

Hynds Skid Ring Joint Concrete Pipes

Technical Guide D1.4

An economical, high-quality solution for any pipeline that has large hydraulic flows.



10.25 | DRAINAGE | D1.4 HYNDS SKID RING JOINT

Applications

Stormwater pipelines
Culvert crossings
Large diameter underpasses
Column formwork
Storage tanks

Product Attributes

Flexible hydraulic high performance joint seal

Minimal surface disruption

Strong and Durable
Versatile
Proven history

Approvals/Standards

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

Rubber skid rings are manufactured in accordance with AS 1646 requirements.

Sustainability

Available in Hynds LC® low carbon concrete
Verifiable Carbon Footprint data available
Climate-Resilient Infrastructure

Quality/Environment/Health & Safety

Hynds management systems are certified to ISO 9001:2015, 45001:2015, and 14001:2018 standards

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Hynds Skid Ring Pipe Construction

- The 750 to 2100 mm diameter pipes are Hyspec spun concrete pipes manufactured using the centrifugal spinning process. (Refer to D1.1 product sheet: Hyspec spun rubber ring joint concrete pipes for more details.)
- Pipes 2100 to 3050 mm diameter are vertically wet cast in high specification steel moulds. High strength concrete and increased cover to reinforcing steel are used for enhanced durability.
- Hynds Skid Ring pipes are cured inside steel moulds in controlled conditions. This eliminates relaxation stresses within the uncured pipe and ensures the integrity and durability of the pipe structure.
- Microsilica, Hydura or Bicrete concrete is available for both spun and wet cast concrete pipes where extra durability is required for marine, sewer or other harsh environments.

Strength Classes

- Hynds Skid Ring Joint pipes are available in three main strength classes, with Class 2 being the standard load strength and subsequent classes offering increasing strength:
 - Class 2 – Yellow marking
 - Class 3 – Blue marking
 - Class 4 – Red marking
- Higher class strengths are available for extreme load conditions.

Delivery

- Refer to delivery guideline D1.4 I&H Large Diameter Concrete Pipe DN2100 - 3200

Storage

- Pipe products should be stockpiled on a flat and level base with adequate support to prevent shifting.
- Single layer stacking is recommended.
- Pipes stored horizontally must be positioned to allow ground clearance at the socket end of the pipe to avoid collar damage.
- These pipes must be transported and stored with the anchors in the 12 o'clock position.

- Internal bracing is recommended for large pipes stored horizontally for extended periods of time.
- Pipes stored vertically should be placed on a sand base. Rotate to the horizontal just prior to installation.
- Rubber skid rings should be stored in a cool dry place away from oil, grease and direct sunlight.
- Jointing lubricant should not be left unsealed within the container for longer than necessary.

Handling

- Pipes should be lifted one at a time using a suitable lifting apparatus attached to a crane.
- During the lifting operation, care must be taken to avoid pipe jolting or impact against the ground or solid objects.
- Bends and junctions can be lifted with a lift-sling of suitable capacity (or lifting anchors when available) so the joints are adequately supported and not overstressed.

All Hynds Skid Ring Joint Concrete Pipes feature certified concrete lifting anchor systems, designed and tested to guarantee safe and secure handling.

Hynds Pipe Systems has designed and manufactured Hynds Skid Ring 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.
3. All Hynds concrete lifting anchor systems are engineered in accordance with Haeussler specifications, ensuring full compatibility with Reid, Deha, CLS, and Ancon lifting clutches, as well as recess formers, across corresponding load ranges.

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

- For details on calculation of vertical working loads and pipe installation options and procedures, refer to AS/NZS 3725:2007, Design for Installation of Buried Concrete Pipes.

Pipe Jointing

- The high tolerance joints require additional machinery to create a horizontal force for joining the pipes.
- SRJ pipes are normally laid in a pipeline with the socket facing uphill enabling easy jointing and a clear view for inspecting the joint socket area.
- The jointing force is usually made with a ‘come-along’, by placing a ‘dead-man’ several pipes back from the last installed pipe and connecting it to a strut placed outside the next pipe to be joined.
- Pull this pipe home with lever action while ensuring that the pipe being joined remains in line with the existing pipeline.
- The external lifting anchor joining method can also be used for DN 1050 to 2100 mm pipe in suitable conditions (paying careful attention to the stated foot anchor safe load capacity).
- Skid ring joint pipes 2300 mm Ø and greater usually incorporate internal anchors. The anchors at four and eight o’clock can be used with come-alongs to join the pipes.
- After joining the two pipes, a check should be made to ensure that the ring has been evenly compressed to enable an effective seal.
- Clean the spigot and socket joint areas of the two pipes - rubber rings to be clean and dry.
- Stretch the ring while placing it evenly into the ring groove provided on the spigot. Ensure no twist occurs over the circumference by lifting the ring away from the circumference of the pipe at several places, each time letting it spring back.
- Ensure that the thin end of the wedge is directed towards the spigot end.
- Apply lubricant directly to the lead-in of the socket and along the entire socket internal surface. Do not apply lubricant under the ring or past the ring seating of the spigot, as this could cause the skid ring to slip off the spigot making successful jointing impossible.



FIG. 1 Ring being placed



FIG. 2 Pipe Installation

TABLE 1 Pipe Dimensions

Manufacturing Method		Spun				Precast						
Nominal Pipe Ø (mm)		750	1050	1950	2100	2100	2300	2300	2550	2550	3000	3050
Pipe Class	Ref.	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	4, 5, 6	2, 3, 4	4, 5, 6	2, 3	4	4	2, 3
Internal Diameter	ID	750	1030	1960	2100	2088	2300	2250	2550	2470	3000	3050
Wall Thickness	t	125	135	140	140	206	165	225	150	190	260	200
Weight of Pipe ¹	kg	2084	3185	5800	6360	9400	9082	12180	8227	11182	18390	14397
Standard Handling System ²	–	2t	2t	5t	5t	5t + LB	LB	LB	LB	LB	LB	LB
Effective Length ³	–	2335	2487	2370	2400	2465	2740	2740	2470	2740	2720	2740
Overall Length	A	2438	2600	2494	2525	2595	2860	2860	2590	2860	2850	2860
Barrel Diameter	B	1000	1300	2240	2380	2500	2630	2700	2850	2850	3520	3450
Barrel Length	C	2323	2475	2354	2385	2440	2720	2720	2450	2720	2695	2720
Nominal Laying Gap	–	12	12	16	16	25	20	20	20	20	25	20
Collar Length	D	115	125	140	140	155	140	140	140	140	155	140

Notes

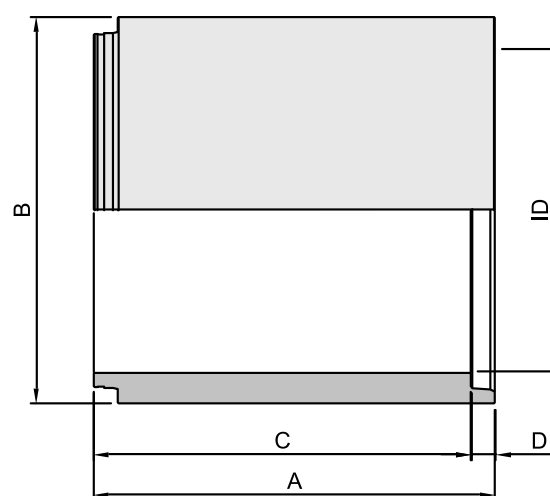
1. Weights:

- Spun Pipes: Weights in kg are based on a concrete density of 2550 kg/m³ (for the highest class detailed)
- Precast Pipes: Weights in kg are based on a concrete density of 2450 kg/m³ (for the highest class detailed)

2. Standard pipe handling system (unless otherwise quoted); two or five tonne anchors installed in top of pipe or pipes marked "LB" have a hole for rotating and lifting beam.

3. Effective length includes nominal laying gap.

- All dimensions in mm.
- Hynds large diameter concrete pipe tolerances are in accordance with the provisions specified in AS/NZS 4058.
- Skid ring joint lubricant and epoxy are sold separately.
- Pipe dimensions vary according to the factory of production hence some stated dimensions are averaged.
- Exact dimensional information is available from the Hynds Technical Services Department.

**FIG. 3** Pipe dimensions

Also refer to:

- D1.1 Hynds Hyspec Spun Rubber Joint Pipes
- D1.3 Hythrust Jacking Pipe System
- D1.5 Hyspec Flush Joint Pipes
- D1.10 Hynds Skid Ring Joint Jacking Pipe System
- D1.11 Hynds Hydura Concrete Pipe
- D1.13 Bicrete

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Disclaimer: While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.