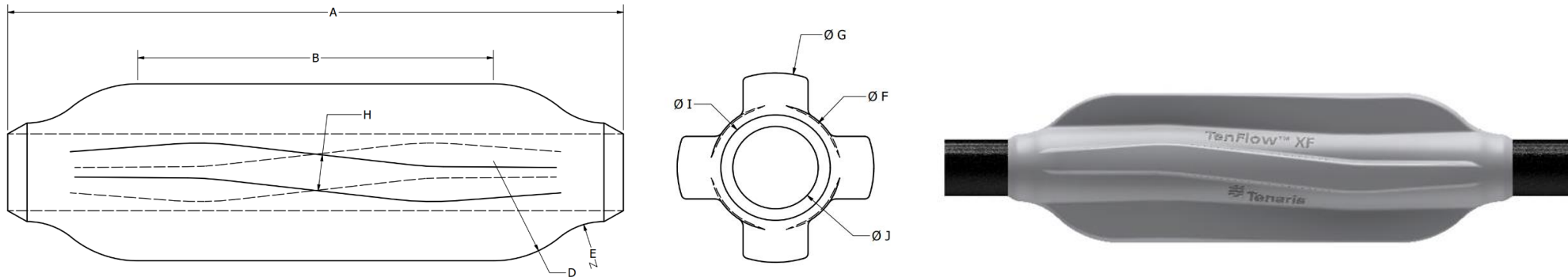


## TenFlow™ XF Sucker Rod Guide

### Product Description:

TenFlow XF™ is a Tenaris proprietary Beam Pumping injected sucker rod guide designed to minimize the turbulence

### Dimensions:



Nominal size			Dimensions											
Tubing	Guide length	Rod Size	A		B		C		D (projected)		ØF		ØG	
			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
2 3/8"	7	3/4"	7.6	193	4.6	117	0.5	13	0.8	20	1.1	28	1.9	47
		7/8"			4.8	122					1.3	33		
		1"			5.0	127					1.4	36		
2 7/8"	7	3/4"	7.6	193	4.1	104	0.5	13	0.8	20	1.1	28	2.3	58
		7/8"			4.2	107					1.3	33		
		1"			4.4	112					1.4	36		
		1 1/8"			4.5	114					1.5	38		
3 1/2"	7	3/4"	7.6	193	3.7	94	0.6	15	0.8	20	1.1	28	2.7	69
		7/8"			3.9	99					1.3	33		
		1"			3.9	99					1.4	36		
		1 1/8"			4.1	104					1.5	38		

(\*) Dimensions under development

Nominal size			Guide Total Volume		Erodible Wear Volume		Coupling Reference	Tubing Arc
Tubing	Guide length	Rod Size	(cm3)	(in3)	(cm3)	(in3)		
2 3/8"	7	3/4"	121.9	7.4	17.8	1.1	3/4" FS	194
		7/8"	119.4	7.3	18.2	1.1	7/8" SH	
		1"	115.9	7.1	18.5	1.1	3/4"FS	
2 7/8"	7	3/4"	159.6	9.7	53.3	3.3	3/4" FS	154
		7/8"	157.9	9.6	38.2	2.3	7/8" FS	
		1"	156.2	9.5	23.3	1.4	1" SH	
		1 1/8"	153.4	9.4	23.8	1.5	1" SH	
3 1/2"	7	3/4"	214.9	13.1	100.2	6.1	3/4" FS	144
		7/8"	211.5	12.9	82.4	5	7/8" FS	
		1"	208	12.7	46.5	2.8	1" FS	
		1 1/8"	204.9	12.5	40.5	2.5	1 1/8" FS	

(\*) Dimensions under development

Materials:

Typical values for Polyphenylene sulfide (PPS) 40% and 30% glass reinforced are displayed in the following table

Property	Test Standard PPS	PPS30	PPS40
Density	ISO 1183	1.58 g/cm3	1.65 g/cm3
Tensile Strength	ISO 527-2/1A	170 MPa	195 MPa
Elongation at break	ISO 527-2/1A	1.9 %	1.9 %
Tensile Modulus	ISO 527-2/1A	12000 MPa	14700 MPa
Unnotched Charpy impact strength @23°C	ISO 179/1eU	34 kJ/m2	53 kJ/m2
Unnotched Charpy impact strength @-40°C	ISO 179/1eU	34 kJ/m2	53 kJ/m2
Notched Charpy impact strength @23°C	ISO 180/1eA	9 kJ/m2	10 kJ/m2
Notched Charpy impact strength @-40°C	ISO 179/1eA	9 kJ/m2	10 kJ/m2

Typical values for Polyphenylene polymer (PPA) unfilled (0%) and with a 33% glass reinforced are displayed in the following table

Property	Test Standard PPA	PPA00(**)	PPA33(**)
Density	ISO 1183	1.1 g/cm3	1.44 g/cm3
Tensile Strength	ASTM D638	55 MPa	193 MPa
Elongation at break	ASTM D638	10 %	2.1 %
Tensile Modulus	ASTM D638	1793 MPa	13100 MPa

Typical values for Aliphatic Polyketone (PK) with a 20% glass reinforced are displayed in the following table.

Property	Test Standard PK	PK20
Density	D792	1.37 g/cm3
Tensile Strength	ASTM D638	103 MPa
Elongation at break	ASTM D638	6 %
Tensile Modulus	ASTM D638	4482 MPa

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

Rod guide properties:

Property	PPS30	PPS40	PPA00	PPA33	PK20
Color	Grey	White	Natural	Black	Natural
Maximum Service Temperature*	200 °C	200 °C	165 °C	165 °C	120 °C
Dynamic Friction Coefficient	0.28	0.3	0.22	0.25	0.2
Fiberglass Content	30 %	40 %	0 %	33 %	20 %

\*Maximum temperature limitation is dependent on well condition. Please contact Tenaris's Technical Sales Representative for further assistance

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