

Hyspec Flush Joint Concrete Pipes

Technical Guide D1.5

Hyspec Spun Flush Joint pipes offer an economical solution for any pipeline which does not require a hydraulic joint seal.



04.20 | DRAINAGE | D1.5 HYSPEC FLUSH JOINT PIPES

Applications

Stormwater pipelines
Culvert crossings
Large diameter underpasses
Column formwork

Product Attributes

Strong and durable
Fully sealed
Versatile

Approvals/Standards

Designed and manufactured to AS/NZS 4058:2007 Precast Concrete Pipes (Pressure and Non-Pressure)

Quality

ISO 9001:2008 Quality Management Standard

We are the supply partner of choice for New Zealand's civil construction industry, specialising in water and infrastructure based solutions.

HYND'S
PIPE SYSTEMS

Hyspec Spun Flush Joint pipes offer an economical solution for any pipeline which does not require a hydraulic joint seal.

Strength Classes

- Hyspec Spun Flush Joint pipes use elliptical reinforcing cages for all sizes.
- Available in three main strength classes, with Class 2 (X) being the standard load strength and subsequent classes offering increased strength:
 - Class 2 (X) – Yellow marking
 - Class 3 (Y) – Blue marking
 - Class 4 (Z) – Red marking
- Higher class strengths are available for extreme high load conditions.
- Strength design assistance is available from the Hynds Technical Services Department.

Lifting and Handling

- Marked with the label “TOP”, adjacent to the Swiftlift lifting anchors installed within the concrete pipe wall.
- Appropriate lifting equipment and methods must be used to ensure that individual anchors are not overloaded.
- Pipe must be transported and stored with the label “TOP” in the 12 o’clock position.

All Hyspec Flush Joint Concrete Pipes incorporate Swiftlift lifting anchors for safe lifting and must be used with the correct lifting clutch.

Hynds Pipe Systems has designed and manufactured Hyspec Flush Joint Concrete Pipes with a minimum dynamic factor of 1.2. This dynamic factor requires that all the following conditions are observed when lifting, moving or placing the pipes:

1. Lifting with mobile plant (*such as an excavator or similar*) where equipment is specifically exempt from the requirements of the PECPR Regulations 1999, subject to the conditions outlined in the New Zealand Gazette, No. 104, September 2015 and
2. Lifting, travelling and placing over rough or uneven ground where anchor failure is not anticipated to cause harm or injury, by adopting procedures such as:
 - a. Transporting the element as close as practical to ground level (300mm recommended)
 - b. Establishing and maintaining exclusion zones
 - c. Transporting only precast concrete elements that are unlikely to topple if they were to hit the ground
 - d. Inspecting lifting anchors both after transportation and before final lifting into place

Refer to “Safe work with precast concrete - Handling,

transportation and erection of precast concrete elements” published by Worksafe New Zealand (October 2018)

Shock loads resulting from travelling with suspended concrete pipes over rough terrain and uneven ground may exceed design, dynamic and safety factors of the lifting systems. It is essential that care is taken during lifting and transporting as additional stresses could result in anchor failure.

Installation

- Refer to AS/NZS 3725:2007 Loads on Buried Concrete Pipes for details on calculation of vertical working loads and pipe installation options and procedures.

Joint Performance

- Hyspec Spun FJ pipes are designed to be laid and jointed to form a continuous pipeline with uniform bore. (Refer to Table 1 for suitable joint gaps.)
- Typical joint deflection is 0.5° per joint. Higher deflection angles are available with special “Splay-ended” Hyspec pipes.

Joint Options

- Hyspec Spun FJ pipes are available with three jointing options, namely Standard, E-Band, and Mortar configurations.
- Contact your Local Council to determine any specific joint requirements for your region.

Standard Joint

- This is the most common joint type for FJ applications.
- Allows for interlocking between pipes for positive alignment along the pipeline.



FIG. 1 Standard Joint

E-Band Joint

- This is the most positive FJ joint type and can be used in conjunction with either standard or mortar joint pipes without the need for cement mortar.
- Rubber E-Bands can be fitted externally around the outside diameter of a FJ pipe to provide a soil-tight joint.
- E-Bands offer additional protection against bedding infiltration. They do not offer a hydraulic joint seal (if this is required refer to D1.1 product sheet: Hyspec Spun RRJ pipes).

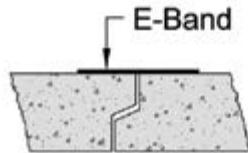


FIG. 2 Standard Joint with E-Band

Mortar Joint

- Mortar joint pipes are not usually held in stock but can be manufactured to a specific order.
- Allows a plaster-mix of cement mortar to be applied by the drainage contractor after the pipe joint has been made.
- Once adjacent mortar joint pipes are touching externally, a gap remains internally leaving a wedge profile which can then be filled with cement mortar.



FIG. 3 Mortar Joint

TABLE 1 Hyspec Spun Reinforced Concrete Flush Joint Pipe Range

Nominal Pipe Diameter	Ref.	600	675	750	900	1050	1200	1350	1500	1650	1800	2050
Internal Diameter ¹	ID	610	685	762	914	1066	1207	1372	1524	1676	1829	2032
Wall Thickness ¹	t	45	49	51	58	64	70	76	77	83	89	102
Weight of Pipe ²	–	575	696	818	1099	1421	1761	2191	2456	2884	3416	4341
Effective Length ³	A	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
Overall Length	B	2414	2416	2416	2416	2419	2419	2419	2424	2425	2427	2430
Outside Barrel Diameter	C	699	782	864	1029	1194	1347	1524	1677	1842	2007	2236
Joint Step	D	14	16	16	16	15	19	19	24	25	27	30
Joint Gap ⁴	–	9	9	10	12	10	15	15	15	15	15	15

Notes:

1. Internal diameter and wall thickness values given for Class 2(X).
2. Weights in kg are based on spun concrete density of 2550 kg/m³.
3. Effective length is based on the joint gap of zero mm.
4. Maximum recommended joint gap is limited to the values given to ensure overlap of the collar to the spigot.

- All dimensions in mm.
- Internal joint gaps can be larger than these values for pipelines made with mortar joints.
- Larger nominal diameter Flush Joint pipes are also available, or refer to Product Sheet D1.4 Hynds Skid Ring Joint Concrete Pipes.

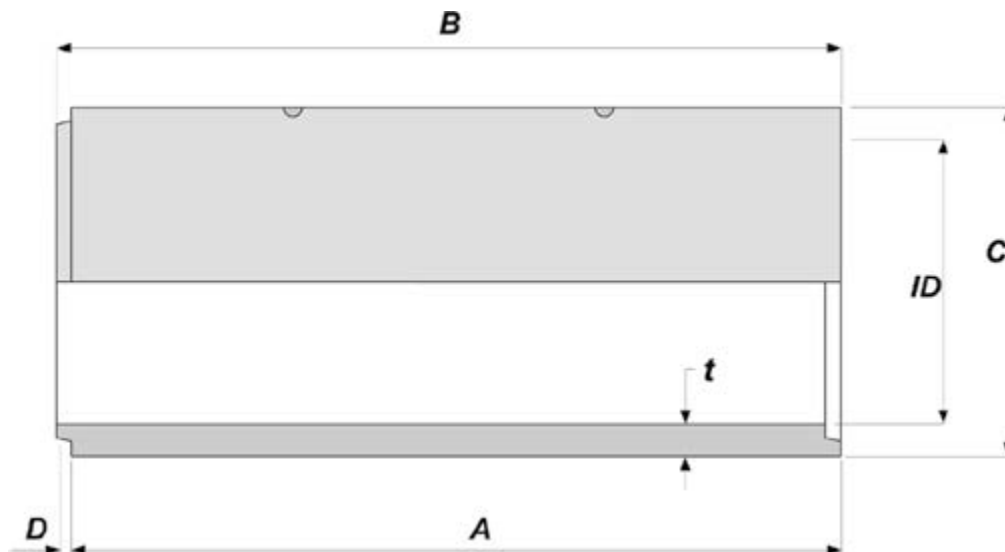


FIG. 4 Pipe Dimensions



FIG. 8 Schematic elevation/cross section of Hyspec Flush Joint Pipe



FIG. 5 E-Band is unfolded so that it is located midway between the adjacent pipes



FIG. 6 Pipe is positioned into pipe-line with fold located at joint



FIG. 7 E-Band is placed evenly around the pipe barrel in a fold



FIG. 9 Splay ended pipes being laid in a large radius curve. Jointed with E-Bands.

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