

TBK - Directional Drilling Kit

Multi-Layer Sleeve System For Directional Drilling

Canusa-CPS is a leading manufacturer of specialty pipeline coatings which, for over 30 years, have been used for sealing and corrosion protection of pipeline joints and other substrates. Canusa high performance products are manufactured to the highest quality standards and are available in a number of configurations to accommodate your specific project applications.

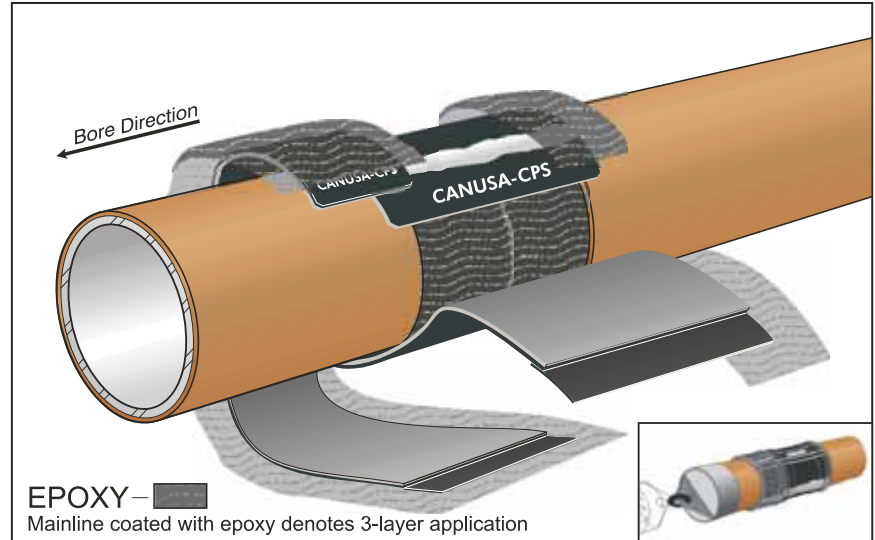
Product Description

Canusa's TBK - Directional Drilling Kit is a high performance system designed to protect welded joints on 2 and 3-layer PE, PP and FBE coated pipelines in directional drills. The system consists of three components: a primary heat-shrinkable sleeve which provides corrosion protection at the joint; a secondary heat-shrinkable sleeve which functions as a sacrificial wear cone; and a high-build epoxy top coat at the ends to provide additional protection to the system. An optional epoxy primer is also available for 3-layer systems. The system provides effective protection against abrasion and wear forces that occur during the pull-through operation. The system is fully compatible with cathodic protection systems, resists cathodic disbondment and is designed for a wide range of operating temperatures.

Features & Benefits

Term Corrosion Protection

Canusa's TBK - Directional Drilling Kit provides superior corrosion protection because of the protective shrink sleeve/epoxy primer combination. This primary sleeve provides excellent resistance to cathodic disbondment &



excellent durability against abrasion and chemical attack. The result is effective, long term protection against corrosion. Canusa's standard Directional Drilling Kit is TBK-65, but TBK's are available in a wide range of high performance adhesive systems designed specifically for your application.





Superior Abrasion Resistance

Canusa's TBK - Directional Drilling Kit utilizes multi-layer sleeves coated with a heat activated adhesive. The inherent performance properties associated with the sleeve adhesive reduces damage of the coating during pipeline installation and provides excellent resistance to soil stresses and pipe movements. The narrow, epoxy coated sacrificial sleeve is applied to the leading edge of the primary sleeve. The hardened epoxy topcoat provides the additional abrasion and wear resistance to withstand the forces during directional drilling.

Convenient Epoxy Kit

Epoxy primer is supplied in kits with all tools required to apply this system. The convenient ready-to-mix epoxy packaging minimizes installation time and labor costs while promoting high production rates.

Applications

-  Oil & Gas
-  Water Pipelines
-  Directional Drilling
-  Girth-Weld Joints

Configurations

-  2-Layer
-  3-Layer
-  Force-Cure Epoxy
-  Multi-Sleeve Kit
-  Wrapid Sleeve™

Pipe Sizes

-  55-1520 (2"-60")

Temperature Range

-  Up to 80°C (176°F)

TBK - Directional Drilling Kit

Product Selection Guide

Choose the appropriate TBK system based on selection steps 1-2-3.

Sleeve Operating Characteristics	Celsius	Fahrenheit	2-Layer Systems		2 or 3-Layer Systems		
			TBK-O	TBK-N	TBK-C50 ¹	TBK-65	TBK-80
Expected Pipe Surface Temp.	130°	266°					
Pipeline Operating Temp.	110°	230°					
Minimum Installation Temp.	90°	194°					
Resistance to Circumferential Forces	70°	158°	good	good	excellent	excellent	excellent
Resistance to Soil Stress	50°	122°	good	good	excellent	excellent	excellent
Resistance to Axial Pipe Movement	30°	86°	good	good	excellent	excellent	excellent
Main Line Coating Compatibility			FBE, PE, PP, PU	FBE, PE, PP	FBE, PE	FBE, PE, PP, HPCC	FBE, PE, PP, HPCC
			50 (122)	70 (158)	45 (113)	55 (131)	70 (158)
			60 (140)	80 (176)	55 (131)	65 (150)	80 (176)
			75 (167)	90 (195)	90 (195)	90 (195)	110 (240)

Selection Steps

1. Choose 2 or 3-layer TBK system based on mainline coating
2. Choose TBK system(s) based on expected pipe surface temperature during directional drilling and pipeline operating temperature
3. Choose ultimate TBK system based on pipeline performance requirements and pipe size range

Product must be installed by pre-heating to the minimum installation temperature.

Product must be installed by following the specific Product Installation Guide.

Typical Product Properties

Adhesive	Test Standard	Unit	TBK-O ²	TBK-N ²	TBK-C50 ¹	TBK-65	TBK-80	
			Softening point	ASTM E28	°C (°F)	102 (216)	124 (255)	90 (194)
Lap shear	DIN 30 672	N/cm ²	15	40	110	245	365	
Lap shear	ASTM D1002	psi	5.5	27	120	230	450	
Backing	Specific gravity	ASTM D792	0.95	0.95	0.93	0.93	0.95	
	Tensile strength	ASTM D638	24 (3480)	24 (3480)	24 (3480)	24 (3480)	22 (3150)	
	Elongation	ASTM D638	700	700	700	700	550	
	Hardness	ASTM D2240	52	52	48	50	55	
	Abrasion resistance	ASTM D1044	30	30	35	35	30	
	Volume Resistivity	ASTM D257	ohm-cm	10 ¹⁸	10 ¹⁸	10 ¹⁷	10 ¹⁷	2.5 x 10 ¹⁸
Sleeve	Dielectric Voltage Brkdwn	ASTM D149	20	20	27	27	39	
	Impact	DIN 30 672	class C	pass	pass	pass	pass	pass
	Indentation	DIN 30 672	class C	pass	pass	pass	pass	pass
	Peel	ASTM D1000	N/cm (pli)	80 (46)	115 (66)	120 (70)	120 (70)	45 (26)
	Peel	DIN 30 672	N/cm	65	90	113	86	55 (32)
	Cathodic Disbondment	ASTM G8	mm rad	8	17	11	10	12
	Water Absorption	ASTM D570	%	0.05	0.05	0.05	0.05	0.05
Low Temp. Flexibility	ASTM D2671-C	°C (°F)	-14 (7)	-15 (5)	-28 (-18)	>-26 (-18)	>-20 (-4)	
DIN Approval	DIN 30 672	class	C30	--	C50	--	--	

Epoxy Kit Usage

Pipe Diameter (inches)	Pipe Diameter (mm)	Kits Required*	
		2-layer	3-layer
4½	115	1	1
6.6	170	1	1
8.6	230	1	1
10¾	280	1	2
12¾	315	1	2
14	355	1	2
16	400	2	2
18	450	2	2
20	500	2	3
24	610	2	3
28	710	2	3
30	760	2	3
36	915	3	4
42	1060	3	4
48	1220	4	5
60	1520	4	6

Application Guidelines

Refer to specific product Installation Guide.

Canusa E Primer Properties

Pot life @ 23°C (73°F) 20 minutes
 Typical epoxy coated thickness 4 - 6 mils
 Shelf life @ 23°C, out of sunlight 3 years

* Epoxy Kits Required uses the standard 170 mL Canusa E Primer Kit and assumes a 300mm (12") cutback, a 0.25mm (10 mil) epoxy overcoat thickness and a 0.15mm (6 mil) mainline epoxy thickness covering (for 3-layer systems).

How To Order:

Dimensions & Ordering Info	Ordering Options - TBK - Directional Drilling Kit (TBK-65 is standard product for T < 65°C)				
	TBK-O ²	TBK-N ²	TBK-C50 ¹	TBK-65	TBK-80
	Colour ▶ BK-Black				
	Sleeve Width ▶				
	PE, PP Primary Sleeve - 450, 600mm (18, 24") Sacrificial Sleeve - 150mm (6")		FBE, PU Primary Sleeve - 300, 450mm (12, 18") Sacrificial Sleeve - 150mm (6")		
	55-610 mm (2-24")	55-315 mm (2-12")	55-1525 mm (2-60")	55-1525 mm (2-60")	55-1525 mm (2-60")
	Pipe Size Range ▶				
	Primer ▶ Canusa "E" Epoxy				
Adhesive (thickness as supplied) ▶					
1.5 mm (60 mils)	1.1 mm (45 mils)	1.7 mm (65 mils)	1.1 mm (45 mils)	1.25 mm (50 mils)	
Backing (thickness as supplied) ▶					
0.63 mm (25mils)	0.9 mm (36mils)	0.9 mm (36mils)	0.9 mm (36mils)	0.75 mm (30mils)	
Configuration ▶					
TBK-O ²	TBK-N ²	TBK-C50 ¹	TBK-65	TBK-80	

¹ TBK-C50 has been specially formulated for the European DIN 30 672 standard (C50 approved).
² Denotes 2-layer system only.

The above represent standard ordering options.

Consult your Canusa representative for any unique project requirements.



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