3	65.0	89.5	107.4	148.4	221.7
	Pipe mass including socket	M_u	kg	77	115	155	173	199	271	403	548	655	897	1,332
SOCKET	Socket mass	S	kg	4.9	6.7	12.0	13.0	15.0	18.8	32.7	37.8	42.6	51.2	68.5
DI WALL THICKNESS	Nominal	t	mm	4.9	5.0	5.0	5.0	5.2	5.9	7.0	8.1	8.8	10.2	12.3
	Minimum	a	mm	3.5	3.5	3.5	3.5	3.6	4.3	5.3	6.3	7.0	8.3	10.2
CEMENT MORTAR LINED PIPE	Mean internal diameter	D_c	mm	103	158	213	240	267	324	403	482	533	638	790
	Nominal CML thickness	t_c nom	mm	5	5	5	5	5	5	5	5	5	5	6
	Minimum CML thickness	t_c min	mm	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.5
	Pipe barrel mass per metre	m_L	kg/m	16.4	24.6	32.5	36.4	41.5	55.5	78.8	106.0	125.7	170.2	254.7
	Pipe mass including socket and CML	M_L	kg	98	147	197	221	252	335	482	642	759	1,021	1,520
THEORETICALLY RATED PRESSURES	Allowable operating pressure	AOP	MPa	8.27	5.65	4.29	3.84	3.57	3.53	3.53	3.52	3.54	3.53	3.50
	Maximum allowable operating pressure	MAOP	MPa	9.92	6.78	5.15	4.60	4.28	4.24	4.23	4.23	4.25	4.23	4.20
	Allowable site test pressure	ASTP	MPa	10.34	7.06	5.36	4.79	4.46	4.42	4.41	4.40	4.43	4.41	4.38
	Burst pressure	BURST	MPa	25	17	13	12	11	11	11	11	11	11	11
STRUCTURAL & HYDRAULIC PROPERTIES	Transform wall thickness	t_t	mm	4.55	4.60	4.60	4.60	4.75	5.45	6.50	7.55	8.25	9.60	11.70
	Celerity of mean CML bore	c	m/s	1,265	1,199	1,141	1,115	1,099	1,086	1,076	1,069	1,066	1,060	1,056
	Barrel ring stiffness	S_D	kN/m/m	816	267	117	83	68	58	53	49	47	44	42
	Buckling pressure	P	kPa	8,612	2,822	1,231	880	717	616	555	515	499	465	443
FREIGHT	Pipes (lined) per truck	P/T	n	190	130	90	72	70	56	40	24	24	12	8
	Kilos per truck	n x M_L	kg	18,646	19,077	17,764	15,883	17,623	18,757	19,272	15,409	18,217	12,254	12,161
WATER MASS	Mass of water contained in pipe	m_w	kg/m	8	20	36	45	56	83	128	182	223	319	491
MASS FULL	Mass of pipe full of water	M_T	kg/m	26	45	70	84	100	141	212	295	357	498	757
BENDING MOMENT AND FOS AGAINST FLEXURAL YIELD	Moment = $wL^2/8$ for simply supported beam over ELL	M_B	kNm	1.02	1.81	2.80	3.34	3.98	5.63	8.45	11.75	14.21	19.86	30.17
	y = DE/2	y	mm	61	89	116	130	143	173	213	254	280	334	413
	$I = n/64 (Do^4 - Di^4)$	I	mm^4	2.29E+06	7.18E+06	1.64E+07	2.29E+07	3.18E+07	6.68E+07	1.55E+08	3.11E+08	4.65E+08	9.32E+08	2.18E+09
	$\sigma = My/I$ Note max M = $3wl^2/8$	σy	MPa	81	67	59	57	54	44	35	29	26	21	17
	FOS = Yield stress / Working stress	FOS	ŋ	3.7	4.5	5.1	5.3	5.6	6.9	8.6	10.4	11.7	14.1	17.5

CERTICATIONS

AS/NZS2280 – Ductile Iron Pipes & Fittings

AS4020 – Testing for use in contact with drinking water

EN15655.1 - Polyurethane lining of pipes and fittings

Certified Product

WaterMark