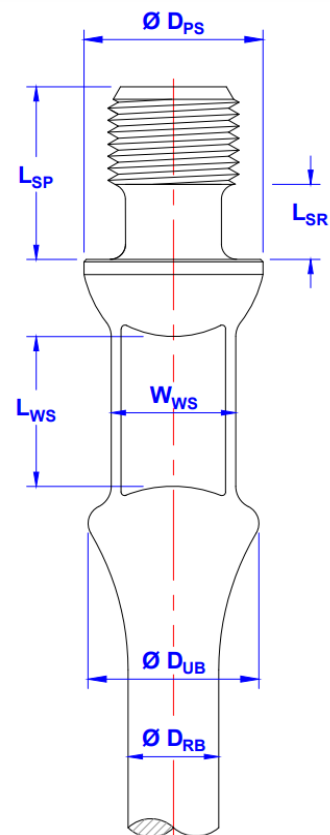


AlphaRod® X-Torque Sucker & Pony Rod

Dimensions:

X-Torque is a Tenaris special connection designed to support high torques in progressive cavity pumping (PCP) operations.

Nominal Size		Units	DRB	DPS	WWS	LWS	DUB	LSR	LSP
Rod	Pin								
1"	7/8"	max. in (mm)	1.009 (25.63)	1.630 (41.40)	1.031 (26.19)	-	1.504 (38.20)	0.425 (10.79)	1.948 (49.49)
		min. in (mm)	0.982 (24.94)	1.615 (41.02)	0.969 (24.61)	1.250 (31.80)	1.378 (35.00)	0.394 (10.00)	1.909 (48.50)
1 1/8"	7/8"	max. in (mm)	1.126 (28.60)	1.708 (43.38)	1.350 (34.29)	-	1.717 (43.60)	0.425 (10.79)	1.937 (49.21)
		min. in (mm)	1.096 (27.84)	1.693 (43.00)	1.256 (31.90)	1.250 (31.80)	1.568 (39.82)	0.394 (10.00)	1.875 (47.63)
1 1/8"	1"	max. in (mm)	1.126 (28.60)	2.005 (50.93)	1.350 (34.29)	-	1.909 (48.49)	0.645 (16.39)	1.937 (49.21)
		min. in (mm)	1.095 (27.81)	1.990 (50.55)	1.256 (31.90)	1.500 (38.10)	1.724 (43.79)	0.614 (15.60)	1.875 (47.63)
1 1/4"	1"	max. in (mm)	1.251 (31.78)	2.005 (50.93)	1.343 (34.11)	-	2.087 (53.01)	0.425 (10.79)	1.937 (49.21)
		min. in (mm)	1.220 (30.99)	1.990 (50.55)	1.259 (31.98)	1.500 (38.10)	1.851 (47.02)	0.394 (10.00)	1.875 (47.63)
1 1/4"	1 1/8"	max. in (mm)	1.251 (31.78)	2.265 (57.53)	1.531 (38.89)	-	2.191 (55.66)	0.425 (10.79)	2.187 (55.56)
		min. in (mm)	1.220 (30.99)	2.235 (56.77)	1.457 (37.01)	1.625 (41.28)	1.990 (50.56)	0.394 (10.00)	2.125 (53.98)
1 1/2"	1 1/8"	max. in (mm)	1.501 (38.13)	2.265 (57.53)	1.531 (38.89)	-	2.191 (55.66)	0.425 (10.79)	2.187 (55.56)
		min. in (mm)	1.471 (37.36)	2.235 (56.77)	1.457 (37.01)	1.625 (41.28)	1.990 (50.56)	0.394 (10.00)	2.125 (53.98)



Sucker Rods Nominal Lengths: 25, 30 ft (7.62, 9.14 m)

Pony Rods Nominal Lengths:* 2, 4, 6, 8, 10, 12 ft (0.61, 1.22, 1.83, 2.44, 3.05, 3.66 m)

*Other lengths might be available upon request.

Steel Grades:

The AlphaRod® series was created to overcome more demanding requirements and offer a solution to fatigue and corrosion-fatigue problems. During oil production sucker rods face operative productions that get tougher by the day. Mature conventional wells and non-conventional wells expose sucker rods in such ways that lead to an increase in premature fails. The new steel grades of the AlphaRod® generation were specially designed to satisfy these operative conditions.

Chemical Composition:

Typical chemical compositions (wt%) listed in the following table.

Grade	C	Mn	Si	S	P	Cr	Ni	Mo	Others
AlphaRod® HS	0.25	0.55	0.25	0.01 max	0.01 max	0.95	0.30 max	0.45	B: 0.01 max, Ti: 0.1 max, Nb: 0.1 max
AlphaRod® CS	0.25	0.55	0.25	0.01 max	0.01 max	0.95	0.30 max	0.45	B: 0.01 max, Ti: 0.1 max, Nb: 0.1 max

Mechanical Properties:

Mechanical properties are listed in the following table.

Grade	Yield Strength (0.2% offset)	Ultimate Tensile Stress	Elongation (8")	Reduction of area	Hardness
AlphaRod® HS	min 135 kpsi (min 931 MPa)	145 to 160 kpsi (1000 to 1103 MPa)	13% min	60% min	35 HRC
AlphaRod® CS	min 110 kpsi (min 758 MPa)	118 to 133 kpsi (814 to 917 MPa)	14% min	70% min	26 HRC

Maximum operative torque:

The maximum operative torque values were determined in full-scale tests.

Tenaris recommends the end user to determine the von mises effective stress of each application and not to exceed the rod body yielding stress.

Tenaris recommends the use of a 0.75 Service Factor depending on the operative conditions (dynamic loading and environment).

Nominal Size		Maximum Operative Torque	
Rod	Pin	AlphaRod® HS	AlphaRod® CS
1"	7/8"	1380 Lb.ft (1870 N.m)	1124 Lb.ft (1523 N.m)
1 1/8"	7/8"	1380 Lb.ft (1870 N.m)	1124 Lb.ft (1523 N.m)
1 1/8"	1"	2354 Lb.ft (3190 N.m)	1915 Lb.ft (2596 N.m)
1 1/4"	1"	3210 Lb.ft (4352 N.m)	2622 Lb.ft (3544 N.m)
1 1/4"	1 1/8"	3210 Lb.ft (4352 N.m)	2622 Lb.ft (3544 N.m)
1 1/2"	1 1/8"	4270 Lb.ft (5780 N.m)	3477 Lb.ft (4714 N.m)

Maximum Pulling Force:

Grade	Rod Outer Diameter				
	1"	1 1/8"	1 1/8"	1 1/4"	1 1/2"
AlphaRod® HS	91.9 klb (41.8 t)	116.4 klb (52.9 t)	116.4 klb (52.9 t)	148.9 klb (67.7 t)	214.5 klb (97.5 t)
AlphaRod® CS	74.8 klb (34 t)	94.8 klb (43.1 t)	94.8 klb (43.1 t)	121.3 klb (55.1 t)	174.6 klb (79.4 t)

To prevent tensile failures, the weight indicator pull on a "like new" condition rod string should not exceed 90% of the yield strength of the smallest diameter sucker rod, based on its known size and grade. Maximum pulling force values herein informed were calculated based on the 90% of the specified minimum yield strength at the smallest section of a given rod.

Color Code:

Rod's ends are painted according to the following table:

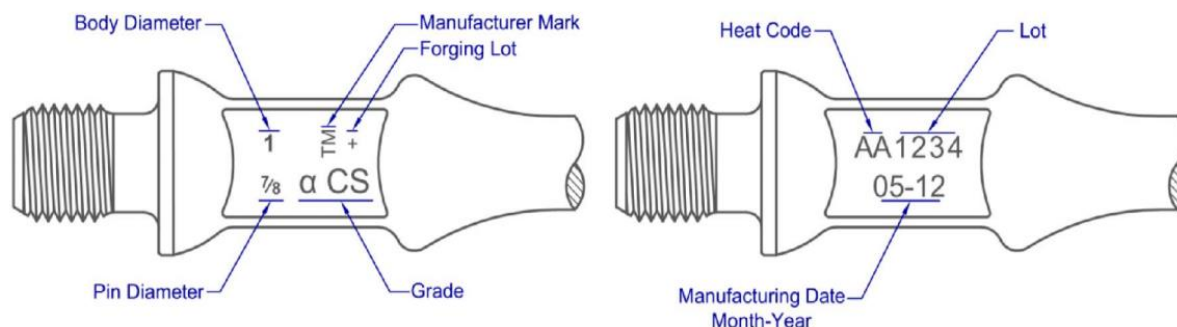
Grade	Color Code
AlphaRod® HS	Gold
AlphaRod® CS	Silver

*Displayed colors are for guidance only.

Non Destructive Testing:

All raw material is carefully inspected using electromagnetic and/or ultrasonic methods to ensure the soundness of the final product.

Marking:



Labeling:*



Metalmecánica S.A.
Ruta 55 Km. 754,1
Villa Mercedes (San Luis)
Made in Argentina

BOX N°		QTY:
PRODUCT: SUCKER RODS		DATE:
SAP CODE:		
SPECIFICATION:		
ROD DIAM:	NET WEIGHT: (kg)	
END DIAM:		
GRADE:		
LENGTH: (ft)		
SALES ORDER:		PACKAGING TYPE:
DESTINATION:		THREAD PROTECTION:

*Image for reference only.

Ordering Information:

When placing an order please attach the following information:

PDS: SRXTAR
Product Family: Sucker Rod (or Pony Rod)
Body Diameter: 1"
Pin Diameter: 7/8"
Grade: AlphaRod® HS
Length: 25 ft

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