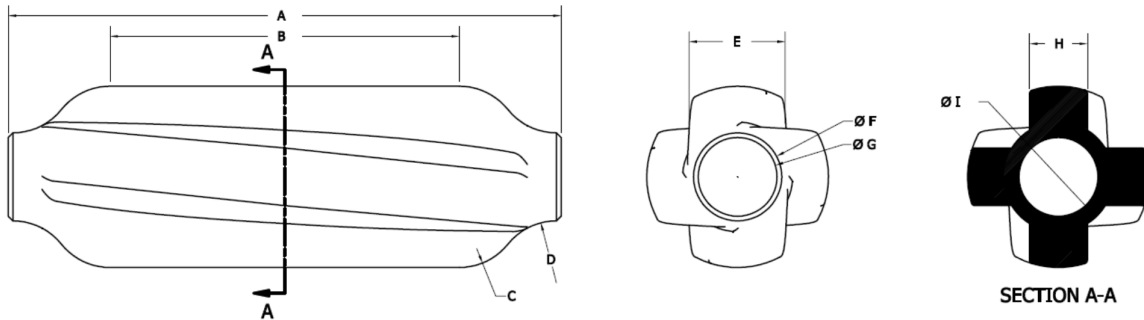


Helix™ Sucker Rod Guide

Helix™ injected molded guides.

Dimensions:



Nominal size	Dimension [mm]				
Tubing	A	B*	E*	H	Rod sizes
2 7/8"	178	~110	~30	18.6	3/4", 7/8" and 1"

* Actual sizes may differ according to rod size.

Rod size	Guide total volume	Erodible wear volume	Tubing arc scavenged
3/4"	219 cm ³ (13.4 in ³)	84.2 cm ³ (5.14 in ³)	222°
7/8"	211 cm ³ (12.9 in ³)	60.7 cm ³ (3.70 in ³)	231°
1"	199 cm ³ (12.2 in ³)	37.6 cm ³ (2.30 in ³)	231°

Materials:

Polyphenylene sulfide (PPS). 40% glass reinforced.

Property	Typical values**	Test Standard
Density	1.65 g/cm ³	ISO 1183
Tensile strength	195 MPa	ISO 527-2/1A
Elongation at break	1.9 %	ISO 527-2/1A
Tensile Modulus	14700 MPa	ISO 527-2/1A
Unnotched Charpy impact strength @23°C	53 kJ/m ²	ISO 179/1eU
Unnotched Charpy impact strength @-40°C	53 kJ/m ²	ISO 179/1eU
Notched Charpy impact strength @23°C	10 kJ/m ²	ISO 180/1eA
Notched Charpy impact strength @-40°C	10 kJ/m ²	ISO 179/1eA

Polyphthalamide polymer (PPA). 33% glass reinforced.

Property	Typical values**	Test Standar
Density	1.44 g/cm ³	ISO 1183
Tensile strength	193 MPa	ASTM D638
Elongation at break	2.1 %	ASTM D638
Tensile Modulus	13100 MPa	ASTM D638

** Values shown have been taken from a reduced number of tests and shall not be used to establish specifications.

Rod guide properties:

Property	PPS	PPA
Color	White	Black
Maximum Service Temperature*	200°C	165°C
Dynamic Friction Coefficient	0.3	0.25
Fiberglass Component	40%	33%

*Maximum temperature limitation is dependent on well conditions.

Please contact Tenaris' Technical Sales Representative for further assistance.