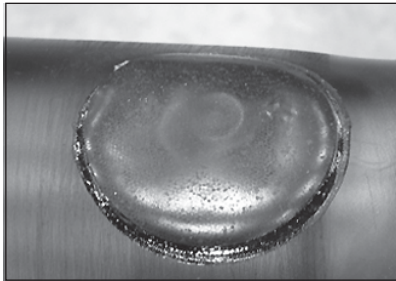
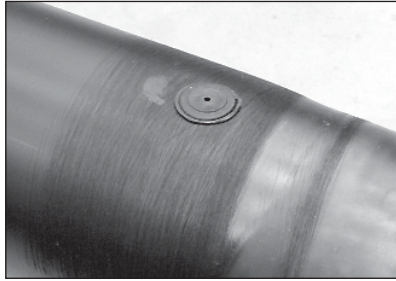


Double sealing system for foam injection holes in thermally insulated PE jacket pipes & casings



Product description

FOPS-II insulated pipe foam-hole seal

Construction: Two-component system:

First component: FOPS-II-PLUG

Two part system : polyethylene plug with mastic sealing ring and polyethylene wedge to fix the plug.

Second component: FOPS patch

First layer : High shear-resistant thermoplastic adhesive

Second layer : radiation-cross-linked, high density polyethylene with Thermochromic ChangeIndicator.

FOPS-II is a watertight and mechanically strong double seal of foam-holes in standard, oversized or heat-shrinkable PE casings of thermally insulated pipes. Both sealing components function as a single sealing system and the combination of the 2 components makes the FOPS-II a full proof system.

The installation involves removing excess foam and abrading & cleaning foaming hole area. The hole is first filled with a FOPS-II plug kept in place by hammering the PE wedge into the plug. The FOPS patch is placed centrally over the FOPS II plug to be sealed. When heated, the FOPS adhesive softens and flows to form a tight bond with the substrate. The bond strength builds up during cool-down and is fully retained after completion of the job.

Product features/benefits

- **No special equipment required (standard gas torch)**
Makes installation fast, easy and low cost.
- **Double sealing system – Each component separately meets EN489 soil stress requirements**
Full proof even when one of the components would fail.
Reliable performance.
- **Thermo-indicator**
Ensures correct application heat (to make adhesive flow) and allows easy post-heat inspection
- **Highly shear-resistant & mechanically strong**
Prevents insulation from degrading. Superior sealing!
Unaffected by high or low temperatures. Reliable performance
- **Heat and UV stable**
Acts as moisture barrier. Insulation remains functional
No gas build-up during preheating and installation.
Secure installation.

Product selection guide

Max. operating temperature	50°C, (60°C under expansion cushion)
Joint design	Standard, Oversized, Heat-Shrinkable PE casings
Min. preheat temperature	60°C
Recommended pipe preparation	Abrading & Cleaning
Soil stress restrictions	None
Performance	300 cycles, 0.5% sand humidity Meets EN489, edition 2003 requirements FFI report

Product dimensions	FOPS-II-PLUG	FOPS
Diameter as supplied	25 mm	92.5 mm
Backing as supplied	Not applicable	0.75 mm
Adhesive as supplied	Not applicable	0.8 mm

Product properties: FOPS

Property	Test method	Typical value
Backing		
Tensile strength	ASTM D-638	3300 psi (22.8 MPa)
Elongation	ASTM D-638	600%
Hardness, Shore D	ASTM D-2240	55
Thermal ageing	ASTM D-3045 150°C, 21 days	
Followed by elongation	ASTM D-638 23°C	> 450%
Weathering (UV) resistance	ASTM D2565, 30 days	
Followed by elongation	ASTM D-638 23°C	> 450%
Water absorption	ISO 62	0.05%

Property	Test Method	Typical Value
Adhesive		
Softening point	ASTM E-28	94°C
Shear strength	EN12068	120 N/cm ² @ 23°C 55 N/cm ² @ 50°C
Peel strength to PE	EN12068	70 N/cm
	10 mm /min.	
System		
Soil stress resistance	EN 489	
	0.5% sand humidity	Min 300 cycles
	8% sand humidity	Min 1000 cycles
External water pressure after soilstress	EN 489	Pass
	@ 23°C , 0.7 bar, 24 hrs	

Product Properties FOPS-II-PLUG

Property	Test Method	Typical Value
Adhesive		
Softening point	ASTM E-28	144°C
Shear strength	ISO (50 mm/min)	20 N/cm ²
System		
Soil stress resistance	EN489 (0.5% sand humidity)	pass 1000 cycles
	EN489 (8.0% sand humidity)	pass 1000 cycles

Product Properties FOPS-II system EN489 (8% sand humidity)

Property	Test Method	Typical Value
Soil stress resistance	EN489 (0.5% sand humidity)	pass 300 cycles

Ordering information

FOPS-II components need to be ordered separately		
FOPS-100 (C100)	Foaming hole closure patch (standard pack is 100 pc in a box)	
FOPS-II-PLUG (S100)	Foaming hole plug (standard pack is 100 pc in a bag)	
Accessories (to be ordered separately)		
EQ-REUSABLE PLUG	Teflon coated re-usable closure plug allowing air escape during foaming application	
EQ-WP-DRILL-25	Conical drill to make a Ø25 mm hole in the casing	
EQ-PRESS-FOPS	PU-foam press with silicone bottom layer and aluminum top plate & handle	

Berry Plastics warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the technical data sheet when used in compliance with Berry Plastics written instructions. Since many installation factors are beyond the control of Berry Plastics, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection herewith. Berry Plastics liability is stated in the standard terms and conditions of sale. Berry Plastics makes no other warranty either expressed or implied. All information contained in this technical data sheet is to be used as a guide and is subject to change without notice. This technical data sheet supersedes all previous data sheets on this product.



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