



TOTALFIX®



TOTALFIX SYSTEM ®

SERIES KRP-03-DX1-10-N

NOTE: X1 - parameter that defines the diameter of application

TOTALFIX: KRP-03-DX1-10-N – TECHNICAL DATA SHEET

Component Materials:

- 1. Mastic filler:** two component epoxy resin saturated by insertion of steel particles, with high corrosion resistance and industrial mechanical strength mixable by hand.
- 2. Sealing tape** – double sided three layer polyethylene and butyl rubber tape with an extruded polyethylene substrate
- 3. External strengthening tape (reinforced wrap):** fiber-glass reinforced tape saturated with polyurethane that polymerizes in a wet (H₂O) environment.

Use: The TOTALFIX **KRP-03-DX1-10-N** systems are designed to perform with composite materials, **under pressure**, structural repairs of steel, copper, iron, aluminum, polyethylene, polypropylene and PVC pipes. In terms of the carried agent these types of applications are suitable for oil field pipe repairs, gas, water, most chemicals, resisting at a maximum heat of 150° Celsius.

The systems can be used in the case of a 80% loss of the pipe's wall thickness, on

surfaces up to 150 sq. cm, due to a process of corrosion or mechanical external intervention (hitting, scratching, abrasion, etc.) or for small or medium sized holes of max 120 sq. mm due to corrosion, cracks, etc. at an operating pressure of 0.8 to 1.2 bar, depending on the size of perforation.

The repairing system can be applied for longitudinal defects of pipes, bends, branch joints, corner defects, welding defects and defects in the sealing areas of sectioning valves or flange joints, defects of mechanical or welded joint fittings.

1. Mastic filler

Properties:

- Repair time shortened to a max. of 20 min.
- Applicable for filling leaks, fill holes and cracks in the material
- Presented in a premixed formula (ready for use)
- Adhesive to PVC, fiberglass, metal, wood, polyethylene, etc..
- Nontoxic material.
- Does not contain solvents
- Does not require special equipment for application (open flame, electrical equipment, etc.)
- After setting, there are no breaks, shrinkage or loss of adhesion
- Withstands temperatures of 150° Celsius
- Repaired area can be painted or isolated against corrosion by cold applied materials
- Supports processing by drilling, blasting, grinding, milling, etc.
- Usable for the repair of drinking water pipes
- Usable in high humidity or submerged environments

Technical parameters:

Parametru	Valoare	Standard
Mixing time	3 – 5 minutes	
Curing time: initial/final	20 min / 75 min at 4° C 15 min / 60 min at 16° C 10 min / 45 min at 25° C 5 min / 30 min at 32° C	
Application temperature	4 – 50° C	
Compression resistance	12.000 PSI – 820 bari	ASTM D 695
Tensile resistance	6.000 PSI – 410 bari	ASTM D 688 -111
Shear strength	900 PSI – 62 bari	ASTM D 688
Durity Shore D	80	ASTM D 790-1-B
Elasticity	6 x 10 ⁵ PSI	ASTM D 638
Dielectrical resistance	300 V/mm	ASTM D 149
Operating temperature	5 – 150° C	

Chemical resistance:

The product resists following types of chemical compounds:

- Drinking water, waste water, steam
- Solvents - acetone, toluene, ethyl alcohol
- Acids - hydrochloric acid, sulfuric acid
- Chemicals - ethylene glycol, xylene, ammonia
- Hydrocarbons
- Fuels - oil, diesel, gasoline
- Gas - Natural, LNG, LPG
- Organic salts

2. Sealing tape

Material: double-sided tape in three layers of polyethylene and butyl rubber with extruded polyethylene substrate.

Properties:

- Full self amalgamation after overlapping
- Usable on any surface structure due to thick butyl rubber adhesive layer
- Very good bonding between the adhesive and film strength due to interlayer co-extruded polyethylene
- High mechanical strength
- Sleeve type application due to the amalgamation of successive layers.
- Compatibility with the surfaces of polyethylene, metal, plastics, etc..
- Manual cold application (does not require special equipment for application)
- Suitable for use on uneven surfaces due to high elasticity.

Technical parameters:

Parametru	Valoare	Standard
Film suport	Black	
Interior layer color	Grey	
Exterior layer color	Negru sau galben	
Thicknes	≥ 0,8 mm	ISO 4591 , ASTM D-1000
Breaking point elongation	≥ 600 %	DIN EN 12068
Tensile strength at 23 ⁰ C	≥ 120 N/10mm	DIN EN 12068
Dielectric strength	35 Kv/mm	ASTM D 149
Saponification value of supporting film and adhesive	1,0 mg KOH/g	DIN EN 12068
Water vapor permeability	≤ 2 x 10 ⁻¹ g/m ² x 24h	DIN 53122
Oxygen permeability	≤ 10 ⁻⁴ g/m ² x 24h	DIN 53536
Friability temperature	-46±4 ⁰ C	DIN 53372
Adhesion to steel – 10mm/min	25 N/10mm	DIN EN 12068
Shear strength on steel	15 N/cm ²	DIN EN 12068

Chemical resistance:

The product resists the following types of chemical compounds:

- Impermeability to water vapor and oxygen
- High resistance to bacteria
- High resistance to electrolytes
- Hydrocarbons
- Organic salts

3. External Reinforcing and Strengthening Tape

Properties:

- No open flame, electric or adhesives needed for application
- Product intended for use in hazardous environments and emergency situations
- Does not require special equipment
- Does not require additional pre-processing application - product is "ready for use"
- Ease of use and reduced application time
- High flexibility in application - can be applied to irregular shapes
- **Usable on pressured pipelines**
- Fast curing in moist atmosphere and slow curing in open air

- Usable on submerged pipes
- Operating temperatures up to 150° Celsius
- Adhesion to rubber, PVC, polyester, metal, fiberglass, concrete
- Hardness that allows further processing by abrasion
- **Resistant to pressures up to 10 bar**
- High electrical resistance
- Usable for the underground or overhead piping
- Nontoxic, non caustic product with high resistance to corrosion
- 3 years warranty and shelf life
- Does not require maintenance activities
- Resistant to UV radiation
- After curing the repair can be protected against corrosion by coating or insulating with cold applied materials (tapes)

Technical parameters:

Parametru	Valoare	Standard
Application time	2 minutes	
Curing initial / final	4 min / 90 min at 16 ⁰ C 3 min / 60 min at 25 ⁰ C 2 min / 45 min at 32 ⁰ C	
Compressive strength	300 N	ASTM D 695
Tensile strength - vertical	≥ 12 Mpa	ASTM D 688 -111
Tensile strength - Horizontal	≥ 32 Mpa	ASTM D 688
Impact Resistance	≥ 30 Kj/m ²	ASTM D 790-1-B
Resistance to exfoliation layer / layer	≥ 20N/25mm	ASTM D 638
Dielectric strength	300 V/mm	ASTM D 149
Operating temperature	5 – 150 ⁰ C	

Chemical resistance:

The product resists following types of chemical compounds:

- Drinking water , waste water, steam
- Solvents - acetone, toluene, ethyl alcohol
- Acids - hydrochloric acid, sulfuric acid
- Chemicals - ethylene glycol, xylene, ammonia
- Hydrocarbons
- Fuels - oil, diesel, gasoline
- Gas - Natural, LNG, LPG
- Salts of organic
- Fungicides
- Alkali

Content and packaging of Repairing set KRP-03-DX-10-N:

1pc. Mastic filler bar - 20 grams wrapped in polyethylene foil

1pc. Sealing tape 30, 50, 100 mm x Nm (depending on the pipe diameter)

1pc. Outer band of resistance 125 x 4,5 m, color black, sealed in tin foil

2 pairs of rubber or polyethylene gloves

All repair system elements are packed in an individual marked cardboard box.

Application:

Application surface should be cleaned of corrosion marks, paint, insulation scraps or other items that could contaminate the work area.

Cleaning will be done with abrasive/grinding tools or pickling solutions, depending on the existing situation. During repairs of pipes carrying flammable agents (oil, gas, etc.) anti-ex tools and materials shall be used for cleaning and surface preparation, according to the internal specifications and repair procedures of the service operating the network in question.

A rough grip is needed to be obtained through cleaning and surface preparation in order to get a good adhesion of the mastic and glass fiber band.

The mastic filler shall be mixed in the palm of the worker's hands, a pair of disposable gloves being used for this operation. When mixing the two components the temperature shall rise, confirming the polymerization reaction. Release will not exceed the temperature of 25° Celsius. The operation of mixing the components is considered to be over when the material acquires a homogeneous color. The block of sealant shall be applied directly over the hole or loss of material.

When bonding area presents a material loss but without piercing the wall of the tubular material, the sealant is applied by pressing and stretching it on the affected area, aiming at restoring the original exterior surface. After application, the outer surface of the sealant must remain smooth, without roughness or pronounced unevenness.

When applying sealant aiming to obturate holes or cracks in pipes under pressure (with a loss of wall thickness of 100%), this will be achieved by placing the mastic filler on the sealing band first and then on the aimed defect.

The applicator shall choose a band width corresponding to the diameter or length of the defect, so that after application, this shall be covered at least 15 to 20 mm left and right.

During the pipe wrapping the operator shall use protective gloves.

Fiberglass tape shall be removed from the sealed tin foil then sunk into a pot of water for a period of 1 to 1.5 minutes. After moisturizing, loosen the tape roll end and start wrapping. Time of application is limited to 2 minutes for the moisture roll of material. Application shall be made by overlapping the band in spiral successive turns, with at least 50% of its width. Throughout the application the tape has to be periodically wet in order to sustain the polymerization process and for maintaining a smooth, continuous, without air bubbles surface.

There shall be at least 4 layers (two windings with 50% overlap) to achieve the technical parameters of the application.