

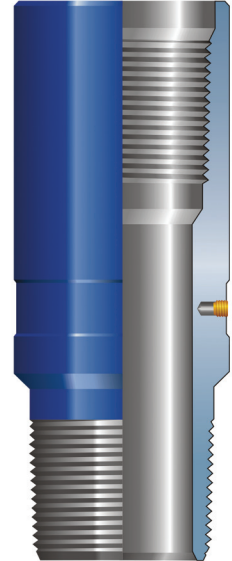
Purpose

The **Brico RA Marker Sub** provides a simple and effective means of achieving tubing / drill pipe depth control during TCP operations. The Marker sub may be used in other circumstances where depth control accuracy is required. This marker sub provides a side entry port to safely house a radioactive pellet which is highly visible marker when using a thru-tubing gamma ray logging tool. The radioactive pellet is typically a 1.0 microcurie of cobalt 60.

Operation

The Brico RA Marker Sub is normally placed in the tubing string approximately 20 to 30 meters above the "top shot" in the perforating gun assembly. The "top shot" to the RA Marker Sub should be accurately measured for length, this information along with the thru-tubing gamma log may be then referenced against the well's open hole gamma signature, the wireline operator can then determine the correct measured tubing depth for the TCP assembly.

Note: The radioactive cobalt 60 pellet is sold separately, Government rules for storage, transportation and handling apply to this product.

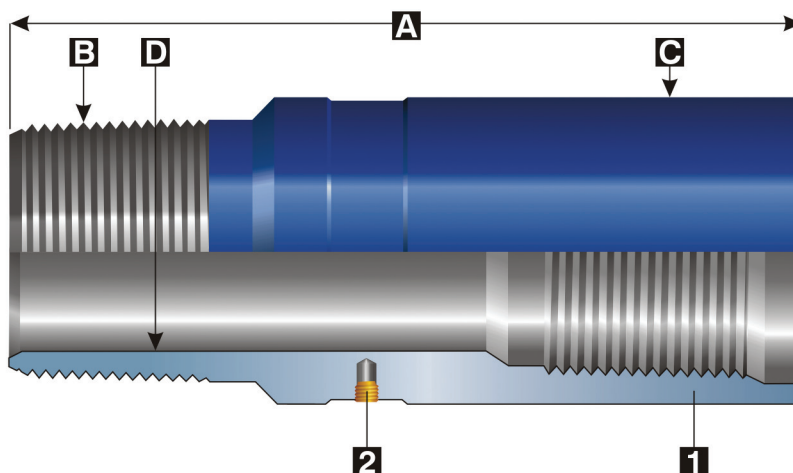


Specifications

RA Marker Sub (Product N° 33-20)				
Thread Size and Type	2 3/8" EUE Pin (60.33 mm)	2 7/8" EUE Pin (73.0 mm)	3 1/2" EUE Pin (88.9 mm)	3 1/2" IF (88.9 mm)
Assembly Number	33-2006001-00	33-2007301-00	33-2008901-00	33-2008902-00
Pressure Rating	10,000 psi (69 mPa)	10,000 psi (69 mPa)	10,000 psi (69 mPa)	10,000 psi (69 mPa)
Tensile Strength	Manufactured from P-110 / L-80 for H2S applications / API Material			
Maximum Temperature	Not Applicable			
Minimum ID	2.00" (50.80 mm)	2.44" (61.97 mm)	3.00" (76.20 mm)	2.69" (68.33 mm)
Maximum OD	3.062" (77.8 mm)	3.67" (93.22 mm)	4.50" (114.30 mm)	4.75" (120.65 mm)
Length	8" (203.20 mm)	8" (203.20 mm)	8" (203.20 mm)	24" (609.60 mm)
Shipping Weight	7 lbs (3.17 kg)	8.5 lbs (3.8 kg)	17 lbs (7.7 kg)	42 lbs (19.05 kg)
Redress Kit Number	Not Applicable			

33-20 RA Marker Sub, Dimentional Data

Dim	33-2006001-00		33-2007901-00		33-2008901-00		33-2008902-00	
	In	mm	In	mm	In	mm	In	mm
A	8	203.2	8	203.2	8	203.2	24	609.6
B	2 ³ / ₈ " EUE	60.33 EUE	2 ⁷ / ₈ " EUE	73.0 EUE	3 ¹ / ₂ " EUE	89.9 EUE	3 ¹ / ₂ " IF 4 T.P.I.	89.9 IF 4 T.P.I.
C	3.06	77.7	3.64	92.4	4.500	114.3	4.75	120.6
D	1.995	50.6	2.441	62.0	2.992	75.9	2.688	68.2



33-20 RA Marker Sub, Parts List

Item	Description	33-2006001-00	33-2007301-00	33-2008901-00	33-2008902-00
		Part Number			
1	Body	33-2006001-01	33-2007301-01	33-2008901-01	33-2008902-01
2	1/4" - 20 UNC x 1/4" Set Screw	82-2252520-01	82-2252520-01	82-2252520-01	82-2252520-01