



Kingspan LOGSTOR

UPDATE REGARDING LOGSTOR PRODUCT PROGRAM

We are happy to inform about the launch of a new flexible pipe system with a lot of features that will be valuable to our customers.

Below, please find our Product info No. 6 - 2023 with following updates:

- PertFlextra, a new flexible pipe system

Should you have any questions, please contact your usual LOGSTOR contact person or the undersigned.

Best regards
Kingspan LOGSTOR

Peter Jorsal

Product & Academy Manager

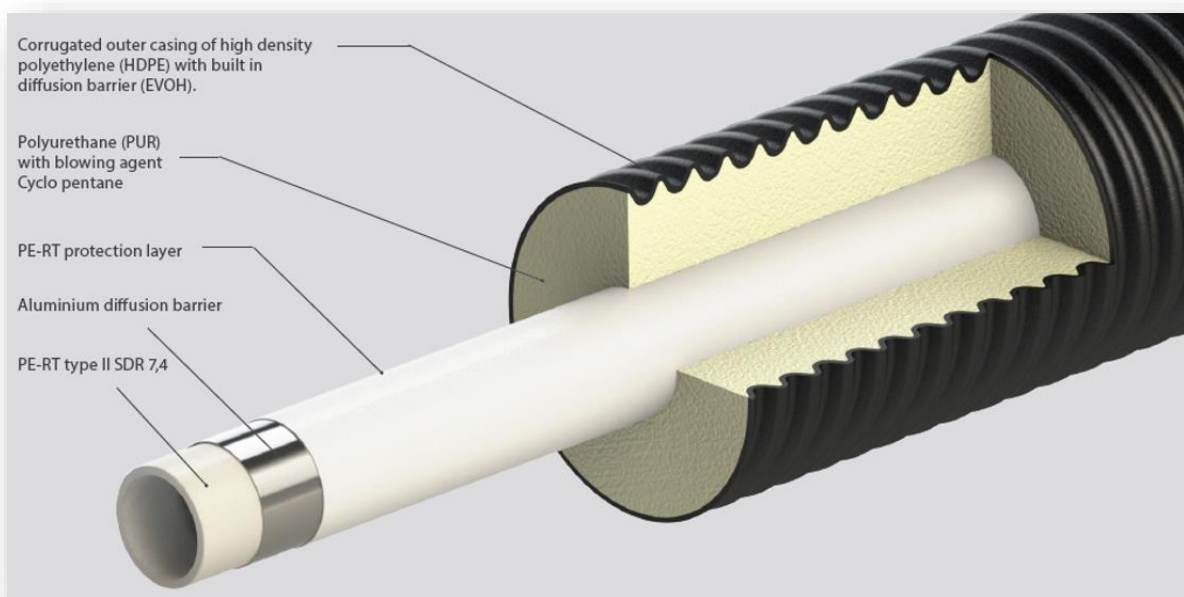
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LOGSTOR PerfFlextra

PerfFlextra is a complete range of diffusion tight, flexible pre-insulated pipe system for community- and district heating according to prEN17878-1/2.

The service pipe in PerfFlextra is made of polyethylene PE-RT type II SDR7.4 featuring an aluminum diffusion barrier that prevents the diffusion of oxygen into the media and water vapor from the water into the PUR foam and thereby ensuring that the foam stays dry over lifetime securing the good insulation properties.

The service pipe is insulated with PUR foam and the outer casing of PEHD is with a built in EVOH diffusion barrier that will ensure that heat loss property will not deteriorate over lifetime.



Complete range of products

PerfFlextra is available as single pipe and TwinPipe systems and include all press couplings, casing joints, fittings, accessories and tools needed to establish a complete pre-insulated piping network of distribution- and service pipelines.

The dimensions of service pipe is 25 – 63 mm and casing dimensions is 90 – 180 mm.



PertFlextra is a result of the COOL DH development project

More than 3 years ago we joined together with other companies an EU development project, COOL DH. The main objective of COOL DH development project is *“to support cities in their endeavor to plan and deploy new, efficient district heating and cooling (DHC) systems and extend and refurbish existing ones to higher standards. Thus, it will be allowing greater uptake of renewables, recovering of excess heat or cold while improving the overall efficiency of the systems”*.



Kingspan LOGSTOR's objective for the COOL DH project was to *“Design and build a low-temperature district heating grid with non-conventional pipe materials. Test new innovative pipe components introduced by COOL DH”*.

During this project we developed PertFlextra and 1900 meter TwinPipe was installed in a project in Høje Taastrup and 1900 meter single- and TwinPipe was installed in Lund.

For further information about the COOL DH project please see <https://www.cooldh.eu/this-is-cool-dh/>

Customer benefits

Flexibility, low heat loss, long lifetime – the right choice of pipe system

- **Easy installation/work environment**
 - Corrugated casing and flexible PUR foam
 - PertFlextra is easy to bend and install due to its flexible corrugated casing and flexible foam
 - Press couplings that are easy to install
 - Easy pass of vegetation and obstacles and to lay in hilly areas
 - Low bending force while still living up to requirement in the standard to linear water tightness
 - Installed from a coil in long length result in fewer couplings
 - On TwinPipes the service pipe is marked with red indicator
- **Long lifetime**
 - The pre-insulated pipe and the service pipe are tested according to the requirements in EN15632 and/or prEN17878
 - Complying with the requirement in the standards provides a security of having the long and expected lifetime of the pipe system
 - PE-RT type II SDR7,4 has a longer lifetime than SDR 11 PEX systems at the same temperature and pressure

- **Low heat loss cost over lifetime**

- Aluminum diffusion barrier on the service pipe for water vapor and EVOH diffusion barrier in the casing for insulation gasses
 - The aluminum diffusion barrier on the service pipe prevents water vapor diffusion to the foam and secure that that PUR foam will remain dry over lifetime and insulation property will remain unchanged
 - The EVOH diffusion barrier in the casing ensures no deterioration of insulation properties throughout the lifetime
 - Low lambda value
 - PertFlextra does not require multiplying the declared lambda value by 1,1 or 1,25 according to EN15632-1, Annex C to achieve the design lambda that shall be used for heat loss calculations

- **Robustness**

- The robustness is ensured by the corrugated casing and the flexible PUR foam
 - Self-compensating design eliminates any need for expansion fittings
 - Strong enough for installation using guided directional drilling as service pipelines
 - No cracks in the PUR foam when bending the pipes
 - Fulfil requirement to linear water tightness

- **Sustainability**

- PE-RT can be recycled at end of lifetime
 - No chemical recycling, unlike PEX

- **A strong alternative to pre-insulated bonded steel pipe systems**

- For the right temperature and pressure applications
 - High speed of installation
 - No dependency of steel welders
 - The water vapor diffusion issue is solved with the aluminum diffusion barrier on the service pipe

Aluminum diffusion barrier on the service pipe

The aluminum diffusion barrier on the service pipe shall prevent diffusion of oxygen coming into the water as well as preventing the water vapor diffusion from the water into the insulation.

The efficiency of the diffusion barrier is proven by tests on external test institute Technological Institute in Denmark.

We have tested water permeation (mg/m/day) on PE-RT type II SDR 7,4 with aluminum diffusion barrier and on PEXa SDR 11.

On a PEXa SDR11 water permeation was tested to 367 mg/m/day.

On PE-RT type II SDR 7,4 with aluminum diffusion barrier the water permeation was tested to 2,3 mg/m/day which is considered within the measurement uncertainty.

To secure the water vapor diffusion tightness of the entire installed system couplings shall be wrapped with an alu wrap before installing the casing joint.



Flexibility of PertFlextra

We have tested the flexibility of PertFlextra by bending tests and compared to the Flexibility of the corresponding dimensions PexFlextra and AluFlextra.

The test report can be requested.

Bear in mind that it is tested by external test institutes that on LOGSTOR PertFlextra there is no cracks in the foam when bending the pipe and we live up to the requirement in the standard to linear water tightness.

Dimensions and insulation series

Dimensions and insulation series are according to the tables below.

Other insulation series can be requested as a speciality.

PE-RT service pipe		Volume	Series 2		
d mm	Wall thk mm	l/m	Outer casing		
			D mm	Wall thk mm	Weight kg/m
25	3.5	0.260	90	1.5	1.2
32	4.4	0.423	90	1.5	1.3
40	5.5	0.661	110	1.5	1.8
50	6.9	1.029	125	1.5	2.3
63	8.6	1.647	140	1.5	3.1

PE-RT service pipe		Volume	Series 1			Series 2		
d mm	Wall thk mm	l/m	Outer casing			Outer casing		
			D mm	Wall thk mm	Weight kg/m	D mm	Wall thk mm	Weight kg/m
25/25	3.5	0.520				125	1.5	2.1
32/32	4.4	0.845				125	1.5	2.2
40/40	5.5	1.321				140	1.5	3.0
50/50	6.9	2.058				180	1.5	4.4
63/63	8.6	3.295	180	1.5	5.0			

Press couplings and tools

Press couplings for PertFlextra are type Jentro.

Tools for installation of press couplings are Jentro standard tools.

Adapter for SDR7,4 shall be used for the expansion tool.

Material numbers, prices, products on stock

Material numbers and prices are updated in our SAP system.

Pipes in coils and couplings are in stock so we are ready to deliver.

Calculator and TCO tool

Calculator and the TCO tool are updated to include PertFlextra.

Detailed information about PertFlextra

The following material will be on our homepage on the 28th of September:

- Brochure with all details about PertFlextra, <https://www.logstor.com/catalogues-and-documentation?lang=1737&type=1615>
- Flyer, <https://www.logstor.com/catalogues-and-documentation?lang=1737&type=1615>
- Product Catalogue, <https://www.logstor.com/catalogues-and-documentation?lang=1737&type=1613>
- Video about removal of protection layer and aluminium diffusion barrier and installing alu wrap at press couplings, <https://www.logstor.com/service-support/kingspan-academy/installation-videos>
- TCO tool and Calculator, <https://www.logstor.com/service-support/tools>

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