































SUCKER ROD – PONY – DRIVE ROD

Propiedades Químicas y Mecánicas

| | | % de Propiedades Químicas | | | | | | | | | |
|--|----------------------|---------------------------|-----------------------|-----------|-------|-----------|-------|----------|-------|----------|-------|
| Grado AISI | | A-4142-M | | A-4320-M | | A-4330-M | | A-4138-M | | A-4330-M | |
| Grado API | | D Alloy | | D Special | | D Special | | - | | - | |
| Grado APEX | | DA 78 | | DSK 90 | | DSX 75 | | Hs 96 | | HX 97 | |
| | | Rango | | | | | | | | | |
| | | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| Aceros Apex Sucker Rods, Drive Rods y Pony | Carbono | 0.38 | 0.43 | 0.19 | 0.24 | 0.30 | 0.34 | 0.38 | 0.42 | 0.30 | 0.34 |
| | Manganeso | 0.80 | 1.00 | 0.80 | 1.00 | 0.80 | 1.00 | 1.1 | 1.4 | 0.80 | 1.00 |
| | Fosforo | --- | 0.035 | --- | 0.025 | --- | 0.035 | --- | 0.035 | --- | 0.035 |
| | Azufre | --- | 0.035 | --- | 0.025 | --- | 0.040 | --- | 0.035 | --- | 0.040 |
| | Silicio | 0.15 | 0.35 | 0.15 | 0.35 | 0.15 | 0.35 | 0.20 | 0.35 | 0.15 | 0.35 |
| | Cobre | --- | 0.35 | --- | 0.35 | --- | 0.35 | --- | 0.35 | --- | 0.35 |
| | Níquel | --- | 0.25 | 1.15 | 1.35 | 1.65 | 1.85 | --- | 0.30 | 1.65 | 1.85 |
| | Cromo | 0.90 | 1.10 | 0.70 | 0.90 | 0.80 | 1.00 | 0.55 | 0.85 | 0.80 | 1.00 |
| | Molibdeno | 0.15 | 0.25 | 0.20 | 0.30 | 0.20 | 0.30 | 0.25 | 0.35 | 0.20 | 0.30 |
| | Vanadio | 0.030 | 0.045 | 0.07 | 0.09 | 0.07 | 0.09 | 0.07 | 0.09 | 0.07 | 0.09 |
| | | | Propiedades Mecánicas | | | | | | | | |
| Grado APEX | | DA 78 | | DSK 90 | | DSX 75 | | Hs 96 | | HX 97 | |
| | | Rango | | | | | | | | | |
| | | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| | Tensión de Rotura | | | | | | | | | | |
| | ksi | 120 | 140 | 120 | 140 | 125 | 140 | 140 | 150 | 140 | 150 |
| | Mpa | 827 | 965 | 827 | 965 | 861 | 965 | 965 | 1034 | 965 | 1034 |
| | Límite Elástico 0.2% | | | | | | | | | | |
| | ksi | 100 | --- | 95 | --- | 100 | --- | 115 | --- | 115 | --- |
| | Mpa | 689 | --- | 689 | --- | 689 | --- | 793 | --- | 793 | --- |
| | % | | | | | | | | | | |
| Elongación 8" | 10 | --- | 10 | --- | 10 | --- | 8 | --- | 10 | --- | |
| % | | | | | | | | | | | |
| Reducción de Área | 40 | --- | 40 | --- | 40 | --- | 30 | --- | 40 | --- | |
| Dureza (HRC) | 23 | 30 | 23 | 30 | 25 | 30 | 30 | 33 | 30 | 33 | |

Nota: Los valores de tensión de rotura y límite elástico son los únicos requisitos físicos de Sucker Rods y Pony Rods en la Especificación API 11B. Todas las demás propiedades físicas son solo valores esperados y pueden desviarse de los valores listados arriba.
















SUCKER ROD – PONY

| Código de Colores | Grado APEX | | DA 78 | Dsk 90 | Dsx 75 | Hs 96 | Hx 97 |
|-------------------|------------------|---|---|---|--|---|---|
| | Ø Cuerpo | | Amarillo | Naranja | Naranja | Verde | Morado |
| | 5/8" (15.88mm) | † |  | †  | †  | †  | †  |
| | 3/4" (19.10mm) | • |  | †  | †  | •  | •  |
| | 7/8" (22.20mm) | • |  | †  | †  | •  | •  |
| | 1" (25.40mm) | • |  | †  | †  | •  | •  |
| | 1 1/8" (28.58mm) | † |  | †  | †  | †  | †  |
| | 1 1/4" (31.75mm) | † |  | †  | †  | †  | †  |

•Disponibilidad Estándar †Orden Especial –No disponible

Nota: Longitudes de Sucker Rods disponibles en 25' y 30'.
Longitudes de Pony Rods disponibles en 2', 4', 6', 8', 10' y 12'.

DRIVE ROD

| Código de Colores | Grado APEX | | | DA 78 | Hs 96 | Hx 97 |
|-------------------|------------------|------------------|----------|--|---|---|
| | Ø Cuerpo | Ø Pin | Longitud | Amarillo | Verde | Morado |
| | 1" (25.40mm) | 7/8" (22.23mm) | 25' 30' | †  | †  | †  |
| | 1 1/8" (28.58mm) | 1" (25.40mm) | 25' 30' | †  | †  | †  |
| | 1 1/4" (31.75mm) | 1" (25.40mm) | 25' 30' | †  | †  | †  |
| | 1 1/4" (31.75mm) | 1 1/8" (28.58mm) | 25' 30' | †  | †  | †  |
| | 1 1/2" (38.10mm) | 1 1/8" (28.58mm) | 25' 30' | †  | †  | †  |

•Disponibilidad Estándar †Orden Especial –No disponible

Cuplas

Propiedades:

| Propiedades Mecánicas | | Clase T | High Strength | Sprayloy |
|-------------------------|-----------------------------------|-------------------|--------------------|-------------------|
| Tensión de Rotura | ksi MPa | 95/125 655/861 | 120/140 828/965 | 95/125 655/861 |
| Límite Elástico 0.2% | ksi MPa | 80 min 552 min | 105 min 724 min | 80 min 552 min |
| Elongación | 2" (50.8mm), % | 16 min | 16 min | 16 min |
| Reducción de Área | % | 30 min | 30 min | 30 min |
| Acabado Superficial OD | Ra mils (µin) Ra micrones (µm) | 125 3.175 | 125 3.175 | 125 3.175 |
| Dureza Sprayloy | HRA | 56/62 | 63/65 | 56/62 |
| Dureza de Recubrimiento | HV ₂₀₀ | - | - | 595 min |
| Propiedades Químicas | | | | |
| - | Clase T | High Strength | Sprayloy | |
| Clase API | T | Especial | SM | |
| Serie AISI | 4140 | 4140 | 4140 | |
| Carbón (C) | 0.37/0.44 | 0.37/0.44 | 0.37/0.44 | |
| Cromo (Cr) | 0.75/1.20 | 0.75/1.20 | 0.75/1.20 | |
| Cobre (Cu) | 0.3 max | 0.3 max | 0.3 max | |
| Manganeso (Mn) | 0.65/1.10 | 0.65/1.10 | 0.65/1.10 | |
| Molibdeno (Mo) | 0.15/0.25 | 0.15/0.25 | 0.15/0.25 | |
| Niquel (Ni) | - | - | - | |
| Fosforo (P) | 0.035 max. | 0.035 max. | 0.035 max. | |
| Silicio (Si) | 0.15/0.35 | 0.15/0.35 | 0.15/0.35 | |
| Azufre (S) | 0.040 max | 0.040 max | 0.040 max | |
| Aluminio (Al) | - | - | - | |

Dimensiones de Cuplas

| Cuplas Clase T – High Strength – Sprayloy | | | | | |
|---|-------------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|
| - | $\frac{5}{8}$ " (15.88mm) | $\frac{3}{4}$ " (19.05mm) | $\frac{7}{8}$ " (22.23mm) | 1" (25.4mm) | $1\frac{1}{8}$ " (28.58mm) |
| Slim Hole | $1\frac{1}{4}$ " (31.75mm) | $1\frac{1}{2}$ " (38.1mm) | $1\frac{5}{8}$ " (41.28mm) | 2" (50.8mm) | $2\frac{1}{4}$ " (57.15mm) |
| Full Size | $1\frac{1}{2}$ " (38.1mm) | $1\frac{5}{8}$ " (41.28mm) | $1\frac{13}{16}$ " (46.04mm) | $2\frac{3}{16}$ " (55.56mm) | $2\frac{3}{8}$ " (60.33mm) |
| Oversize | - | $1\frac{13}{16}$ " (46.04mm) | 2" (50.8mm) | $2\frac{3}{8}$ " (60.33mm) | - |

Sinker Bar

| Ø Cuerpo | Longitud | Ø Pin API | Peso | Ø Elevador | Ancho de Llave |
|---------------|----------|----------------------------------|------|-------------|-------------------|
| 1 ½" (38.1mm) | 25' | ¾" (19.10mm), 7/8" (22.20mm)* | 67kg | 1" (25.4mm) | 1 5/16" (33.34mm) |

Nota: 1 ½" (38,1 mm) con pin de 7/8" (22,20 mm) es un producto no API.

Propiedades Sinker Bar

| | | % de Propiedades Químicas | | | | |
|------------------------|----------------------|---------------------------|-----------------------|-------|-------|--|
| | | 1045 | | 4140 | | |
| Aceros Apex Sinker Bar | Grado AISI | 1045 | | 4140 | | |
| | Grado API | 1 C | | 3 D | | |
| | | Min | Max | Min | Max | |
| | Carbono | 0.43 | 0.50 | 0.38 | 0.43 | |
| | Manganeso | 0.60 | 0.90 | 0.75 | 1.00 | |
| | Fosforo | ----- | 0.040 | ----- | 0.035 | |
| | Azufre | ----- | 0.050 | ----- | 0.040 | |
| | Silicio | 0.15 | 0.30 | 0.15 | 0.35 | |
| | Cobre | ----- | ----- | ----- | 0.35 | |
| | Níquel | ----- | ----- | ----- | 0.25 | |
| | Cromo | ----- | ----- | 0.80 | 1.10 | |
| | Molibdeno | ----- | ----- | 0.15 | 0.25 | |
| | Vanadio | ----- | ----- | ----- | ----- | |
| | | | Propiedades Mecánicas | | | |
| | | Grado AISI | 1045 | | 4140 | |
| | Grado API | 1 C | | 3 D | | |
| | | Min | Max | Min | Max | |
| | Tensión de Rotura | | | | | |
| | ksi | 90 | 140 | 115 | 140 | |
| | Mpa | 620 | 965 | 793 | 965 | |
| | Límite Elástico 0.2% | | | | | |
| | ksi | 60 | ----- | 95 | ----- | |
| | Mpa | 414 | ----- | 655 | ----- | |
| | % | | | | | |
| | Elongación 8" | 10 | ----- | 10 | ----- | |
| | % | | | | | |
| | Reducción de Área | 20 | ----- | 20 | ----- | |