Cased Hole Product Catalog

Our Story

Peak Completion Technologies, Inc. is a leading oil and gas completion technology provider, offering in-house engineering, manufacturing and dedicated service to operators around the globe. The values that shape our foundation are proprietary technology, custom design, quality tools and service, and results and cost savings.

Since our formation in 2003, we have centered our day-to-day business operations around these values, as well as our Guiding Principles – Innovation, Quality and Experience. Together, we strive to create and deliver reliable tool systems that bring a fresh, new take on increasing completion operation efficiencies.

Throughout the years, Peak has become the go-to expert on openhole, cemented and multilateral completions with extensive oilfield experience from our team of over 200 employees. We are focused on developing cutting-edge techniques and have pioneered several current industry standards. With strong capabilities for customized multistage completion systems, we constantly seek new challenges that reduce time and resources needed to complete a well in today's economic environment.

From planning to installing equipment, Peak offers a comprehensive line of proprietary products and services that optimize completion projects. Our proven technologies are designed to maximize efficiencies, improve production from unconventional resources, minimize risks, and save time and money on overall completion operations.

Peak's systems have been installed in all the major producing and exploratory formations worldwide. We commit to providing the highest level of excellence and unparalleled customer service.

Our Mission

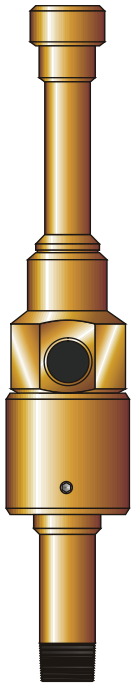
To provide the highest caliber of industry-leading, cost effective completion technologies and services while continuing to push the limits towards the next level of excellence. We accomplish this by building a culture committed to continuous improvement, ...etc.

Our Quality

Peak is firmly committed to instituting and maintaining our Peak Quality Management System in conformity to internationally recognized quality standard ANSI/ISO/ASQ Q9001 as well as industry specifications ISO/TS 29001 and ANSI/API Specification Q1; all of which are specific to our business sector. In order to ensure we are properly engaged in the standardization of our quality efforts, Peak is a member of the American National Standards Institute (ANSI), the American Society for Quality (ASQ) and the American Petroleum Institute (API).

Service Tools

TUBING SWIVEL



The Tubing Swivel allows surface connections to remain in place while the work string is rotated and moved vertically. It is primarily used in conjunction with the "SST' to provide a means of operating the by-pass valve while the treating line is connected.

It can also be used to facilitate the operation of other Tryton packers, cementing or for light drilling.

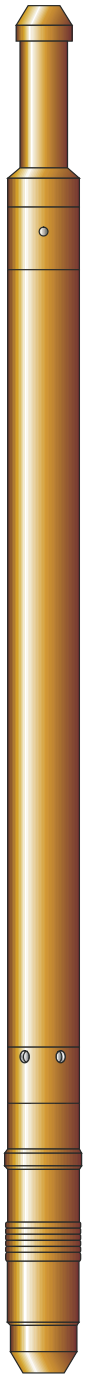
Operation

When using this swivel, it is strongly recommended that the treating line be secured to the Tubing Swivel with a suitable safety chain or cable.

TUBING O.D.	OPERATING LOAD RATING	EUE THREAD	THREAD CONNECTION
mm	daN	mm	mm
in	lbs	in	in
73	44,500	79	
2.88	100,000	2.88	50.8
88.9	60,000	88.9	2
3.5	135,000	3.5	

FLUID CONTROL VALVE #055

The Type D Control Valve is a pressure-operated, downhole valve that is used to provide control over the displacement of tubing fluids. This valve is actuated by the tubing pressure above the tool. The Type D Control Valve is normally used in conjunction with the selective treating assembly, but may also be used for other applications that require displacement control of tubing fluids.



FEATURES:

- Operates by tubing pressure only
- Annulus fluid level changes do not effect the valve
- Durable, metal-to-metal seat
- Calibrated for accurate field operations
- Equalizing system to assist in wireline retrieval
- Tool can be run in place on wireline or if sufficient fluid is present in the tubing, dropped from surface

SIZE		BODY O.D.		NOGO O.D.		FISHING NECK O.D.		PULLING TOOL	
in	mm	in	mm	in	mm	in	mm	in	mm
2	50.8	1.750	44.5	1.875	47.6	1.375	34.9	2" Camco JDC	2" Otis RB

D Fluid Control Valve

PRODUCT 10-134

The D Fluid Control Valve is a pressure actuated valve used to provide surface control over fluid injected into wells with low reservoir pressures by supporting the hydrostatic head in the tubing. The valve may be run in place in the tubing, on wireline, or can be dropped from the surface. The Fluid Control Valve Landing Nipple (Product 10-038) must be run as part of the tubing string.

This valve is usually used in conjunction with the SST or Straddle Packers to provide control of fluid volumes pumped with each setting when selectively acidizing low fluid level wells.

The D Fluid Control Valve operates using Differential Pressures and is not dependent on well depth. This type of valve is much better suited for deep wells than a hydrostatically operated Fluid Control Valve.

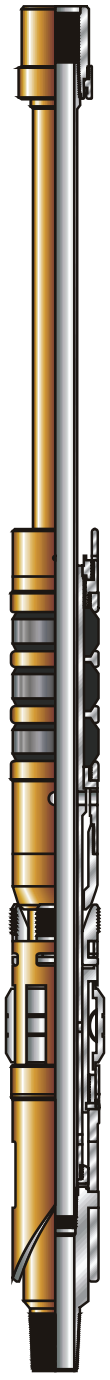
The D Fluid Control Valve utilizes specially designed chemical and wear resistant seals to ensure problem-free operation. An extended filter tube is run on this valve to ensure debris cannot get into the valve during pumping operations.

The valve may be dropped from surface, or run and pulled on wireline.

PRODUCT NUMBER	TUBING SIZE		MAX VALVE O.D.		SEATING NIPPLE I.D.		SEATING NIPPLE PRODUCT
	in	mm	in	mm	in	mm	
10-134-200	2-3/8	60.3	1.875	47.6	1.812	46.0	10-038-200
10-134-250	2-7/8	73.0	2.312	58.2	2.250	57.2	10-038-250

P631 AS-3 Single Grip Packer

The AS-3 Single Grip Packer is designed for wells that do not require a hold-down device when minimal differential pressure from below the packer is expected. From the packing element down, it is identical to the AS-3 double grip packer and operation is the same. Full opening design allows unrestricted fluid flow and wire-line tool movement through the tubing. The AS-3 also incorporates an internal bypass to prevent swabbing when running and retrieving.



FEATURES:

- Optional setting bottoms
- Large bypass for running, retrieving and equalizing
- Right hand compession set, straight pick-up release

SETTING:

Run the tool to setting depth, pick up tubing and rotate to the right ¼ turn at the packer. Tubing weight is applied, which sets the lower slips, closes the bypass valve, and expands the packing elements.

RELEASING:

Raise the tubing, which first opens the bypass valve, then releases the slips and packing elements. The tool can now be moved and reset or pulled form the well.

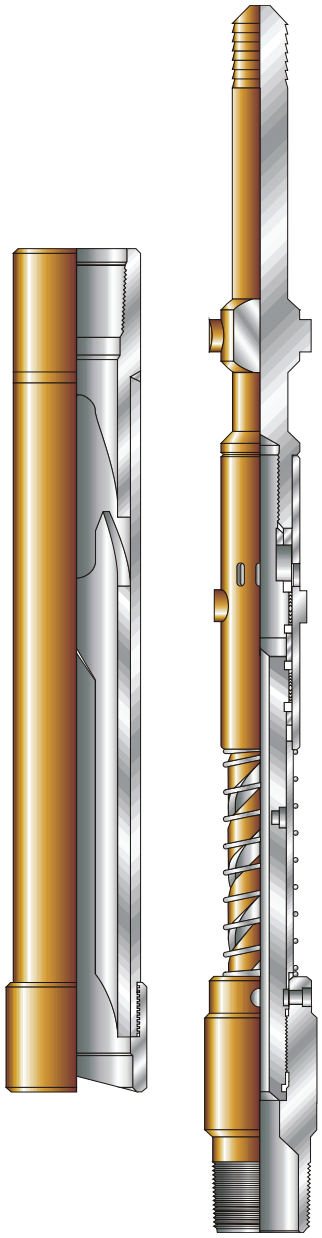
P631 AS-3 SINGLE GRIP PACKER

CASING SIZE		CASING WEIGHT		O.D. OF TOOL		NORMAL CASING I.D. RANGE			
						MIN		MAX	
in	mm	lbs	kg	in	mm	in	mm	in	mm
2-7/8	73.0	6.4-6.5	9.5-9.6	2.250	57.15	2.375	60.33	2.441	62.00
4	101.6	9.5-11.0	14.1-16.3	3.250	82.55	3.476	88.29	3.548	90.12
4-1/2	114.3	15.1-16.6	22.3-24.6	3.594	91.29	3.754	95.30	3.826	97.18
4-1/2	114.3	9.5-13.5	14.1-20.1	3.750	95.25	3.920	99.57	4.090	103.89
5	127.0	18.0-20.8	26.82-13.9	4.000	101.60	4.156	105.56	4.276	108.61
5	127.0	11.5-15.0	17.1-22.3	4.125	104.78	4.408	111.96	4.560	115.82
5-1/2	139.7	20.0-23.0	29.8-34.2	4.500	114.30	4.670	118.62	4.778	121.36
5-1/2	139.7	14.0-20.0	20.8-29.8	4.625	117.48	4.778	121.36	5.012	127.31
5-1/2	139.7	20.0-23.0	29.8-34.2	4.500	114.30	4.670	118.62	4.778	121.36
5-1/2	139.7	15.5-20.0	23.1-29.8	4.625	117.48	4.718	119.84	4.950	125.73
5-1/2	139.7	13.0-14.0	19.2-20.8	4.813	122.25	5.012	127.31	5.044	128.12
7	177.8	26.0-35.0	38.7-51.8	5.875	149.23	6.004	152.50	6.276	159.41
7	177.8	17.0-26.0	25.3-38.7	6.125	139.70	6.276	144.15	6.538	150.39
7-5/8	193.7	33.7-39.0	50.2-58.1	6.453	163.91	6.625	168.28	6.765	171.83
7-5/8	193.7	24.0-29.7	35.8-44.3	6.672	169.47	6.875	174.63	7.025	178.44
8-5/8	219.1	24.0-40.0	35.8-59.6	7.500	190.50	7.725	196.22	8.097	205.66
9-5/8	244.5	43.5-53.5	64.8-79.7	8.250	209.55	8.535	216.79	8.758	222.45
9-5/8	244.5	32.2-43.5	32.2-48.0	8.500	215.90	8.755	222.38	9.001	228.63

MINIMUM TOOL I.D.		THREAD CONNECTIONS		PRODUCT NUMBER
in	mm	in	mm	
0.628	15.88	1.050 EU 10RD	26.6	T612-24A-000
1.500	38.10	1.900 EU 10RD	48.2	T631-40A-000
1.500	38.10	1.900 EU 10RD	48.2	T612-41A-000
1.938	49.23	2.375 EU 10RD	60.3	T631-45A-000
1.938	49.23	2.375 EU 10RD	60.3	T631-52A-000
1.938	49.23	2.375 EU 10RD	60.3	T631-50A-000
2.000	50.80	2.375 EU 10RD	60.3	T631-57A-000
2.000	50.80	2.375 EU 10RD	60.3	T631-55A-000
2.375	60.33	1.050 EU 10RD	60.3	T631-59A-000
2.375	60.33	1.050 EU 10RD	73.0	T631-56A-000
2.375	60.33	1.050 EU 10RD	73.0	T631-58A-000
2.500	63.50	1.050 EU 10RD	73.0	T631-70A-000
3.000	76.20	1.050 EU 10RD	73.0	T631-72A-000
2.500	63.50	1.050 EU 10RD	73.0	T631-74A-000
2.500	63.50	1.050 EU 10RD	88.8	T631-75A-000
2.500	63.50	1.050 EU 10RD	73.0	T631-76A-000
4.000	101.60	1.050 EU 10RD	114.2	T631-85A-000
4.000	101.60	1.050 EU 10RD	114.2	T631-96A-000

Type P Index Valve #001

The "P" Index Valve is primarily used to convert a double grip mechanical set packer into a retrievable bridge plug. This high pressure valve provides a system to run a retrievable bridge plug with the valve open and set the bridge plug then close the valve.



FEATURES:

- Large by-pass for running and retrieving
- Proven reliable seal and design method
- By-pass locked in the closing

Type P Index Valve #002

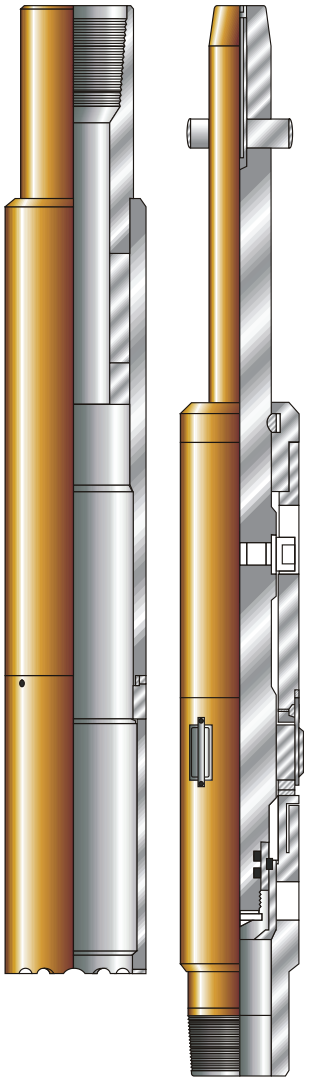
The Type "P" Retrieving Tool is used to control the setting and releasing of double grip mechanical set bridge plugs using the type "P" index valve, product 001.

FEATURES:

- Controls the index valve locking and unlocking system
- Circulates fluid to wash debris prior to or after latching onto the index

P572 "K" Connector Valve

The P572 "K" Connector Valve is a high pressure mechanically operated valve used to convert a double grip retrievable packer to a bridge plug. The P572 "K" Connector design allows pressure to equalize above and below before the packer is released. The running retrieving tool is locked to the valve eliminating accidental separation.



RUNNING:

Run the bridge plug to depth and pick up holding left-hand torque, set down while maintaining left-torque (this will engage j-pin in locked position) and pick up holding left hand torque will release the running retrieving tool from the valve.

RETRIEVING:

Circulate debris from top of Bridge Plug and lower retrieving tool until engaged. Apply right hand torque and pick up allowing pressure to equalize before proceeding with packer release.

FEATURES:

- Equalizes pressure before packer is released
- Bonded seals for repeated use under pressure
- Safety dogs eliminate accidental separation
- Auto jay retrieving tool for easy connecting
- 10,000 psi pressure rating

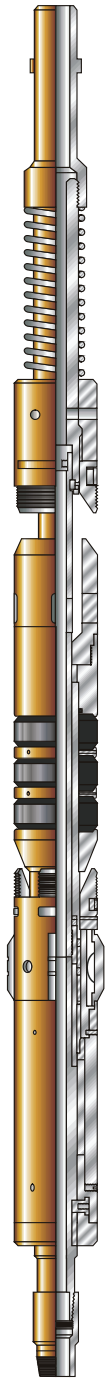
P572 "K" CONNECTOR VALVE

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX O.D. RET. TOOL	
in	mm	in	mm	in	mm	in	mm
4.5	114.3	9.5-13.5	14.1-20.9	2.38 EUE	60.3	3.750	95.25
5	127	11.5-15	17.1-22.3	2.38 EUE	60.3	3.750	95.25
5	127	18-20.8	26.8-31.0	2.38 EUE	60.3	3.750	95.25
5.5	139.7	13-20	19.3-29.8	2.38 EUE	60.3	4.500	114.3
5.5	139.7	20-23	29.8-34.2	2.38 EUE	60.3	4.500	114.3
7	177.8	17-26	25.3-38.7	2.38 EUE	60.3	5.400	137.16
7	177.8	26-32	38.7-47.6	2.38 EUE	60.3	5.400	137.16

MIN. I.D. RET. TOOL		RUNNING TOOL PROD. NUMBER	VALVE PRODUCT NUMBER
in	mm		
1.750	44.45	T128-45A-000	T129-45A-000
1.750	44.45	T128-45A-000	T129-45A-000
1.750	44.45	T128-45A-000	T129-45A-000
1.750	44.45	T128-55A-000	T129-45A-000
1.750	44.45	T128-55A-000	T129-45A-000
1.750	44.45	T128-70A-000	T129-45A-000
1.750	44.45	T128-70A-000	T129-45A-000

P725 TS-U Retrieveable Bridge Plug

The P725 TS-U bridge plug is a high pressure packer style retrievable bridge plug capable of being set in tension or compression. The large internal bypass system allows for multiple setting and releasing under extreme pressures. The TS-U Plug setting operation requires the tubing string to be picked up, turn one quarter to the right at the plug and slack off. To release set down, apply right hand torque and pickup. The bypass system will allow pressure to equalize before the upper slips are pulled on and released from the casing wall.



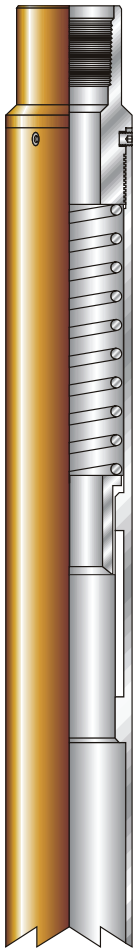
FEATURES:

- Sets shallow or deep
- Sets one quarter turn to right -releases one quarter turn to right
- Large internal twin sealing bypass system
- Equalizes before upper slips are released

CASING SIZE		CASING WEIGHT		MAX O.D.		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	
4.5	114.3	15.10-16.6 PPF	22.5-24.7	3.594	92.29	T725-45C-000
4.5	114.3	9.5-13.5 PPF	14.1-20.1	3.750	95.25	T725-45A-000
4.5	114.3	13.5-15.10 PPF	20.1-22.5	3.656	92.86	T725-45B-000
5	127	11.5-15 PPF	17.1-22.3	4.125	104.78	T725-50A-000
5	127	18-20.8 PPF	26.8-31.0	4.000	101.60	T725-50B-000
5.5	139.7	9-14 PPF	13.4-20.8	4.812	122.22	T725-55C-000
5.5	139.7	14-20 PPF	20.8-29.8	4.625	117.48	T725-55A-000
5.5	139.7	20-23 PPF	29.8-34.2	4.500	114.30	T725-55B-000
6	152.4	14-20 PPF	20.8-29.8	5.188	131.78	T725-60A-000
6.63	168.3	17-20 PPF	25.3-29.8	5.750	146.10	T725-65A-000
7	177.8	17-26 PPF	25.3-38.7	6.000	152.40	T725-70B-000
7	177.8	23-29 PPF	34.2-43.2	5.969	151.61	T725-70C-000
7	177.8	26-35 PPF	38.7-52.1	5.875	149.23	T725-70A-000

P577 TS-U Spring Loaded Retrieving Tool

The P577 Spring Loaded Retrieving Tool is used with the TS-U Retrievable Bridge Plug. The spring loaded design minimizes the possibility of the bridge plug coming free during running and retrieving. The strong compression spring keeps the bridge plug J-pins securely locked in the retrieving tool jay until sufficient weight collapses the spring allowing the retrieving tool to be removed.



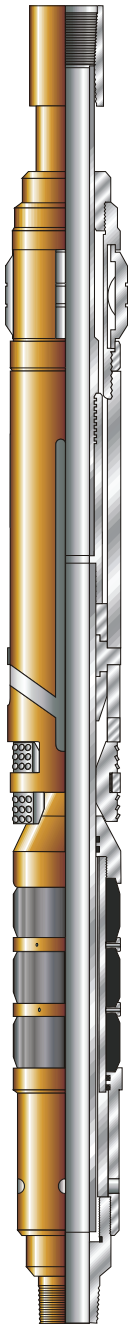
FEATURES:

- Spring loaded design
- Full bore design for maximum circulation
- Durable construction

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX O.D.		MIN. I.D.		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.1	2.38 EUE	60.3	3.750	95.25	2.000	50.8	T577-45A-000
5	127	11.5-15	17.1-22.3	2.38 EUE	60.3	3.750	95.25	2.000	50.8	T577-45A-000
5	127	18-20.8	26.8-31.0	2.38 EUE	60.3	3.750	95.25	2.000	50.8	T577-45A-000
5.5	139.7	13-20	19.3-29.8	2.38 EUE	60.3	4.500	114.30	2.000	50.8	T577-55A-000
5.5	139.7	20-23	29.8-34.2	2.38 EUE	60.3	4.500	114.30	2.000	50.8	T577-55A-000
5.5	139.7	13-20	19.3-29.8	2.88 EUE	73.0	4.500	114.30	2.375	60.3	T577-56A-000
5.5	139.7	20-23	29.8-34.2	2.88 EUE	73.0	4.500	114.30	2.375	60.3	T577-56A-000
7	177.8	17-26	25.3-38.7	2.88 EUE	73.0	5.875	149.23	2.500	63.5	T577-70A-000
7	177.8	26-32	38.7-47.6	2.88 EUE	73.0	5.875	149.23	2.500	63.5	T577-70A-000

P621 32A Tension Squeeze Packer

The P621 32A TENSION SQUEEZE PACKER is a full bore tension set squeeze packer that holds pressure from above and below. The P621 32A is used where sufficient tubing weight is not available to achieve pack off with compression set squeeze packers. The P621 32A is used for squeeze cementing operations casing testing, formation fracturing and high pressure acidizing. The P621 32A is normally run with the P525 SC Unloader which allows circulation around the tool and equalizes tubing and annulus pressures during retrieving.



FEATURES:

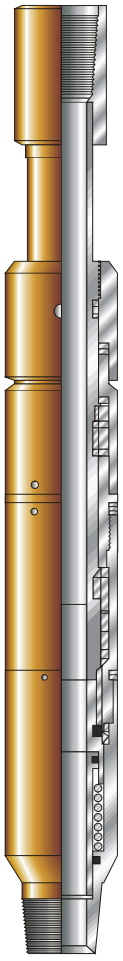
- Full bore design
- Emergency rotational release system
- Holds pressure from above and below
- External J-Slot design reduces debris build up
- Durable construction

P621 32A TENSION SQUEEZE PACKER

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX O.D.		MIN. I.D.		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.9	2.38 EUE	60.3	3.750	95.25	2.000	50.8	T628-45A-000
5	127	11.5-15	17.1-22.3	2.38 EUE	60.3	4.125	104.78	2.000	50.8	T628-50A-000
5	127	18-20.8	26.8-31.0	2.38 EUE	60.3	4.000	101.60	2.000	50.8	T628-50B-000
5.5	139.7	14-20	20.7-29.6	2.38 EUE	60.3	4.625	117.48	2.000	50.8	T628-55A-000
5.5	139.7	20-23	29.8-34.2	2.38 EUE	73.0	4.500	114.30	2.000	50.8	T628-55B-000
7	177.8	17-26	25.3-38.7	2.88 EUE	73.0	6.000	152.40	2.500	63.5	T628-70B-000
7	177.8	26-32	38.7-47.6	2.88 EUE	73.0	5.875	149.23	2.500	63.5	T628-70A-000
8.63	219.1	24-40	35.7-59.5	2.88 EUE	73.0	7.500	190.50	2.500	63.5	T628-85A-000

P574 DFV Fluid Control Valve

The P574 Fluid Control Valve is a high pressure, ball type, tubing actuated fluid control valve. The DFV Fluid control valve holds pressure from above and below, rotates open or closed with ½ turn at the valve, and can be assembled to open with right or left hand rotation making it operational with a variety of production packers. The DFV valve applications range from tubing tester, washing, acidizing, fracing and converting double grip production packer into temporary bridge plug.



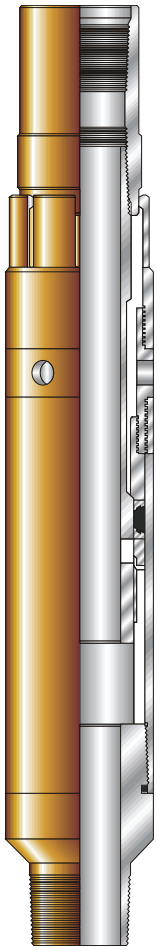
FEATURES:

- Holds pressure from above and below
- ½ turn to open and close
- Assembles for right or left hand rotation to open
- Tubing can be left in tension, compression or neutral

TUBING SIZE		MAX O.D.		MAX I.D.		PRODUCT NUMBER
in	mm	in	mm	in	mm	
2.38 EUE	60.3	3.771	95.78	1.750	44.45	T574-45A-000

P525 SC UNLOADER

The P525 SC Unloader is a tension set unloader usually run above the P620 32A Tension Set Squeeze Packer to equalize tubing and annulus pressure differentials. With the heavy duty collet the P525 Unloader can be left in the open position allowing fluid to pass while running and retrieving preventing the packer elements from swabbing.



FEATURES:

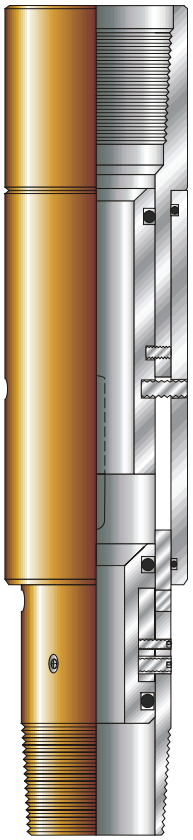
- Simple operation (tension to close-compression to open)
- Full open bore
- Heavy duty collet for repeated use
- Permits full circulation around packer
- Large bypass area

TUBING SIZE		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
1.25	31.75	2.250	57.15	.750	19.05	1.66 EU 10RD	42.16	T525-04A-000
2.38	60.3	3.250	82.55	1.625	41.28	2.38 EUE 8RD	60.30	T525-06A-000
2.38	60.3	3.750	95.25	2.000	50.80	2.38 EUE 8RD	60.30	T525-20A-000
2.88	73.0	4.500	114.30	2.500	63.50	2.88 EUE 8RD	73.00	T525-25A-000

P218 PUMP-OUT CEMENT SLEEVE

The P218 Pump-Out Cementing Sleeve is used for cementing liner strings in the well bore usually run above the P440 Casing Packer.

The P218 Pump-Out Cementing Sleeve is run above the P440 Casing Packer, once the Casing Packer is set (tension or compression) the P218 is activated by gravitating a ball into the lower seat, applied pressure shifts lower seat and opens port holes for cementing. After the cementing operation is completed, pump the wiper plug into the upper seat and apply pressure to shift the closing sleeve over the port holes. Final pressure of 2500 PSI will pump out all internal parts of the P218 Pump-Out Cementing Sleeve.



FEATURES:

- No drilling required
- Short compact design
- Meets tubing yield strength requirements

TUBING SIZE		MAX O.D.		MIN. I.D. @ PUMP-OUT		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
2.38	60.3	3.125	79.4	2.000	50.80	2.38 EUE 8RD	60.3	T218-20A-000
2.88	73.0	3.750	95.25	2.500	63.50	2.88 EUE 8RD	73	T218-25A-000
3.50	88.9	4.500	114.3	3.000	76.20	3.5 EUE 8RD	88.9	T218-35A-000
4.00	101.6	4.625	117.47	3.453	87.70	4.0 NU 8RD	101.6	T218-40A-000
4.50	114.3	5.500	139.7	4.000	101.6	4.5 8RD CSG	114.3	T218-45A-000
5.50	139.7	6.500	165.1	5.000	127.0	5.5 8RD CSG	139.7	T218-55A-000

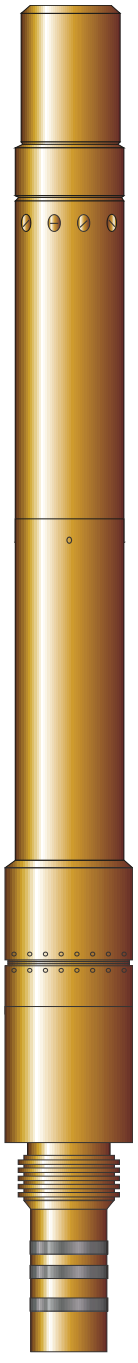
PEAK EXTREME HD-HST HYDRAULIC SETTING TOOL

The Peak Extreme Hydraulic Setting Tool is used to hydraulically set a wide variety of tools where there is weight hanging below on tubing. This is important when hanging liners and other combinations of tools below the setting tool.
Total pressure or combination of pressure and tubing tension can be utilized to set the tool.

Top Connections can be cut to almost any thread combination. Drill pipe and premium threads are used frequently.

Setting Pressure is easily changed on location by service specialist to accommodate changing wellbore conditions.

The PDQ Hydraulic Setting Tool Permanent Bridge Plug combination can be run in conjunction or tandem with other equipment.



FEATURES :

- Operation simplicity
- High pull strengths through tool allows liners to be hung below setting tool
- Setting tool does not need a ball to actuate if run on a closed system
- All setting components retrieved

Peak Extreme HD-HST Hydraulic Setting Tool

OPERATION PROCEDURES :

Run the Peak Extreme HD Hydraulic Setting Tool and bottom hole assembly combination to setting depth. Depending on BHA, tubing can automatically fill as the tools are run in.

This setting tool does not require a ball to seat in the tool itself to actuate. As long as the system below is closed, the setting tool will see the differential pressure across the setting cylinders and setting process will begin.

However, a ball may be run in place or dropped. Once the ball is down, pressure up to the required pressure (specification chart page 5 - 6) to shear the setting tool pins. In low fluid wells the hydrostatic pressure of the column of fluid required to fill the tubing acts as a pressure setting force.

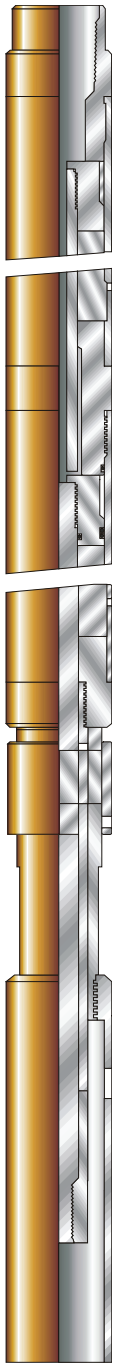
Hold pressure as required by the tool(s) you are setting and bleed off or shear a hydraulic tubing drain to equalize.

To disengage the setting tool from the bridge plug, apply a slight amount of tension and rotate the tubing approximately 10 - 12 turns to the right.

Examples of various tools that can be set with this tool would include Retrievable Seal Bore Packers, Hydraulic Set Liner Hangers, Permanent Packers, Composite Bridge Plugs, any Baker 10 and 20 uses, etc.

Type 10-20 Hydraulic Setting Tool #025

The Type 10-20 Hydraulic Setting Tool is designed to be run on drill pipe tubing, endless tubing or other handling equipment that can transmit pressure to the setting tool for the purpose of setting bridge plugs, cement retainers, retainer production packers, service plugs, or packers normally set by wireline. It is especially applicable to setting plugs or packers in deviated wells or in locations where a wireline unit is not available or practical.



OPTIONAL BY-PASS:

A large integral by-pass allows the setting tool to be run with fluid entering the running string establishing circulation prior to the setting operation.

FEATURES:

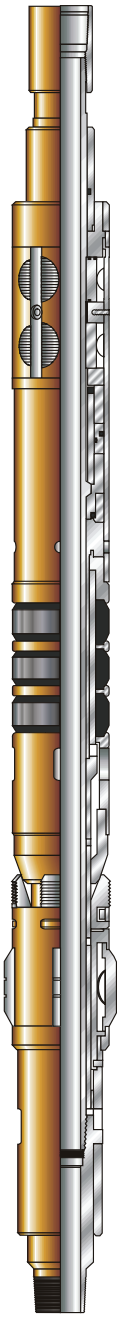
- Run on drill pipe, tubing or endless tubing.
- By-pass may be run open or closed.
- Pressure stages may be added or removed depending on setting pressure generated.
- Running string may be drained or closed after setting.

CASING SIZE		SETTING TOOL SIZE	TOOL O.D.		SETTING STROKE		SETTING FORCE	
in	mm		in	mm	in	mm	lbs	daN
4.5	114.3	#10-20	3.500	88.9	8.250	209.55	35,000	15,570
13.38	339.7	#10-20	3.500	88.9	8.250	209.55	50,000	22,240

SETTING CHAMBER SQ AREA/STAGE
First Stage 7,060
Additional Stage 5,840

P613 H.D.
Compression Packer

The P613 H.D. Compression Squeeze Packer is used for high pressure production testing squeeze cementing acidizing and fracturing. The P613 H.D. Packer has an integral bypass system that allows circulation around the tool to remove cement and debris from the well. The P613 H.D. Packer is used with the P725 TS-U Bridge Plug for multiple zone operations.



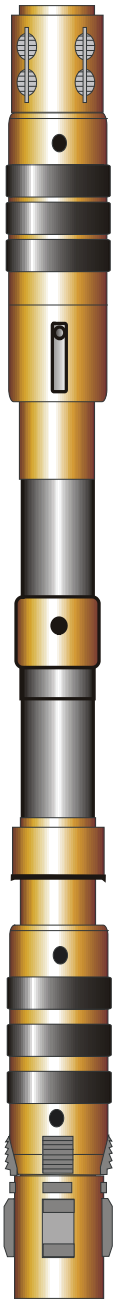
FEATURES:

- Large internal bypass
- Premium carbide slips and drag blocks
- Hydraulic actuated hold down system
- Full bore design
- Available in several J-slot configurations, manual & auto

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	11.6-13.5	17.26-20.1	3.750	95.25	1.875	47.63	2.38 EUE 8RD	60.3	T613-45A-000
4.5	114.3	9.5-11.6	14.1-17.26	3.813	96.85	1.875	47.63	2.38 EUE 8RD	60.3	T613-45D-000
5	127	11.5-15	17.1-22.3	4.125	104.78	1.875	47.63	2.38 EUE 8RD	60.3	T613-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	1.875	47.63	2.38 EUE 8RD	60.3	T613-50B-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T613-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T613-55B-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73.0	T613-70B-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73.0	T613-70A-000
7	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73.0	T613-70C-000
7.63	193.7	33.7-39	50.2-58	6.453	163.91	2.500	63.50	2.88 EUE 8RD	73.0	T613-75A-000
7.63	193.7	24-29.7	35.7-44.2	6.688	169.88	2.500	63.50	2.88 EUE 8RD	73.0	T613-75B-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.90	4.000	101.60	4.5 EUE 8RD	114.3	T613-95B-000
9.63	244.5	40-53.5	59.5-76.6	8.250	209.60	4.000	101.60	4.5 EUE 8RD	114.3	T613-95A-000

PEAK PPI TOOL

The Peak PPI System allows operators to stage acid treatments quickly and efficiently in vertical applications. With a proven fluid bypass system and sturdy packer design, numerous stages can be treated in a single day. Utilizing lock down unloaders, it is possible to swab test at the end of the treatment if desired. Span between the stages, and fluid injection ports are all easily adjustable.



FEATURES:

- Operation Simplicity
- Unloader system allows total fluid equalization for element protection
- Ability to swab test after the treatment individually or all the zones
- Optional Fluid control valve for certain applications
- Easily adjustable isolation span
- Straight pull to release system

SAND PUMP

The Peak Sand Pump offers a rapid and cost effective method to clean out sand and debris from the wellbore without loading the hole and circulating.

FEATURES:

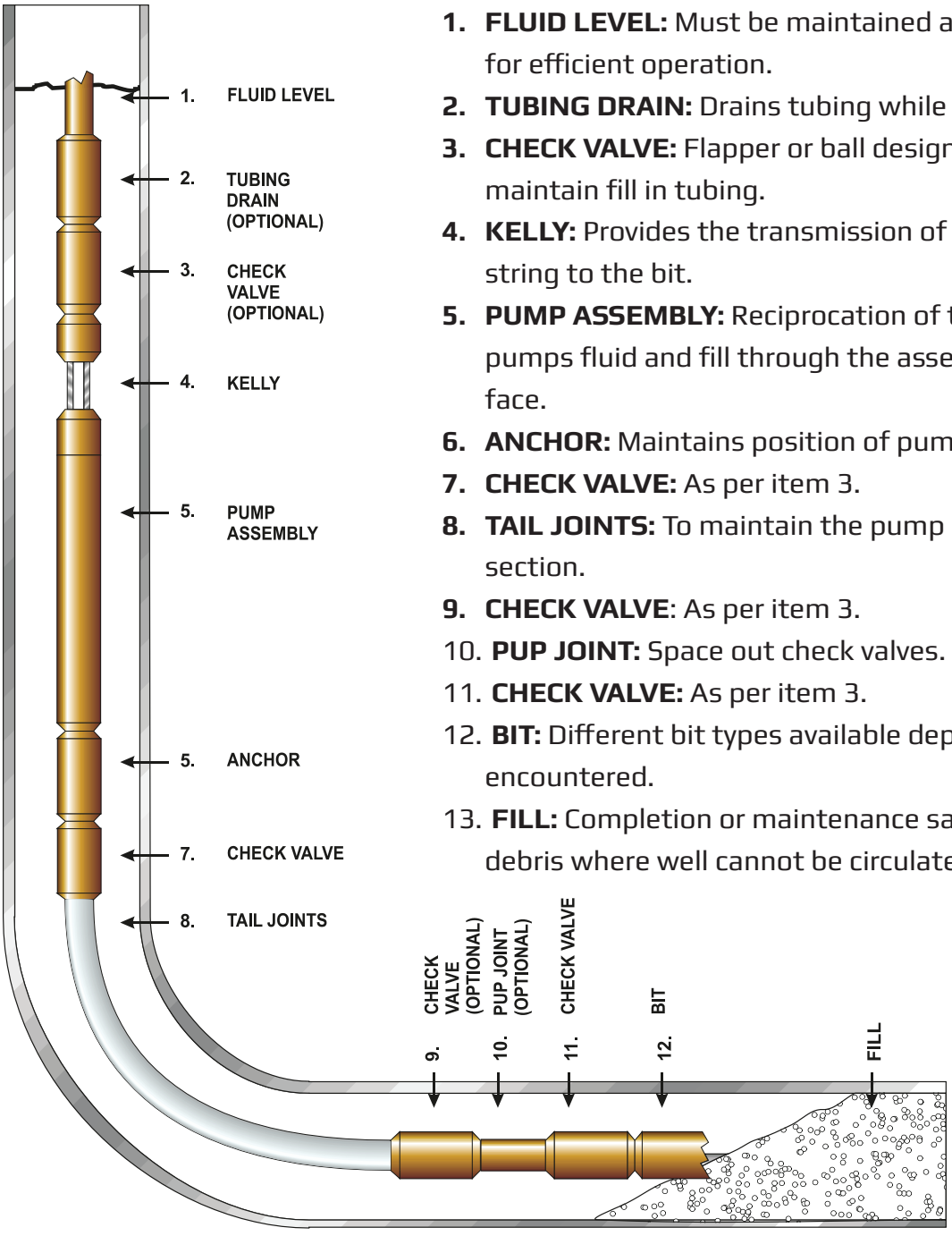
- Eliminates the damaging effects of circulation
- Thorough and lasting clean out-out
- No circulation fluids are required
- Fail-safe operation and design
- No need for expensive coiled tubing units
- Eliminates expensive bottom hole pump changes

OPERATION:

The tool assembly is run in on existing tubing until it reaches the fill point. Reciprocation (5' stroke) of the pump assembly draws fluid and sand in through the bottom trap valves and up into the tubing chamber. The sand and debris collects in the cavity pipe above the trap valves, while the fluid goes through the pump assembly and is discharged into the annulus. Once the pump has drawn all of the sand up into the cavity pipe, and the tool assembly is at bottom, the debris-loaded tool is pulled to the surface and unloaded.

The pump rod is a hexagonal Kelly, which allows normal rotation of the entire tubing siting if required to mill or fish tools. The size and weight of the tubing used and the cavity pipe may be varied to apply to the amount of sand in the hole and desired operations.

SAND PUMP



1. **FLUID LEVEL:** Must be maintained above the pump assembly for efficient operation.
2. **TUBING DRAIN:** Drains tubing while tripping out.
3. **CHECK VALVE:** Flapper or ball design with the function to maintain fill in tubing.
4. **KELLY:** Provides the transmission of torque from the tubing string to the bit.
5. **PUMP ASSEMBLY:** Reciprocation of the pump assembly pumps fluid and fill through the assembly and on up to surface.
6. **ANCHOR:** Maintains position of pump assembly.
7. **CHECK VALVE:** As per item 3.
8. **TAIL JOINTS:** To maintain the pump assembly in the vertical section.
9. **CHECK VALVE**: As per item 3.
10. **PUP JOINT:** Space out check valves.
11. **CHECK VALVE:** As per item 3.
12. **BIT:** Different bit types available dependent upon fill to be encountered.
13. **FILL:** Completion or maintenance sand, surplus frac-sand or debris where well cannot be circulated.

Pump Tubing Bailer

The Peak Pump Tubing Bailer is a fast and efficient way to clean out sand or other fill from a well. It is an efficient mechanical pump capable of removing large volumes of fill in a single trip. The Pump Tubing Bailer does not depend on hydrostatic differential pressure in order to operate and is therefore very effective in extremely low fluid wells.

Large volume of sand or fill can be cleaned out in one trip. The debris chamber is adjustable to accommodate any amount of sand or fill to be retrieved. The bailer assembly is designed with circulating drain ports eliminating the pulling of wet strings.

A specially designed hard faced drilling washover shoe on bottom of assembly allows rotation through compacted sand.

FEATURES:

- Heavy duty construction
- Operation simplicity
- Circulating drain valve eliminates wet strings
- Economical
- Cleanout can be accomplished in one run
- Effective in low fluid wells

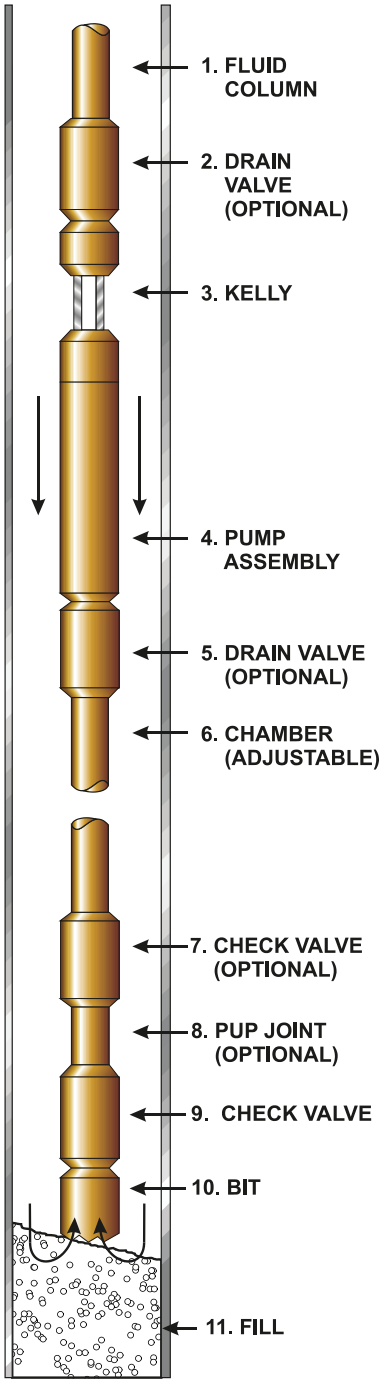
OPERATION:

The Pump Bailer Assembly is made up on the tubing string with the required amount of chamber between the pump assembly and the valve assembly. The pump assembly must be spaced out so that it will be below the fluid level in the well for it to operate properly. Once on bottom, the pump is stroked up and down. As the sand is pumped up into the fill pipe, it is necessary to move the pump assembly down so that the bottom of the pump is always contacting the top of the fill. If necessary, the assembly may be rotated. Continue this operation until either bottom is reached or the fill pipe is full (will stop making hole).

When pulling, the tubing will drain automatically.

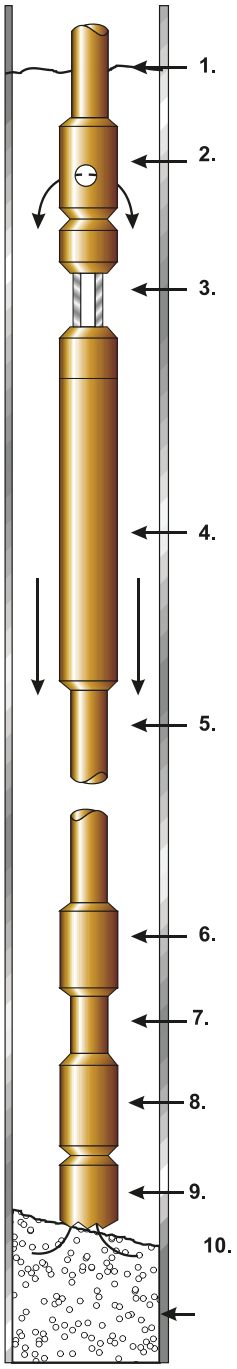
PUMP TUBING BAILER

1. **FLUID LEVEL:** The bailer is a hydrostatic tool that operates by having an overbalance of fluid in the well.
2. **DRAIN VALVE:** The Drain Valve allows the tubing to drain while tripping out.
3. **KELLY:** The Kelly provides the transmission of torque from the tubing string to the bit.
4. **PUMP ASSEMBLY:** Applied compression to the pump assembly opens the main valve and the annular overbalance forces the fluid and sand in through the bottom trap valves and up into the tubing chamber. The sand and debris collects in the cavity pipe above the valves, while the fluid goes through the pump assembly and is discharged into the tubing above.
5. **DRAIN VALVE:** The Drain Valve eliminate pressure build up in the adjustable chamber.
6. **CHAMBER:** The Chamber is made up of tubing to accommodate the amount of estimated fill.
7. **CHECK VALVE:** The Check Valve is of either flapper or ball design. The function of the valve is to maintain fill trapped in the adjustable chamber until surface is reached. The second Check Valve is run in case first Check Valve fails.
8. **PUP JOINT:** Space out Check Valves.
9. **CHECK VALVE:** As per item 7.
10. **BIT:** Different bit types available dependent upon fill to be encountered.
11. **FILL:** Completion or maintenance sand, surplus frac-sand or debris where well cannot be circulated.



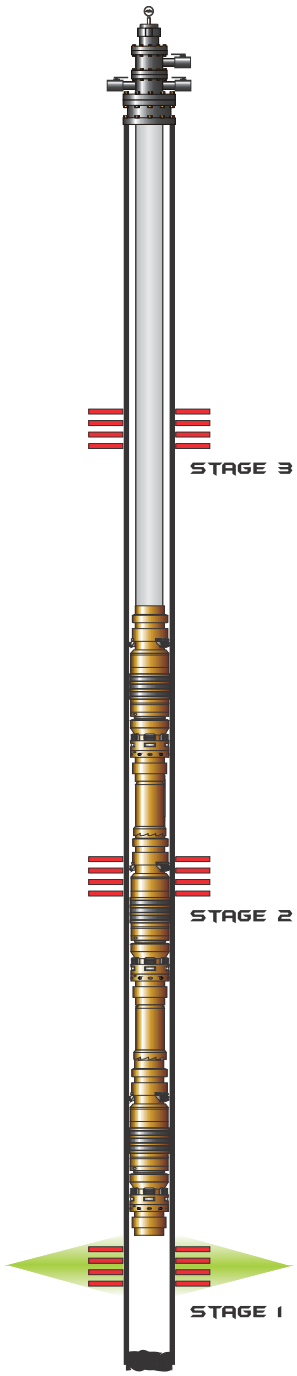
PUMP TUBING BAILER

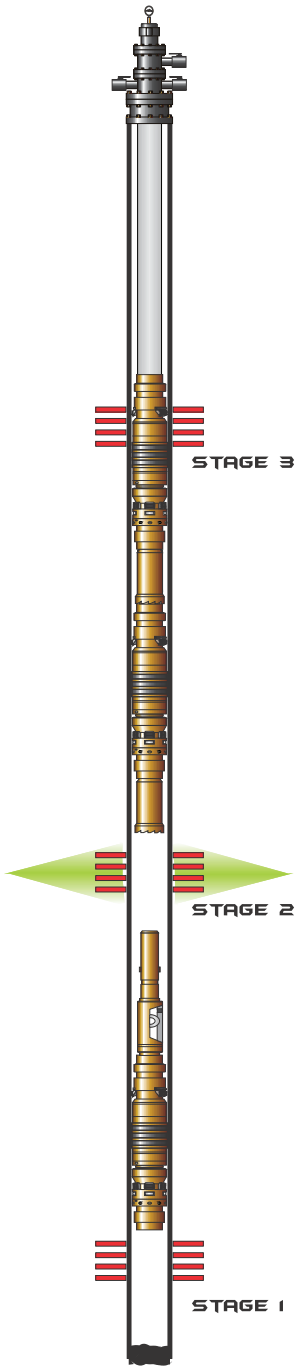
1. **FLUID LEVEL:** The Fluid Level must be maintained above the circulating valve for the pump tubing bailer to function correctly.
2. **CIRCULATING VALVE:** The valve has two functions with the first being of recycling of fluid during pumping operations. The second function is to drain tubing while tripping out.
3. **KELLY:** The Kelly provides the transmission of torque from the tubing string to the bit.
4. **PUMP ASSEMBLY:** Reciprocation of the pump assembly draws fluid and sand in through the bottom valves and up into the tubing chamber. The sand and debris collects in the cavity pipe above the valves, while the fluid goes through the pump assembly and is discharged into the annulus.
5. **CHAMBER:** The Chamber is made up of tubing to accommodate the amount of estimated fill.
6. **CHECK VALVE:** The Check Valve is of either flapper or ball design. The function of the valve is to maintain fill trapped in the adjustable chamber until surface is reached. The second Check Valve is run in case first Check Valve fails.
7. **PUP JOINT:** Space out Check Valves.
8. **CHECK VALVE:** As per item 6.
9. **BIT:** Different bit types available dependent upon fill to be encountered.
10. **FILL:** Completion or maintenance sand, surplus frac-sand or debris where well cannot be circulated.

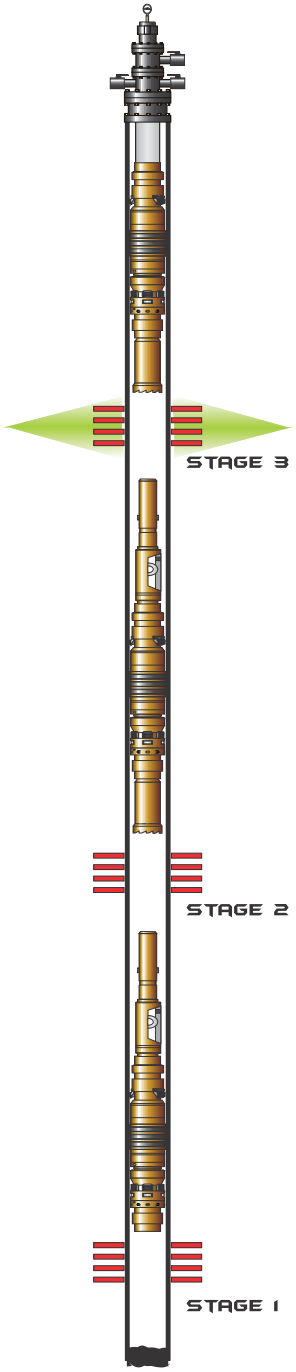


MULTI-STAGE FRAC SYSTEM FOR PRESSURE SENSITIVE WELLBORES

Confidential - Patent Pending



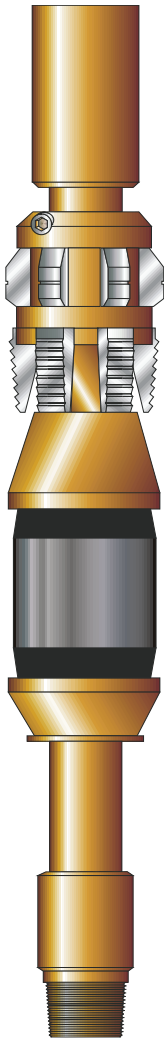




Retrievable Packers

Model "AD-1" Tension Packer

The MD-1 Tension Packer is a compact, economical, retrievable packer. Primarily used in waterflood applications, this packer can also be used for production and/or treating operations. It is used where a set-down packer is impractical. Since the MD-1 is tension set, it is ideally suited for shallow wells where set-down weight is not available.



FEATURES:

- Utilizes rugged rocker type slips
- Bore through the packer mandrel is larger than drift
- Simple, low cost packer for fluid injection
- Three release methods insure retrievability
- Uses proven one-piece packing element
- Alternative shear release

OPERATION:

Set:
Run packer to desired setting depth, making the last movement downward. Rotate the tubing to the left one-quarter turn at the tool. Then, pick up and pack-off

Release:
Lower the tubing at least one foot (0.30 m) more than is needed to remove applied tension so that the J-pin will move fully to the top of the J-slot. Rotate the tubing to the right one-quarter turn at the packer so slips will now be in the running position. The packer can be moved to a new position and reset or it can be retrieved. As an alternate release method, this packer has shear rings designed to part at tensions ranging from 4,000 - 26,700 daN. The cone, packing element and guide drop down and are carried out of the hole by the bottom sub.

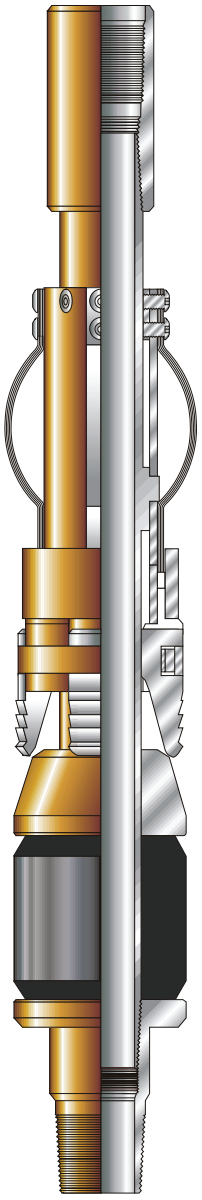
MODEL "AD-1" TENSION PACKER

CASING				I.D. RANGE			
O.D.		WEIGHT		MIN.		MAX	
in	mm	ft/lbs	kg/m	in	mm	in	mm
4.5	114.3	9.5-10.5	14.1-15.6	3.910	99.3	4.160	105.7
5	127	155-18	22.3-26.8	4.161	105.7	4.408	112
5	127	11.5-15	17.1-22.3	4.408	112	4.560	115.8
5.5	139.7	26	38.7	4.408	112	4.560	115.8
5.5	139.7	20-23	29.8-34.2	4.625	117.5	4.778	121.4
5.5	139.7	15.5-20	23.1-29.8	4.778	121.4	4.950	125.7
5.5	139.7	13-15.5	19.3-23.1	4.950	125.7	5.190	131.8
5.5	139.7	13-17	19.3-25.3	4.876	123.9	5.044	128.1
6.63	168.3	24	35.7	5.830	148.1	5.921	150.4
6.63	168.3	17-20	25.3-29.8	5.922	150.4	6.135	155.8
7	177.8	38	56.6	5.830	148.1	5.921	150.4
7	177.8	32-35	47.6-52.1	5.922	150.4	6.135	155.8
7	177.8	26-29	38.7-43.2	6.136	155.9	6.276	159.4
7	177.8	20-26	29.8-38.7	6.276	159..4	6.456	164
7	177.8	17-20	25.3-29.8	6.456	164	6.538	166.1
7.63	193.7	33.7-39	50.2-58	6.539	166.1	6.765	171.8
7.63	193.7	24-29.7	35.7-44.2	6.766	171.9	7.025	178.4
7.63	193.7	20-24	29.8-35.7	7.025	178.4	7.125	181

GAUGE RING O.D.		PACKER BORE		THREAD CONN.	
in	mm	ft/lbs	kg/m	in	mm
3.771	95.8	1.89	48.01	2.4	60.3
4.125	104.8	1.89	48.01	2.375	60.3
1.250	108	1.89	50.04	2.375	60.3
4.250	108	1.97	50.04	2.375	60.3
4.500	144.3	1.97	50.04	2.375	60.3
4.641	117.39	1.93	50.04	2.375	60.3
4.781	121.4	1.97	73.66	2.375	60.3
4.750	120.7	2.90	61.47	2.875	73
5.656	143.7	2.42	61.47	2.875	73
5.812	147.6	2.42	61.47	2.875	73
5.656	143.7	2.42	61.47	2.875	73
5.812	147.6	2.42	61.47	2.875	73
5.968	151.6	2.42	61.47	2.875	73
6.078	154.4	2.42	61.47	2.875	73
6.266	159.2	2.42	61.47	2.875	73
6.453	163.9	2.42	61.47	2.875	73
6.672	169.5	2.42	61.47	2.875	73
6.812	173	2.42	61.47	2.875	73

P401 SL TENSION PACKER

The P401 SL TENSION PACKER is a dependable hook wall packer used for water injection and production. The open J-slot and large stainless steel drag springs make the P401 SL ideal for setting in heavily corroded casing. The P401 SL has a right hand rotational safety release built into the top sub. This allows the tubing string to be removed from the packer when normal release procedures fail.



FEATURES:

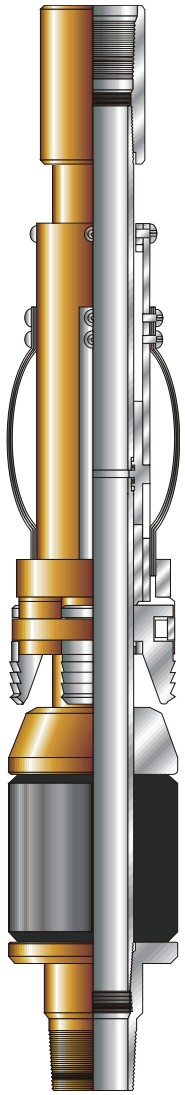
- Open J-slot reduces debris build up
- Safety tubing release
- Wide wicker slips insure setting in scaly casing
- Full opening design
- Automatic J-slot design for easy set and release

P401 SL TENSION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
2.88	73	6.4-6.5	9.5-9.7	2.250	57.15	.750	19.1	1.315 EUE 10RD	33.4	T401-25A-000
3.5	88.9	7.7-10.0	11.5-10	3.781	96	1.500	38.1	1.900 EUE 10RD	48.3	T401-35A-000
4	101.6	9.5-11	14.1-16.4	3.250	82.55	1.500	38.1	2.375 EUE 8RD	60.3	T401-40A-000
4	101.6	9.5-11	14.1-16.4	3.250	82.55	1.875	47.6	2.375 EUE 8RD	60.3	T401-41A-000
4.5	114.3	15.10-16.6	22.5-24.7	3.500	88.9	2.000	50.8	2.375 EUE 8RD	60.3	T401-45B-000
4.5	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.000	50.8	2.375 EUE 8RD	60.3	T401-45A-000
5	127	11.5-18	17.1-26.8	4.125	104.78	2.000	50.8	2.375 EUE 8RD	60.3	T401-50A-000
5	127	18-20.8	26.8-31	4.000	101.6	2.000	50.8	2.375 EUE 8RD	60.3	T401-50B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.4	2.000	50.8	2.375 EUE 8RD	60.3	T401-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.000	50.8	2.375 EUE 8RD	60.3	T401-55B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.4	2.437	61.9	2.875 EUE 8RD	73	T401-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.437	61.9	2.875 EUE 8RD	73	T401-56B-000
6	152.4	20-23	29.8-34.2	5.000	127	2.437	61.9	2.875 EUE 8RD	73	T401-60B-000
6.63	168.3	20-24	29.8-35.7	5.750	146.1	2.437	61.9	2.875 EUE 8RD	73	T401-65A-000
6.63	168.3	24-32	35.7-47.6	5.500	139.7	2.437	61.9	2.875 EUE 8RD	73	T401-65B-000
7	177.8	17-29	25.3-43.2	6.000	152.4	2.437	61.9	2.875 EUE 8RD	73	T401-70A-000
7	177.8	17-29	25.3-43.2	6.000	152.4	3.000	76.2	3.500 EUE 8RD	88.9	T401-73A-000
7.63	193.7	20-29.7	29.8-35.7	6.625	168.3	2.437	61.9	2.375 EUE 8RD	73	T401-75A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.5	2.437	61.9	2.375 EUE 8RD	73	T401-85A-000
8.63	219.1	20-24	29.8-35.7	7.875	200	2.437	61.9	2.375 EUE 8RD	73	T401-85B-000
9.63	244.5	32.3-43.5	48-64.7	8.500	215.9	2.500	63.5	2.375 EUE 8RD	73	T401-95A-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.6	2.500	63.5	2.375 EUE 8RD	73	T401-95B-000
9.63	244.5	32.3-43.5	48-64.7	8.500	215.9	3.000	76.2	3.500 EUE 8RD	88.9	T401-96A-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.6	3.000	76.2	3.500 EUE 8RD	88.9	T401-96B-000
9.63	244.5	32.3-43.5	48-64.7	8.500	215.9	4.000	101.6	4.500 EUE 8RD	114.3	T401-97A-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.6	4.000	101.6	4.500 EUE 8RD	114.3	T401-97B-000
10.75	273.1	32.7-55.5	48.6-82.6	9.500	241.3	2.500	63.5	2.875 EUE 8RD	73	T401-100A-000
10.75	273.1	32.7-55.5	48.6-82.6	9.500	241.3	3.000	76.2	3.500 EUE 8RD	88.9	T401-101A-000
10.75	273.1	32.7-55.5	48.6-82.6	9.500	241.3	4.000	101.6	4.500 EUE 8RD	114.3	T401-102A-000
10.75	273.1	48-72	71.4-107	12.000	304.8	4.000	101.6	4.500 EUE 8RD	114.3	T401-103A-000

P405 H TENSION PACKER

The P405 H TENSION PACKER was designed for use in old, scaly casing or openhole applications. The P405 H Packers unique design features make it the packer of choice when producing or injecting in old pipe or open hole applications. The standard packer comes with deep wide wicker slips that allow penetration into scaly casing or open hole formations. The P405 H Packer has three releasing methods built int the design, virtually eliminating retrieval problems.



FEATURES:

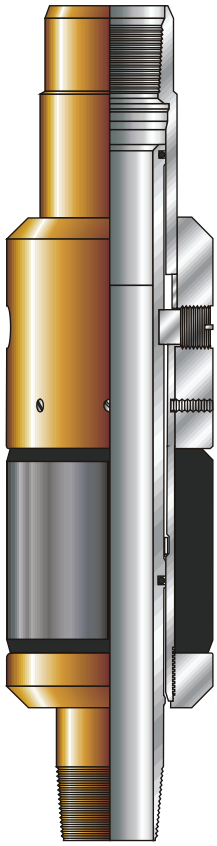
- Open J-slot reduces debris build up
- Safety tubing release
- Wide wicker slips insure setting in scaly casing
- Full opening design
- Automatic J-slot design for easy set and release

P405 H TENSION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
2.88	73	6.4-6.5	9.5-9.7	2.250	57.15	.750	19.1	1.315 EUE 10RD	33.4	T405-25A-000
3.5	88.9	7.7-10.0	11.5-15	3.781	96	1.500	38.1	1.900 EUE 10RD	48.3	T405-35A-000
4	101.6	9.5-11	14.1-16.4	3.250	82.55	1.500	38.1	2.375 EUE 8RD	60.3	T405-40A-000
4	101.6	9.5-11	14.1-16.4	3.250	82.55	1.875	47.6	2.375 EUE 8RD	60.3	T405-41A-000
4.5	114.3	15.10-16.6	22.5-24.7	3.500	88.9	2.000	50.8	2.375 EUE 8RD	60.3	T405-45B-000
4.5	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.000	50.8	2.375 EUE 8RD	60.3	T405-45A-000
5	127	11.5-18	17.1-26.8	4.125	104.78	2.000	50.8	2.375 EUE 8RD	60.3	T405-50A-000
5	127	18-20.8	26.8-31	4.000	101.6	2.000	50.8	2.375 EUE 8RD	60.3	T405-50B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.4	2.000	50.8	2.375 EUE 8RD	60.3	T405-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.000	50.8	2.375 EUE 8RD	60.3	T405-55B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.4	2.437	61.9	2.875 EUE 8RD	73	T405-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.437	61.9	2.875 EUE 8RD	73	T405-56B-000
6	152.4	20-23	29.8-34.2	5.000	127	2.437	61.9	2.875 EUE 8RD	73	T405-60B-000
6.63	168.3	20-24	29.8-35.7	5.750	146.1	2.437	61.9	2.875 EUE 8RD	73	T405-65A-000
6.63	168.3	24-32	35.7-47.6	5.500	139.7	2.437	61.9	2.875 EUE 8RD	73	T405-65B-000
7	177.8	17-29	25.3-43.2	6.000	152.4	2.437	61.9	2.875 EUE 8RD	73	T405-70A-000
7	177.8	17-29	25.3-43.2	6.000	152.4	3.000	76.2	3.500 EUE 8RD	88.9	T405-73A-000
7.63	193.7	20-29.7	29.8-44.2	6.625	168.3	2.437	61.9	2.875 EUE 8RD	73	T405-75A-000
8.63	219.1	24-40	25.7-59.5	7.500	190.5	2.437	61.9	2.875 EUE 8RD	73	T405-85A-000
8.63	219.1	20-24	29.8-35.7	7.875	200	2.437	61.9	2.875 EUE 8RD	73	T405-85B-000
9.63	244.5	32.3-43.5	48-64.7	8.500	215.9	2.500	63.5	2.875 EUE 8RD	73	T405-95A-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.6	2.500	63.5	2.875 EUE 8RD	73	T405-95B-000
9.63	244.5	32.3-43.5	48-64.7	8.500	215.9	3.000	76.2	3.500 EUE 8RD	88.9	T405-96A-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.6	3.000	76.2	3.500 EUE 8RD	88.9	T405-96B-000
9.63	244.5	32.3-43.5	48-64.7	8.500	215.9	4.000	101.6	4.500 EUE 8RD	114.3	T405-97A-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.6	4.000	101.6	4.500 EUE 8RD	114.3	T405-97B-000
10.75	273.1	32.7-55.5	48.6-82.6	9.500	241.3	2.500	63.5	2.875 EUE 8RD	73	T405-100A-000
10.75	273.1	32.7-55.5	48.6-82.6	9.500	241.3	3.000	76.2	3.500 EUE 8RD	88.9	T405-101A-000
10.75	273.1	32.7-55.5	48.6-82.6	9.500	241.3	4.000	101.6	4.500 EUE 8RD	114.3	T405-102A-000
10.75	273.1	48-72	71.4-107	12.000	304.8	4.000	101.6	4.500 EUE 8RD	114.3	T405-103A-000

P436 C-1 TENSION PACKER

The P436 C-1 Tension Packer is a tension set zone isolation packer. The P436 C-1 is the upper packer in single string zone isolation completions. The P436 C-1 Tandem Packers is normally run with the P603 ASI-X Double Grip Production Packer.



Setting:
Unjayed position: Apply tension shearing the brass shear screw energizing the packing element.

Jayed position: Set down weight shearing the brass shear screws, the rotate1/8 right hand turn at packer and pull tension to energize the packing element.

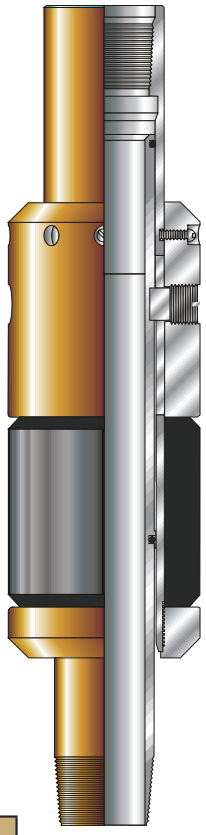
Releasing:
Set down weight to remove applied tension and engage the unloader to Equalize pressures, then rotate 1/8 left hand turn at the packer to re-engage into running jay position.

FEATURES:

- Full bore design
- Simple, economical packer for zone isolation
- Built in unloader
- Available in right or left hand J-slot configurations

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
5.5	139.7	13-20	19.3-29.8	4.625	117.4	2.000	50.8	2.375 EUE 8RD	60.3	T436-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.000	50.8	2.375 EUE 8RD	60.3	T436-55B-000

P437 S-1 TENSION PACKER



The P437 S-1 Tandem Packer is used as an isolation packer in multiple zone completions.

Setting:
Unjayed position: Apply tension shearing the brass shear screw energizing the packing element.

Jayed position: Set down weight shearing the brass shear screws, the rotate1/8 right hand turn at packer and pull tension to energize the packing element.

Releasing:
Set down weight to remove applied tension and engage the unloader to Equalize pressures, then rotate 1/8 left hand turn at the packer to re-engage into running jay position.

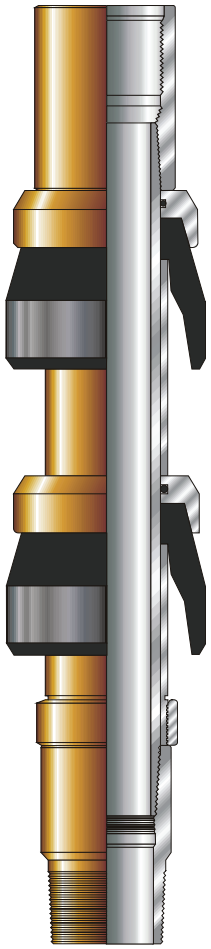
FEATURES:

- Full bore design
- Simple, economical packer for zone isolation
- Built in unloader
- Available in right or left hand J-slot configurations

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.000	50.8	2.375 EUE	60.3	T437-45A-000
5	127	11.5-15	17.1-22.3	4.125	104.78	2.000	50.8	2.375 EUE	60.3	T405-50A-000
5	127	18-20.8	26.8-31	4.000	101.6	2.000	50.8	2.375 EUE	60.3	T405-50B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.4	2.000	50.8	2.375 EUE	60.3	T405-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.000	50.8	2.375 EUE	60.3	T405-55B-000
7	177.8	17-26	25.3-38.7	6.000	152.4	2.500	63.5	2.875 EUE	73	T405-70A-000
7	177.8	26-32	38.7-47.6	5.875	149.2	2.500	63.5	2.875 EUE	73	T405-70A-000
7	177.8	17-26	25.3-38.7	6.000	152.4	3.000	76.2	3.500 EUE	88.9	T405-73A-000
7	177.8	26-32	38.7-47.6	5.875	149.2	3.000	76.2	3.500 EUE	88.9	T405-73A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.5	2.500	63.5	2.875 EUE	73	T405-85A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.5	3.000	76.2	3.500 EUE	88.9	T405-85B-000
9.63	244.5	32.3-43.5	38.1-64.7	8.500	215.9	3.000	76.2	3.500 EUE	88.9	T405-95B-000
9.63	244.5	40-53.5	59.5-79.6	8.250	209.6	3.000	76.2	3.500 EUE	88.9	T405-95A-000

P439 O.S. CUP PACKER

The P439 Cup Packer is available in a single or double cup design. The primary use is for isolating casing and tubing leaks. The packer cups can be installed in any direction allowing each assembly to hold pressure in both directions.



FEATURES:

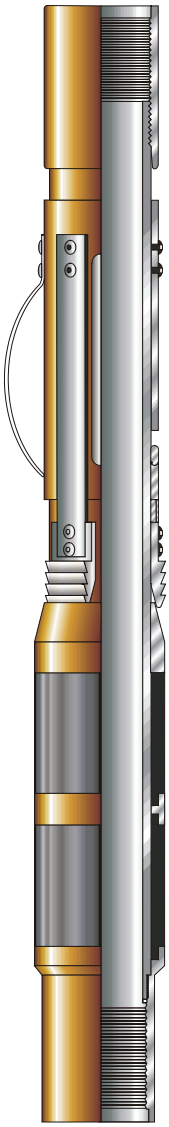
- Available in single or double element design
- Compact & inexpensive means of isolation
- Uses wire reinforced cups for durability

P439 O.S. CUP PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
2.88	73	6.4-6.5	9.5-9.7	2.250	57.15	.625	15.9	1.660 NU	42.2	T439-25A-000
3.5	88.9	9.2-9.3	13.7-13.8	2.781	70.63	1.250	31.75	1.900 NU	48.3	T439-35A-000
3.5	88.9	9.2-9.3	13.7-13.8	2.781	70.63	1.500	38.1	1.900 NU	48.3	T439-36A-000
3.5	88.9	10.2	15	2.750	69.85	1.250	31.75	1.900 NU	48.3	T439-35B-000
3.5	88.9	10.2	15	2.750	69.85	1.500	38.1	1.900 NU	48.3	T439-36B-000
4.5	114.3	95-11.6	14.1-17.2	3.750	95.25	2.000	50.8	2.375 EU	60.3	T439-45A-000
4.5	114.3	15.1-16.6	22.5-24.7	3.625	92.08	2.000	50.8	2.375 EU	60.3	T439-45B-000
5	127	13-15	19.3-22.3	4.125	104.78	2.000	50.8	2.375 EU	60.3	T439-50A-000
5	127	18-20.3	26.8-30.2	4.000	101.60	2.000	50.8	2.375 EU	60.3	T439-50B-000
5.5	139.7	13-15	19.3-22.3	4.750	120.65	2.000	50.8	2.375 EU	60.3	T439-55A-000
5.5	139.7	15.5-17	23.1-25.3	4.625	117.4	2.000	50.8	2.375 EU	60.3	T439-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.000	50.8	2.375 EU	60.3	T439-55C-000
7	177.8	17-20	25.3-29.8	6.000	152.4	2.500	63.5	2.875 EU	73	T439-70A-000
7	177.8	22-24	32.7-35.7	6.000	152.4	2.500	63.5	2.875 EU	73	T439-70B-000
7	177.8	26-29	38.7-43.1	8.875	149.2	2.500	63.5	2.875 EU	73	T439-70C-000

P440 Casing Packer

The P440 Casing Packer is an economical full bore tension or compression packer used for isolating bad areas of casing. The P440 Casing Packer is a versatile tool used for injection, producing and cementing in liner strings. The P440 Casing Packer comes with deep wide wicker slips, single or double element system making this packer ideal for setting in scaly pipe or open hole formations. The P440 Casing Packer is available in either manual or automatic J-slot configurations and is also available with a right hand rotational safety release when run as tension set tool.



FEATURES:

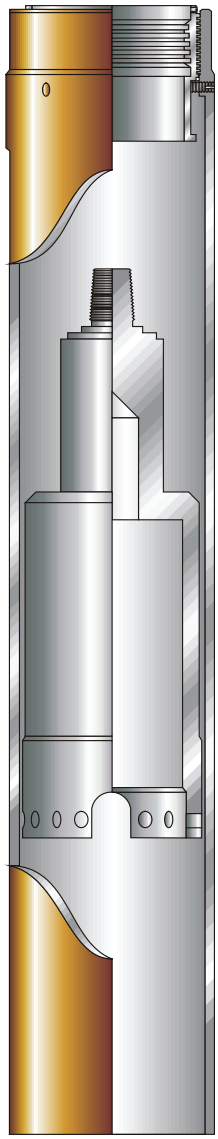
- Full bore design
- Tension or compression set
- Available with rotational safety release system
- Available in single or double element design
- Economical
- Easily convertible into liner hanger system

P440 CASING PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2.5	63.5	2.88 EUE 8RD	73	T440-45A-000
5	127	11.5-15	17.1-22.3	4.125	104.8	2.5	63.5	2.88 EUE 8RD	73	T440-50A-000
5	127	18-20.8	26.8-31	4.000	101.6	2.5	63.5	2.88 EUE 8RD	73	T440-50B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.4	3	76.2	3.50 EUE 8RD	88.9	T440-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	3	76.2	3.50 EUE 8RD	88.9	T440-55B-000
5.5	139.7	13-15.5	19.3-23.1	4.781	121.4	3.5	88.9	4 NU 8RD	101.6	T440-56A-000
5.5	139.7	13-17	19.3-25.3	4.650	118.1	3.5	88.9	4 NU 8RD	101.6	T440-56B-000
7	177.8	17-38	25.3-56.5	5.750	146	4	101.6	4.5 8RD CSG	114.3	T440-70A-000
7	177.8	17-29	25.3-43.2	5.969	151.6	4.5	114.3	5 8RD CSG	127	T440-71B-000
7	177.8	17-23	25.3-34.2	6.187	157.1	5	127	5.5 8RD CSG	139.7	T440-72B-000
7.63	193.7	20-33.7	29.8-50.2	6.625	168.3	4	101.6	4.5 8RD CSG	114.3	T440-75A-000
7.63	193.7	20-33.7	29.8-50.2	6.625	168.3	5	127	5.5 8RD CSG	139.7	T440-76A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.5	4	101.6	4.5 8RD CSG	114.3	T440-84A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.5	5	127	5.5 8RD CSG	139.7	T440-85A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.5	5.5	139.7	6.63 8RD CSG	168.3	T440-86A-000
8.63	219.1	32 PPF	47.6	7.656	194.5	6.5	165.1	7 8RD CSG	177.8	T440-87B-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.9	6.5	165.1	7 8RD CSG	177.8	T440-97A-000
9.63	244.5	40.53.5	59.5-79.6	8.250	209.6	6.5	165.1	7 8RD CSG	177.8	T440-97B-000
10.75	273.1	40.53.5	59.5-82.6	9.500	241.3	6.5	165.1	7 8RD CSG	177.8	T440-100A-000
10.75	273.1	40.53.5	59.5-82.6	9.500	241.3	7	177.8	7 8RD CSG	177.8	T440-101A-000

P598 ASI-XW PACKER MX WIRELINE ADAPTER KIT

The P598 ASI-XW Packer P.I.P. Wireline Adapter Kit is used on a #10 or #20 Wireline Setting Device. The "Plug-In-Place" design allows the running of a T-F profile blanking plug to be run in place converting the packer to a temporary bridge plug. The ASI-XW MX Adapter Kit can also be run with T-X and T-XN blanking plugs, but the prong must be shortened to accommodate the inner adapter spacing. Extended length adapter kits are available for the T-X and T-XN blanking plugs, but the shortened prong ti the preferred method creating a shorter packer assembly.

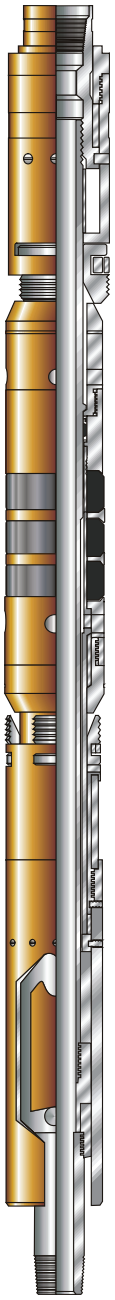


FEATURES:

- Allows "plug-in-place" running
- Accepts common blanking plug types and sizes
- Uses common redress parts
- Plug in top of packer reduces debris build up
- Eliminates running profile nipple or pump-out plug below packer
- Can be used with #10 or #20 hydraulic setting device

SIZE		MAX O.D.		PRODUCT NUMBER
in	mm	in	mm	
4.5	114.3	3.750	95.25	T598-45A-000
5	127	3.750	95.25	T598-45A-000
5.5x2.38	139.7x60.3	4.500	114.3	T598-55A-000
5.5x2.38	139.7x73	4.500	114.3	T598-56A-000
7x2.38	177.8x60.3	4.500	114.3	T598-55A-000
7x2.88	177.8x73	4.500	114.3	T598-56A-000
7.63x2.88	193.7x73	4.500	114.3	T598-56A-000
7x3	177.8x88.9	5.500	139.7	T598-73A-000

P601 ASI-XW HP Wireline Set Production Packer



The P601 ASI-XW HP Packer is a high-pressure, double grip wireline set tubing retrievable packer. The ASI-XW HP has all the features of the popular ASI-XW Packer, but was modified to handle high-pressure production and stimulation operations.

Setting: Wireline Set on appropriate setting device.

Release: Set down weight and turn one quarter turn at packer, pick up the tubing string while holding right hand torque opening the equalizing bypass system, further upward movement will engage sequential release slip system pulling the slips from the casing wall and relaxing the packing elements.

FEATURES:

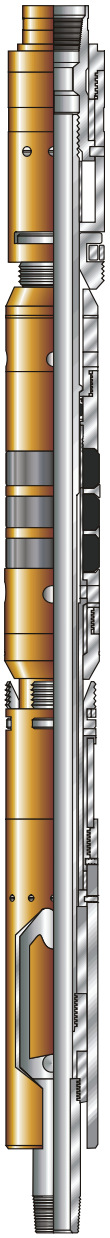
- Wireline or tubing set
- Sequential release upper slip system
- Bypass valve opens before upper slips are released
- Eliminates expensive seal assemblies
- ¼ Turn to set, ¼ turn to release
- Available in shear release

P601 ASI-XW HP WIRELINE SET PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		TUBING SIZE		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4	101.6	9.5-11	14.1-16.4	3.250	82.55	1.500	38.10	1.900 EUE 10RD	48.3	T601-40A-000
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	1.938	49.23	2.38 EUE 8RD	60.3	T601-45A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	1.938	49.23	2.38 EUE 8RD	60.3	T601-45B-000
4.5	114.3	15.1-16.6	22.5-24.7	3.594	91.29	1.500	38.10	1.900 EUE 10RD	48.3	T601-45C-000
4.5	114.3	15.1-20	22.5-29.8	3.500	88.90	1.703	43.26	2.38 EUE 8RD	60.3	T601-45D-000
5	127	11.5-15	17.1-22.3	4.125	104.78	1.938	49.23	2.38 EUE 8RD	60.3	T601-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	1.938	49.23	2.38 EUE 8RD	60.3	T601-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	60.3	T601-55C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T601-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T601-55B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.375	60.30	2.88 EUE 8RD	73	T601-56C-000
5.5	139.7	13-15.5	19.3-23.1	4.781	121.44	2.375	60.30	2.88 EUE 8RD	73	T601-56D-000
5.5	139.7	15.5-20	23.1-29.8	4.625	117.48	2.375	60.30	2.88 EUE 8RD	73	T601-56A-000
5.5	139.7	20-23	29.8-24.2	4.500	114.30	2.375	60.30	2.88 EUE 8RD	73	T601-56B-000
6	152.4	14-20	20.8-29.8	5.188	131.78	2.375	60.30	2.88 EUE 8RD	73	T601-60A-000
6.63	168.3	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T601-65A-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T601-70A-000
7	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T601-70B-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T601-70C-000
7.63	193.7	14-29.7	35.7-44.2	6.672	169.47	2.500	63.50	2.88 EUE 8RD	73	T601-75A-000
7.63	193.7	33.7-39	50.2-58	6.453	163.91	2.500	63.50	2.88 EUE 8RD	73	T601-75B-000
8.63	519.1	24-40	35.7-59.5	7.500	190.50	2.500	63.50	2.88 EUE 8RD	73	T601-85A-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.90	4.000	101.60	4.5 EUE 8RD	114.3	T601-95B-000
9.63	244.5	59.5-79.6	59.5-79.6	8.250	209.60	4.000	101.60	4.5 EUE 8RD	114.3	T601-95A-000

P601 ASI-XW Wireline Set Production Packer

The P601 ASI-XW Packer is a double grip wireline set tubing retrievable packer. The design allows the packer to be used as a wireline set tubing retrievable packer using the standard T-2 on/off tool disconnect as the seal assembly and retrieving tool. This packer configuration allows for less equipment and tubing trips over conventional wireline set seal bore production packers, with the added benefit of converting the tool to turning set version if desired. When run with the ASI-XW MX Wireline Adapter Kit a blanking plug can be run in place above the tool in the on/off disconnect profile stinger converting the tool to a temporary bridge plug.



FEATURES:

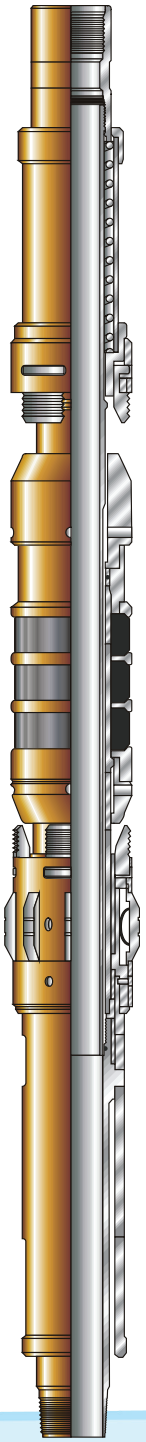
- Wireline or tubing set
- Sequential release upper slip system
- Bypass valve opens before upper slips are released
- Eliminates expensive seal assemblies
- ¼ turn to set, ¼ turn to release
- Available in shear release

P601 ASI-XW WIRELINE SET PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4	101.6	9.5-11	14.1-16.4	3.250	82.55	1.500	38.10	1.900 EUE 10RD	48.3	T601-40A-000
4.5	114.3	9.5-13.5	14.1-20.9	3.750	95.25	1.938	49.23	2.38 EUE 8RD	60.3	T601-45A-000
4.5	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.000	50.80	2.38 EUE 8RD	60.3	T601-46A-000
4.5	114.3	9.5-15.1	14.1-22.5	3.656	92.86	2.000	50.80	2.38 EUE 8RD	60.3	T601-46B-000
4.5	114.3	13.5-15.1	20.9-22.5	3.656	92.86	1.938	49.23	2.38 EUE 8RD	60.3	T601-45B-000
4.5	114.3	15.1-16.6	22.5-24.7	3.594	91.29	1.500	38.10	1.900 EUE 10RD	48.3	T601-45D-000
4.5	139.7	15.1--20	22.5-29.8	3.500	88.90	1.703	43.26	2.38 EUE 8RD	80.3	T601-45C-000
5	168.3	11.5-15	17.1-22.3	4.125	104.78	1.938	49.23	2.38 EUE 8RD	80.3	T601-50A-000
5	139.7	18.2038	26.8-31	4.000	101.60	1.938	49.23	2.38 EUE 8RD	80.3	T601-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	80.3	T601-55C-000
5.5	152.4	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	80.3	T601-55A-000
5.5	177.8	20-23	29.8-34.2	4.500	114.3	2.000	50.80	2.38 EUE 8RD	80.3	T601-55B-000
5.5	177.8	13-14	19.3-20.8	4.812	122.22	2.375	60.30	2.88 EUE 8RD	73	T601-56C-000
5.5	177.8	13-15.5	19.3-23.1	4.781	121.44	2.375	60.30	2.88 EUE 8RD	73	T601-56D-000
5.5	177.8	15.5-20	23.1-29.8	4.625	117.48	2.375	60.30	2.88 EUE 8RD	73	T601-56A-000
5.5	177.8	20-23	29.8-34.2	4.500	114.30	2.375	60.30	2.88 EUE 8RD	73	T601-56B-000
6	193.7	14-20	20.8-29.8	5.188	131.78	2.375	60.30	2.88 EUE 8RD	73	T601-60A-000
6.63	193.7	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T601-65A-000
7	219.1	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T601-70A-000
7	114.3	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T601-70B-000
7	127	26-32	39.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T601-70C-000
7	127	17-26	25.3-38.7	6.000	152.40	3.000	76.20	3.5 EUE 8RD	88.9	T601-73B-000
7	139.7	26-32	38.7-47.6	5.875	149.23	3.000	76.20	3.5 EUE 8RD	88.9	T601-73A-000
7.63	139.7	24-29.7	35.7-44.2	6.672	169.47	2.500	63.50	2.88 EUE 8RD	73	T601-75A-000
7.63	139.7	33-39	49.1-58	6.453	463.91	2.500	63.50	2.88 EUE 8RD	73	T601-75B-000
8.63	139.7	24-40	35.7-59.5	7.500	190.50	2.500	63.50	2.88 EUE 8RD	73	T601-85A-000

P603 ASI-X HP Production Packer

The P603 ASI-X HP is a Single Sting Double Grip Retrievable Production Packer that holds pressure from above and below. The HP version of the ASI-X Packer is capable of being set in tension or compression. Once set, the tubing string can be left in tension, compression or neutral. Incorporated into the design is an internal bypass system that equalizes pressure before the upper slips are pulled from the casing wall. This system allows the ASI-X Packer to be used in a variety of downhole applications from production packer to retrievable bridge plug. The ASI-X Packer sets and releases to the right with one quarter turn at the packer.



FEATURES:

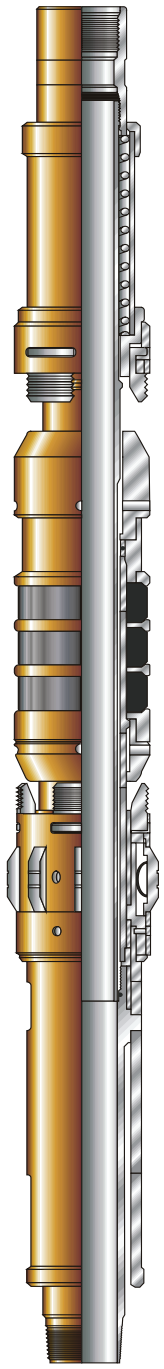
- Tension or compression set
- Internal bypass to reduce swabbing
- ¼ turn to set and release
- Tubing can be left in tension, compression or neutral
- Available in shear release

P603 ASI-X HP PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	15.1-16.6	22.5-24.7	3.594	91.29	1.500	38.10	1.900 EUE 10RD	48.3	T603-45C-000
4.5	114.3	9.5-13.5	14.14-20.1	3.750	95.25	1.938	49.23	2.38 EUE 8RD	60.3	T603-45A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	1.938	49.23	2.38 EUE 8RD	60.3	T603-45B-000
4.5	114.3	9.5-13.5	14.14-20.1	3.750	95.25	2.000	50.80	2.38 EUE 8RD	60.3	T603-46A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	2.000	50.80	2.38 EUE 8RD	60.3	T603-46B-000
5	127	11.5-15	17.1-22.3	4.125	104.78	1.938	49.23	2.38 EUE 8RD	60.3	T603-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	1.938	49.23	2.38 EUE 8RD	60.3	T603-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	60.3	T603-55C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T603-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T603-55B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.375	60.30	2.88 EUE 8RD	73	T603-56C-000
5.5	139.7	13-15.5	19.3-23.1	4.781	121.44	2.375	60.30	2.88 EUE 8RD	73	T603-56D-000
5.5	139.7	15.5-20	23.1-29.8	4.625	117.48	2.375	60.30	2.88 EUE 8RD	73	T603-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.375	60.30	2.88 EUE 8RD	73	T603-56B-000
6	152.4	14-20	20.-29.8	5.188	131.78	2.375	60.30	2.88 EUE 8RD	73	T603-60A-000
6.63	168.3	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T603-65A-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T603-70B-000
7	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T603-70C-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T603-70A-000
7.63	193.7	24-29.7	35.7-44.2	6.672	169.47	2.500	63.50	2.88 EUE 8RD	73	T603-75B-000
7.63	193.7	33.7-39	50.2-58	6.453	163.91	2.500	63.50	2.88 EUE 8RD	73	T603-75A-000
8.63	219.1	28-40	41.7-59.5	7.500	190.50	2.500	63.50	2.88 EUE 8RD	73	T603-85A-000
8.63	219.1	24-40	35.7-59.5	7.500	190.50	2.500	63.50	2.88 EUE 8RD	73	T603-85A-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.90	4.000	101.60	4.5 EUE 8RD	114.3	T603-95B-000
9.63	244.5	43.5-53.5	59.5-79.6	8.250	209.60	4.000	101.60	4.5 EUE 8RD	114.3	T603-95A-000

P603 ASI-X Production Packer

The P603 ASI-X is a single string double grip retrievable production packer that holds pressure from above and below. The ASI-X Packer is capable of being set in tension or compression. Once set, the tubing string can be left in tension, compression or neutral. Incorporated into the design is an internal bypass system that equalizes pressure before the upper slips are pulled from the casing wall. This system allows the ASI-X Packer to be used in a variety of downhole applications from production packer to retrievable bridge plug. The ASI-X Packer sets and releases to the right with one quarter turn at the packer.



FEATURES:

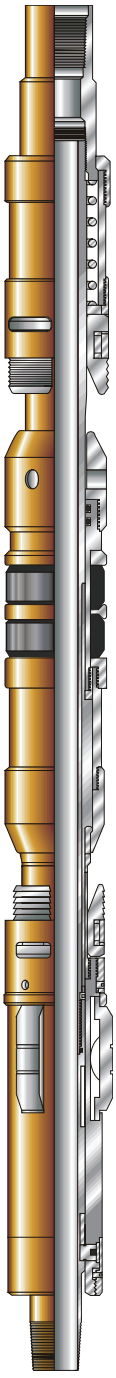
- Tension or compression set
- Internal bypass to reduce swabbing
- ¼ turn to set and release
- Tubing can be left in tension, compression or neutral
- Available in shear release

P603 ASI-X PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
2.88	73	6.4-6.5	9.5-9.7	2.250	57.15	.625	15.88	1.050 EUE 10RD	26.67	T603-25A-000
3.5	89	9.2-10.2	13.7-15	2.781	70.62	1.250	31.75	1.900 NU 10RD	48.3	T603-35A-000
4	101.6	9.5-11	14.14-16.4	3.250	82.55	1.500	38.10	1.900 EUE 10RD	48.3	T603-40A-000
4.5	114.3	15.1-16.6	22.5-24.7	3.594	91.29	1.500	38.10	1.900 EUE 10RD	48.3	T603-45C-000
4.5	114.3	9.5-13.5	14.14-20.1	3.750	95.25	1.938	49.23	2.38 EUE 8RD	60.3	T603-45A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	1.938	49.23	2.38 EUE 8RD	60.3	T603-45B-000
4.5	114.3	9.5-13.5	14.14-20.1	3.750	95.25	2.000	50.80	2.38 EUE 8RD	60.3	T603-46A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	2.000	50.80	2.38 EUE 8RD	60.3	T603-46B-000
5	127	11.5-15	17.1-22.3	4.125	104.78	1.938	49.23	2.38 EUE 8RD	60.3	T603-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	1.938	49.23	2.38 EUE 8RD	60.3	T603-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	60.3	T603-55C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T603-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T603-55B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.375	60.30	2.88 EUE 8RD	73	T603-56C-000
5.5	139.7	13-15.5	19.3-23.1	4.781	121.44	2.375	60.30	2.88 EUE 8RD	73	T603-56D-000
5.5	139.7	15.5-20	23.1-29.8	4.625	117.48	2.375	60.30	2.88 EUE 8RD	73	T603-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.375	60.30	2.88 EUE 8RD	73	T603-56B-000
6	152.4	14-20	20.-29.8	5.188	131.78	2.375	60.30	2.88 EUE 8RD	73	T603-60A-000
6.63	168.3	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T603-65A-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T603-70B-000
7	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T603-70C-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T603-70A-000
7.63	193.7	24-29.7	35.7-44.2	6.672	169.47	2.500	63.50	2.88 EUE 8RD	73	T603-75A-000
7.63	193.7	33.7-39	50.2-58	6.453	163.91	2.500	63.50	2.88 EUE 8RD	73	T603-75B-000
8.63	219.1	24-40	35.7-59.5	7.500	190.50	2.500	63.50	2.88 EUE 8RD	73	T603-85A-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.90	4.000	101.60	4.5 EUE 8RD	114.3	T603-95B-000
9.63	244.5	43.5-53.5	59.5-79.6	8.250	209.60	4.000	101.60	4.5 EUE 8RD	114.3	T603-95A-000
10.75	273.1	32.75-45.5	48.6-67.9	9.687	246.05	4.000	101.60	4.5 EUE 8RD	114.3	T603-100A-000

P604 ASI-XS Injection Packer

The P604 ASI-XS Injection Packer is a short, economical packer designed for shallow injection wells. The design allows the packing elements to be energized in tension or compression making the ASI-XS ideal for shallow wells run on fiberglass tubing string. The doublegrip design makes the ASI-XS ideal for running with the T-2 On/Off Tool allowing the tubing string to be removed from the packer.



OPERATION:

Setting: Lower the tubing to setting depth with last motion up, raise tubing to top of running slot and slack off while holding right hand torque..The packer will set up in compression. I setting shallow at this point the tubing can be picked up and the j-pins will contact the tension shoulder and tension may be applied to energize elements and set slips.

Release: Slack off tubing and apply right hand torque while picking up. Continued upward movement will contact the upper slip release system unsetting the packer and allowing the tool to re-jay into the running position.

FEATURES:

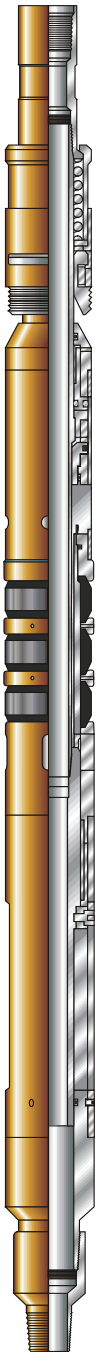
- Tension or compression set
- ¼ turn to set and release
- Tubing can be left in tension, compression or neutral
- Shear release

P604 ASI-XS INJECTION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.14-20.1	3.750	95.25	1.938	49.23	2.38 EUE 8RD	60.3	T604-45A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	1.938	49.23	2.38 EUE 8RD	60.3	T604-45B-000
5	127	11.5-15	17.1-26.8	4.125	104.78	1.938	49.23	2.38 EUE 8RD	60.3	T604-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	1.938	49.23	2.38 EUE 8RD	60.3	T604-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	60.3	T604-55C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T604-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T604-55B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.375	60.30	2.88 EUE 8RD	73	T604-56C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.375	60.30	2.88 EUE 8RD	73	T604-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.375	60.30	2.88 EUE 8RD	73	T604-56B-000
6	152.4	14-20	20.8-29.8	5.188	131.78	2.375	60.30	2.88 EUE 8RD	73	T604-60A-000
6.63	168.3	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T604-65B-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T604-70B-000
7	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T604-70C-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T604-70A-000
7	177.8	17-26	25.3-38.7	6.000	152.40	3.000	76.20	3.5 EUE 8RD	88.9	T604-73B-000
7	177.8	23-29	34.2-43.2	5.969	151.61	3.000	76.20	3.5 EUE 8RD	88.9	T604-73C-000
7	177.8	26-35	38.7-52.1	5.875	149.23	3.000	76.20	3.5 EUE 8RD	88.9	T604-73A-000
7	177.8	35-38	52.1-56.5	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T604-66C-000

P636 Snapset II Compression Set Isolation Packer

The P636 Snapset II Compression Set Single String Isolation Packer used in multi-zone completions. The Snapset II Packer is used where high differential pressures above the packer are not expected. The Snapset II sets in compression with a lower anchor style packer below. The collet in the lower end of the tool shifts at a pre-determined value to energize the packing elements and set the upper slips. To release, straight pick-up on the tubing string is required.



FEATURES:

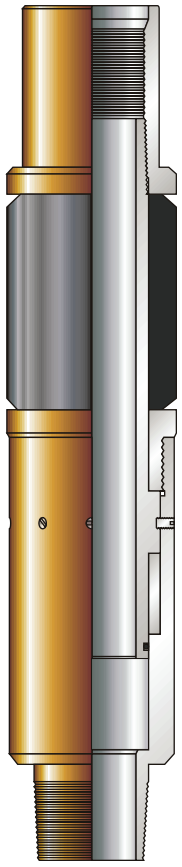
- Compensating piston hold down system
- Running bypass
- Equalizing system
- Keyed for rotation thru packer
- Internal collet to prevent pre-set
- 3 element packing system
- Sequential release slip system

P636 SNAPSET II COMPRESSION SET ISOLATION PACKER

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
2.63	73	6.4-6.5	9.5-9.7	2.250	57.15	.625	15.88	1.050 EUE 10RD	26.67	T636-25A-000
4	101.6	9.5-11	14.14-16.4	3.250	82.55	1.500	38.10	1.900 EUE 10RD	48.3	T636-40A-000
4.5	114.3	15.1-16.6	22.5-24.7	3.594	91.29	1.500	38.10	1.900 EUE 10RD	48.3	T636-45C-000
4.5	114.3	9.5-13.5	14.14-20.1	3.750	95.25	1.938	49.23	2.38 EUE 8RD	60.3	T636-45A-000
4.5	114.3	13.5-15.1	20.1-22.5	3.656	92.86	1.938	49.23	2.38 EUE 8RD	60.3	T636-45B-000
5	127	11.5-15	17.1-22.3	4.125	104.78	1.938	49.23	2.38 EUE 8RD	60.3	T636-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	1.938	49.23	2.38 EUE 8RD	60.3	T636-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	60.3	T636-55C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T636-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T636-55B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.375	60.30	2.88 EUE 8RD	73	T636-56C-000
5.5	139.7	13-15.5	19.3-23.1	4.781	121.44	2.375	60.30	2.88 EUE 8RD	73	T636-56D-000
5.5	139.7	15.5-20	23.1-29.8	4.625	117.48	2.375	60.30	2.88 EUE 8RD	73	T636-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.375	60.30	2.88 EUE 8RD	73	T636-56B-000
6	152.4	14-20	20.8-29.8	5.188	131.78	2.375	60.30	2.88 EUE 8RD	73	T636-60A-000
6.63	168.3	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T636-65A-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T636-70B-000
7	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2.88 EUE 8RD	73	T636-70C-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T636-70A-000
7.63	193.7	24-29.7	35.7-44.2	6.672	169.47	2.500	63.50	2.88 EUE 8RD	73	T636-75A-000
7.63	193.7	33.7-39	33.7-39	6.453	163.91	2.500	63.50	2.88 EUE 8RD	73	T636-75B-000
8.63	219.1	24-40	24-40	7.500	190.50	2.500	63.50	2.88 EUE 8RD	73	T636-85A-000

P641 Compression Isolation Packer

The P641 Compression Isolation Packer is an economical means of isolating multiple zone wells. The P641 Packer is used as the upper packer in tandem string applications.

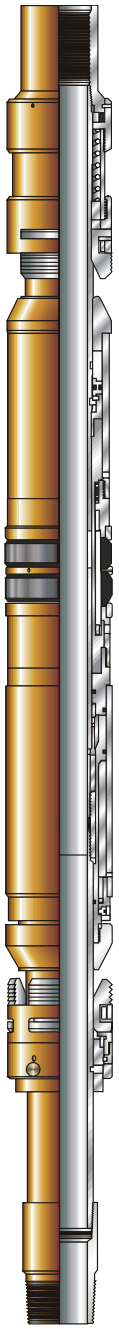


FEATURES:

- Economical
- Adjustable shear values
- Resetable
- Simple operation

CASING SIZE		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
4.5	114.3	3.750	95.25	2.000	50.80	2.38	60.3	T629-45A-000
5	127	4.000	101.60	2.000	50.80	2.38	60.3	T629-50A-000
5.5	139.7	4.625	117.40	2.000	50.80	2.38	60.3	T629-55A-000
5.5	139.7	4.625	117.40	2.000	50.80	2.88	73	T629-56A-000
7	177.8	6.000	152.40	2.500	63.5	2.88	73	T629-70B-000
7	177.8	5.875	149.23	2.500	63.5	2.88	73	T629-70A-000
7	177.8	5.875	149.23	3.000	76.2	3.5	88.9	T629-73A-000
7	177.8	6.000	152.40	3.000	76.2	3.5	88.9	T629-73B-000
9.63	244.5	8.500	215.90	4.000	101.6	4.5	101.6	T629-97A-000

P650 HS-1 HYDRO GRIP



The P650 HS-1 Hydraulic Set Packer is a single-string, pressure-activated, double grip production packer used in single or multi zone completions. The HS-1 Packer is ideally suited for applications where it is desired to set the packer after the well is flanged up. The HS-1 Packer is ideal for multi zone completions because the pressure balance system is zone activated offsetting pressure differentials across the packer.

Setting: Run to depth using pumpout plug, expendable seat, trip sub or profile nipple below the packer. Pressure tubing string to a pre-determined pressure shearing the set shear screws closing the bypass system and energizing the packing elements.

Release: Straight pull on tubing string shears the release screws, opening the equalizing system and then activates the sequential release slip system.

FEATURES:

- Running bypass
- Release equalizing system
- Pressure balanced system
- Internal components lock, eliminating premature set
- Straight pull release

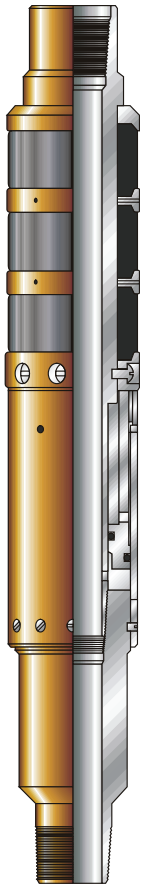
P650 HS-1 HYDRO GRIP

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2.000	50.80	2.38 EUE 8RD	60.3	T650-45A-000
5	127	11.5-18	17.1-26.8	4.125	104.78	2.000	50.80	2.38 EUE 8RD	60.3	T650-50A-000
5	127	18-20.8	26.8-31	4.000	101.60	2.000	50.80	2.38 EUE 8RD	60.3	T650-50B-000
5.5	139.7	13-14	19.3-20.8	4.812	122.22	2.000	50.80	2.38 EUE 8RD	60.3	T650-55C-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2.38 EUE 8RD	60.3	T650-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2.38 EUE 8RD	60.3	T650-55B-000
6.63	168.3	17-20	25.3-29.8	5.750	146.10	2.500	63.50	2.88 EUE 8RD	73	T650-65A-000
7	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE 8RD	73	T650-70A-000
7	177.8	26-35	38.7-52.1	5.875	149.23	2.500	63.50	2.88 EUE 8RD	73	T650-70C-000
7	177.8	17-26	25.3-38.7	6.000	152.40	3.000	76.20	3.5 EUE 8RD	88.9	T650-73B-000
7	177.8	26-32	38.7-47.6	5.875	149.23	3.000	76.20	3.5 EUE 8RD	88.9	T650-73A-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.90	3.000	76.20	3.5 EUE 8RD	88.9	T650-95B-000
9.63	244.5	43.5-53.5	64.7-79.6	8.250	209.60	3.000	76.20	3.5 EUE 8RD	88.9	T650-95A-000
9.63	244.5	32.3-43.5	48.1-64.7	8.500	215.90	4.000	101.60	4.5 EUE 8RD	114.3	T650-96B-000
9.63	244.5	43.5-53.5	647.-79.6	8.250	209.60	4.000	101.60	4.5 EUE 8RD	114.3	T650-96A-000

P654 HS-4 Isolation Packer

The P654 HS-4 Isolation Packer is a hydraulic set, single string tandem packer used in multiple zone wells. The P654 HS-4 is used as the upper packer in multiple zone applications.

Setting: Run to setting depth, apply tubing pressure to set.



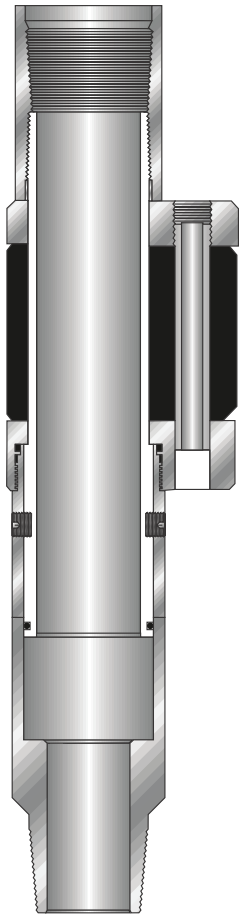
FEATURES:

- Economical design
- Easily adjustable set and release shear screws
- Compact

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		TUBING SIZE		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.000	50.80	2.38 EUE	60.3	T654-45A-000
5	127	11.5-15	17.1-22.3	4.125	104.78	2.000	50.80	2.38 EUE	60.3	T654-50A-000
5	127	18-20	26.8-31	4.000	101.6	2.000	50.80	2.38 EUE	60.3	T654-50B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.48	2.000	50.80	2.38 EUE	60.3	T654-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.000	50.80	2.38 EUE	60.3	T654-55B-000
7	177.8	17-16	25.3-38.7	6.000	152.40	2.500	63.50	2.88 EUE	73	T654-70B-000
7	177.8	26-32	38.7-47.6	5.875	149.26	2.500	63.50	2.88 EUE	73	T654-70A-000

P900 MSV Dual Compression Packer

The P900 MSV Packer is a retrievable compression set isolation packer. The bypass tube is an integral part of the MSV and a telescoping slip joint is used for spacing out and connection to a gas lift mandrel. The MSV is the upper packer in a two packer chamber gas lift completion. The MSV Packer is keyed with heavy duty bolts that allow torque for setting and releasing of a lower packer.



Setting: Once the lower packer is set, 10,000 lbs. Tubing weight is applied to shear the MSV shear screws and energize the packing element.

Release: Sstraight pick-up of the tubing string.

FEATURES:

- Simple operation
- Rugged construction
- Adjustable setting shear screws

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN. I.D.		TUBING SIZE		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114	9.5-11.6	14.14-17.26	3.813	96.85	1.500	38.1	1.900	48.3	T900-45A-000
5	127	11.5-18	17.1-26.8	4.062	103.17	1.500	38.1	1.900	48.3	T900-50A-000
5.5	139.7	14-20	20.8-29.8	4.625	117.48	1.500	38.1	1.900	48.3	T900-55A-000
6.63	168.3	20-28	29.8-41.7	5.625	142.88	2.500	63.5	2.63	73	T900-65A-000
7	177.8	17-29	25.3-43.2	6.000	152.40	2.500	63.5	2.63	73	T900-70B-000
7	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.5	2.63	73	T900-70A-000
7.63	193.7	33.7-39	50.2-58	6.453	163.91	2.500	63.5	2.63	73	T900-75A-000
9.63	244.5	32-43.5	47.6-64.7	8.500	215.90	2.500	63.5	2.63	73	T900-95B-000
9.63	244.5	43.5-53.5	59.5-79.6	8.250	209.55	2.500	63.5	2.63	73	T900-95A-000

PEAK COMPLETIONS

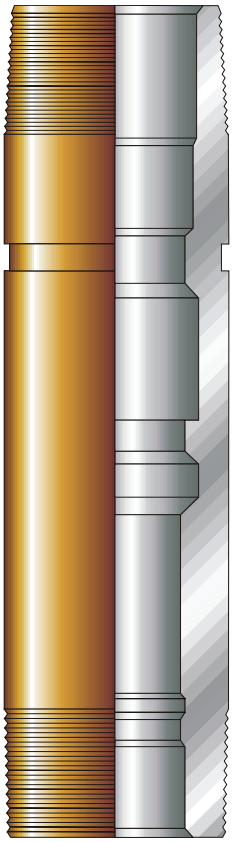
Flow Control

MODEL "SLXN" LANDING NIPPLE

The ESS-ELl Model "SLXN" Landing Nipple is a Bottom No-Go landing nipple that allows for the location of many Flow Contro1 Devices, such as Blanking Plugs, Bottom Hole Chokes, etc.

The "SLXN" has a locking groove which serves to allow for the internal locking of the flow control devices. The honed seal area provides a polished seal surface to pack off any flow control device. The Bottom No-Go shoulder provides the means to positively locate the appropriate flow control device into the "SLXN."

There is a wide range of materials from which the "SLXN" can be machined. The standard material is alloy steel which meets NACE MR 01-75 (1988 Editorial Revision) specifications for H2S service (hardness is 18-22 Rc).

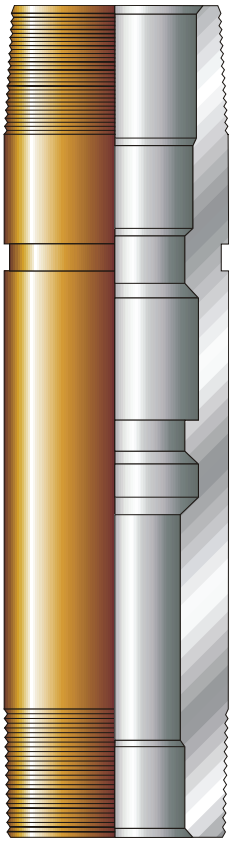


SIZE ABAILABILITY CHART *						
Tubing Size (Metric)	1.900	2.167	2.375	2.875	3.500	
	48mm	55mm	60mm	73mm	89mm	
Seal Bore (Metric)	1.500	1.625	2.875	2.312	2.75	2.813
	38mm	41mm	47mm	58mm	69mm	71mm

DIMENSIONAL DATA						
Tubing Size (Metric)	1.500	1.625	1.875	2.312	2.750	2.813
	38mm	41mm	47mm	58mm	69mm	71mm
Length*	13.56	13.75	14	14.2	16.14	
O.D.**	2.12	2.34	2.71	3.23	4.25	
O.D.**	1.448	1.536	1.791	2.205	2.635	2.698

* Length may vary depending on the type of thread used.
** Nipple OD may vary depending on the type of thread used.

MODEL "SLX" LANDING NIPPLE



The ESS-ELL Model "SLX" Landing Nipple is a Full Bore Landing Nipple that allows for the location of many Flow Control Devices, such as Blanking Plugs, Bottom Hole Chokes, etc.

The "SLX" has a locking groove which serves to allow for the internal locking of the flow control devices. The honed seal area provides a polished seal surface to pack off any flow control device. The unique locking groove profile allows for full selectivity in running flow control devices into the "SLX". Many "SLX" Landing Nipples can be run in the production tubing without any loss in operational flexibility.

There is a wide range of materials from which the "SLX" can be machined. The standard material is alloy steel which meets NACE MR 01-75 (1988 Editorial Revision) specifications for H2S service (hardness is 18-22 Rc).

SIZE ABAILABILITY CHART *						
Tubing Size (Metric)	1.900	2.167	2.375	2.875	3.500	
	48mm	55mm	60mm	73mm	89mm	
Seal Bore (Metric)	1.500	1.625	2.875	2.312	2.75	2.813
	38mm	41mm	47mm	58mm	69mm	71mm

DIMENSIONAL DATA						
Tubing Size (Metric)	1.500	1.625	1.875	2.312	2.750	2.813
	38mm	41mm	47mm	58mm	69mm	71mm
Length*	13.56	13.75	14	14.2	16.14	
Min. O.D.**	2.12	2.34	2.71	3.23	4.25	

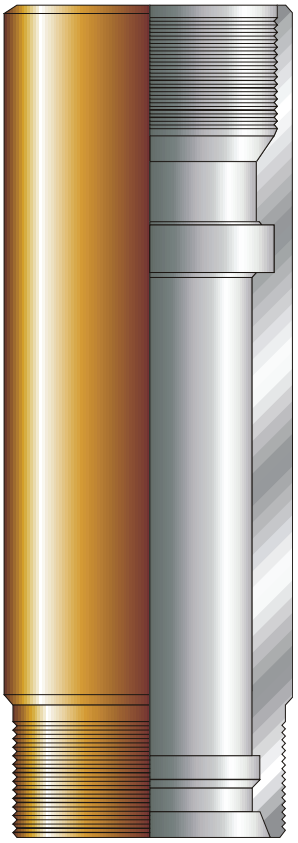
* Length may vary depending on the type of thread used.
** Nipple OD may vary depending on the type of thread used.

MODEL "ER" LANDING NIPPLE

The ESS-ELL Model "ER" Landing Nipple is a Bottom No-Go Landing Nipple that allows for the location of many Flow Control Devices, such as Blanking Plugs, Bottom Hole Chokes, etc.

The "ER" has a locking groove which serves to allow for the internal locking of the flow control devices. The honed seal area provides a polished seal surface to pack off any flow control device. The Bottom No-Go shoulder provides the means to positively locate the appropriate flow control device into the "ER".

There are a wide range of materials from which the "ER" can be machined. The standard material is alloy steel which meets NACE MR 01-75 (1984 Editorial Revision) specifications for H2S service (hardness is 18-22 Rc).



SIZE ABAILABILITY CHART *									
Tubing Size (Metric)	1.900		2.167		2.375		2.875		3.5
	48mm		52mm		60mm		73mm		89mm
Seal Bore (Metric)	1.43	1.5	1.56	1.62	1.78	1.81	2.25	2.31	2.75
	36	38	39	41	45	46	57	58	

DIMENSIONAL DATA										
Tubing Size (Metric)	1.43	1.5	1.56	1.62	1.78	1.81	1.87	2.25	2.31	2.75
	36	38	39	41	45	46	47	57		
Length*	9.5-12		9.68-11.56		10..5-13			11.5-13.5		12.5-14.5
Min. O.D.**	2.109		2.250		2.560			3.109		3.687
No-Go I.D.	1.385	1.447	1.510	1.572	1.728	1.760	1.822	2.197	2.259	2.697

* Length may vary depending on the type of thread used.

** Nipple OD is normally joint or coupling OD. OD cannot be smaller than that shown in the chart

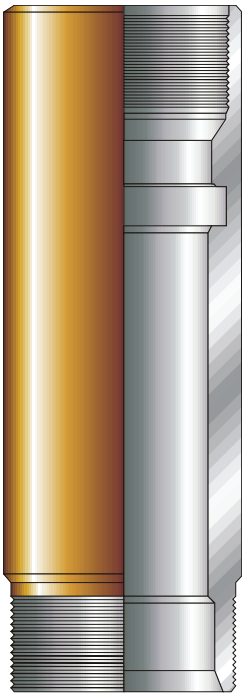
MODEL "EF" LANDING NIPPLE

The ESS-ELL Model "EP Landing Nipple is a Selective Landing Nipple that allows for the location of many Flow Control Devices, such as Blanking Plugs, Bottom Hole Chokes, etc.

The "EF" has a locking groove which serves to allow for the internal locking of the flow control devices. The honed seal area provides a polished seal surface to pack off any flow control device. Additionally, in many cases it is possible to run and land API sucker rod pumps into "EF" Landing Nipples.

There are a wide range of materials from which the "EF can be machined. The "standard" material is alloy steel which meets NACE MR 01-75 (1984 Editorial Revision) specifications for H2S service (hardness is 18-22 Rc).

All API and premium threads can be machined into the "EF Nipple."



SIZE ABAILABILITY CHART *												
Tubing Size (Metric)	1.900		2.167		2.375			2.875			3.5	
	48mm		52mm		60mm			73mm			89mm	
Seal Bore (Metric)	1.43	1.50	1.56	1.62	1.78	1.81	1.87	2.25	2.28	2.31	2.75	2.81
	36	38	39	41	45	46	47	57	57.5			

DIMENSIONAL DATA												
Tubing Size (Metric)	1.43	1.50	1.56	1.62	1.78	1.81	1.87	2.25	2.28	2.31	2.75	2.81
	36	38	39	41	45	46	47	57	57.5	58	69	71
Length* (in)	11-15		11-15		12-17			13-18			13-18	
Min. O.D.** (in)	2.109		2.25		2.56			3.109			3.687	

* Length may vary depending on the type of thread used.
** Nipple OD is normally joint or coupling OD. OD cannot be smaller than that shown in the chart

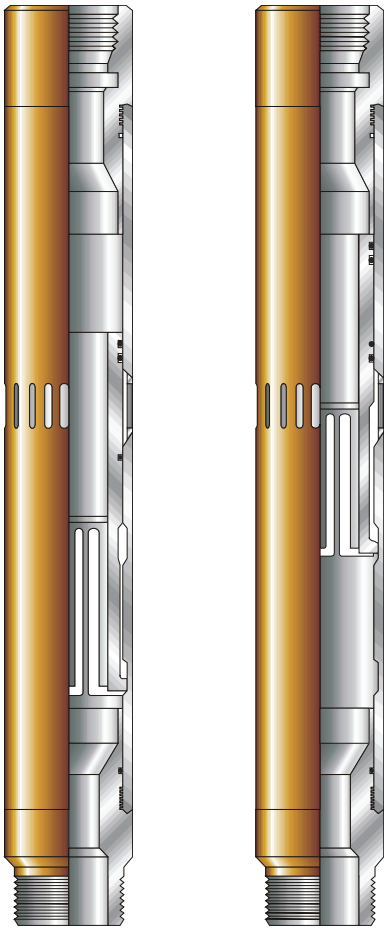
MODEL "EL" SLIDING SLEEVE

The ESS-ELL Model EL Sliding Sleeve is a downhole device, normally screwed into the production tubing, that allows communication between the tubing and the casing.

The closing sleeve includes bonded upper seals to ensure integrity of the seals for extended periods of time while downhole. They can also be of various elastomer types.

The upper sub has a selective "EF" landing nipple profile machined into it to allow for the proper shifting of the sleeve and to serve as a receptacle for other flow control devices, such as blanking plugs and separation tools.

The ESS-ELL Model ED-2 Shifting Tool is used to shift the EL Sliding Sleeve open and closed. The sleeve is designed so that normal wireline activities will not open or close the sleeve inadvertently. Upward jarring opens the sleeve and downward jarring closes the sleeve.



CLOSED OPEN

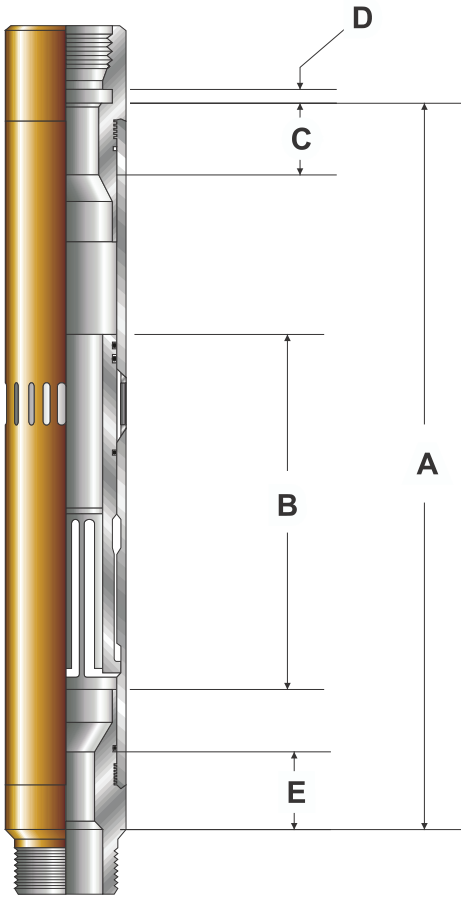
SIZE ABAILABILITY CHART *													
Tubing Size (Metric)	1.900		2.167		2.375			2.875		3.5		4.5	
	48mm		52mm		60mm			73mm		89mm		114mm	
Seal Bore (Metric)	1.43	1.50	1.56	1.62	1.78	1.81	1.87	2.25	2.28	2.75	2.81	3.75	3.81
	36	38	39	41			47	57	58	69	71	95	97

MODEL "EL" SLIDING SLEEVE

Seal Bore	1.43	1.50	1.56	1.62	1.78	1.81	1.87	2.25	2.31	2.75	2.81	3.75	3.81
(Metric)	36	38	39	41	45	46	47	57	58	69	71	95	97
Length*	30.53		30.38		31.97			35.28		37.66		47.75	
Max. O.D.**	2.375		2.500		2.910			3.410		4.500		5.500	
Inner Sleeve I.D.	1.531		1.656		1.937			2.375		2.875		3.910	
Flow Area	1.893 in. sq.		1.893 in. sq.		2.839 in. sq.			4.138 in. sq.		6.106 in. sq.		11.527 in. sq.	
A	25.0	25.06	24.94	25.0	26.66	26.66	26.72	28.25	28.31	29.5	29.56	36.25	
B	6.09		6.09		7.97			8.28		8.75		13.125	
C	4.81		4.81		5.81			6.25		6.75		7.375	
D	1		1		1			1		1		1	
E	4.69	4.75	4.81	4.88	5.66	5.69	5.75	6.12	6.19	6.66	6.72	6.46	6.54

* Length may vary if special threads are used.

** Maximum OD may be greater if special threads are used.



Model "EL" Sliding Sleeve

ASSEMBLY:

1. The Inner Sleeve is always assembled from the lower end of the Housing.
2. Replace the 0-rings on both the Upper and Lower Sub.
3. Replace the two Seats on the upper end of the inner Sleeve.
4. Apply Jet Lube AP-1 Grease (or equivalent) to the I.O. of the Housing, the entire surface of the Inner Sleeve, and the I.D. of the Upper and Lower Sub Ends.
5. Apply Lubon 404 Thread Sealant/lubricant to the stub acme» threads on the Upper and Lower Sub Ends.
6. Install the Upper Sub onto the Housing.
7. Insert the inner Sleeve into the Housing. Make sure it is shifted until it hits the stopping point of the Upper Sub.
8. Install the Lower Sub onto the Housing.
9. Shift the Inner Sleeve down the fully closed position.
10. Pressure test to 6,000 psi maximum.

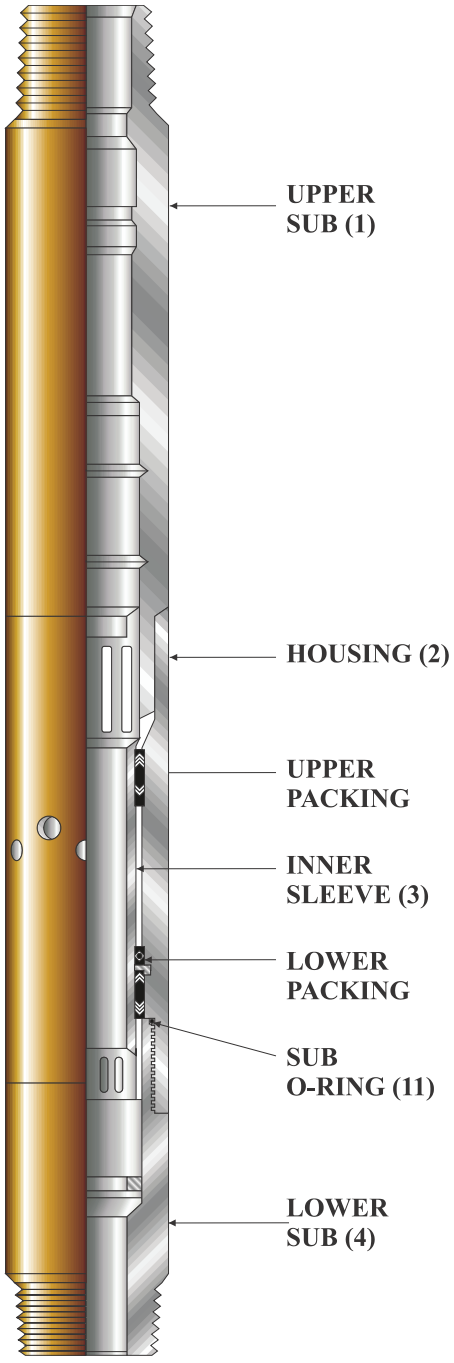
MODEL "SLXA" SLIDING SLEEVE

The ESS-ELL Model SLXA Sliding Sleeve is a downhole device, normally screwed into the production tubing, that allows communication between the tubing and the easing.

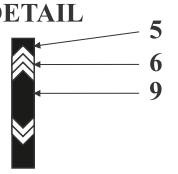
The closing sleeve has replaceable upper and lower seals which are easy and inexpensive to replace. They can be of various elastomer types.

The upper sub has a selective "SLX' Landing Nipple profile machined into it to serve as a receptacle for other flow control devices such as blanking plugs and separation tools.

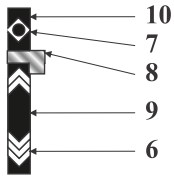
The ESS-ELL Model EB Shifting Tool is used to shift the SLXA Sliding Sleeve open and closed. The sleeve is designed so that normal wireline activities will not open or close the sleeve inadvertently. Upward jarring opens the sleeve and downward jarring closes it.



UPPER PACKING DETAIL



LOWER PACKING DETAIL



PARTS LIST

NO.	DESCRIPTION	QTY
1	Upper Sub	1
2	Housing	1
3	Inner Sleeve	11
4	Lower Sub	1
5	Female Adapter	4
6	Vee Packing	Noted
7	O-Ring	1
8	Split Ring Segment	Noted
9	O-Ring	2
10	Female Adapter	2
11	Sub O-Ring	2

MODEL "SLXA" SLIDING SLEEVE

SIZE ABAILABILITY CHART *					
Seal Bore	1.50	1.62	1.87	2.31	2.75
(Metric)	38	41	47	58	69
Length*	30.75	31.28	33.91	35.62	44.88
Nom. O.D.**	2.375	2.62	3.09	3.75	4.28
Min. I.D.	1.500	1.625	1.875	2.312	2.750

SIZE ABAILABILITY CHART *							
Tubing Size (Metric)	1.900	2.167	2.375	2.875	3.5		4.5
	48mm	52mm	60mm	73mm	89mm		114mm
Seal Bore (Metric)	1.50	1.62	1.87	2.31	2.75	2.81	3.81
	38	41	47	58	69	71	97

* Length may vary if special threads are used.

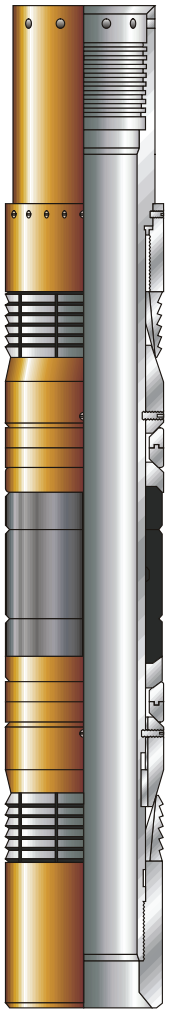
** Maximum OD may be greater if special threads are used.

ADDITIONAL DIMENSIONS & DATA

Size	1.50	1.87	2.31	2.75
Shifting Tool	EB	EB	EB	EB
Flow Area-in2	.897	2.355	2.981	4.459
Max. Pressure-psi	10,000	10,000	10,000	10,000
Vee Packing reqd.	12	8	12	12
Split Ring Segs reqd.	4	4	4	6

Seal Bore Packers

P670 TL Perma-Pack Seal Bore Packer



The P670 Perma-Pack Permanent Seal Bore Production Packer is a versatile tool that can be used for single or multiple zone completions. The Perma-Pack is ideally suited for wells where high pressure, temperatures and corrosive fluids are anticipated. The packer is available in a variety of elastomers and seal bore materials to meet the most hostile down hole environments. The Perma-Pack is recommended for injection stimulation, testing or can be converted into a temporary bridge plug by suing a knock-out, pump-out or screw-out plug bottom assembly.

The Perma-Pack Packer is available with a complete line of tubing seal accessories and elastomers. Seal assemblies are available with TATR, TRTR, TVTR, BONDED NITRILE, BONDED VITON, BONDED ECO and BONDED EPDM.

FEATURES:

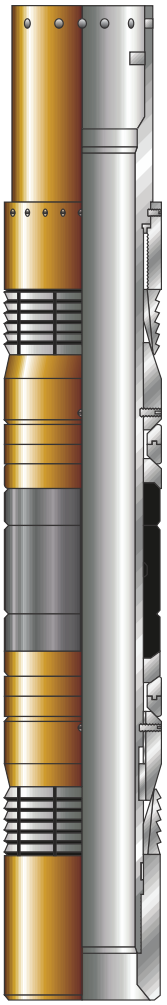
- Electric line set, hydraulic set or mechanical set
- Components keyed for milling
- Anti-extrusion rings expand to casing I.D. to prevent rubber extrusion
- Designed to accommodate competitive seal bore accessories
- Full circle slips allow for fast run time

P670 TL Perma-Pack Seal Bore Packer

CASING SIZE		CASING WEIGHT		MAX O.D.		PACKER BORE		MIN. BORE THRU SEALS		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.4-20.1	3.750	95.25	2.390	60.71	1.703	43.26	T670-43A-000
4.5	114.3	13.5-15.10	20.1-22.5	3.594	91.29	2.500	63.50	1.901	48.29	T670-44B-000
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2.688	68.28	1.9.8	49.23	T670-45A-000
5	127	15-20.8	22.3-31	3.968	100.79	2.390	60.71	1.703	43.26	T670-50A-000
5	127	15-20.8	22.3-31	3.968	100.79	2.688	68.28	1.938	49.23	T670-51A-000
5	127	11.5-13	17.1-19.3	4.250	107.95	2.688	68.28	1.938	49.23	T670-55C-000
5.5	139.7	13-17	19.3-25.3	4.562	115.87	2.688	68.28	1.938	49.23	T670-55A-000
5.5	139.7	17-23	25.3-34.2	4.437	112.70	2.688	68.28	1.938	49.23	T670-55B-000
5.5	139.7	13-17	19.3-25.3	4.562	115.87	3.000	76.20	2.375	60.30	T670-56A-000
5.5	139.7	17-23	25.3-34.2	4.437	112.70	3.000	76.20	2.375	60.30	T670-56B-000
7	177.8	23-32	34.2-47.6	5.687	144.45	3.250	82.55	2.406	61.11	T670-70A-000
7	177.8	32-38	47.6-56.5	5.468	138.89	3.250	82.55	2.406	61.11	T670-70C-000
7	177.8	17-20	25.3-29.8	6.187	157.15	3.250	82.55	2.406	61.11	T670-70B-000
7	177.8	20-23	29.8-34.2	6.000	152.40	4.000	101.60	3.000	76.20	T670-71A-000
7	177.8	26-29	38.7-43.2	5.875	149.23	4.000	101.60	3.000	76.20	T670-71B-000
7.63	193.7	24-39	35.7-58	6.625	158.75	3.250	82.55	2.406	61.11	T670-75A-000
7.63	193.7	24-33.7	35.7-50.2	6.500	165.10	4.000	101.60	3.000	76.20	T670-76A-000
7.63	193.7	33.7-39	50.2-58	6.125	155.58	4.000	101.60	3.000	76.20	T670-76B-000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.38	3.250	82.55	2.406	61.11	T670-95A-000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.38	4.000	101.60	3.000	76.20	T670-96A-000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.38	4.750	120.65	3875	98.43	T670-97A-000
9.63	244.5	36-47	53.6-69.9	8.438	214.33	6.000	152.40	4.875	123.83	T670-98B-000
9.63	244.5	40-58.4	60.4-86.9	8.218	208.74	6.000	152.40	4.875	123.83	T670-98A-000

P671 JL Perma-Pack Seal Bore Packer

The P671 Perma-Pack Permanent Seal bore Production Packer is a versatile tool that can be used for single or multiple zone completions. The Perma-Pack is ideally suited for wells where high pressure, temperature and corrosive fluids are anticipated. The packer is available in a variety of elastomer and seal bore materials to meet the most hostile downhole environments. The Perma-Pack is recommended for injection, stimulation, testing or plugging by latching a equalizing packer plug into the top connection. The Perma-Pack is available with a complete line of tubing seal accessories and elastomers.



FEATURES:

- Electric line set, hydraulic set or mechanical set
- Components keyed for milling
- Anti-extrusion rings expand to casing I.D. to prevent rubber extrusion
- Designed to accept competitive seal bore accessories
- Full circle one piece slips

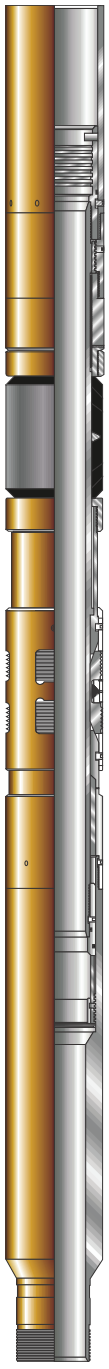
P671 JL Perma-Pack Seal Bore Packer

CASING SIZE		CASING WEIGHT		MAX O.D.		PACKER BORE		MIN. BORE THRU SEALS		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.4-20.1	3.750	95.25	2.390	60.71	1.703	43.26	T671-43A-000
4.5	114.3	13.5-15.10	20.1-22.5	3.594	91.29	2.500	63.50	1.901	48.29	T671-44B-000
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2.688	68.28	1.9.8	49.23	T671-45A-000
5	127	15-20.8	22.3-31	3.968	100.79	2.390	60.71	1.703	43.26	T671-50A-000
5	127	15-20.8	22.3-31	3.968	100.79	2.688	68.28	1.938	49.23	T671-51A-000
5	127	11.5-13	17.1-19.3	4.250	107.95	2.688	68.28	1.938	49.23	T671-55C-000
5.5	139.7	13-17	19.3-25.3	4.562	115.87	2.688	68.28	1.938	49.23	T671-55A-000
5.5	139.7	17-23	25.3-34.2	4.437	112.70	2.688	68.28	1.938	49.23	T671-55B-000
5.5	139.7	13-17	19.3-25.3	4.562	115.87	3.000	76.20	2.375	60.30	T671-56A-000
5.5	139.7	17-23	25.3-34.2	4.437	112.70	3.000	76.20	2.375	60.30	T671-56B-000
7	177.8	23-32	34.2-47.6	5.687	144.45	3.250	82.55	2.406	61.11	T671-70A-000
7	177.8	32-38	47.6-56.5	5.468	138.89	3.250	82.55	2.406	61.11	T671-70C-000
7	177.8	17-20	25.3-29.8	6.187	157.15	3.250	82.55	2.406	61.11	T671-70B-000
7	177.8	20-23	29.8-34.2	6.000	152.40	4.000	101.60	3.000	76.20	T671-71A-000
7	177.8	26-29	38.7-43.2	5.875	149.23	4.000	101.60	3.000	76.20	T671-71B-000
7.63	193.7	24-39	35.7-58	6.625	158.75	3.250	82.55	2.406	61.11	T671-75A-000
7.63	193.7	24-33.7	35.7-50.2	6.500	165.10	4.000	101.60	3.000	76.20	T671-76A-000
7.63	193.7	33.7-39	50.2-58	6.125	155.58	4.000	101.60	3.000	76.20	T671-76B-000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.38	3.250	82.55	2.406	61.11	T671-95A-000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.38	4.000	101.60	3.000	76.20	T671-96A-000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.38	4.750	120.65	3875	98.43	T671-97A-000
9.63	244.5	36-47	53.6-69.9	8.438	214.33	6.000	152.40	4.875	123.83	T671-98B-000
9.63	244.5	40-58.4	60.4-86.9	8.218	208.74	6.000	152.40	4.875	123.83	T671-98A-000

Peak-Pak Retrievable Seal Bore Packer

The Peak-Pak Retrievable Seal bore Packer delivers high performance utilizing simplicity of design. Having a 10,000 psi standard pressure rating, the Peak-Pak RSB packer is available in all casing sizes, opening up numerous economical options for the operator. The Peak-Pak RSB is set on wireline or tubing and can be easily retrieved.

The Peak-Pak RSB is designed with the industry's best, Ecner Array packing element. This packing element, available in a wide variety of material options, will handle any completion configuration, from gravel pack applications to the deep, high pressure completions.



FEATURES:

- Electric line set, hydraulic set or mechanical set
- Components keyed for milling
- Ecner Array element superior element system
- Designed to accept competitive seal bore accessories
- Easily retrievable
- Sets in a wide range of casing ID
- Short design for deviated wellbores

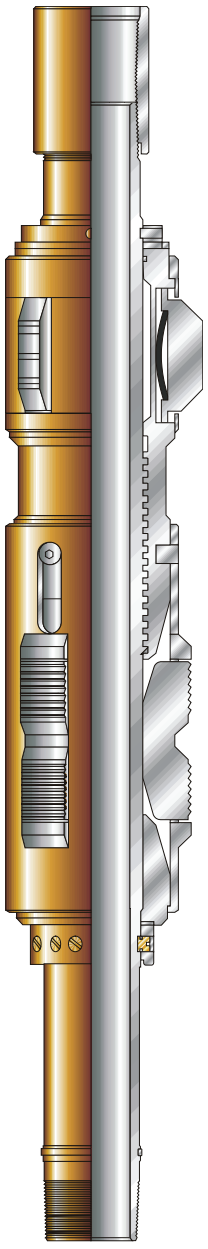
PEAK COMPLETIONS

Tubing Anchors

Drag Block Type "A" Anchor Catcher #058

8-5/8-9-5/8 219.8mm - 244.4 mm
Large Bypass

The Drag Block Anchor Catcher is a reliable, retrievable, double grip anchor catcher.



APPLICATIONS:

Anchor the tubing string in tension or compression in wells of any depth. This prevents movement of the tubing string during pumping operation, thus increasing pump efficiency and decreasing rod wear. This Anchor Catcher may also be used for progressive cavity pumps to prevent rotation or, tubing strings from dropping due to tubing failure.

FEATURES:

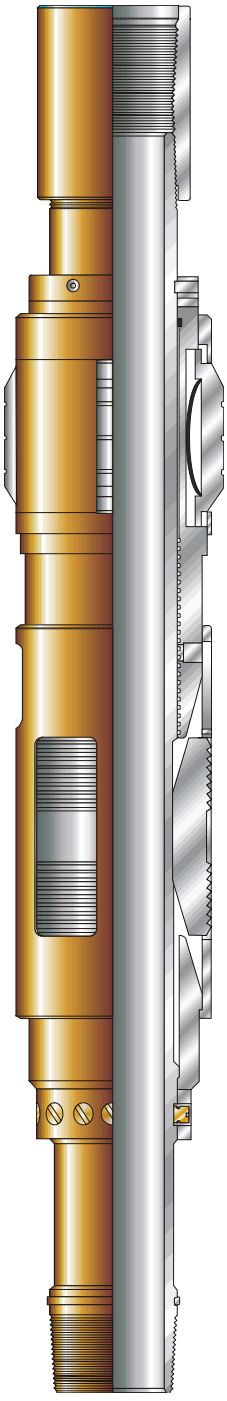
- Fully retrievable
- Released by right-hand rotation or optional left-hand
- Drag blocks for setting and releasing control
- Emergency shear release, each pin is 5,000 lbs. shear
- When the anchor catcher has been sheared the slips are completely retracted, permitting the slips to move up or down thus eliminating potential damage to the anchor catcher, tubing or casing

CASING				ANCHOR	
O.D.		WEIGHT		MAX SLIP TRAVEL	
in	mm	ft/lbs	kg/m	in	mm
8.63	219.08	24-44	35.71-65.47	8.29	210.56
9.63	244.48	65.30-58	48.06-86.30	9.26	235.20

ANCHOR			
BODY MAX O.D.	MANDREL I.D.	STD.EUE BOX PIN	PRODUCT NUMBER
6.75	3.00	3.50	058-858
171.45	76.20	88.90	058-958

DRAG BLOCK TYPE ANCHOR CATCHER #008-01

The Drag Block Anchor Catcher is a reliable, retrievable, double grip anchor catcher.



APPLICATIONS:

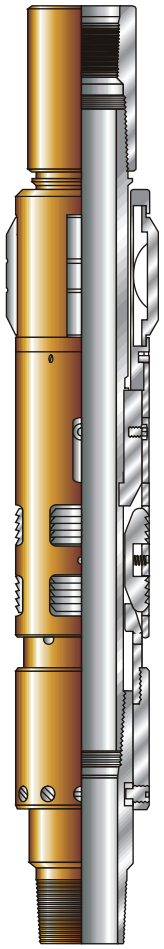
Anchor the tubing string in tension or compression in wells of any depth. This prevents movement of the tubing string during pumping operation, thus increasing pump efficiency and decreasing rod wear.

FEATURES:

- Fully retrievable
- Released by right hand rotation or optional left hand
- Drag blocks for setting and releasing control
- Emergency shear release, each shear pin is 5,000 lbs. shear
- The Slips are completely retracted once the Anchor Catcher has been sheared, allowing the tubing to move up or down. This feature eliminates potential damage to the Anchor Catcher, tubing or casing.

P312 H/D Tubing Anchor Catcher

The P312 H/D Tubing Anchor Catcher is a heavy-duty, rotationally activated tool used to prevent vertical movement of the tubing string. The H/D Anchor uses drag blocks in place of friction springs allowing for better torque resistance and longevity. The H/D Anchor sets to the left, releases to the right or can be shear released with an easily adjustable shear release system. The H/D Anchor can also be special ordered for right hand set (left hand release) with Team Torque slips allowing the tool to be with progressive cavity pumps.



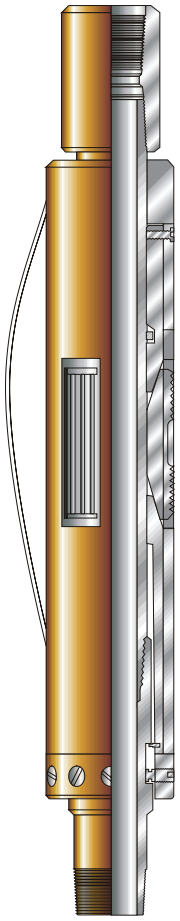
FEATURES:

- Drag block design for durability and torque
- Easily adjustable shear release mechanism
- Full-bore design
- Available in right hand set for PCP applications

CASING SIZE		CASING WEIGHT		MAX. O.D.		MIN. I.D.		TUBING SIZE		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2	50.8	2.38 EU	60.3	T312-45A-000
5	127	11.5-15	17.1-22.3	4.000	101.6	2	50.8	2.38 EU	60.3	T312-50A-000
5	127	18-20.8	26.8-31	4.125	104.77	2	50.8	2.38 EU	60.3	T312-51A-000
5.5	139.7	13-20	19.3-29.8	4.625	117.47	2	50.8	2.38 EU	60.3	T312-55A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2	50.8	2.38 EU	60.3	T312-55B-000
5.5	139.7	13-20	19.3-29.8	4.625	117.47	2.5	63.5	2.88	73	T312-56A-000
5.5	139.7	20-23	29.8-34.2	4.500	114.3	2.5	63.5	2.88	73	T312-56B-000
7	177.8	17-38	25.3-56.5	5.750	146.1	2.5	63.5	2.88	73	T312-70A-000

P354 RT ANCHOR CATCHER

The P354 RT Anchor Catcher was developed to run with a progressive cavity pump on fiberglass tubing string. The unique slip design allows the anchor to grip the casing wall when right-hand rotation is applied and prevents any right handed torque. The RT Anchor Catcher sets to the right, releases to the let or straight pull of the tubing string will engage the adjustable shear safety release mechanism.

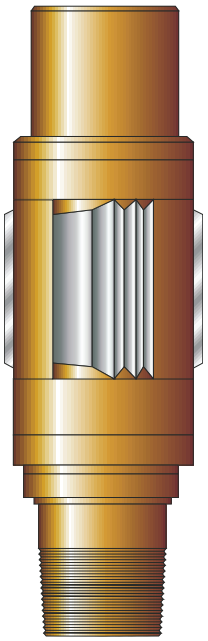


FEATURES:

- Vertically cut wicker slip allows right-hand torque
- Reduces wear on tubing string
- Right hand set, left hand release or shear release
- Parts interchangeable with standard tool
- Sturdy stainless steel drag springs

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		TUBING SIZE		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2.000	50.8	2.38 EUE 8RD	60.3	T354-45A-000
5.5	139.7	13-23	19.3-34.2	4.500	114.3	2.000	50.8	2.38 EUE 8RD	60.3	T354-55A-000
5.5	139.7	13-23	19.3-34.2	4.500	114.3	2.375	60.3	2.88 EUE 8RD	73	T354-56A-000
7	177.8	17-35	25.3-52.08	5.875	149.2	2.500	63.5	2.88 EUE 8RD	73	T354-70A-000
7	177.8	17-35	25.3-52.08	5.875	149.2	2.000	50.8	2.38 EUE 8RD	60.3	T354-71A-000

Type “S” Stop Turn Anchor



The Type "S" Stop Turn Anchor is primarily designed to prevent tubing from backing off or to tighten a string of tubing that has been in the well. It is usually run with positive displacement "screw pumps".

FEATURES:

- Compact, beneficial for gas bypass
- Rocker drag slip for setting and releasing control
- Complete lock system

OPERATION:

Set:
The tubing is turned to the right, moving the rocker drag slip and forcing the wicker side of the rocker drag slip into the casing, preventing the tubing from turning.

Release:
The Type "S" Stop Turn Anchor is turned in the opposite direction that was used to set the pump anchor.

TYPE "S" STOP TURN ANCHOR

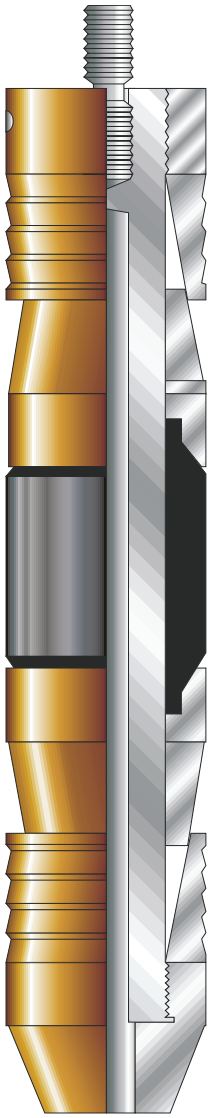
CASING							
O.D.		WEIGHT		I.D. RANGE			
				MIN.		MAX	
in	mm	ft/lbs	kg/m	in	mm	in	mm
4.5	114.3	9.5-13.5	14.1-20.1	3.92	99.6	4.09	103.9
5.5	139.7	13-20	19.3-29.8	4.778	121.4	5.044	128.1
7	177.8	17-26	25.3-38.7	6.276	159.4	6.538	166.1
8.63	219.0	24-44	35.7-65.5	7.625	193.7	8.191	208.1
9.63	244.5	32-53.5	47.6-79.6	8.435	214.2	9.001	228.6

ANCHOR O.D.		ANCHOR I.D. BORE		THREAD CONNECTION	
in	mm	in	mm	in	mm
3.75	95.25	1.933	49	2.375	60.3
4.620	117.0	2.440	62	2.875	73
5.880	149.0	2.440	62	2.875	N/A
7.000	177.8	3.000	76.20	3.500	88.90
8.250	209.6	3.000	76.20	3.500	88.90

Plugs and Retainers

MODEL DB-5 BRIDGE PLUG

The Model DB-5 Bridge Plug is an economical, fully drillable bridge plug. For applications where 35 mpa (5,000 psi) plug is sufficient. The DB-5 is suitable for well abandonments or zone suspension.



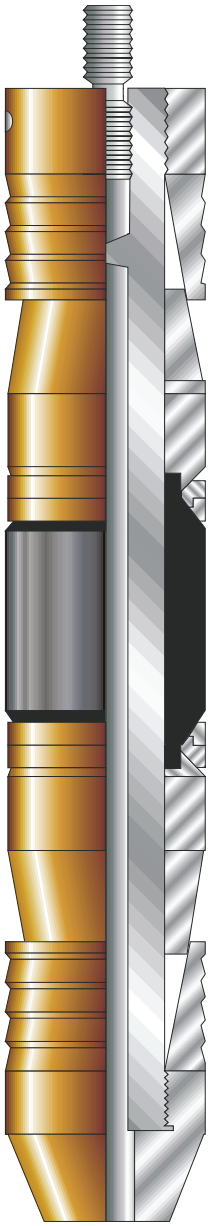
FEATURES:

- Cost competitive
- Constructed with drillable materials
- 35 mpa (5,000 psi) rated
- Temperature rating 93 degrees celsius or 200 degrees fahrenheit
- Runs on existing wireline setting tool or hydraulic setting tools

CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SETTING FORCE		PRODUCT NUMBER
						MIN.		MAX.				
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	lbs	daN	
4.5	114.3	9.5-16.6	14.1-24.7	3.500	88.9	3.826	97.18	4.090	103.89	33,000	14,678	450DB5-00
5.5	139.7	13-23	20.8-34.2	4.312	109.52	4.580	116.33	5.044	128.12	33,000	14,678	550DB5-00
7	177.8	17-35	25.3-52	5.687	144.45	6.000	152.40	6.538	166.07	50,000	22,240	700DB5-00

Model DB-10 Bridge Plug

The Model DB-10 Bridge Plug is an economical, fully drillable bridge plug. For applications where 70 mpa (10,000 psi) plug is sufficient. The DB-10 is suitable for well abandonments or zone suspension.



FEATURES:

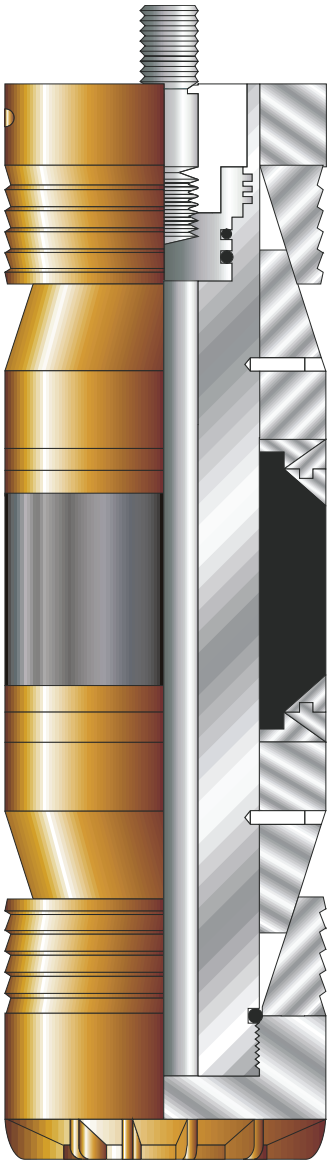
- Competitive cost
- Constructed with drillable materials
- Retaining rings to assist in preventing element extrusion
- Higher temperature of packing element available upon request
- Sets in p-110 casing
- 70 mpa (10,000 psi) rated
- Temperature rating 150 degrees celsius or 300 degrees fahrenheit
- Runs on existing wireline setting tool or hydraulic setting tools

MODEL DB-10 BRIDGE PLUG

CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SETTING FORCE		PRODUCT NUMBER
						MIN.		MAX.				
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	lbs	daN	
2.38	60.3	4-5.8	5.95-8.6	1.750	44.45	1.780	45.21	2.074	52.68	13,000	5,782	238DB10-00
2.88	73	6.4-6.5	9.5-9.7	2.220	56.39	2.340	59.44	2.525	64.14	13,000	5,782	278DB10-00
3.5	8839	5.7-10.3	8.6-15.3	2.750	69.85	2.867	72.82	3.258	82.75	13,000	5,782	350DB10-00
4	101.6	5.6-14	8.3-20.8	3.140	79.76	3.340	84.84	3.732	94.79	20,000	8,896	400DB10-00
4.5	114.3	9.5-16.6	14.1-24.7	3.562	90.47	3.826	97.18	4.090	103.89	33,000	14,678	450DB10-00
5	127	15.5-20.8	17.1-31	3.937	100.00	4.154	105.51	4.560	115.82	33,000	14,678	500DB10-00
5.5	139.7	13-23	20.8-34.2	4.312	109.52	4.580	116.33	5.044	128.12	33,000	14,678	550DB10-00
5.75	146	14-25.2	20.8-37.5	4.699	119.35	4.890	124.21	5.290	134.37	33,000	14,678	575DB10-00
5.63	168.3	17-32	25.3-48	5.375	136.531	5.595	142.11	6.135	155.83	50.000	22,240	658DB10-00
7	177.8	17-35	25.3-52	5.687	44.45	6.000	152.40	6.538	166.07	50.000	22,240	700DB10-00
7.63	193.7	20-39	29.8-58	6.312	160.321	6.625	168.28	7.125	180.98	50.000	22,240	758DB10-00
8.63	219.1	24-49	35.7-72.9	7.125	80.98	7.310	185.67	8.097	205.66	50.000	22,240	858DB10-00

Model DB Bridge Plug

The DB Bridge Plug is an economical, fully drillable bridge plug and is suitable for well abandonments or zone suspension.



FEATURES:

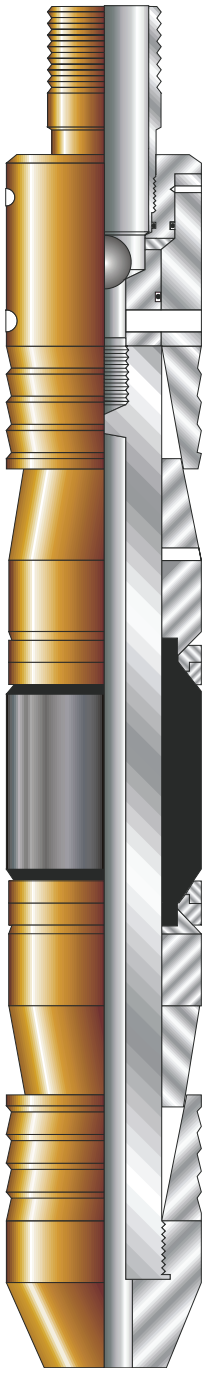
- Competitive cost
- Constructed with drillable materials
- Retaining rings to assist in preventing element extrusion
- Higher temperature of packing element available upon request
- Sets in P-110 casing
- Temperature rating 150 degrees celsius or 300 degrees fahrenheit
- Runs on existing wireline setting tool or hydraulic setting tools

MODEL DB BRIDGE PLUG

CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SETTING FORCE		PRODUCT NUMBER
						MIN.		MAX.				
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	lbs	daN	
9.63	244.5	29.3-58.4	43.6-86.9	8.125	206.38	8.379	212.83	9.063	230.20	50,000	22,240	958DB-8
10.75	269.9	32.7-60.7	48.7-90.3	9.437	239.70	9.660	245.36	10.192	258.88	50,000	22,240	1075DB-5
11.75	298.5	38-60	56.5-89.3	10.437	265.10	10.772	273.61	11.150	283.21	50,000	22,240	1175DB-4
11.75	298.5	60-83	89.3-123.5	9.937	252.40	10.192	258.88	10.772	273.61	50,000	22,240	1176DB-4
13.63	339.7	48-84.5	71.4-125.7	11.880	301.75	12.125	307.98			50,000	22,240	1338DB-3
16	406.4	65-118	96.7-175.5	14.125	358.78			15.250	387.35	50,000	22,240	1600DB-1.5
20	508.0	94-133	139.8-197.8	18.730	475.74	18.730	475.74	19.124	485.75	50,000	22,240	2000DB-1.5

Model HM-2 Bridge Plug

The HM-2 Bridge Plug is designed to set with a combination of hydraulic pressure and mechanical pull. Used for temporary or permanent well abandonments and zone isolation.



FEATURES:

- Competitive cost
- Constructed with drillable materials
- Retaining rings to assist in preventing element extrusion
- Higher temperature of packing element available upon request
- Sets in P-110 casing
- 70 mpa (10,000 psi) rated
- Temperature rating 150 degrees celsius or 300 degrees fahrenheit
- Right-hand rotation to release work string

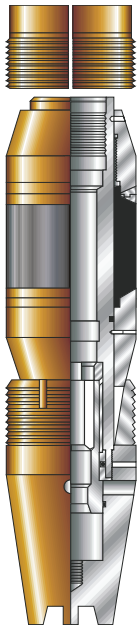
MODEL HM-2 BRIDGE PLUG

CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SURFACE PRESSURE		MIN. PULL FORCE		MAX. PULL FORCE		PRODUCT NUMBER
						MIN.		MAX.								
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	psi	mPa	lbs	daN	lbs	daN	
3.5	88.9	5.7-10.3	8.6-15.3	2.750	69.85	2.867	72.82	3.258	82.75	1500	10.3	10,000	4,48	13,000	5,782	350HM2-10
4	101.6	5.6-14	8.3-20.8	3.190	81.03	3.340	84.84	3.732	94.79	1500	10.3	17,000	7,566	20,000	8,896	400HM2-10
4.5	114.3	9.5-16.6	14.1-24.7	3.562	90.47	3.826	97.18	4.090	103.89	1500	10.3	28,000	12,454	30,000	13,344	450HM2-10
5	127	11.5-20.8	17.1-31	3.937	100	4.154	105.51	4.560	115.82	1500	10.3	28,000	12,454	30,000	13,344	500HM2-10
5.5	139.7	13-23	19.3-34.2	4.312	109.52	4.580	116.33	5.044	128.12	1500	10.3	28,000	12,454	30,000	13,344	550HM2-10
5.75	146.1	14-25.2	20.8-37.5	4.699	119.35	4.890	124.21	5.290	134.37	1500	10.3	30,000	13,344	33,000	14,678	575HM2-10
6.63	168.3	17-32	25.3-47.6	5.375	136.53	5.595	142.11	6.135	155.83	1500	10.3	45,000	20,016	50,000	22,240	658HM2-10
7	177.8	17-35	25.3-52.1	5.687	144.45	6.000	152.40	6.538	166.07	1500	10.3	45,000	20,016	50,000	22,240	700HM2-10
7.63	193.7	20-39	29.8-58	6.312	160.32	6.625	168.28	7.125	180.98	1500	10.3	45,000	20,016	50,000	22,240	758HM2-10
8.63	219.1	24-49	35.7-72.9	7.125	180.98	7.310	185.67	8.097	205.66	1500	10.3	45,000	20,016	50,000	22,240	858HM2-10
9.63	244.5	29.3-58.4	43.6-86.9	8.175	207.65	8.379	212.83	9.063	230.20	1500	10.3	45,000	20,016	50,000	22,240	958HM2-8
10.75	273.1	32.7-60.7	48.6-90.3	9.431	239.70	9.660	245.36	10.192	258.88	1500	10.3	45,000	20,016	50,000	22,240	1075HM2-5
13.38	339.7	48-84.5	71.4-125.7	11.880	301.75	12.175	309.25	12.715	322.96	1500	10.3	45,000	20,016	50,000	22,240	1338HM2-3

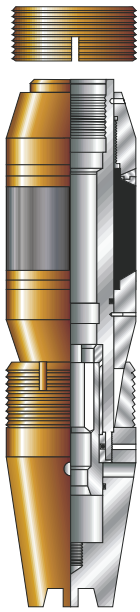
Note: A stabilizer with minimum O.D. of the plug O.D. should be run in conjunction with the plug in a vertical hole. A minimum of two stabilizers should be used in a deviated or directional well.

Model CR Cement Retainer

The Model CR Cement Retainer is an economical, fully drillable cement retainer. Easily converted from wireline set to mechanical set with minimal changes. This provides the user with reliable high pressure plugging devices.



Mechanical Set
Cement Retainer



Wireline Set
Cement Retainer

APPLICATION:

The CR Cement retainer is designed for deep, hot, high-risk, prolonged or complicated squeeze cement jobs.

FEATURES:

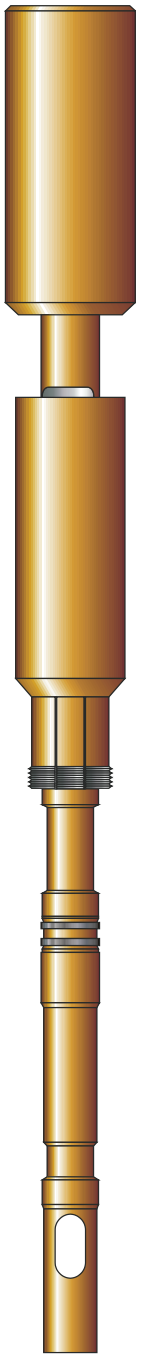
- Wireline or mechanical set - can be set with electrical pressure setting tool or mechanically on tubing
- Speed and safety - lock together design and extra clearance O.D.
- Slide valve - controlled from surface by picking up work string to close and setting down to open
- Locked in squeeze pressure - the valve automatically closes when the stinger is removed locking in squeeze pressure while excess cement is circulated out
- Isolates hydrostatic pressure - the valve protects sensitive zone in low fluid level wells
- 70 mpa (10,000 psi) rated

MODEL CR CEMENT RETAINER

CASING SIZE		CASING WEIGHT		RETAINER O.D.		SETTING RANGE			
						MIN.		MAX.	
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm
4.5	114.3	9.5-15.1	14.1-22.5	3.593	91.26	3.826	97.18	4.090	103.89
5	127	11.5-20.8	17.1-31	3.937	100	4.156	105.56	4.560	115.82
5.5	139.7	13-23	19.3-34.2	4.312	109.52	4.580	116.33	5.044	128.12
5.75	146	14-25.2	20.8-37.5	4.700	119.38	4.890	124.21	5.290	134.37
5.63	168.3	17-32	25.3-47.6	5.375	136.53	5.595	142.11	6.135	155.83
7	177.8	17-35	25.3-52	5.688	144.48	6.004	152.50	6.538	166.07
7.63	193.7	28-39	29.8-58	6.312	160.32	6.625	168.28	7.125	180.98
8.63	219.1	24-49	35.7-72.9	7.125	180.98	7.511	190.78	8.097	206.66
9.63	244.5	29.3-58.4	43.6-86.9	8.125	206.38	8.435	214.25	9.063	230.20
10.75	273	32.8-60.7	48.7-90.3	9.437	239.70	9.660	245.36	10.192	258.88
11.75	298.5	38-60	56.5-89.3	10.437	265.10	10.772	273.61	11.150	283.21
11.75	298.5	60-83	89.3-123.5	9.937	252.40	10.192	258.88	10.772	273.61
13.38	339.7	48-80.7	71.4-120	11.875	301.63	12.175	309.25	12.715	322.96
316	406.4	65-118	97.6-175.5	14.125	359.78			15.250	387.35
20	508	94-133	139.8-197.8	18.375	466.73	18.730	475.74	19.124	485.75

MECHANICAL J-LATCH STINGER

The J-latch is a positive latch for operating the sliding valve inside a cement retainer that provides positive control of the sliding valve during stage cementing operations.

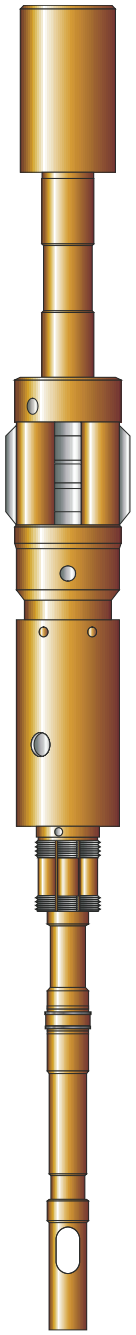


FEATURES:

- Allows high-pressure tubing testing
- Multiple safety release (rotate and shear out)
- Gives positive indication of stinger location

CASING SIZE		TUBING SIZE	
in	mm	in	mm
4.5	114.3	2.38	60.3
5.5	139.7	2.88	73
7	177.8	2.88	73

MECHANICAL SETTING TOOL



The Retainer Mechanical Setting Tool is designed to run and set the Polar Cement Retainers on tubing. In addition to the setting function the Retainer Mechanical Setting Tool will operate the retainer sleeve valve once the retainer is set.

FEATURES:

- Simple operation
- Dependable seals

OPERATION PROCEDURE:

Run the Retainer Mechanical Setting Tool/Retainer combination assembly at a moderate rate of speed while preventing right-hand rotation transmitting to the setting tool. It is recommended tubing be rotated left every 10 stands until positive resistance is felt.

When the desired setting depth has been reached, pull the assembly two feet above the desired setting point. Rotate the tubing to the right sufficiently to transmit 10 turns to the setting assembly.

Lower the setting assembly downward to the desired setting point. Pull recommended tension above string weight, setting the slips and create a pack off, as recommended in the setting chart.

Slack off equivalent amount of weight onto assembly and again apply recommended tension. The retainer is now set and pressure testing may be performed. The setting tool may be released from the cement retainer by pulling 500 lbs. tension over string weight and rotate tubing 10 turns right. The setting tool may be relatched to the cement retainer by slacking off 1,000 lbs. string weight and snapped out by applying 5,000 lbs. tension. The snap out forces will decrease after repeated usage and will stabilize at 2,508 lbs.

The tension sleeve valve is opened with downward motion (compression) and closed with upward motion (tension). Two inches of travel from closed to open position.

MECHANICAL SETTING TOOL

CASING SIZE		TUBING SIZE	
in	mm	in	mm
4.5	114.3	2.38	60.3
5.5	139.7	2.88	73
7	177.8	2.88	73

CASING				RETAINER MECHANICAL SETTING TOOL						
SIZE		WEIGHT		O.D.		I.D.		CONNECTION		PRODUCT NUMBER
in	mm	ft/lbs	kg/m	in	mm	in	mm	in	mm	
4.5	114.3	9.5-15.1	14.1-22.5	3.593	91.3	0.785	22.2	2.375	60.3	985-2345-0000
5	127	11.5-18	17.1-26.8	3.593	91.3	0.785	22.2	2.375	60.3	985-2350-0000
5.5	139.7	13-23	19.3-34.2	4.312	109.5	0.785	22.2	2.375	60.3	985-2355-0000
6.63	168.3	17-34	25.3-50.6	4.938	125.4	1.250	31.8	2.875	73	985-2765-0000
7	177.8	17-35	25.3-52.1	5.375	136.5	1.250	31.8	2.875	73	985-2770-0000
7.63	193.7	20-39	29.8-58	6.312	160.3	1.250	31.8	2.875	73	985-2775-0000
8.63	219.1	24-49	35.7-72.9	7.125	181	1.250	31.8	2.875	73	985-2785-0000
9.63	244.5	29.3-53.5	43.6-79.6	8.125	206.4	1.250	31.8	2.875	73	985-2795-0000

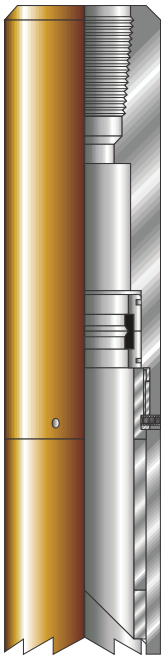
Other sizes available upon request

PEAK COMPLETIONS

Accessories

P512 T-2 On/Off Overshot

The P512 T-2 On/Off Overshot was designed to disconnect and connect the tubing string form a doublegrip production packer that does not require tension or compression to maintain a pack-off. The P512 T-2 On/Off Tool applications consist of treating, fracing, testing and production applications. The profile stingers run with the overshot are available in a variety of profile sizes and materials.



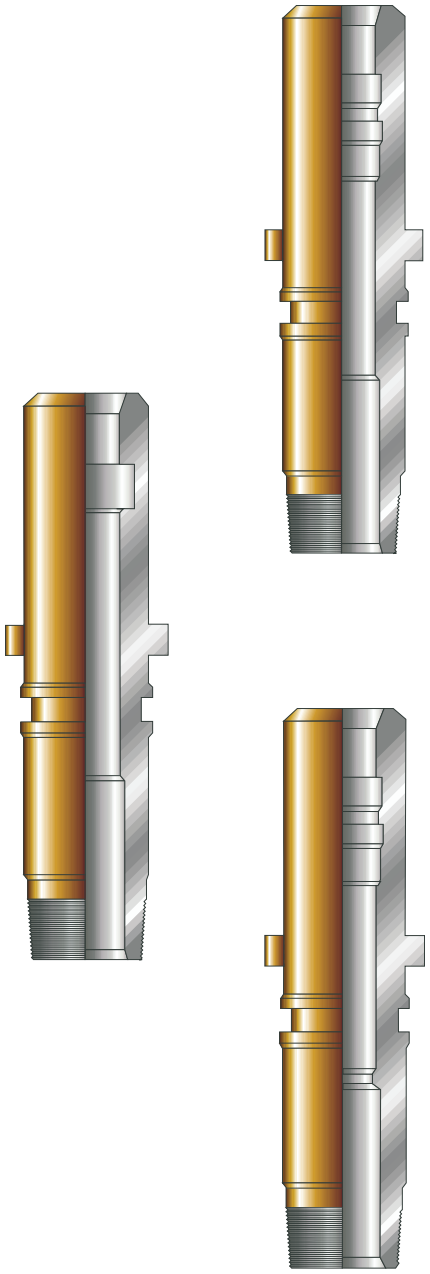
FEATURES:

- Proven bonded seal system
- Built for strength and durability
- Variety of profile nipples
- Available in special metallurgy
- Available shear pinned up or down position
- Available in spring loaded design

CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
2.88	73	2.250	57.15	1.000	25.4	1.660 EUE	42.2	T512-25A-000
3.5	88.9	2.750	69.85	1.500	38.1	1.900 NUE	48.3	T512-35A-000
4	101.6	3.250	52.55	1.500	38.1	1.900 EUE	48.3	T512-40A-000
4.5-5	114.3-127	3.750	95.25	2.000	50.8	2.63 EUE	60.3	T512-45A-000
4.5-5	114.3-127	3.750	95.25	2.375	60.3	2.88 EUE	73	T512-46A-000
5.5-6.63	139.7-168.3	4.500	114.3	2.000	50.8	2.63 EUE	60.3	T512-55A-000
5.5-6.63	139.7-168.3	4.500	114.3	2.500	63.5	2.88 EUE	73	T512-56A-000
7-7.63	177.8-193.7	5.750	146	2.500	63.5	2.88 EUE	73	T512-70A-000
7-7.63	177.8-193.7	5.750	146	33000	76.2	4.5 EUE	88.9	T512-73A-000
8.63	219.1	6.500	165.1	2.500	63.5	2.88 EUE	73	T512-85A-000
8.63	219.1	6.500	165.1	4.000	101.6	4.5 EUE	114.3	T512-86A-000
9.63	244.5	7.500	190.5	2.500	63.5	2.88 EUE	73	T512-95A-000
9.63	244.5	7.500	190.5	4.000	101.6	4.5 EUE	114.3	T512-96A-000
10.75	273.1	8.500	215.9	2.500	63.5	2.88 EUE	73	T512-10A-000
10.75	273.1	8.500	215.9	4.000	101.6	4.5 EUE	114.3	T512-11A-000

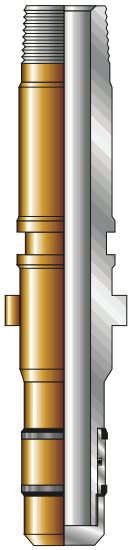
P510 T-2 On/Off Tool Stinger

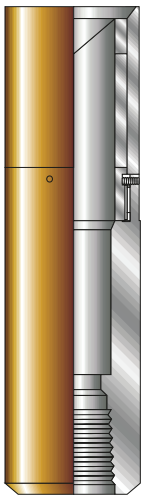
The P510 T-2 On/Off Tool Stingers are used to disconnect the tubing string from a packer. The stingers are used with the P512 T-2 Overshot and are available in a variety of profile types, sizes and from a broad range of material types.



P513 T-2 Type "H" On/Off Tool

The P513 T-2 Type "H" On/Off Tool is used in liner applications to disconnect the liner from the tubing string. The overshot is the liner top or guide, while the stinger is used for the running tool. The seals have been relocated to the stinger allowing the seal to be replaced.

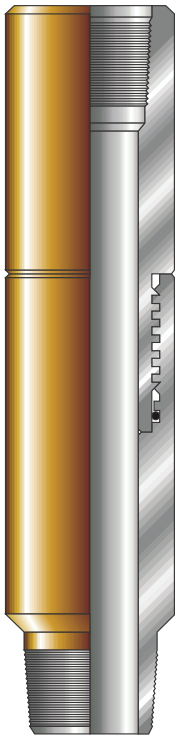




CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
4.5-5	114.3-127	3.750	95.25	2.375	60.3	2.63 EUE 8RD	60.3	T513-46A-000

P568 RH Rotational Safety Joint

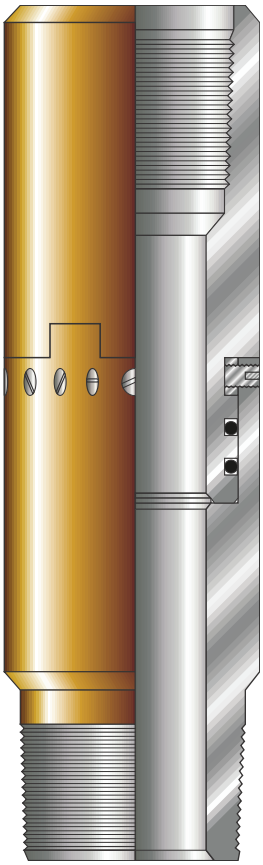
The P568 Rotational Safety Joint provides for emergency release of the tubing string. The RH Rotational Safety Joint uses larger square left-hand threads to separate the upper and lower subs with right-hand rotation, abandoning any production equipment below.



CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
1.660	42.2	2.220	56.4	1.375	34.9	1.660 EUE 10RD	42.2	T568-16A-000
1.900	48.3	2.500	63.5	1.500	38.1	1.900 EUE 10RD	48.3	T568-19A-000
2.38	60.3	3.062	77.8	2.000	50.8	2.63 EUE 8RD	60.3	T568-20A-000
2.88	73	3.688	93.7	2.500	63.5	2.88 EUE 8RD	73	T568-25A-000
3.5	88.9	4.500	114.3	3.000	76.2	3.5 EUE 8RD	88.9	T568-35A-000

P569 Model "K" Shear Safety Joint

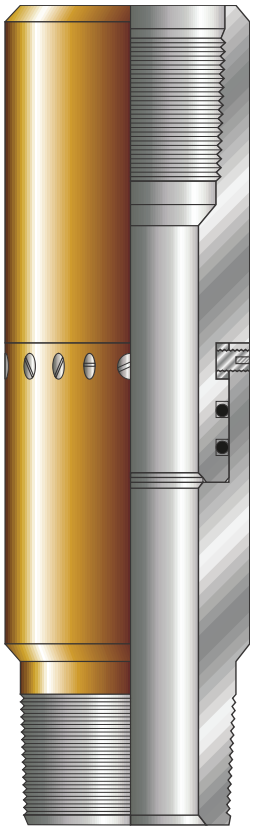
The P569 Model "K" Shear Safety Joint provides for emergency release of the tubing string. Straight pull separates the tool at a predetermined shear value. The P569 Model "K" Shear Safety Joint allows torque to be transmitted through the tool without affecting the shear screws.



CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
1.660	42.2	2.220	56.4	1.375	34.9	1.660 EUE 10RD	42.2	T569-16A-000
1.900	48.3	2.500	63.5	1.500	38.1	1.900 EUE 10RD	48.3	T569-19A-000
2.38	60.3	3.062	77.8	2.000	50.8	2.63 EUE 8RD	60.3	T569-20A-000
2.88	73	3.688	93.7	2.500	63.5	2.88 EUE 8RD	73	T569-25A-000
3.5	88.9	4.500	114.3	3.000	76.2	3.5 EUE 8RD	88.9	T569-35A-000

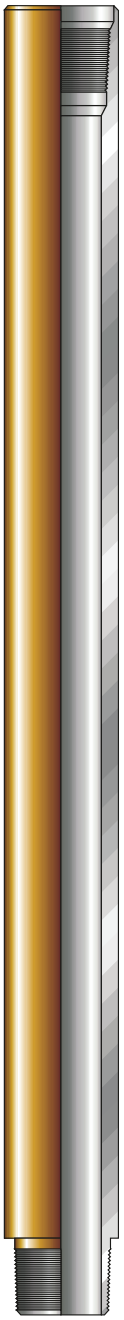
P569 Shear Safety Joint

The P569 Shear Safety Joint provides for emergency release of the tubing string. Straight pull separates the tool at a predetermined shear value.



CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	in	mm	
1.660	42.2	2.220	56.4	1.375	34.9	1.660 EUE 10RD	42.2	T569-16A-000
1.900	48.3	2.500	63.5	1.500	38.1	1.900 EUE 10RD	48.3	T569-19A-000
2.38	60.3	3.062	77.8	2.000	50.8	2.63 EUE 8RD	60.3	T569-20A-000
2.88	73	3.688	93.7	2.500	63.5	2.88 EUE 8RD	73	T569-25A-000
3.5	88.9	4.500	114.3	3.000	76.2	3.5 EUE 8RD	88.9	T569-35A-000

BLAST JOINT 082-0000



The Blast Joint is used to protect the tubing string from the abrasive action of flowing gas or oil when positioned opposite the perforations. Blast Joints may also be used directly below the well head to protect from the abrasion of doing a hydraulic fracturing operation down the annulus.

The Blast Joint is made from high quality steel treated to between 28 and 36 RC hardness to insure maximum abrasion resistance and strength. For H2S service, the blast joint is available heat treated to between 18 and 22 RC hardness as per N.A.C.E. specification MR-0175. Other materials are available on advance order if required.

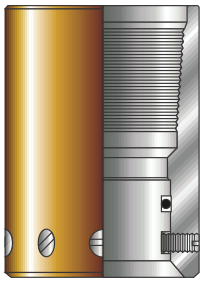
Full tubing I.D. is maintained through the blast joint with the O.D. the same as tubing couplings. As standard, the blast joint is available in API tubing connections.

CASING SIZE		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	
1.900	48.3	1.500	38.1	2.500	63.5	082-1900-0000
2.63	60.3	1.995	50.7	3.062	77.8	082-2300-0000
2.88	73	2.441	62	3.688	93.7	082-2700-0000
3.5	88.9	3.000	76.2	4.500	114.3	082-3500-0000

AVAILABLE LENGTH:

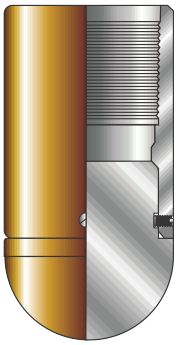
2 ft (0.61 m)
4 ft (1.22 m)
6 ft (1.83 m)
8 ft (2.44 m)
10 ft (3.05 m)
20 ft (6.56 m)

P597 Packer Tubing Accessories



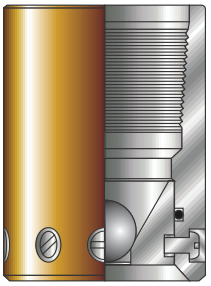
The Model A Pump-Out-Plug Assembly is used below a production packer or tailpipe. The assembly holds pressure from below and unseats with a predetermined amount of tubing pressure.

MAX. O.D.		BODY I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	
2.200	55.88	1.250	31.75	1.660 EUE	42.2	Aluminum
2.500	63.5	1.500	38.10	1.900 EUE	48.3	Aluminum
3.063	77.8	2.000	50.80	2.38 EUE	60.3	Aluminum
3.750	95.25	2.500	63.50	2.88 EUE	73	Aluminum
4.500	114.3	3.000	76.20	3.5 EUE	88.9	Aluminum



The Model AR Pump-Out-Plug Assembly is used below a production packer or tailpipe. The assembly holds pressure from below and unseats with a predetermined amount of tubing pressure. The AR Pump-Out-Plug Assembly is recommended when running into lines or highly deviated wells.

MAX. O.D.		BODY I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	
2.200	55.88	1.250	31.75	1.660 EUE	42.2	Aluminum
2.500	63.5	1.500	38.10	1.900 EUE	48.3	Aluminum
3.063	77.8	2.000	50.80	2.38 EUE	60.3	Aluminum
3.750	95.25	2.500	63.50	2.88 EUE	73	Aluminum
4.500	114.3	3.000	76.20	3.5 EUE	88.9	Aluminum



The Model ES Pump-Out-Plug Assembly is used below a production packer to test tubing integrity or to activate a hydraulic set packer. The Model ES allows fluid flow form both directions until a 1-3/8* Diameter ball is gravitated down into the landing seat. Pressure applied to tubing string will shear out ball and seat at a predetermined pressure rating. * Other Ball Sizes are available.

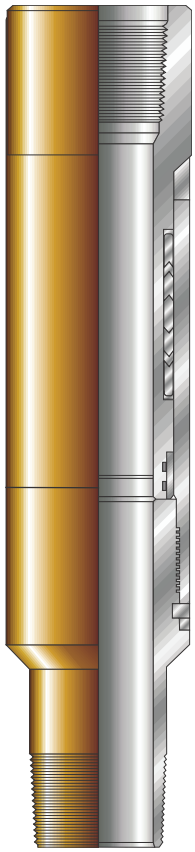
MAX. O.D.		SEAT I.D.		THREAD CONNECTION		PRODUCT NUMBER
in	mm	in	mm	in	mm	
3.250	82.55	1.000	2.500	2.38 EUE	60.3	Aluminum
4.250	107.95	1.187	3.000	2.88 EUE	73	Aluminum
4.500	114.3	1.187	3.175	3.5 EUE	88.9	Aluminum

PEAK HTHP DOWNHOLE TUBING SWIVEL

The Peak HTHP Downhole swivel is available in all of the standard tubing sizes and can be ordered in either 360 or 180 degree swivel types.

This swivel is available in Extreme Sour Service trim, and comes standard with a 10K rating.

Pull Strength through the swivel will exceed tubing strength.



PEAK COMPLETIONS

Tech Data

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT				JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)	COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
	1.050	F-25*	---	1.20	---	.824	.730	---	1.660	---	---	---	5,960	4,710	---	8,320	---
	1.050	H-40	1.14	1.20	---	.824	.730	1.313	1.660	---	---	---	7,680	7,530	6,360	13,310	---
	1.050	J-55	1.14	1.20	1.20	.824	.730	1.313	1.660	---	.648	1.327	10,560	10,360	8,740	18,290	18,000
	1.050	C-75	1.14	1.20	1.20	.824	.730	1.313	1.660	---	.648	1.327	14,410	14,120	11,920	24,950	25,000
3/4	1.050	N-80	1.14	1.20	1.20	.824	.730	1.313	1.660	---	.648	1.327	15,370	15,070	12,710	26,610	27,000
	1.050	D-55*	---	1.50	1.50	.724	.648	---	1.339	---	.648	1.327	13,770	14,120	---	24,000	24,000
	1.050	C-75*	---	1.50	1.50	.724	.648	---	1.339	---	.648	1.327	18,770	19,250	---	33,000	33,000
	1.050	N-80*	---	1.50	1.50	.724	.648	---	1.339	---	.648	1.327	20,020	20,530	---	35,000	35,000
	1.050	P-105*	---	1.50	1.50	.724	.648	---	1.339	---	.648	1.327	26,280	26,950	---	46,000	46,000
	1.315	F-25*	---	1.80	---	1.049	.955	---	1.900	---	---	---	5,540	4,430	---	12,350	---
	1.315	H-40	1.70	1.80	1.72	1.049	.955	1.660	1.900	---	.955	1.550	7,270	7,080	10,960	19,760	15,970
	1.315	J-55	1.70	1.80	1.72	1.049	.955	1.660	1.900	---	.955	1.550	10,000	9,730	15,060	27,160	21,960
	1.315	C-75	---	---	2.25	.957	---	---	---	---	.848	1.600	12,940	13,100	---	---	35,000
1	1.315	N-80	1.70	1.80	1.72	1.049	.955	1.660	1.900	---	.955	1.550	13,640	13,270	20,540	37,040	29,940
	1.315	D-55*	---	---	2.25	.957	---	---	---	---	.848	1.600	17,640	17,870	---	---	48,000
	1.315	C-75*	1.70	1.80	1.72	1.049	.955	1.660	1.900	---	.955	1.550	14,550	14,160	21,910	39,510	31,940
	1.315	N-80*	---	---	2.25	.957	---	---	---	---	.848	1.600	18,820	19,060	---	---	51,000
	1.315	P-105*	---	---	2.25	.957	---	---	---	---	.848	1.600	24,700	25,010	---	---	67,000
	1.660	F-25*	---	2.40	---	1.380	1.286	---	2.200	---	---	---	4,440	3,690	---	16,710	---
	1.660	H-40	---	---	2.10	1.410	---	---	---	---	1.286	1.880	5,270	5,270	---	---	22,180
	1.660	H-40	2.30	2.40	2.33	1.380	1.286	2.054	2.200	---	1.286	1.880	6,180	5,900	15,530	26,740	22,180
	1.660	J-55	---	---	2.10	1.410	---	---	---	---	1.286	1.880	7,660	7,250	---	---	30,500
	1.660	J-55	2.30	2.40	2.33	1.380	1.286	2.054	2.200	---	1.286	1.880	8,490	8,120	21,360	36,770	30,500
1-1/4	1.660	J-55*	---	---	3.02	1.278	---	---	---	---	1.184	1.927	11,200	11,070	---	---	48,000
	1.660	C-75	2.30	2.40	2.33	1.380	1.286	2.054	2.200	---	1.286	1.880	11,580	11,070	29,120	50,140	41,600
	1.660	C-75*	---	---	3.02	1.278	---	---	---	---	1.184	1.927	15,270	15,100	---	---	66,000
	1.660	N-80	2.30	2.40	2.33	1.380	1.286	2.054	2.200	---	1.286	1.880	12,360	11,810	31,060	53,480	44,370
	1.660	N-80*	---	---	3.02	1.278	---	---	---	---	1.184	1.927	16,290	16,110	---	---	71,000
	1.660	P-105*	---	---	3.02	1.278	---	---	---	---	1.184	1.927	21,380	21,140	---	---	93,000
	1.900	F-25*	2.75	2.90	---	1.610	1.516	2.200	2.500	---	---	---	3,920	3,340	11,930	19,990	---
	1.900	H-40	---	---	2.40	1.650	---	---	---	---	1.516	2.110	4,920	4,610	---	---	26,890
	1.900	H-40	2.75	2.90	2.76	1.610	1.516	2.200	2.500	---	1.516	2.110	5,640	5,340	19,090	31,980	26,890
	1.900	J-55	---	---	2.40	1.650	---	---	---	---	1.516	2.110	6,640	6,330	---	---	36,970
	1.900	J-55	2.75	2.90	2.76	1.610	1.516	2.200	2.500	---	1.516	2.110	7,750	7,350	26,250	43,970	36,970
1-1/2	1.900	J-55*	---	---	3.64	1.500	---	---	---	---	1.406	2.162	10,360	10,130	---	---	57,000
	1.900	C-75	2.75	2.90	2.76	1.610	1.516	2.200	2.500	---	1.516	2.110	10,570	10,020	35,800	59,960	50,420
	1.900	C-75*	---	---	3.64	1.500	---	---	---	---	1.406	2.162	14,130	13,820	---	---	80,000
	1.900	N-80	2.75	2.90	2.76	1.610	1.516	2.200	2.500	---	1.516	2.110	11,280	10,680	38,180	63,960	53,780
	1.900	N-80*	---	---	3.64	1.500	1.406	---	---	---	1.406	2.162	15,070	14,740	---	---	84,000
	1.900	P-105*	---	---	3.64	1.500	---	---	---	---	1.406	2.162	19,780	19,340	---	---	110,000

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRES-SURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAM-ETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAM-ETER (IN)	DRIFT DIAM-ETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAM-ETER (IN)	BOX OUT-SIDE DIAM-ETER (IN)			THREADED AND COUPLED		INTE-GRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
	26.67	F-25*	---	1.79	---	20.93	18.54	---	42.16	---	---	---	41,090	32,480	---	37,010	---
	26.67	H-40	1.70	1.79	---	20.93	18.54	33.35	42.16	---	---	---	52,950	51,920	28,290	59,210	---
	26.67	J-55	1.70	1.79	1.79	20.93	18.54	33.35	42.16	---	16.46	33.71	72,810	71,430	38,880	81,360	80,070
	26.67	C-75	1.70	1.79	1.79	20.93	18.54	33.35	42.16	---	16.46	33.71	99,350	97,360	53,020	110,980	111,210
3/4	26.67	N-80	1.70	1.79	1.79	20.93	18.54	33.35	42.16	---	16.46	33.71	105,980	103,910	56,540	118,370	120,110
	26.67	D-55*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	94,940	97,360	---	106,760	106,760
	26.67	C-75*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	129,420	132,730	---	146,790	146,790
	26.67	N-80*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	138,040	141,550	---	155,690	155,690
	26.67	P-105*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	181,200	185,820	---	2046,20	204,620
	33.40	F-25*	---	2.68	---	26.64	24.26	---	48.26	---	---	---	38,200	30,540	---	54,940	---
	33.40	H-40	2.53	2.68	2.56	26.64	24.26	42.16	48.26	---	24.26	39.37	50,130	48,820	48,750	87,900	71,040
	33.40	J-55	2.53	2.68	2.56	26.64	24.26	42.16	48.26	---	24.26	39.37	38,950	67,090	66,990	120,810	97,680
	33.40	C-75	---	---	3.35	24.31	---	---	---	---	24.54	40.64	89,220	90,320	---	---	155,690
1	33.40	N-80	2.53	2.68	2.56	26.64	24.26	42.16	48.26	---	24.26	39.37	94,050	91,500	91,370	164,760	133,180
	33.40	D-55*	---	---	3.35	24.31	---	---	---	---	24.54	40.64	121,630	123,210	---	---	213,510
	33.40	C-75*	2.53	2.68	1.72	26.64	24.26	42.16	48.26	---	24.26	39.37	100,320	97,630	97,460	175,750	142,080
	33.40	N-80*	---	---	3.35	24.31	---	---	---	---	24.54	40.64	129,760	131,420	---	---	226,860
	33.40	P-105*	---	---	3.35	24.31	---	---	---	---	24.54	40.64	170,310	172,440	---	---	298,030
	42.16	F-25*	---	3.57	---	35.05	32.66	---	55.88	---	---	---	30,610	25,440	---	74,330	---
	42.16	H-40	---	---	3.12	35.81	---	---	---	---	32.66	47.75	36,340	36,340	---	---	98,660
	42.16	H-40	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	42,610	40,680	69,080	118,950	98,660
	42.16	J-55	---	---	3.12	35.81	---	---	---	---	32.66	47.75	52,820	49,990	---	---	135,670
	42.16	J-55	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	58,540	55,990	95,010	163,560	135,670
1-1/4	42.16	J-55*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	77,220	76,330	---	---	213,510
	42.16	C-75	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	79,840	76,330	129,530	223,030	185,050
	42.16	C-75*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	105,290	104,110	---	---	293,580
	42.16	N-80	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	85,220	81,430	138,610	237,890	197,370
	42.16	N-80*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	112,320	111080	---	---	315,820
	42.16	P-105*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	147,420	145,760	---	---	413,680
	48.26	F-25*	4.09	4.32	---	40.89	38.51	55.88	63.50	---	---	---	27,030	23,030	53,070	88,920	---
	48.26	H-40	---	---	3.57	41.91	---	---	---	---	38.51	53.59	33,920	31,790	---	---	119,610
	48.26	H-40	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	38,890	36,820	84,920	142,250	119,610
	48.26	J-55	---	---	3.57	41.91	---	---	---	---	38.51	53.59	45,780	43,650	---	---	164,450
	48.26	J-55	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	53,440	50,680	116,770	195,590	164,450
1-1/2	48.26	J-55*	---	---	5.42	38.10	---	---	---	---	35.71	54.91	71,430	69,850	---	---	253,,550
	48.26	C-75	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	72,880	69,090	159,250	266,720	224,280
	48.26	C-75*	---	---	5.42	38.10	---	---	---	---	35.71	54.91	97,430	95,290	---	---	355,860
	48.26	N-80	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	77,780	73,640	169,830	284,510	239,230
	48.26	N-80*	---	---	5.42	38.10	35.71	---	---	---	35.71	54.91	103,910	101,630	---	---	373,650
	48.26	P-105*	---	---	5.42	38.10	---	---	---	---	35.71	54.91	136,280	133,350	---	---	489,300

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT				JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)	COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
2	2.000	J-55*	3.4	---	---	1.670	1.576	2.5	---	---	---	---	5,320	7,940	52,320	---	---
	2.000	C-75*	3.4	---	---	1.670	1.576	2.5	---	---	---	---	11,350	10,830	71,330	---	---
	2.000	N-80*	3.4	---	---	1.670	1.576	2.5	---	---	---	---	12,110	11,550	76,080	---	---
	2.000	P-105*	3.4	---	---	1.670	1.576	2.5	---	---	---	---	15,890	15,160	99,880	---	---
2-1/6	2.163	H-50	---	---	3.25	1.751	---	---	---	---	1.657	2.325	5,590	5,290	---	---	35,690
	2.163	J-55	---	---	3.25	1.751	---	---	---	---	1.657	2.325	7,690	7,280	---	---	49,070
	2.163	C-75	---	---	3.25	1.751	---	---	---	---	1.657	2.325	10,480	9,920	---	---	66,910
	2.163	N-80	---	---	3. 25	1.751	---	---	---	---	1.657	2.325	11,180	10,590	---	---	71,370
2-3/8	2.375	F-25*	4	---	---	2.041	1.947	2.875	---	---	---	---	3,530	3,080	18,830	---	---
	2.375	F-25*	4.6	4.7	---	1.955	1.901	2.875	3.063	---	---	---	4,160	3,500	22,480	32,600	---
	2.375	N-80	4	---	---	2.041	1.947	2.875	---	---	---	---	5,230	4,920	30,130	---	---
	2.375	N-80	4.6	4.7	---	1.955	1.901	2.875	3.063	2.910	---	---	5,890	4,600	35,960	52,170	---
	2.375	J-55	4	---	---	2.041	1.947	2.875	---	---	---	---	7,190	6,770	41,430	---	---
	2.375	J-55	4.6	4.7	4.7	1.955	1.901	2.875	3.063	2.910	1.907	2.700	8,100	7,700	49,450	71,730	72,000
	2.375	J-55*	---	---	5.3	1.939	---	---	---	---	1.845	2.740	9,170	8,840	---	---	81,000
	2.375	J-55*	---	---	6.2	1.867	---	---	---	---	1.759	2.937	10,760	10580	---	---	95,000
	2.375	J-55*	---	---	7.7	1.703	---	---	---	---	1.609	3.125	13,360	13,620	---	---	118,000
	2.375	C-75	4	---	---	2.041	1.947	2.875	---	---	---	---	9,520	9,230	56,500	---	---
	2.375	C-75	4.6	4.7	4.7	1.955	1.901	2.875	3.063	2.910	1.901	2.700	11,040	10,500	67,430	97,820	98,000
	2.375	C-75*	---	---	5.3	1.939	---	---	---	---	1.845	2.740	12,510	12,050	---	---	111,000
	2.375	C-75	5.8	5.95	5.95	1.867	1.773	2.875	3.063	2.910	1.867	2.906	14,330	14,040	96,560	126,940	127,000
	2.375	C-75*	---	---	6.2	1.853	---	---	---	---	1.759	2.937	14,670	14,420	---	---	130,000
	2.375	C-75*	---	---	7.7	1.703	---	---	---	---	1.609	3.125	18,220	18,570	---	---	161,000
	2.375	N-80	4	---	---	2.041	1.947	2.875	---	---	---	---	9,980	9,840	60,260	---	---
	2.375	N-80	4.6	4.7	4.7	---	1.901	2.875	3.063	2.910	1.901	2.700	11,780	11,200	71,930	104,340	104,000
	2.375	N-80*	---	---	5.3	1.995	---	---	---	---	1.845	2.740	13,340	12,860	---	---	118,000
	2.375	N-80	5.8	5.95	5.95	1.867	1.773	2.875	3.063	2.910	1.867	2.906	15,280	14,970	102,990	135,400	135,000
	2.375	N-80*	---	---	6.2	1.853	---	---	---	---	1.759	2.937	15,650	15,390	---	---	139,000
	2.375	N-80*	---	---	7.7	1.703	---	---	---	---	1.609	3.125	19,430	19,810	---	---	172,000
	2.375	P-105*	4.6	4.7	4.7	1.995	1.901	2.875	3.063	2.910	1.901	2.700	15,460	14,700	94,410	136,940	137,000
	2.375	P-105*	---	---	5.3	1.939	---	---	---	---	1.845	2.740	17,510	16,870	---	---	155,000
	2.375	P-105*	5.8	5.95	5.95	1.867	1.773	2.875	3.063	2.910	1.867	2.906	20,060	19,650	135,180	177,710	178,000
	2.375	P-105*	---	---	6.2	1853	---	---	---	---	1.759	2.937	20,540	20,200	---	---	182,000
	2.375	P-105*	---	---	7.7	1.703	---	---	---	---	1.609	3.125	25,510	26,010	---	---	226,000
	2.375	P-110*	4.6	4.7	---	1.995	1.901	2.875	3.063	---	---	---	13,800	15,400	98,900	143,470	---
	2.375	P-110*	5.8	5.95	---	1.867	1.773	2.875	3.063	---	---	---	17,910	20,590	141,610	186,170	---

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
2	50.80	J-55*	5.06	---	---	42.42	40.03	63.50	---	---	---	---	57,370	54,750	232,730	---	---
	50.80	C-75*	5.06	---	---	42.42	40.03	63.50	---	---	---	---	78,260	746,70	317,290	---	---
	50.80	N-80*	5.06	---	---	42.42	40.03	63.50	---	---	---	---	83,500	79,640	338,420	---	---
	50.80	P-105*	5.06	---	---	42.42	40.03	63.50	---	---	---	---	109,560	104,530	444,290	---	---
2-1/6	52.40	H-50	---	---	4.84	44.48	---	---	---	---	42.09	59.06	38,540	36,470	---	---	158,760
	52.40	J-55	---	---	4.84	44.48	---	---	---	---	42.09	59.06	53,020	502,000	---	---	218,270
	52.40	C-75	---	---	4.84	44.48	---	---	---	---	42.09	59.06	72,260	68,400	---	---	297,630
	52.40	N-80	---	---	4.84	44.48	---	---	---	---	42.09	59.06	77,090	73,020	---	---	317,470
2-3/8	4.90	F-25*	5.95	---	---	51.84	49.45	73.03	---	---	---	---	24,340	21,240	83,760	---	---
	4.90	F-25*	6.84	6.99	---	50.67	48.29	73.03	77.80	---	---	---	28,680	24,130	100,000	145,010	---
	4.90	N-80	5.95	---	---	51.84	49.45	73.03	---	---	---	---	36,060	33,920	134,020	---	---
	4.90	N-80	6.84	6.99	---	50.67	48.29	73.03	77.80	73.81	---	---	40,610	38,610	159,960	232,060	---
	4.90	J-55	5.95	---	---	51.84	49.45	73.03	---	---	---	---	49580	46,680	184,290	---	---
	4.90	J-55	6.84	6.99	6.99	50.67	48.29	73.03	77.80	73.81	48.29	68.58	55,850	53,090	219,970	319,070	320,270
	4.90	J-55*	---	---	7.89	49.25	---	---	---	---	46.86	69.60	63,230	60,950	---	---	360,310
	4.90	J-55*	---	---	9.23	47.07	---	---	---	---	44.68	74.60	74,190	72,950	---	---	422,580
	4.90	J-55*	---	---	1.46	43.26	---	---	---	---	40.87	79.38	92,120	93,910	---	---	524,890
	4.90	C-75	5.95	---	---	51.84	49.45	73.03	---	---	---	---	65,640	63,640	251,320	---	---
	4.90	C-75	6.84	6.99	6.99	50.67	48.29	73.03	77.80	73.81	48.29	68.58	76,120	72,400	299,940	435,120	435,930
	4.90	C-75*	---	---	7.89	49.25	---	---	---	---	46.86	69.60	86,260	83,080	---	---	493,750
	4.90	C-75	8.63	8.85	8.85	47.42	45.03	73.03	77.80	73.81	47.42	73.81	98,810	96,810	429,520	564,660	564,920
	4.90	C-75*	---	---	9.23	47.07	---	---	---	---	44.68	74.60	101,150	99,430	---	---	578,270
	4.90	C-75*	---	---	11.46	43.26	---	---	---	---	40.67	79.38	125,630	128,040	---	---	716,160
	4.90	N-80	5.95	---	---	51.84	49.45	73.03	---	---	---	---	68,810	67,850	268,050	---	---
	4.90	N-80	6.84	6.99	6.99	50.67	48.29	73.03	77.80	73.81	48.29	68.58	81,220	77,220	319,960	464,130	462,610
	4.90	N-80*	---	---	4.89	49.25	---	---	---	---	46.86	69.60	91,980	88,670	---	---	524,890
	4.90	N-80	8.63	8.85	8.85	47.42	45.03	73.03	77.80	73.81	47.42	73.81	105,360	103,220	458,120	602,290	600,510
	4.90	N-80*	---	---	9.23	47.07	---	---	---	---	44.68	74.60	107,910	106,110	---	---	618,300
	4.90	N-80*	---	---	11.46	43.26	---	---	---	---	40.87	79.38	133,970	136,590	---	---	765,090
	4.90	P-105*	6.84	6.99	6.99	50.67	48.29	73.03	77.80	73.81	48.29	68.58	106,600	101,360	419,960	609,140	609,410
	4.90	P-105*	---	---	7.89	49.25	---	---	---	---	46.86	69.60	120,730	116,320	---	---	689,470
	4.90	P-105*	8.63	8.85	8.85	47.42	45.03	73.03	77.80	73.81	47.42	73.81	138,310	135,490	601,310	790,490	791,780
	4.90	P-105*	---	---	9.23	47.07	---	---	---	---	44.68	74.60	141,620	139,280	---	---	809,580
	4.90	P-105*	---	---	11.46	43.26	---	---	---	---	40.87	79.38	175,890	179,340	---	---	1,005,300
	4.90	P-110*	6.84	6.99	---	50.67	48.29	73.03	77.80	---	---	---	95,150	106,180	439,930	638,190	---
	4.90	P-110*	8.63	8.85	---	47.42	45.03	73.03	77.80	---	---	---	123,490	141,970	629,910	828,130	---

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
2-7/8	2.875	F-25*	6.4	6.5	---	2.441	2.347	3.500	3.668	---	---	---	3,870	3,300	32,990	45,300	---
	2.875	H-40	6.4	6.5	---	2.441	2.347	3.500	3.668	3.460	---	---	5,580	5,280	52,780	72,480	---
	2.875	J-55	6.4	6.5	6.5	2.441	2.347	3.500	3.668	3.460	2.347	3.220	7,680	7,260	72,580	99,660	100,000
	2.875	J-55*	---	---	7.9	2.323	---	---	---	---	2.229	3.437	9,550	9,250	---	---	124,000
	2.875	J-55*	---	---	8.7	2.259	---	---	---	---	2.165	3.500	10,530	10,320	---	---	137,000
	2.875	J-55*	---	---	9.5	2.195	---	---	---	---	2.101	3.625	11,470	11,390	---	---	149,000
	2.875	J-55*	---	---	10.7	2.091	---	---	---	---	1.997	3.687	12,960	13,120	---	---	168,000
	2.875	J-55*	---	---	11	2.065	---	---	---	---	1.971	3.750	13,310	13,570	---	---	173,000
	2.875	C-75	6.4	6.5	6.5	2.441	2.347	3.500	3.668	3.460	2.347	3.220	10,470	9,910	98,970	135,900	136,000
	2.875	C-75*	---	---	7.9	2.323	---	---	---	---	2.229	3.437	13,020	12,600	---	---	169,000
	2.875	C-75	8.6	8.7	8.7	2.259	2.165	3.500	3.668	3.460	2.165	3.500	14,350	14,060	149,360	186,290	186,000
	2.875	C-75*	---	---	9.5	2.195	---	---	---	---	2.101	3.625	15,640	15,520	---	---	203,000
	2.875	C-75*	---	---	10.7	2.091	---	---	---	---	1.997	3.687	17,670	17,890	---	---	229,000
	2.875	C-75*	---	---	11	2.065	---	---	---	---	1.971	3.750	18,150	18,490	---	---	236,000
	2.875	N-80	6.4	6.5	6.5	2.441	2.347	3.500	3.668	3.460	2.347	3.220	11,160	10,570	105,570	144,960	145,000
	2.875	N-80*	---	---	7.9	2.323	---	---	---	---	2.229	3.437	13,890	13,450	---	---	180,000
	2.875	N-80	8.6	8.7	8.7	2.259	2.165	3.500	3.668	3.460	2.165	3.500	15,300	15000	159,310	198,710	198,000
	2.875	N-80*	---	---	9.5	2.195	---	---	---	---	2.101	3.625	16,690	16,560	---	---	217,000
	2.875	N-80*	---	---	10.7	2.091	---	---	---	---	1.997	3.687	18,850	19,090	---	---	245,000
	2.875	N-80*	---	---	11	2.065	---	---	---	---	1.971	3.750	19,360	19,730	---	---	251,000
	2.875	P-105	6.4	6.5	6.5	2.441	2.347	3.500	3.668	3.460	2.347	3.220	14,010	13,870	138,560	190,260	190,000
	2.875	P-105*	---	---	7.9	2.323	---	---	---	---	2.229	3.437	18,230	17,650	---	---	236,000
	2.875	P-105	8.6	8.7	8.7	2.259	2.165	3.500	3.668	3.460	2.165	3.500	20,090	19,690	209,100	260,810	261,000
	2.875	P-105*	---	---	9.5	2.195	---	---	---	---	2.101	3.625	21,900	21,730	---	---	285,000
	2.875	P-105*	---	---	10.7	2.091	---	---	---	---	1.997	3.687	24,740	25,050	---	---	321,000
	2.875	P-110*	6.4	6.5	---	2.441	2.347	3.500	3.668	---	---	---	13,080	14,530	145,160	199,320	---

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
2-7/8	73.03	F-25*	9.52	9.67	---	62	59.61	88.90	93.17	---	---	---	26,680	22,750	1467,50	201,500	---
	73.03	H-40	9.52	9.67	---	62	59.61	88.90	93.17	87.88	---	---	38,470	36,410	234,780	3,322,410	---
	73.03	J-55	9.52	9.67	9.67	62	59.61	88.90	93.17	87.88	59.61	81.79	52,950	50,060	322,850	443,310	444,820
	73.03	J-55*	---	---	11.76	59	---	---	---	---	56.62	87.30	65,850	63,780	---	---	551,580
	73.03	J-55*	---	---	12.95	57.38	---	---	---	---	54.99	88.90	72,600	71,160	---	---	609,410
	73.03	J-55*	---	---	14.14	55.75	---	---	---	---	63.37	92.08	79,090	78,530	---	---	662,780
	73.03	J-55*	---	---	15.92	53.11	---	---	---	---	50.72	93.65	89,360	90,460	---	---	747,300
	73.03	J-55*	---	---	16.37	52.45	---	---	---	---	50.06	95.25	91,770	93,570	---	---	469,540
	73.03	C-75	9.52	9.67	9.67	62	59.61	88.90	93.17	87.88	59.61	81.79	72,190	68,330	440,240	604,510	604,960
	73.03	C-75*	---	---	11.76	59	---	---	---	---	56.62	87.30	89,770	86,880	---	---	751,750
	73.03	C-75	12.80	12.95	12.95	57.38	54.99	88.90	93.17	87.88	54.99	88.90	98,940	96,940	664,390	828,660	827,370
	73.03	C-75*	---	---	14.14	55.75	---	---	---	---	63.37	92.08	107,840	107,010	---	---	902,990
	73.03	C-75*	---	---	15.92	53.11	---	---	---	---	50.72	93.65	121,830	123,350	---	---	1,018,640
	73.03	C-75*	---	---	16.37	52.45	---	---	---	---	50.06	95.25	125,140	127,490	---	---	1,049,780
	73.03	N-80	9.52	9.67	9.67	62	59.61	88.90	93.17	87.88	59.61	81.79	76,950	72,880	469,600	644,810	644,990
	73.03	N-80*	---	---	11.76	59	---	---	---	---	56.62	87.30	95,770	92,740	---	---	800,680
	73.03	N-80	12.80	12.95	12.95	57.38	54.99	88.90	93.17	87.88	54.99	88.90	105490	103,430	708,650	883,910	880,750
	73.03	N-80*	---	---	14.14	55.75	---	---	---	---	63.37	92.08	114,080	114,180	---	---	965,260
	73.03	N-80*	---	---	15.92	53.11	---	---	---	---	50.72	93.65	129,970	131,630	---	---	1,089,810
	73.03	N-80*	---	---	16.37	52.45	---	---	---	---	50.06	95.25	133,490	136,040	---	---	1,116,500
	73.03	P-105	9.52	9.67	9.67	62	59.61	88.90	93.17	87.88	59.61	81.79	96,600	95,630	616,350	846,320	845,160
	73.03	P-105*	---	---	11.76	59	---	---	---	---	56.62	87.30	125,700	121,700	---	---	1,049,780
	73.03	P-105	12.80	12.95	12.95	57.38	54.99	88.90	93.17	87.88	54.99	88.90	138,520	135,760	930,120	1,160,140	1,160,990
	73.03	P-105*	---	---	14.14	55.75	---	---	---	---	63.37	92.08	151,000	149,830	---	---	1,267,740
	73.03	P-105*	---	---	15.92	53.11	---	---	---	---	50.72	93.65	1705,80	172,720	---	---	1,427,880
	73.03	P-110*	9.52	9.67	---	62	59.61	88.90	93.17	---	---	---	90,190	100,180	645,700	886,620	---

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
3-1/2	3.500	F-25*	7.70	---	---	3.068	2.943	4.250	---	---	---	---	2,970	2,700	40,670	---	---
	3.500	F-25*	9.20	9.30	---	2.992	2.867	4.250	4.500	---	---	---	3,680	3,180	49,710	64,760	---
	3.500	F-25*	10.20	---	---	2.992	2.797	4.250	---	---	---	---	4,330	3,610	57,840	---	---
	3.500	H-40	7.70	---	---	3.068	2.943	4.250	---	---	---	---	4,630	4,320	65,070	---	---
	3.500	H-40	9.20	9.30	---	2.992	2.867	4.250	4.500	4.180	---	---	5,380	5,080	79,540	103,610	---
	3.500	H-40	10.20	---	---	2.992	2.797	4.250	---	---	---	---	6,060	5,780	92,550	---	---
	3.500	J-55	7.70	---	---	3.068	2.943	4.250	---	---	---	---	5,970	5,940	89,470	---	---
	3.500	J-55	9.20	9.30	9.30	2.992	2.867	4.250	4.500	4.180	2.867	3.905	7,400	6,980	109,370	142,460	142,000
	3.500	J-55	10.20	---	10.30	2.992	2.797	4.250	---	---	2.797	3.955	8,330	7,950	127,250	---	160,000
	3.500	J-55*	---	---	12.80	2.764	---	---	---	---	2.639	4.312	10,350	10,120	---	---	199,000
	3.500	J-55*	---	---	12.95	2.750	---	---	---	---	2.625	4.312	10,530	10,320	---	---	203,000
	3.500	J-55*	---	---	15.80	2.548	---	---	---	---	2.423	4.500	12,930	13,090	---	---	249,000
	3.500	J-55*	---	---	16.70	2.480	---	---	---	---	2.355	4.562	13,690	14,020	---	---	264,000
	3.500	C-75	7.70	---	---	3.068	2.943	4.250	---	---	---	---	7,540	8,100	122,010	---	---
	3.500	C-75	9.20	9.30	9.30	2.992	2.867	4.250	4.500	4.180	2.867	3.905	10,040	9,520	149,140	194,260	194,000
	3.500	C-75	10.20	---	10.30	2.992	2.797	4.250	---	---	2.797	3.955	11,360	10,840	173,530	---	219,000
	3.500	C-75*	---	---	12.80	2.764	---	---	---	---	2.639	4.312	14,110	13,800	---	---	272,000
	3.500	C-75*	12.70	12.95	12.95	2.750	2.625	4.250	4.500	4.180	2.625	4.312	14,350	14,060	230,990	276,120	276,000
	3.500	C-75*	---	---	15.80	2.548	---	---	---	---	2.423	4.500	17,630	17,850	---	---	339,000
	3.500	C-75*	---	---	16.70	2.480	---	---	---	---	2.355	4.562	18,670	19,130	---	---	359,000
	3.500	N-80	7.70	---	---	3.068	2.943	4.250	---	---	---	---	7,870	8,640	130,140	---	---
	3.500	N-80	9.20	9.30	9.30	2.992	2.867	4.250	4.500	4.180	2.867	3.905	10,530	10,160	159,090	207,220	270,000
	3.500	N-80	10.20	---	10.30	2.992	2.797	4.250	---	---	2.797	3.955	12,120	11,560	185,100	---	233,000
	3.500	N-80	---	---	12.80	2.764	---	---	---	---	2.639	4.312	15,060	14,730	---	---	290,000
	3.500	N-80	12.70	12.95	12.95	2.750	2.625	4.250	4.500	4.180	2.625	4.312	15,310	15,000	246,390	294,530	295,000
	3.500	N-80	---	---	15.80	2.548	---	---	---	---	2.423	4.500	18,800	19,040	---	---	362,000
	3.500	N-80	---	---	16.70	2.480	---	---	---	---	2.355	4.562	19,920	20,400	---	---	383,000
	3.500	P-105	9.20	9.30	9.30	2.992	2.867	4.250	4.500	4.180	2.867	3.905	13,050	13,330	208,800	271,970	272,000
	3.500	P-105	---	---	10.30	2.992	---	---	---	---	2.797	3.955	15,920	15,180	---	---	206,000
	3.500	P-105	---	---	12.80	2.764	---	---	---	---	2.639	4.312	19,760	19,320	---	---	380,000
	3.500	P-105	12.70	12.95	12.95	2.750	2.625	4.250	4.500	4.180	2.625	4.312	20,090	19,690	323,390	386,560	387,000
	3.500	P-105	---	---	15.80	2.548	---	---	---	---	2.423	4.500	24,680	24,990	---	---	475,000
	3.500	P-105	---	---	16.70	2.480	---	---	---	---	2.355	4.562	26,140	26,770	---	---	503,000
	3.500	P-110*	9.20	9.30	---	2.992	2.867	4.250	4.500	---	---	---	12,620	23,970	218,740	284,920	---
	3.500	P-110*	12.70	12.95	---	2.750	2.625	4.250	4.500	---	---	---	17,940	20,630	338,790	365,570	---

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
3-1/2	88.9	F-25*	11.46	---	---	77.93	74.75	107.95	---	---	---	---	20,480	18,260	180,910	---	---
	88.9	F-25*	13.69	13.84	---	76	72.82	107.95	114.3	---	---	---	25,370	21,930	221,120	288,070	---
	88.9	F-25*	15.18	---	---	76	71.04	107.95	---	---	---	---	29,860	24,890	257,290	---	---
	88.9	H-40	11.46	---	---	77.93	74.75	107.95	---	---	---	---	31,920	39,790	289,450	---	---
	88.9	H-40	13.69	13.84	---	76	72.82	107.95	114.3	106.17	---	---	37,100	35,030	353,810	460,880	---
	88.9	H-40	15.18	---	---	76	71.04	107.95	---	---	---	---	41,780	39,850	411,680	---	---
	88.9	J-55	11.46	---	---	77.93	74.75	107.95	---	---	---	---	41,160	40,960	397,980	---	---
	88.9	J-55	13.69	13.84	13.84	76	72.82	107.95	114.3	106.17	72.82	99.19	51,020	48,130	486,500	633,690	361,650
	88.9	J-55	15.18	---	15.33	76	71.04	107.95	---	---	71.04	100.46	57,440	54,820	566,040	---	71720
	88.9	J-55*	---	---	19.05	70.21	---	---	---	---	2.639	109.52	71,360	69,780	---	---	885,200
	88.9	J-55*	---	---	19.27	69.85	---	---	---	---	66.68	109.52	72,600	71,160	---	---	902,990
	88.9	J-55*	---	---	23.51	64.72	---	---	---	---	2.423	114.3	89,150	90,260	---	---	1,107,610
	88.9	J-55*	---	---	24.85	62.99	---	---	---	---	2.355	115.87	94,390	96,670	---	---	1,174,330
	88.9	C-75	11.46	---	---	77.93	74.75	107.95	---	---	---	---	51,990	55,850	542,730	---	---
	88.9	C-75	13.69	13.84	13.84	76	72.82	107.95	114.3	106.17	72.82	99.19	69,230	65,640	663,410	864,110	862,950
	88.9	C-75	15.18	---	15.33	76	71.04	107.95	---	---	71.04	100.46	78,330	74,740	771,900	---	974,160
	88.9	C-75*	---	---	19.05	70.21	---	---	---	---	2.639	109.52	97,290	95,150	---	---	1,209,920
	88.9	C-75*	12.70	19.27	19.27	69.85	66.68	107.95	114.3	106.17	66.68	109.52	98,940	96,940	1,027,494	1,228,240	1,227,710
	88.9	C-75*	---	---	23.51	64.72	---	---	---	---	2.423	114.3	121,560	123,080	---	---	1,507,950
	88.9	C-75*	---	---	24.85	62.99	---	---	---	---	2.355	115.87	128,730	131,900	---	---	1,596,910
	88.9	N-80	11.46	---	---	77.93	74.75	107.95	---	---	---	---	54,260	59,570	578,890	---	---
	88.9	N-80	13.69	13.84	13.84	76	72.82	107.95	114.3	106.17	72.82	99.19	72,600	70,050	707,670	921,760	920,780
	88.9	N-80	15.18	---	15.33	76	71.04	107.95	---	---	71.04	100.46	83,570	79,710	823,370	---	10,36,435
	88.9	N-80	---	---	19.05	70.21	---	---	---	---	2.639	109.52	103,840	101,560	---	---	1,289,980
	88.9	N-80	12.70	19.27	19.27	69.85	66.68	107.95	114.3	106.17	66.68	109.52	105,560	103,463	1,069,000	1,310,130	1,312,224
	88.9	N-80	---	---	23.51	64.72	---	---	---	---	2.423	114.3	129,630	131,280	---	---	1,610,260
	88.9	N-80	---	---	24.85	62.99	---	---	---	---	2.355	115.87	137,350	140,660	---	---	1,703,670
	88.9	P-105	13.69	13.84	13.84	76	72.82	107.95	114.3	106.17	72.82	99.19	89,980	91,910	928,790	1,209,780	1,209,920
	88.9	P-105	---	---	15.33	76	---	---	---	---	71.04	100.46	109,770	104,670	---	---	1,361,160
	88.9	P-105	---	---	19.05	70.21	---	---	---	---	2.639	109.52	136,250	13,210	---	---	1,690,320
	88.9	P-105	12.70	19.27	19.27	69.85	66.68	107.95	114.3	106.17	66.68	109.52	138,520	135,760	1,438,510	1,719,500	1,721,460
	88.9	P-105	---	---	23.51	64.72	---	---	---	---	2.423	114.3	170,170	172,310	---	---	21,12,900
	88.9	P-105	---	---	24.85	62.99	---	---	---	---	2.355	115.87	180,240	184,580	---	---	2,237,450
	88.9	P-110*	13.69	13.84	---	76	72.82	107.95	114.3	---	---	---	87,010	96,320	973,000	1,2673,90	---
	88.9	P-110*	12.70	19.27	---	69.85	66.68	107.95	114.3	---	---	---	123,700	142,240	1,507,010	1,626,140	---

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
4	4.000	F-25*	9.50	---	---	3.548	3.423	4.750	---	---	---	---	2,360	2,470	45,000	---	---
	4.000	F-25*	---	11.00	---	3.476	3.351	---	5.000	---	---	---	3,220	2,870	---	76,920	---
	4.000	H-40	9.50	---	---	3.548	3.423	4.750	---	---	---	---	4,060	3,960	72,000	---	---
	4.000	H-40	---	11.00	---	3.476	3.351	---	5.000	---	---	---	4,900	4,590	---	123,070	---
	4.000	J-55	9.50	---	---	3.548	3.423	4.750	---	---	---	---	5,110	5,440	99,010	---	---
	4.000	J-55	---	11.00	11.00	3.476	3.351	---	5.000	---	3.351	4.405	6,590	6,300	---	169,220	169,000
	4.000	J-55*	---	---	11.60	3.428	---	---	---	---	3.303	4.000	7,300	6,880	---	---	137,000
	4.000	C-75	9.50	---	---	3.548	3.423	4.750	---	---	---	---	6,350	7,420	135,010	---	---
	4.000	C-75	---	11.00	11.00	3.476	3.351	---	5.000	---	3.351	4.405	8,410	8,600	---	230,760	213,000
	4.000	C-75*	---	---	13.40	3.340	---	---	---	---	3.215	4.625	11,350	10,830	---	---	285,000
	4.000	N-80	9.50	---	---	3.548	3.423	4.750	---	---	---	---	6,590	7,910	144,010	---	---
	4.000	N-80	---	11.00	11.00	3.476	3.351	---	5.000	---	3.351	4.405	8,800	9,170	---	246,140	246,000
	4.000	N-80*	---	---	13.40	3.340	---	---	---	---	3.215	4.625	12,110	11550	---	---	304,000
	4.000	P-105*	---	---	11.00	3.476	---	---	---	---	3.351	4.405	10,700	12,040	---	---	323,000
	4.000	P-105*	---	---	13.40	3.340	---	---	---	---	3.215	4.625	15,900	15,160	---	---	400,000
4-1/2	4.500	F-25*	12.60	12.75	---	3.958	3.833	5.200	5.563	---	---	---	2,870	2,630	65,320	90,010	---
	4.500	H-40	12.60	12.75	---	3.958	3.833	5.200	5.563	---	---	---	4,500	4,220	104,360	144,020	---
	4.500	J-55	12.60	12.75	12.75	3.958	3.833	5.200	5.563	---	3.833	4.910	5,720	5,800	143,500	198,030	198,000
	4.500	J-55*	---	---	13.50	3.920	---	---	---	---	3.795	4.935	6,420	6,200	---	---	211,000
	4.500	C-75	12.60	12.75	12.75	3.958	3.833	5.200	5.563	---	3.833	4.910	7,200	7,900	195,680	270,030	270,000
	4.500	C-75*	---	---	13.50	3.920	---	---	---	---	3.795	4.935	8,170	8,460	---	---	288,000
	4.500	C-75*	---	---	15.50	3.826	---	---	---	---	3.701	5.125	10,390	9,830	---	---	331,000
	4.500	C-75*	---	---	19.20	3.640	---	---	---	---	3.515	5.312	12,960	12,540	---	---	412,000
	4.500	N-80	12.60	12.75	12.75	3.958	3.833	5.200	5.563	---	3.833	4.910	7,500	8,430	208,730	288,040	288,000
	4.500	N-80	---	---	13.50	3.920	---	---	---	---	3.795	4.935	8,540	9,020	---	---	307,000
	4.500	N-80	---	---	15.50	3.826	---	---	---	---	3.701	5.125	11,090	10,480	---	---	353,000
	4.500	N-80*	---	---	19.20	3.640	---	---	---	---	3.515	5.312	13,820	13,380	---	---	439,000
	4.500	P-105*	---	---	12.75	3.958	---	---	---	---	3.833	4.910	8,950	11,070	---	---	378,000
	4.500	P-105*	---	---	13.50	3.920	---	---	---	---	3.795	4.935	10,350	11,840	---	---	403,000
	4.500	P-105*	---	---	15.50	3.826	---	---	---	---	3.701	5.125	13,820	13,760	---	---	463,000
	4.500	P-105*	---	---	19.20	3.640	---	---	---	---	3.515	5.312	18,140	17,560	---	---	567,000

TUBING PERFORMANCE PROPERTIES

TUBING SIZE							THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST PRESSURE)** (PSI)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)	DRIFT DIAMETER (IN)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (IN)	BOX OUTSIDE DIAMETER (IN)			THREADED AND COUPLED		INTEGRAL JOINT (LBS/FT)
			NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LBS/FT)	UPSET REGULAR (LBS/FT	UPSET SPECIAL (LBS/FT)					NON UPSET (LBS/FT)	UPSET (LBS/FT)	
4	101.4	F-25*	14.14	---	---	90.120	86.94	120.65	---	---	---	---	18,130	17,030	200170	---	---
	101.4	F-25*	---	16.37	---	88.290	89.15	---	127.000	---	---	---	22,200	19,799	---	342,160	---
	101.4	H-40	14.14	---	---	90.120	86.94	120.65	---	---	---	---	27,990	27,300	320270	---	---
	101.4	H-40	---	16.37	---	88.290	86.15	---	127.000	---	---	---	33,790	31,650	---	547,440	---
	101.4	J-55	14.14	---	---	90.120	86.94	120.65	---	---	---	---	35,230	37,510	440420	---	---
	101.4	J-55	---	16.37	16.37	88.290	86.15	---	127.000	---	89.15	111.89	45,440	43,440	---	752,730	751,750
	101.4	J-55*	---	---	17.26	87.070	---	---	---	---	83.90	101.4	50,330	47,440	---	---	609,410
	101.4	C-75	14.14	---	---	90.120	86.94	120.65	---	---	---	---	43,780	51,160	600550	---	---
	101.4	C-75	---	16.37	16.37	88.290	89.15	---	127.000	---	89.15	111.89	57,990	59,300	---	1,0264,70	1,027,540
	101.4	C-75*	---	---	19.94	84.840	---	---	---	---	81.66	117.48	78,260	74,670	---	---	1,267,740
	101.4	N-80	14.14	---	---	90.120	86.94	120.65	---	---	---	---	45,440	54,540	640590	---	---
	101.4	N-80	---	16.37	16.37	88.290	89.15	---	127.000	---	89.15	111.89	60,680	63,230	---	1,094,880	1,094260
	101.4	N-80*	---	---	19.94	84.840	---	---	---	---	81.66	117.48	83,500	79,640	---	---	1,352,260
	101.4	P-105*	---	---	16.37	88.290	---	---	---	---	89.15	111.89	73,780	83,020	---	---	1,436,780
	101.4	P-105*	---	---	19.94	84.840	---	---	---	---	81.66	117.48	109,630	104,530	---	---	1,779,290
4-1/2	114.3	F-25*	18.75	18.97	---	100.530	97.36	132.08	141.300	---	---	---	19,790	18,130	290160	400,380	---
	114.3	H-40	18.75	18.97	---	100.530	97.36	132.08	141.300	---	---	---	31,030	29,100	464220	640,630	---
	114.3	J-55	18.75	18.97	18.97	100.530	97.36	132.08	141.300	---	97.36	124.71	39,440	39,990	638320	880,880	880,750
	114.3	J-55*	---	---	20.09	99.570	---	---	---	---	96.39	125.35	44,270	41,750	---	---	938,570
	114.3	C-75	18.75	18.97	18.97	100.530	97.36	132.08	141.300	---	97.36	124.71	49,640	54,470	870430	1,201,150	1,201,020
	114.3	C-75*	---	---	20.09	99.570	---	---	---	---	96.39	125.35	56,330	58,330	---	---	1,281,090
	114.3	C-75*	---	---	23.06	97.180	---	---	---	---	94.01	130.18	71,640	67,780	---	---	1,472,360
	114.3	C-75*	---	---	28.57	92.460	---	---	---	---	96.39	125.35	89,360	86,460	---	---	1,832,670
	114.3	N-80	18.75	18.97	18.97	100.530	97.36	132.08	141.300	---	97.36	124.71	51,710	58,120	928480	1,281,270	1,281,090
	114.3	N-80	---	---	20.09	99.570	---	---	---	---	96.39	125.35	58,890	62,190	---	---	1,365,600
	114.3	N-80	---	---	23.06	97.180	---	---	---	---	94.01	130.18	76,470	72,260	---	---	1,570,220
	114.3	N-80*	---	---	28.57	92.460	---	---	---	---	96.39	125.35	95,290	92,260	---	---	1,952,770
	114.3	P-105*	---	---	18.97	100.530	---	---	---	---	97.36	124.71	61,710	76,330	---	---	1,681,430
	114.3	P-105*	---	---	20.09	99.570	---	---	---	---	96.39	125.35	71,360	81,640	---	---	1,792,630
	114.3	P-105*	---	---	23.06	97.180	---	---	---	---	94.01	130.18	95,290	94,880	---	---	2,059,530
	114.3	P-105*	---	---	28.57	92.460	---	---	---	---	96.39	125.35	125,080	121,080	---	---	2,522,140

TUBING DIMENSIONAL DATA

TUBING SIZE						DRIFT DIAMETER (IN)	WALL THICKNESS (IN)	OUTSIDE AREA (SQ.IN)	INSIDE AREA (SQ.IN)	CROSS SECTIONAL AREA (SQ.IN)	MOMENT OF INER-TIA (IN)	RATIO OF O.D. TO I.D. -R
NOMINAL SIZE (IN)	OUTSIDE DIAM-ETER (IN)	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (IN)							
		NON UPSET (LBS/FT)	UPSET (LBS/FT)	INTEGRAL JOINT (LBS/FT)								
3/4	1.050	1.14	1.20	1.20	.824	.730	.113	.866	.533	.333	.037	1.274
	1.050	---	1.50	1.50	.42	.730	.154	.866	.432	.434	.045	1.415
1	1.315	1.70	1.80	1.72	1.049	.995	.133	1.358	.864	.494	.087	1.253
	1.315	---	---	2.25	.957	.848	.179	1.358	.719	.639	.106	1.374
1-1/4	1.660	---	---	2.10	1.410	1.286	.125	2.164	1.561	.603	.179	1.177
	1.660	2.30	2.40	2.33	1.380	1.286	.140	2.164	1.496	.668	.195	1.203
	1.660	---	---	3.02	1.278	1.184	.191	2.164	1.283	.881	.242	1.299
1-1/2	1.900	---	---	2.40	1.650	1.516	.125	2.835	2.138	.697	.276	1.152
	1.900	2.75	2.90	2.76	1.610	1.516	.145	2.835	2.036	.799	.310	1.180
	1.900	---	---	3.64	1.500	1.406	.200	2.835	1.767	1.068	.391	1.267
2	2.000	3.40	---	---	1.670	1.576	.165	3.142	2.190	.952	.404	1.198
2-1/16	2.063	---	---	3.25	1.751	1.657	.156	3.343	2.408	.935	.428	1.178
2-3/8	2.375	4.00	---	---	2.041	1.947	.167	4.430	3.272	1.158	.710	1.164
	2.375	4.60	4.70	4.70	1.995	1.901	.190	4.430	3.126	1.304	.784	1.190
	2.375	---	---	5.30	1.9.9	1.845	.218	4.430	2.853	1.477	.868	1.225
	2.375	5.95	5.95	5.95	1.867	1.773	.254	4.430	2.738	1.692	.965	1.272
	2.375	---	---	6.20	1.853	1.759	.261	4.430	2.697	1.733	.983	1.282
	2.375	---	---	7.70	1.703	1.609	.336	4.430	2.152	1.149	1.149	1.395
2-7/8	2.875	6.40	6.50	6.50	2.441	2.347	.217	6.492	4.680	1.812	1.611	1.178
	2.875	---	---	7.90	2.323	2.229	.276	6.492	4.238	2.254	1.924	1.273
	2.875	8.70	8.70	8.70	2.259	2.165	.308	6.492	4.008	2.484	2.075	1.273
	2.875	---	---	9.50	2.195	2.101	.340	6.492	3.784	2.708	2.214	1.310
	2.875	---	---	10.70	2.091	1.997	.392	6.492	3.434	3.058	2.415	1.375
	2.875	---	---	11.00	2.065	1.971	.405	6.492	3.349	3.143	2.461	1.392
3-1/2	3.500	7.70	---	---	3.068	2.943	.216	9.621	7.393	2.228	3.107	1.141
	3.500	9.20	9.30	9.30	2.992	2.867	.254	9.621	7.031	2.590	3.432	1.170
	3.500	10.20	---	10.30	2.922	2.797	.289	9.621	6.706	2.555	3.788	1.198
	3.500	---	---	12.80	2.764	2.639	.368	9.621	6.000	3.621	4.501	1.266
	3.500	12.70	12.95	12.95	2.750	2.625	.375	9.621	5.940	3.681	4.559	1.273
	3.500	---	---	15.80	2.548	2.423	.476	9.621	5.099	4.522	5.297	1.374
	3.500	---	---	16.70	2.480	2.355	.510	9.621	4.831	4.790	5.509	1.411
4	4.000	9.50	---	---	3.548	3.423	.226	12.566	9.887	2.679	4.788	1.127
	4.000	---	11.00	11.00	3.476	3.351	.262	12.566	9.490	3.076	5.400	1.515
	4.000	---	---	11.60	3.428	3.303	.286	12.566	9.229	3.337	5.788	1.167
	4.000	---	---	13.40	3.340	3.215	.330	12.566	8.762	3.804	6.458	1.198
4-1/2	4.500	12.60	12.75	12.75	3.958	3.833	.271	15.904	12.304	3.600	8.082	1.137
	4.500	---	---	13.50	3.920	3.795	.290	15.904	12.068	3.836	8.538	1.148
	4.500	---	---	15.50	3.826	3.701	.337	15.904	11.497	4.407	9.310	1.176
	4.500	---	---	19.20	3.640	3.515	.430	15.904	10.406	5.498	11.512	1.236

TUBING DIMENSIONAL DATA

SIZE O.D. (IN)	WEIGHT (LB/FT)	OUTSIDE DIAM-ETER (MM)	WEIGHT (KG/M)	INSIDE DIAMETER (MM)	DRIFT DIAMETER (MM)	WALL THICKNESS (MM)	OUTSIDE AREA (SQ.CM)	INSIDE AREA (SQ.CM)	CROSS SECTION-AL AREA (SQ.CM)	MOMENT OF INERTIA (CM)	RATIO OF O.D. TO I.D.
3/4	1.20	26.670	1.79	20.93	18.55	2.87	5.59	3.44	2.15	1.5	1.274
	1.50	26.670	2.23	18.85	16.47	3.91	5.59	2.79	2.80	1.9	1.415
1	1.80	33.401	2.68	26.64	24.26	3.38	8.76	5.58	3.19	3.6	1.254
	2.25	33.401	3.35	24.31	24.31	4.55	8.76	4.64	4.12	4.4	1.374
1-1/4	2.10	42.164	3.12	35.81	35.81	3.17	13.96	10.07	3.89	7.4	1.177
	2.40	42.164	3.57	35.05	35.05	3.56	13.96	9.65	4.31	8.1	1.203
	302.00	42.164	4.49	32.46	32.46	4.85	13.96	8.28	5.69	10.1	1.299
1-1/2	2.40	48.260	3.57	41.91	41.91	3.17	18.29	13.80	4.50	11.5	1.152
	2.90	48.260	4.32	40.89	40.89	3.68	18.29	13.13	5.16	12.9	1.180
	3.64	48.260	5.42	38.10	35.10	5.08	18.29	11.40	6.89	16.3	1.267
2	3.40	50.800	5.06	42.42	42.42	4.19	20.27	14.13	6.14	16.8	1.198
2-1/16	3.25	52.400	4.84	44.48	44.48	3.96	21.57	15.54	6.03	17.8	1.178
2-3/8	4.00	60.325	5.95	51.84	51.84	4.24	28.58	21.11	7.47	29.6	1.164
	4.70	60.325	6.99	50.67	50.67	4.83	28.58	20.17	8.41	32.7	1.190
	5.30	60.325	7.89	49.25	49.25	5.54	28.58	19.05	9.53	36.1	1.225
	5.95	60.325	8.85	47.42	47.42	6.45	28.58	17.66	10.92	40.2	1.272
	6.20	60.325	9.23	47.07	47.07	6.63	28.58	17.40	11.18	40.9	1.282
	7.70	60.325	11.46	43.26	43.26	6.53	28.58	14.70	13.89	47.8	1.395
2-7/8	6.50	73.025	9.67	62.00	62.00	5.51	41.88	30.19	11.69	67.1	1.178
	7.90	73.025	11.76	59.00	59.00	7.01	41.88	27.34	14.54	80.1	1.273
	8.70	73.025	12.95	57.38	57.38	7.82	41.88	25.86	16.02	86.4	1.273
	9.50	73.025	14.14	55.75	55.75	8.64	41.88	24.41	17.47	92.2	1.310
	10.70	73.025	15.92	53.11	53.11	9.96	41.88	22.15	19.73	100.6	1.375
	11.00	73.025	16.37	52.45	52.45	10.29	41.88	21.61	20.28	102.5	1.392
3-1/2	7.70	88.900	11.46	77.93	77.93	5.49	62.07	47.69	14.38	125.6	1.141
	9.30	88.900	13.84	76.00	76.00	6.45	62.07	45.36	16.71	142.9	1.170
	10.30	88.900	15.33	74.22	74.22	7.34	62.07	43.26	18.81	157.7	1.198
	12.80	88.900	19.05	70.21	70.21	9.35	62.07	38.71	23.36	187.4	1.266
	12.95	88.900	19.27	69.85	69.85	9.52	62.07	38.32	23.75	189.8	1.273
	15.80	88.900	23.51	64.72	64.72	12.09	62.07	32.90	29.17	220.5	1.374
	16.70	88.900	24.85	62.99	62.99	12.95	62.07	31.16	30.91	229.4	1.411
4	9.50	101.600	14.14	90.12	90.12	5.74	81.07	63.79	17.29	199.3	1.127
	11.00	101.600	16.37	88.29	88.29	6.65	81.07	61.22	19.85	224.8	1.515
	11.60	101.600	17.26	87.07	87.07	7.26	81.07	59.54	21.53	241.0	1.167
	13.40	101.600	19.94	84.84	84.84	8.38	81.07	56.53	24.55	268.9	1.198
4-1/2	12.75	114.300	18.97	100.53	100.53	6.88	102.61	79.38	23.23	366.5	1.137
	13.50	114.300	20.09	99.57	99.57	7.37	102.61	77.86	24.75	355.5	1.148
	15.50	114.300	23.06	97.18	97.18	8.56	102.61	74.17	28.44	400.1	1.178
	19.20	114.300	28.57	92.46	92.46	10.92	102.61	67.14	35.47	479.3	1.236

API Casing Data

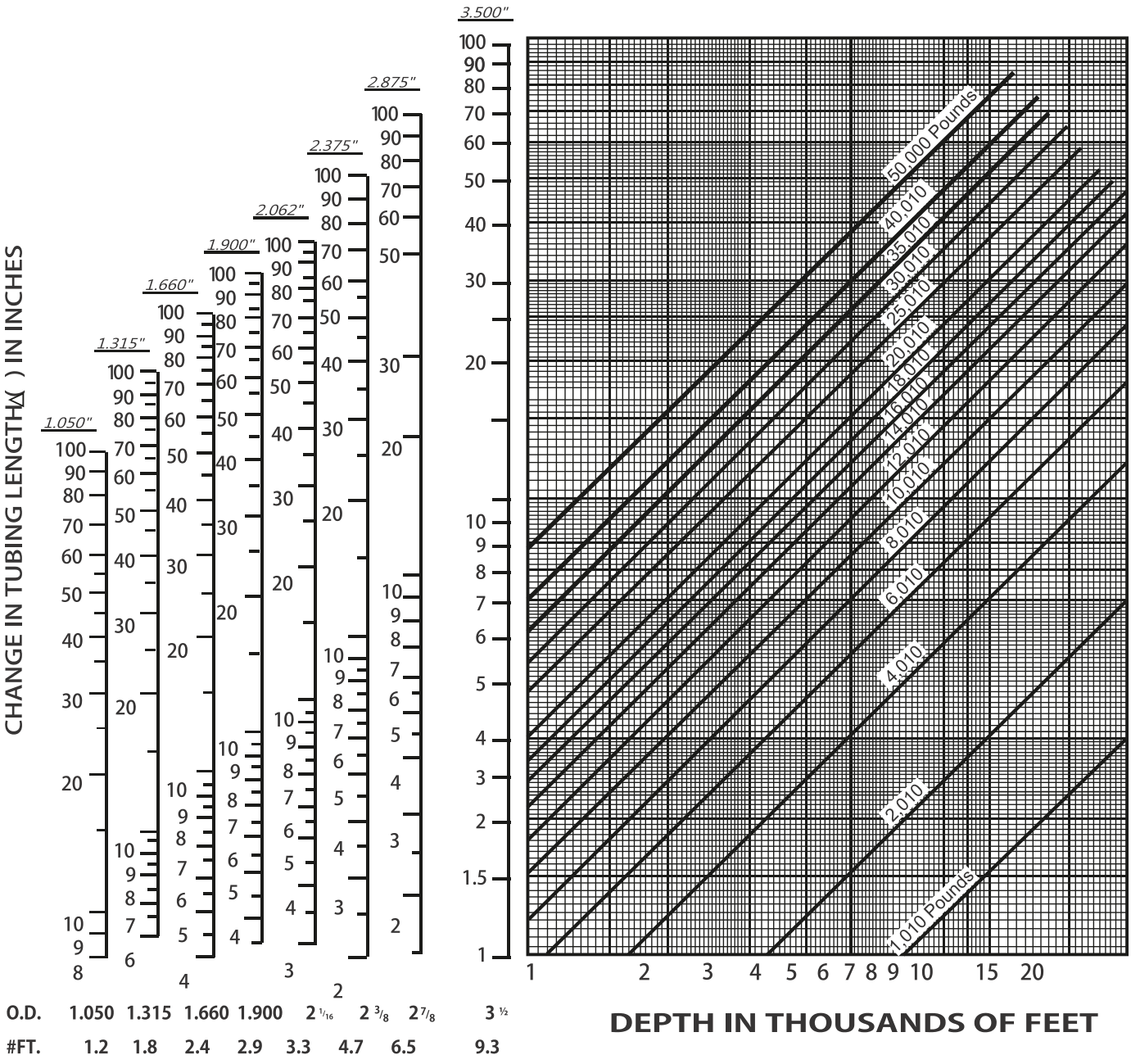
(7)O.D. (MM)	WEIGHT (KG/M)	I.D. (MM)	DRIFT I.D. (MM)	AREA (MM SQ)	CAPACITY (M/100M)
114.30 (4-1/2)	10.04	107.09	103.91	9,032.24	.273
	12.86	104.75	101.57	8,580.63	.262
	14.14	103.89	100.71	8,451.60	.259
	15.62	102.90	99.72	8,322.56	.254
	16.37	102.26	99.09	8,258.05	.251
	17.26	101.60	98.43	8,129.02	.246
	18.75	100.53	97.36	7,935.47	.242
	20.09	99.57	96.39	7,806.44	.237
	24.70	97.18	94.01	7,419.34	.226
127.00 (2)	11.90	119.28	116.10	11,161.27	.340
	17.11	115.82	112.65	10,516.11	.321
	19.34	114.15	110.97	10,193.53	.312
	19.58	113.79	110.62	10,193.53	.310
	22.32	11.96	108.79	9,870.95	.300
	26.78	108.61	105.44	9,290.30	.283
	13.39	105.51	102.34	8,709.66	.266
139.70 (5-1/2)	13.39	131.88	128.70	13,677.39	.417
	19.34	128.12	124.94	12,903.2	.393
	20.83	127.30	124.13	12,709.65	.38
	22.32	126.34	123.16	12,516.10	.382
	22.44	125.98	122.81	12,451.59	.380
	23.06	125.73	122.56	12,387.07	.378
	25.30	124.26	121.08	12,193.52	.369
	29.76	121.36	118.19	11,548.36	.353
	34.22	118.62	115.70	11,032.24	.337
168.28 (6-5/8)	17.86	159.69	156.51	20,064.48	.612
	19.34	158.88	155.70	19,806.41	.604
	25.30	155.83	152.65	19,096.74	.582
	27.28	154.56	151.38	18,774.16	.572
	28.94	154.05	150.88	18,645.12	.568
	29.76	153.64	150.47	18,516.09	.564
	32.74	152.12	148.95	18,193.51	.555
	35.71	150.39	147.22	17,741.90	.542
	37.50	154.54	148.34	18,064.48	.550
	38.69	148.72	145.54	17,419.32	.531
	39.43	148.26	145.08	17,290.29	.526
	41.66	147.09	143.92	16,967.71	.518
	43.15	146.41	143.23	16,838.68	.514
	47.62	144.15	141.10	16,322.55	.498
	50.59	142.11	138.94	15,870.94	.483
177.80 (7)	19.34	168.96	165.79	22,387.05	.682
	25.30	166.07	162.89	21,677.38	.660
	28.88	164.08	161.16	21,161.25	.645
	29.76	163.98	160.81	21,096.73	.644
	32.74	162.51	159.33	20,709.64	.631
	34.22	161.70	158.52	20,580.60	.626
	35.71	160.93	157.76	20,322.54	.620
	38.69	159.41	156.24	19,935.44	.609
	41.66	157.84	154.66	19,548.35	.596

O.D. (MM)	WEIGHT (KG/M)	I.D. (MM)	DRIFT I.D. (MM)	AREA (MM SQ)	CAPACITY (M/100M)
177.80 (7)	43.15	157.07	153.90	19,354.80	.591
	43.90	156.67	153.49	19,290.28	.588
	44.64	156.31	153.14	19,225.77	.585
	47.62	154.79	151.61	18,838.67	.574
	50.15	153.62	150.44	18,516.09	.564
	50.59	153.42	150.24	18,516.09	.563
	52.08	152.50	149.33	18,258.03	.556
	52.53	152.40	149.23	18,253.03	.556
	56.54	150.37	147.19	17,741.90	.540
	59.52	148.23	145.06	17,290.29	.526
193.68 (7-5/8)	29.76	180.98	177.80	25,741.88	.784
	31.56	179.96	176.78	25,419.30	.774
	35.71	178.44	175.26	25,032.21	.762
	39.28	177.01	173.84	24,645.11	.750
	44.19	174.63	171.45	23,935.44	.730
	50.15	171.83	168.66	23,161.24	.708
	53.57	170.31	167.13	22,774.15	.695
	56.54	169.04	165.86	22,451.57	.684
	58.03	168.29	165.10	22,258.02	.677
	66.96	163.70	160.53	21,032.22	.641
219.08 (8-5/8)	29.76	208.05	204.88	33,999.93	1.037
	35.71	205.66	202.49	33,225.74	1.013
	38.02	205.00	201.83	33,032.19	1.006
	38.63	204.85	201.68	32,967.68	1.005
	41.66	203.63	200.46	32,580.58	.992
	43.67	202.72	199.54	32,258.00	.983
	47.62	201.19	198.02	31,806.39	.970
	48.21	201.09	197.92	31,806.39	.968
	53.57	198.76	195.58	31,032.20	.946
	56.54	197.49	194.36	30,645.10	.933
	59.52	196.22	193.04	30,258.00	.922
	65.47	193.68	190.50	29,483.81	.898
	72.91	190.78	187.60	28,580.59	.871
244.48 (9-5/8)	48.06	228.63	224.66	41,032.18	1.251
	53.57	226.59	222.63	40,322.50	1.229
	56.54	225.68	221.72	39,999.92	1.220
	59.52	224.41	220.45	39,548.31	1.205
	62.80	223.49	219.53	39,225.73	1.196
	64.73	222.38	318.41	38,838.63	1.184
	69.94	220.50	216.54	38,193.47	1.164
	79.61	216.79	213.08	36,967.67	1.126
	86.30	214.25	210.54	36,064.44	1.099
273.05 (10-3/4)	48.73	258.89	254.91	52,645.06	1.604
	60.26	255.27	251.31	51,161.19	1.560
	67.70	252.73	248.77	50,193.45	1.529
	75.89	250.19	246.23	49,161.19	1.499
	82.58	247.90	243.94	48,257.97	1.471
	90.32	245.36	241.40	47,290.23	1.440
	97.76	242.82	238.86	46,322.49	1.412

API CASING DATA

O.D. (IN)	WEIGHT (LB/FT)	I.D. (IN)	DRIFT I.D. (IN)	AREA (SQ IN)	CAPACITY (BBL/100)
4-1/2	6.75	4.216	4.091	14.0	1.72
	864	4.124	3.999	13.3	1.65
	9.50	4.090	3.935	13.1	1.63
	10.50	4.051	3.926	12.9	1.60
	11.00	4.026	3.901	12.8	1.58
	11.60	4.00	3.875	12.6	1.55
	12.60	3.958	3.833	12.3	1.52
	13.50	3.920	3.795	12.1	1.49
	16.60	3.826	3.701	11.5	1.42
6	8.00	4.969	4.571	17.3	2.14
	11.50	4.560	4.435	16.3	2.02
	13.00	4.494	4.369	15.8	1.96
	13.16	4.480	4.355	15.8	1.95
	15.00	4.408	4.283	15.3	1.89
	18.00	4.276	4.151	14.4	1.78
	21.00	4.154	4.029	13.5	1.68
5-1/2	9.00	5.192	5.067	21.2	2.62
	13.00	5.044	4.919	20.0	2.47
	14.00	5.012	4.887	19.37	2.44
	15.00	4.974	4.849	19.4	2.40
	15.08	4.930	4.835	19.3	2.39
	15.50	4.950	4.425	19.2	2.38
	17.00	4.892	4.767	18.9	2.32
	20.00	4.778	4.653	17.9	2.22
	23.00	4.670	4.555	17.1	2.12
6-5/8	12.00	6.287	6.162	31.1	3.85
	13.00	6.255	6.130	30.7	3.80
	17.00	6.135	6.010	29.6	3.66
	18.33	6.085	5.960	29.1	3.60
	19.45	6.065	5.940	28.9	3.57
	20.00	6.049	5.924	28.7	3.55
	22.00	5.989	5.864	28.2	3.49
	24.00	5.921	5.796	27.5	3.41
	25.20	5.965	5.840	28.0	3.46
	26.00	5.855	5.7.0	27.0	3.34
	26.50	5.837	5.712	26.8	3.31
	28.00	5.791	5.666	26.3	3.26
	29.00	5.764	5.639	26.1	3.23
	32.00	5.675	5.550	25.3	3.13
	34.00	5.595	5.470	24.6	3.04
7	13.00	6.652	6.527	34.7	4.29
	17.00	6.538	6.413	33.6	4.15
	19.41	6.460	6.345	32.8	4.06
	20.00	6.456	6.331	32.7	4.05
	22.00	6.398	6.273	32.1	3.97
	23.00	6.366	6.241	31.9	3.94
	24.00	6.336	6.211	31.5	3.90
	26.00	6.276	6.151	30.9	3.83
	28.00	6.214	6.089	30.3	3.75

O.D. (IN)	WEIGHT (LB/FT)	I.D. (IN)	DRIFT I.D. (IN)	AREA (SQ IN)	CAPACITY (BBL/100)
7	29.00	6.184	6.059	30.0	3.72
	29.50	6.168	6.043	29.9	3.70
	30.00	6.154	6.029	29.8	3.68
	32.00	6.094	5.969	29.2	3.61
	33.70	6.048	5.923	28.7	3.55
	34.00	6.040	5.915	28.7	3.54
	35.00	6.004	5.879	29.3	3.50
	35.30	6.000	5.875	28.3	3.50
	38.00	5.920	5.795	27.5	3.40
	40.00	5.836	5.711	26.8	3.31
7-5/8	20.00	7.125	7.000	39.9	4.93
	21.21	7.085	6.960	39.4	4.87
	24.00	7.025	6.900	38.8	4.79
	26.40	6.969	6.844	38.2	4.72
	29.70	6.875	6.750	37.1	4.59
	33.70	6.765	6.640	35.9	4.45
	36.00	6.705	6.580	35.3	4.37
	38.00	6.655	6.530	34.8	4.30
	39.00	6.625	6.500	34.5	4.26
	45.00	6.445	6.320	32.6	4.03
8-5/8	20.00	8.191	8.066	52.7	6.52
	24.00	8.097	7.972	51.5	6.37
	25.55	8.071	7.946	51.2	6.33
	25.96	8.065	7.940	51.1	6.32
	28.00	8.017	7.892	50.5	6.24
	29.35	7.981	7.856	50.0	6.18
	32.00	7.921	7.796	49.3	6.10
	32.40	7.917	7.792	49.3	6.09
	36.00	7.825	7.700	48.1	5.95
	38.00	7.775	7.652	47.5	5.87
	40.00	7.725	7.600	46.9	5.80
	44.00	7.625	7.500	45.7	5.65
	49.00	7.511	7.386	44.3	5.48
9-5/8	32.30	9.001	8.845	63.6	7.87
	36.00	8.921	8.765	62.5	7.73
	38.00	8.885	8.729	62.0	7.67
	40.00	8.835	8.679	61.3	7.58
	42.00	8.799	8.643	60.8	7.52
	43.50	8.755	8.599	60.2	7.45
	47.00	8.681	8.525	59.2	7.32
	53.50	8.535	8.389	57.3	7.08
	58.00	8.435	8.289	55.9	9.91
10-3/4	32.75	10.192	10.036	81.6	10.09
	40.50	10.050	9.894	79.3	9.81
	45.50	9.950	9.794	77.8	9.62
	51.00	9.850	9.794	76.2	9.43
	55.50	9.760	9.604	74.8	9.25
	60.70	9.660	9.504	73.3	9.06
	65.70	9.560	9.404	71.8	8.88



EXAMPLE: To pull 12,010 lbs. Of 2-7/8 6.4 Ppf tubing at 9,010 ft

1. Follow 9,010 ft depth line to 12,010 lbs force line and read over to 2-7/8 chart scale
2. Read 29 inches stretch in tubing length

Chart is for tension or compression