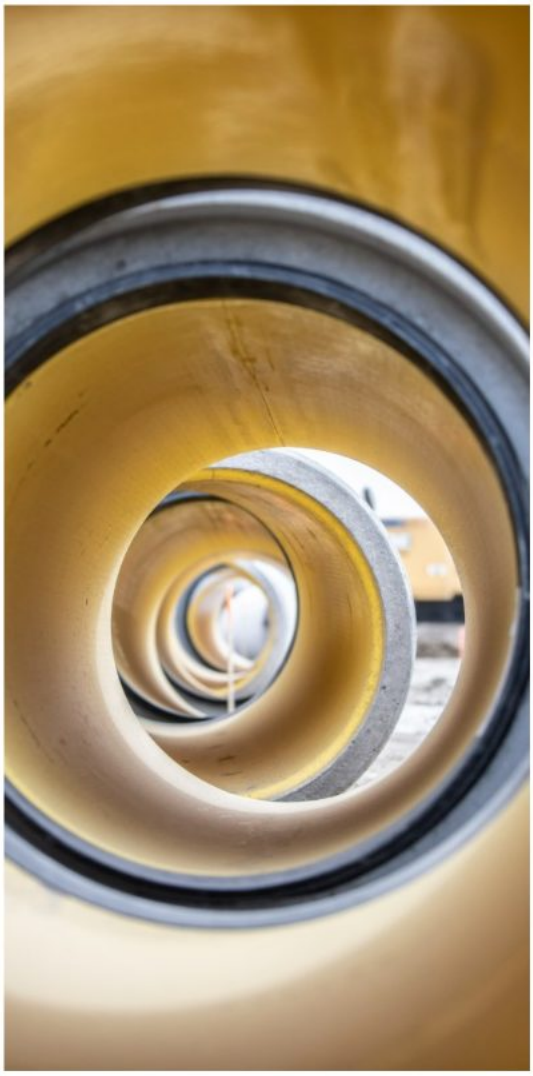
FUTURE READY INFRASTRUCTURE SOLUTIONS

Perfect Pipe

HDPE-lined concrete pipe with a no-weld joint

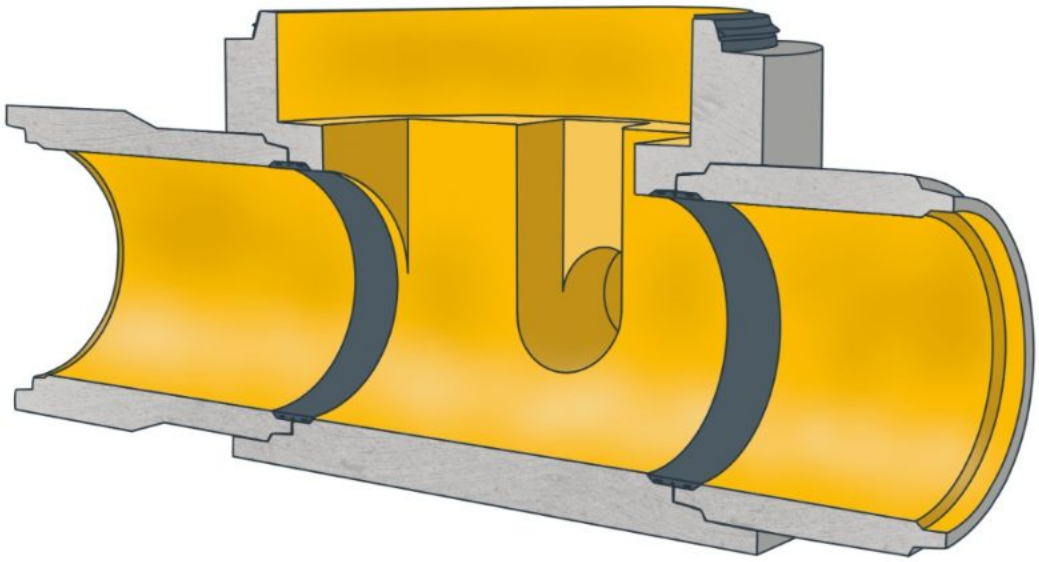
Perfect Pipe combines high-strength wet-cast reinforced concrete pipe with a cast-in Perfect Pipe HDPE liner, made by Agru, that protects the interior of the pipe from corrosion and abrasion. The connector is installed in the bell of the pipe during manufacturing, in a controlled plant setting, so pipes plug together seamlessly on site, with no field welding and a seal capable of handling 250 kPa (36 psi).





BENEFITS

Built to perform and designed to last



01

No field welding

The connector and gaskets are installed at the plant, so pipes plug together in the trench. Faster installs with no confined-space welding.

02

Leakproof joint

Rated for 250 kPa (36 psi) internal and external pressure, and stays sealed under normal settlement and angulation.

03

Complete corrosion protection

The cast-in HDPE liner is integrally anchored into the wet-cast concrete, providing a durable protective barrier against chemicals from pH 1 to 14, microbial-induced corrosion (MIC), and aggressive sewer gases.

04

Built to last

Over 100 year service life. Rigid concrete carries the load and holds its shape, and the liner is tested for high-pressure jetting to DIN 19523.

05

Form stable, no deflection

Wet-cast concrete holds its shape, so the inside diameter does not change over time and no deformation measurement is needed.

06

Easy to inspect

The bright yellow liner with inside labelling is ideal for CCTV inspection.

Standard dimensions (open-cut pipe)



2,990 mm lay length for 300 to 1100 mm, 1300 mm and 1400 mm; 3,980 mm for 1200, 1500 and 2000 mm.

1 ID (MM)	2 OD (MM)	3 WALL (MM)	4 LENGTH (MM)	WEIGHT (KG)
300	439	69.5	2,990	619
400	555.6	77.8	2,990	876
500	672.2	86.1	2,990	1,194
600	789	94.5	2,990	1,558
700	905.6	102.8	2,990	1,899
800	1,022.4	111.2	2,990	2,338
900	1,139	119.5	2,990	2,799
1000	1,255.6	127.8	2,990	3,209
1100	1,372.2	136.1	2,990	3,710
1200	1,490	145	3,980	5,704
1300	1,606	153	2,990	4,880
1400	1,724	162	2,990	5,560
1500	1,840	170	3,980	8,300
2000	2,440	220	3,980	13,885

Highlighted sizes are Precon standard form sizes. All other sizes are available on request. Dimensions shown are for open-cut pipe. Jacking pipe dimensions are available on request.

Flow area and joint deflection

ID (MM)	FLOW AREA (M²)	MAX JOINT DEFLECTION	MIN CURVE RADIUS (M)
600	0.283	1.20°	143
900	0.636	0.80°	214
1200	1.131	0.60°	380
1500	1.767	0.45°	507
2000	3.142	0.57°	400

More data on other diameters available upon request.

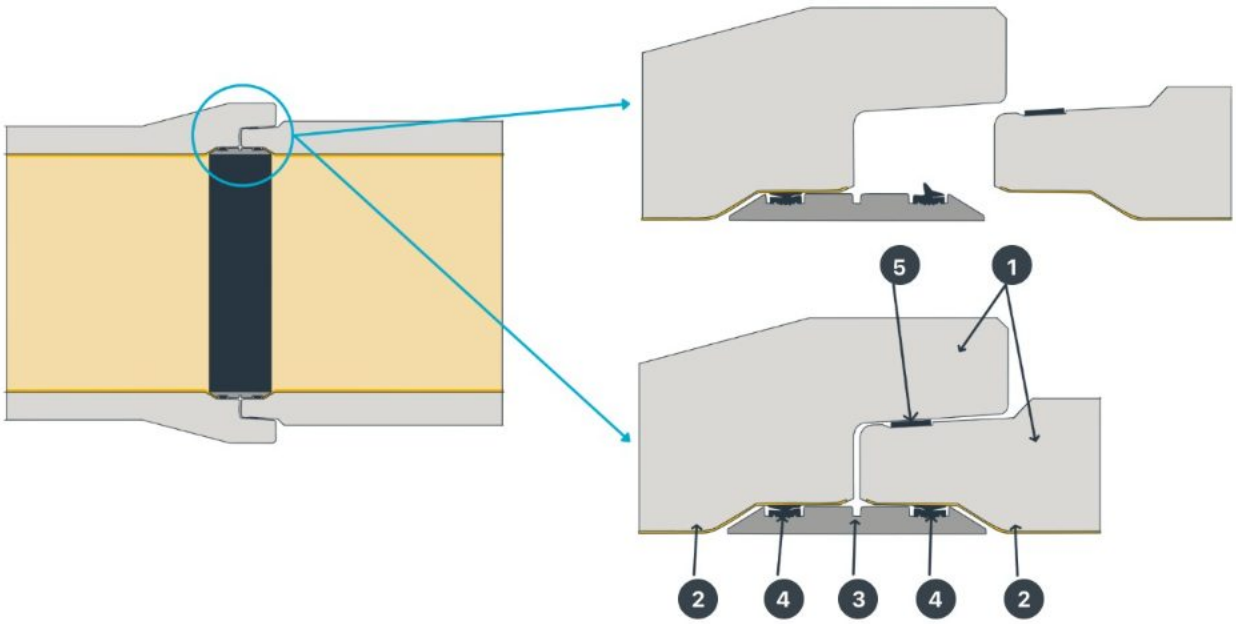
Strength and manufacturing

ITEM	PRECON PERFECT PIPE
Manufactured to	CSA A257.2
Strength classes	65-D, 100-D and 140-D; higher classes by design
Concrete	Self-consolidating concrete (SCC), min. 35 MPa at 28 days
Reinforcement	Circular steel cages: cold-drawn wire or welded wire fabric (485 MPa min.) or deformed bar (CSA G30.18 Grade 400W)
Lay length	2,990 mm for 300 to 1100 mm, 1300 mm and 1400 mm; 3,980 mm for 1200, 1500 and 2000 mm
Installation	Open cut and pipe jacking; jacking pipe sizes made to suit project needs

JOINT SYSTEM

Five parts, assembled at the plant

The Perfect Pipe joint is rated for 250 kPa (36 psi), internal and external, with no welding.



COMPONENTS

01	**Reinforced concrete pipe**	Carries the structural load; reinforcement and wall thickness are designed to the required class
02	**Perfect Pipe HDPE liner made by Agru**	Bright yellow liner cast into the concrete and anchored by studs on its back, covering the full interior
03	**Connector**	Polypropylene connector installed in the bell; glass-fibre reinforced for 800 mm and up
04	**Gaskets**	Two EPDM tilting-edge gaskets that seal against the liner at the bell and spigot
05	**Load transmission ring**	Rubber ring that spreads the load between pipe ends

Continuous corrosion protection

The plastic connector keeps the liner's protection unbroken through every joint.

Proven tightness

Gaskets are tested to 250 kPa (2.5 bar) and suitable for water extraction areas.

JOINT SYSTEM

Hydrostatic performance

CONDITION	REQUIREMENT
Exfiltration, pipes in proper alignment	250 kPa (about 36 psi)
Exfiltration, maximum deflected position	225 kPa
Exfiltration, joints under differential load	85 kPa
Infiltration, ultimate (held 20 min)	300 kPa
Infiltration, working (held 20 h)	250 kPa



Stage pipe along the trench on a flat surface, wedged so pipes don't touch.

Installs like standard concrete pipe

Perfect Pipe installs by open cut or pipe jacking.



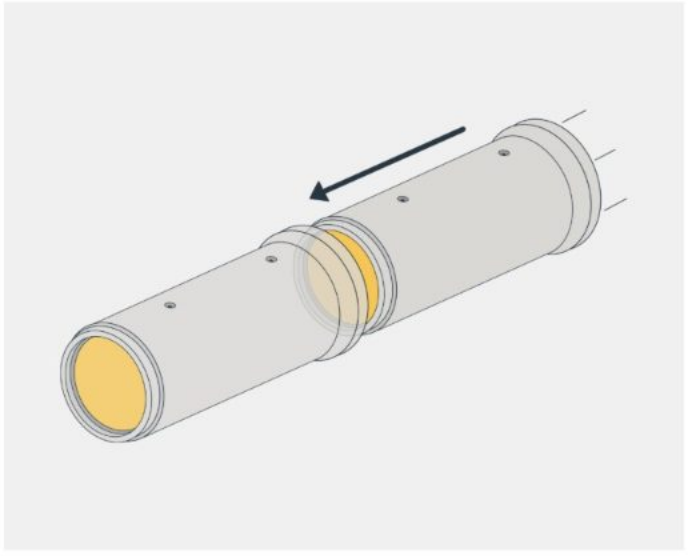
01 Lower

Lower with slings using both lifting anchors.



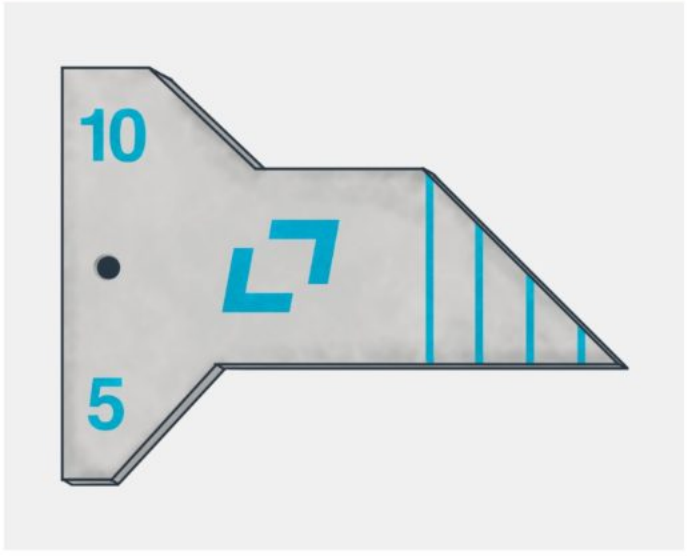
02 Align

Align the spigot with the bell of the previous pipe.



03 Home

Home the joint with a pry bar or slings. Never push pipe with the excavator bucket.



04 Check the joint gap

Check each joint from the outside of the pipe: 5 mm gap by design, 10 mm maximum.

Joint deflection

Limits by size are listed in the Flow area and joint deflection table.

Service laterals

150 mm and 200 mm junctions are core-drilled into the pipe and sealed to the liner; the socket adjusts from 0 to 13°.

Field testing

Installed pipe can be tested to ASTM C969 (infiltration or exfiltration) and ASTM C1103 (joint test, air or water). A full installation guide is available from Precon.

Perfect Pipe HDPE liner made by Agru

PROPERTY	VALUE
Material	High-density polyethylene (PE-HD), bright yellow
Thickness	1.65 mm standard; 2.0, 2.5, 3.0 and 4.0 mm available
Anchors	7.8 mm studs, about 1,709 per m²
Anchor pull-out	≥ 500 N per stud
Chemical resistance	pH 1 to pH 14, long term
Max. working temp.	60 °C
Certification	EN ISO 1872-1; DIBt Z-42-2-503



System test results

TEST	STANDARD	RESULT
Chemical resistance: 2% NaOH, 5% peroxide cleaner, 10% sulfuric acid, 28 days	DIN ISO 527-2	**Max. 0.2% weight change**
Abrasion, 200,000 cycles	DIN EN 295-3	**Mean 0.22 mm, max. 0.36 mm**
Liner tear-out from concrete	EN ISO 4624	**0.9 N/mm²**
Liner anchor pull-out	DIN ISO 4624	**≥ 500 N per anchor**
External water pressure: 150 kPa 1,000 h, then 250 kPa 1 h	DIBt	**Tight, unchanged**
High-pressure jetting and cleaning, 60 cycles	DIN 19523	**No damage; passed**
Joint seal: 300 and 600 mm at 100 and 250 kPa, angulation and shear	DIN EN 1916, DIN V 1201	**Leakproof**
External pressure on joint: 600 mm at 100 kPa, 3 months	Long-term shear	**Leakproof**

COMPLIANCE

Standards

AREA	STANDARDS
Pipe	CSA A257.0, A257.2
Concrete and reinforcement	CSA A23.1, A23.2; CSA G30.18; ASTM A1064
Gaskets and seals	ASTM F477, C1619 Class A; DIN EN 681-1
Liner	EN ISO 1872-1, DIBt Z-42-2-503, ASTM D7853
Connector	DIBt Z-42.5-552
System testing	DIN 19523, DIN EN 295-3, DIN EN 1916, DIN V 1201
Field testing	ASTM C969, ASTM C1103

APPLICATIONS

Ideal for challenging environments

Built for deep trunk sewers, aggressive wastewater, high groundwater and municipal infrastructure upgrades.

Perfect Pipe installs by open cut or pipe jacking and delivers a long service life with low maintenance.







Project reference: Glacier Ridge West Basin Sanitary Trunk, Calgary (2021) · 900 mm Perfect Pipe, about 720 m, Class 140-D

Get in touch to learn more or request a quote

PRECON

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