

Canusa is a leading manufacturer of crosslinked, heat shrinkable products 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 Wrapid Sleeve™, CanusaWrap™, CanusaTube™, and Wrapid Tape™ 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

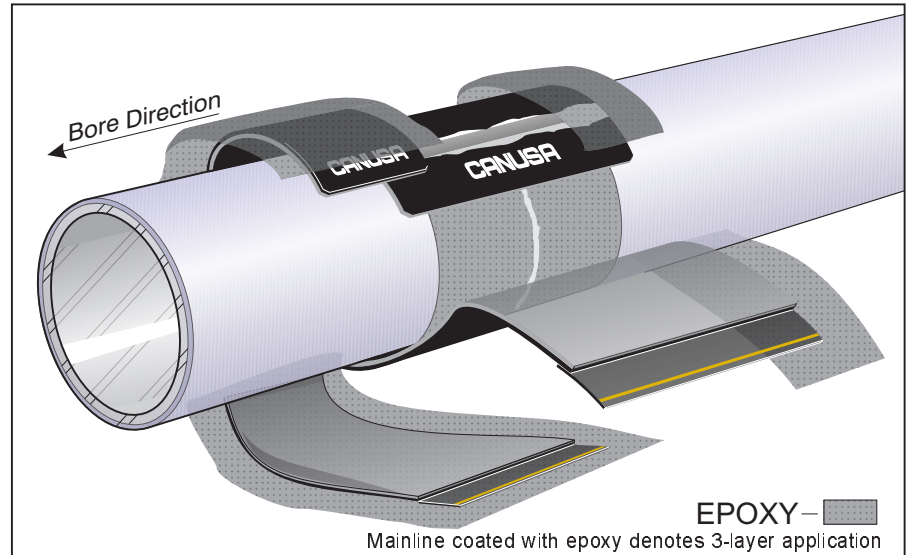
#### Long Term Corrosion Protection.

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

Canusa is registered to **ISO 9002-1994.**

## TBK - Directional Drilling Kit

### Multi-Layer Sleeve System For Directional Drilling.



corrosion. Canusa's standard Directional Drilling Kit is TBK-65, but TBK's are available in a wide range of high performance adhesive systems, which are 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.

#### Available Configurations

<p>Wrapid Sleeve™ (K)</p>	✓
<p>CanusaWrap™ (W)</p>	✓
<p>CanusaTube™ (P)</p>	
<p>Wrapid Tape™ (H)</p>	

#### Shrink Ratio

<p>Standard</p>	✓
<p>High Shrink</p>	

## 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 <sup>1</sup>	TBK-65	TBK-E
Expected Pipe Surface Temp.	130°	266°					
Pipeline Operating Temp.	110°	230°					
Minimum Installation Temp.	90°	194°					
Resistance to Circumferential Forces	70°	158°	65 (150)	85 (185)	70 (158)	74 (165)	85 (185)
Resistance to Soil Stress	50°	122°	60 (140)	80 (176)	55 (131)	65 (150)	80 (176)
Resistance to Axial Pipe Movement	30°	86°	75 (167)	90 (195)	90 (195)	90 (195)	115 (240)
Main Line Coating Compatibility			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	FBE, PE

- Choose 2 or 3-layer TBK system based on mainline coating
  - Choose TBK system(s) based on expected pipe surface temperature during directional drilling and pipeline operating temperature
  - 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

	Test Standard	Unit	TBK-O <sup>2</sup>	TBK-N <sup>2</sup>	TBK-C50 <sup>1</sup>	TBK-65	TBK-E
Adhesive	Softening point	ASTM E28	102 (216)	124 (255)	90 (194)	94 (201)	105 (221)
	Lap shear	DIN 30 672	15	40	110	245	280
	Lap shear	ASTM D1002	5.5	27	120	230	375
Backing	Specific gravity	ASTM D792	0.95	0.95	0.93	0.93	0.93
	Tensile strength	ASTM D638	24 (3480)	24 (3480)	24 (3480)	24 (3480)	24 (3480)
	Elongation	ASTM D638	700	700	700	700	700
	Hardness	ASTM D2240	52	52	48	50	48
	Abrasion resistance	ASTM D1044	30	30	35	35	35
	Volume Resistivity	ASTM D257	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>11</sup>
	Dielectric Voltage Brkdwn	ASTM D149	20	20	27	27	27
Sleeve	Impact	DIN 30 672	pass	pass	pass	pass	pass
	Indentation	DIN 30 672	pass	pass	pass	pass	pass
	Peel	ASTM D1000	80 (46)	115 (66)	120 (70)	120 (70)	120 (70)
	Peel	DIN 30 672	65	90	113	86	85
	Cathodic Disbondment	ASTM G8	8	17	11	10	15
	Water Absorption	ASTM D570	0.05	0.05	0.05	0.05	0.05
	Low Temp. Flexibility	ASTM D2671-C	-14 (7)	-15 (5)	-28 (-18)	>-26 (-18)	-20 (-4)
DIN Approval	DIN 30 672	C30	--	C50	--	--	

## Epoxy Kit Usage

Pipe Diameter (inches)	Kits Required*	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	2
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

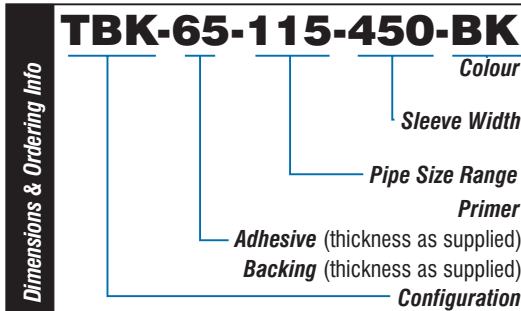
**Application Guidelines**  
Refer to specific product Installation Guide.

**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	2 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:



Ordering Options - TBK - Directional Drilling Kit (TBK-65 is standard product)				
TBK-O <sup>2</sup>	TBK-N <sup>2</sup>	TBK-C50 <sup>1</sup>	TBK-65	TBK-E
BK-Black				
PE Primary Sleeve - 450, 600mm (18, 24") Sacrificial Sleeve - 150mm (6")		FBE 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")
Canusa "E" Epoxy				
1.5 mm (60 mils)	1.1 mm (45 mils)	1.65 mm (65 mils)	1.1 mm (45 mils)	1.0 mm (40 mils)
0.63 mm (25 mils)	0.9 mm (36 mils)	0.9 mm (36 mils)	0.9 mm (36 mils)	0.9 mm (36 mils)

<sup>1</sup> TBK-C50 has been specially formulated for the European DIN 30 672 standard (C50 approved).

<sup>2</sup> Denotes 2-layer system only.

The above represent standard ordering options.

Consult your Canusa representative for any unique project requirements.



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