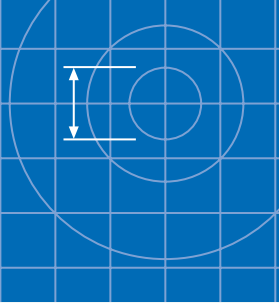


TITAN Concrete Pipes



High performance durable concrete pipes

As market leaders for more than 80 years, Humes Pipeline Systems offers a wide range of innovative and highly durable steel reinforced concrete pipes.

Features

- Durable
- Proven Performance
- Strength
- Easy Installation
- Economical

Applications

- Stormwater Systems
- Sewerage Systems
- Irrigation Systems
- Service Tunnels
- Low Pressure Hydro Conduits
- Pressure Pipes



Titan[®] Pipe

The Humes Titan[®] Pipe is an industry benchmark pipe, made to NZS 3107:1978 under tightly controlled ISO 9002 certified quality management system.

Durability is achieved as a result of low water to cement ratio concrete (less than 0.4 for spun pipe) and high compaction standards.

Titan[®] pipe is available in all existing concrete pipe sizes.

All Titan[®] pipe (both RCP and spun production process) is suitable for sewer, stormwater, pressure watermain, pump chambers, columns and pile casing applications.

Proven rubber ring jointing systems are available for most pipes.

Pipe Class

Concrete pipes are divided into different classes according to strength of the pipe. New class nominations will be soon introduced, see table below for details. These classes are identified using coloured plastic markers and stencilling.

Class and colour coding of pipes

Class	Description	Marker colour	Proposed new class
LDU*	Unreinforced	No marker	-
X	Standard reinforced	Yellow	2
Y	Extra strength reinforced	Blue	3
Z	Special strength reinforced	Red	4
Z+	Special strength reinforced	Red	Either 6 or 8 or 10 depending on load

*Light duty unreinforced

Pipes for Aggressive Environments

Humes Titan[®] Pipes have been meeting performance demands in sewer, marine and other aggressive applications for over 80 years.

DuraTitan[™] pipes can be made with extra cover which provides the specifier with insurance against concrete attack by increasing the cover to steel from 10mm up to 35mm typically.

DuraTitan[™] Pipes can be made from supplementary cementitious materials (SCMs) such as Silica Fume and Duracem concrete.

Combined SCMs and extra cover are available for extreme conditions.

To ensure you are getting the most appropriate pipe for your unique conditions, Humes Engineers can model and design a solution that satisfies your specific requirements.

See separate "Concrete Pipe for Aggressive Environments" brochure for more details.

Jacking/Thrusting Pipes

Humes manufactures jacking and thrusting pipes in a variety of diameters and lengths.

Maximum jacking force, total external loads, maximum allowable deflection and aggressive agents all need to be considered when specifying Jacking Pipes.

See separate Humes Jacking/Thrusting brochure for more details.

Humes can offer technical assistance where required.

Titan[®] RCP

The Humes Titan[®] Roller Compacted Pipe (RCP) is manufactured using a different process to that of regular spun pipe. Manufactured under the same stringent standards as other Titan[®] pipes, the RCP is cast vertically using low water/cement ratio concrete and high compaction methods. Compaction is achieved using a well proven computer controlled, counter rotating rollerhead and trowel (the Bi Directional process or Bi Di)

The RCP has the new "D" ring jointing system that provides secure and positive jointing. With superior joint tolerances, easy installation and water tightness is assured.

Humes now has a built in facility that gives us the ability to hydrostatically check every pipe as part of our stringent quality assurance system.

RCP pipe is only available in the North Island.

Advantages of the RCP product are:

- Durable
- Trouble free jointing
- Improved beam strength
- Superior bore finish
- Improved hydraulic performance
- Excellent compaction





Titan[®] Spun Concrete Rubber Ring Jointed Pipes (RRJ)

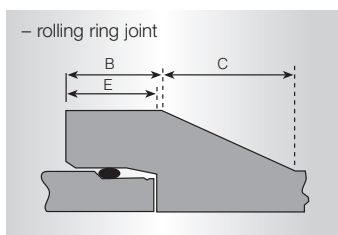
Mass and dimension table for Humes spun concrete pipes

Nominal diameter	Joint type	Dimensions					Class X			Class Y			Class Z		
		A	B	C	E	F	D	T	Mass (kg)	D	T	Mass (kg)	D	T	Mass (kg)
Titan 300*	2	464	76	95	87	2415	305	32	225	305	32	225	305	32	225
Titan 375*	2	540	95	95	87	1805	381	32	213	381	32	213	375	35	230
Titan 375*	2	540	95	95	87	2415	381	32	278	381	32	278	375	35	300
Titan 450*	2	641	114	114	105	2410	457	38	395	457	38	395	451	41	420
Titan 525*	2	730	133	133	105	2410	533	41	513	533	41	513	520	48	583
Titan 600*	2	819	133	133	120	2400	610	44	625	600	49	673	586	56	763
Titan 600*	2	845	143	152	130	2415	610	51	735	610	51	735	600	56	793
Titan 675	1	908	133	133	89	2425	686	48	755	680	51	795	662	60	910
Titan 750	1	997	143	152	107	2425	762	51	895	756	54	943	730	67	1125
Titan 750	2	997	143	152	120	2440	762	51	895	756	54	943	730	67	1125
Titan 825	1	1063	146	143	121	2440	838	54	1045	832	57	1095	806	70	1298
Titan 900	1	1197	171	149	137	2435	914	64	1363	914	64	1363	896	73	1520
Titan 900	2	1197	171	149	143	2440	914	64	1363	914	64	1363	896	73	1520
Titan 975	1	1302	171	149	152	2440	991	70	1620	991	70	1620	973	79	1790
Titan 1050	1	1391	171	149	152	2445	1067	76	1875	1067	76	1875	1047	86	2078
Titan 1200	1	1543	171	149	151	2435	1219	76	2125	1219	76	2125	1187	92	2495
Titan 1200	2	1543	171	149	157	2440	1219	76	2125	1219	76	2125	1187	92	2495
Titan 1350	1	1695	171	149	157	2430	1372	76	2370	1360	82	2525	1332	96	2900
Titan 1600	1	1988	179	203	175	2440	1589	82	3100	1577	88	3300	1537	108	3875
Titan 1800	1	2254	194	292	170	2430	1804	101	4375	1804	101	4375	1767	120	5025
Titan 1800	2	2274	194	292	170	2430	1804	101	4375	1804	101	4375	1767	120	5025

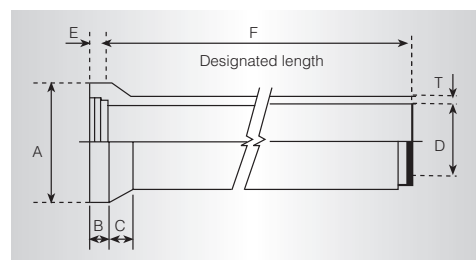
*Generally only available in the South Island.

Key: Joint type 1 = Series 1
Joint type 2 = Series 2

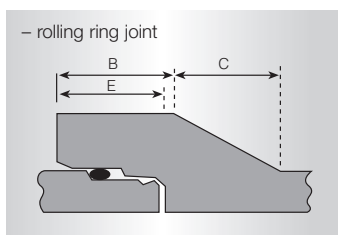
Series 1 joint



Titan rubber ring jointed pipes



Series 2 joint



Note: These rolling rings are designed to roll along the joint surfaces during jointing to form a seal once it is in its final position.

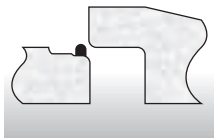
Titan[®] Roller Compacted Pipe (RCP)

generally only available in the North Island

Dimensions

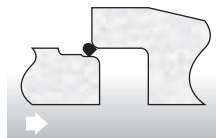
Nominal diameter	Dimensions (Class X, Y, Z) (mm)											Mass (kg)
	D	T	L	H	S	O	P	SW	E	SE'	SE	
225	225	35	2000	95	176	55	78	42	376.4	292.2	274.8	161
300	300	35	2500	95	181	55	78	43	453.4	367.4	349.8	253
375	375	35	2500	95	198	55	78	47	536.4	442.4	424.8	313
450	450	40	2500	115	219	60	92	52	631.3	527.3	505.3	433
525	525	45	2500	130	236	60	95	56	724.1	612.1	590.1	568
600	600	50	2500	140	253	60	99	60	816.9	696.9	674.8	726

Joining using a D ring



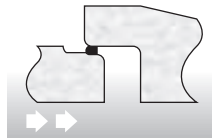
Step 1

Place D ring on first step of spigot as shown (Do not lubricate.)



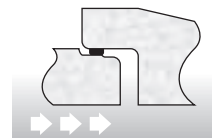
Step 2

Move spigot with ring towards collar. Push the pipe until it locks uniformly between the collar lead in and the spigot.



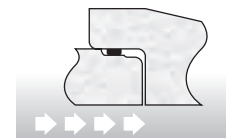
Step 3

As the spigot is being pushed into the collar the D ring will rotate between the two surfaces.



Step 4

Continue the jointing movement. As the ring rotates past 180° a positive jointing action results.



Step 5

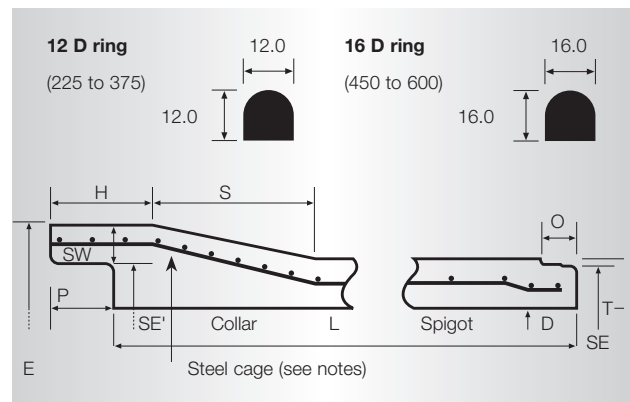
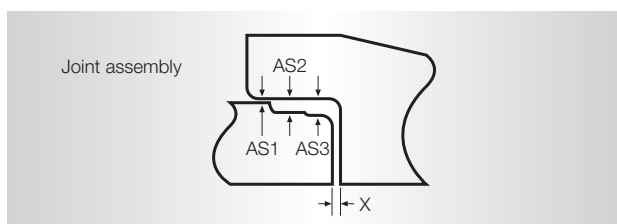
The joint is fully home at a ring rotation of approximately 270°. Between 180° and 270° the joint is stable.

Notes: D rings are ribbed to improve joint stability and to eliminate skidding. Ring hardness of shore 40 degrees minimises jointing forces. The joint design does not rely on the ring to maintain joint compression at all times.

Joint assembly

Diameter	AS1	AS2	AS3	X(min)	X(max)
225	1.2	7.29	8.79	4	8
300	1.2	7.29	8.79	4	8
375	1.2	7.29	8.79	4	8
450	1.6	9.51	11.01	5	10
525	1.6	9.51	11.01	5	10
600	1.6	9.51	11.01	5	10

X = Nominal laying joint gap



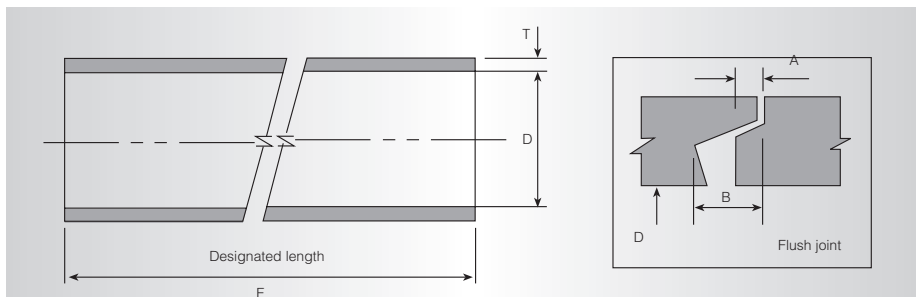
Notes: Mass calculation based on a nominal density of 2500 kg/m³. Rubber ring shore hardness 40 degrees. Steel cage is continuous into the collar. No spacers are used for placement (machine controlled).



Titan[®] Flush Jointed Pipes

Flush Joint (FJ)

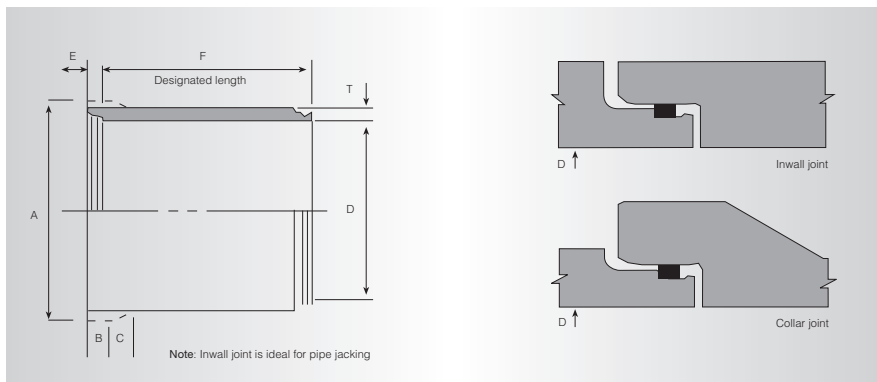
Nominal diameter	Dimensions			Class X			Class Y			Class Z		
	A	B	C	D	T	Mass (kg)	D	T	Mass (kg)	D	T	Mass (kg)
Titan 600	14	31	2420	610	44	553	600	49	610	586	56	690
Titan 750	16	34	2435	762	51	795	756	54	838	730	67	1023
Titan 900	16	36	2435	914	57	1063	900	64	1183	883	73	1338
Titan 1050	21	39	2440	1067	64	1385	1054	70	1508	1026	84	1788
Titan 1200	24	44	2435	1219	70	1730	1207	76	1868	1179	90	2188
Titan 1350	24	44	2440	1372	76	2100	1358	83	2300	1332	96	2625
Titan 1500	24	44	2445	1524	76	2325	1504	86	2625	1468	104	3150
Titan 1650	25	45	2435	1676	83	2800	1656	93	3125	1620	111	3700
Titan 1800	27	48	2435	1828	89	3275	1808	99	3625	1772	117	4250
Titan 1950	32	59	2415	2032	102	4175	2016	110	4500	1956	140	5625
Titan 2300	43	76	2415	2312	127	5950	2286	140	6525	2286	140	6525



Note: You can seal a flush joint using either external bands or mortar.

Titan[®] Skid Ring Jointed Pipes (SRJ)

Nominal diameter	Dimensions					Class X			Class Y			Class Z			Joint type
	A	B	C	E	F	D	T	Mass (kg)	D	T	Mass (kg)	D	T	Mass (kg)	
Titan 1950	-	-	-	144	2440	1981	140	5700	1981	140	5700	1981	140	5700	in wall
Titan 2100	2553	191	165	144	2440	2110	126	5900	2082	140	6475	2082	140	6475	collar joint
Titan 2550	-	-	-	144	2430	2552	165	8600	2552	165	8600	2552	165	8600	in wall
Titan 3060	-	-	-	183	2390	3060	175	10625	-	-	-	-	-	-	in wall



Note: These rubber rings are designed to stay in place allowing the socket to skid over the ring, compressing it to seal the joint.

The Swiftlift™ pipelaying system

The Swiftlift™ pipelaying system has been designed to reduce the costs in transporting and laying concrete pipes. Swiftlift™ foot anchors are cast into Humes pipes during the manufacturing process so that a “Universal Laying Chain Set” developed by Reid’s Engineering, can lift, position and/or lay the pipe with the assistance of a crane or digger. For further information on lifting, refer to the Humes Laying Guide.

Dimensions

All Dimensions specified are expressed in mm (millimetres) unless stated otherwise.

Concrete density

A density of 2500/kg tonne has been used in all calculations.



Masses

All masses are based on theoretical internal diameters and are based on full pipe lengths. Concrete densities vary at different manufacturing plants due to the aggregate source. Therefore where exact weights are critical it would pay to check with your factory.

Special pipes

Humes manufacture custom made pipes for almost any application. If you require design assistance, a qualified Humes Engineer can assist you.

Pipe dimensions

Dimensions can vary depending upon variations in pipe moulds at different manufacturing plants. Check with your nearest Humes Sales Centre for pipes most common in your area.

Manufacturing standard

All pipes specified are manufactured to the New Zealand Standard NZS3107:1978 “Specification for Precast Concrete Drainage and Pressure Pipes”.

Joint lubrication

Joints should be lubricated with a non-petroleum based lubricant such as Easy Slip.

Concrete pipe selector

To assist in selecting the correct pipe for your application, the Concrete Pipe Association of Australasia (CPAA) has developed software that makes pipe selection a breeze. The software can be downloaded free from the CPAA site www.concpipe.asn.au or it can be obtained in CD ROM format from your local Humes representative.