



## Ductile Iron Pipe Solutions

Complete solutions for the transportation of drinking water and sewage

Because water  
is precious



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Because water  
is precious



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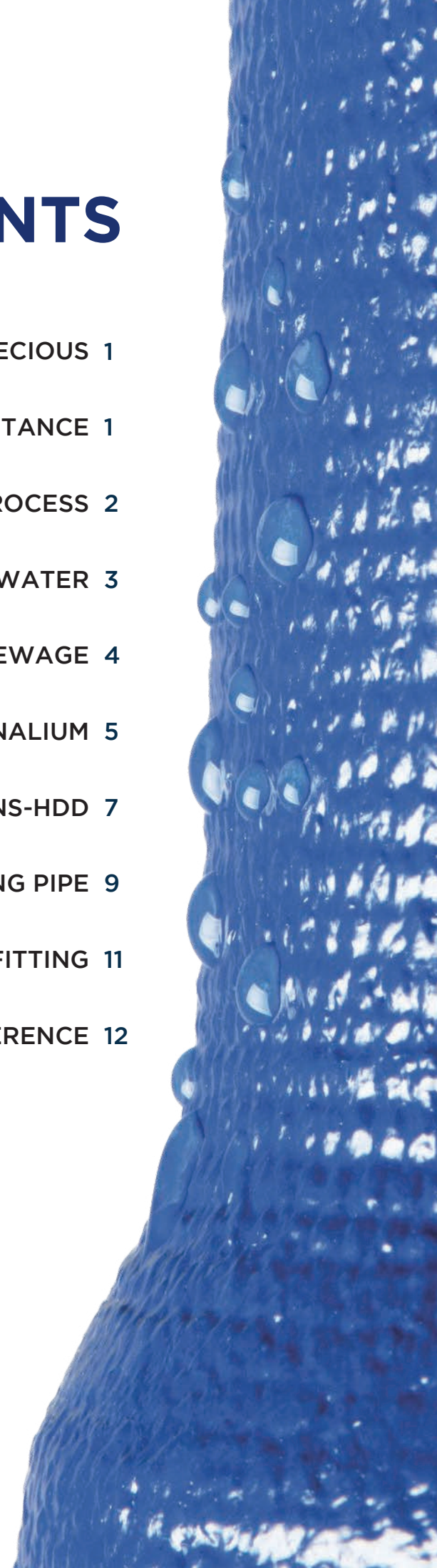
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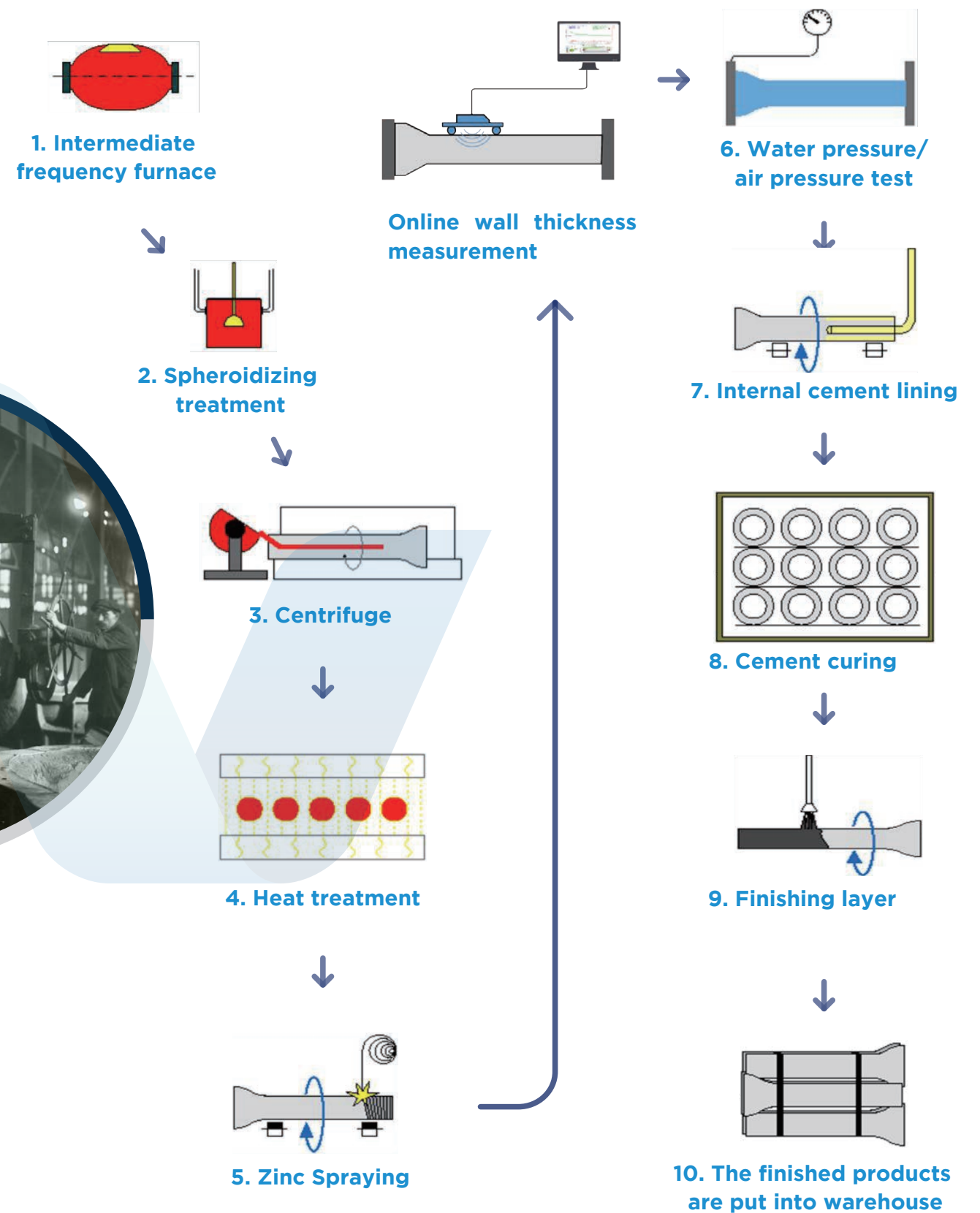
PAM, originates from the pipe business of Saint-Gobain group of France, which is one of the world's top 500 companies. PAM brand, founded in 1856, is a world-renowned ductile iron pipeline brand, committed to providing a complete set of suitable high-quality solutions for water supply and drainage pipeline system.

We have been providing water for everyone since 1856, both in France and right across the world. With the proprietary technology, high-quality products and high-level services, PAM enjoys a high reputation in the field of ductile iron pipeline system.

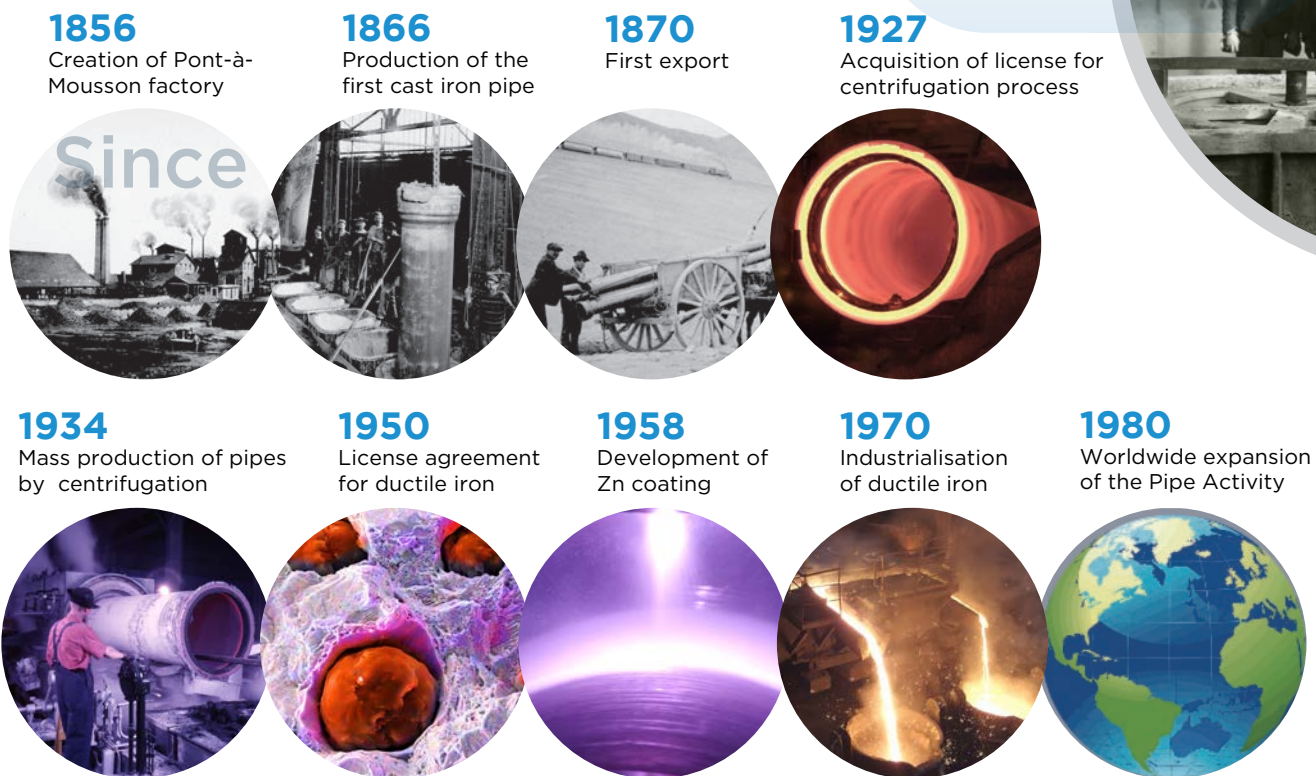
## BECAUSE WATER IS PRECIOUS

- 100** << Providing pipes and fittings for more than 100 capitals and 10000 cities
- 50000** << Over 50000 project references
- 170** << 170-years' experience on pipe manufacturing and application
- 1500** << More than 1500 patents

## MANUFACTURING PROCESS



## CENTENNIAL INHERITANCE



# PRODUCTS AND APPLICATIONS

## POTABLE WATER

### C CLASS DUCTILE IRON PIPES

C Class Ductile iron pipes, its performance parameters are strictly in accordance with EN545 and MS1919. C class pipe represents the technological progress and development of ductile iron pipe industry.

- >> DN Range: DN100-DN2200mm
- >> Joint: T-type / STD-type
- >> Internal Lining: ISO 4179

Cement Mortar Lining (BFSC, SRC)  
Cement Mortar Lining+ Seal Coating

- >> External Coating: ISO 8179

Zinc (130g/m<sup>2</sup> or 200g/m<sup>2</sup>) + finishing layer not less than 70/100µm  
ZnAl (400g/m<sup>2</sup>) + finishing layer not less than 70/100µm

- >> Unit Length: 6m / 5.75m / 5.5m

C class ductile iron pipe is environmentally friendly and focuses on customer requirements, this product conforms with the sustainable development strategy.

## TECHNICAL PARAMETERS

### TYT Joint pipe



| DN   | DE (mm)<br>Nominal | Nominal wall thickness (mm) |          |          |          |          |          |           | Socketed<br>Depth<br>P(mm) | Laying<br>Length<br>Lu(mm) |
|------|--------------------|-----------------------------|----------|----------|----------|----------|----------|-----------|----------------------------|----------------------------|
|      |                    | Class 20                    | Class 25 | Class 30 | Class 40 | Class 50 | Class 64 | Class 100 |                            |                            |
| 80   | 98                 |                             |          |          | 4.4      | 4.9      | 5.4      | 6.1       | 85                         | 6                          |
| 100  | 118                |                             |          |          | 4.4      | 4.9      | 5.4      | 6.1       | 88                         | 6                          |
| 150  | 170                |                             |          |          | 4.5      | 5.0      | 5.5      | 7.4       | 94                         | 6                          |
| 200  | 222                |                             |          |          | 4.6      | 5.4      | 6.5      | 9.2       | 100                        | 6                          |
| 250  | 274                |                             |          |          | 5.5      | 6.4      | 7.7      | 11.1      | 105                        | 6                          |
| 300  | 326                |                             |          |          | 6.2      | 7.3      | 8.9      | 12.8      | 110                        | 6                          |
| 350  | 378                |                             |          | 6.4      | 7.0      | 8.3      | 10.2     | 14.7      | 110                        | 6                          |
| 400  | 429                |                             |          | 6.5      | 7.7      | 9.2      | 11.3     | 16.5      | 110                        | 6                          |
| 450  | 480                |                             |          | 6.9      | 8.6      | 10.2     | 12.5     | 18.4      | 120                        | 6                          |
| 500  | 532                |                             |          | 7.4      | 9.3      | 11.1     | 13.7     | 20.1      | 120                        | 6                          |
| 600  | 635                |                             |          | 8.6      | 10.8     | 13.0     | 16.1     | 23.8      | 120                        | 6                          |
| 700  | 738                |                             | 8.8      | 9.8      | 12.4     | 15.0     | 18.5     |           | 150                        | 6                          |
| 800  | 842                |                             | 9.6      | 11.0     | 14.0     | 16.9     | 20.9     |           | 160                        | 6                          |
| 900  | 945                |                             | 10.6     | 12.2     | 15.5     | 18.8     |          |           | 175                        | 6                          |
| 1000 | 1048               |                             | 11.6     | 13.4     | 17.1     | 20.7     |          |           | 185                        | 6                          |

### STD joint pipe



#### Advantages of STD over TYT:

- Better leaktightness
- Higher degree of angular deflection
- Easier and Faster to install

| DN   | DE (mm)<br>Nominal | Nominal wall thickness (mm) |          |          |          |          |          |           | Socketed<br>Depth<br>P(mm) | Laying<br>Length<br>Lu(mm) |
|------|--------------------|-----------------------------|----------|----------|----------|----------|----------|-----------|----------------------------|----------------------------|
|      |                    | Class 20                    | Class 25 | Class 30 | Class 40 | Class 50 | Class 64 | Class 100 |                            |                            |
| 100  | 118                |                             |          |          | 4.4      | 4.9      | 5.4      | 6.1       | 94.5                       | 6000                       |
| 150  | 170                |                             |          |          | 4.5      | 5.0      | 5.5      | 7.4       | 100.5                      | 6000                       |
| 200  | 222                |                             |          |          | 4.6      | 5.4      | 6.5      | 9.2       | 106.5                      | 6000                       |
| 250  | 274                |                             |          |          | 5.5      | 6.4      | 7.7      | 11.1      | 105.5                      | 6000                       |
| 300  | 326                |                             |          |          | 6.2      | 7.3      | 8.9      | 12.8      | 107.5                      | 6000                       |
| 350  | 378                |                             |          | 6.4      | 7.0      | 8.3      | 10.2     | 14.7      | 110.5                      | 6000                       |
| 400  | 429                |                             |          | 6.5      | 7.7      | 9.2      | 11.3     | 16.5      | 112.5                      | 6000                       |
| 450  | 480                |                             |          | 6.9      | 8.6      | 10.2     | 12.5     | 18.4      | 115.5                      | 6000                       |
| 500  | 532                |                             |          | 7.4      | 9.3      | 11.1     | 13.7     | 20.1      | 117.5                      | 6000                       |
| 600  | 635                |                             |          | 8.6      | 10.8     | 13.0     | 16.1     | 23.8      | 132.5                      | 6000                       |
| 700  | 738                |                             | 8.8      | 9.8      | 12.4     | 15.0     | 18.5     |           | 192                        | 6000                       |
| 800  | 842                |                             | 9.6      | 11.0     | 14.0     | 16.9     | 20.9     |           | 197                        | 6000                       |
| 900  | 945                |                             | 10.6     | 12.2     | 15.5     | 18.8     |          |           | 200                        | 6000                       |
| 1000 | 1048               |                             | 11.6     | 13.4     | 17.1     | 20.7     |          |           | 203                        | 6000                       |
| 1200 | 1255               | 11.4                        | 13.6     | 15.8     | 20.2     |          |          |           | 235                        | 6000                       |
| 1400 | 1462               | 13.1                        | 15.6     | 18.2     |          |          |          |           | 245                        | 6000                       |
| 1500 | 1565               | 13.9                        | 16.7     | 19.4     |          |          |          |           | 265                        | 6000                       |
| 1600 | 1668               | 14.8                        | 17.7     | 20.6     |          |          |          |           | 265                        | 6000                       |
| 1800 | 1875               | 16.2                        | 19.7     | 23.0     |          |          |          |           | 275                        | 6000                       |
| 2000 | 2082               | 18.1                        | 21.7     | 25.4     |          |          |          |           | 290                        | 6000                       |
| 2200 | 2288               | 19.8                        | 23.8     |          |          |          |          |           | 310                        | 6000                       |

## SEWAGE WATER

### SEWAGE DUCTILE IRON PIPES

SEWAGE Ductile Iron pipes in accordance with EN598, ISO7186.

- >> DN Range: DN80-DN2200mm
- >> Joint: T-type / STD-type
- >> Internal Lining: High-Alumina cement (HAC) ISO 4179
- >> External Coating: ISO 8179
  - DN80-DN1000 Zinc (130g/m<sup>2</sup> or 200g/m<sup>2</sup>)+Red finishing layer not less than 80µm
  - DN1100-DN2200 Zinc (200g/m<sup>2</sup>)+ Red finishing layer not less than 80µm
  - DN80-DN2200 ZnAl 400g/m<sup>2</sup>+ Red finishing layer not less than 80µm

- >> Unit Length: 6m/ 5.75m/ 5.5m

### Excellent High-Alumina Cement

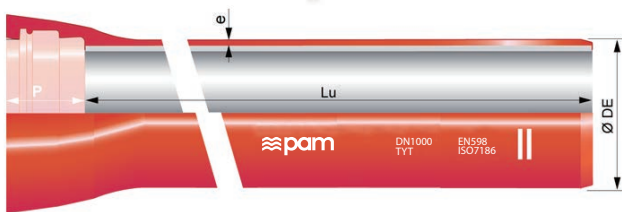
- >> SEWAGE Ductile Iron pipes focus on multiple erosion in terms of corrosion risks. The high-alumina cement contains with over 50% alumina, which has excellent anti-corrosion and wear resistance properties and can normally transport domestic sewage at pH 4 to 12.
- >> The high-alumina cement is laid by centrifugal method.

### NBR Gasket

Due to the direct contact with sewage, the gasket must be able to resist the corrosion of a variety of chemicals, not only the strong corrosion of sewage in lower acidity, but also must be able to prevent other chemicals and grease, PAM provides high quality NBR gaskets to meet these requirements.

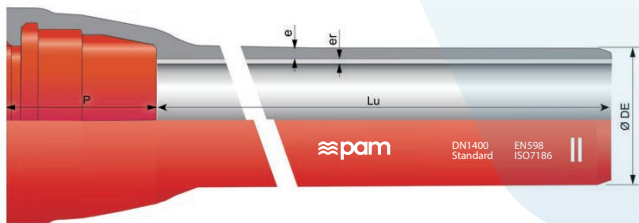
Technical Parameters

TYT joint pipe



| DN   | DE (mm)<br>Nominal | Nominal wall thickness (mm) |         |      | Socketed<br>Depth<br>P(mm) | Laying<br>Length<br>Lu(mm) |
|------|--------------------|-----------------------------|---------|------|----------------------------|----------------------------|
|      |                    | EN598                       | ISO7186 | K9   |                            |                            |
| 80   | 98                 | 4.8                         | 4.4     | 6.0  | 85                         | 6000                       |
| 100  | 118                | 4.8                         | 4.4     | 6.0  | 88                         | 6000                       |
| 150  | 170                | 4.8                         | 4.5     | 6.0  | 94                         | 6000                       |
| 200  | 222                | 4.9                         | 4.7     | 6.3  | 100                        | 6000                       |
| 250  | 274                | 5.3                         | 4.9     | 6.8  | 105                        | 6000                       |
| 300  | 326                | 5.6                         | 5.1     | 7.2  | 110                        | 6000                       |
| 350  | 378                | 6.0                         | 5.7     | 7.7  | 110                        | 6000                       |
| 400  | 429                | 6.3                         | 6.3     | 8.1  | 110                        | 6000                       |
| 450  | 480                | 6.7                         | 6.4     | 8.6  | 120                        | 6000                       |
| 500  | 532                | 7.0                         | 6.5     | 9.0  | 120                        | 6000                       |
| 600  | 635                | 7.7                         | 7.5     | 9.9  | 120                        | 6000                       |
| 700  | 738                | 9.6                         | 8.5     | 10.8 | 150                        | 6000                       |
| 800  | 842                | 10.4                        | 9.6     | 11.7 | 160                        | 6000                       |
| 900  | 945                | 11.2                        | 10.6    | 12.6 | 175                        | 6000                       |
| 1000 | 1048               | 12.0                        | 11.6    | 13.5 | 185                        | 6000                       |

STD joint pipe

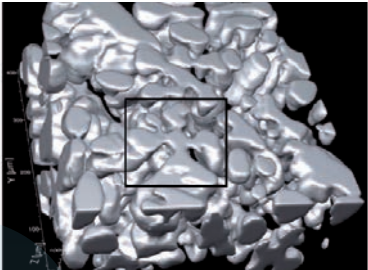


| DN   | DE (mm)<br>Nominal | Nominal wall thickness (mm) |         |      | Socketed<br>Depth<br>P(mm) | Laying<br>Length<br>Lu(mm) |
|------|--------------------|-----------------------------|---------|------|----------------------------|----------------------------|
|      |                    | EN598                       | ISO7186 | K9   |                            |                            |
| 100  | 118                | 4.8                         | 4.4     | 6.0  | 94.5                       | 6000                       |
| 150  | 170                | 4.8                         | 4.5     | 6.0  | 100.5                      | 6000                       |
| 200  | 222                | 4.9                         | 4.7     | 6.3  | 106.5                      | 6000                       |
| 250  | 274                | 5.3                         | 4.9     | 6.8  | 105.5                      | 6000                       |
| 300  | 326                | 5.6                         | 5.1     | 7.2  | 107.5                      | 6000                       |
| 350  | 378                | 6.0                         | 5.7     | 7.7  | 110.5                      | 6000                       |
| 400  | 429                | 6.3                         | 6.3     | 8.1  | 112.5                      | 6000                       |
| 450  | 480                | 6.7                         | 6.4     | 8.6  | 115.5                      | 6000                       |
| 500  | 532                | 7.0                         | 6.5     | 9.0  | 117.5                      | 6000                       |
| 600  | 635                | 7.7                         | 7.5     | 9.9  | 132.5                      | 6000                       |
| 700  | 738                | 9.6                         | 8.5     | 10.8 | 192                        | 6000                       |
| 800  | 842                | 10.4                        | 9.6     | 11.7 | 197                        | 6000                       |
| 900  | 945                | 11.2                        | 10.6    | 12.6 | 200                        | 6000                       |
| 1000 | 1048               | 12.0                        | 11.6    | 13.5 | 203                        | 6000                       |
| 1200 | 1255               | 15.3                        | 13.6    | 15.3 | 235                        | 6000                       |
| 1400 | 1462               | 17.1                        | 15.7    | 17.1 | 245                        | 6000                       |
| 1500 | 1565               | 17.9                        | 16.7    | 18.0 | 265                        | 6000                       |
| 1600 | 1668               | 18.9                        | 17.7    | 18.9 | 265                        | 6000                       |
| 1800 | 1875               | 20.7                        | 19.7    | 20.7 | 275                        | 6000                       |
| 2000 | 2082               | 22.5                        | 21.8    | 22.5 | 290                        | 6000                       |
| 2200 | 2288               |                             | 23.8    | 24.3 | 310                        | 6000                       |

ZINALIUM

At the start of the 21st century, PAM unveiled the innovative ZINALIUM® (400g/m<sup>2</sup> zinc-aluminum alloy) coating, capable of withstanding a broader range of soil conditions and offering significantly greater longevity than pure zinc coatings under same circumstances.

ZINALIUM® coating employs similar anti-corrosion principles as traditional zinc coatings, yet delivers even greater protective performance.



Unique microstructure

PAM utilized advanced spraying technology to overcome technical challenges, the zinc-aluminum alloy coating achieves a density of 400g/m<sup>2</sup>. During the spraying and cooling process, the alloy structure forms with a thorough integration of zinc-rich and aluminum-rich phases. As the aluminum-rich phase oxidizes, it creates a dense oxide layer, which significantly reduces the oxidation rate of zinc, thereby significantly enhancing the coating's anti-corrosion performance.

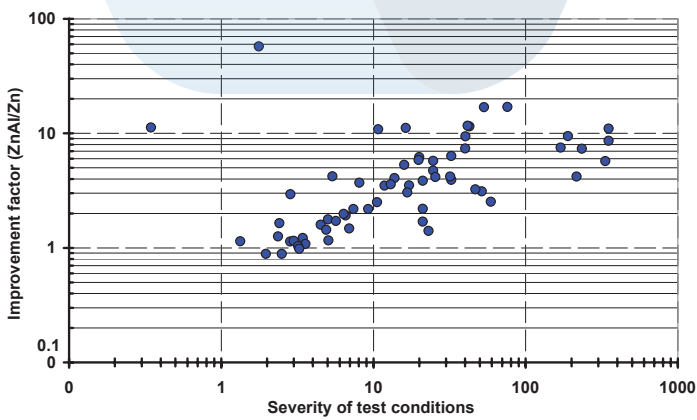


Unique Formulation

Tests conducted by Saint-Gobain PAM showed that when composed of 85% zinc and 15% aluminium (mass percentages), the alloy provides optimum protection levels.

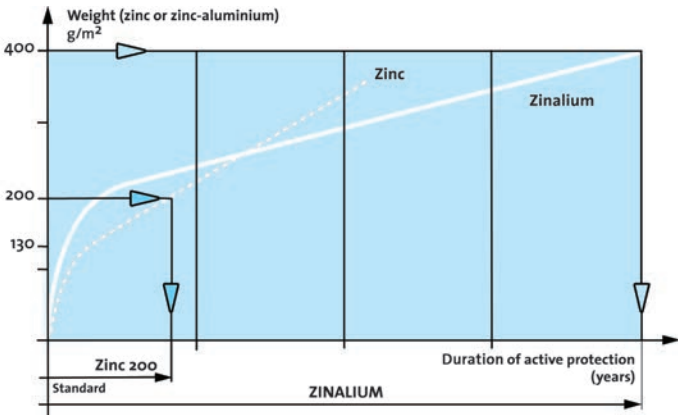
Exceptional Corrosion Resistance

Suitable for 90% of soil environments



The more aggressive the soil, the greater the benefit of using ZINALIUM®

Enhance protection effect



ZINALIUM® has been shown to improve the lifespan of pipelines by three to four times compared with a 200g/m<sup>2</sup> zinc under same conditions.

# PRODUCTS AND APPLICATIONS



## TRENCHLESS SOLUTIONS-HDD

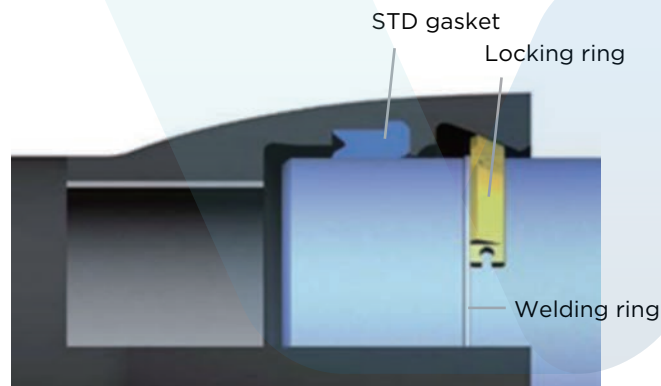
PAM provides trenchless pipe solution on Horizontal directional drilling area, which has advantages in safety and construction efficiency. PAM has been producing and selling ductile iron pipe systems with trenchless solution since early 1990s.

For now, we can provide HDD pipe solution from DN100-1000.

- >> Structure: Special external ZMU cement, Joint protection with elastomer sleeve and HDD metal cone
- >> DN Range: DN100-DN1000mm
- >> Joint: Uni. STD Ve
- >> External Coating: Zinc (200g/m<sup>2</sup>)
- >> Unit Length: 5.97m

### Uni. STD Ve

- >> Uni. STD Ve joint has an excellent pull-out resistance capacity. For example, DN600 HDD pipe permits a maximum tensile force over 850kN
- >> The exceptional mechanical strength combined with high angular deflection capability enables long-distance pipe pulling. The record for PAM HDD single-line length has reached 564 meters for DN400.

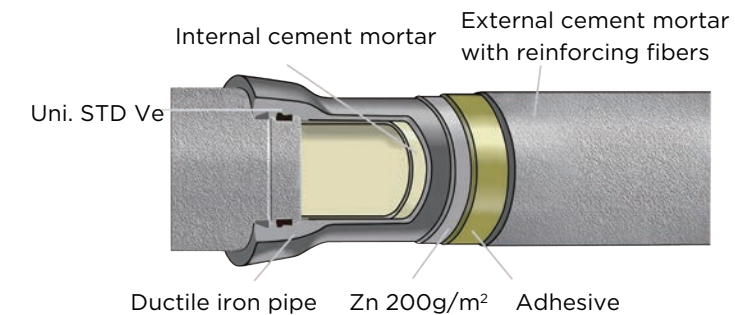


### ZMU coating

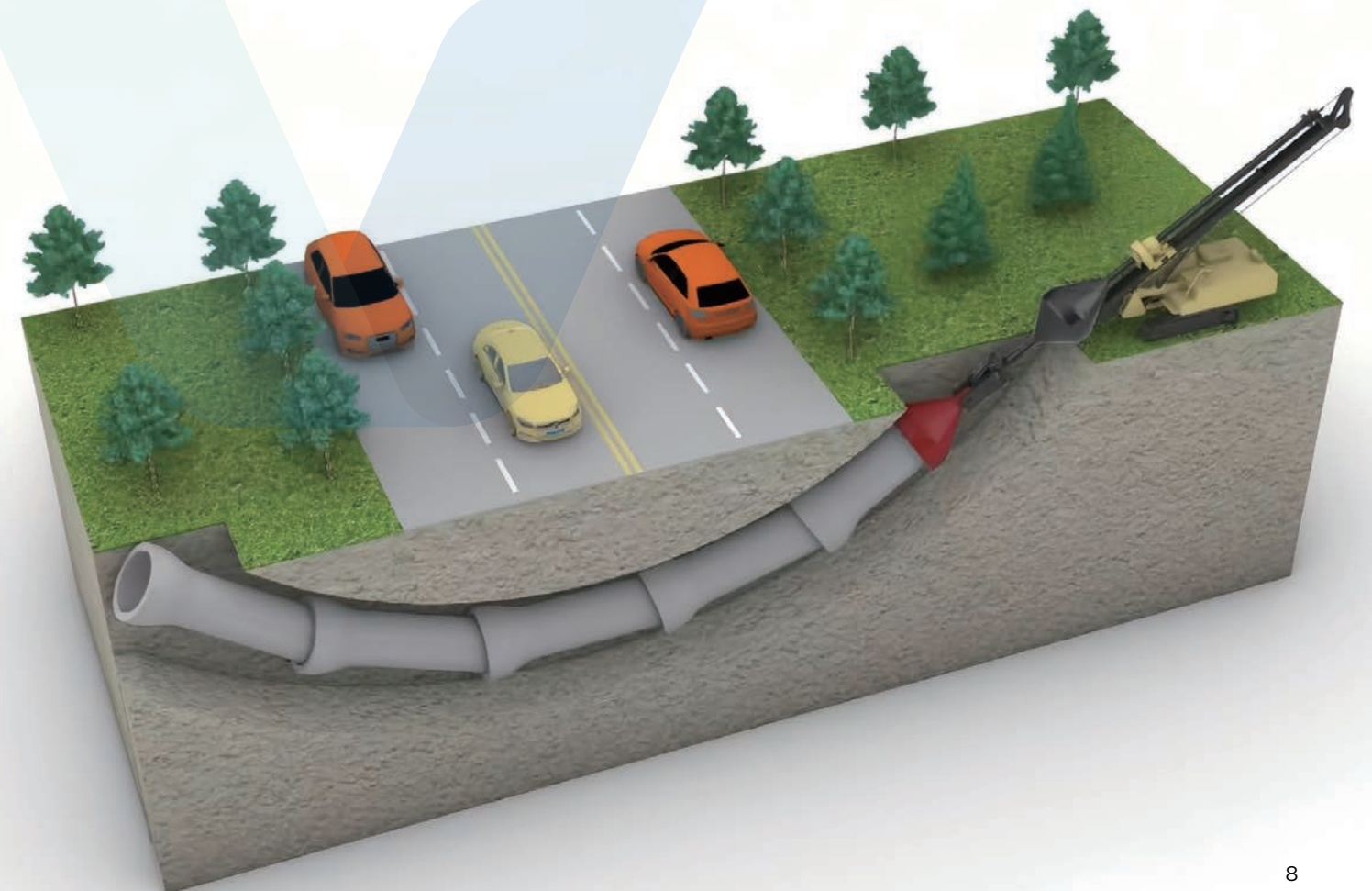
- >> A layer of a 200g/m<sup>2</sup> Zn protection in compliance with EN545 is applied by spraying on the ductile iron pipe.
- >> An adhesion primer between the 200g/m<sup>2</sup> Zn layer and the cement to ensure cement adhesion until installation.
- >> A cement mortar with reinforcing fibers for mechanical strength.
- >> Ductile iron pipes with ZMU coating are suitable:
  - In rocky soils with a backfill particles size up to 100mm
  - In the mountains for reuse of native rock soils
  - In trenchless technology

### Advantages of ZMU coating

- >> Resistance to impact and blunt objects  
Impact resistance tests are carried out by dropping a mass on the coating according to EN15542.



- >> More economical installation  
The ZMU coating allows the use of large aggregates. This means that existing soils can be reused without adding quarry backfill and without the associated transfer costs.
- >> More ecological installation  
By accepting large grain sizes, ZMU coating promotes the reuse of existing soil, even for backfilling. This reduces the environmental impact by preserving the existing soil and eliminating quarry material.

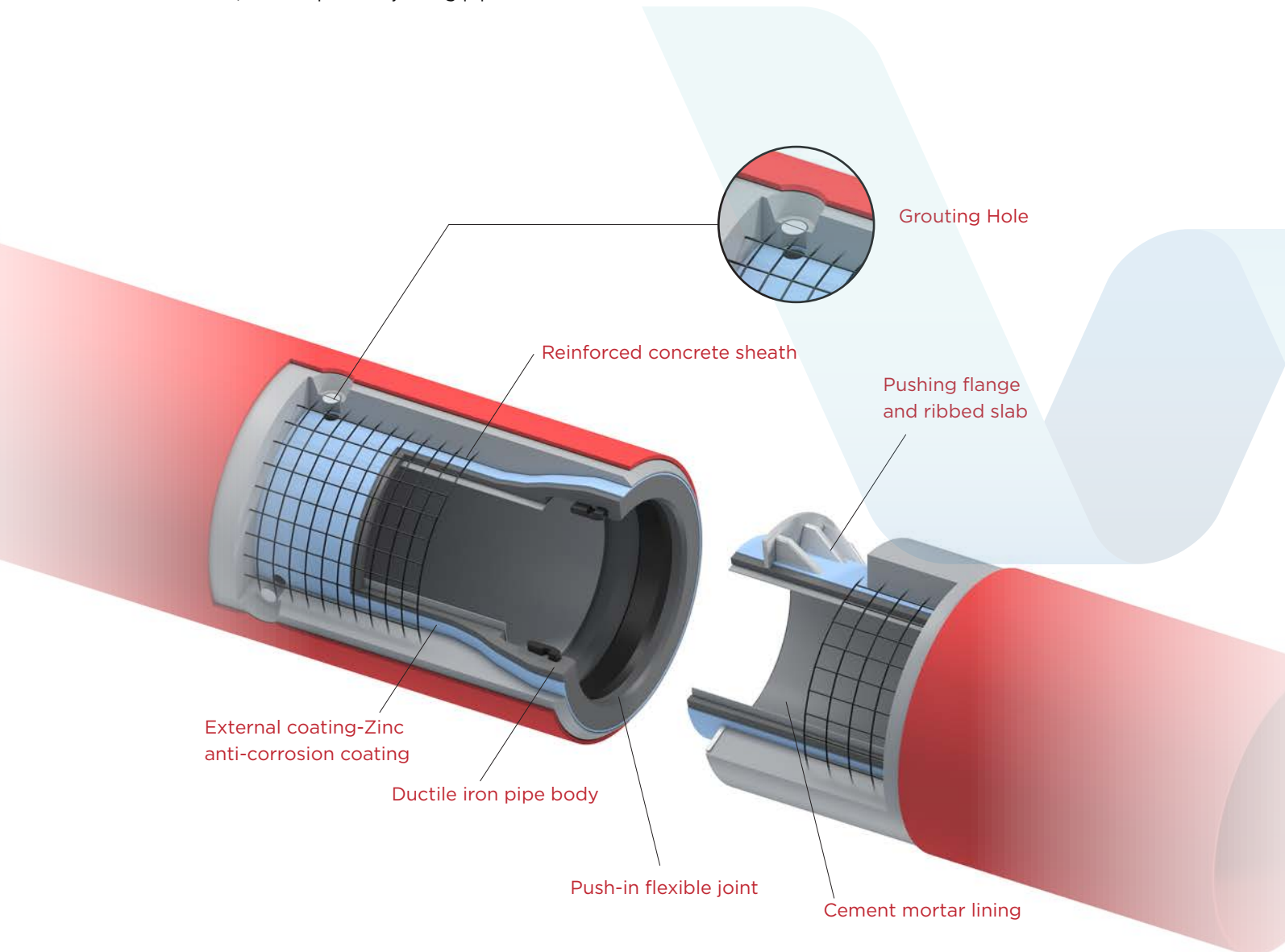


# PRODUCTS AND APPLICATIONS

## TRENCHLESS SOLUTIONS-JACKING PIPE

Pipe jacking (PJ) is a trenchless technique widely used worldwide to lay pipelines underground using a jacking device, compared with other trenchless technologies, its characteristics include less impact on the surrounding environment, less construction land occupation, and large burial depth.

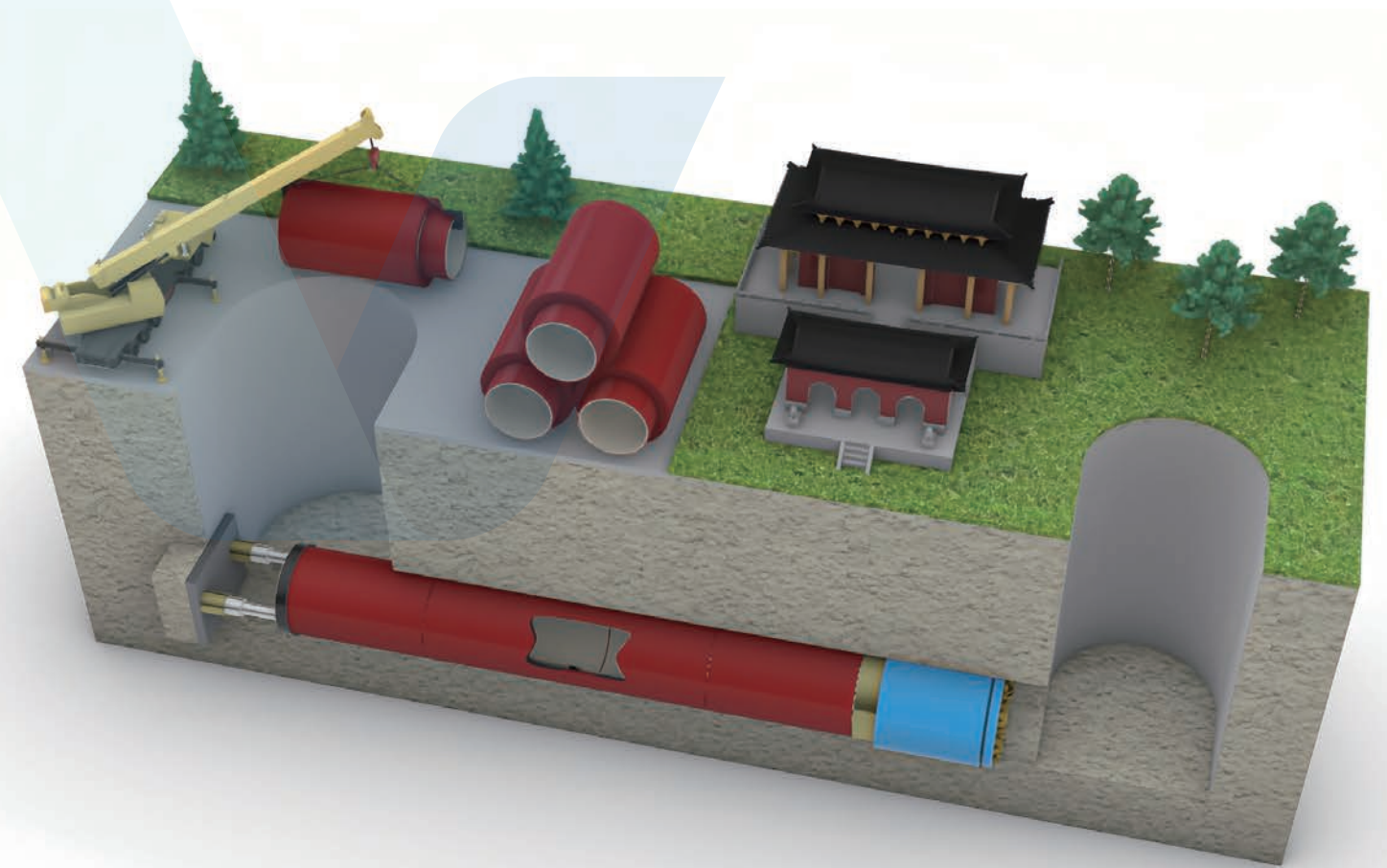
For now, we can provide jacking pipe solution from DN400 to DN2200.



## APPLICATION SCENARIOS OF PIPE JACKING

Through analyzing a large number of trenchless project cases, PAM technical team recommends that pipe jacking method is adopted for the trenchless projects of pipelines of DN1000 or above from the perspective of construction feasibility and economy.

- >> Crossing highways, rivers, above ground buildings, underground obstacles.
- >> Water, electricity, and gas pipelines.
- >> Trenchless laying in busy urban areas with little construction space.
- >> Trenchless laying in busy traffic areas to reduce traffic congestion.
- >> It is also suitable for laying pipelines with particularly large burial depth.



# PRODUCTS AND APPLICATIONS

## FITTINGS

Fittings account for a small proportion of investment in the entire pipeline network system, but they play an important role. If not selected properly, it is easy to form a barrel short board effect, endangering the operation safety of the entire pipeline. PAM, adhering to the tenet of quality first, is committed to providing DN80-DN2200 high-quality ductile iron fittings to ensure the safety of the pipeline network.



## High pressure resistance

Through strict spheroidization and tempering of molten iron and precise casting process control, PAM ensures that the wall thickness of ductile iron fittings is uniform, with excellent mechanical properties, and even after high-strength shot blasting, the casting is still defect-free and leak-free.



## High accuracy of installation

The casting sand is mechanically compacted, and the surface quality of the casting is high, which is favorable to the installation and sealing of the joint. PAM adopts multi-head drilling processing equipment to process multiple installation bolt holes on the flange surface of fittings at the same time, which not only improves production efficiency, but also avoids installation difficulties caused by bolt hole dislocation and ensures high installation accuracy of fittings.



- >> Before epoxy spraying, the fittings are shot blasted with high-strength steel shot to meet the surface quality requirements of ISO8501-1 Sa2.5 grade.
- >> The thickness of the epoxy coating is continuous and uniform, the inner and outer surfaces are smooth and dense, and the external soil and internal conveying medium cannot erode the casting body, ensuring the durability of the fittings.
- >> The internal and external epoxy coatings of PAM fittings meet the requirements of EN14901 standards and are suitable for all common corrosive environments.



# PROJECT REFERENCE



## Cambodia SIEM REAP ICB02 Project

K Class DI water pipe STD and STD  
Ve joint(restrained joint)  
DN250-DN500 pipe: 36KM



## Vietnam NEWTECH-SGP/01-2020 water supply project

C Class DI water pipe  
DN400-DN800: 15KM



## Australia MT. MORGAN TRUNK MAINS

AS/NZS PN35 pipe  
DN250 & DN375: 35km



## Mexico-PROJECT SALTO CALDERON

DN: DN1000, DN1200  
Total 31 KM



## Angola Lobito project

UNI STD Ve pipe  
DN500 & DN700: 23km



NO. SIJIL (Certificate No.)  
SPAN/BPAI/1304-2025

SURUHANJAYA PERKHIDMATAN AIR NEGARA

**SIJIL PENDAFTARAN PEMBEKAL**

(SUPPLIER REGISTRATION CERTIFICATION)

Adalah dengan ini diperakui bahawa syarikat seperti yang tercatat di bawah telah berdaftar dengan Suruhanjaya Perkhidmatan Air Negara bagi kegunaan industri perkhidmatan air di negeri -negeri Semenanjung Malaysia serta Wilayah Persekutuan Putrajaya dan Labuan sahaja.

(This is to certify that the following company have been registered with Suruhanjaya Perkhidmatan Air Negara to be used in the water services industry in Peninsular Malaysia and Federal Territory of Putrajaya and Labuan only.)

|                                                            |   |                                                                                                        |
|------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------|
| No. Rujukan Pendaftaran<br>(Reference of Registration No.) | : | 10/2024/0531/A/W-60                                                                                    |
| Alamat Syarikat Pembekal (Name<br>and Address of Supplier) | : | HEAP WAH BARAKAH SDN BHD,<br>NO 38, 40 & 46 JALAN 18/2<br>46000 PETALING JAYA,<br>SELANGOR DARUL EHSAN |

MAKLUMAT PRODUK ATAU SISTEM(PARTICULARS OF PRODUCT OR SYSTEM)

|                                                                  |   |                                                                                                                                                                                    |
|------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kategori<br>(Category)                                           | : | A - WATER PIPES                                                                                                                                                                    |
| Nama Produk atau Sistem<br>(Product or System Name)              | : | DUCTILE IRON (DI) PIPES                                                                                                                                                            |
| Perihal Produk atau Sistem<br>(Product or System Description)    | : | Model - Siri: Rujuk perincian model dan spesifikasi di lampiran                                                                                                                    |
| Jenama<br>(Brand Name)                                           | : | PAM                                                                                                                                                                                |
| Piawai<br>(Standard)                                             | : | MS 1919:2013                                                                                                                                                                       |
| Kegunaan<br>(Application)                                        | : | SISTEM BEKALAN AIR                                                                                                                                                                 |
| Nama dan Alamat Pembuat<br>(Name and Address of<br>Manufacturer) | : | SAINT-GOBAIN PAM (JIANGSU) PIPELINES TECHNOLOGY CO., LTD, ROOM<br>1808, BUILDING NO.5, ZIYUN SMART PLAZA, NO.19, KAZIMEN STREET,<br>QINHUI DISTRICT, 210001 QINHUI, NANJING, CHINA |
| Nama dan Alamat Prinsipal<br>(Name and Address of Principal)     | : | HEAP WAH BARAKAH SDN BHD, NO 38, 40 & 46 JALAN 18/2, 46000,<br>PETALING JAYA, SELANGOR DARUL EHSAN                                                                                 |
| Sah Sehingga<br>(Valid Until)                                    | : | 10 OCT 2028                                                                                                                                                                        |

Sijil yang dikeluarkan adalah tertakluk kepada SYARAT-SYARAT AM (Bahagian A) dan SYARAT-SYARAT KHUSUS (Bahagian B).  
(The Certificate issued is subject to the GENERAL CONDITIONS (Section A) and SPECIFIC CONDITIONS (Section B))

(DATO' HJ. AHMAD FAIZAL BIN ABDUL RAHMAN)  
KETUA PEGAWAI EKSEKUTIF  
Suruhanjaya Perkhidmatan Air Negara (SPAN)

Tarikh Dikeluarkan  
(Issue Date) : 08 OCT 2025



BAHAGIAN A : SYARAT-SYARAT AM

- Kelulusan ini adalah terpakai di Semenanjung Malaysia serta Wilayah Persekutuan Putrajaya dan Labuan sahaja.
- Pembekal hendaklah:
  - membekalkan pemasangan, peranti atau kelengkapan sepertimana yang telah diluluskan dalam sijil pendaftaran;
  - tempoh yang ditentukan oleh Suruhanjaya;
  - mematuhi peruntukan Akta dan mana-mana perundangan subsidiari yang dibuat di bawah Akta;
  - memastikan pemasangan, peranti atau kelengkapan yang dibekalkan mematuhi sepenuhnya standard yang diiktiraf dan apa-apa standard lain yang dinilai melalui penilaian pematuhan, mengikut mana yang berkenaan, pada setiap masa;
  - memastikan tiada kemerosotan kualiti pemasangan, peranti atau kelengkapan yang dibekalkan; dan
  - mematuhi apa-apa arahan yang dikeluarkan oleh Suruhanjaya dari masa ke semasa.

BAHAGIAN B : SYARAT-SYARAT KHUSUS

NA

LAMPIRAN

No Fail : 10/2024/0531/A/W-60  
No. Sijil : SPAN/BPAI/1304-2025  
Tarikh : 08 OCT 2025



SENARAI PRODUK YANG DIBEKALKAN

PEMBEKAL : HEAP WAH BARAKAH SDN BHD  
NO 38, 40 & 46 JALAN 18/2  
46000 PETALING JAYA,  
SELANGOR DARUL EHSAN  
  
PRODUK : DUCTILE IRON (DI) PIPES

Model-model yang diluluskan oleh SPAN adalah seperti di bawah

| No | Model                                        | Series/Rating | Type/Size/Description                                                                                                                                                                                                                                                                                    |
|----|----------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | TYPE OF JOINT :<br>PUSH-IN FLEXIBLE<br>JOINT | NA / CLASS 20 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 1100, 1200, 1400, 1500, 1600,<br>1800 & 2000 / NA                                                                     |
| 2  | TYPE OF JOINT :<br>PUSH-IN FLEXIBLE<br>JOINT | NA / CLASS 25 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 700, 800, 900, 1000, 1100, 1200,<br>1300, 1400, 1500, 1600, 1700, 1800, 1900 & 2000 / NA                              |
| 3  | TYPE OF JOINT:<br>PUSH-IN FLEXIBLE<br>JOINT  | NA / CLASS 30 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 350, 400, 450, 500, 600, 700, 800,<br>900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700,<br>1800, 1900, & 2000 / NA |
| 4  | TYPE OF JOINT:<br>PUSH-IN FLEXIBLE<br>JOINT  | NA / CLASS 40 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 80, 100, 150, 200, 250, 300, 350,<br>400, 450, 500, 600, 700, 800, 900, 1000, 1100 & 1200 /<br>NA                     |
| 5  | TYPE OF JOINT:<br>PUSH-IN FLEXIBLE<br>JOINT  | NA / CLASS 50 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 80, 100, 150, 200, 250, 300, 350,<br>400, 450, 500, 600, 700, 800, 900, 1000, 1100 & 1200 /<br>NA                     |
| 6  | TYPE OF JOINT:<br>PUSH-IN FLEXIBLE<br>JOINT  | NA / CLASS 64 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 80, 100, 150, 200, 250, 300, 350,<br>400, 450, 500, 600, 700 & 800 / NA                                               |

|   |                                             |                |                                                                                                                                                                                                                                                  |
|---|---------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7 | TYPE OF JOINT:<br>PUSH-IN FLEXIBLE<br>JOINT | NA / CLASS 100 | INTERNAL COATING/LINING: CEMENT<br>MORTAREXTERNAL COATING: ZN-AL ALLOY OR<br>METALLIC ZINC COATINGFINISHING LAYER:<br>BITUMINOUS PRODUCT OR SYNTHETIC RESIN /<br>NOMINAL SIZE, DN: 80, 100, 150, 200, 250, 300, 350,<br>400, 450, 500 & 600 / NA |
|---|---------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|