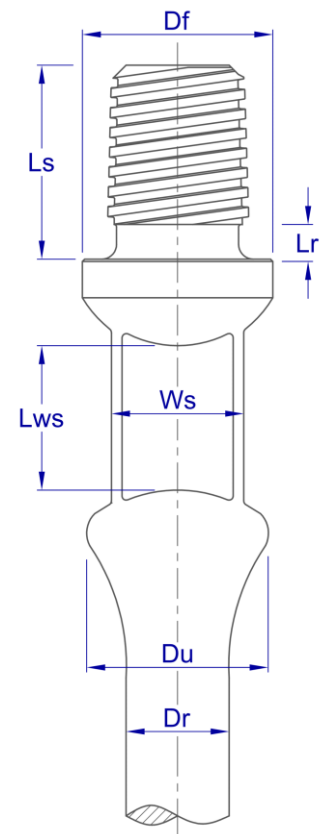


# AlphaRod™ Blue® Sucker & Pony Rod

## Dimensions:

The BlueRod® premium sucker rods are a remarkably resistant connection designed for high loads. The connection improves the rod's fatigue life and ensures excellent field performance. Flank-to-flank contact eliminates the gap existing in the conventional profile thread and increasing the interference level, thus reducing the tendency to loosen. Cut-tapered trapezium profile thread with diametrical interference reduces the pre-tension in the pin make-up. Lower displacement during make-up and uniform contact between the flanks, allowing a better stress distribution and a reduction in the permanent deformations created in threads during both make-up and operation.

Nominal Size		Dr	Df	Ws	Lws (min)	Du	Lr	Ls	
Rod	Units								
3/4"	7/8"	in	0.75	1.63	1.126	1.25	1.5	0.295	1.654
			+0.007 -0.014	+0 -0.008	±0.031		+0.005 -0.125	+0.01 -0.01	+0.004 -0.004
	mm	19.05	41.4	28.6	31.75	38.1	7.5	42	
			+0.18 -0.36	+0 -0.2		±0.8	+0.13 -3.18	+0.25 -0.25	+0.1 -0.1
7/8"	in	0.875	1.63	1.126	1.25	1.5	0.295	1.654	
			+0.008 -0.016	+0 -0.008		±0.031	+0.005 -0.125	+0.01 -0.01	+0.004 -0.004
	mm	22.23	41.4	28.6	31.75	38.1	7.5	42	
			+0.2 -0.41	+0 -0.2		±0.8	+0.13 -3.18	+0.25 -0.25	+0.1 -0.1
1"	in	1	2	1.313	1.5	1.906	0.295	1.933	
			+0.009 -0.018	+0.004 -0.004		±0.031	+0.005 -0.187	+0.01 -0.01	+0.004 -0.004
	mm	25.4	50.8	33.34	38.1	48.42	7.5	49.1	
			+0.23 -0.46	+0.1 -0.1		±0.79	+0.13 -4.76	+0.25 -0.25	+0.1 -0.1



Sucker Rods Nominal Lengths: 25 ft  
(7.62 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 (%)	Other (%)
AlphaRod™ CS	0.23	0.55	0.25	0.01 max	0.010 max	0.95	0.30 max	0.70	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™ CS	Min 110 kpsi (Min 758 MPa)	Min 118 kpsi (Min 814 MPa)	14% Min	70% Min	26 HRC

## Performance Data:

### Maximum Pulling Force:

Grade	3/4"	7/8"	1"
AlphaRod™ CS	38.8 klb (17.6 Ton)	52.9 klb (24 Ton)	69 klb (31.3 Ton)

### Beam Pumping: Maximum allowable tensile stress

It is recommended that the modified Goodman stress diagram or the simplified formula listed below are used in the determination of the allowable range of stress applied to a sucker rod.

$$S_a = \left( \frac{UTS}{A} + B \cdot S_{min} \right) \cdot SF$$

Applied tensions can be compared to the maximum allowable using the Goodman formula:

$$\%Goodman = \frac{S_{max} - S_{min}}{S_a - S_{min}} \times 100$$

Grade	A	B
AlphaRod™ CS	2.208	0.375

Table 1: Goodman coefficients

Where:

$S_a$  = maximum allowable stress (psi or MPa)

$S_{min}$  = minimum calculated or measured stress (psi or MPa)

$S_{max}$  = maximum calculated or measured stress (psi or MPa)

UTS = minimum ultimate tensile strength (psi or MPa)

SF = Service factor (0.9 is recommended for corrosive environments)

Coefficients A and B are listed on Table 1.

### Progressive Cavity Pumping: Effective Stress

The effective rod stress in PCP applications can be calculated using the von Mises equation:

$$\sigma_e = \sqrt{\frac{C_1 \cdot L^2}{\pi^2 \cdot D^4} + \frac{C_2 \cdot T^2}{\pi^2 \cdot D^6}}$$

Where:

$\sigma_e$  = Effective stress (kpsi or MPa)

L = Total axial load (lb or N)

T = Total torque (lb. ft or N. m)

D = Rod's body diameter (in or mm)

$C_1$  = Constant (Imperial system:  $1.6 \times 10^{-5}$ . International system: 16)

$C_2$  = Constant (Imperial system: 0.1106. International system:  $7.68 \times 10^8$ )

## Non Destructive Testing:

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

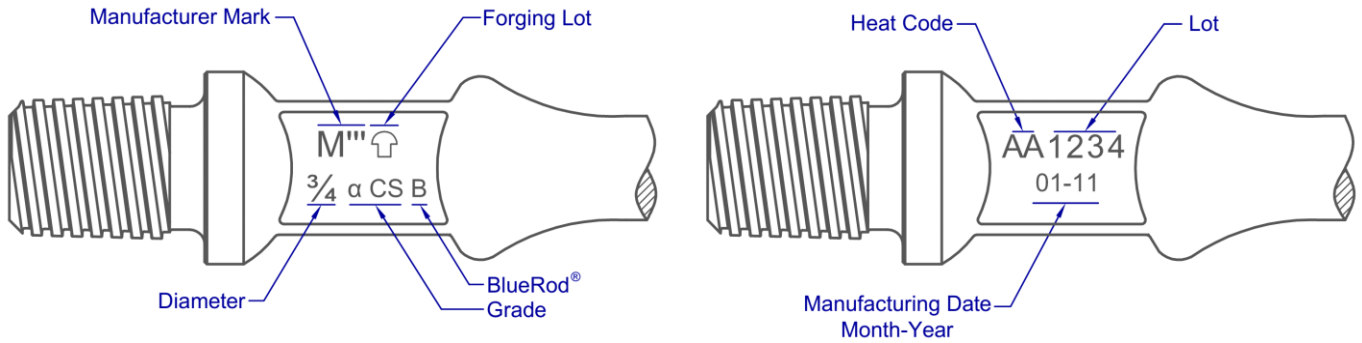
## Color Code:

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

Grade	Color Code
AlphaRod™ CS	Silver

\*Displayed colors are for guidance only.

## Marking:





## Ordering Information:

When placing an order please attach the following information:

<b>PDS:</b>	SRBLAR
<b>Product Family:</b>	Sucker Rod (or Pony Rod)
<b>Diameter:</b>	1"
<b>Grade:</b>	AlphaRod™ CS
<b>Length:</b>	25 ft

## Labeling\*:

		<b>Metalmecánica S.A.</b> Ruta 55 Km. 754,1 Villa Mercedes (San Luis) Made in Argentina	
<b>BOX N°</b>		<b>60000001</b>	
PRODUCT: SUCKER RODS		QTY:	
SPECIFICATION:		DATE:	
ROD DIAM (in):			
GRADE:			
LENGTH: (ft)			
NET WEIGHT: (kg)			
SALES ORDER:			
DESTINATION:			

\*Image for reference only

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