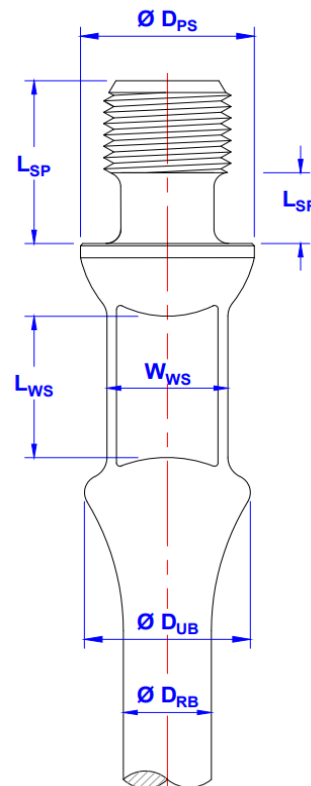


X-Torque API grade Sucker & Pony Rod

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"	max. in (mm)	1.009 (25.63)	2.005 (50.92)	1.350 (34.29)	-	1.910 (48.50)	0.425 (10.79)	1.938 (49.21)
		min. in (mm)	0.982 (24.94)	1.990 (50.55)	1.256 (31.90)	1.500 (38.10)	1.721 (43.70)	0.394 (10.00)	1.875 (47.63)



Nominal Size		Units	DRB	DPS	WWS	LWS	DUB	LSR	LSP
Rod	Pin								
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:

Different steel grades are available, depending on the type of load and the corrosion level in the wells. All these materials comply with API 11B.

Chemical Composition:

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

Grade	C	Mn	Si	S	P	Cr	Ni	Mo	Others
DA Alloy	0.40-0.45	0.75-1.00	0.15-0.35	0.025 max	0.025 max	0.80-1.10	0.25 max	0.15-0.25	-
DS Special	0.29-0.37	0.70-0.95	0.15-0.35	0.025 max	0.025 max	0.80-1.10	1.65-2.00	0.20-0.30	V: 0.04-0.08
KDS Special	0.20-0.25	0.80-1.00	0.15-0.35	0.025 max	0.025 max	0.70-0.90	1.15-1.50	0.25-0.30	V: 0.03-0.07

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
DA Alloy	min 95 kpsi (min 655 MPa)	120 to 140 kpsi (827 to 965 MPa)	10 % min	45% min	27 HRC
DS Special	min 100 kpsi (min 689 MPa)	125 to 140 kpsi (862 to 965 MPa)	10 % min	45% min	28 HRC
KDS Special	min 85 kpsi (min 586 MPa)	115 to 140 kpsi (793 to 965 MPa)	10% min	45% min	25 HRC

Performance Data:

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	DA Alloy	DS Special	KDS Special
1"	7/8"	963 Lb.ft (1305 N.m)	1016 Lb.ft (1377 N.m)	867 Lb.ft (1175 N.m)
1 1/8"	7/8"	963 Lb.ft (1305 N.m)	1016 Lb.ft (1377 N.m)	867 Lb.ft (1175 N.m)
1 1/8"	1"	1648 Lb.ft (2234 N.m)	1733 Lb.ft (2349 N.m)	1477 Lb.ft (2002 N.m)
1 1/4"	1"	2247 Lb.ft (3046 N.m)	2354 Lb.ft (3191 N.m)	2033 Lb.ft (2756 N.m)
1 1/4"	1 1/8"	2247 Lb.ft (3046 N.m)	2354 Lb.ft (3191 N.m)	2033 Lb.ft (2756 N.m)
1 1/2"	1 1/8"	2996 Lb.ft (4062 N.m)	3157 Lb.ft (4280 N.m)	2728 Lb.ft (3698 N.m)
1"	1"	1156 Lb.ft (1567 N.m)	1216 Lb.ft (1648 N.m)	1038 Lb.ft (1407 N.m)

Maximum Pulling Force:

Grade	Rod Outer Diameter				
	1"	1 1/8"	1 1/8"	1 1/4"	1 1/2"
DA Alloy	64.6 klb (29.4 t)	81.9 klb (37.2 t)	81.9 klb (37.2 t)	104.8 klb (47.6 t)	150.9 klb (68.6 t)
DS Special	68 klb (30.9 t)	86.1 klb (39.2 t)	86.1 klb (39.2 t)	110.2 klb (50.1 t)	158.7 klb (72.1 t)
KDS Special	57.8 klb (26.3 t)	73.3 klb (33.3 t)	73.3 klb (33.3 t)	93.7 klb (42.6 t)	135 klb (61.4 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:

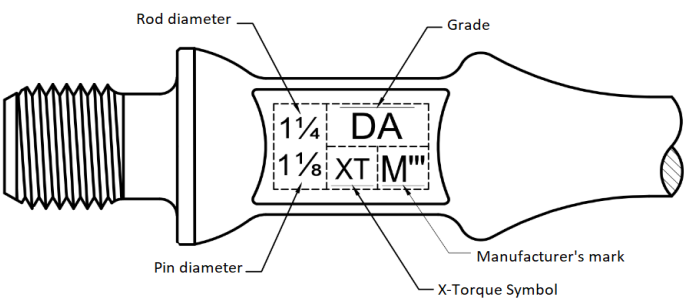
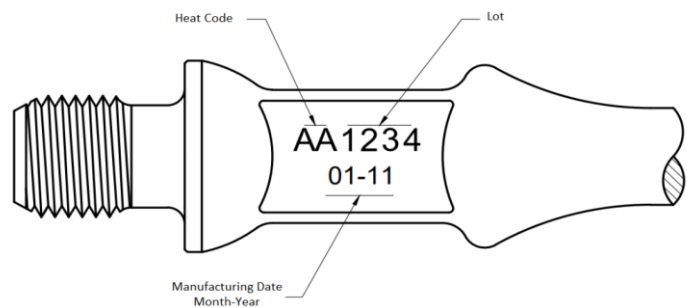
Grade	Color Code
DA Alloy	Yellow
DS Special	Orange
KDS Special	Orange

*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:



Grade	New Marking	Old Marking
DA Alloy	DA	D
DS Special	DS	DS
KDS Special	KDS	KD

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 PROTECTIO

*Image for reference only.

Ordering Information:

When placing an order please attach the following information:

PDS:	SRXTAPI
Product Family:	Sucker Rod (or Pony Rod)
Body Diameter:	1"
Pin Diameter:	7/8"
Grade:	KDS Special
Length:	25 ft

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