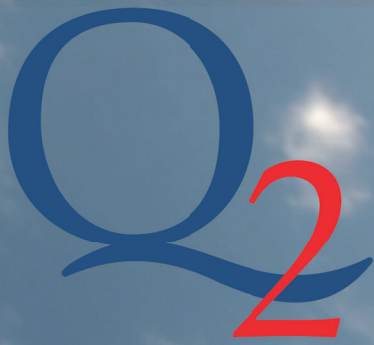




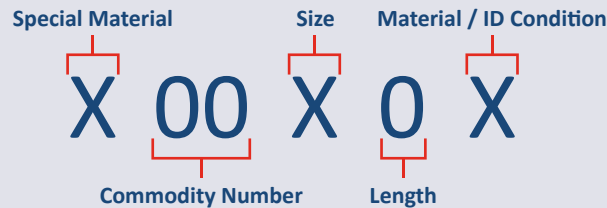
Artificial Lift Services

“Q2 is Technology & Innovation in Motion”

Global Leaders in Down Hole Rod Pumping

Pump Parts & Accessories Catalog

Finding the Part Number:



Special Materials

Blank	Carbon Steel, API material "A1" / "B1"
A	Alloy Steel, API material "A2"
B	Brass, API material "B5"

M	Monel, API material "A4"
S	Stainless Steel, API material "D6"

Commodity Numbers

BALLS & SEATS

10	Ball Only
11	Seat Only
12	Assembly

BARRELS

15	RW, Thin Wall
16	RH, Heavy Wall
17	TH, Heavy Wall
18	THOS/RXB, Heavy Wall

BUSHINGS

22	Standing Valve Cage
23	Valve Rod
24	Adapter
25	Top Cup Hold Down
26	Bottom Lock Mechanical
27	Valve Rod, Collet Type
28	Valve Rod, Collet Nut

CAGES

33	Open, Top Plunger, TH
34	Open, Top Plunger to Valve Rod
35	Open, Standing Valve, TH
37	Closed, Barrel
38	Closed, Double Valve
39	Closed, Pin End Plunger
40	Closed, Box End Plunger
51	Open, Top Plunger, Collet Type
52	Open, Top Plunger, Collet Nut

CONNECTORS

41	Upper Barrel
42	Box End Plunger
43	THOS Barrel

COUPLINGS

45	Extension, RH
46	Barrel, TH
47	Pin End Plunger to Valve Rod
50	Bottom Cup Hold Down
54	Sucker Rod
55	Suck Rod, Sub, Box and Box
56	Sucker Rod, Sub, Pin and Box
58	Guide, Spiral Rod

GUIDES

70	Rod, Box Type
71	Rod, Pin Type

HOLD DOWNS, MECHANICAL

78	Top Lock, API Type
79	Top Lock, Pacific Type

HOLD DOWN MANDRELS

83	Mechanical Bottom Lock, API Type
85	3 Cup Seating, Insert Pump
86	2 Cup Seating, Tubing Pump
87	5 Cup Seating, Insert Pump

NIPPLES

88	Extension (Lathe Cut)
89	Seating, Cup/Ring Type, Insert Pump
90	Seating, Cup/Ring Type, Tubing Pump
92	Seating, Mechanical Bottom Lock, API
93	Strainer
94	Seating, Mechanical, Pacific Type
96	Seating, Mechanical, API Type

PLUGS

97	Pull Tube
98	Seat

PLUNGERS

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102	Pin End
103	Pin End, Cup Type
104	Pin End, Composition Ring Type
105	Pin End, Pressure Activated

PULLERS, STANDING VALVE

106	Tap Type
109	Sure-lock Type

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108	Seal Ring, API Bottom Lock
110	Spacer, Cup Type Hold Down
112	Friction, Metal Ring Hold Down
113	Spacer, Metal Ring Hold Down

RODS

99	Pony/Pick up Sub
114	Valve
125	Hollow Pull Tube
655	Polished, Metal Sprayed
657	Polished, Stainless

ACCESSORIES

9	Insert Pump Anchor
80	Shear Joint
116	Top Check Valve
118	Bottom Discharge Valve
121	Auto Top Seal
160	On/Off Tool
500	Tubing Drain
600	Stuffing Box

Sizes

A	1" (25.4mm)
B	1-1/16" (26.99mm)
C	1-1/8" (28.58mm)
D	1-1/4" (31.75mm)
E	1-3/8" (34.93mm)
F	1-1/2" (38.10mm)
G	1-5/8" (41.28mm)
H	1-3/4" (44.45mm)
J	1-25/32" (45.15mm)
K	2" (50.80mm)
L	2-1/8" (53.25mm)
M	2-1/4" (57.15mm)
N	2-1/2" (63.50mm)
P	2-3/4" (69.85mm)
Q	3" (76.20mm)
R	3-1/4" (82.55mm)
S	3-1/2" (88.90mm)
T	3-3/4" (95.25mm)
U	4" (101.60mm)
V	5/8" (15.88mm)
W	3/4" API (19.05mm)
X	7/8" API (22.23mm)
Y	1" API (25.4mm)
Z	Special Size

Materials / ID Conditions

Ball/Seats Only

C	Tungsten Carbide API material "A4"
NC	Nickel Carbide API material "A5"
S	440C Stainless Steel API material "D1"
SN	Silicon Nitride
TC	Titanium Carbide API material "A6"
W	Wearloy API material "A3"

Barrels

Blank	Non-Hardened or Non-Plated
C	Single Chrome Plated (0.003" min. thickness with 67-70 HRC hardness)
CC	Double Chrome Plated (0.006" min. thickness with 67-70HRC hardness)
H	Induction Case Hardened (0.010" min depth with 58HRC min. hardness)
N	Nickel Carbide Plated (0.0015" min. thickness)

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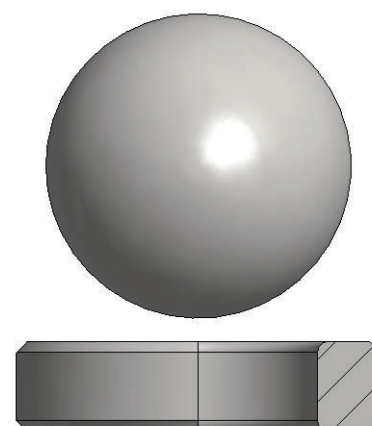
VALVES

Ball and Seat, API V11

Nominal Valve Size	Ball & Seat Number	Seat Only			Ball Only		API Number
		Part Number	O.D.	Width	Part Number	O.D.	
1-1/16"	12BXX	11BX	0.793"	0.500"	10BX	5/8"	V11-106
1-1/4"	12DXX	11DX	0.918"	0.500"	10DX	3/4"	V11-125
	12DXX2				10DX2	11/16"	V11A-125
1-1/2"	12FXX	11FX	1.168"	0.512"	10FX	15/16"	V11-150
	12FXX2				10FX2	7/8"	V11A-150
1-3/4"	12HXX	11HX	1.388"	0.500"	10HX	1-1/8"	V11-175
	12HXX2				10HX2	1"	V11A-175
2"	12KXX	11KX	1.478"	0.500"	10KX	1-1/4"	V11-200
	12KXX2				10HX	1-1/8"	V11A-200
2-1/4"	12MXX	11MX	1.720"	0.500"	10MX	1-3/8"	V11-225
	12MXX2				10KX	1-1/4"	V11A-225
2-1/2" & 2-3/4"	12PXX	11PX	2.010"	0.500"	10PX	1-11/16"	V11-250
	12PXX1	11PX1	2.400"	0.490"			Oversize Seat
	12PXX2	11PX	2.010"	0.500"	10PX2	1-1/2"	-
3-1/4"	12RXX	11RX	2.705"	0.750"	10RX	2"	-
3-3/4"	12TXX	11TX	3.072"	0.750"	10TX	2 1/4"	V11-375
	12TXX2				10RX	2"	V11A-375
4-3/4"	12ZBXX	11ZBX	3.887"	1.000"	10ZBX	3-1/4"	-
5-1/2"	12ZAXX	11ZAX	4.360"	1.250"	10ZAX	3-3/4"	-
5-3/4"	12ZCXX	11ZCX	4.895"	1"	10ZCX	4-1/4"	-
7-3/4"	12ZFXX	11ZFX	6.360"	1.500"	10ZFX	5-1/4"	-
5-3/4"	12ZCXX	11ZCX	4.895"	1"	10ZCX	4-1/4"	-
7-3/4"	12ZFXX	11ZFX	6.360"	1.500"	10ZFX	5-1/4"	-

NOTES:

- When ordering, indicate complete part number by adding the following suffixes to Ball only, Seat only, to indicate specific material:
C Tungsten Carbide, API material "A4"
NC Nickel Carbide, API material "A5"
S 440C Stainless Steel, API material "D1"
SN Silicon Nitride
TC Titanium Carbide, API material "A6"
W Wearloy, API material "A3"
- For Ball & Seat Assembly, first suffix indicates seat material while second suffix indicates ball material. If Ball and Seat are of the same material only the first suffix is used Example: 12HC (carbide ball & carbide seat).





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Horizontal Valves, HZBB

Nominal Valve Size	Barbell & Seat Number	Seat Only			Barbell Only	
		Part Number	O.D.	Width	Part Number	O.D.
1-1/4"	12DC-HZBB-M	11DC-HZBB-M	0.918"	0.500"	10DC-HZBB-M	0.735"
1-1/2"	12FC-HZBB-M	11FC-HZBB-M	1.168"	0.512"	10FC-HZBB-M	0.920"
1-3/4"	12HC-HZBB-M	11HC-HZBB-M	1.388"	0.550"	10HC-HZBB-M	1.110"
2"	12KC-HZBB-M	11KC-HZBB-M	1.478"	0.550"	10KC-HZBB-M	1.235"
2-1/4"	12MC-HZBB-M	11MC-HZBB-M	1.720"	0.550"	10MC-HZBB-M	1.360"

NOTE: Use with 37 and 39 Series Cages ending in "-BB"



NOTES:

- When ordering, indicate complete part number by adding the following suffixes to Barbell only, Seat only, to indicate specific material:
C Tungsten Carbide, API material "A4"
NC Nickel Carbide, API material "A5"
S 440C Stainless Steel, API material "D1"
SN Silicon Nitride
TC Titanium Carbide, API material "A6"
W Wearloy, API material "A3"
- For Barbell & Seat Assembly, first suffix indicates seat material while second suffix indicates Barbell material. If Ball and Seat are of the same material only the first suffix is used (Example: 12HC-HZBB-M (carbide barbell & carbide seat).

BARRELS

Hard Chrome Barrels

Q2-KingKrome barrels are manufactured from precision mandrel-drawn mechanical tubing and designed to meet the latest edition of API 11AX specifications. Q2 Artificial Lift Services' chrome plating procedure provides a harder, smoother plated ID with more corrosion resistance than previously available in the industry. This allows running of barrels in more severe conditions compared to traditional chrome barrels.

DESCRIPTION

KingKrome plated barrels are precision honed ID and provide hardness values up to 70 HRC with a minimum thickness of 0.003" per side.

Our chrome plating process employs a proprietary high speed catalyst which provides more uniform plating, higher hardness, increased beneficial micro crack density and it reduces porosity from 25-50% to less than 15% of traditional chrome barrels. These factors provide extended chrome life in abrasive conditions, and more corrosion resistance and protection against abrasion damage.

Solution chemistry and actual chrome plated samples are tested regularly in accordance to Q2 Artificial Lift Services' strict quality management system standards to maintain the highest quality product.

PRODUCTS

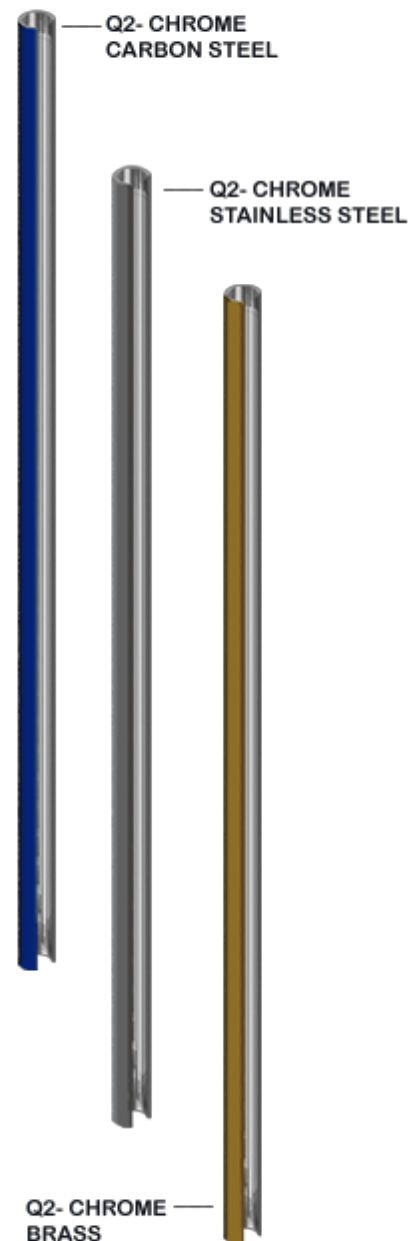
Quality of preparation before chroming guarantees long shelf life of product & durability in the ground.

Q2-KingKrome BARRELS

Q2 ALS standard carbon steel chrome ID barrels are made from 1026 carbon steel and meet the latest edition of API Specification 11AX and NACE Standard MR0176 for A1 chrome plate on steel pump barrel material.

Q2-KingKrome BRASS BARRELS

Q2 ALS brass chrome ID barrels are made from 443 admiralty brass, which has higher corrosion resistance than steel and meets the latest edition of API Specification 11AX and NACE Standard MR0176 for A5 chrome plate on brass pump barrel material. Q2 ALS brass barrel can be used at lower pH levels and should be considered where steel chrome is flaking or where the steel is experiencing severe general corrosion. The service life of brass chrome barrels is longer than steel because the galvanic reaction between the brass substrate and the chrome plate is less aggressive than steel.



Q-KingKROME STAINLESS STEEL BARRELS

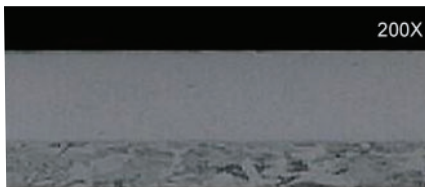
Q2 ALS stainless steel chrome ID barrels are made from 501 corrosion resistant steel and meets the latest edition of API Specification 11AX and NACE standard MR0176 for A3 chrome plate on 4/6 chrome steel pump barrel material. Q2 ALS stainless steel barrels are higher in strength and have excellent corrosion resistance as it contains more chromium and is recommended for severe abrasion, mild H₂S and moderate CO₂ condition.

DUPLEX CHROME

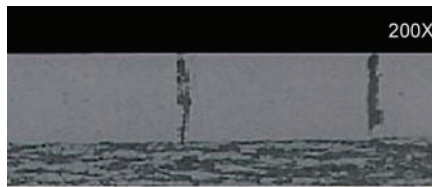
Q2 ALS also offers duplex chrome plating, (also known as double chrome plating), on 1026 carbon steel, 443 admiralty brass and 501 stainless steel materials. Duplex chrome provides even more wearability and corrosion resistance with an increase in thickness from 0.003" to 0.006" per side.

CORROSION RESISTANCE OF Q₂ CHROME PLATING

Micro-crack and porosity are the two plating factors affecting corrosion resistance. Micro crack density should be high to reduce macro cracks and prevent cracks extending through to the substrate. Metallography test results below show the difference between Q2 ALS chrome plating Vs Traditional Chrome Plating.



Q2 ALS chrome plating: Micro-crack density is so tight that they are barely visible. Porosity is well below 15%.



Traditional chrome plating: Macro-cracks in the plating extend thru to the substrate allowing for accelerated corrosion to occur.



Traditional chrome plating: Large porosity and micro-cracks decrease corrosion resistance.

Thin Wall, Rod Pump, API B11, RW

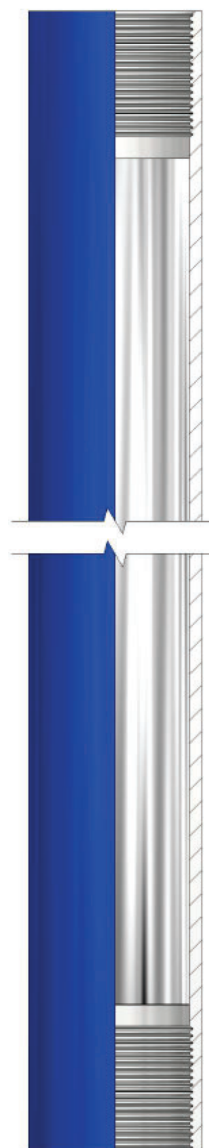
Pump Bore	Base Part Number	Specifications			API Number
		O.D.	I.D.	Thread	
1-1/16"	15B(L)	1.312"	1.062"	1.1250-16	-
1-1/4"	15D(L)	1.500"	1.250"	1.3330-16	B11-125
1-1/2"	15F(L)	1.750"	1.500"	1.5730-16	B11-150
2"	15K(L)	2.250"	2.000"	2.0870-16	B11-200
2-1/2"	15N(L)	2.750"	2.500"	2.5730-16	B11-250

Heavy Wall, Rod Pump, API B16, RX

Pump Bore	Base Part Number	Specifications			API Number
		O.D.	I.D.	Thread	
1-1/4"	18FD(L)	1.625"	1.250"	1.3330-16	B16-125
1-1/2"	18F(L)	1.875"	1.500"	1.5730-16	B16-150
2"	18K(L)	2.312"	2.000"	2.0870-16	B16-200
2-1/4"	18M(L)	2.750"	2.250"	2.5730-16	-
2-3/4"	18P(L)	3.250"	2.750"	2.8750-11 1/2	-
2-3/4"	18P(L)-TX	3.250"	2.750"	2.8750-10	-
3-1/4"	18R(L)	3.750"	3.250"	3.3825-11 1/2	-
3-3/4"	18T(L)	4.250"	3.750"	3.8750-10	-
5-1/2"	18ZA(L)	6.000"	5.500"	5.6250-12	-
4-3/4"	18ZB(L)	5.250"	4.750"	4.8750-10	-
7-3/4"	18ZF(L)	8.250"	7.750"	7.8750-10	-

NOTES:

- When ordering, indicate complete part number by:
 - Specifying barrel length (L) in feet. API lengths are from 8ft through 30ft in 2ft increments only.
 - Adding the following prefixes to the base part number to indicate barrel material:
 - Blank** Carbon Steel
 - B** Brass
 - S** Stainless Steel, 501
 - Adding the following suffixes to the base part number to indicate ID condition:
 - Blank** Non-Hardened or Non-Plated
 - C** Single Chrome Plated (0.003" min. thickness with 67-70 HRC hardness)
 - CC** Double Chrome Plated (0.006" min. thickness with 67-70HRC hardness)
 - N** Nickel Carbide Plated (0.0015" min. thickness)
- ID is precision honed and finished to +0.002"/-0.000" tolerance



BARRELS



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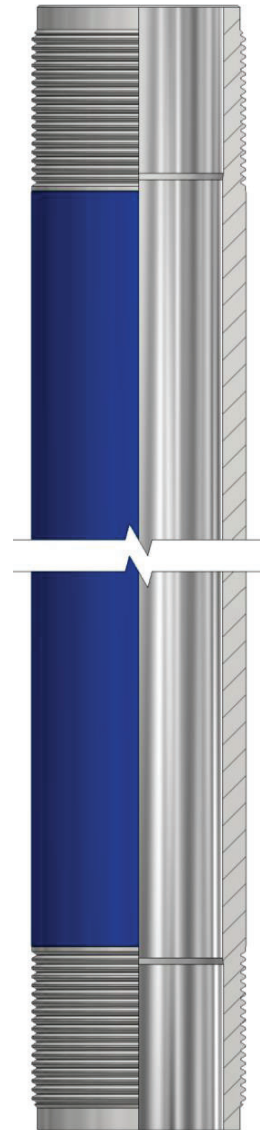
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Heavy Wall, Rod Pump, API B12, RH

Pump Bore	Base Part Number	Specifications			API Number
		O.D.	I.D.	Thread	
1-1/16"	16B(L)	1.625"	1.062"	1.5730-16	B12-106
	16BA(L)	1.313"		1.3125-16	B12-106
	16BA1(L)	1.438"			B12-106
1-1/4"	16D(L)	1.625"	1.250"	1.5730-16	B12-125
1-1/2"	16F(L)	1.875"	1.500"	1.8750-16	B12-150
1-3/4"	16H(L)	2.125"	1.750"	2.0870-16	B12-175
2-1/4"	16M(L)	2.750"	2.250"	2.5730-16	B12-225

Heavy Wall, Tubing Pumps, API B13, TH

Pump Bore	Base Part Number	Specifications			API Number
		O.D.	I.D.	Thread	
1-3/4"	17H(L)	2.250"	1.750"	2.2380-11 ½	B13-175
1-25/32"	17J(L)	2.250"	1.781"	2.2380-11 ½	-
2-1/4"	17M(L)	2.750"	2.250"	2.7380-11 ½	B13-225
2-3/4"	17P(L)	3.250"	2.750"	3.2380-11 ½	B13-275
3-3/4"	17T(L)	4.250"	3.750"	4.2380-11 ½	B13-375
4-3/4"	17ZB(L)	5.250"	4.750"	5.2380-11 ½	-



BARRELS

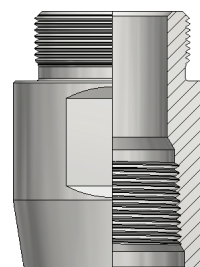
NOTES:

- When ordering, indicate complete part number by:
 - Specifying barrel length (L) in feet. API lengths are from 8ft through 30ft in 2ft increments only.
 - Adding the following prefixes to the base part number to indicate barrel material:
 - Blank** Carbon Steel
 - B** Brass
 - S** Stainless Steel, 501
 - Adding the following suffixes to the base part number to indicate ID condition:
 - Blank** Non-Hardened or Non-Plated
 - C** Single Chrome Plated (0.003" min. thickness with 67-70 HRC hardness)
 - CC** Double Chrome Plated (0.006" min. thickness with 67-70HRC hardness)
 - N** Nickel Carbide Plated (0.0015" min. thickness)
- ID is precision honed and finished to +0.002"/-0.000" tolerance

BUSHINGS

Bushing, Seat, Barrel Cage, API B22

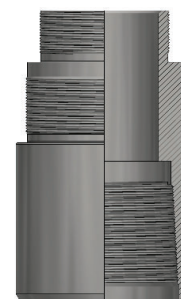
Base Part Number	O.D.	Thread Size		API Number
		Upper Pin	Lower Box	
22F	1.438"	1.2500-14	3/4" L.P.	B22-15
22K	1.750"	1.4704-14	1" L.P.	B22-20
22K1	1.688"	1.4704-14	3/4" L.P.	-
22N	2.250"	1.8024-14	1-1/4" L.P.	B22-25
22N1	2.250"	2.0600-20	1-1/4" L.P.	-
22Q	2.688"	2.1095-11 1/2	1-1/2" L.P.	B22-30
22Q1	2.750"	2.4600-18	1-1/2" L.P.	-
22T	3.750"	3.1875-11 1/2	2-7/8" EUE	-
22Z	4.250"	3.6875-11 1/2	3-1/2" EUE	-
22ZD	4.625"	4.0000-10	3-1/2" EUE	-
22ZB	5.250"	4.5000-8	4-1/2" EUE	-
22ZA	6.000"	4.5000-8	5-1/2" LCSG	-
22ZC	6.250"	5.0000-8	4-1/2" EUE	-
22ZF	8.250"	6.5000-8	7" LCSG	-



BUSHINGS

Bushing, Barrel Cage, Kick Valve

Base Part Number	O.D.	Thread Size		
		Upper Pin 1	Upper Pin 2	Lower Box
22R-SDV	3.750"	2.8000-11 1/2	3.3825-11 1/2	2-7/8" EUE
22T-SDV	4.250"	3.1875-10	3.8750-10	3-1/8" EUE
22Z-SDV	4.625"	3.1875-10	4.3750-10	3-1/2" EUE
22ZB-SDV	5.250"	4.0000-10	4.8750-10	4-1/2" EUE
22ZC-SDV	6.250"	5.0000-10	5.8750-10	4-1/2" EUE



Kick Valve (SDV) parts to be used in combination with 98-SDV, 22-SDV, and 37 -SDV part numbers.

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific bushing material:

Blank	Carbon Steel, API material "A1" / "B1"
A	Alloy Steel, API material "A2"
B	Brass, API material "B5"
M	Monel, API material "A4"
S	Stainless Steel, API material "D6"

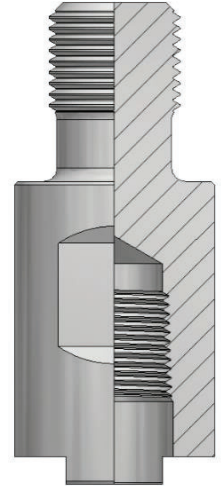


Artificial Lift Services

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Bushing, Valve Rod, API B21

Base Part Number	O.D.	Thread Size			API Number
		Upper Pin (S.R)	Bottom Box	Valve Rod Size	
23F	1.250"	5/8"	3/8" MOD L.P.	11/16"	B21-15
23F1	1.500"	5/8"	3/8" MOD L.P.	11/16"	-
23K	1.500"	3/4"	3/8" MOD L.P.	11/16"	B21-20
23N	1.625"	3/4"	1/2" MOD L.P.	7/8"	B21-25
23N1	1.625"	7/8"	1/2" MOD L.P.	7/8"	-
23N2	1.625"	3/4"	3/4" MOD L.P.	1-1/16"	B21-30
23Q	1.813"	7/8"	3/4" MOD L.P.	1-1/16"	-
23Q1	1.813"	3/4"	3/4" MOD L.P.	1-1/16"	-
23T	2.375"	1-1/8"	1" P.R.	-	-
23U	2.500"	1"	7/8" P.R.	-	-
23U1	2.500"	1"	1" P.R.	-	-



BUSHINGS

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific bushing material:

Blank Carbon Steel, API material "A1" / "B1"

A Alloy Steel, API material "A2"

B Brass, API material "B5"

M Monel, API material "A4"

S Stainless Steel, API material "D6"

- Deep counter-bore couplings are also available, add suffix "-1" to part number when ordering. (Example: 23K-1)
- clutchless option available, add suffix "-M" to part number 23K, 23N1, 23Q when ordering.

Bushing, Valve Rod, Collet Type

Valve Rod Size	Base Part Number		O.D.	Thread Size	
	Bushing (A)	Nut (B)		Upper Pin (S.R)	Lower Box (MOD. L.P.)
11/16"	27K	28N	1.500"	3/4"	3/8"
7/8"	27N	28N	1.500"	3/4"	1/2"
	27N1		1.625"	7/8"	
1-1/16"	27N2	28N2	1.625"	3/4"	3/4"
	27Q	28Q	1.813"	7/8"	
	27Q1			3/4"	



BUSHINGS

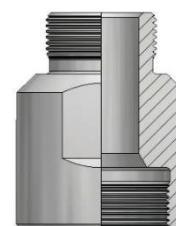
Bushing, Adapter, Barrel to Closed Cage, Slim Hole Pump

RW Barrel Size	Cage Size	Base Part Number	O.D.	Thread Size	
				Upper Pin	Lower Box
1-1/16"	1-1/2"	24FB	1.438"	1.1250-16	1.2500-14
1-1/4"	1-1/2"	24FD	1.438"	1.3330-16	1.2500-14
1-1/16"	1-3/4"	24HB	1.750"	1.1250-16	1.3330-16



Bushing, Adapter, Barrel Cage to Oversize Hold Down

Tubing Size		Base Part Number	O.D.	Thread Size	
From	To			Upper Pin	Lower Box
2-3/8"	2-7/8"	24KN2	2.250"	1.4704-14	1.8024-14
2-3/8"	2-7/8"	24KN1	2.250"	1.4704-14	1.8024-14
2-7/8"	3-1/2"	24NQ	2.750"	1.8024-14	2.1095-11 1/2
3-1/2"	4-1/2"	24UQ	3.750"	2.1095-11 1/2	3.2380-11 1/2



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific bushing material:

Blank Carbon Steel, API material "A1" / "B1"	M Monel, API material "A4"
A Alloy Steel, API material "A2"	S Stainless Steel, API material "D6"
B Brass, API material "B5"	
- 24KN is 1" — to be used with top hold-down only.



Artificial Lift Services

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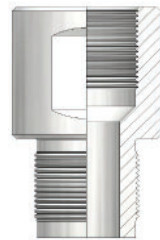
Bushing, Adapter, RH Barrel to RW Barrel, Gas Compressor Pump

Barrel Size		Base Part Number	O.D.	Thread Size	
From	To			Upper Pin	Lower Box
1-1/4"	1-1/2"	24DF-GC	1.875"	1.5730-16	1.5730-16
1-3/4"	2"	24HK-GC	2.250"	2.0870-16	2.0870-16



Bushing, Top Cup Hold Down, API S15

Tubing Size	Pump Bore	Base Part Number	O.D.	I.D.	Thread Size		API Number
					Lower Box	Upper Pin	
1.900"	1-1/16"	25FB	1.313"	-	1.1894-14	1.1250-16	-
	1-1/4"	25FD	1.500"	1.000"	1.1894-14	1.3330-16	-
2-3/8"	1-1/4"	25KD	1.750"	1.000"	1.1894-14	1.3330-16	S15-20-125
	1-1/4"	25KD-OS	1.750"	-	1.3900-14	1.3330-16	-
	1-1/2"	25KF	1.750"	1.000"	1.1894-14	1.5730-16	S15-20
	1-1/2"	25KF-OS	1.750"	1.155"	1.3900-14	1.5730-16	-
2-7/8"	1-1/4"	25ND	2.250"	1.000"	1.5604-14	1.3330-16	-
	1-1/2"	25NF	2.250"	1.000"	1.5604-14	1.5730-16	-
	1-1/2"	25NF-OS	2.250"	1.155"	1.9800-16	1.5730-16	-
	2"	25NK	2.250"	1.302"	1.5604-14	2.0870-16	S15-25
	2"	25NK-OS	2.250"	1.530"	1.9800-16	2.0870-16	-
3-1/2"	1-1/2"	25QF	2.750"	1.000"	2.2380-11 1/2	1.5730-16	-
	2"	25QK	2.750"	1.302"	2.0035-11 1/2	2.0870-16	-
		25QK-M		1.625"	2.0035-11 1/2	2.0870-16	-
	2-1/2"	25QN	2.750"	1.500"	2.0035-11 1/2	2.5730-16	S15-30
4-1/2"	3-1/4"	25UR	3.750"	2.706"	2.8000-11 1/2	3.3825-11 1/2	-
5-1/2"	5"	25ZN	4.550"	1.625"	3.6875-11 1/2	2.5730-16	-
	3-1/4"	25ZR	4.550"	2.706"	3.6875-11 1/2	3.3825-11 1/2	-
	3-3/4"	25ZT	4.550"	3.250"	3.6875-11 1/2	3.8750-10	-
	4-1/4"	25ZZ	4.625"	3.250"	3.6875-11 1/2	4.3750-10	-
7"	5-1/2"	25ZA	6"	-	5.3750-8	5.6250-12	-



BUSHINGS

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific bushing material:

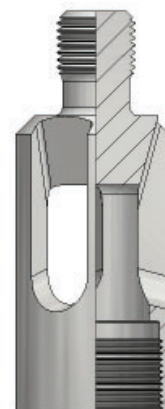
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

CAGES

Cage, Top Open, TH, API C11

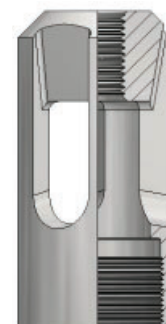
Pump Bore	Ball & Seat Number	Part Number	O.D.	Thread Size		API Number
				Upper S.R. Pin	Lower Box	
1-3/4"	12H	33H	1.688"	3/4"	1.4704-14	C11-20
		33H-HD	1.88"			-
		33H1-HD	1.88"	5/8"		-
		33H2-HD	1.88"	7/8"		-
2-1/4"	12M	33M	2.188"	3/4"	1.8024-14	C11-25
		33M1		7/8"		-
2-3/4"	12P	33P	2.625"	3/4"	2.1095-11 1/2	C11-30
		33P1		7/8"		-
3-1/4"	12R	33R	3.188"	3/4"	2.8000-11 1/2	-
		33R1		7/8"		-
		33R2		1"		-
3-3/4"	12T	33T	3.625"	1"	3.1715-11 1/2	C11-40
4-1/4"	12T	33Z	4.188"	1"	3.1715-11 1/2	-
4-3/4"	12ZB	33ZB	4.688"	1"	4.0000-10	-
5-1/2"	12ZA	33ZA	5.438"	1"	4.6250-8	-
7-3/4"	12ZF	33ZF	7.688"	1"	6.6250-8	-



CAGES

Cage, Standing Valve, TH, API C16

Pump Bore	Ball & Seat Number	Part Number	O.D.	Box Thread Size		API Number
				Upper	Lower	
1-3/4"	12H	35H	1.688"	0.7500-10	1.4704-14	C16-175
2-1/4"	12M	35M	2.188"	0.7500-10	1.8024-14	C16-225
2-3/4"	12P	35P	2.688"	0.7500-10	2.1095-11 1/2	C16-275
3-3/4"	12T	35T	3.688"	0.7500-10	3.1715-11 1/2	C16-375
4-3/4"	12ZB	35ZB	4.688"	1.3750-10	4.0000-10	-

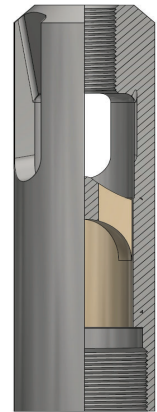


NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:
Blank Carbon Steel, API material "A1" / "B1" **B** Brass, API material "B5" **S** Stainless Steel, API material "D6"
A Alloy Steel, API material "A2" **M** Monel, API material "A4"
- Add the suffix "-QS" to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

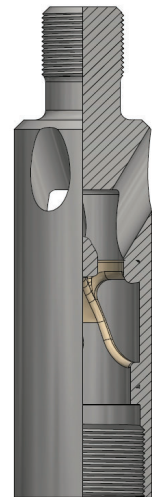
Cage, Standing Valve Insert Guided, One Piece, TH,

Pump Bore	Ball & Seat Number	Part Number	O.D.	Box Thread Size	
				Upper	Lower
1-3/4"	12H	35H-IG-1PC	1.688"	0.7500-10	1.4704-14
2-1/4"	12M	35M-IG-1PC	2.188"	0.7500-10	1.8024-14



Cage, Top Open, Insert Guided One Piece, TH

Pump Bore	Ball & Seat Number	Part Number	O.D.	Thread Size	
				Upper S.R. Pin	Lower Box
1-3/4"	12H	33H-IG-1PC	1.688"	3/4"	1.4704-14
2-1/4"	12M	33M-IG-1PC	2.188"	3/4"	1.8024-14
		33M1-IG-1PC		7/8"	



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:
Blank Carbon Steel, API material "A1" / "B1" **B** Brass, API material "B5" **S** Stainless Steel, API material "D6"
A Alloy Steel, API material "A2" **M** Monel, API material "A4"
- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

Cage, Top Plunger, API C12

Pump Bore	Ball & Seat Number	Base Part Number	O.D.	Box Thread Size			API Number
				Valve Rod End (MOD.L.P.)	Plunger End	Valve Rod Size	
1-1/4"	12D	34D	1.188"	3/8"	1.0000-14	11/16"	C12-125
		34D-HD	1.210"				-
		34D1	1.188"	1/2"	1.0000-14	7/8"	-
		34D1-HD	1.210"				-
1-1/2"	12F	34F	1.438"	3/8"	1.2500-14	11/16"	C12-150-20
		34F-HD	1.460"				-
		34F1	1.438"	1/2"		7/8"	C12-150-25
		34F1-HD	1.460"				-
1-3/4"	12H	34H	1.677"	1/2"	1.4704-14	7/8"	C12-175
		34H-HD	1.710"				-
2"	12K	34K	1.938"	1/2"	1.5604-14	7/8"	C12-200
		34K-HD	1.960"				-
		34N1	1.938"				-
2 1/4"	12M	34M	2.188"	3/4"	1.8024-14	7/8"	C12-225
2-1/2"	12P	34P-M	2.438"	3/4"	2.1095-11 1/2	1-1/16"	C12-250

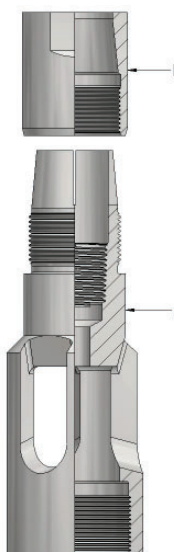
NOTE: "-HD" Indicates Heavy Duty



CAGES

Cage, Top Plunger, Collet Type

Pump Bore	Ball & Seat Number	Base Part Number		O.D.	Box Thread Size		
		Cage (A)	Nut (B)		Valve Rod End (MOD.L.P.)	Plunger End	Valve Rod Size
1-1/2"	12F	51F1	52F	1.438"	1/2"	1.2500-14	7/8"
1-3/4"	12H	51H	52K	1.688"	1/2"	1.4704-14	7/8"
		51H1	48E222-C1		3/4"		1-1/16"
2"	12K	51K	52K	1.938"	1/2"	1.5604-14	7/8"
		51K1	52M		3/4"		1-1/16"
2-1/4"	12M	51M	52M	2.188"	3/4"	1.8024-14	1-1/16"
2-1/2" 2-3/4"	12P	51N	52M	2.438"	3/4"	2.1095-11 1/2	1-1/16"



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:
Blank Carbon Steel, API material "A1" / "B1" **B** Brass, API material "B5"
A Alloy Steel, API material "A2" **M** Monel, API material "A4"
 Add the suffix "-QS" to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

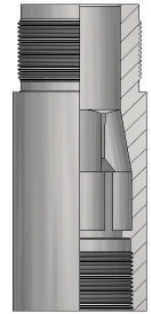


Artificial Lift Services

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Cage, Closed, Barrel, API C14

Tubing Size	Ball & Seat Number	Base Part Number	O.D.	Box Thread Size		API Number
				Upper	Lower	
2-3/8"	12H	37HD	1.750"	1.3330-16	1.4704-14	C14-20-125
		37H	1.750"	1.5730-16	1.4704-14	C14-20
2-7/8"	12M	37M	2.250"	2.0870-16	1.8024-14	C14-25
3-1/2"	12P	37P-SP	2.750"	2.5730-16	2.1095-11 1/2	C14-30
	12P2	37P	2.750"	2.5730-16	2.1095-11 1/2	-
4-1/2"	12T	37T	3.750"	3.3825-11 1/2	3.1875-11 1/2	-
	12T2	37TM	3.750"	3.3825-11 1/2	3.1875-11 1/2	-
5-1/2"	12T2	37Z	4.250"	3.8750-10	3.6875-11 1/2	-



CAGES

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

Cage, Closed, Barrel, Close Valve Spacing

Tubing Size	Ball & Seat Number	Base Part Number	O.D.	Box Thread Size	
				Barrel End	Valve End
2-3/8"	12H	37H1	1.750"	1.5730-16	1.4704-14
2-7/8"	12M	37M1	2.250"	2.0870-16	1.8024-14
3-1/2"	12P	37P1	2.750"	2.5730-16	2.1095-11 1/2
4-1/2"	12T	37T1	3.750"	3.3825-11 1/2	3.1875-11 1/2
5-1/2"	12T2	37Z1	4.250"	3.8750-10	3.6875-11 1/2



Cage, Closed, Barrel, Clutched, THOS Pump Only

Tubing Size	Ball & Seat Number	Base Part Number	O.D.	Box Thread Size	
				Barrel End	Valve End
2-1/4"	12M	37P-C	2.750"	2.5730-16	2.1095-11 1/2
2-3/4"	12R	37R-C	3.250"	2.8750-11 1/2	2.8000-11 1/2
3-1/4"	12T	37T-C	3.750"	3.3825-11 1/2	3.1875-11 1/2
3-3/4"	12T2	37Z-C	4.250"	3.8750-10	3.6875-11 1/2
5-1/2"	12ZA	37ZA-C	6.000"	5.6250-12	4.5000-8
4-3/4"	12ZA	37ZB-C	5.250"	4.8750-10	4.5000-8
7-3/4"	12ZF	37ZF-C	8.250"	7.8750-12	6.5000-8



CAGES

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

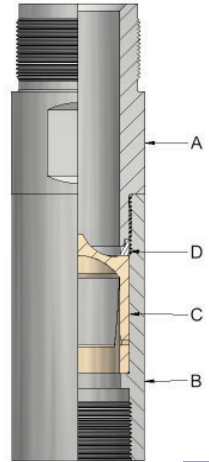


Artificial Lift Services

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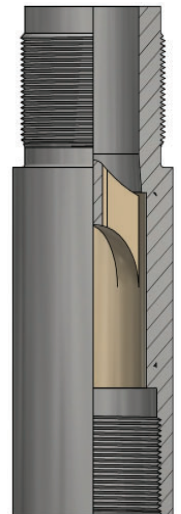
Cage, Closed, Barrel, Insert Guided, 4-Piece, Insert Pump Only, "Top Load"

Tubing Size	Ball & Seat Number	Assembly Number	Component Part Number				O.D.	Thread Size	
			Bushing (A)	Housing (B)	Insert (C)	Washer (D)		Upper Pin	Lower Pin
2-3/8"	12H	37HD-IG	37HD-IG1	39H-IG2	39H-IG3	39H-IG4	1.730"	1.3330-16	1.4704-14
		37H-IG	37H-IG1					1.5730-16	
2-7/8"	12M	37M-IG	37M-IG1	39M-IG2	39M-IG3	39N-IG3	2.230"	2.0870-16	1.8024-14
3-1/2"	12P	37P-IG	39H-IG4	39H-IG4	39M-IG4	39N-IG4	2.730"	2.5730-16	2.1095-11 1/2



Cage, Closed, Barrel, Insert Guided, One-Piece

Tubing Size	Ball & Seat Number	Assembly Number	O.D.	Thread Size	
				Upper Pin	Lower Box
2-3/8"	12H	37HD-IG-1PC	1.750"	1.3330-16	1.4704-14
		37H-IG-1PC		1.5730-16	
		37H-HD-IG-1PC	1.875"		
2-7/8"	12M	37M-IG-1PC	2.250"	2.0870-16	1.8024-14
3-1/2"	12P	37P-IG-1PC	2.750"	2.5730-16	2.2500-16
4-1/2"	12T	37T-IG-1PC-C	3.750"	3.3825-11 1/2	3.1875-11 1/2
-		37Z-IG-1PC	4.250"	3.8750-10	3.6875-11 1/2
-	12ZB	37ZD-IG-1PC	4.625"	4.3750-10	4.0000-10
-		37ZB-IG-1PC-C	5.250"	4.8750-10	4.5000-8
-	12ZC	37ZC-IG-1PC-C	6.250"	5.8750-10	5.0000-10



CAGES

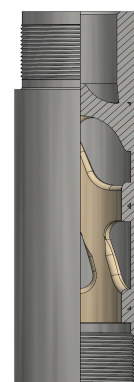
NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"
M Monel, API material "A4"
S Stainless Steel, API material "D6"
- "-C" Suffix indicates Clutched Cage.
- Washer material is Durometer 90 Viton, 4-Piece Cage Only.
- Insert material is Cobalt Alloy.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

Cage, Horizontal Standing Valve, Closed, Barrel, Insert Guided, One-Piece

Pump Bore	Ball & Seat Number	Assembly Number	O.D.	Thread Size	
				Upper Pin	Lower Box
1-1/2"	12HC-HZBB-M	37H-IG-BB	1.750"	1.5730-16	1.4704-14
1-3/4"	12KC-HZBB-M	37HD-IG-BB	1.875"	1.3330-16	1.4704-14
2-1/4"	12MC-HZBB-M	37M-IG-BB	2.250"	2.0870-16	1.8024-14

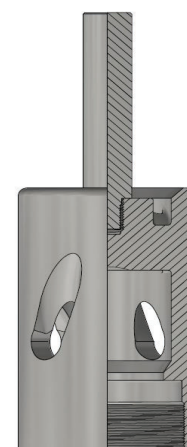
- See Ball & Seat section, Page 2, for reference



Cage, Standing Cage, Kick Valve, Self Guided Body

Pump Bore	Ball & Seat Number	Assembly Number	O.D.	Thread Size
				Lower Box
3-1/4"	12R	37R-SDV	3.188"	2.8000-11 1/2
3-3/4"	12T	37T-SDV	3.688"	3.1875-10
4-3/4"	12ZB	37ZB-SDV	4.688"	4.0000-10
5-3/4"	12ZC	37ZC-SDV	5.688"	5.0000-10

- Kick Valve (SDV) parts to be used in combination with 98-SDV, 22-SDV, and 37 -SDV part numbers.



Cage, Closed, Barrel, Close Valve Spacing, Insert Pump Only

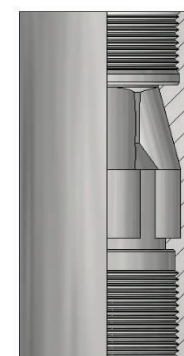
Tubing Size	Base Part Number	O.D.	Box Thread Size		RH Pump Size
			Barrel End	Valve End	
2-3/8"	39H1	1.750"	1.5730-16	1.4704-14	1-1/4"
2-7/8"	39M1	2.250"	1.8750-16	1.8024-14	1-1/2"
	39M2		2.0870-16		1-3/4"
	39M3	2.312"	1.5730-16	1.8024-14	1-1/4"

- Add the suffix "-QS" to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.



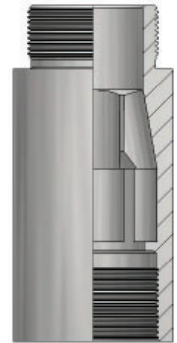


Artificial Lift Services

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Cage, Closed, Double Valve

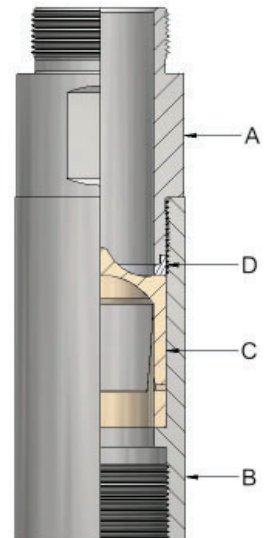
Pump Bore	Ball & Seat Number	Base Part Number	O.D.	Thread Size	
				Upper Pin	Lower Box
1-1/16"	12B	38B	1.036"	0.8750-14	
1-1/4"	12D	38D	1.188"	1.0000-14	
1-1/2"	12F	38F	1.438"	1.2500-14	
1-3/4"	12H	38H	1.688"	1.4704-14	
2"	12K	38K	1.938"	1.5604-14	
2-1/4"	12M	38M	2.188"	1.8024-14	
2-1/2"	12P2	38N	2.438"	2.1095-11 1/2	
2-3/4"	12P2	38P	2.656"	2.1095-11 1/2	
3-1/4"	12R	38R	3.188"	2.8000-11 1/2	
3-3/4"	12T	38T	3.688"	3.1715-11 1/2	



CAGES

Cage, Closed, Double Valve, Insert Guided, 4-Piece

Tubing Size	Ball & Seat Number	Assembly Number	Component Part Number				O.D.	Thread Size	
			Bushing (A)	Housing (B)	Insert (C)	Washer (D)		Upper Pin	Lower Pin
1-1/4"	12D	38D-IG	38D-IG1	39D-IG2	39D-IG3	39D-IG4	1.230"	1.0000-14	
1-1/2"	12F	38F-IG	38F-IG1	39F-IG2	39F-IG3	39F-IG4	1.480"	1.2500-14	
1-3/4"	12H	38H-IG	38H-IG1	39H-IG2	39H-IG3	39H-IG4	1.730"	1.4704-14	
2"	12K	38K-IG	38K-IG1	39K-IG2	39K-IG3	39K-IG4	1.980"	1.5604-14	
2-1/4"	12M	38M-IG	38M-IG1	39M-IG2	39M-IG3	39M-IG4	2.230"	1.8024-14	

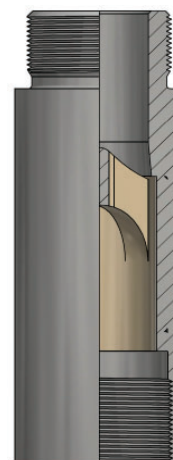


NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"
M Monel, API material "A4"
S Stainless Steel, API material "D6"
- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Washer material is Durometer 90 Viton, 4-Piece Cage Only.
- Insert material is Cobalt Alloy.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

Cage, Closed, Double Valve, Insert Guided, One-Piece

Pump Bore	Ball & Seat Number	Assembly Number	O.D.	Thread Size	
				Upper Pin	Lower Box
1-1/4"	12D	38D-IG-1PC	1.213"	1.000-14	1.000-14
1-1/2"	12F	38F-IG-1PC	1.463"	1.2500-14	1.2500-14
1-3/4"	12H	38H-IG-1PC	1.713"	1.4704-14	1.4704-14
		38H-HD-IG-1PC	1.875"		
2"	12K	38K-IG-1PC	1.963"	1.5604-14	1.5604-14
2-1/4"	12M	38M-IG-1PC	2.213"	1.8024-14	1.8024-14



CAGES

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

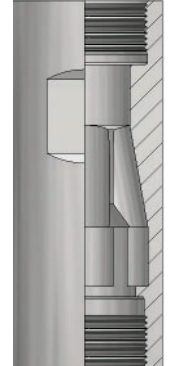


Artificial Lift Services

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Cage, Closed, Pin End Plunger, API C13

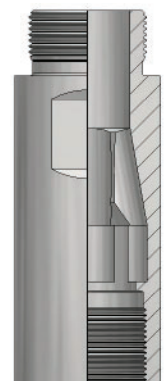
Pump Bore	Ball & Seat Number	Base Part Number	O.D.	Box Thread Size		API Number
				Plunger End	Valve End	
1-1/16"	12B	39B	1.036"	0.8750-14		-
1-1/4"	12D	39D	1.188"	1.0000-14		C13-125
1-1/2"	12F	39F	1.438"	1.2500-14		C13-150
1-3/4"	12H	39H	1.688"	1.4704-14		C13-175
2"	12K	39K	1.938"	1.5604-14		C13-200
2-1/4"	12M	39M	2.188"	1.8024-14		C13-225
2-1/2"	12P	39N-SP	2.438"	2.1095-11 1/2		C13-250
	12P2	39N				Alternate Ball
2-3/4"	12P	39P-SP	2.656"	2.1095-11 1/2		C13-275
	12P2	39P				Alternate Ball
3-1/4"	12R	39R	3.188"	2.8000-11 1/2		-
3-1/4"	12T	39T	3.665"	3.175-11 1/2		-



CAGES

Cage, Closed, Box End Plunger, API C15

Pump Bore	Ball & Seat Number	Base Part Number	O.D.	Box Thread Size		API Number
				Plunger End	Valve End	
1-3/4"	12H	40H	1.688"	1.5084-14	1.4704-14	C15-175
2-1/4"	12M	40M	2.188"	1.9864-14	1.8024-14	C15-225
2-1/2"	12P	40N-SP	2.438"	2.1095-11 1/2	2.1095-11 1/2	-
	12P2	40N				-
2-3/4"	12P	40P-SP	2.656"	2.3755-11 1/2	2.1095-11 1/2	C15-275
	12P2	40P				Alternate Ball
3-1/4"	12R	40R	3.188"	2.5625-11 1/2	2.8000-11 1/2	-
3-3/4"	12T	40T	3.665"	3.3825-11 1/2	3.1715-11 1/2	C15-375
4-1/4"	12Z	40Z	4.188"	3.6875-11 1/2	3.1715-11 1/2	-
4-3/4"	12ZB	40ZB	4.688"	4.2500-10	4.0000-10	-
5"	12ZE	40ZE	4.938"	4.3750-10	4.0000-10	-
5-1/2"	12ZA	40ZA	5.438"	4.6250-8	4.5000-8	-
5-3/4"	12ZC	40ZC	5.688"	5.2500-10	5.0000-10	-
7-3/4"	12ZF	40ZF	7.688"	6.500-8	6.6250-8	-



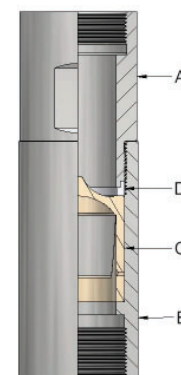
NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Add the suffix "-QS" to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

Cage, Closed, Pin End Plunger, Insert Guided, 4-Piece, "Top Load"

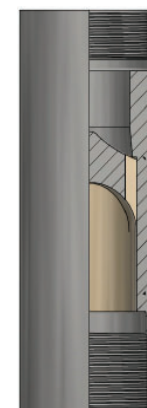
Tubing Size	Ball & Seat Number	Assembly Number	Component Part Number				O.D.	Thread Size	
			Bushing (A)	Housing (B)	Insert (C)	Washer (D)		Plunger End	Valve End
1-1/4"	12D	39D-IG	39D-IG1	39D-IG2	39D-IG3	39D-IG4	1.230"	1.0000-14	
1-1/2"	12F	39F-IG	39F-IG1	39F-IG2	39F-IG3	39F-IG4	1.480"	1.2500-14	
1-3/4"	12H	39H-IG	39H-IG1	39H-IG2	39H-IG3	39H-IG4	1.730"	1.4704-14	
2"	12K	39K-IG	39K-IG1	39K-IG2	39K-IG3	39K-IG4	1.980"	1.5604-14	
2-1/4"	12M	39M-IG	39M-IG1	39M-IG2	39M-IG3	39M-IG4	2.230"	1.8024-14	
2-1/2"	12N	39N-IG	39N-IG1	39N-IG2	39N-IG3	39N-IG4	2.480"	2.1095-11 1/2	
2-3/4"	12P	39P-IG	39P-IG1	39P-IG2	39P-IG3	39P-IG4	2.730"	2.1095-11 1/2	



CAGES

Cage, Closed, Pin End Plunger, Insert Guided, One-Piece

Pump Bore	Ball & Seat Number	Assembly Number	O.D.	Thread Size	
				Upper Box	Lower Box
1-1/4"	12D	39D-IG-1PC	1.213"	1.000-14	1.000-14
1-1/2"	12F	39F-IG-1PC	1.463"	1.2500-14	1.2500-14
1-3/4"	12H	39H-IG-1PC	1.713"	1.4704-14	1.4704-14
2"	12K	39K-IG-1PC	1.963"	1.5604-14	1.5604-14
2-1/4"	12M	39M-IG-1PC	2.213"	1.8024-14	1.8024-14
2-1/2"	12P	39N-IG-1PC	2.468"	2.1095-11 1/2	2.2500-16
3-1/4"	12R	39R-IG-1PC	3.250"	2.800-11 1/2	2.800-11 1/2



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Washer material is Durometer 90 Viton, 4-Piece Cage Only.
- Insert material is Cobalt Alloy.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

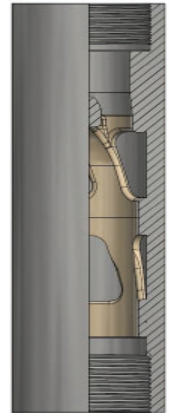


Artificial Lift Services

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Cage, Horizontal Travelling Valve, Pin End Plunger, Insert Guided, One-Piece

Pump Bore	Ball & Seat Number	Assembly Number	O.D.	Thread Size	
				Upper Box	Lower Box
1-1/4"	12DC-HZBB-M	39D-IG-BB	1.213"	1.000-14	1.000-14
1-1/2"	12FC-HZBB-M	39F-IG-BB	1.463"	1.2500-14	1.2500-14
1-3/4"	12HC-HZBB-M	39H-IG-BB	1.713"	1.4704-14	1.4704-14
2"	12KC-HZBB-M	39K-IG-BB	1.963"	1.5604-14	1.5604-14
2-1/4"	12MC-HZBB-M	39M-IG-BB	2.213"	1.8024-14	1.8024-14



CAGES

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

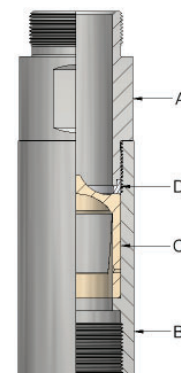
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

- Add the suffix **"-QS"** to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Barbell & Seats listed are for reference only; see page 1 for complete part numbers and material availability.

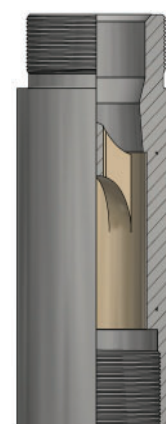
Cage, Closed, Box End Plunger, Insert Guided, 4-Piece

Tubing Size	Ball & Seat Number	Assembly Number	Component Part Number				O.D.	Thread Size	
			Bushing (A)	Housing (B)	Insert (C)	Washer (D)		Plunger End	Valve End
2-1/4"	12M	40M-IG	40M-IG1	39M-IG2	39M-IG3	39M-IG4	2.230"	1.9864-14	1.8024-14
2-1/2"	12P	40N-IG	40N-IG1	39N-IG2	39N-IG3	39N-IG4	2.480"	2.1095-11 1/2	2.1095-11 1/2
2-3/4"	12P	40P-IG	40P-IG1	39P-IG2	39N-IG3	39N-IG4	2.730"	2.3755-11 1/2	2.1095-11 1/2



Cage, Closed, Box End Plunger, Insert Guided, One-Piece

Pump Bore	Ball & Seat Number	Assembly Number	O.D.	Thread Size	
				Upper Pin	Lower Box
2-1/4"	12M	40M-IG-1PC	2.213"	1.9864-14	1.802-14
2-1/2"	12P	40N-IG-1PC	2.468"	2.1095-16	2.2500-16
3-1/4"	12R	40R-IG-1PC	3.250"	2.5625-11.5	2.8000-11.5
3-3/4"	12T	40T-IG-1PC	3.681"	3.3825-11.5	3.1715-11.5
4-1/4"	12T	40Z-IG-1PC	4.181"	3.6875-11.5	3.1715-11.5
4-3/4"	12ZB	40ZB-IG-1PC	4.688"	4.2500-10	4.0000-10
5-3/4"	12ZC	40ZC-IG-1PC	5.688"	5.2500-10	5.0000-10



CAGES

- See Ball & Seat section, Page 2, for reference.

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific cage material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Add the suffix "-QS" to base part number to indicate hard lined cages. Available in Alloy or Stainless Steel only.
- Washer material is Durometer 90 Viton.
- Insert material is Cobalt Alloy.
- Balls & Seats listed are for reference only; see page 1 for complete part numbers and material availability.



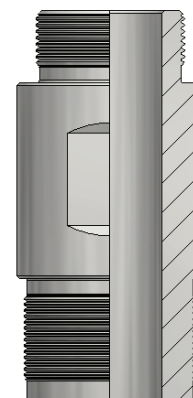
Artificial Lift Services

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CONNECTORS

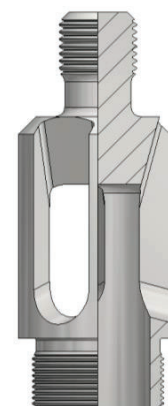
Connector, Upper Barrel, API C21

Tubing Size	Pump Bore	Base Part Number	O.D.	I.D.	Pin Thread Size		API Number
					Top End	Barrel End	
1.900"	1-1/4"	41F1	1.438"	1.000"	1.250-14	1.3330-16	-
2-3/8"	1-1/4"	41F	1.750"	1.000"	1.4704-14	1.3330-16	C21-20-125
	1-1/2"	41K	1.750"	1.000"	1.4704-14	1.5730-16	C21-20
2-7/8"	2"	41N	2.250"	1.302"	1.8024-14	2.0870-16	C21-25
	2"	41N5	2.250"	1.062"	1.8024-14	2.0870-16	-
2-7/8"	1-1/4"	41N3	2.250"	1.000"	1.8024-14	1.3330-16	-
	1-1/2"	41N1	2.250"	1.281"	1.8024-14	1.5730-16	-
3-1/2"	2"	41Q1	2.750"	1.575"	2.1095-11 1/2	2.0870-16	-
	2-1/2"	41Q	2.750"	1.575"	2.1095-11 1/2	2.5730-16	C21-30
4-1/2"	3-1/4"	41U	3.750"	2.625"	3.2380-11 1/2	3.3825-11 1/2	-



Connector, Top Open, TH, Box End Plunger

Pump Bore	Base Part Number	O.D.	Pin Thread Size	
			Plunger End	Top S.R.
2-3/4"	32P	2.625"	2.3755-11 1/2	3/4"
3-1/4"	32P1	2.625"	2.3755-11 1/2	7/8"
3-3/4"	32R	3.188"	2.5625-11 1/2	7/8"
	32T	3.625"	3.3825-11 1/2	1"



CONNECTORS

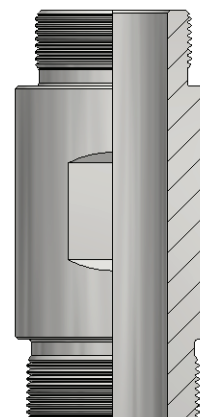
NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific connector material:

Blank	Carbon Steel, API material "A1" / "B1"
A	Alloy Steel, API material "A2"
B	Brass, API material "B5"
M	Monel, API material "A4"
S	Stainless Steel, API material "D6"

Connector, Box End Plunger, API C22

Pump Bore	Base Part Number	O.D.	Pin Thread Size		API Number
			Top End	Plunger End	
1-1/2"	42F	1.438"	1.2500-14	1.2500-14	-
1-3/4"	42H	1.688"	1.4704-14	1.5084-14	C22-175
2"	42K	1.938"	1.5604-14	1.7330-14	-
2-1/4"	42M	2.200"	1.8024-14	1.9864-14	C22-225
2-1/2"	42N	2.438"	2.1095-11 1/2	2.1095-11 1/2	-
2-3/4"	42P	2.656"	2.1095-11 1/2	2.3755-11 1/2	C22-275
3-1/4"	42R	3.188"	2.8000-11 1/2	2.5625-11 1/2	-
3-3/4"	42T	3.650"	3.1715-11 1/2	3.3825-11 1/2	C22-375
4-1/4"	42Z	4.188"	3.1715-11 1/2	3.6875- 11 1/2	-
4-3/4"	42ZB	4.688"	4.0000-10	4.2500-10	-
5"	42ZE	4.938"	4.0000-10	4.3750-10	-
5-1/2"	42ZA	5.438"	4.6250-8	4.6250-8	-
7-3/4"	42ZF	7.688"	6.6250-8	6.6250-8	-



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific connector material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"
M Monel, API material "A4"
S Stainless Steel, API material "D6"



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Connector, Upper Barrel, Oversize Tubing Pump

Tubing Size	Pump Bore	Base Part Number	O.D.	I.D.	Thread Size	
					Tubing End	Barrel End
2-3/8"	2-1/4"	43KM	2.750"	2.000"	2-3/8" EUE-8RD	2.5730-16
2-7/8"	2-1/2"	43NN	3.125"	2.000"	2-7/8" EUE-8RD	2.5730-16
	2-3/4"	43NP	3.250"	2.350"	2-7/8" EUE-8RD	2.8750-11 1/2
	3-1/4"	43NR	3.750"	2.350"	2-7/8" EUE-8RD	3.3825-11 1/2
	4-1/4"	43NZ	4.625"	2.350"	2-7/8" EUE-8RD	4.3750-10
3-1/2"	3-1/4"	43QR	3.750"	2.790"	3-1/2" EUE-8RD	3.3825-11 1/2
	3-3/4"	43QT	4.250"	2.790"	3-1/2" EUE-8RD	3.8750-10
4-1/2"	4-1/4"	43UZ	4.750"	3.310"	4-1/2" EUE-8RD	4.3750-10
	4-3/4"	43UZB	5.250"	3.875"	4-1/2" EUE-8RD	4.8750-10
	5"	43UZE	5.500"	3.875"	4-1/2" EUE-8RD	5.1250-10
	5-1/2"	43UZA	6.000"	3.500"	4-1/2" EUE-8RD	5.6250-12
	5-3/4"	43UZC	6.250"	3.875"	4-1/2" EUE-8RD	5.8750-10
5"	5-1/2"	43ZZA	6.000"	4.500"	5-1/2" CSG-8RD	5.6250-12



Connector, Barrel, Oversize Tubing Pump, Closed Barrel Cage to Tubing

Tubing Size	Pump Bore	Base Part Number	O.D.	Lock Nut Part Number	Thread Size	
					Tubing End	Cage End
2-7/8"	2-3/4"	43NP-1	3.250"	95R-S	2-7/8" EUE-8RD	2.8000-11 1/2
	3-1/4"	43NR-1	3.750"	95T-S	2-7/8" EUE-8RD	3.1875-11 1/2
3-1/2"	3-1/4"	43QR-1	3.750"	95T-S	3-1/2" EUE-8RD	3.1875-11 1/2



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific connector/coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

COUPLINGS

Coupling, Tubing, API C34

Tubing Size	Part Number	O.D.	Thread Size	API Number
2-3/8"	TC-238J55	3.063"	2-3/8" EUE-8RND	C34-20
2-7/8"	TC-278J55	3.668"	2-7/8" EUE-8RND	C34-25
3-1/2"	TC-312J55	4.500"	3-1/2" EUE-8RND	C34-30
4-1/2"	TC-412J55	5.563"	4-1/2" EUE-8RND	C34-40

Material is J55 Tubing



Coupling, Barrel, Tubing Pump, API C35

Pump Bore	Base Part Number	O.D.	I.D.	Box Thread Size		API Number
				Barrel End	Tubing End	
1-3/4"	46H	3.00"	1.844"	2.2380-11 1/2	2-3/8" EUE-8RND	C35-20
1-3/4"	46H1	3.500"	1.812"	2.2380-11 1/2	2-7/8" NUE-10RND	-
2-1/4"	46M	3.625"	2.344"	2.7380-11 1/2	2-7/8" EUE-8RND	C35-25
2-1/4"	46M1	3.625"	2.312"	2.7380-11 1/2	2-7/8" NUE-10RND	-
2-3/4"	46P	4.500"	2.844"	3.2380-11 1/2	3-1/2" EUE-8RND	C35-30
2-3/4"	46P1	3.500"	2.312"	3.2380-11 1/2	2-7/8" EUE-8RND	-
2-3/4"	46P-M	4.000"	2.809"	3.2380-11 1/2	2-7/8" EUE-8RND	-
3-1/4"	46P-M2	4.000"	2.312"	3.7300-11 1/2	2-7/8" EUE-8RND	-
3-3/4"	46T	5.563"	3.844"	4.2380-11 1/2	4-1/2" EUE-8RND	C35-40
3-3/4"	46T1	5.000"	3.844"	4.2380-11 1/2	4-1/2" LCSG-8RND	-
4-3/4"	46ZB	6.050"	4.844"	5.2380-11 1/2	5-1/2" LCSG-8RND	-



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific connector/coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"



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Coupling, Barrel, Lower, Soft-Packed Tubing Pump, API C36

Pump Bore	Base Part Number	O.D.	No-Go I.D.	Tapered Box Thread Size		API Number
				Barrel End	Tubing End	
1-25/32"	46J1-TP	3.000"	1.391"	178-11 1/2	2-3/8" EUE-8RND	C36-20
2-1/4"	46M1-TP	3.625"	1.852"	225-11 1/2	2-7/8" EUE-8RND	C36-25
2-3/4"	46P1-TP	4.500"	2.312"	275-11 1/2	3-1/2" EUE-8RND	C36-30



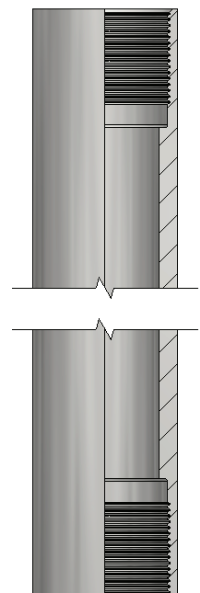
Coupling, Barrel, Upper, Soft-Packed Tubing Pump, API C37

Pump Bore	Base Part Number	O.D.	Tapered Box Thread Size		API Number
			Barrel End	Tubing End	
1-25/32"	46J-TP	3.000"	178-11 1/2	2-3/8" EUE-8RND	C37-20
2-1/4"	46M-TP	3.625"	225-11 1/2	2-7/8" EUE-8RND	C37-25
2-3/4"	46P-TP	4.500"	275-11 1/2	3-1/2" EUE-8RND	C37-30



Coupling, Extension, RH, API C31

Pump Bore	Non-Hardened Part Number	Ni-Carb Plated Part Number	O.D.	Box Thread Size		API Number
				Barrel End	Terminal End	
1-1/16"	45B1(L)	45B1(L)-N	1.438"	1.3330-16	1.3125-16	C31-106-15
	45B(L)	45B(L)-N	1.750"	1.5730-16	1.3125-16	C31-106
1-1/4"	45D(L)	45D(L)-N	1.750"	1.5730-16	1.5730-16	C31-125
1-1/2"	45F(L)	45F(L)-N	2.250"	1.8750-16	2.0870-16	C31-150
1-3/4"	45H(L)	45H(L)-N	2.250"	2.0870-16	2.0870-16	C31-175
2-1/4"	45M(L)	45M(L)-N	2.750"	2.5730-16	2.5730-16	C31-225



COUPLINGS

NOTES:

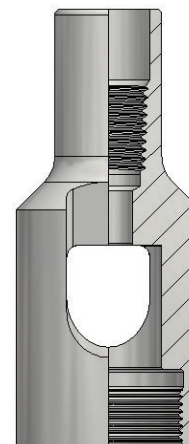
- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

Coupling, Top Plunger to Valve Rod

Pump Bore	Base Part Number	O.D.	Box Thread Size		Valve Rod O.D.
			Plunger End	Valve Rod End	
1-1/16"	47B	1.036"	0.8750-14	3/8"	11/16"
1-1/4"	47D	1.188"	1.0000-14	3/8"	11/16"
	47D1			1/2"	7/8"
1-1/2"	47F	1.438"	1.2500-14	3/8"	11/16"
	47F1			1/2"	7/8"
1-3/4"	47H	1.688"	1.4704-14	1/2"	7/8"
	47H1			3/8"	11/16"
	47H2			3/4"	1-1/16"
2"	47K	1.938"	1.5604-14	1/2"	7/8"
	47K2			3/4"	1-1/16"
2-1/4"	47M	2.188"	1.8024-14	3/4"	1-1/16"
2-1/2"	47N	2.438"	2.1095-11 1/2	3/4"	1-1/16"



- Use in place of Top Plunger Cages (API C12) when not using Ball & Seat.
- Heavy Duty couplings are also available, Add suffix "-HD" to part number when ordering. (Example "47K-HD")
- Use in place of Top Plunger Cages (API C12) when not using ball & seat

Coupling, Top Plunger to Valve Rod, Sand Twister

Pump Bore	Upper Body Part Number	Lower Body Part Number	Upper Body O.D.	Lower Body O.D.	Box Thread Size		Valve Rod O.D.
					Plunger End	Valve Rod End	
1-1/4"	47D-ST1	47DQ-ST2	1.188"	1.248"	1.0000-14	3/8"	11/16"
	47D1-ST1					1/2"	7/8"
1-1/2"	47F-ST1	47FQ-ST2	1.240"	1.498"	1.2500-14	3/8"	11/16"
	47F1-ST1					1/2"	7/8"
1-3/4"	47H-ST1	47HQ-ST2	1.500"	1.748"	1.4704-14	1/2"	7/8"
2"	47K-ST1	47KQ-ST2	1.500"	1.998"	1.5604-14	1/2"	7/8"
	47K2-ST1	47KQ2-ST2				3/4"	1-1/16"
2-1/4"	47M-ST1	47MQ-ST2	1.750"	2.248"	1.8024-14	3/4"	1-1/16"

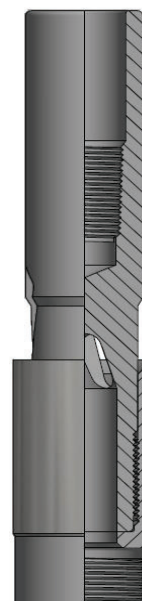
- Use in place of Top Plunger Cages (API C12) when not using Ball & Seat.

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"





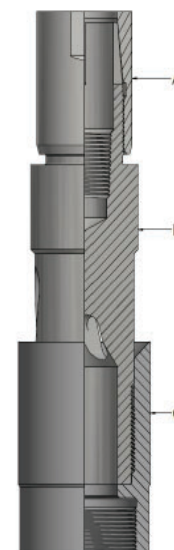
Artificial Lift Services

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Coupling, Top Plunger to Valve Rod, Sand Twister Collet Style

Pump Bore	Upper Body Part Number (B)	Lower Body Part Number (C)	Collet Nut (A)	Upper Body O.D.	Lower Body O.D.	Box Thread Size		Valve Rod O.D.
						Plunger End	Valve Rod End	
1-1/2"	47F1-ST1-C	47FQ-ST2	S52F/M52F	1.240"	1.498"	1.2500-14	1/2"	7/8"
1-3/4"	47H-ST1-C	47HQ-ST2	S52K/M52K	1.375"	1.748"	1.4704-14	1/2"	7/8"
	47H2-ST1-C		48E222-C1	1.500"				
2"	47K-ST1-C	47KQ-ST2	S52K/M52K	1.625"	1.998"	1.5604-14	1/2"	7/8"
	47K2-ST1-C		S52M/M52M				3/4"	1-1/16"
2-1/4"	47M-ST1-C	47MQ-ST2	S52M/M52M	1.750"	2.248"	1.8024-14	3/4"	1-1/16"

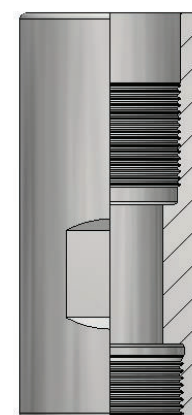
- Use in place of Top Plunger Cages (API C12) when not using Ball & Seat.



Coupling, Pull Tube, Upper, API C32

Pump Bore	Base Part Number	Pull Tube O.D.	Box Thread Size		O.D.	API Number
			Plunger End	Pull Tube End		
1-1/4"	48D	15/16"	1.0000-14	0.9375-16	1.190"	C32-125
1-1/2"	48F	1-1/8"	1.2500-14	1.1250-16	1.438"	C32-150
1-3/4"	48H	1-1/2"	1.4704-14	1.5000-16	1.730"	C32-175
2"	48K	1-1/2"	1.5604-14	1.5000-16	1.938"	C32-200
2-1/4"	48M-1	1-7/8"	1.8024-14	1.8750-16	2.188"	C32-225
2-1/2"	48P	1-7/8"	2.1095-11 1/2	1.8750-16	2.438"	C32-250
3-1/4"	48R-1	2-1/8"	2.8000-11 1/2	2.0870-16	3.188"	-
4-3/4"	48ZB-1	3-1/4"	4.000-10	3.2380-11/2	4.688"	-

- Deep counter-bore couplings are also available, Add suffix "-1" to part number when ordering. (Example 48D-1)



COUPLINGS

NOTES:

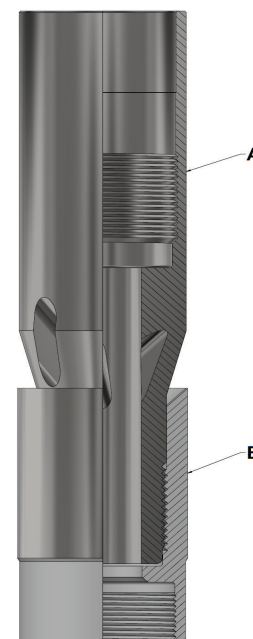
- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

Coupling, Pull Tube, Upper, Sand Twister

Pump Bore	Upper Body Part Number (A)	Lower Body Part Number (B)	Upper Body O.D.	Lower Body O.D.	Box Thread Size		Pull Tube OD
					Plunger End	Pull Tube End	
1-1/4"	48D123-1-ST1	47DQ-ST2	1.188"	1.248"	1.0000-14	0.9375-16	15/16"
1-1/2"	48F123-1-ST1	47FQ-ST2	1.438"	1.498"	1.2500-14	1.1250-16	1-1/8"
1-3/4"	48H123-1-ST1	47HQ-ST2	1.719"	1.748"	1.4704-14	1.5000-16	1-1/2"
2"	48K123-1-ST1	47KQ-ST2	1.938"	1.998"	1.5604-14	1.5000-16	1-1/2"



COUPLINGS

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"



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Coupling, Pull Tube, Lower, API C33

Pump Bore	Base Part Number	Pull Tube O.D.	Box Thread Size		O.D.	API Number
			Plunger End	Pull Tube End		
1-1/4"	49D	15/16"	1.4704-14	0.9375-16	1.750"	C33-125
1-1/2"	49F	1-1/8"	1.4704-14	1.1250-16	1.750"	C33-150-20
2"	49K	1-1/2"	1.8024-14	1.5000-16	2.188"	C33-200
2-1/2"	49M	1-7/8"	2.1095-11 1/2	1.8750-16	2.750"	C33-225

- Deep counter-bore couplings are also available, Add suffix "-1" to part number when ordering.

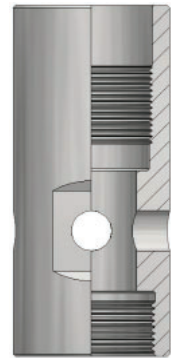


Coupling, Pull Tube to Plunger, Ported, NON API

Pump Bore	Base Part Number	Pull Tube O.D.	Box Thread Size		O.D.
			Pull Tube End	Plunger End	
1-1/4"	48C122	15/16"	0.9375-16	1.0000-14	1.188"
	48C123	15/16"		1.2500-14	1.440"
1-1/2"	48E222	1-1/8"	1.1250-16	1.2500-14	1.420"
1-3/4"	48H123	1-1/2"	1.5000-16	1.4704-14	1.719"
	48H122	1-1/8"	1.1250-16	1.4704-14	1.719"
2"	48K223	1-1/2"	1.5000-16	1.5604-14	1.938"
2-1/4"	48M223-M	1-1/2"	1.5000-16	1.8024-14	2.188"
	48M224	1-7/8"	1.8750-16	1.8024-14	2.188"
2-1/2"	48M223	1-1/2"	1.500-16	2.1095-11 1/2	2.438"
3-1/4"	48R122	2-1/4"	2.2500-16	2.5625-11 1/2	3.188"

Deep counter-bore couplings are also available, Add suffix "-1" to part number when ordering.

* Indicates Pin End Connection



Coupling, Pull Tube to Plunger, Ported, Collet Type

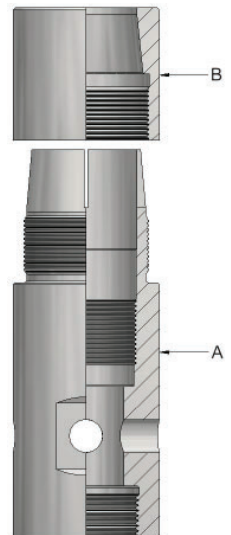
Pump Bore	Base Part Number		Pull Tube O.D.	Thread Size		O.D.
	Coupling (A)	Nut (B)		Pull Tube End	Plunger End	
1-1/2"	48E222-C	48E222-C1	1-1/8"	1.1250-16	1.2500-14	1.480"
1-3/4"	48H122-C	48H122-C1	1-1/8"	1.1250-16	1.4704-14	1.730"
2"	48K222-C	48H122-C1	1-1/8"	1.1250-16	1.5604-14	1.980"
	48K223-C	48K223-C1	1-1/2"	1.500-16		1.980"

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

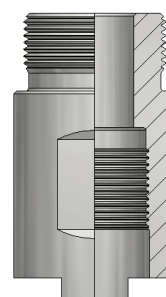
M Monel, API material "A4"
S Stainless Steel, API material "D6"



COUPLINGS

Coupling, Pull Tube to Top Open Cage, One-Piece, NON API

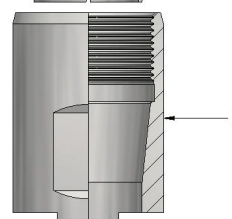
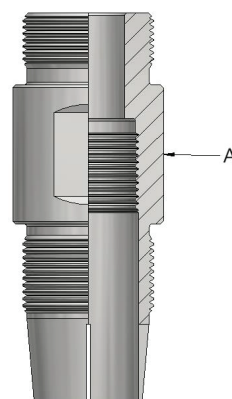
Pump Bore	Base Part Number	Pull Tube O.D.	Box Thread Size		O.D.
			Pull Tube End	Cage End	
1-3/4"	49H3	1-1/2"	1.5000-16	1.4704-14	1.730"
	49H4	1-1/8"	1.250-16		1.688"
	49H5	15/16"	0.9375-16		
2-1/4"	49L2	1-1/2"	1.5000-16	1.8024-14	2.188"
	49L3	1-1/8"	1.1250-16		
2-3/4"	49R1	2-1/4"	2.2500-16	2.1095-11 1/2	2.688"



- Deep counter-bore couplings are also available, Add suffix "-1" to part number when ordering.

Coupling, Pull Tube to Top Open Cage, Collet Type

Tubing Size	Base Part Number		Pull Tube O.D.	Thread Size		O.D.
	Coupling (A)	Nut (B)		Pull Tube End	Cage End	
2-3/8"	49H5-C	49H4-C1	15/16"	0.9375-16	1.4704-14	1.688"
	49H4-C	49H4-C1	1-1/8"	1.1250-16		
2-7/8"	49L2-C	49L2-C1	1-1/2"	1.500-16	1.8024-14	2.188"
2-1/4"	49L3-C	49H4-C1	1-1/8"	1.2500-16		



Coupling, Pull Tube to Top Open Cage, Gas Relief Valve

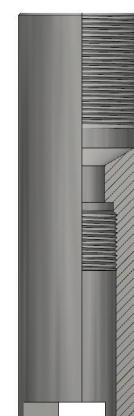
Tubing Size	Base Part Number	Pull Tube O.D.	Box Thread Size		O.D.
			Pull Tube End	Cage End	
2-3/8"	49KD-1	15/16"	0.9375-16	1.500-16	1.750"
	49KF-1	1-1/8"	1.1250-16		
2-7/8"	49ND-1	15/16"	0.9375-16	1.8750-16	2.188"
	49NF-1	1-1/8"	1.250-16		
	49NK-1	1-1/2"	1.500-16		
	49NM-1	1-7/8"	1.8750-16		2.300"

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"



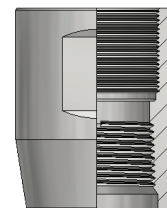


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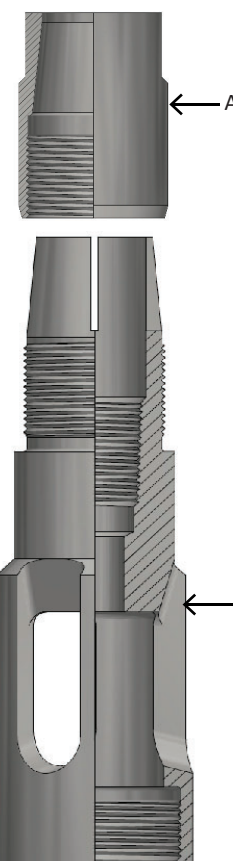
Coupling, Bottom Hold-Down, API S16

Tubing Size	Base Part Number	O.D.	Box Thread Size		API Number
			Hold Down End	Gas Anchor End	
1.900"	50F	1.438"	1.1894-14	3/4" L.P.	-
2-3/8"	50K	1.688"	1.1894-14	1" L.P.	S16-20
2-7/8"	50N	2.188"	1.5604-14	1-1/4" L.P.	S16-25
3-1/2"	50Q	2.688"	2.0035-11 1/2	1-1/2" L.P.	S16-30
4-1/2"	50U	3.688"	2.8000-11 1/2	2" L.P.	-
5-1/2"	50Z	4.500"	3.6875-11 1/2	3-1/2" EUE-8RD	-



Coupling, Valve Rod to Plunger, Collet Type, NON API

Pump Bore	Coupling Part Number (B)	O.D.	Nut Part Number (A)	Box Thread Size			Valve Rod O.D.
				Valve Rod End (MOD.L.P.)	Plunger End	Valve Rod End (MOD L.P)	
1-1/2"	51F1-M	1.438	52F	1/2"	1.2500-14	1-1/2"	7/8"
1-3/4"	51H-M	1.688	52K	1/2"	1.4704-14	1-1/2"	7/8"
2"	51K-M	1.938	52K	1/2"	1.5604-14	1-1/2"	7/8"
2-1/2"	51M-M	2.188	52M	3/4"	1.8024-14	3/4"	1-1/16"



COUPLINGS

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

Coupling, Sucker Rod and Polished Rod, Same Thread Ends

Nominal Size	Type	Part Number	O.D.	Length
5/8"	Sucker Rod	CR55FTA	1.500"	4.000"
3/4"	Sucker Rod	CR66FTA	1.625"	4.000"
	Sucker Rod	CR66STA	1.500"	4.000"
	Polished Rod	CP66FTA	1.625"	4.000"
	Polished Rod	CP66STA	1.500"	4.000"
7/8"	Sucker Rod	CR77FTA	1.812"	4.125"
	Sucker Rod	CR77STA	1.625"	4.125"
	Polished Rod	CP77FTA	1.812"	4.000"
	Polished Rod	CP77STA	1.625"	4.125"
1"	Sucker Rod	CR88STA	2.000"	4.000"
	Polished Rod	CP88FTA	2.188"	4.250"
	Polished Rod	CP88STA	2.000"	4.250"



Coupling, Sucker Rod and Polished Rod, Different Thread Ends

Thread Size	Type	Part Number	O.D.	Length
5/8" x 3/4"	Sucker Rod	CR65FTA	1.625"	4.000"
3/4" x 7/8"	Sucker Rod	CR76FTA	1.812"	4.125"
3/4" x 7/8"	Sucker Rod	CR76STA	1.625"	4.125"
3/4" x 7/8"	Polished Rod	CP76FTA	1.812"	4.125"
7/8" x 1"	Sucker Rod	CR87STA	2.000"	4.125"
7/8" x 1"	Polished Rod	CP87STA	2.000"	4.125"



COUPLINGS

NOTES:

1. Material is Alloy Steel
2. Sucker rod threads can be used with polished rod threads, but polished rod threads cannot be used with sucker rod threads.

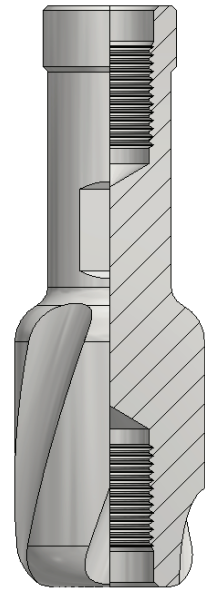


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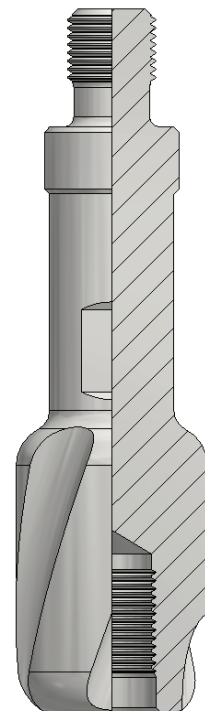
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Coupling, Spiral Guide, Box to Box & Box to Pin

Tubing Size	Part Number		O.D.	Box/Pin x Box Thread Size	
	Box to Box	Box to Pin		Top End	Bottom End
2-3/8"	58V	59V	1.750"	5/8" S.R.	
	58W	59V1		3/4" S.R.	
	58W6	-	1.813"	7/8" S.R.	3/4" S.R.
2-7/8"	58W1	59W1	2.313"	3/4" S.R.	
	"_"	59W2		7/8" S.R.	
	58W3	59W3		7/8" S.R.	3/4" S.R.
	58W4	59W4		1" S.R.	
	58W5	-		7/8" S.R.	
3-1/2"	58X	59X	2.813"	7/8" S.R.	
	58X1	59X1		1" S.R.	
	58X2	59X2		3/4" S.R.	
	58Y	59X3	2.800"	1" P.R.	
4-1/2"	58Y1	59Y1	3.735"	1" S.R.	
5-1/2"	58Y3	59Z1	4.665"	1" P.R.	
	58Z2	59Z2	4.450"	1-1/8" S.R.	
7"	58Y4	59ZA	6.050"	1" P.R.	
	58Z4	59ZA1		1-1/8" P.R.	
	58ZA	59ZA2		1-1/8" S.R.	



Box to Box



Box to Pin

COUPLINGS

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific coupling material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

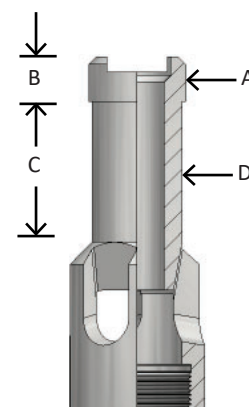
M Monel, API material "A4"
S Stainless Steel, API material "D6"

- Sucker rod threads can be used with polished rod threads; polished rod threads cannot be used with sucker rod threads

GUIDES

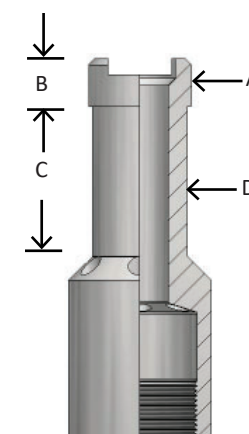
Guide, Valve Rod, Box End, API G11

Tubing Size	Base Part Number	Valve Rod Size	Thread Size	O.D.	Dimensions				API Number
					A	B	C	D	
1.900"	70F	11/16"	1.2500-14	1.500"	1.250"	0.750"	2.125"	1.125"	G11-15
	70F1	7/8"							-
2-3/8"	70K	11/16"	1.4704-14	1.750"	1.500"	0.750"	2.125"	1.375"	G11-20
	70K1	7/8"							-
2-7/8"	70N	7/8"	1.8024-14	2.250"	1.625"	0.750"	2.500"	1.500"	G11-25
	70N2	11/16"							-
	70NS	1-1/16"							-
3-1/2"	70Q	1-1/16"	2.1095-11 1/2	2.750"	1.625"	0.750"	2.500"	1.500"	G11-30
	70Q2	7/8"							-
7"	70ZA	1-1/2"	5.3750-8	6.000"	2.630"	1.250"	3.000"	-	-



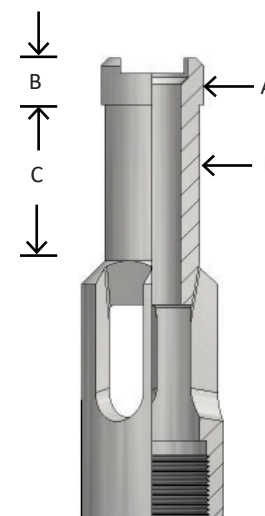
Guide, Valve Rod, Box End, Vertical Ported

Tubing Size	Base Part Number	Valve Rod Size	Thread Size	O.D.	Dimensions			
					A	B	C	D
2-3/8"	70K-V	11/16"	1.4704-14	1.750"	1.500"	0.750"	2.125"	1.375"
	70K1-V	7/8"						
2-7/8"	70N-V	7/8"	1.8024-14	2.250"	1.625"	0.750"	2.323"	1.500"
	70NS-V	1-1/16"						
3-1/2"	70Q-V	1-1/16"	2.1095-11 1/2	2.750"	1.625"	0.750"	2.396"	1.500"



Guide, Valve Rod, Box End, Sand Check

Tubing Size	Base Part Number	Sand Check Number		Valve Rod Size	Thread Size	O.D.	Dimensions			
		Drop	Seat				A	B	C	D
2-3/8"	70K2	123K1	123K2	11/16"	1.4704-14	1.750"	1.500"	0.750"	2.021"	1.375"
2-7/8"	70N1	123N1	123N2	7/8"	1.8024-14	2.250"	1.625"	0.750"	2.500"	1.500"
3-1/2"	70Q1	123Q1	123Q2	1-1/16"	2.1095-11 1/2	2.750"	1.625"	0.750"	2.500"	1.500"
	70QN1	123Q3	123Q2	7/8"						
4-1/2"	70U1	123U1	123U2	1-1/2"	3.2380-11 1/2	3.740"	2.500"	1.250"	3.000"	2.250"
	70U2	123Q1	123Q2	1-1/16"						
5-1/2"	70Z1	123Z1	123Z3	1-1/2"	3.6875-11 1/2	4.250"	2.500"	1.250"	3.000"	2.250"



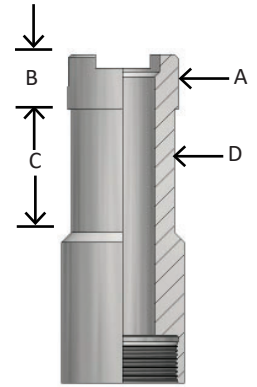


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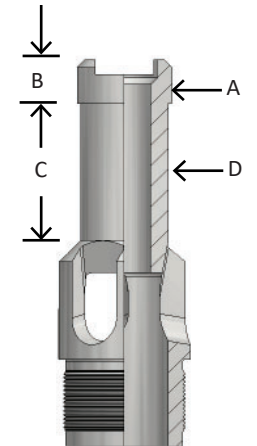
Guide, Pull Tube, Box End

Tubing Size	Base Part Number	Pull Tube Size	Thread Size	O.D.	Dimensions			
					A	B	C	D
2-3/8"	70E101	1-1/8"	1.4704-14	1.750"	1.625"	0.750"	2.125"	1.500"
	70E102	15/16"	1.5730-16	1.875"	1.500"	0.750"	2.125"	1.375"
2-7/8"	70K101	15/16"	1.9864-14	2.230"	2.000"	1.000"	2.250"	1.875"
	70K102	1-1/8"						
	70K103	1-1/2"	1.8024-14	2.250"	1.625"	0.750"	2.500"	1.500"
	70K104	1-1/8"						
3-1/2"	70M101	1-1/2"	2.1095-11 1/2	2.750"	2.500"	1.000"	2.500"	2.375"
4-1/2"	70R101	2-1/8"	3.2380-11 1/12	3.750"	3.188"	1.250"	4.750"	2.938"



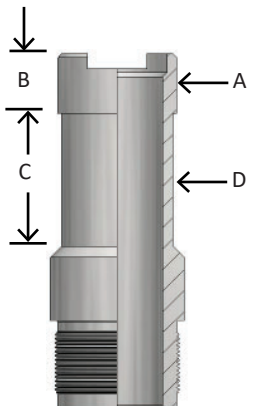
Guide, Valve Rod, Pin End

Tubing Size	Base Part Number	Valve Rod Size	Thread Size	O.D.	Dimensions			
					A	B	C	D
1.900"	71F	11/16"	1.3330-16	1.500"	1.250"	0.750"	2.188"	1.125"
2-3/8"	71K	11/16"	1.5730-16	1.750"	1.500"	0.750"	2.188"	1.375"
	71K1	7/8"						
2-7/8"	71N	7/8"	2.0870-16	2.250"	1.625"	0.750"	2.500"	1.500"
	71N1	1-1/16"						



Guide, Pull Tube, Pin End

Tubing Size	Base Part Number	Pull Tube Size	Thread Size	O.D.	Dimensions			
					A	B	C	D
2-3/8"	71C101	15/16"	1.3330-16	1.875"	1.500"	0.812"	2.500"	1.500"
	71E101	1-1/8"	1.5730-16	1.730"	1.625"	0.750"	2.000"	1.500"
	71E102	15/16"			1.500"		2.125"	1.375"
2-7/8"	71K101	1-1/8"	2.0870-16	2.250"	2.000"	1.000"	2.250"	1.875"
	71K103	1-1/2"						



NOTES:

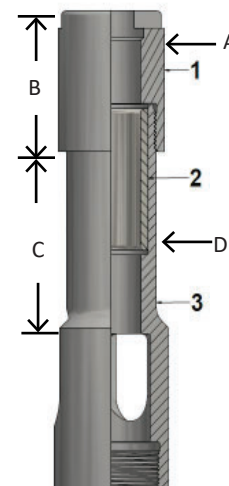
- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific guide material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

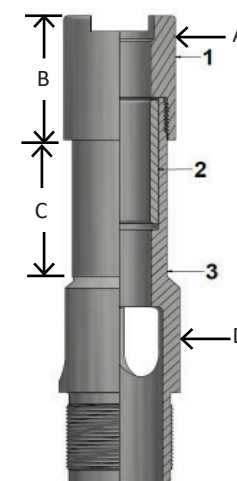
Guide, Valve Rod, Insert Guided, Box End

Tubing Size	Base Part Number (3)	Insert Guide Part Number (2)	Clutch Nut Part Number (1)	Valve Rod/ HPT Size	Thread Size	O.D.	Dimensions			
							A	B	C	D
2-3/8"	70K-IG1	70F-IG3	70K-IG2	11/16"	1.4704-14	1.750"	1.625"	2.000"	2.478"	1.375"
		70K-IG3		7/8"						
2-7/8"	70N-IG1	70F-IG3	70N-IG2	11/16"	1.8024-14	2.250"	2.000"	2.000"	2.343"	1.625"
		70K-IG3		7/8"						
	70NS-IG1	70N-IG3	70NS-IG2	1-1/16"						



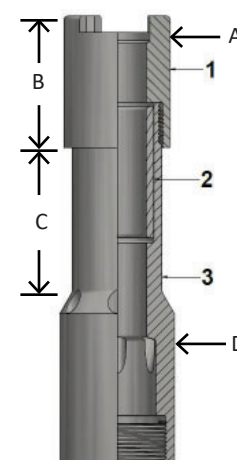
Guide, Valve Rod, Insert Guided, Pin End

Tubing Size	Base Part Number (3)	Insert Guide Part Number (2)	Clutch Nut Part Number (1)	Valve Rod/ HPT Size	Thread Size	O.D.	Dimensions			
							A	B	C	D
2-3/8"	71K-IG1	70F-IG3	70K-IG2	11/16"	1.4704-14	1.750"	1.625"	2.000"	2.478"	1.375"
		70K-IG3		7/8"						
2-7/8"	71N-IG1	70F-IG3	70N-IG2	11/16"	1.8024-14	2.250"	2.000"	2.000"	2.343"	1.625"
		70K-IG3		7/8"						
	71N1-IG1	70N-IG3	70NS-IG2	1-1/16"						



Guide, Valve Rod, Insert Guide, Box End, Vertical Ported

Tubing Size	Base Part Number (3)	Insert Guide Part Number (2)	Clutch Nut Part Number (1)	Valve Rod Size	Thread Size	O.D.	Dimensions			
							A	B	C	D
2-3/8"	70K-V-IG1	70F-IG3	70K-IG2	11/16"	1.4704-14	1.750"	1.625"	2.000"	2.155"	1.375"
		70K-IG3		7/8"						
2-7/8"	70N-V-IG1	70F-IG3	70N-IG2	11/16"	1.8024-14	2.250"	2.000"	2.000"	2.483"	1.625"
		70K-IG3		7/8"						
	70NS-V-IG1	70N-IG3	70NS-IG2	1-1/16"						





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Guide, Ring, Guide Barrel, Top

Tubing Size	Base Part Number	ID1	ID2	O.D.	FITS BARREL
2 7/8"	107N	1.595"	1.760"	2.250"	1 1/2" RW
	107N1	1.595"	1.885"	2.250"	1 1/2" RX
3 1/2"	107Q	2.109"	2.260"	2.812"	2" RW



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific guide material:

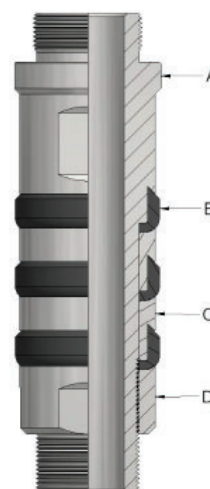
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

HOLD-DOWN ASSEMBLIES

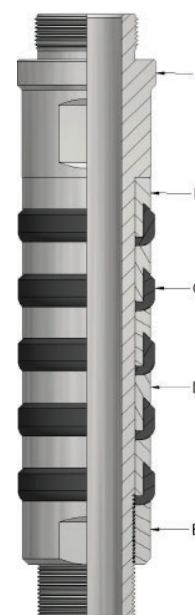
Hold Down Assembly, Seating, API Type, 3 Cup, Type "HR"

Tubing Size		2-3/8"		2-7/8"	3-1/2"
No-Go		1.875"	1.900"	2.337"	2.844"
I.D.		0.875"		1.188"	1.438"
Pin Thread Size	Top	1.4704-14		1.8024-14	2.1095-11 1/2
	Bottom	1.1894-14		1.5604-14	2.0035-11 1/2
API Nipple I.D.		1.780"		2.280"	2.780"
No Req'd	API Number	Description	Component Part Number		
1	S11	Mandrel (A)	85K	85K1	85N
3	S12	Seating Cup (B)	625J+30		625M+70
2	S13	Seating Ring (C)	110K		110N
1	S14	Lock Nut (D)	95K		95Q



Hold Down Assembly, Seating, 5 Cup, Type "HR"

Tubing Size		2-3/8"		2-7/8"	3-1/2"
No-Go		1.875"		2.337"	2.844"
I.D.		0.875"		1.188"	1.438"
Pin Thread Size	Top	1.4704-14		1.8024-14	2.1095-11 1/2
	Bottom	1.1894-14		1.5604-14	2.0035-11 1/2
API Nipple I.D.		1.780"		2.280"	2.780"
No Req'd	API Number	Description	Component Part Number		
1	-	Mandrel	87K	87N1	87Q1
1	-	End Spacer	-	110N1	110Q1
5	S12	Seating Cup	625J+30		625M+70
4	S13	Spacer Ring	110K		110N
1	S14	Lock Nut	95K		95Q



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific fittings material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
- Seating Cups listed are as per API-11AX specified cup sizes. See Seating Cups parts section for complete list of available material and cup size.
- For 2-3/8" 5-Cup Hold-Down, spacer end (item B) is not needed. Seating Cup assembles to **87K** mandrel directly.
- Top Hold-Down** assemblies adapt to **25-Series Bushings** while **Bottom Hold-Down** assemblies adapt to **50-Series Couplings**. See specific bushing/coupling parts section for complete bushing and coupling part numbers and material availability.
- These Hold-Downs are use with **89-series Seating Nipples**. See 89-series Seating Nipple parts section for part numbers and material availability.

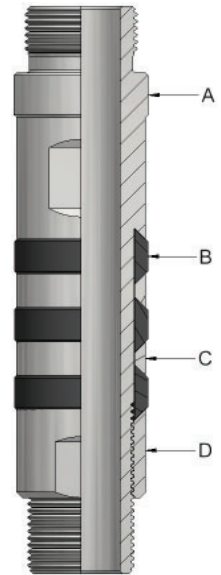


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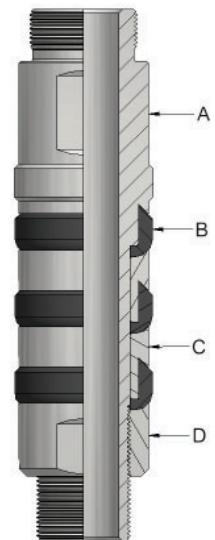
Hold Down Assembly, Seating, 3 Cup, Type "O"

Tubing Size		1.900"	2-1/16"	2-3/8"	2-7/8"
API Nipple I.D.		1.460"	1.540"	1.780"	2.280"
Mandrel	No-Go	1.510"	1.625"	1.875"	2.339"
	I.D.	0.875"	0.875"	1.155"	1.625"
Pin Thread Size	Top	1.2500-14	1.2500-14	1.5730-16	1.9864-14
	Bottom	1.1894-14	1.1894-14	1.3900-14	1.9800-16
No Req'd	Description	Component Part Number			
1	Mandrel (A)	85F	85F1	85K-OS	85N-OS
3	Seating Cup (B)	626F-10	626F+70	626H+70	626M2+70
2	Seating Ring (C)	110F	110F	110K-OS	110N-OS
1	Lock Nut (D)	95F	95F	95K-OS	95N-OS



Hold Down Assembly, Seating, For Non-API Nipple, 3 Cup

Tubing Size		2-1/16"	2-3/8"	2-7/8"
API Nipple I.D.		1.625"	1.875"	2.313"
Mandrel	No-Go	1.645"	1.895"	2.332"
	I.D.	0.875"	0.875"	1.188"
Seating Cup Type		Type "O"	Type "HR"	Type "HR"
Thread Size	Top	1.2500-14	1.4704-14	1.8024-14
	Bottom	1.2500-14	1.1894-14	1.5604-14
No Req'd	Description	Component Part Number		
1	Mandrel (A)	85F2	85KX	85NX
3	Seating Cup (B)	1-5/8"+15	625Z+30	625M+90
2	Seating Ring (C)	110F2	110K	110N
1	Lock Nut (D)	95F2	95K	95N



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific fittings material:
Blank Carbon Steel, API material "A1" / "B1" **M** Monel, API material "A4"
A Alloy Steel, API material "A2" **S** Stainless Steel, API material "D6"
B Brass, API material "B5"
- Seating Cups listed are as per API-11AX specified cup sizes. See Seating Cups parts section for complete list of available material and cup size.
- For 2-3/8" 5-Cup Hold-Down, spacer end (item B) is not needed. Seating Cup assembles to **87K** mandrel directly.
- Top Hold-Down** assemblies adapt to **25-Series Bushings** while **Bottom Hold-Down** assemblies adapt to **50-Series Couplings**. See specific bushing/coupling parts section for complete bushing and coupling part numbers and material availability.
- These Hold-Downs are use with **89-series Seating Nipples**. See 89-series Seating Nipple parts section for part numbers and material availability.

Hold Down Assembly, Seating, Metal Friction Ring Type

Tubing Size		2-3/8"	2-7/8"	3-1/2"	4-1/2"	5"	5-1/2"
API Nipple I.D.		1.780"	2.280"	2.780"	3.795"	4.610"	6.180"
Mandrel	No-Go	1.875"	2.337"	2.844"	3.845"	4.674"	6.330"
	I.D.	0.875"	1.188"	1.625"	2.250"	3.125"	4.250"
Pin Thread Size	Top	1.4704-14	1.8024-14	2.1095-11 1/2	3.238-11 1/2	3.6875-11 1/2	5.3750-8
	Bottom	1.1894-14	1.5604-14	2.0035-11 1/2	2.8000-11 1/2	3.6875-11 1/2	5.3750-8
No Req'd	Description	Component Part Number					

2-RING DESIGN

1	Mandrel (A)	-	85N1	85Q1	85U1	85Z	85ZA1
2	Seating Cup (B)	-	112N1-2.300	112P1-2.795	112U1-3.810	112Z1-4.625	112ZA1-6.190
2	Seating Ring (C)	-	113N1	113P1	113U1	113Z1	113ZA1
1	Lock Nut (D)	-	95N1	95Q1	95U1	95Z1	95ZA1

5-RING DESIGN

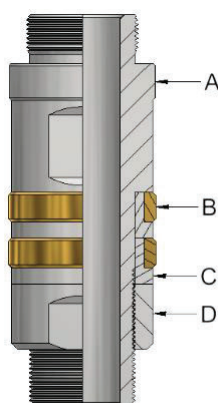
1	Mandrel (A)	85K3	85N1	85Q1	-	-	-
5	Seating Cup (B)	112K-1.800	112N-2.300	112P-2.795	-	-	-
5	Seating Ring (C)	113K	113N	113P	-	-	-
1	Lock Nut (D)	95K1	95N1	95Q1	-	-	-

U-RING DESIGN

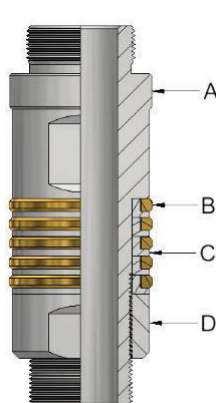
1	Mandrel (A)	-	-	-	85U1	85Z	-
2	Seating Cup (B)	-	-	-	112U3-3.800	112Z3-4.615	-
1	Seating Ring (C)	-	-	-	113U3	113Z3	-
1	Lock Nut (D)	-	-	-	95U1	95Z1	-

Top Hold-Down assemblies adapt to **25-series Bushings** while **Bottom Hold-Down** assemblies, adapt to **50-series Couplings**. See specific bushing/coupling parts section for complete bushing and coupling part numbers and material availability.

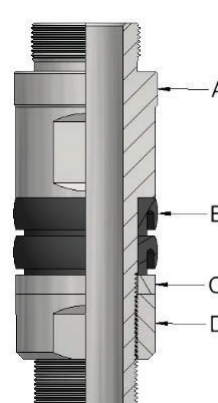
These Hold-Downs are used with **89-series Seating Nipples**. See 89-series Seating Nipple parts section for complete part numbers and material availability.



2-RING



5-RING



U-STYLE

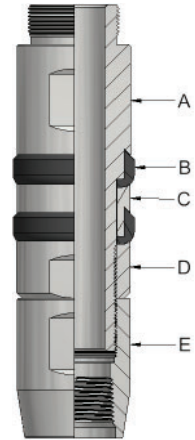


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Hold Down Assembly, Seating, API Type, 2-Cup, Type "HR", Tubing Pump

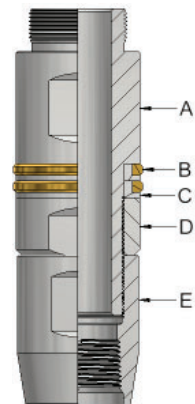
Pump Bore			1-3/4"	2-1/4"	2-3/4"
API Nipple I.D.			1.710"	2.210"	2.710"
Mandrel		O.D.	1.688"	2.188"	2.688"
		I.D.	0.812"	1.188"	1.438"
Thread Size		Upper Pin	1.4704-14	1.8024-14	2.1095-11 1/2
		Lower Box	1" L.P.	1-1/4" L.P.	1-1/2" L.P.
No Req'd	API Number	Description	Component Part Number		
1	S17	Mandrel (A)	86H1	86M1	86P
2	S18	Seating Cup (B)	625H-10	625M-10	625P-10
1	S13	Spacer Ring (C)	110K	110N	110Q
1	S14	Lock Nut (D)	95K	95N	95Q
1	S16	Coupling (E)	50K	50N	50Q



These Hold-Downs are use with **90-series Seating Nipples**. See 90-series Seating Nipple parts section for part numbers and material availability.

Hold Down Assembly, Seating, Metal Friction Ring Type, 2 Wide Ring, Tubing Pump

Pump Bore		2-1/4"	2-3/4"	3-3/4"	4-3/4"
API Nipple I.D.		2.210"	2.710"	3.720"	4.610"
Mandrel	O.D.	2.188"	2.688"	3.690"	4.550"
	I.D.	1.188"	1.438"	2.250"	3.125"
Thread Size	Upper Pin	1.8024-14	2.1095-11 1/2	3.2380-11 1/2	4.0000-10
	Lower Box	1-1/4" L.P.	1-1/2" L.P.	2" L.P.	3-1/2" EUE-8RD
No Req'd	Description	Component Part Number			
1	Mandrel (A)	86M2	86M1	86T1	86ZB1
2	Friction Ring (B)	112N-2.225	625M-10	112U1-3.735	112Z1-4.625
1	Spacer Ring (C)	113N1	110N	113U1	113Z1
1	Lock Nut (D)	95N1	95N	95U1	95Z1
1	Coupling (E)	50N	50N	50U	50Z



These Hold-Downs are use with **90-series Seating Nipples**. See 90-series Seating Nipple parts section for part numbers and material availability.

NOTES:

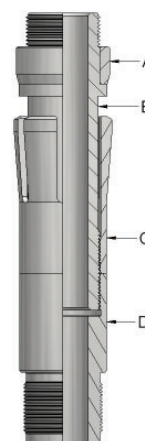
- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific fittings material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		

- Friction Rings material are only available in **Brass** and **Stainless Steel**. Use same prefixes as indicated above when ordering.
- Friction Ring numbered suffix corresponds to Friction Ring O.D.
- Seating Cups listed are as per API-11AX specified cup sizes. See Seating Cups parts section for complete list of available material and cup size.

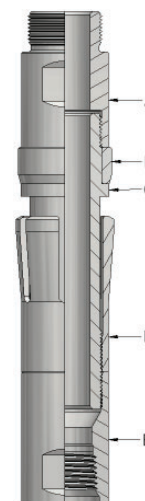
Hold Down Assembly, Mechanical, API Type Top Lock, API S21

Tubing Size		2-3/8"	2-7/8"	3-1/2"	4-1/2"
Pump Bore	RW	1-1/2"	2"	2-1/2"	-
	RH	1-1/4"	1-1/2" & 1-3/4"	2-1/4"	-
Thread Size	Top Pin	1.4704-14	1.8024-14	2.1095-11 1/2	3.2380- 11 1/2
	Bottom Pin	1.5730-16	2.0870-16	2.5730-16	3.3825-11 1/2
Minimum I.D.		1.031"	1.281"	1.688"	2.250"
API Number		S21-20	S21-25	-	-
No Req'd	Description	Component Part Number			
1	Seat (A)	78K2	78N2	78Q2	78U2
1	Mandrel (B)	78K3	78N3	78Q3	78U3
1	Lock (C)	78K4	78N4	78Q4	78U4
1	Barrel Bushing (D)	78K6	78N6	78Q6	78U6



Hold Down Assembly, Mechanical Bottom Lock, Top Lock Converted to Bottom Lock, API S21

Tubing Size		2-3/8"	2-7/8"	3-1/2"
Thread Size	Top Pin	1.4704-14	1.8024-14	2.1095-11 1/2
	Bottom Pin	1" L.P.	1-1/4"	1-1/2"
No Req'd	Description	Component Part Number		
1	Top Bushing (A)	78K1	78N1	78Q1
1	Seat (B)	78K2	78N2	78Q2
1	Mandrel (C)	78K3	78N3	78Q3
1	Lock (D)	78K4	78N4	78Q4
1	Coupling (E)	78K5	78N5	78Q5



NOTES:

1. Seat material is Stainless Steel, hardened to 38-42 HRC.
2. Lock material is Alloy Steel, hardened to 41-45 HRC.
3. All other component parts are made of Carbon Steel.
4. These Hold-Downs are used with 96-series (API N14) Seating Nipples. See 96-series Seating Nipples parts section for complete part number and material availability.



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Hold Down Assembly, Pacific Type, Insert Pump, Combination Mechanical and Seating Cups

Tubing Size		2-3/8"	2-7/8"	3-1/2"
Nipple I.D.		1.785"	2.280"	2.785"
Seal Ring No-Go O.D.		1.875"	2.340"	2.845"
Top Pin Thread Size		1.4704-14	1.8024-14	2.1095-11 1/2
No Req'd	Description	Component Part Number		
1	Top Bushing ⁵ (A)	79K4	79N4	79Q4
1	Seal Ring ¹ (B)	79K5	79N5	79Q5
1	Mandrel (C)	79K6	79N6	79Q6
1	Lock Nut ² (D)	79K8	79N8	79Q8
1	Lock (E)	79K9	79N9	79Q9
2	Ring, End Cup (F)	79K14	79N14	79Q14
2	Ring, Cup (G)	79K15	79N15	79Q15
3	Seating Cup, Type "O" ³ (H)	626H+70	626M+70	626P+70

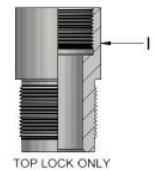
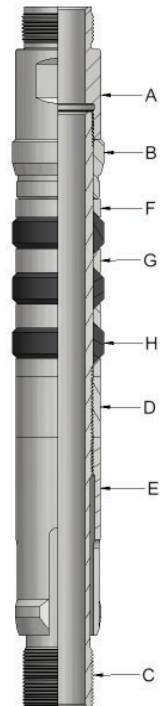
FOR TOP LOCK ASSEMBLY (I)

1	Barrel Bushing	79K11	79N11	79Q11
	I.D.	1.000"	1.312"	1.510"
	Pin Thread Size	1.5730-16	2.0870-16	2.5730-16

FOR BOTTOM LOCK ASSEMBLY (J)

1	Coupling, Anchor	79K10	79N10	79Q10
	Line Pipe Box Thread Size	1"	1-1/4"	1-1/2"

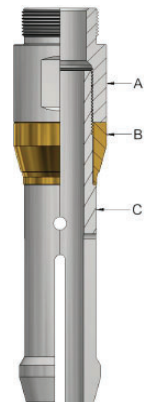
- Seal Ring material is Stainless Steel, hardened to 38-42 HRC.
- Lock material is Alloy Steel.
- Seating Cups listed are made of fiber. See Seating Cups parts section for complete list of available material and dimensions.
- All other component parts are Carbon Steel.
- Top Bushing (Item A) is optional when running a **Top Hold-Down Pump** with a **Top Check Valve Assembly**.
- Convert this **Combination Mechanical /Seating Cup Lock Hold-Down** to just a **Mechanical Lock Hold-Down** by replacing items F, G & H with the following spacers: **79K7** (for 2-3/8"), **79N7** for (2-7/8") and **79Q7** for (3-1/2").
- These hold-down assemblies are used with 94-series Seating Nipples. See 94-series Seating Nipples parts section for part numbers and material availability.



Hold Down Assembly, Mechanical, API Type Bottom Lock, API S22

Tubing Size		2-3/8"	2-7/8"	3-1/2"	4-1/2"
Pin Thread Size		1.4704-14	1.8024-14	2.1095-11 1/2	3.1715-11 1/2
API Number		S22-20	S22-25	S22-30	S22-40
No Req'd	Description	Component Part Number			
1	Bushing ¹ (A)	26K	26N	26Q	26U
1	Ring ² (B)	108K	108N	108Q	108U
1	Mandrel ³ (C)	83K	83N	83Q	83U

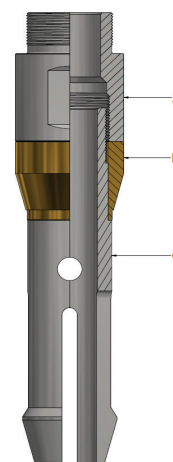
- Bushing material is made of Carbon Steel.
- Ring material is made of Brass.
- Mandrel material is made of hardened and tempered Alloy Steel or 17-4 PH Stainless Steel
- These hold-down assemblies are used with 92-series (API N12) Seating Nipples. See 92-series Seating Nipples parts section for complete part number and material availability.



HOLD-DOWNS

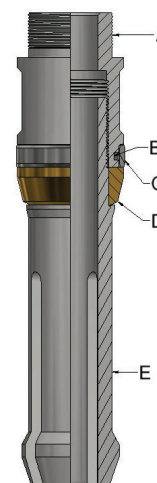
Hold Down Assembly, Mechanical, Bottom Lock, SP, NON API

Tubing Size		2-3/8"	2-7/8"	3-1/2"
Pin Thread Size		1.4704-14	1.8024-14	2.2500-16
API Number		S22-20	S22-25	S22-30
No Req'd	Description	Component Part Number		
1	Bushing ¹ (A)	26K-SP	26N-SP	26Q-SP
1	Ring ² (B)	108K-SP	108N-SP	108Q-SP
1	Mandrel ³ (C)	83K-SP	83N-SP	83Q-SP



Hold Down Assembly, Mechanical, Bottom Lock, FR, NON API

Tubing Size		2-7/8"
Pin Thread Size		1.8024-14
No Req'd	Description	Component Part Number
1	Bushing ¹ (A)	26N-FR
1	O-Ring (B)	V90-224
1	Seal Ring (C)	112N1-228
1	Ring ² (D)	108N-FR
1	Mandrel (E)	83N-FR



NOTES:

- Bushing material is made of Carbon Steel.
- Ring material is made of Brass.
- Mandrel material is made of hardened and tempered Alloy Steel or 17-4 PH Stainless Steel
- These hold-down assemblies are used with 92-series (API N12) Seating Nipples. See 92-series Seating Nipples parts section for complete part number and material availability.



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NIPPLES

NIPPLES

Nipple, Seating, Cup Type, Rod Pump, API N11

Base Part Number	I.D.	Tubing Thread	Type of Connection	Length	API Number
89F	1.460"	1.900" EUE or 2-1/16" IJ-10RND	Pin x Box	8"	-
89F1	1.540"	1.900" EUE or 2-1/16" IJ-10RND	Pin x Box	8"	-
89F2	1.460"	1.900" IJ/NUE-10RND	Pin x Box	8"	-
89K	1.785"	2-3/8" EUE-8RND	Pin x Pin	12"	N11-20
89N	2.285"	2-7/8" EUE-8RND	Pin x Pin	12"	N11-25
89Q	2.785"	3-1/2" EUE-8RND	Pin x Pin	12"	N11-30
89U	3.795"	4-1/2" EUE-8RND	Pin x Pin	12"	-
89U1	3.795"	4-1/2" CSG-8RND	Pin x Pin	12"	-
89Z	4.610"	5-1/2" CSG-8RND	Pin x Pin	12"	-
89Z1	4.708"	5-1/2" CSG-8RND	Pin x Pin	12"	-
89Z2	4.685"	5-1/2" CSG-8RND	Pin x Pin	12"	-



Nipple, Seating, Cup Type, Tubing Pump, API N13

Base Part Number	I.D.	Thread Size		API Number
		Pin	Box	
90K	1.710"	2-3/8" EUE-8RND	1-1/2" L.P.	N13-20
90K1	1.710"	2-3/8" EUE-8RND X 2-3/8" NUE-10RND	1-1/2" L.P.	-
90N	2.210"	2-7/8" EUE-8RND	2" L.P.	N13-25
90Q	2.710"	3-1/2" EUE-8RND	2" L.P.	N13-30
90U	3.720"	4-1/2" EUE-8RND	3-1/2" EUE-8RND	-
90U1	3.720"	4-1/2" CSG-8RND	3-1/2" EUE-8RND	-
90Z	4.610"	5-1/2" CSG-8RND	4-1/2" EUE-8RND	-



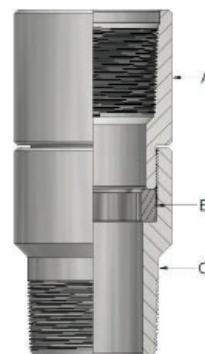
Nipple, Seating, Mechanical, Bottom Lock, API N12

Base Part Number	I.D.	Thread Size		API Number
		Tubing Pin	Line Pipe Box	
92K	1.375"	2-3/8" EUE-8RND	1-1/2"	N12-20
92N	1.750"	2-7/8" EUE-8RND	2"	N12-25
92Q	2.250"	3-1/2" EUE-8RND	2-1/2"	N12-30
92U	3.000"	4-1/2" EUE-8RND	3"	N12-40



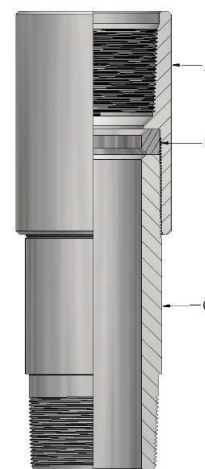
Nipple, Seating, Mechanical, Top Lock, API N14

Tubing Thread Size	I.D.	Assembly Number	Component Part Number			API Number
			Collar (A)	Seat ² (B)	Nipple (C)	
2-3/8" EUE-8RND	1.780"	96K	96K1	96K2	96K3	N14-20
2-7/8" EUE-8RND	1.750"	96N	96N1	96N2	96N3	N14-25
3-1/2" EUE-8RND	2.250"	96Q	96Q1	96Q2	96Q3	N14-30
4-1/2" EUE-8RND	4.000"	96U	96U1	96U2	96U3	-



Nipple, Seating, Mechanical, Pacific Type Top or Bottom Lock

Tubing Size	Thread Connections	Nipple I.D.	Assembly Number	Component Part Number		
				Collar (A)	Seat ² (B)	Nipple (C)
2-3/8"	2-3/8" EUE-8RND	1.785"	94K	94K1	94K2	94K3
2-7/8"	2-7/8" EUE-8RND	2.280"	94N	94N1	94N2	94N3
3-1/2"	3-1/2" EUE-8RND	2.785"	94Q	94Q1	94Q2	94Q3



Nipple, Extension, Upper, API N21

Tubing Size	Nipple Thread	Upset O.D.	Nipple I.D.	Base Part Number		API Number
				2 feet	3 feet	
2-3/8"	8RND-EUE	2.594"	1.902"	88K2	88K3	N21-20
2-7/8"	8RND-EUE	3.094"	2.350"	88N2	88N3	N21-25
3-1/2"	8RND-EUE	3.750"	2.867"	88Q2	88Q3	N21-30
4-1/2"	8RND-EUE	4.750"	3.875"	88U2	88U3	N21-40



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific nipple material:
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
S Stainless Steel, API material "D6"
- Seat material is Stainless Steel. Hardened to 38-42HRC



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Nipple, Extension, Lower, N22

Tubing Size	Nipple Thread	Upset O.D.	Nipple I.D.	Base Part Number		API Number
				2 feet	3 feet	
2-3/8"	8RND-EUE	2.594"	1.902"	88K2-1	88K3-1	N22-20
2-7/8"	8RND-EUE	3.094"	2.350"	88N2-1	88N3-1	N22-25
3-1/2"	8RND-EUE	3.750"	2.867"	88Q2-1	88Q3-1	N22-30
4-1/2"	8RND-EUE	4.750"	3.875"	88U2-1	88U3-1	N22-40

When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific nipple material:

Blank Carbon Steel, API material "N1"
A Alloy Steel, API material "N2"
S Stainless Steel, API material "N6"



Nipple, Strainer

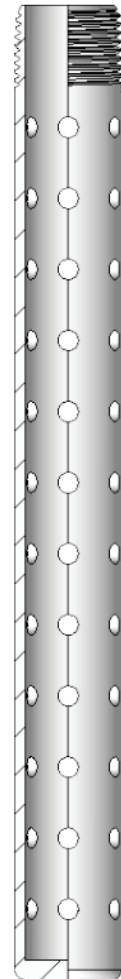
Line Pipe Thread Size	O.D.	Base Part Number	
		Regular	With Sand Screen ³
1"	1.315"	93A(L)	93A(L) Z
1-1/4"	1.656"	93D(L)	93D(L) Z
1-1/2"	1.900"	93F(L)	93F(L) Z
3/4"	1.063"	93Z(L)	-

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific nipple material:

Blank Carbon Steel, API material "N1"
A Alloy Steel, API material "N2"
S Stainless Steel, API material "N6"
B Brass, API material "N5"

- Specifying strainer nipple length (L) in inches.





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PLUGS

Plug, Pull, API P11

Base Part Number	Pull Tube O.D.	O.D.	I.D.	Thread Size	API Number
97D	15/16"	1.750"	1.000"	1.3330-16	P11-125-15
97F	1-1/8"	1.750"	1.188"	1.5730-16	P11-150-20
97F1	15/16"	1.750"	1.000"	1.5730-16	P11-125
97K	1-1/2"	2.000"	1.525"	2.0870-16	P11-200
97M	1-7/8"	2.750"	1.937"	2.5730-16	P11-225



PLUGS

Plug, Seat, Recessed

Pump Bore	Base Part Number	Hex Size	Thread Size
1-1/16"	98B1	1/2"	0.8750-14
1-1/4"	98D1	9/16"	1.0000-14
1-1/2"	98F1	3/4"	1.2500-14
1-3/4"	98H1	7/8"	1.4704-14
2"	98K1	1"	1.5604-14



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific plug material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"

M Monel, API material "A4"
S Stainless Steel, API material "D6"

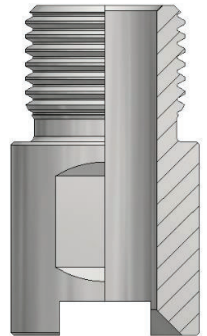
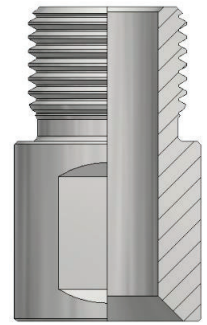


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Plug, Seat, API P12

Pump Bore	Base Part Number	O.D.	Thread Size	API Number
1-1/6"	98B	1.025"	0.8750-14	-
1-1/4"	98D	1.188"	1.0000-14	P12-125
1-1/2"	98F	1.438"	1.2500-14	P12-150
1-3/4"	98H	1.688"	1.4704-14	P12-175
	98H-C			-
2"	98K	1.938"	1.5604-14	P12-200
2-1/4"	98M	2.188"	1.8024-14	P12-225
	98M-C			Clutched for THOS Pump
2-1/2"	98N	2.438"	2.1095-11 1/2	P12-250
	98N-C			-
2-3/4"	98P-C	2.688"	2.1095-11 1/2	Clutched for THOS Pump
3-1/4"	98R	3.188"	2.8000-11 1/2	Big Bore Insert Pump
	98R-C			Clutched for THOS Pump
3-3/4"	98T	3.688"	3.1715-11 1/2	Big Bore Insert Pump
	98T-C			Clutched for THOS Pump
4-1/4"	98Z	4.188"	3.1715-11 1/2	Big Bore Insert Pump
	98Z-C			Clutched for THOS Pump
4-3/4"	98ZB-C	4.688"	4.000-10	Clutched for THOS Pump
5"	98ZE-C	4.938"	4.000-10	Clutched for THOS Pump
5-1/2"	98ZA	5.438"	4.5000-8	Big Bore Insert Pump
	98ZA-C			Clutched for THOS Pump
5-3/4"	98ZC-C	5.688"	5.0000-10	Clutched for THOS Pump
7-3/4"	98ZF-C	7.688"	6.5000-8	Clutched for THOS Pump



PLUGS

NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific plug material:

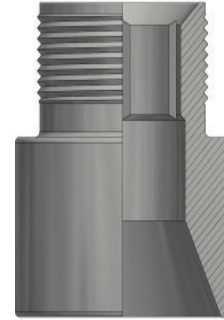
Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"
M Monel, API material "A4"
S Stainless Steel, API material "D6"

Plug, Seat, Positive Seal

Pump Bore	Base Part Number	O.D.	Thread Size
1-1/4"	98D -PSP	1.2475"	1.0000-14
1-1/2"	98F -PSP	1.4975"	1.2500-14
1-3/4"	98H -PSP	1.7475"	1.4704-14
2"	98K -PSP	1.9975"	1.5604-14

NOTES:

1. Close fit, sprayed metal for wear resistance



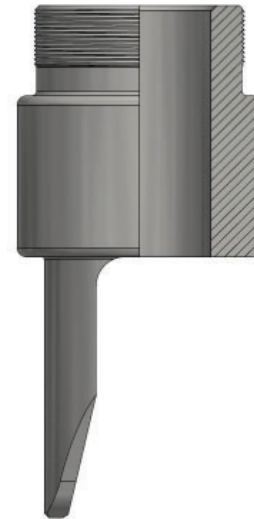
PLUGS

Plug, Seat, Kick Valve

Pump Bore	Base Part Number	O.D.	Thread Size
3-1/4"	98R -SDV	3.188"	2.8000-11 1/2
3-3/4"	98T -SDV	3.688"	3.1715- 11 1/2
4-3/4"	98ZB -SDV	4.688"	4.0000-10
5-3/4"	98ZC -SDV	5.688"	5.0000-10

NOTES:

1. Kick Valve (SDV) parts to be used in combination with 98-SDV, 22-SDV, and 37 -SDV part numbers.



NOTES:

1. When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific plug material:

Blank	Carbon Steel, API material "A1" / "B1"
A	Alloy Steel, API material "A2"
B	Brass, API material "B5"
M	Monel, API material "A4"
S	Stainless Steel, API material "D6"



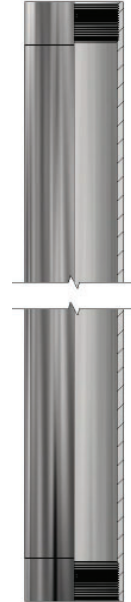
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PLUNGERS

Plunger, Box End, Metal Sprayed, API P23

Pump Bore	Part Number		Thread Size	API Number
	Q-Hard	Tungsten Sprayed		
1-1/4"	100DQ(L)	100DW(L)	1.0000-14	-
1-1/2'	100FQ(L)	100FW(L)	1.2500-14	-
1-3/4"	100HQ(L)	100HW(L)	1.5084-14	P23-175
2"	100KQ(L)	100KW(L)	1.7330-14	-
2-1/4"	100MQ(L)	100MW(L)	1.9864-14	P23-225
2-1/2"	100NQ(L)	100NW(L)	2.1095-11 1/2	-
2-3/4"	100PQ(L)	100PW(L)	2.3755-11 1/2	P23-275
3-1/4"	100RQ(L)	100RW(L)	2.5625-11 1/2	-
3-3/4"	100TQ(L)	100TW(L)	3.3825-11 1/2	P23-375
4-1/4"	100ZQ(L)	100ZW(L)	3.6875-11 1/2	-
4-3/4"	100ZBQ(L)	100ZBW(L)	4.2500-10	-
5"	100ZEQ(L)	100ZEW(L)	4.3750-10	-
5-1/2"	100ZAQ(L)	100ZAW(L)	4.6250-8	-
5-3/4"	100ZCQ(L)	100ZCW(L)	5.2500-10	-
7-3/4"	100ZFQ(L)	100ZFW(L)	7.6250-8	-



PLUNGERS

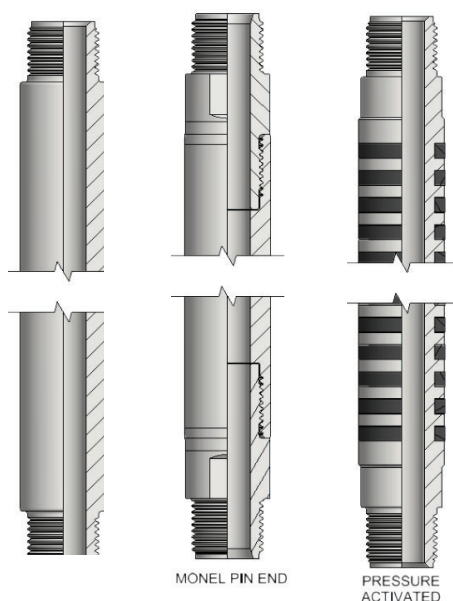
NOTES:

- When ordering, indicate complete part number by specifying:
 - Plunger length (L) in feet.
 - Minus size in thousands of an inch below base size.
 - Spray material as either Q-Hard (Q) or Tungsten Spray (W), (N) Nickel Plated ID
- Spray metal thickness is 0.010" minimum.
- Q-Spray Nickel Spray Hardness is 58 HRC minimum. Tungsten Spray Hardness is 65HRC average with harder (HRA 88) Tungste Carbide particles.

Plunger, Pin End, API P21

Pump Bore	Part Number						Thread Size	API Number
	One-Piece	Monel Pin End	Monel Pin End Premium	Monel Pin End Premium Grooved	Pressure Activated	Pressure Activated Monel Pin		
1-1/16"	102BQ(L)	102BQ(L)-M	-	-	-	-	0.8750-14	-
1-1/4"	102DQ(L)	102DQ(L)-M	102DCL-F-M-N	102DCL-F-M-G-N	105D	105D-M	1.0000-14	P21-125
1-1/2"	102FQ(L)	102FQ(L)-M	102FCL-F-M-N	102FCL-F-M-G-N	105F	105F-M	1.2500-14	P21-150
1-3/4"	102HQ(L)	102HQ(L)-M	102HCL-F-M-N	102HCL-F-M-G-N	105H	105H-M	1.4704-14	P21-175
1-25/32"	102JQ(L)	102JQ(L)-M	-	-	-	105K-M	1.4704-14	-
2"	102KQ(L)	102KQ(L)-M	102KCL-F-M-N	102KCL-F-M-G-N	105K	-	1.5604-14	P21-200
2-1/4"	102MQ(L)	102MQ(L)-M	-	-	105M	-	1.8024-14	P21-225
2-1/2"	102NQ(L)	102NQ(L)-M	-	-	105N	-	2.1095-11 1/2	P21-250
2-3/4"	102PQ(L)	102PQ(L)-M	-	-	102P	-	2.1095-11 1/2	P21-275
3-1/4"	102RQ(L)	102RQ(L)-M	-	-	102R	-	2.8000-11 1/2	-
3-3/4"	102TQ(L)	-	-	-	105T	-	3.1715-11 1/2	P21-375
4-3/4"	-	-	-	-	105ZB	-	4.0000-10	-

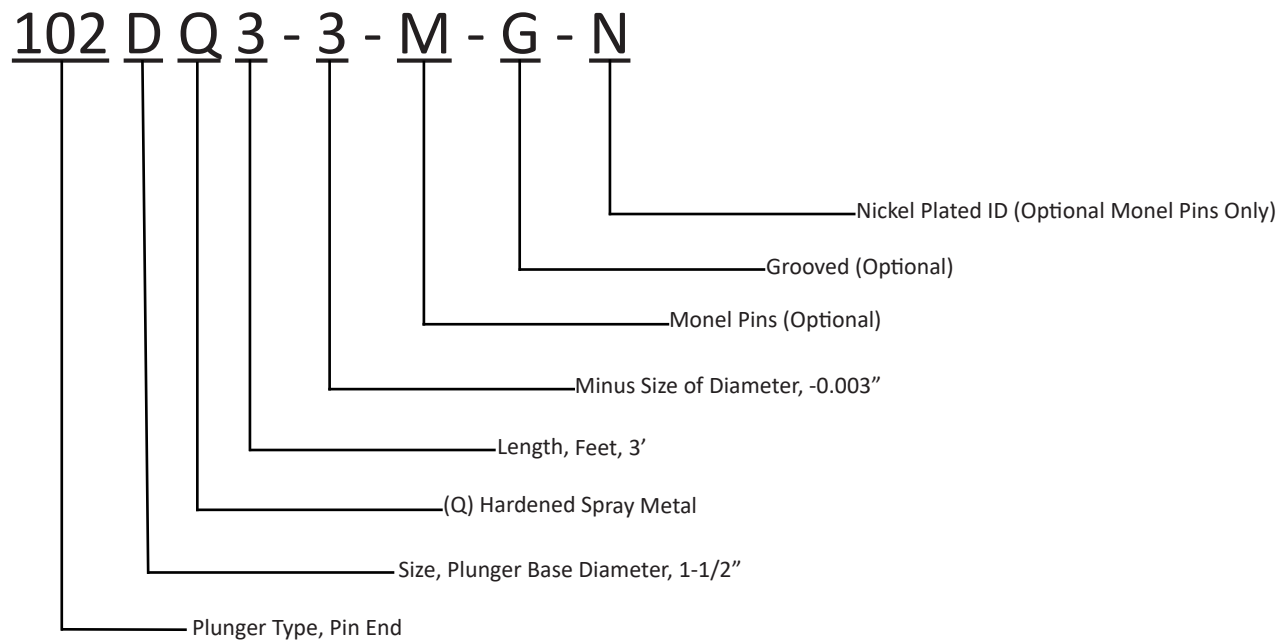
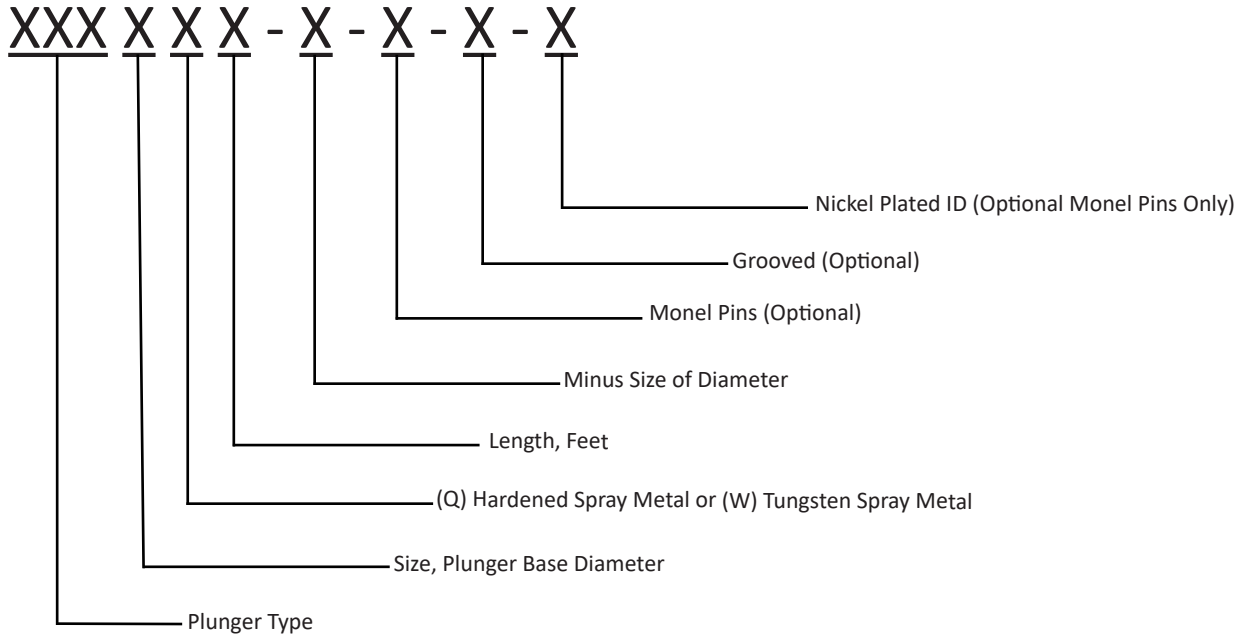
PLUNGERS



NOTES:

- When ordering, indicate complete part number by specifying:
 - Plunger length (L) in feet.
 - Minus size in thousands of an inch below base size.
 - Spray material as either Q-Hard (Q) or Tungsten Spray (W) for **One-Piece** and **Monel Pin End Plungers**.
 - (M) for Monel Pins, (G) grooved, (N) Nickel Plated ID
- When ordering **Pressure Activated Plungers**, indicate complete part number by adding the following suffix:
 - 20** – for 20 rings; **40** – for 40 rings; **60** – for 60 rings, etc.
- Spray metal thickness is 0.010" minimum.
- Q-Spray Nickel Spray Hardness is 58 HRC minimum. Tungsten Spray Hardness is 65HRC average, with harder (HRA 88) Tungste Carbide particles

Plunger Part Designations





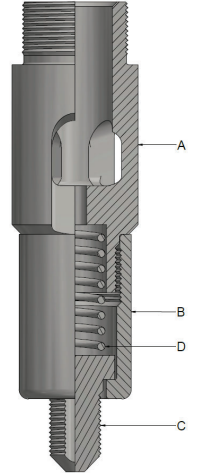
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PULLERS

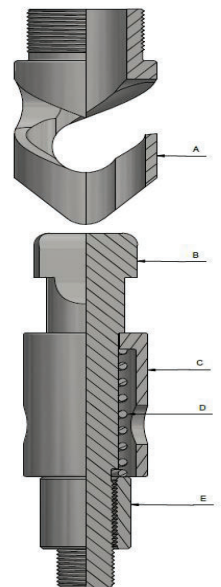
Puller, Standing Valve, TH, Tap Type, API P31

Tubing Size	Assembly Number	Component Part Number				O.D.	Thread Size	
		Puller (A)	Retainer (B)	Tap (C)	Spring (D)		Upper	Lower
1-3/4"	106H	106H1	106Z1	106Z2	106Z3	1.688"	1.4704-14	0.750-10
2-1/4"	106M	106M1				2.188"	1.8024-14	
2-3/4"	106P	106P1				2.625"	2.1095-11 1/2	
3-3/4"	106T	106T1				3.650"	3.1715-11 1/2	



Puller, Sure-Lock Type

Tubing Size	Assembly Number	Component Part Number					O.D.	Thread Size	
		Body (A)	Pin (B)	Cap (C)	Spring (D)	Lock Nut (E)		Upper	Lower
1-3/4"	109H	109H1	109H2	109H3	109H4	109H5	1.688"	1.4704-14	0.750-10
2-1/4"	109M	109M1	109M2	109M3	109M4	109M5	2.188"	1.8024-14	
2-3/4"	109P	109P1	109P2	109P3	109P4	109P5	2.625"	2.1095-11 1/2	
3-3/4"	109T	109T1	109T2	109T3	109T4	109T5	3.680"	3.1715-11 1/2	1.000-10



NOTES:

- When ordering, indicate complete part number by adding the following prefixes to the base part number to indicate specific material:

Blank Carbon Steel, API material "A1" / "B1"
A Alloy Steel, API material "A2"
B Brass, API material "B5"
M Monel, API material "A4"
S Stainless Steel, API material "D6"

Spring material is Inconel X-750

PULLERS



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RODS

Rod, Valve, API R11

O.D.	Thread Size (Mod. LP)	Part Number			API Number
		C1018 Steel	A8620 Alloy	Metal Sprayed	
0.688"	3/8"	114F(L)	114F1(L)	114FQ(L)	R11-20
0.875"	1/2"	114K(L)	114K1(L)	114KQ(L)	R11-25
1.063"	3/4"	114N(L)	114N1(L)	114NQ(L)	R11-30
1.473"	1"	114ZYL	114ZY(L)	114NZYQL	-
1.473"	1" & 7/8"	114ZYX(L)	114ZYX(L)	114ZYX(L)	-

1. When ordering, indicate Valve Rod Length (L) in Inches (in). See table below.
2. Nominal barrel length includes extensions on heavy wall barrel.

Nominal Barrel Length Minus Nominal Plunger Length ft (m)	For Pumps Run in 1.900" (48.3mm), 2-3/8" (60.3mm), 2-7/8" (73.0mm) OD Tubing		For Pumps Run in 3-1/2" (88.9mm) OD Tubing	
	Top Anchor in. (m)	Bottom Anchor in. (m)	Top Anchor in. (m)	Bottom Anchor in. (m)
1 (0.305)	13 (0.330)	7 (0.178)	12 (0.305)	6 (0.152)
2 (0.610)	25 (0.635)	19 (0.483)	24 (0.610)	18 (0.457)
3 (0.914)	37 (0.940)	31 (0.787)	36 (0.914)	30 (0.762)
4 (1.219)	49 (1.245)	43 (1.092)	48 (1.219)	42 (1.067)
5 (1.524)	61 (1.549)	55 (1.397)	60 (1.524)	54 (1.372)
6 (1.829)	73 (1.854)	67 (1.702)	72 (1.829)	66 (1.676)
7 (2.134)	85 (2.159)	79 (2.007)	84 (2.134)	78 (1.981)
8 (2.438)	97 (2.464)	91 (2.311)	96 (2.438)	90 (2.286)
9 (2.743)	109 (2.769)	103 (2.616)	108 (2.743)	102 (2.591)
10 (3.048)	121 (3.073)	115 (2.921)	120 (3.048)	114 (2.896)
11 (3.353)	133 (3.378)	127 (3.226)	132 (3.353)	126 (3.200)
12 (3.658)	145 (3.683)	139 (3.531)	144 (3.658)	138 (3.505)
13 (3.962)	157 (3.988)	151 (3.835)	156 (3.962)	150 (3.810)
14 (4.267)	169 (4.293)	163 (4.140)	168 (4.267)	162 (4.115)
15 (4.572)	181 (4.597)	175 (4.445)	180 (4.572)	174 (4.420)
16 (4.877)	193 (4.902)	187 (4.750)	192 (4.877)	186 (4.724)
17 (5.182)	205 (5.207)	199 (5.055)	204 (5.182)	198 (5.029)
18 (5.486)	217 (5.512)	211 (5.359)	216 (5.486)	210 (5.334)
19 (5.791)	229 (5.817)	223 (5.664)	228 (5.791)	222 (5.639)
20 (6.096)	241 (6.121)	235 (5.969)	240 (6.096)	234 (5.944)
21 (6.401)	253 (6.426)	247 (6.274)	252 (6.401)	246 (6.248)
22 (6.706)	265 (6.731)	259 (6.579)	264 (6.706)	258 (6.553)
23 (7.010)	277 (7.036)	271 (6.883)	276 (7.010)	270 (6.858)
24 (7.315)	289 (7.341)	283 (7.188)	288 (7.315)	282 (7.163)
25 (7.620)	301 (7.645)	295 (7.493)	300 (7.620)	294 (7.468)
26 (7.925)	313 (7.950)	307 (7.800)	312 (7.925)	306 (7.772)
27 (8.230)	325 (8.255)	319 (8.103)	324 (8.230)	318 (8.077)
28 (8.534)	337 (8.560)	331 (8.407)	336 (8.534)	330 (8.382)
29 (8.839)	349 (8.865)	343 (8.712)	348 (8.839)	342 (8.687)
30 (9.144)	361 (9.169)	355 (9.017)	360 (9.144)	354 (8.992)



RODS

* Chart reprinted from API 11AX with permission.

Rod, Polish, API 11B

O.D.	Polish Rod Thread Size	Part Number			
		Piston Steel	Metal Sprayed		Stainless Steel
			End Spray	Full Spray	
1.250"	3/4"	651D(L)W	655D(L)W-ES	655D(L)W-FS	-
	7/8"	651D(L)X	655D(L)X-ES	655D(L)X-FS	657D(L)X-N
1.500"	7/8"	651F(L)X	655F(L)X-ES	655F(L)X-FS	-
	1"	651F(L)Y	655F(L)Y-ES	655F(L)Y-FS	657F(L)Y-N

- When ordering, specify polished rod length (L) in feet.
- Metal sprayed polished rod material is C1045 Carbon Steel.
- Stainless Steel material is XM-19 (N50) Stainless Steel.
- "-ES" : one end not sprayed, 42" length for 16' polished rod, 66" length for longer polished rods.
- "-FS" 6" not sprayed on both ends.



Rod, Pony (Pick – Up Sub)

Rod Size	Part Number - API Grade D Material					
	Carbon Steel			Alloy Steel		
	Regular	With Scraper		Regular	With Scraper	
		Ryton	Amodel		Ryton	Amodel
5/8"	99V(L)C	99V(L)C1-(S)	-	99V(L)A	-	-
3/4"	99W(L)C	99W(L)C1-(S)	99W(L)C2-(S)	99W(L)A	99W(L)A1-(S)	99W(L)A2-(S)
7/8"	99X(L)C	99X(L)C1-(S)	99X(L)C2-(S)	99X(L)A	99X(L)A1-(S)	99X(L)A2-(S)
1"	99Y(L)C	99Y(L)C1-(S)	-	99Y(L)A	-	-
1-1/8"	99Z(L)C	-	-	-	-	-

NOTES:

- When ordering, complete part number by specifying:
 - Pony rod length (L) in whole feet. Lengths are available in 1, 2, 4, 6, 8 and 10 feet only.
 - Scraper size (S). Sizes available are 2" – (20) and 2-1/2" – (25) widths for use with 2-3/8" and 2-7/8" tubings.
- Ryton and Amodel are outside supplier's terminologies for scraper.





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SEATING CUPS

Seating Cup, Type "0"

Tubing Size	Cup Size	Fit Size	Part Number		I.D.
			Composite	Nylon Plastic	
1-1/2"	1.500"	-.010"	626F-10	-	-
		+.030"	-	626P+30	1.190"
		+.070"	626F+70	626P+70	-
2-3/8"	1.781"	+.070"	626H+70	-	1.440"
		+.030"	626J+30	-	-
		+.045"	626M+70	-	1.431"
2-7/8"	2.250"	+.70"	626M2+70	-	1.805"
		-.010"	-	-	1.979"
		-	-	626P-10P	-
3-1/2"	2.750"	+.70"	626P+70	-	2.361"



Seating Cup, Type "HR"

Tubing Size	Nominal Cup Size	Fit Size	Part Number			API Number
			Composite	Nylon Plastic	High Temp Plastic	
1-1/2"	1.500"	+.030"	-	625F+30P	-	-
		+.070"	-	625F+70P	-	-
2-3/8"	1.750"	-.010"	625H-10	-	-	S18-20
		+.060"	625H+60	-	-	-
		+.070"	625H+70	-	-	-
	1.781"	Basic	625J	-	-	-
		+.030"	625J+30	625J+30P	625J+30HT	S12-20
		+.060"	625J+60	625J+60P	-	-
		+.070"	-	625J+70P	-	-
	1.875"	+.030"	625Z+30	625Z+30P	-	-
2-7/8"	2.250"	Basic	625M	-	-	-
		-.010"	625M-10	625M-10P	-	S18-25
		+.030"	625M+30	625M+30P	-	-
		+.045"	625M+45	625M+45P	-	-
		+.070"	625M+70	625M+70P	625M+70HT	S12-25
		+.090"	625M+90	625M+90P	-	-
3-1/2"	2.750"	-.010"	625P-10	-	-	S18-30
		+.070"	625P+70	625P+709	625P+70HT	S12-30
		+.015"	625T+15	-	-	-
4-1/2"	3.750"	+.030"	625T+30	-	-	-
		+.070"	625T+70	-	-	-



NOTES:

- Composition Seating Cups 275°F maximum working temperature
- Nylon Plastic Seating Cups 300 °F maximum working temperature
- HT plastic seating cups 400 °F maximum working temperature

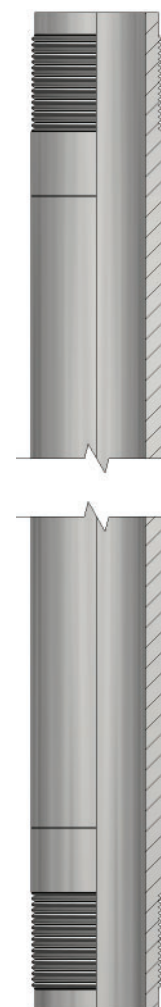
SEATING CUPS

TUBES

Tube, Pull, API T11

Part Number	O.D.	I.D.	Thread Size	API Number
125D(L)	0.938"	0.625"	0.9375-16	T11-125
125F(L)	1.125"	0.812"	1.1250-16	T11-150
125K(L)	1.500"	1.125"	1.5000-16	T11-200
125M(L)	1.875"	1.500"	1.8750-16	T11-225
125R(L)	2.250"	1.750"	2.2500-16	-

Nominal Barrel Length Minus Nominal Plunger Length ft (m)	Actual Length—in. (m)		
	For 1-1/4" (31.8 mm) Bore Pumps	For 1-1/2" (38.1 mm), 1-3/4" (44.5 mm) and 2" (50.8 mm) Bore Pumps	For 2-1/4" (57.2 mm) and 2-1/2" (63.5 mm) Bore Pumps
1 (0.305)	-	-	-
2 (0.610)	15 (0.381)	14 (0.356)	12 (0.305)
3 (0.914)	27 (0.686)	26 (0.660)	24 (0.610)
4 (1.219)	39 (0.991)	38 (0.965)	36 (0.914)
5 (1.524)	51 (1.295)	50 (1.270)	48 (1.219)
6 (1.829)	63 (1.600)	62 (1.575)	60 (1.524)
7 (2.134)	75 (1.905)	74 (1.880)	72 (1.829)
8 (2.438)	87 (2.210)	86 (2.184)	84 (2.134)
9 (2.743)	99 (2.515)	98 (2.489)	96 (2.438)
10 (3.048)	111 (2.819)	110 (2.794)	108 (2.743)
11 (3.353)	123 (3.124)	122 (3.099)	120 (3.048)
12 (3.658)	135 (3.429)	134 (3.404)	132 (3.353)
13 (3.962)	147 (3.734)	146 (3.708)	144 (3.658)
14 (4.267)	159 (4.039)	158 (4.013)	156 (3.962)
15 (4.572)	171 (4.343)	170 (4.318)	168 (4.267)
16 (4.877)	183 (4.648)	182 (4.623)	180 (4.572)
17 (5.182)	195 (4.953)	194 (4.928)	192 (4.877)
18 (5.486)	207 (5.258)	206 (5.232)	204 (5.182)
19 (5.791)	219 (5.563)	218 (5.537)	216 (5.486)
20 (6.096)	231 (5.867)	230 (5.842)	228 (5.791)
21 (6.401)	243 (6.172)	242 (6.147)	240 (6.096)
22 (6.706)	255 (6.477)	254 (6.452)	252 (6.401)
23 (7.010)	267 (6.782)	266 (6.756)	264 (6.706)
24 (7.315)	279 (7.087)	278 (7.061)	276 (7.010)
25 (7.620)	291 (7.391)	290 (7.366)	288 (7.315)
26 (7.925)	303 (7.696)	302 (7.671)	300 (7.620)
27 (8.230)	315 (8.001)	314 (7.976)	312 (7.925)
28 (8.534)	327 (8.306)	326 (8.280)	324 (8.230)
29 (8.839)	339 (8.611)	338 (8.585)	336 (8.534)
30 (9.144)	351 (8.915)	350 (8.890)	348 (8.839)



- When ordering, indicate complete part number by:
 - Specifying pull tube length (L) in whole inches. See table.
 - Adding the following prefixes to base part number to indicate pull tube material:
 - Blank** Carbon Steel, API material "N1"
 - B** Brass, API material "N5"
 - M** Monel, API material "N4"
- Chart reprinted from API 11AX with permission.



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ACCESSORIES

Gas Separator, Oilify WhaleShark

Series Model Name	Part Number	Outside Diameter	Length	Top Connection	Bottom Connection
35	WS-35	3.5"	18'	2-3/8" EUE	2-3/8" EUE
	WS-35-ENC				
	WS-35-ENC-M				
45	WS-45	4.5"	18'	2-3/8" EUE	3-1/2" EUE
	WS-45-ENC				
	WS-45-ENC-M				
55	WS-55	5.5"	18'	2-3/8" EUE	3-1/2" EUE
	WS-55-ENC				
	WS-55-ENC-M				
60	WS-60	6.0"	18'	2-3/8" EUE	3-1/2" EUE
	WS-60-ENC				
	WS-60-ENC-M				



Q2-Shear Tool, Woosley Type

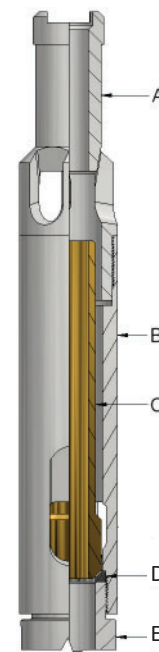
SR Thread Size	O.D.	Part Number	Shear Load in Pounds
3/4"	1.625"	80W14	14,000
		80W17	17,000
		80W20	20,000
		80W22	22,000
		80W26	26,000
		80W30	30,000
		80W33	33,000
7/8"	1.813"	80X22	22,000
		80X26	26,000
		80X30	30,000
	1.625"	80X33-SH	33,000
1"	2.000"	80Y26	26,000
		80Y33	33,000

1. Shear pins are W1 Tool Steel with 92 HRB minimum hardness.
2. All other component parts are made of Carbon Steel.



Q2-Check (Top Check Valve)

Tubing Size	1-1/2"	2-3/8"		2-7/8"		3-1/2"	4-1/2"
Valve Rod Size	11/16"	11/16"	7/8"	7/8"	1-1/16"	1-1/16"	1-1/2"
Description	Component Part Number						
Valve Rod Guide (A)	71F	71K	71K1	71N	71N1	70NS	116U1
Housing (B)	116F2	116K2		116N2		116Q2	116U2
Plunger, Brass (C)	116F3	116K3	-	116N3	-	116Q3	116U3
Plunger, Hardened (C)	116F3-HT	116K3-HT	116K3-HT-1	116N3-HT	116N3-HT-1	116Q3-HT	116U3-HT
Housing Extension (E)	-	-		-		116Q5	116U5
Seat, Hardened (D)	-	-		116N7		116Q7	116U7
Seat Bushing Connector or Top Hold-down Assembly (E): See Note 3							



1. When ordering, indicate complete part number by adding the following prefixes to the **Housing, Valve Rod Guide and Housing Extension** base part numbers to indicate specific material:

Blank	Carbon Steel, API material "A1" / "B1"	M	Monel, API material "A4"
A	Alloy Steel, API material "A2"	S	Stainless Steel, API material "D6"
B	Brass, API material "B5"		
2. **Seat** material is 440C Stainless Steel
3. See **Bushing** and **Hold Down** parts section for complete part number and material availability.



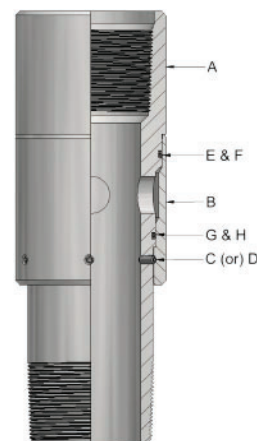
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Tubing Drain

Tubing Size	2-3/8"	2-7/8"	3-1/2"	4-1/2"
Thread Size	2-3/8"	2-7/8"	3-1/2"	4-1/2"
O.D.	3.438"	3.875"	4.500"	5.625"
Assembly Part Number	500K	500N	500Q	500U
Description	Component Part Number			
Body (A)	500K1	500N1	500Q1	500U1
Sleeve (B)	500K2	500N2	500Q2	500U2
Brass Shear Pin (C)	500N3			
Stainless Steel Shear Pin (D)	500N4			
Upper O-Ring (E)	500K5F	500N5F	500Q5F	500U5F
Upper Back-Up O-Ring (F)	500K7T	500N7T	500Q7T	500U7T
Lower O-Ring (G)	500K6F	500N6F	500Q6F	500U6F
Lower Back-Up O-Ring (H)	500K8T	500N8T	500Q8T	500U8T

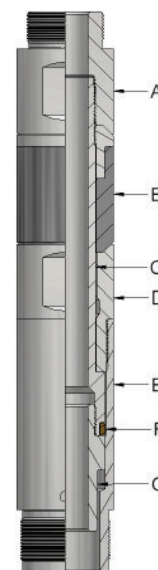
1. **Body** and **Sleeve** materials are made of Carbon Steel.
2. Shear pin materials as noted in the table.
3. O-Ring materials are 75 Durometer Fluorocarbon.
4. **Back-Up O-Ring** materials are Polymer.



Automatic Top Seal

Tubing Size		2-3/8"	2-7/8"	3-1/2"
Thread Size	Top End	1.4704-14	1.8024-14	2.1095-11 1/2
	Bottom End	1.5730-16	2.0870-16	2.5730-16
Rubber Pack-Off O.D.		1.812"	2.250"	2.750"
I.D.		0.938"	1.063"	1.500"
Connector Replaced in Pump		41K	41N	41Q
Assembly Part Number		121K	121N	121Q
No Req'd	Description	Component Part Number		
1	Bushing (A)	121K6	9N1	9Q1
1	Rubber Pack-Off (B)	121K7	9N2	9Q2
1	Mandrel (C)	121K1	121N1	121Q1
1	Bushing (D)	121K2	121N2	121Q2
1	Body (E)	121K3	121N3	121Q3
1	Brass Ring (F)	121K5	121N5	121Q5
1	Plug (G)	121K4	121N4	121Q4

1. **Rubber Pack-Off** material is 70A Hardness Nitrile Buna-N.
2. **Ring** material is Brass.
3. All other components parts are made of Carbon Steel.

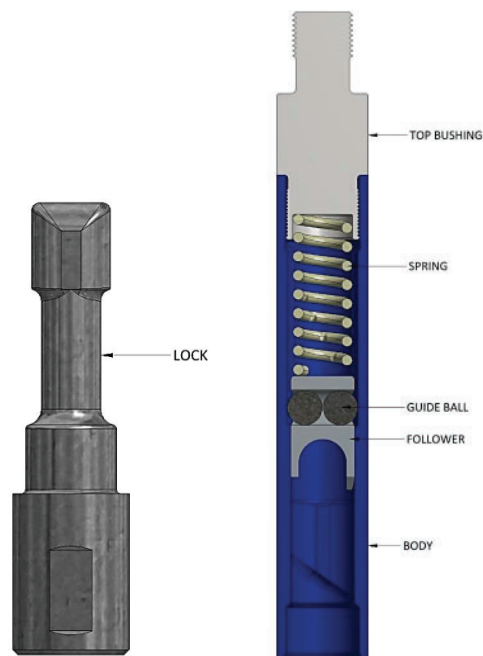


ACCESSORIES

Q2-Latch, On-Off Tool Assembly

Tubing Size		2-3/8"		2-7/8"		3-1/2"		4-1/2"
Tool OD		1.625"		1.812"		2.312"		2.740"
Sucker Rod Size		3/4"	7/8"	3/4"	7/8"	7/8"	1"	1"
Ball O.D.		5/8"		11/16"		13/16"		1-1/16"
Assembly Number	RH	160KW-BM	160KX-BM	160NW-BM	160NX-BM	160QX-BM	160QY-BM	160UY-BM
	LH	160KW-LH-BM	160KX-LH-BM	160NW-LH-BM	160NX-LH-BM	160QX-LH-BM	160QY-LH-BM	160UY-LH-BM
No Req'd	Description		Component Part Number					
1	Top Bushing		160KW1-BM	160KX1-BM	160NW1-BM	160NX1-BM	160QX1-BM	160QY1-BM
1	Spring		160N2	160N2	160N2	160N2	160Q2	160Q2
1	Back-up Spring		-	-	-	-	160Q2B	160Q2B
2	Guide Ball		10BS	10BS	10DS2	10DS2	10FS1	10HS1
1	Follower	RH	160K4-BM	160K4-BM	160N4-BM	160N4-BM	160Q4-BM	160Q4-BM
		LH	160K4-LH-BM	160K4-LH-BM	160N4-LH-BM	160N4-LH-BM	160Q4-LH-BM	160Q4-LH-BM
1	Body		160K3-BM	160K3-BM	160N3-BM	160N3-BM	160Q3-BM	160Q3-BM
1	Lock		160KW5-BM	160KX5-BM	160NW5-BM	160NX5-BM	160QX5-BM	160QY5-BM

1. **Top Bushing** material is Alloy Steel
2. **Spring** materials are Inconel X-750.
3. **Body** and **Lock** materials are Alloy Steel hardened by gas nitriding, or Inconel.
4. **Follower** material is hardened Carbon Steel.



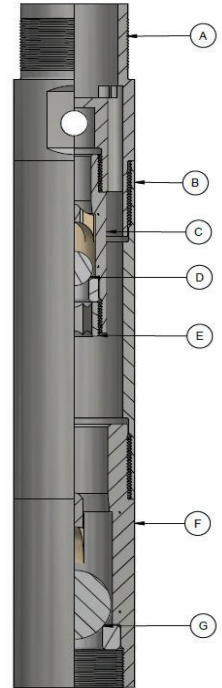


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Bottom Discharge Valve

Tubing Size		2-3/8"		2-7/8"		3-1/2"
Thread Size Top End		1.5730-16		2.0870-16		2.5730-16
Maximum OD		1.875"		2.250"		2.750"
No Req'd	Description	Component Part Number				
1	Discharge Body (A)	118K1	118K1-D	118N1	118N1-F	118Q1
1	Housing (B)	118K2		118N2	118N2-F	118Q2
1	Cage, Closed, Upper (C)	38B	38D-IG-1PC	38F-IG-1PC	39F-IG-1PC	38H-IG-1PC
1	Ball and Seat (D)	12B	12D	12D	12F	12H
1	Seat Plug (E)	98B1	98D1	98D1	98F1	98H1
1	Cage, Closed, Lower (F)	37H-IG-1PC		37M-IG-1PC		37P-IG-1PC
1	Ball and Seat (G)	12H		12M		12P



NOTES:

- When ordering, indicate the complete part number by adding the following prefixes to the Discharge Body and Housing base part number to indicate specific material:
Blank - Carbon Steel, API material "A1" / "B1"
S - Stainless Steel, API material "D6"



Artificial Lift Services



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We are a fully integrated company with over 40+ repair and service locations strategically located across Western Canada and the United States.



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