


fitt sewer ice

The new UNI EN 1401
and UNI EN ISO 1452
certified pipe for pressure
sewer systems and gravity
manifolds

 Shock resistance down to -10°C (ISO 11173)




Ingenious for life

Certified

Corporation

FITT sewer ice: the universal sewer pipe that the market has been missing



Download the product data sheets of the new **FITT Sewer ICE** range!

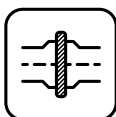
FITT Sewer ICE is the first unplasticized Poly Vinyl Chloride (PVC-U) pipe with **both UNI EN 1401 and UNI EN ISO 1452 certification**. Thanks to this feature, FITT Sewer ICE presents

itself to the market as the right technical solution to meet all the application requirements **for gravity and pressure sewer systems** for the transport of liquids.

CHARACTERISTICS



The characteristic **ice crystal** confirms its particular shock resistance capability at 0°, as required by the ISO 3127 standard, and also the fulfilment of the UNI EN 1401 additional requirement, which guarantees **shock resistance down to -10°C** (ISO 11173).

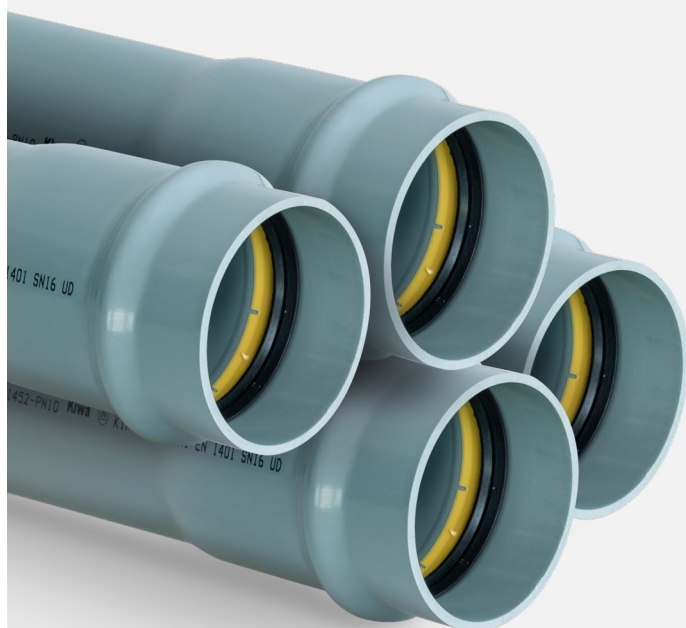


FITT Sewer Ice uses a socket based joint system with integrated gasket mechanically pre-inserted during the hot formation of the socket based joint, which ensures perfect long-term stability and functionality of the gasket. The **Power Lock®** gasket consists of a UNI EN 681 sealing element in EPDM elastomer co-moulded to a fibre-reinforced polypropylene stiffening ring.



FITT Sewer ICE meets the certification requirements for both “plastic pipes and buried and **above-ground** drainage and sewerage under pressure” - UNI EN ISO 1452-2:2010 -, and “PVC-U pipes for piping systems for non-pressure underground drainage and sewerage and **low temperature** applications” - UNI EN 1401-1:2019 -, and is therefore **KIWA-UNI marked**.

PRODUCT ADVANTAGES



- 1** Joint tightness as required by the **UNI EN 1401 and UNI EN ISO 1452** standards
- 2** Pipe according to EN 1401 with **50-years MRS** compliant with UNI EN ISO 1452.
- 3** “❄️” (in addition to EN 1401 for use at **-10°C**).
- 4** **UD application area** (pipes suitable for underground installation at a distance of 1 metre or more from buildings, and which can withstand hot drainage liquids).
- 5** Pipe with **dual UNI EN 1401 and UNI EN ISO 1452 marking**.

Performance comparison: the advantages of FITT Sewer ICE compared to other SN16 pipes

WHY CHOOSE FITT SEWER ICE?

Thanks to its dual UNI EN 1401 and UNI EN ISO 1452 certification, the new FITT pipe presents itself as the ideal technical solution for all sewer applications, both in pressure and gravity systems.

When comparing FITT Sewer ICE to other SN16 pipes and materials commonly used for sewer applications, it can be clearly seen that the new FITT UNI EN 1401 compliant technical solution is the only one capable of guaranteeing a **50-years MRS** for the transport of fluids under pressure.

The mechanical properties of FITT Sewer ICE not only meet the requirements of the ISO 3127 standard for **shock resistance at 0°C**, but also guarantee an additional requirement for **shock resistance down to -10°C** (ISO 11173), while in order to guarantee the same parameter the UNI EN 13476-2 standard for PVC-U, PE and PP sets a value 20% lower (Joule).

FITT Sewer ICE can guarantee a **resistance to internal pressure** compatible with the requirements of the UNI EN ISO 1452 (Long-term, 12.5MPa, 1000h, 60°C - Short-term, 42MPa, 1h, 20°C) and UNI EN 1401 (Long-term - type test - 10MPa, 1000h, 60°C) standards.

Of the pipes being assessed, FITT Sewer ICE is the only one capable of guaranteeing resistance to **positive and negative internal pressure** of the joints, the latter being fundamental in ensuring the tightness of the sewer pipeline with respect to infiltration water (inflow), in case of presence of groundwater and gravity operation.

	UNI EN 1401 SN16 UNI EN ISO 1452 PN10	FITT SEWER ICE SN16 PN10	UNI EN 13476-2			UNI EN 1852					
			PVC-U	PE	PP	PP					
	Purpose										
UNI EN 1401	Transport of fluids not under pressure	✓	✓	✓	✓	✓					
UNI EN ISO 1452	Pressurised fluid transport	✓	NO	NO	NO	NO					
	Formula										
UNI EN 1401	≥ 90% PVC	✓	N.A.	N.A.	N.A.	N.A.					
UNI EN ISO 1452	MRS pressure - 50 years	✓	NO	NO	NO	NO					
	Colour										
UNI EN 1401	type RAL 7037	✓	N.A.	N.A.	N.A.	N.A.					
UNI EN ISO 1452	RAL 7011	✓	N.A.	N.A.	N.A.	N.A.					
	Mechanical characteristics										
	Shock 0°C ISO 3127	✓	-20% Joule	-20% Joule	-20% Joule	✓					
UNI EN 1401	Additional requirement ❄ Shock -10°C ISO 11173	✓	✓	✓	✓	✓					
	Ring stiffness SN16	✓	✓	✓	✓	✓					
UNI EN ISO 1452	Shock 0°C ISO 3127	✓	NO	NO	NO	NO					
	Physical characteristics										
	Vicat ≥ 79°C	✓	✓	N.A.	N.A.	N.A.					
UNI EN 1401	Long. contr. ≤ 5%	✓	✓	N.A.	N.A.	N.A.					
	DSC ≥ 185°C	✓	✓	N.A.	N.A.	N.A.					
UNI EN ISO 1452	Vicat ≥ 80°C	✓	✓	N.A.	N.A.	N.A.					
	Long. contr. ≤ 5%	✓	✓	N.A.	N.A.	N.A.					
	Traction/elong. 45MPa / ≥ 80%	✓	NO	N.A.	N.A.	N.A.					
	DSC ≥ 185°C	✓	✓	N.A.	N.A.	N.A.					
	Characteristics	Requirements	Test Specifications								
			Parameters	Values	Test Method						
UNI EN 1401	Elastomer ring joint seal		Temperature	(23 ± 5) °C	ISO 13259	✓	✓	✓	✓	✓	
			Shank deflection	10%							
			Socket based joint deflection	5%							
			No leakage	Water pressure							0.05 bar
			No leakage	Water pressure							0.5 bar
			≤ -0,27 bar	Air pressure							-0.3 bar
UNI EN 1401	Elastomer ring joint seal		Joint temperature deviation for:	(23 ± 5) °C	ISO 13259	✓	✓	✓	✓	✓	
			ed ≤ 315	2°							
			315 < ed ≤ 630	1.5°							
			630 < ed > 630	1°							
			No leakage	Water pressure							0.05 bar
			No leakage	Water pressure							0.5 bar
≤ - 0.27 bar	Air pressure	-0.3 bar									
	High temperature cycles	No leakage Failure ≤ 0.05 nd	Must comply with EN ISO 13257		EN ISO 13257:2017	✓	✓	✓	✓	✓	
UNI EN ISO 1452	Tightness with short-duration hydrostatic internal pressure	No leakage at any point in the joint areas during the test period	Pressure test	See ISO 13845	ISO 13845	✓	NO	NO	NO	NO	
			Ambient temperature	15 °C to 25 °C							
			Temperature variation	± 5 K							
			Deflection	2°							
			Duration of the test	100 min							
			Number of samples tested	1							
UNI EN ISO 1452	Tightness with short-term negative air pressure	The negative pressure variation must be ≤ 0.05 bar for the first and second 15 minutes	Pressure test	See ISO 13844	ISO 13844	✓	NO	NO	NO	NO	
			Ambient temperature	15 °C to 25 °C							
			Temperature variation	± 2 K							
			Deflection	2°							
			Deformation	5%							
			Duration of the test	See ISO 13844							
UNI EN ISO 1452	Tightness with long-term hydrostatic internal pressure	No leakage at any point in the joint areas during the test period	Pipeline diameter		ISO 13846	✓	NO	NO	NO	NO	
			for nd ≤ 90 mm: for nd > 90 mm:								
			Water temperature	20°C 40°C 20°C 40°C							
			Pressure test	1.7PN 1.3PN 1.65PN 1.3PN							
			Duration of the test	1000 h 1000 h							
			Number of samples tested	1 1							

LEGEND

✓ Value **confirmed** for the reference material

NO Value **not confirmed** for the reference material

N.A. Value **not applicable** for the reference material

specification item



IT-DT-Ki0410

UNI EN 1401-1:2019 KIP-110178
UNI EN ISO 1452-2:2010 KIP-110177

Supply and installation of **UNI EN 1401-01:2019** and **UNI EN ISO 1452-2:2010** RAL 7037 grey PVC-U pipes suitable for low temperature laying for the non-pressurised transfer of waste water, civil and industrial gravity sewers, pressurised applications, both buried and above ground, also for the agricultural sector.

The pipes must be extruded from plasticiser-free polyvinyl chloride blends, with the only addition of heavy-metal-free organic OBS stabilisers and components such as fluidisers and other additives necessary to achieve proper product manufacture. Minimum content of PVC >90%.

Socket based joint system with "Power Lock" non removable gasket mechanically pre-inserted during the hot formation of the socket. The gasket consists of a UNI EN 681-1 compliant elastomer co-moulded to a fibre-reinforced polypropylene element, which guarantees perfect stability in the seal housing.

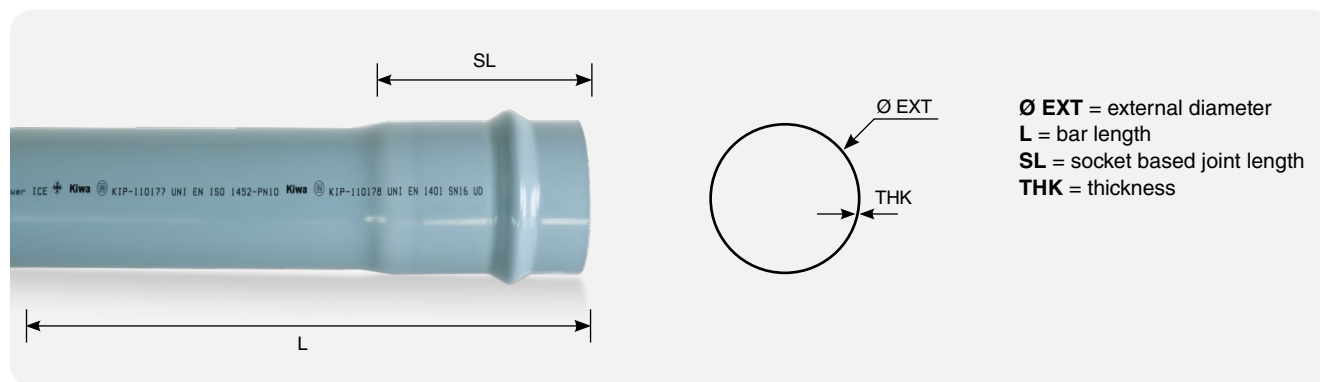
The pipes must be manufactured by companies operating in accordance with a Company Quality System conforming to the UNI EN ISO 9001 standard, certified according to UNI CEI EN ISO/IEC 17021 by third-party bodies or companies recognised and accredited by Accredia.

The entire supply must be accompanied by an appropriate product conformity certificate issued in accordance with UNI CEI EN 45011 by third-party bodies or companies recognised and accredited by Accredia.

The pipes, in lengths of 3 / 6 metres including the socket based joint, will be RAL 7037 grey and will have the following information printed on one of the crowns:

- name and trademark of the manufacturer,
- nominal diameter and thickness,
- standard of reference,
- date of issue
- date with production shift,
- pressure rating,
- ring stiffness,
- ice crystal symbol (❄).

DN ___ PN ___ SN ___ €/m ___



FITT SEWER ICE / SN16 - PN10

External diameter Ø EXT [mm]	Thickness THK [mm]	Socket based joint length SL [cm]	L = 6m [€/lm]	L = 3m [€/lm]	Pcs/pallet
110	4.2	15	10.80	—	57
125	4.8	16	13.80	—	43
160	6.2	18	22.85	—	26
200	7.7	19	35.30	38.90	15
250	9.6	21	55.10	60.60	12
315	12.1	22	87.90	96.70	6
400	15.3	23	148.90	163.80	6
500	19.1	24	234.30	—	2
630	24.1	33	430.15	—	2

Fitt, a leading global group established in Italy in 1969 is a pioneer in the production and development of solutions for the transfer of fluids for domestic, professional and industrial applications.

FITT INFRASTRUCTURE SOLUTIONS

This is the business area of the FITT Group that produces and develops complete piping, hose and fitting solutions for the pressure and gravity flow of fluids intended for the integrated water service management utilities, such as drinking water and sewerage networks.

fitt.com

For more information:

FITT S.p.A.

Via Piave, 8

36066 Sandrigo (VI) - Italy

Tel. +39 0444 46 10 00

FITT S.p.A. is a Benefit Company according to Italian Law number 208/2015

FITT® is a registered trademark of FITT S.p.A.

