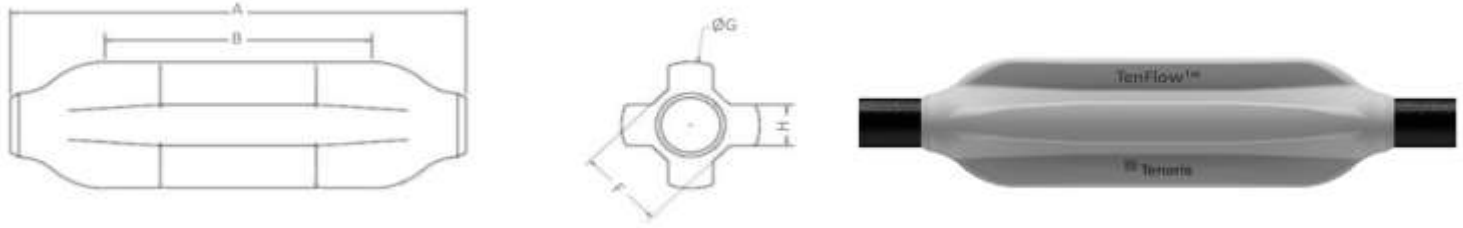


TenFlow™ Sucker Rod Guide

Product Description:

TenFlow™ is a Tenaris proprietary Beam Pumping injected sucker rod guide designed to maximize the Erodible Wear Volume (EWV) minimizing the flow turbulence

Dimensions:



Nominal size			Dimensions											
Tubing	Guide length	Rod Size	A		B		F		ØG		H			
			in	mm	in	mm	in	mm	in	mm	in	mm		
2 3/8"	5	3/4"	5.50	140	3.07	78	1.22	31	1.85	47	0.63	16		
7/8"		1.3					33							
2 7/8"		3/4"			2.68	68	1.22	31	2.30	58	0.75	19		
		7/8"					1.34	34						
		1"					1.45	37						
2 3/8"	7	3/4"	7.60	193	5.00	127	1.22	31	1.85	47	0.63	16		
7/8"		1.3					33							
2 7/8"		3/4"			4.52	115	1.22	31	2.30	58	0.75	19		
		7/8"					1.34	34						
		1"					1.45	37						
3 1/2"		3/4"			4.41	112	1.22	31	2.64	68.6	0.75	19		
		7/8"											1.3	33
		1"											1.45	37
		1 1/8"											1.57	40
2 7/8"	9	3/4"	8.80	224	5.87	149	1.22	31	2.30	58	0.75	19		
		7/8"					1.34	34						
		1"					1.45	37						

Nominal size			Guide Total Volume		Erodible Wear Volume		Coupling Reference	Tubing Arc
Tubing	Guide length	Rod Size	(cm3)	(in3)	(cm3)	(in3)		
2 3/8"	5	3/4"	105.00	6.4	15.90	1	3/4" FS	159°
		7/8"	100.40	6.1	16.40	1	7/8" SH	
2 7/8"		3/4"	156.10	9.5	58.10	3.5	3/4" FS	168°
		7/8"	149.50	9.1	40.70	2.5	7/8" SH	
2 3/8"	7	1"	143.80	8.8	24.00	1.5	1" SH	159°
		3/4"	156.60	9.6	25.50	1.6	3/4" FS	
		7/8"	146.50	8.9	25.50	1.6	7/8" SH	
2 7/8"		3/4"	229.60	14	87.70	5.4	3/4" FS	168°
		7/8"	221.20	13.5	62.60	3.8	7/8" SH	
3 1/2"		1"	211.90	12.9	37.00	2.3	1" SH	132°
		3/4"	277.80	17	134.00	8.2	3/4" FS	
		7/8"	268.30	16.4	107.00	6.5	7/8" SH	
	1"	260.50	15.9	55.70	3.4	1" FS		
2 7/8"	9	1 1/8"	253.30	15.5	46.40	2.8	1 1/8" SH	168°
		3/4"	284.80	17.4	111.60	6.8	3/4" FS	
		7/8"	273.80	16.7	79.80	4.9	7/8" SH	
		1"	262.30	16	47.60	2.9	1" FS	

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 Polyphthalamide 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 Polyketone polymer (PKTS) with a 20% glass reinforced and Ultra Hight Temperature polymer are displayed in the following table

Property	Test Standard PKTS and UHT20	PKTS(**)	UHT20(**)
Density	ISO 1183	1.37 g/cm3	1.45 g/cm3
Tensile Strength	ISO 527-2/1A	103 MPa	156 MPa
Elongation at break	ISO 527-2/1A	4 %	3 %
Tensile Modulus	ISO 527-2/1A	5050 MPa	8150 MPa
Notched Charpy impact strength @23°C	ISO 180/1eA	9 kJ/m2	6 kJ/m2

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

Rod guide properties:

Property	PPS30	PPS40	PPA00	PPA33	PKTS	UHT20
Color	Grey	White	Natural	Black	Natural/Beige	Natural/Beige
Maximum Service Temperature*	180 °C	180 °C	120 °C	120 °C	140 °C	250 °C
Dynamic Friction Coefficient	0.28	0.3	0.22	0.25	0.15	0.2
Fiberglass Content	30 %	40 %	0 %	33 %	20 %	20 %

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

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