

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.

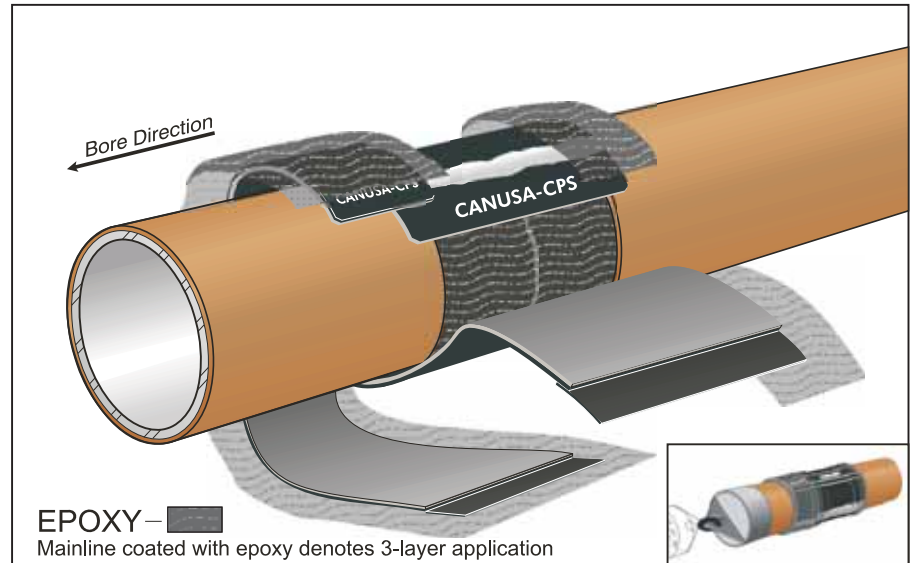
Product Description

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

Long 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



Wrap Sleeve™

Pipe Sizes



55-1520 (2"-60")



Temperature Range

Up to 80°C (176°F)

The product selection chart shown here is intended as a guide for standard products. Consult your Canusa representative for specific projects or unique applications.

TBK - Directional Drilling Kit

Product Selection Guide

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

Selection Steps

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°					
Resistance to Soil Stress	50°	122°					
Resistance to Axial Pipe Movement	30°	86°					
Main Line Coating Compatibility							
			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)
			good	good	excellent	excellent	excellent
			good	good	excellent	excellent	excellent
			good	good	excellent	excellent	excellent
			FBE, PE, PP, PU	FBE, PE, PP	FBE, PE	FBE, PE, PP, HPCC	FBE, PE, PP, HPCC

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)	94 (201)	124 (255)	
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	Shore D	52	52	48	50	55
	Abrasion resistance	ASTM D1044	mg	30	30	35	35	30
	Volume Resistivity	ASTM D257	ohm-cm	10 ¹⁸	10 ¹⁸	10 ¹⁷	10 ¹⁷	2.5 x 10 ¹⁸
	Dielectric Voltage Brkdown	ASTM D149	kV/mm	20	20	27	27	39
Sleeve	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)	Kits Required*	2-layer		3-layer	
4 1/2	115	1	1		
6.6	170	1	1		
8.6	230	1	1		
10 3/4	280	1	2		
12 3/4	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	
	TBK-65 115-450 BK					
	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")		
	Pipe Size Range	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")
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-60 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.



A SHAWCOR COMPANY

www.canusacps.com

Canada

CANUSA-CPS
a division of SHAWCOR LTD.
25 Bethridge Road
Rexdale, Ontario
M9W 1M7,
Canada
Tel: +1 (416) 743-7111
Fax: +1 (416) 743-5927

U.S.A./Latin America

CANUSA-CPS
a division of SHAWCOR INC.
2408 Timberloch Place
Building C-8
The Woodlands, Texas
77380, U.S.A.
Tel: +1 (281) 367-8866
Fax: +1 (281) 367-4304

Europe/Middle East

CANUSA-CPS
a division of Canusa Systems Ltd.
Unit 3, Sterling Park
Gatwick Road
Crawley, West Sussex
England RH10 9QT
Tel: +44 (1293) 541254
Fax: +44 (1293) 541777

Asia/Pacific

CANUSA-CPS
a division of SHAWCOR LTD.
#05-31, Blk 52, Frontier
Ubi Avenue 3
Singapore
408867
Tel: +65-6749-8918
Fax: +65-6749-8919

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

Printed on recycled paper. Recyclable.

PDS-NA-TBK-rev015