

PEAK

COMPLETIONS

PRODUCT CATALOG





SERVICES PROVIDED:

- * **OPEN HOLE MULTI-STAGE COMPLETION SYSTEMS FOR SELECTIVE TREATING, TESTING AND PRODUCING UTILIZING BOTH PACKER AND CEMENTED APPLICATIONS**
- * **CASED HOLE MULTI-STAGE COMPLETION SYSTEMS OFFERING NEW AND INNOVATIVE TECHNIQUES AND TOOLS, SAVING OPERATORS TIME AND MONEY**
- * **COMPLETE LINE OF LINER HANGERS AND FLOAT EQUIPMENT**
CUSTOM LINE OF SPECIALIZED OPEN HOLE SERVICE TOOLS
- * **INFLATABLE PACKERS**
- * **PACKER AND PLUGS**
- * **CEMENT RETAINERS AND SQUEEZE MANIFOLDS**
- * **COMPOSITE FRAC PLUGS, BRIDGE PLUGS, AND PUMP DOWN PLUGS**
- * **HORIZONTAL AND VERTICAL TCP SYSTEMS**
- * **OPEN HOLE REAMERS**
- * **PRODUCTION AND FRAC PACKERS**
- * **RETRIEVABLE BRIDGE PLUGS**
- * **INJECTION PACKERS**
- * **CUSTOM TOOL DESIGN**
- * **IN HOUSE ENGINEERING**
- * **OVER 150 YEARS OF COMBINED COMPLETION EXPERIENCE**



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DUE TO OUR CONSTANTLY EXPANDING INVENTORY OF NEW TOOL DESIGNS AND SUPPLIERS, THIS CATALOG DOES NOT REPRESENT THE FULL CAPABILITIES OF PEAK COMPLETION TECHNOLOGIES, INC.

PEAK ALSO STRIVES TO OFFER ALL THE ADVANTAGES OF OUR IN HOUSE ENGINEERING TO OUR CUSTOMERS. WE HAVE THE MOTIVATION AND THE ABILITY TO DESIGN NEW TOOLS AND TECHNIQUES AROUND OUR CUSTOMERS NEEDS AND REQUIREMENTS

PLEASE CALL ONE OF OUR REPRESENTATIVES FOR THE LATEST INFORMATION

THANKS,

Ray Hofman
PRESIDENT



VISIT US IN MIDLAND, TEXAS
OR ON THE WEB AT
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SERVICE TOOLS

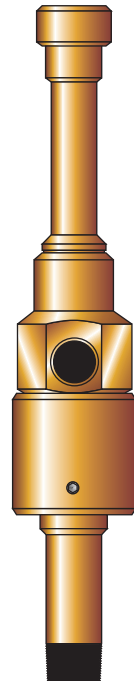
Tubing Swivel

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 OD	OPERATING LOAD RATING	EUE THREAD	LINE PIPE CONNECTION
mm	daN	mm	mm
in	LBS	in	in
73	44,500	73	
2-7/8	100,000	2-7/8	50.8
88.9	60,000	88.9	2
3-1/2	135,000	3-1/2	

BY-PASS VALVE

PRODUCT 10-100

The By-Pass Valve is a rotational circulating valve designed for use with the SST or B-52 Selective Tools. This valve opens or closes off communication between the tubing and the annulus.

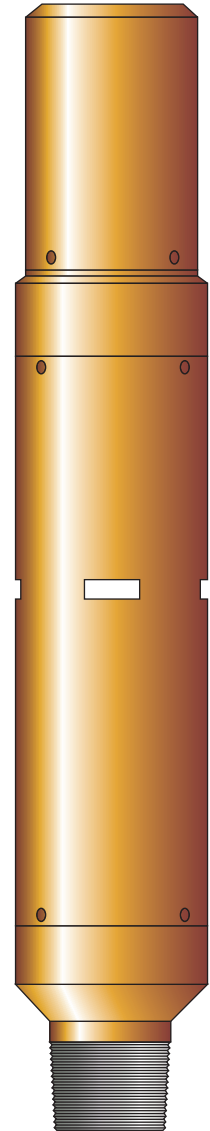
The valve is used to bypass tubing fluid when running or retrieving Selective Tools, and if required can also be used for circulation of fluids.

The By-Pass Valve features a pressure balanced sleeve design which allows for easy operation of the valve under high differential pressures. Specially designed chemical and wear resistant seals ensure reliable and trouble free operation.

Exclusive to this valve are the Thrust Bearings which allow for easy operation under tension or compression loads.

OPERATION

The By-Pass Valve is opened by rotating 3 turns to the right and closed by rotating 3 turns to the left.



CASING O.D.		BY-PASS VALVE	VALVE O.D.		VALVE I.D.		THREAD CONNECTION	
in.	mm		in.	mm	in.	mm	in.	mm
4-1/2	114.3	10-100-200	3.75	95.2	1.93	49.0	2-3/8 EUE	60.3
5	127.0	10-100-200	3.75	95.2	1.93	49.0	2-3/8 EUE	60.3
5-1/2	139.7	10-100-200	3.75	95.2	1.93	49.0	2-3/8 EUE	60.3
6-5/8	168.3	10-100-200	3.75	95.2	1.93	49.0	2-3/8 EUE	60.3
7	177.8	10-100-250	5.00	127.0	2.44	62.0	2-7/8 EUE	73.0
8-5/8	219.1	10-100-250	5.00	127.0	2.44	62.0	2-7/8 EUE	73.0
9-5/8	244.5	10-100-250	5.00	127.0	2.44	62.0	2-7/8 EUE	73.0

FLUID CONTROL VALVE
055

The Type D Control Valve is a pressure operated, down hole 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

SPECIFICATIONS

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 to deep wells than is 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.



TECHNICAL DATA

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 wireline 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 COMPRESSION SET, STRAIGHT PICK-UP RELEASE**

SETTING:

Run the tool to setting depth, pick up tubing and rotate to the right $\frac{1}{4}$ 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 from the well.



P631 AS-3 SINGLE GRIP PACKER

CASING SIZE		CASING WEIGHT		O.D. OF TOOL		NOMINAL 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

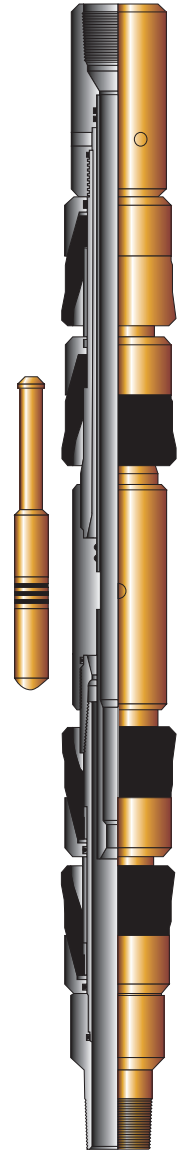
MINIMUM TOOL I.D.		THREAD CONNECTIONS		PRODUCT NUMBER
in.	mm	in.	mm	
0.625	15.88	1.050 EU 10RD	26.6	T612-25A-000
1.500	38.10	1.900 EU 10RD	48.2	T631-40A-000
1.500	38.10	1.900 EU 10RD	48.2	T612-41A-000
1.938	49.23	2.375 EU 8RD	60.3	T631-45A-000
1.938	49.23	2.375 EU 8RD	60.3	T631-52A-000
1.938	49.23	2.375 EU 8RD	60.3	T631-50A-000
2.000	50.80	2.375 EU 8RD	60.3	T631-57A-000
2.000	50.80	2.375 EU 8RD	60.3	T631-55A-000
2.375	60.33	2.375 EU 8RD	60.3	T631-59A-000
2.375	60.33	2.875 EU 8RD	73.0	T631-56A-000
2.375	60.33	2.875 EU 8RD	73.0	T631-58A-000
2.500	63.50	2.875 EU 8RD	73.0	T631-70A-000
3.000	76.20	2.875 EU 8RD	73.0	T631-72A-000
2.500	63.50	2.875 EU 8RD	73.0	T631-74A-000
2.500	63.50	3.500 EU 8RD	88.8	T631-75A-000
2.500	63.50	2.875 EU 8RD	73.0	T631-76A-000
4.000	101.60	4.500 EU 8RD	114.2	T631-85A-000
4.000	101.60	4.500 EU 8RD	114.2	T631-96A-000

SELECTIVE TREATING ASSEMBLY # 024

The S.T.A. is a cup type selective treating assembly, which is designed to selectively acidize predetermined perforated intervals. The S.T.A. will isolate intervals from 12 inches. To any length by the addition of standard tubing pups joints, A large built-in annular bypass, make the S.T.A. easy to run and retrieve. Drag blocks, using Inconel springs, provide drag for a positive method of controlling the circulating valve. The retrievable control bar is used to blank off the lower portion below the stimulation

OPERATION:

The assembly is run into the well with the circulating valve open and the assembly positioned just above the perforated interval to be stimulated. The circulation valve is closed and the control bar is dropped from surface or is run with the S.T.A., to pressure test the S.T.A.'s complete assembly. Opening the circulation valve will equalize the tubing to annulus. The S.T.A. tool can now be returned to the proper stimulation interval by dropping the fluid control valve and closing the circulation valve, a feed rate can be taken. Opening the circulation valve will permit the treating fluid to be circulated to the S.T.A. tool for treatment. By closing the circulation valve the stimulation treatment can be performed. To move the S.T.A. tool to a new interval for further treatment, pick up on the work string each interval until completed. To test the treated intervals, move the complete assembly above the perforations and set the packer. To retrieve the assembly, open the circulating valve and remove the work string from the



Control Bar Specifications

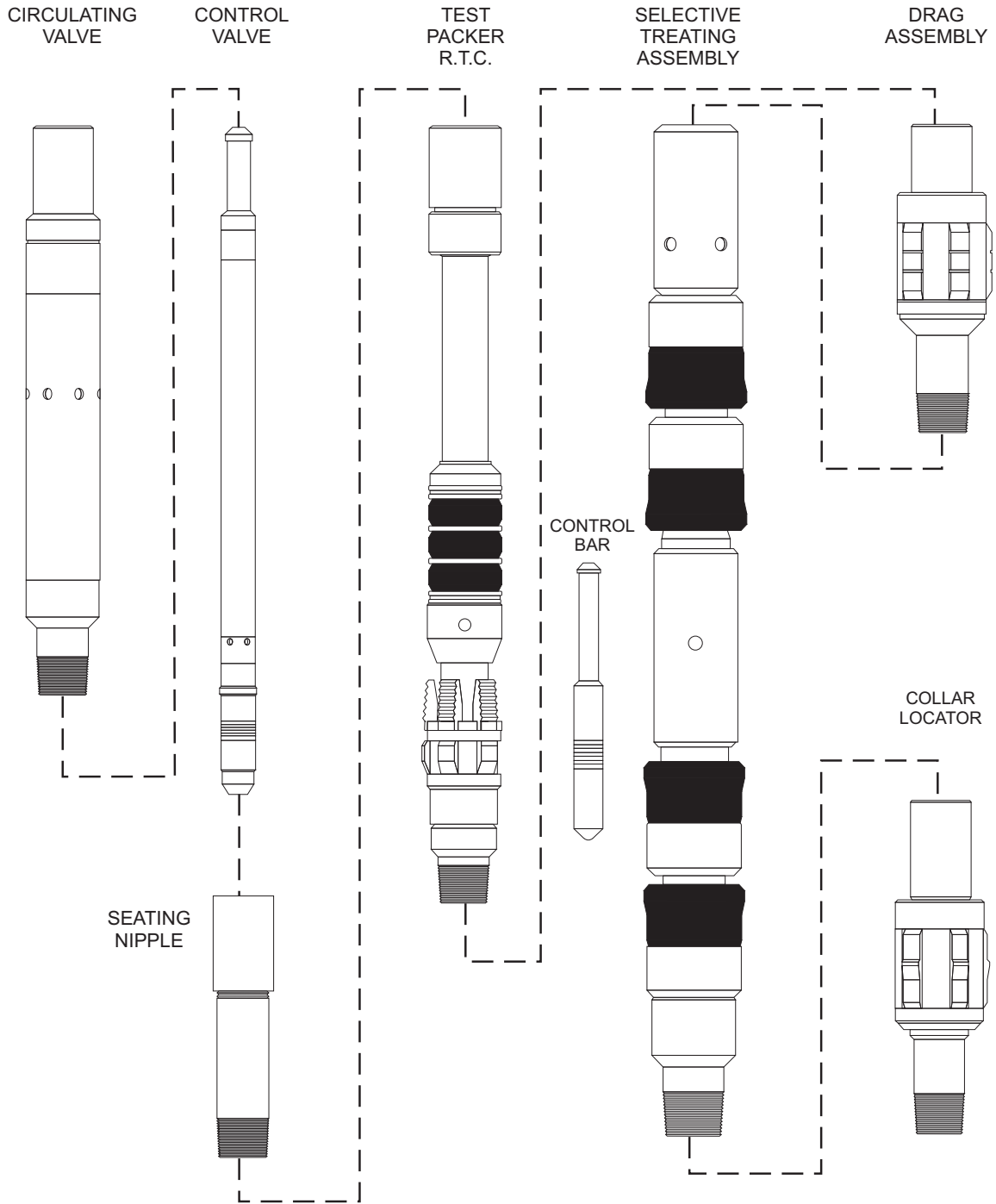
FISHING NECK SIZE					
Inches	Mm	Inches	Mm	Inches	Mm
4/1/02	114	5/1/02	139	7	177.8
0.75	19	1.187	30.14	1.187	30.14
1 in. OTIS RB PULLING TOOL		1-1/4" OTIS RB PULLING TOOL			

SELECTIVE TREATING ASSEMBLY # 024

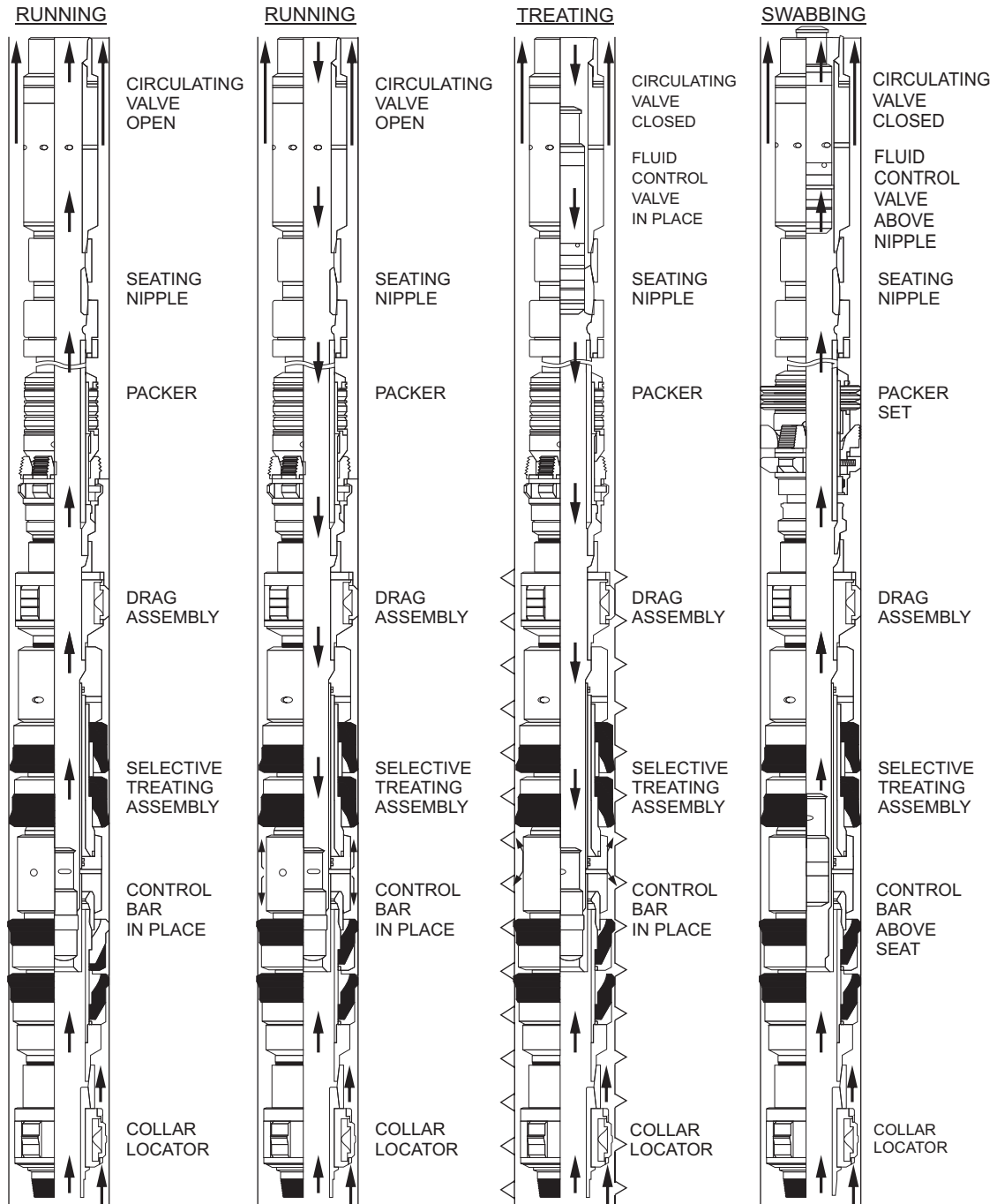
SPECIFICATIONS:

CASING		PACKER		
SIZE	WEIGHT RANGE	MINIMUM BORE	THIMBLE O.D.	THREAD CONNECTION
INCHES mm	WEIGHT RANGE	INCHES mm	LB/FT KG/M	
4-1/2 114.3	LB/FT KG/M	1.25 31.8	3.771 95.50	2-3/8 EUE 60.3
	9.5-13.50 14.1-20.1		4.000 101.6	
5 127.0	18-21 26.8- 31.3		4.125 104.8	
	11.5-15 17.1- 22.3	4.500 114.3		
5-1/2 139.7	20-23 29.8- 34.2	1.75 44.5	4.625 117.5	
	13-15.5 19.3-23.1		4.781 121.4	
	32-35 47.6- 52.1		5.780 146.8	
7 177.8	23-26 34.2- 38.7	2.25 57.2	5.940 150.9	2-7/8 EUE 73.0
	17-20 25.3- 29.8		6.210 157.7	
7-5/8 193.7	33.7-39 50.2-58.0		7.260 184.4	
8-5/8 219.1	40-49 59.5- 72.9		8.410 213.6	
9-5/8 244.5	47-53.5 69.9-79.6		8.250 209.6	
10-3/4 273.1	32.3-43.5 48.1-64.7		8.500 215.9	

SELECTIVE TREATING ASSEMBLY # 024



SELECTIVE TREATING ASSEMBLY #024



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

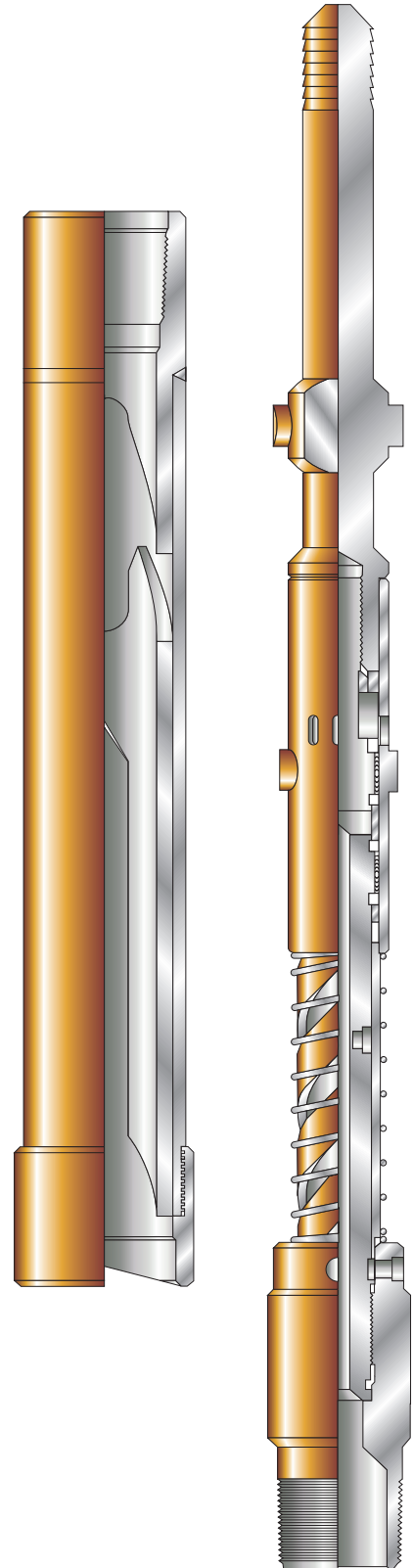
- * **LARGE BY-PASS FOR RUNNING AND RETRIEVING.**
- * **PROVEN RELIABLE SEAL AND DESIGN METHOD.**
- * **BY-PASS LOCKED IN THE CLOSING**

TYPE "P "
RETRIEVING TOOL
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**



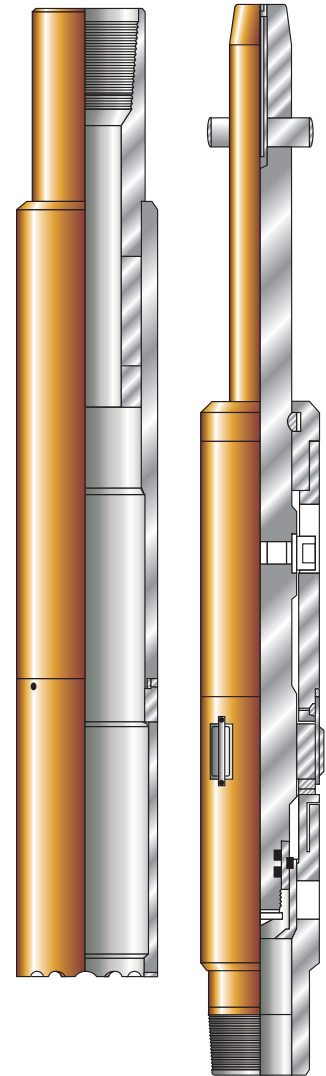
P572 “K” CONNECTOR VALVE

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.

- ◆ EQUALIZES PRESSURE BEFORE PACKER IS RELEASED
- ◆ BONDED SEALS FRO 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	lbs/ft	kg/m	in.	mm	in.	mm
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE	60.3	3.750	95.25
5.0	127	11.5-15	17.1-22.3	2-3/8 EUE	60.3	3.750	95.25
5.0	127	18-20.8	26.8-31.0	2-3/8 EUE	60.3	3.750	95.25
5-1/2	139.7	13-20	19.3-29.8	2-3/8 EUE	60.3	4.500	114.3
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE	60.3	4.500	114.3
7.0	177.8	17-26	25.3-38.7	2-3/8 EUE	60.3	5.400	137.16
7.0	177.8	26-32	38.7-47.6	2-3/8 EUE	60.3	5.400	137.16

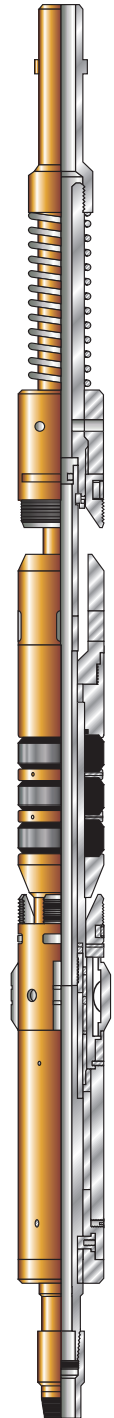
MIN. I.D. RET. TOOL		RUNNING TOOL PROD. NUMBER	VALVE PRODUCT NUMBER
in.	mm		
1.750	44.45	T128-45A-000	T129-45A-000
1.750	44.45	T128-45A-000	T129-45A-000
1.750	44.45	T128-45A-000	T129-45A-000
1.750	44.45	T128-55A-000	T129-45A-000
1.750	44.45	T128-55A-000	T129-45A-000
1.750	44.45	T128-70A-000	T129-45A-000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

P725 TS-U RETRIEVABLE BRIDGE PLUG

The P725 TS-U BRIDGE PLUG is a high pressure packer style retrievable bridge plug that is 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.

- ◆ 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	
4-1/2	114.3	15.10-16.6 PPF	22.5-24.7	3.594	91.29	T725-45C-000
4-1/2	114.3	9.5-13.5 PPF	14.1-20.1	3.750	95.25	T725-45A-000
4-1/2	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	4.00	101.60	T725-50B-000
5-1/2	139.7	9-14 PPF	13.4-20.8	4.812	122.22	T725-55C-000
5-1/2	139.7	14-20 PPF	20.8-29.8	4.625	117.48	T725-55A-000
5-1/2	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
6-5/8	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



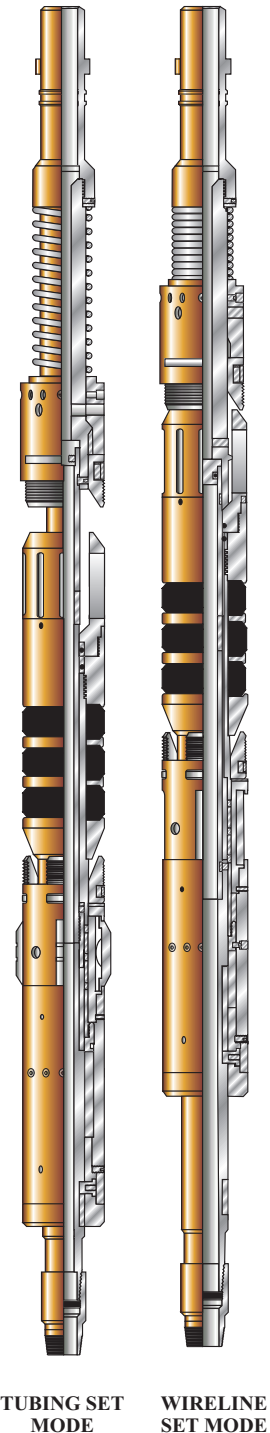
P727 TSW BRIDGE PLUG

High performance Tubing or Wireline set retrievable bridge plug.

The P727 TSW Bridge Plug Is A High Performance Tool that will hold high pressure from above and below. The **TSW** is used primarily for treating, testing and fracturing of the well bore. When run in the tubing set position the **TSW** bypass system allows fluid flow during either running or retrieving. The **TSW** can be set shallow or deep because the packing elements can be expanded in tension or compression. When running on wireline the **TSW #10** or **#20** wireline adapter kit must be used. The standard spring loaded retrieving tool is used to retrieve the tubing set and wireline set versions of the **TSW Bridge Plug**.

- ◆ **TUBING AND WIRELINE SET CAPABILITIES**
- ◆ **CAN BE SET SHALLOW OR DEEP (TENSION OR COMPRESSION)**
- ◆ **WITHSTANDS HIGH PRESSURE ABOVE AND BELOW**
- ◆ **¼ TURN SET ¼ TURN RELEASE OPERATION (TUBING SET)**
- ◆ **EQUALIZES PRESSURE BEFORE RELEASING UPPER SLIP SYSTEM**
- ◆ **SEQUENTIAL RELEASE UPPER SLIP SYSTEM**
- ◆ **USES COMMON REPLACEMENT PARTS**
- ◆ **OPTIONAL SHEAR RELEASE**

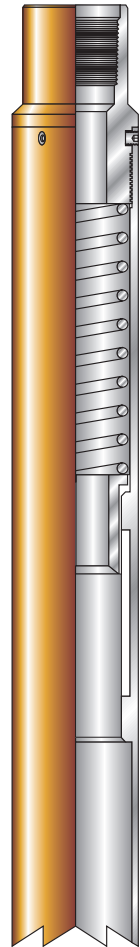
CASING SIZE		CASING WEIGHT RANGE		MAX O.D. OF TOOL		PRODUCT NUMBER
in.	mm	lbs/ft.	kg/m	in.	mm	
4-1/2	114.3	9.5-13.5 PPF	14.1-20.1	3.750	95.25	T727-45A-000
4-1/2	114.3	13.5-15.10 PPF	20.1-22.5	3.656	92.86	T727-45B-000
5	127	11.5-15 PPF	17.1-22.3	4.125	104.78	T727-50A-000
5	127	18-20.8 PPF	26.8-31.0	4.000	101.60	T727-50B-000
5-1/2	139.7	14-20 PPF	20.8-29.8	4.625	117.48	T727-55A-000
5-1/2	139.7	20-23 PPF	29.8-34.2	4.500	114.30	T727-55B-000
5-1/2	139.7	9-14 PPF	13.4-20.8	4.812	122.22	T727-55C-000
5-1/2	139.7	13-15.5 PPF	19.3-23.1	4.781	121.44	T727-55D-000
7	177.8	26-32 PPF	38.7-47.6	5.875	149.23	T727-70A-000
7	177.8	17-26 PPF	25.3-38.7	6.000	152.40	T727-70B-000
7	177.8	23-29 PPF	34.2-43.2	5.969	151.60	T727-70C-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.

- ◆ SPRING LOADED DESIGN
- ◆ FULL BORE DESIGN FOR MAXIMUM CIRCULATION
- ◆ DURABLE CONSTRUCTION

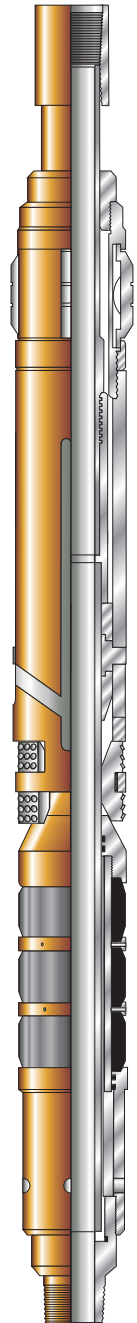


CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	2-3/8 EUE	60.3	3.750	95.25	2.000	50.8	T577-45A-000
5.0	127	11.5-15	17.1-22.3	2-3/8 EUE	60.3	3.750	95.25	2.000	50.8	T577-45A-000
5.0	127	18-20.8	26.8-31.0	2-3/8 EUE	60.3	3.750	95.25	2.000	50.8	T577-45A-000
5-1/2	139.7	13-20	19.3-29.8	2-3/8 EUE	60.3	4.500	114.30	2.000	50.8	T577-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE	60.3	4.500	114.30	2.000	50.8	T577-55A-000
5-1/2	139.7	13-20	19.3-29.8	2-7/8 EUE	73.0	4.500	114.30	2.375	60.3	T577-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EUE	73.0	4.500	114.30	2.375	60.3	T577-56A-000
7.0	177.8	17-26	25.3-38.7	2-7/8 EUE	73.0	5.875	149.23	2.500	63.5	T577-70A-000
7.0	177.8	26-32	38.7-47.6	2-7/8 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.

- ◆ 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

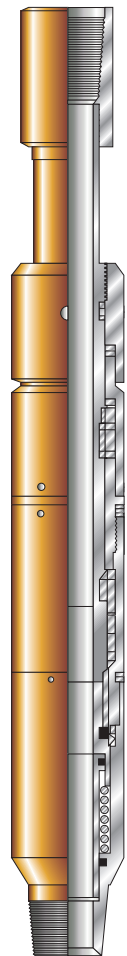
CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX O.D.		MIN I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.0	2-3/8 EUE	60.3	3.750	95.25	2.000	50.8	T628-45A-000
5.0	127	11.5-15	17.1-22.3	2-3/8 EUE	60.3	4.125	104.78	2.000	50.8	T628-50A-000
5.0	127	18-20.8	26.8-31.0	2-3/8 EUE	60.3	4.000	101.60	2.000	50.8	T628-50B-000
5-1/2	139.7	14-20	20.7-29.6	2-3/8 EUE	60.3	4.625	117.48	2.000	50.8	T628-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE	60.3	4.500	114.30	2.000	50.8	T628-55B-000
7.0	177.8	17-26	25.3-38.7	2-7/8 EUE	73.0	6.000	152.40	2.500	63.5	T628-70B-000
7.0	177.8	26-32	38.7-47.6	2-7/8 EUE	73.0	5.875	149.23	2.500	63.5	T628-70A-000
8-5/8	219.1	24-40	35.7-59.5	2-7/8 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.

- ◆ **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**

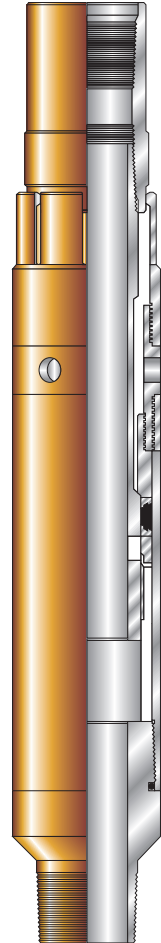
TUBING SIZE		MAX. O.D.		MAX. I.D.		PRODUCT NUMBER
in.	mm	in.	mm	in.	mm	
2-3/8 EUE	60.3	3.771	95.78	1.750	44.45	T574-45A-000



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.

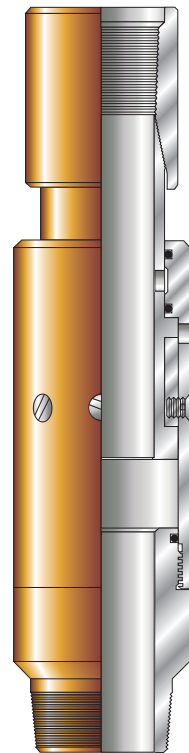
- ◆ SIMPLE OPERATION (TENSION TO CLOSE-COMPRESSION TO OPEN)
- ◆ FULL OPEN BORE
- ◆ HEAVY DUTY COLLET FOR REPEATED USE
- ◆ PERMITS FULL CIRCULATION AROUND PACKER
- ◆ LARGE BYPASS AREA



TUBING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	
1-1/4	31.75	2.250	57.15	.750	19.05	1.660 EU 10RD	42.16	T525-04A-000
2-3/8	60.3	3.250	82.55	1.625	41.28	2-3/8 EUE 8RD	60.30	T525-06A-000
2-3/8	60.3	3.750	95.25	2.00	50.80	2-3/8 EUE 8RD	60.30	T525-20A-000
2-7/8	73.0	4.500	114.30	2.500	63.50	2-7/8 EUE 8RD	73.00	T525-25A-000

The P107 M.C. VALVE

The P107 MC VALVE is used with the *P440 Casing Packer* to cement liner strings into the well bore or open hole. The *P440 Casing Packer* is set in compression allowing the *MC Valve* to shear at a pre-determined value, opening the cementing ports. The cementing ports are closed by picking up on the casing string.

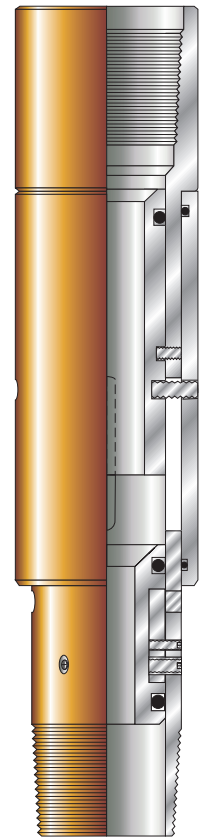


CASING SIZE		MAX O.D.		MIN. I.D.		HOLE SIZE		PRODUCT NUMBER
in.	mm	in.	mm	in.	mm	in.	mm	
4-1/2 LTC	114.3	5.500	139.7	4.000	101.6	6" & UP	152.4	T107-45A-000
5-1/2 LTC	139.7	6.500	165.1	5.000	127	7" & UP	177.8	T107-55A-000

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.

- ◆ NO DRILLING REQUIRED
- ◆ SHORT COMPACT DESIGN
- ◆ MEETS TUBING YIELD STRENGTH



SIZE		MAX O.D.		MIN. I.D. @ PUMP-OUT		THREAD CONNECTION		PRODUCT NUMBER
in.	mm	in.	mm	in.	mm	in.	mm	
2-3/8	60.3	3.125	79.4	2.000	50.80	2-3/8 EUE 8RD	60.3	T218-20A-000
2-7/8	73	3.750	95.25	2.500	63.50	2-7/8 EUE 8RD	73	T218-25A-000
3-1/2	88.9	4.500	114.3	3.000	76.20	3-1/2 EUE 8RD	88.9	T218-35A-000
4.0	101.6	4.625	117.47	3.453	87.70	4.0 NU 8RD	101.6	T218-40A-000
4-1/2	114.3	5.500	139.7	4.000	101.6	4-1/2 8RD CSG	114.3	T218-45A-000
5-1/2	139.7	6.500	165.1	5.000	127.0	5-1/2 8RD CSG	139.7	T218-55A-000

PEAK EXTREME HD-HST HYDRAULIC SETTING TOOL

The Peak Extreme Hydraulic Setting Tool is used to hydraulic 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.

PRODUCT 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**

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.

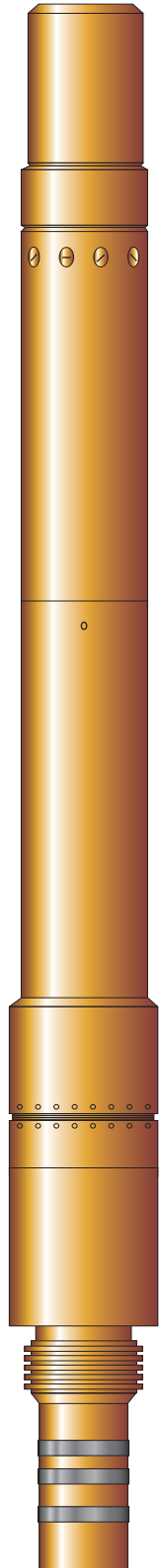
This setting tool does not require a ball to seat in the tool itself to actuate. As long as the system below is closed, the setting tool will see the differential pressure across the setting cylinders and setting process will begin.

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 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..



PDQ HYDRAULIC SETTING TOOL

The PDQ Hydraulic Setting Tool is used to hydraulic set all PDQ Permanent Bridge Plugs on tubing. Total pressure or combination of pressure and tubing tension can be utilized to set the permanent bridge plug.

The *PDQ Hydraulic Setting Tool* allows circulation before and after setting operations.

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

PRODUCT FEATURES

- * OPERATION SIMPLICITY
- * CIRCULATION BEFORE AND AFTER SETTING OPERATIONS
- * ALL SETTING COMPONENTS RETRIEVED

OPERATION PROCEDURES

Run the *PDQ Hydraulic Setting Tool* and *Permanent Bridge Plug* combination to setting depth. The tubing will automatically fill as the bridge plug is run in.

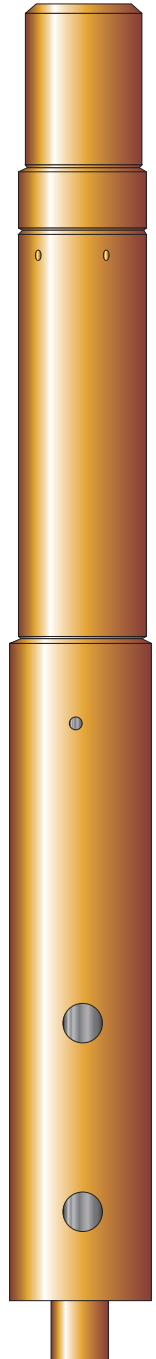
The ball may be run in place or dropped. Once the ball is down pressure up to the required pressure (specification chart page 5 - 6) to preset the bridge plug slips. In low fluid wells the hydrostatic pressure of the column of fluid required to fill the tubing acts as a pressure setting force.

With the setting pressure held apply tension (specification chart page 5 - 6) to complete the setting of the bridge plug.

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

Alternate ways for disengagement are:

- (1) Applied pressure to hydraulically set the bridge plug and to hydraulically shear the shear stud.
- (2) Combination of applied pressure and applied tension to set the bridge plug and to shear the shear stud.



SPECIFICATION GUIDE

CASING				PDQ-XM HYDRAULIC SETTING TOOL						
SIZE		WEIGHT		OD		BALL SIZE		CONNECTION		PART NUMBER
in.	mm	lbs./ft.	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-15.5	14.14-23.06	3.750	95.25	1.00	25.4	2.375	60.30	786-45
5	127.0	11.5-20.8	17.11-30.95	3.968	100.79	1.00	25.4	2.375	60.30	786-50
5-1/2	139.7	13.0-26.0	19.34-38.69	4.438	112.73	1.00	25.4	2.875	73.03	786-55
7	177.8	17.0-38.0	25.30-56.54	5.468	138.89	1.00	25.4	2.875	73.03	786-70
7-5/8	193.7	20.0-39.0	29.76-58.03	5.500	139.70	1.00	25.4	2.875	73.03	786-75
9-5/8	244.5	29.0-61.1	43.15-90.92	8.000	203.20	1.00	25.4	2.875	73.03	786-95

SPECIFICATION GUIDE

CASING				PDQ-XM HYDRAULIC SETTING TOOL			
SIZE		WEIGHT				SETTING TENSION	
in.	mm	lbs./ft.	kg/m	psi	kpa	lbs.	daN
4-1/2	114.3	9.5-15.5	14.14-23.06	2000	14,000	11,000	5,000
5	127.0	11.5-20.8	17.11-30.95	2000	14,000	11,000	5,000
5-1/2	139.7	13.0-26.0	19.34-38.69	2000	14,000	21,500	10,000
7	177.8	17.0-38.0	25.30-56.54	2000	14,000	21,500	10,000
7-5/8	193.7	20.0-39.0	29.76-58.03	2000	14,000	21,500	10,000
9-5/8	244.5	29.0-61.1	43.15-90.92	2000	14,000	21,500	10,000

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, and services 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.

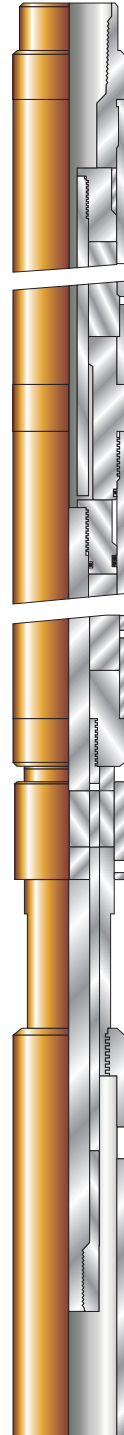
FEATURES:

- * 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.

TECHNICAL DATA:

CASING SIZE		SETTING TOOL SIZE	TOOL O.D.		SETTING STROKE		SETTING FORCE	
in.	mm		in.	mm	in.	mm	lbs.	daN
4-1/2	114.3	#10-20	3.500	88.9	8.250	209.55	35,000	15,570
13-3/8	339.7		3.500	88.9	8.250	209.55	50,000	22,240

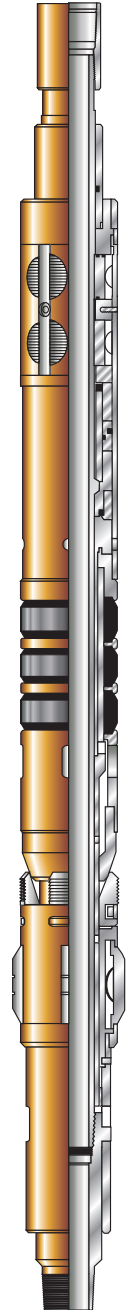
SETTING CHAMBER sq area/stage
First Stage 7.060
Additional Stage 5.840



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.

- ◆ **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**



P613 H.D. COMPRESSION PACKER

CASING SIZE		CASING WEIGHT		MAX. O.D.		MIN. I.D.		THREAD CONN.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	11.6-13.5	17.26-20.1	3.750	95.25	1.875	47.63	2-3/8 EUE 8RD	60.3	T613-45A-000
4-1/2	114.3	9.5-11.6	14.1-17.26	3.813	96.85	1.875	47.63	2-3/8 EUE 8RD	60.3	T613-45D-000
5.0	127	11.5-15	17.1-22.3	4.125	104.78	1.875	47.63	2-3/8 EUE 8RD	60.3	T613-50A-000
5.0	127	18-20.8	26.8-31.0	4.000	101.60	1.875	47.63	2-3/8 EUE 8RD	60.3	T613-50B-000
5-1/2	139.7	14-20	20.8-29.8	4.625	117.48	2.000	50.80	2-3/8 EUE 8RD	60.3	T613-55A-000
5-1/2	139.7	20-23	29.8-34.2	4.500	114.30	2.000	50.80	2-3/8 EUE 8RD	60.3	T613-55B-000
7.0	177.8	17-26	25.3-38.7	6.000	152.40	2.500	63.50	2-7/8 EUE 8RD	73.0	T613-70B-000
7.0	177.8	26-32	38.7-47.6	5.875	149.23	2.500	63.50	2-7/8 EUE 8RD	73.0	T613-70A-000
7.0	177.8	23-29	34.2-43.2	5.969	151.61	2.500	63.50	2-7/8 EUE 8RD	73.0	T613-70C-000
7-5/8	193.7	33.7-39	50.2-58.0	6.453	163.91	2.500	63.50	2-7/8 EUE 8RD	73.0	T613-75A-000
7-5/8	193.7	24-29.7	35.7-44.2	6.688	169.88	2.500	63.50	2-7/8 EUE 8RD	73.0	T613-75B-000
9-5/8	244.5	32.3-43.5	48.1-64.7	8.500	215.90	4.000	101.60	4-1/2 EUE 8RD	114.3	T613-95B-000
9-5/8	244.5	40-53.5	59.5-79.6	8.250	209.60	4.000	101.60	4-1/2 EUE 8RD	114.3	T613-95A-000

PEAK GV-6 RETRIEVABLE CASING PATCH

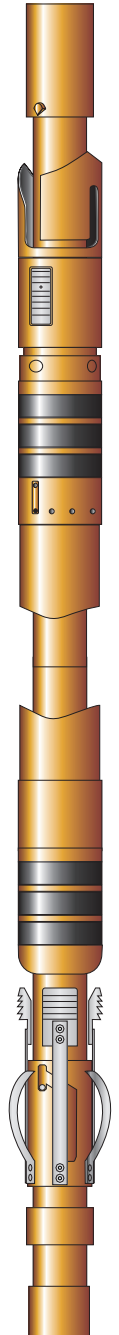
The *Peak GV-6 Retrievable Casing Patch* provides an economical means of isolating intervals, yet maintaining a tubing / casing annulus for injection, production or pumping applications. After setting the GV-6, the tubing string is free to be rotated and reciprocated to set a lower packer or tubing anchor.

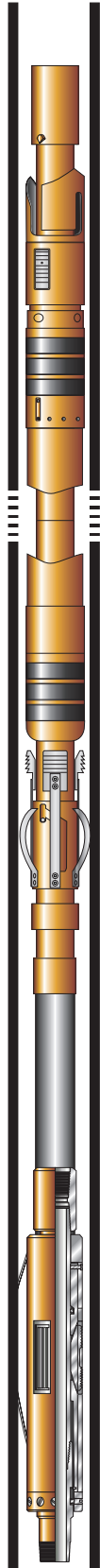
FEATURES:

- * Eliminates Costly squeeze cementing
- * One trip installation
- * Isolation Span easily adjustable
- * Retrievable no-permanent casing restriction
- * Micro-annulus for production or injection purposes
- * Ability to set lower tools through reciprocation and rotation

Specifications

CASING		CASING I.D. RANGE (IN.)		PACKER O.D. (IN.)	I.D. THRU PACKER (IN.)	LINER CONNECTION	PACKER CONNECTION
O.D. (IN.)	WEIGHT (LBS/FT.)	MIN	MAX				
4-1/2	9.5-13.5	3.920	4.090	3.750	2.000	3.500 NUE	2.375 EUE
5-1/2	13-20	4.778	5.044	4.625	2.000	3.500 EUE	2.375 EUE
7	17-26	6.276	6.538	6.000	3.000	5.000 LTC	3.500 EUE



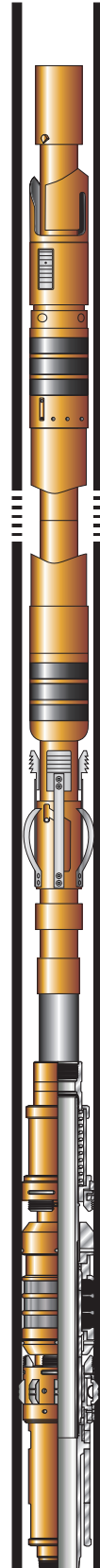


OPERATION

The lower packer or tubing anchor is started in the hole. At a pre-determined depth, the lower section of the GV-6 packer is installed. The inner tubing and liner are run to allow proper span of the isolated interval. The upper section of the GV-6 is installed and the tools are run to setting depth. To set the GV-6, the tubing string is picked up and rotated 1/4 turn right or left hand, depending on setting procedure for lower packer or anchor. Apply weight to det GV-6. The tubing string is then picked up and the lower packer or anchor is set.

To release, the lower packer or anchor is unset. The tubing is slacked off to tag the GV-6. Rotate the tubing 1/4 turn to the right or left (opposite of lower tool setting procedure).

Straight pull releases the GV-6.



PEAK MILL-EZ COMPOSITE FRAC PLUG

The Peak Mill-EZ Flo-Back Frac Plug is a slim design Composite Bridge Plug with a built in one way check valve.

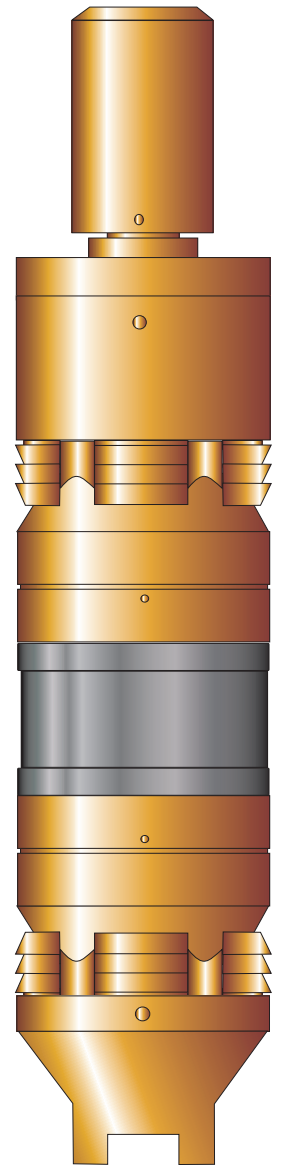
Flo-Back design allows zones to commingle.

Operator can independently treat or test each zone and then remove the flo-back plug in an under balanced environment in one trip.

Low metallic content allows for quick mill and removal times.

PRODUCT FEATURES

- * OPERATION SIMPLICITY
- * CAN BE SET ON WIRELINE, COILED TUBING, PRODUCTION TUBING
- * UTILIZES CONVENTIONAL SETTING TOOLS
- * MULTIPLE PLUGS IN A SINGLE WELL BORE
- * MILL OR DRILL MULTIPLE PLUGS IN A SINGLE RUN
- * EXTREMELY FAST MILLING OR DRILLING OPERATIONS
- * POSITIVE BALL SEAT CHECK VALVE SYSTEM
- * PATENTED WASH THROUGH BOTTOM TO AID IN DRILLING MULTIPLE PLUGS
- * CAN BE RAN AND SET THROUGH ACID
- * CAN BE UTILIZED IN HORIZONTAL OR VERTICAL APPLICAITONS
- * AVAILABLE IN 7K AND 10K RATINGS FOR 250F AND 350F TEMP
- * AVAILABLE IN SLIM HOLE SIZES



PEAK MILL-EZ COMPOSITE FRAC PLUG

OPERATION PROCEDURES

Pick up the setting tool and Model 2800 or 3500 **MILL-EZ** Bridge plug assembly with wire line.

NOTE: For best results, do not support the weight of the setting tool, CCL and bridge plug by the bridge plug. Support the weight by handling the setting tool itself. Precaution should be used once the assembly is suspended as to not let the plug swing into valves or pressure lines thus causing damage or injury to the plug and employees.

When running the plug in the well, a line speed of 125' to 150' per minute is desirable. Certain conditions may warrant a less rapid descent or an increased rate of speed.

Once the setting depth is achieved, set the plug and note any weight loss of the assembly on the wire line trucks weight indicator. In some cases there may not be a positive indication that the plug is set. Using the Baker Slow Burn charge, one should be able to see the setting action on the weight indicator after 45 to 60 seconds. Pick up the setting assembly approx. 20 to 30'. Lower the assembly onto the plug noting any weight loss or CCL movement.

Pull the setting assembly out of the hole. If the fluid level is anything other than full, a slow line speed is desired when leaving fluid to air.

Lay down the setting assembly and bleed of the trapped pressure in the setting tool.

NOTE: If well has a low fluid level, one must fill the hole slowly to avoid applying too much physical force to the plug. Recommended pump rates are ¼ to ½ bpm for the first 60 bbls

CASING	Bridge Plug O.D.	Bridge Plug Set Length	Temp F	Differential Pressure Rating		Recommended Setting tool	
				Above Psi	Below Psi		
4 1/2	10.50-15.10	3.60	16.0	350*	10,000	10,000	#10 Baker E-4 Slow-Burn
5.00	11.50-18.00	4.00	16.0	350*	10,000	10,000	#10 Baker E-4 Slow-Burn
5 1/2	17.00-23.00	4.46	16.0	350*	10,000	10,000	#20 Baker E-4 Slow-Burn
7.00	26.00-38.00	5.75	18.0	350*	8,000	8,000	#20 Baker E-4 Slow-Burn

* with 10 Foot of cement

PEAK MILL-EZ COMPOSITE BRIDGE PLUG

The Peak Mill-EZ Bridge Plug is a slim design Composite Bridge Plug.

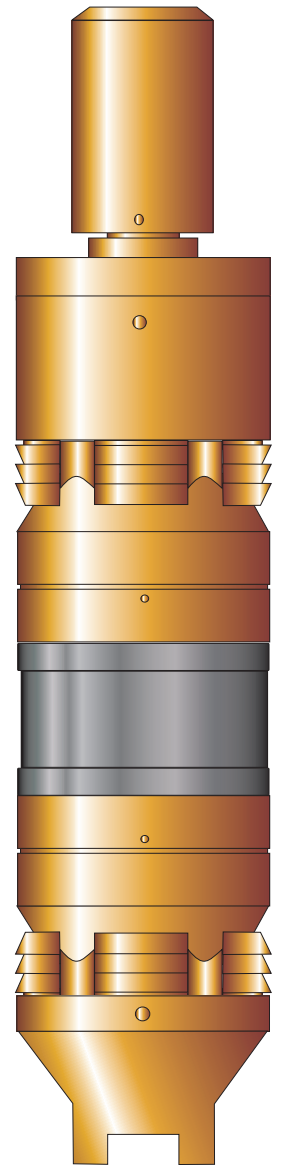
Solid Mandrel Design allows for zonal isolation without worrying about cross flow.

Operator can independently treat or test each zone and then remove the flo-back plug in an under balanced environment in one trip.

Low metallic content allows for quick mill and removal times.

PRODUCT FEATURES

- * **OPERATION SIMPLICITY**
- * **CAN BE SET ON WIRELINE, COILED TUBING, PRODUCTION TUBING**
- * **UTILIZES CONVENTIONAL SETTING TOOLS**
- * **MULTIPLE PLUGS IN A SINGLE WELL BORE**
- * **MILL OR DRILL MULTIPLE PLUGS IN A SINGLE RUN**
- * **EXTREMELY FAST MILLING OR DRILLING OPERATIONS**
- * **HIGH DIFFERENTIAL RATINGS**
- * **PATENTED WASH THROUGH BOTTOM TO AID IN DRILLING MULTIPLE PLUGS**
- * **CAN BE RAN AND SET THROUGH ACID**
- * **CAN BE UTILIZED IN HORIZONTAL OR VERTICAL APPLICAITONS**
- * **AVAILABLE IN 7K AND 10K RATINGS FOR 250F AND 350F TEMP**
- * **AVAILABLE IN SLIM HOLE SIZES**



PEAK MILL-EZ COMPOSITE FRAC PLUG

OPERATION PROCEDURES

Pick up the setting tool and Model 2800 or 3500 **MILL-EZ** Bridge plug assembly with wire line.

NOTE: For best results, do not support the weight of the setting tool, CCL and bridge plug by the bridge plug. Support the weight by handling the setting tool itself. Precaution should be used once the assembly is suspended as to not let the plug swing into valves or pressure lines thus causing damage or injury to the plug and employees.

When running the plug in the well, a line speed of 125' to 150' per minute is desirable. Certain conditions may warrant a less rapid descent or an increased rate of speed.

Once the setting depth is achieved, set the plug and note any weight loss of the assembly on the wire line trucks weight indicator. In some cases there may not be a positive indication that the plug is set. Using the Baker Slow Burn charge, one should be able to see the setting action on the weight indicator after 45 to 60 seconds. Pick up the setting assembly approx. 20 to 30'. Lower the assembly onto the plug noting any weight loss or CCL movement.

Pull the setting assembly out of the hole. If the fluid level is anything other than full, a slow line speed is desired when leaving fluid to air.

Lay down the setting assembly and bleed of the trapped pressure in the setting tool.

NOTE: If well has a low fluid level, one must fill the hole slowly to avoid applying too much physical force to the plug. Recommended pump rates are ¼ to ½ bpm for the first 60 bbls

Casing		Bridge plug OD	Bridge plug set length	Temp F	Pressure Rating		Recommended Setting Tool
Size	Weight				Above	Below	
2 7/8"	6.50-7.90	2.15	11.0	* 350	10,000	10,000	#5 Baker E-4 Slow Burn
3 ½"-H	12.95	2.60	11.0	* 350	10,000	10,000	#5 Baker E-4 Slow Burn
3 ½"	9.30	2.80	11.0	* 350	10,000	10,000	#5 Baker E-4 Slow Burn
4 ½"	10.50 - 15.10	3.60	16.0	* 350	10,000	10,000	#10 Baker E-4 Slow Burn
5.0"	11.15-18.00	4.00	16.0	* 350	10,000	10,000	#10 Baker E-4 Slow Burn
5 ½"	15.50 - 23.00	4.46	16.0	* 350	10,000	10,000	#20 Baker E-4 Slow Burn
7.0"	26.0 - 38.0	5.75	18.0	* 350	8,000	8,000	#20 Baker E-4 Slow Burn

* with 10 foot cement

PEAK SUPER PLUG

The Peak Super Plug is a slim design Retrieval Bridge Plug which is available in either flow back or standard configurations.

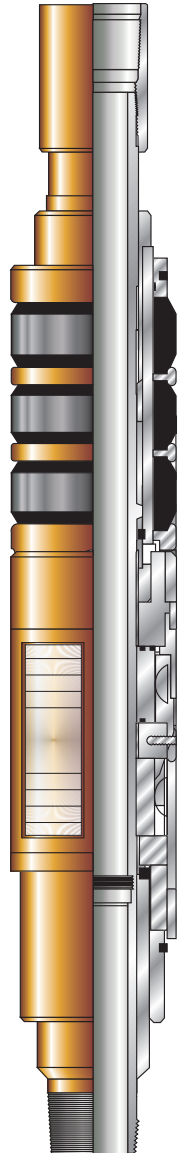
The *Peak Super Plug* offers operators another alternative to the composite plugs.

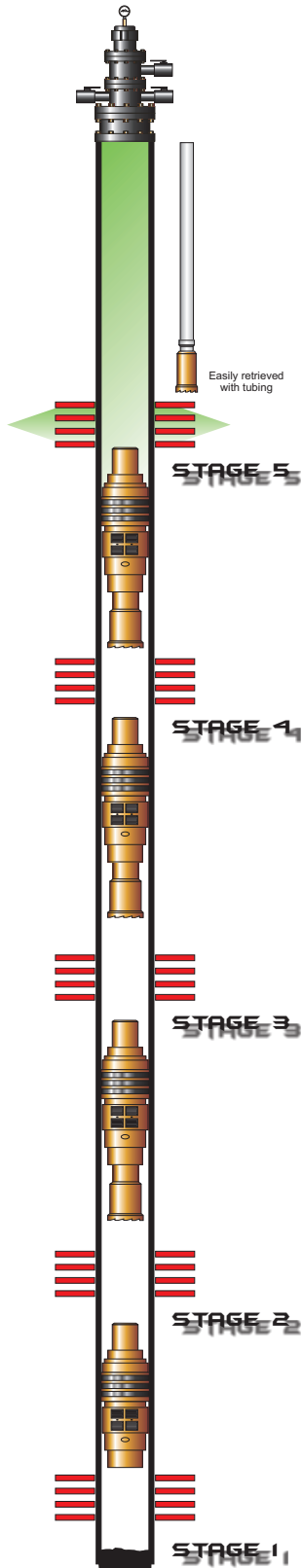
Operator can independently treat or test each zone and then remove all the Super plugs in an under balanced environment in one trip.

The *Peak Super Plug* offers enhanced durability and reduced cost on large projects over the composite alternatives.

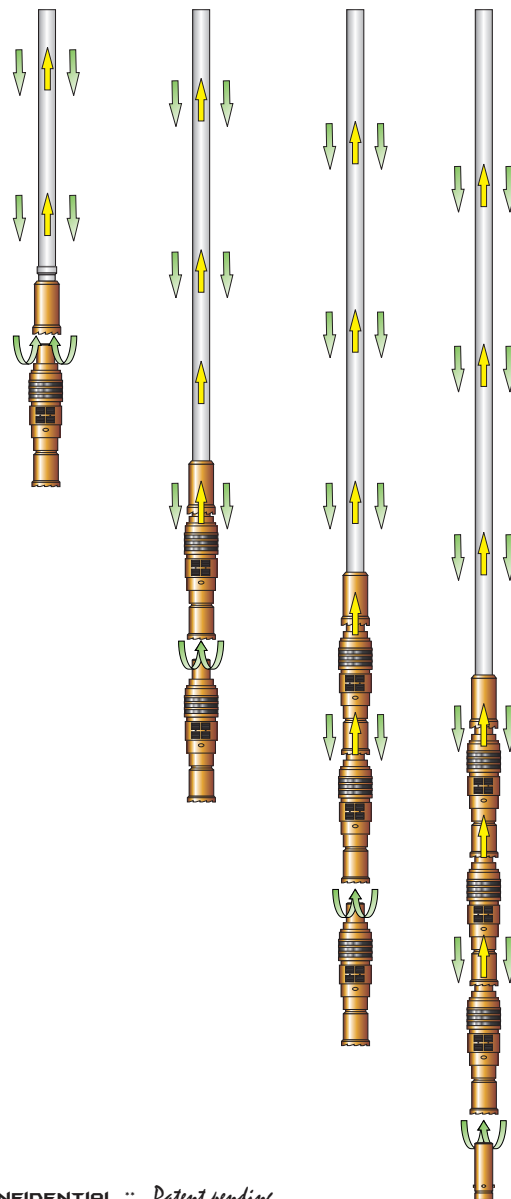
PRODUCT FEATURES

- * OPERATION SIMPLICITY
- * CAN BE SET ON WIRELINE, COILED TUBING, PRODUCTION TUBING
- * UTILIZES CONVENTIONAL SETTING TOOLS
- * MULTIPLE PLUGS IN A SINGLE WELL BORE
- * RETRIEVE MULTIPLE PLUGS IN A SINGLE RUN
- * HIGH DIFFERENTIAL RATINGS
- * CAN BE RAN AND SET THROUGH ACID
- * CAN BE UTILIZED IN HORIZONTAL OR VERTICAL APPLICAITONS
- * AVAILABLE IN SLIM HOLE SIZES





PEAK MULTI-STAGE SUPER PLUG FRAC SYSTEM



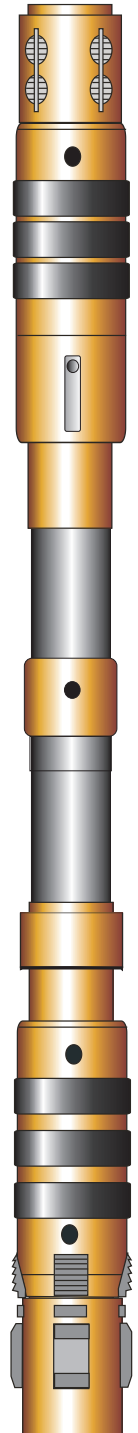
“ CONFIDENTIAL ” Patent pending

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

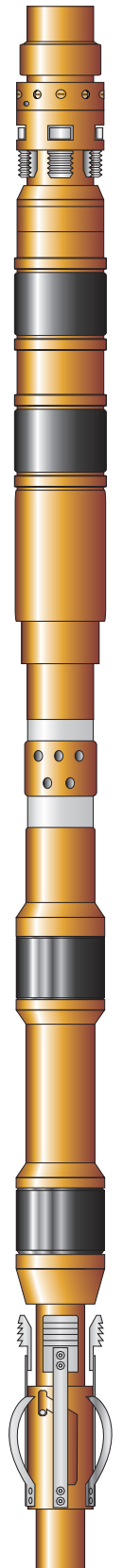


PEAK HORIZONTAL - SELECTIVE TREATING SYSTEM

The *Peak HZ-STC* system allows operators to perform a PPI type treatment in either cased or open hole applications. With a tough solid rubber element system the *Peak HZ-STC* system is more durable than inflate systems. With the capability of holding large compression weights, and a proven fluid equalizing system, Peak Completion Technologies has performed up to 27 consecutive stage treatments in the open hole. The Lower Service tool can also be used individually for open hole water isolation testing.

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
- * Lower open hole service tool can be used to test the open hole to find water fractures



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.

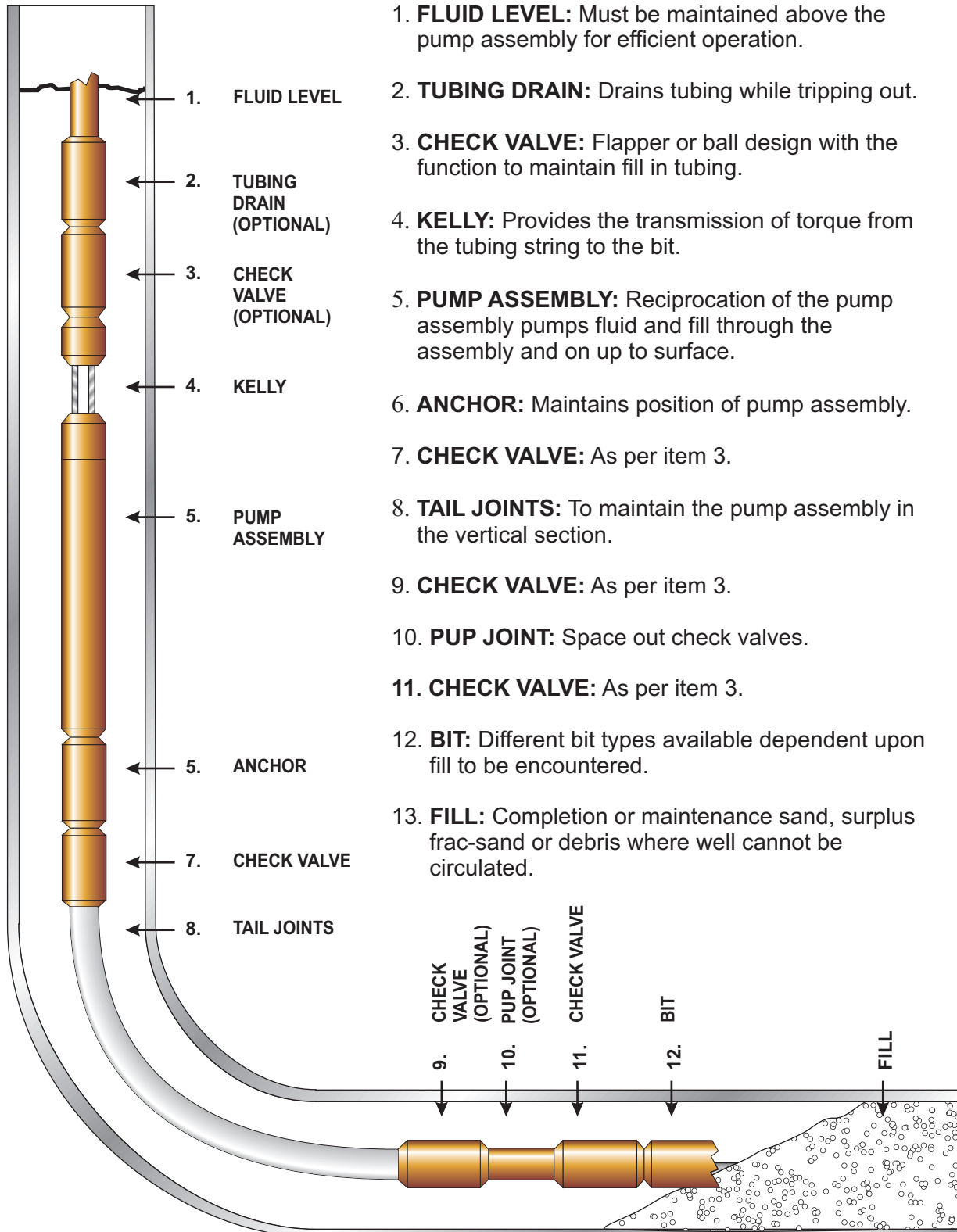
OPERATION

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 string 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.





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.

PRODUCT FEATURES

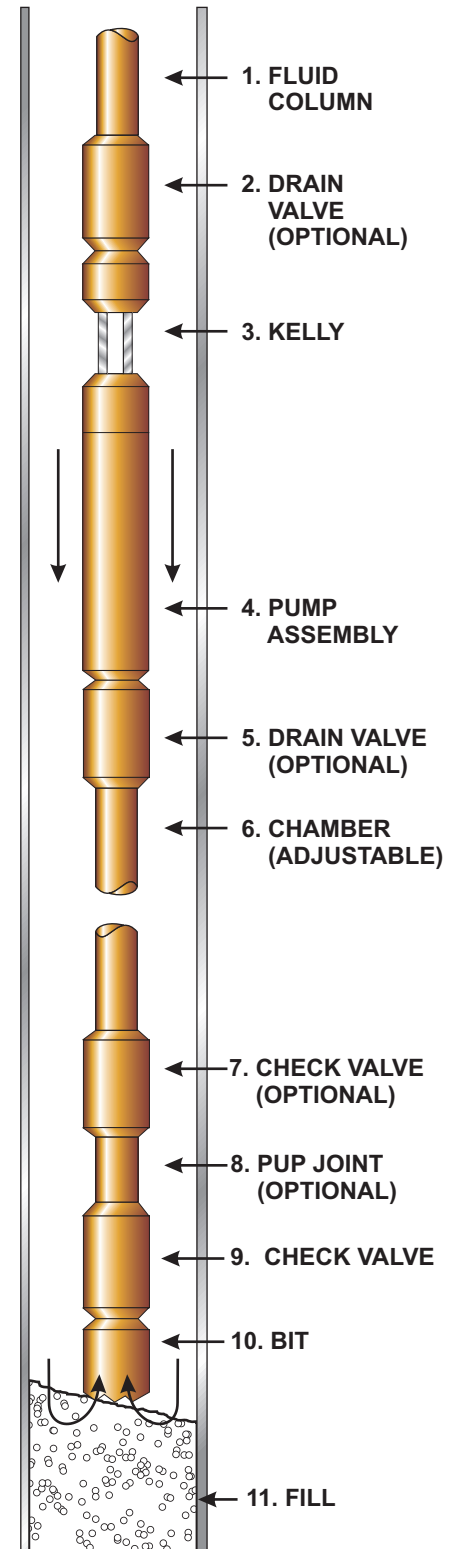
- * Heavy duty construction
- * Operation simplicity
- * Circulating drain valve eliminates wet strings
- * Economical
- * Cleanout can be accomplished in one run
- * Effective in low fluid wells

OPERATION PROCEDURES

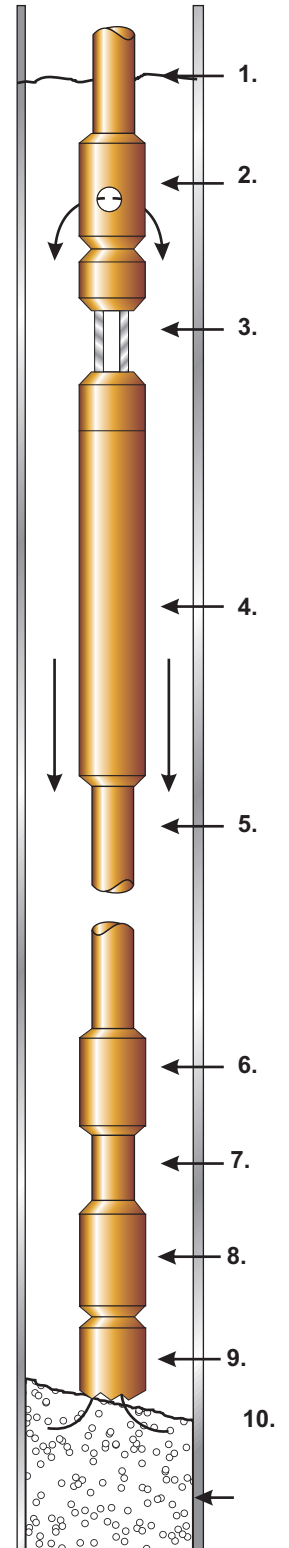
The Pump Bailer Assembly is made up on the tubing string with the required amount of chamber between the pump assembly and the valve assembly. The pump assembly must be spaced out so that it will be below the fluid level in the well for it to operate properly. Once on bottom, the pump is stroked up and 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.

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.

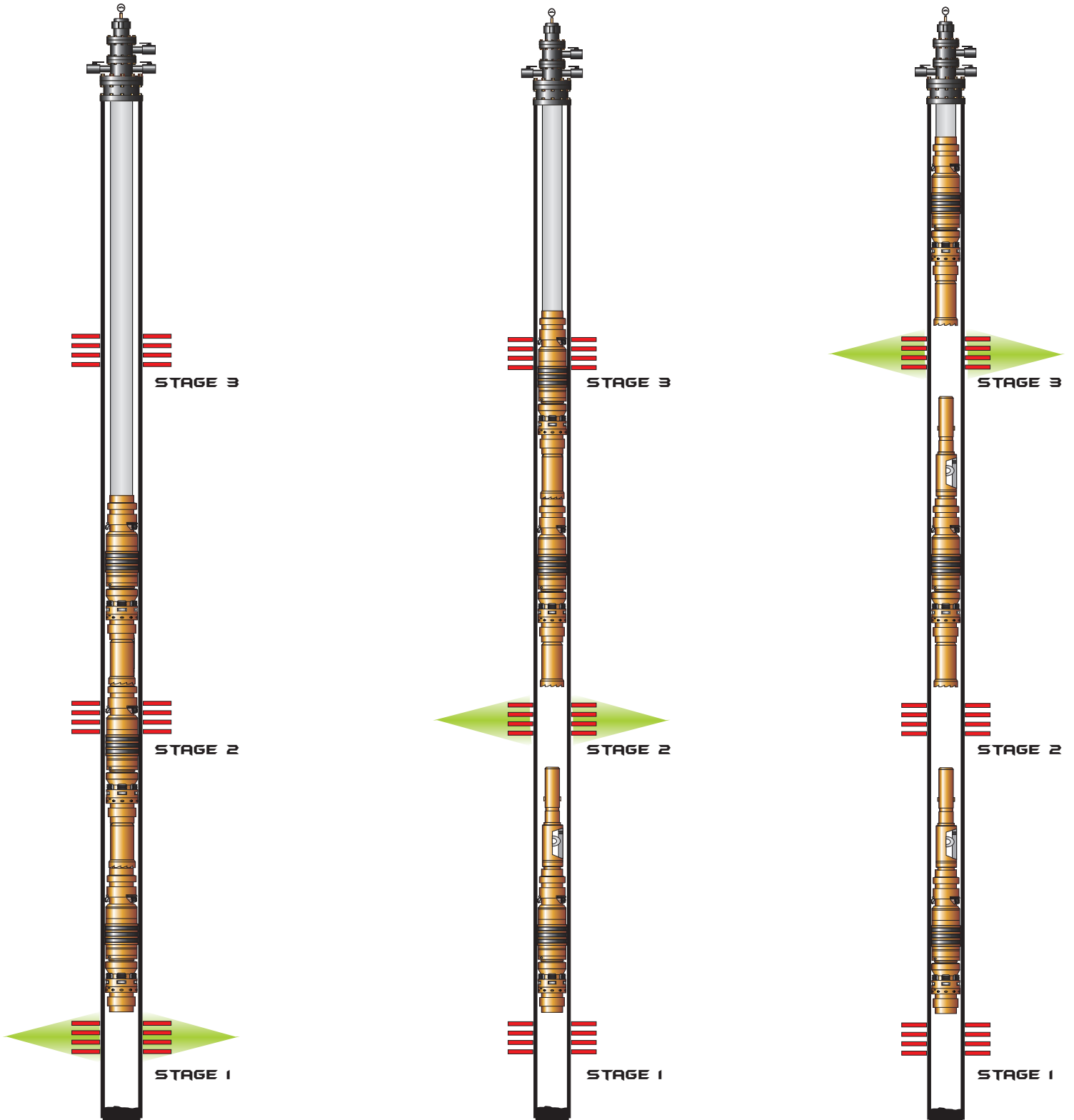


1. **FLUID LEVEL:** The Fluid Level must be maintained above the circulating valve for the pump tubing bailer to function correctly.
2. **CIRCULATING VALVE:** The valve has two functions with the first being of recycling of fluid during pumping operations. The second function is to drain tubing while 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*





PEAK
COMPLETIONS

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.

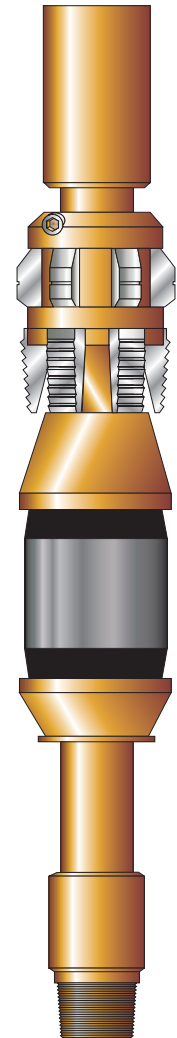
Operation

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. 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.





RETRIEVABLE PACKERS

Model " AD-1" Tension Packer

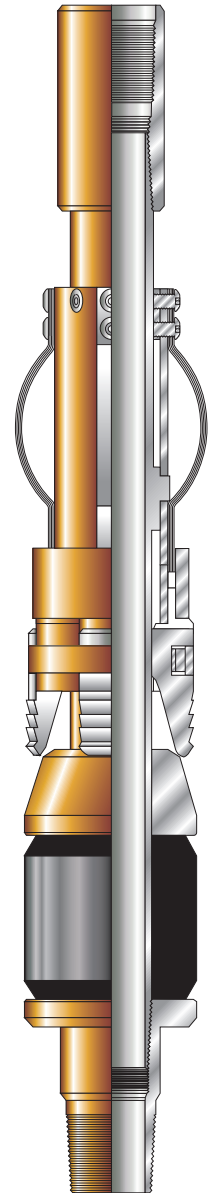
CASING				I.D. RANGE			
O.D.		WEIGHT		MIN		MAX	
in.	mm	lb/ft	kg/m	in.	mm	in.	mm
4-1/2	114.3	9.5-10.5	14.1-15.6	3.910	99.3	4.160	105.7
5	127.0	15-18	22.3-26.8	4.161	105.7	4.408	112.0
5	127.0	11.5-15	17.1-22.3	4.408	112.0	4.560	115.8
5-1/2	139.7	26	38.7	4.408	112.0	4.560	115.8
5-1/2	139.7	20-23	29.8-34.2	4.625	117.5	4.778	121.4
5-1/2	139.7	15.5-20	23.1-29.8	4.778	121.4	4.950	125.7
5-1/2	139.7	13-15.5	19.3-23.1	4.950	125.7	5.190	131.8
5-1/2	139.7	13-17	19.3-25.3	4.876	123.9	5.044	128.1
6-5/8	168.3	24	35.7	5.830	148.1	5.921	150.4
6-5/8	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	164.0
7	177.8	17-20	25.3-29.8	6.456	164.0	6.538	166.1
7-5/8	193.7	33.7-39	50.2-58.0	6.539	166.1	6.765	171.8
7-5/8	193.7	24-29.7	35.7-44.2	6.766	171.9	7.025	178.4
7-5/8	193.7	20-24	29.8-35.7	7.025	178.4	7.125	181.0

GAUGE RING O.D.		PACKER BORE		THREAD CONN.	
in.	mm	in.	mm	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	108.0	1.89	50.04	2.375	60.3
4.250	108.0	1.97	50.04	2.375	60.3
4.500	144.3	1.97	50.04	2.375	60.3
4.641	117.39	1.97	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	73.0
5.656	143.7	2.42	61.47	2.875	73.0
5.812	147.6	2.42	61.47	2.875	73.0
5.656	143.7	2.42	61.47	2.875	73.0
5.812	147.6	2.42	61.47	2.875	73.0
5.968	151.6	2.42	61.47	2.875	73.0
6.078	154.4	2.42	61.47	2.875	73.0
6.266	159.2	2.42	61.47	2.875	73.0
6.453	163.9	2.42	61.47	2.875	73.0
6.672	169.5	2.42	61.47	2.875	73.0
6.812	173.0	2.42	61.47	2.875	73.0

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.

- ◆ 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





RETRIEVABLE PACKERS

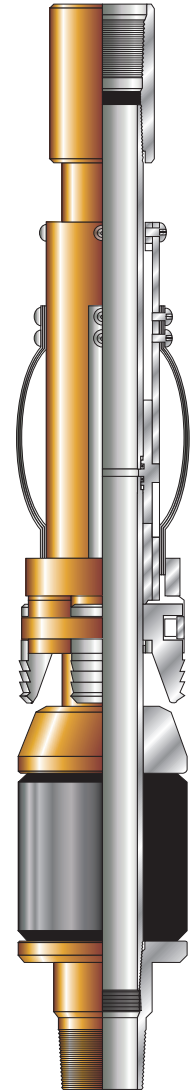
P401 SL TENSION PACKER SPECIFICATION GUIDE

CASING SIZE		CASING WEIGHT		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-7/8	73.0	6.4-6.5	9.5-9.7	2.250	57.15	.750	19.1	1.315 EUE 10RD	33.4	T401-25A-000
3-1/2	88.9	7.7-10.2	11.5-15	3.781	96.0	1.500	38.1	1.900 EUE 10RD	48.3	T401-35A-000
4.0	101.6	9.5-11.0	14.1-16.4	3.250	82.55	1.500	38.1	2.375 EUE 8RD	60.3	T401-40A-000
4.0	101.6	9.5-11.0	14.1-16.4	3.250	82.55	1.875	47.6	2.375 EUE 8RD	60.3	T401-41A-000
4-1/2	114.3	15.10-16.6	22.5-24.7	3.500	88.9	2.0	50.8	2.375 EUE 8RD	60.3	T401-45B-000
4-1/2	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.0	50.8	2.375 EUE 8RD	60.3	T401-45A-000
5.0	127	11.5-18.0	17.1-26.8	4.125	104.78	2.0	50.8	2.375 EUE 8RD	60.3	T401-50A-000
5.0	127	18-20.8	26.8-31.0	4.000	101.6	2.0	50.8	2.375 EUE 8RD	60.3	T401-50B-000
5-1/2	139.7	13-20	19.3-29.8	4.625	117.4	2.0	50.8	2.375 EUE 8RD	60.3	T401-55A-000
5-1/2	139.7	20-23	29.8-34.2	4.500	114.3	2.0	50.8	2.375 EUE 8RD	60.3	T401-55B-000
5-1/2	139.7	13-20	19.3-29.8	4.625	117.4	2.437	61.9	2.875 EUE 8RD	73.0	T401-56A-000
5-1/2	139.7	20-23	29.8-34.2	4.500	114.3	2.437	61.9	2.875 EUE 8RD	73.0	T401-56B-000
6.0	152.4	20-23	29.8-34.2	5.000	127	2.437	61.9	2.875 EUE 8RD	73.0	T401-60B-000
6-5/8	168.3	20-24	29.8-35.7	5.750	146.1	2.437	61.9	2.875 EUE 8RD	73.0	T401-65A-000
6-5/8	168.3	24-32	35.7-47.6	5.500	139.7	2.437	61.9	2.875 EUE 8RD	73.0	T401-65B-000
7.0	177.8	17-29	25.3-43.2	6.000	152.4	2.437	61.9	2.875 EUE 8RD	73.0	T401-70A-000
7.0	177.8	17-29	25.3-43.2	6.000	152.4	3.000	76.2	3-1/2 EUE 8RD	88.9	T401-73A-000
7-5/8	193.7	20-29.7	29.8-44.2	6.625	168.3	2.437	61.9	2.875 EUE 8RD	73.0	T401-75A-000
8-5/8	219.1	24-40	35.7-59.5	7.500	190.5	2.437	61.9	2.875 EUE 8RD	73.0	T401-85A-000
8-5/8	219.1	20-24	29.8-35.7	7.875	200	2.437	61.9	2.875 EUE 8RD	73.0	T401-85B-000
9-5/8	244.5	32.3-43.5	48.0-64.7	8.500	215.9	2.500	63.5	2.875 EUE 8RD	73.0	T401-95A-000
9-5/8	244.5	43.5-53.5	64.7-79.6	8.250	209.6	2.500	63.5	2.875 EUE 8RD	73.0	T401-95B-000
9-5/8	244.5	32.3-43.5	48.0-64.7	8.500	215.9	3.000	76.2	3-1/2 EUE 8RD	88.9	T401-96A-000
9-5/8	244.5	43.5-53.5	64.7-79.6	8.250	209.6	3.000	76.2	3-1/2 EUE 8RD	88.9	T401-96B-000
9-5/8	244.5	32.3-43.5	48.0-64.7	8.500	215.9	4.000	101.6	4-1/2 EUE 8RD	114.3	T401-97A-000
9-5/8	244.5	43.5-53.5	64.7-79.6	8.250	209.6	4.000	101.6	4-1/2 EUE 8RD	114.3	T401-97B-000
10-3/4	273.1	32.7-55.5	48.6-82.6	9.500	241.3	2.500	63.5	2-7/8 EUE 8RD	73.0	T401-10A-000
10-3/4	273.1	32.7-55.5	48.6-82.6	9.500	241.3	3.000	76.2	3-1/2 EUE 8RD	88.9	T401-101A-000
10-3/4	273.1	32.7-55.5	48.6-82.6	9.500	241.3	4.000	101.6	4-1/2 EUE 8RD	114.3	T401-102A-000
13-3/8	339.7	48-72	71.4-107	12.000	304.8	4.000	101.6	4-1/2 EUE 8RD	114.3	T401-13A-000

P405 H TENSION PACKER

The P405 H TENSION PACKER was designed for use in old scaly casing or open hole 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 into the design, virtually eliminating retrieval problems

- ◆ 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





RETRIEVABLE PACKERS

P405 H TENSION PACKER SPECIFICATION GUIDE

CASING SIZE		CASING WEIGHT		MAX O.D.		MIN I.D.		THREAD CONNECTION		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-7/8	73.0	6.4-6.5	9.5-9.7	2.250	57.15	.750	19.1	1.315 EUE 10RD	33.4	T405-25A-000
3-1/2	88.9	7.7-10.2	11.5-15	3.781	96.0	1.500	38.1	1.900 EUE 10RD	48.3	T405-35A-000
4.0	101.6	9.5-11.0	14.1-16.4	3.250	82.55	1.500	38.1	2.375 EUE 8RD	60.3	T405-40A-000
4.0	101.6	9.5-11.0	14.1-16.4	3.250	82.55	1.875	47.6	2.375 EUE 8RD	60.3	T405-41A-000
4-1/2	114.3	15.10-16.6	22.5-24.7	3.500	88.9	2.0	50.8	2.375 EUE 8RD	60.3	T405-45B-000
4-1/2	114.3	9.5-13.5	14.1-20.9	3.750	95.25	2.0	50.8	2.375 EUE 8RD	60.3	T405-45A-000
5.0	127	11.5-18.0	17.1-26.8	4.125	104.78	2.0	50.8	2.375 EUE 8RD	60.3	T405-50A-000
5.0	127	18-20.8	26.8-31.0	4.000	101.6	2.0	50.8	2.375 EUE 8RD	60.3	T405-50B-000
5-1/2	139.7	13-20	19.3-29.8	4.625	117.4	2.0	50.8	2.375 EUE 8RD	60.3	T405-55A-000
5-1/2	139.7	20-23	29.8-34.2	4.500	114.3	2.0	50.8	2.375 EUE 8RD	60.3	T405-55B-000
5-1/2	139.7	13-20	19.3-29.8	4.625	117.4	2.437	61.9	2.875 EUE 8RD	73.0	T405-56A-000
5-1/2	139.7	20-23	29.8-34.2	4.500	114.3	2.437	61.9	2.875 EUE 8RD	73.0	T405-56B-000
6.0	152.4	20-23	29.8-34.2	5.000	127	2.437	61.9	2.875 EUE 8RD	73.0	T405-60B-000
6-5/8	168.3	20-24	29.8-35.7	5.750	146.1	2.437	61.9	2.875 EUE 8RD	73.0	T405-65A-000
6-5/8	168.3	24-32	35.7-47.6	5.500	139.7	2.437	61.9	2.875 EUE 8RD	73.0	T405-65B-000
7.0	177.8	17-29	25.3-43.2	6.000	152.4	2.437	61.9	2.875 EUE 8RD	73.0	T405-70A-000
7.0	177.8	17-29	25.3-43.2	6.000	152.4	3.000	76.2	3-1/2 EUE 8RD	88.9	T405-73A-000
7-5/8	193.7	20-29.7	29.8-44.2	6.625	168.3	2.437	61.9	2.875 EUE 8RD	73.0	T405-75A-000
8-5/8	219.1	24-40	35.7-59.5	7.500	190.5	2.437	61.9	2.875 EUE 8RD	73.0	T405-85A-000
8-5/8	219.1	20-24	29.8-35.7	7.875	200	2.437	61.9	2.875 EUE 8RD	73.0	T405-85B-000
9-5/8	244.5	32.3-43.5	48.0-64.7	8.500	215.9	2.500	63.5	2.875 EUE 8RD	73.0	T405-95A-000
9-5/8	244.5	43.5-53.5	64.7-79.6	8.250	209.6	2.500	63.5	2.875 EUE 8RD	73.0	T405-95B-000
9-5/8	244.5	32.3-43.5	48.0-64.7	8.500	215.9	3.000	76.2	3-1/2 EUE 8RD	88.9	T405-96A-000
9-5/8	244.5	43.5-53.5	64.7-79.6	8.250	209.6	3.000	76.2	3-1/2 EUE 8RD	88.9	T405-96B-000
9-5/8	244.5	32.3-43.5	48.0-64.7	8.500	215.9	4.000	101.6	4-1/2 EUE 8RD	114.3	T405-97A-000
9-5/8	244.5	43.5-53.5	64.7-79.6	8.250	209.6	4.000	101.6	4-1/2 EUE 8RD	114.3	T405-97A-000
10-3/4	273.1	32.7-55.5	48.6-82.6	9.500	241.3	2.500	63.5	2-7/8 EUE 8RD	73.0	T405-10A-000
10-3/4	273.1	32.7-55.5	48.6-82.6	9.500	241.3	3.000	76.2	3-1/2 EUE 8RD	88.9	T405-101A-000
10-3/4	273.1	32.7-55.5	48.6-82.6	9.500	241.3	4.000	101.6	4-1/2 EUE 8RD	114.3	T405-102A-000
13-3/8	339.7	48-72	71.4-107	12.000	304.8	4.000	101.6	4-1/2 EUE 8RD	114.3	T405-13A-000

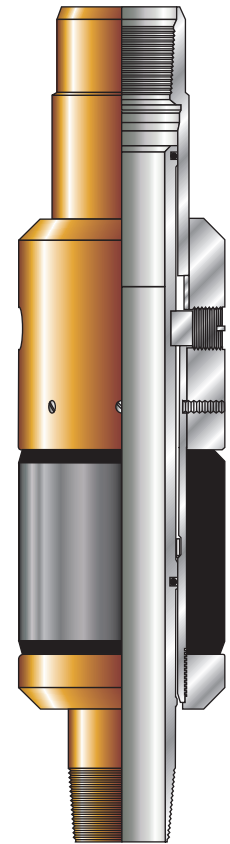
P436 C-1 TANDEM TENSION PACKER

THE P436 C-1 TANDEM 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 rotate 1/8 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.



- ◆ **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		TUBING SIZE		MAX O.D.		MIN I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
5-1/2	139.7	13-20	19.3-29.8	2-3/8 EUE	60.3	4.625	117.4	2.000	50.8	T436-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE	60.3	4.500	114.3	2.000	50.8	T436-55B-000

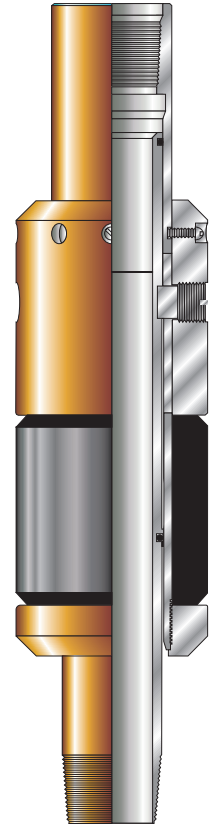
P437 S-1 TANDEM TENSION PACKER

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 rotate 1/8 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.



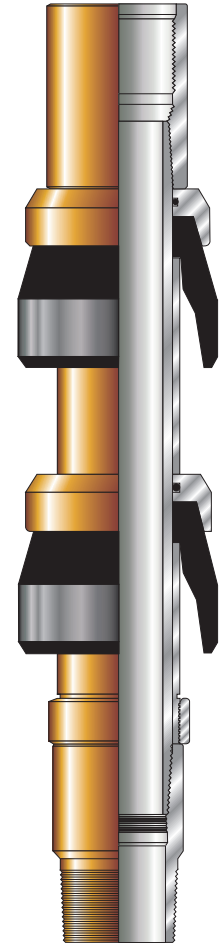
- ◆ FULL BORE DESIGN
- ◆ SIMPLE, ECONOMICAL PACKER FOR ZONE ISOLATION
- ◆ BUILT IN UNLOADER
- ◆ AVAILABLE IN RIGHT OR LEFT HAND J-SLOT CONFIGURATIONS

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX O.D.		MIN I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	2-3/8 EUE	60.3	3.750	95.25	2.000	50.8	T437-45A-000
5.0	127	11.5-15	17.1-22.3	2-3/8 EUE	60.3	4.125	104.78	2.000	50.8	T437-50A-000
5.0	127	18-20.8	26.8-31.0	2-3/8 EUE	60.3	4.000	101.6	2.000	50.8	T437-50B-000
5-1/2	139.7	13-20	19.3-29.8	2-3/8 EUE	60.3	4.625	117.4	2.000	50.8	T437-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE	60.3	4.500	114.3	2.000	50.8	T437-55B-000
7.0	177.8	17-26	25.3-38.7	2-7/8 EUE	73.0	6.000	152.4	2.500	63.5	T437-70B-000
7.0	177.8	26-32	38.7-47.6	2-7/8 EUE	73.0	5.875	149.2	2.500	63.5	T437-70A-000
7.0	177.8	17-26	25.3-38.7	3-1/2 EUE	88.9	6.000	152.4	3.000	76.2	T437-73B-000
7.0	177.8	26-32	38.7-47.6	3-1/2 EUE	88.9	5.875	149.2	3.000	76.2	T437-73A-000
8-5/8	219.1	24-40	35.7-59.5	2-7/8 EUE	73.0	7.500	190.5	2.500	63.5	T437-85A-000
8-5/8	219.1	24-40	35.7-59.5	3-1/2 EUE	88.9	7.500	190.5	3.000	76.2	T437-86A-000
9-5/8	244.5	32.3-43.5	48.1-64.7	3-1/2 EUE	88.9	8.500	215.9	3.000	76.2	T437-95B-000
9-5/8	244.5	40-53.5	59.5-79.6	3-1/2 EUE	88.9	8.250	209.6	3.000	76.2	T437-95A-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.

- ◆ AVAILABLE IN SINGLE OR DOUBLE ELEMENT DESIGN
- ◆ COMPACT & INEXPENSIVE MEANS OF ISOLATION
- ◆ USES WIRE REINFORCED CUPS FOR DURABILITY





RETRIEVABLE PACKERS

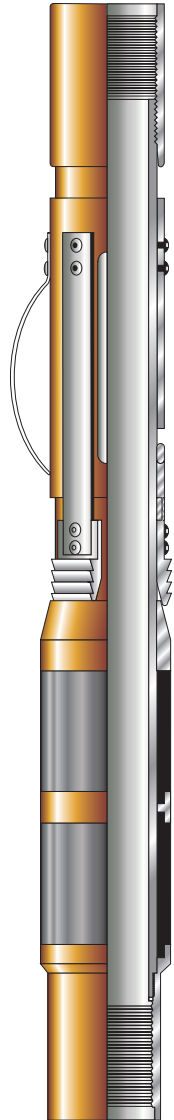
P439 O.S. CUP PACKER

CASING SIZE		THREAD CONN.		CASING WEIGHT		MAX O.D.		MIN I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-7/8	73.0	1.660 NU	42.2	6.4-6.5	9.5-9.7	2.250	57.15	.625	15.9	T439-25A-000
3-1/2	88.9	1.900 NU	48.3	9.2-9.3	13.7-13.8	2.781	70.63	1.250	31.75	T439-35A-000
3-1/2	88.9	1.900 NU	48.3	9.2-9.3	13.7-13.8	2.781	70.63	1.500	38.1	T439-36A-000
3-1/2	88.9	1.900 NU	48.3	10.2	15	2.750	69.85	1.250	31.75	T439-35B-000
3-1/2	88.9	1.900 NU	48.3	10.2	15	2.750	69.85	1.500	38.1	T439-36B-000
4-1/2	114.3	2-3/8 EU	60.3	9.5-11.6	14.1-17.2	3.750	95.25	2.000	50.8	T439-45A-000
4-1/2	114.3	2-3/8 EU	60.3	15.1-16.6	22.5-24.7	3.625	92.08	2.000	50.8	T439-45B-000
5.0	127	2-3/8 EU	60.3	13-15	19.3-22.3	4.125	104.78	2.000	50.8	T439-50A-000
5.0	127	2-3/8 EU	60.3	18-20.3	26.8-30.2	4.000	101.60	2.000	50.8	T439-50B-000
5-1/2	139.7	2-3/8 EU	60.3	13-15	19.3-22.3	4.750	120.65	2.000	50.8	T439-55A-000
5-1/2	139.7	2-3/8 EU	60.3	15.5-17	23.1-25.3	4.625	117.40	2.000	50.8	T439-55B-000
5-1/2	139.7	2-3/8 EU	60.3	20-23	29.8-34.2	4.500	114.3	2.000	50.8	T439-55C-000
7.0	177.8	2-7/8 EU	73.0	17-20	25.3-29.8	6.000	152.4	2.500	63.5	T439-70A-000
7.0	177.8	2-7/8 EU	73.0	22-24	32.7-35.7	6.000	152.4	2.500	63.5	T439-70B-000
7.0	177.8	2-7/8 EU	73.0	26-29	38.7-43.1	5.875	149.2	2.500	63.5	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 & 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.

- ◆ 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





RETRIEVABLE PACKERS

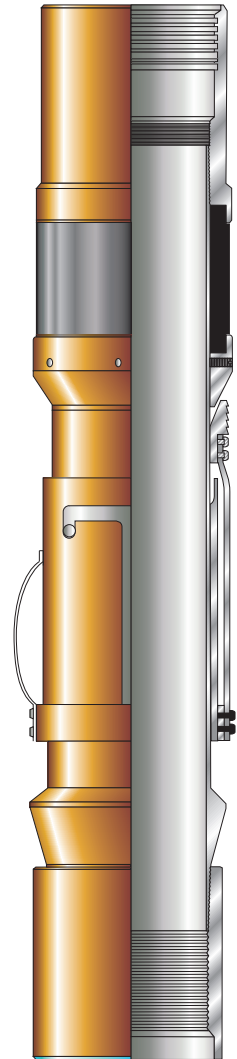
P440 CASING PACKER

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	2-7/8 EUE 8RD	73.0	3.750	95.25	2.50	63.5	T440-45A-000
5.0	127	11.5-15	17.1-22.3	2-7/8 EUE 8RD	73.0	4.125	104.8	2.50	63.5	T440-50A-000
5.0	127	18-20.8	26.8-31.0	2-7/8 EUE 8RD	73.0	4.000	101.6	2.50	63.5	T440-50B-000
5-1/2	139.7	13-20	19.3-29.8	3-1/2 EUE 8RD	88.9	4.625	117.4	3.0	76.2	T440-55A-000
5-1/2	139.7	20-23	29.8-34.2	3-1/2 EUE 8RD	88.9	4.500	114.3	3.0	76.2	T440-55B-000
5-1/2	139.7	13-15.5	19.3-23.1	4 NU 8RD	101.6	4.781	121.4	3.50	88.9	T440-56A-000
5-1/2	139.7	13-17	19.3-25.3	4 NU 8RD	101.6	4.650	118.1	3.50	88.9	T440-56B-000
7.0	177.8	17-38	25.3-56.5	4-1/2 8RD CSG	114.3	5.750	146	4.0	101.6	T440-70A-000
7.0	177.8	17-29	25.3-43.2	5.0 8RD CSG	127	5.969	151.6	4.5	114.3	T440-71B-000
7.0	177.8	17-23	25.3-34.2	5-1/2 8RD CSG	139.7	6.187	157.1	5.0	127	T440-72B-000
7-5/8	193.7	20-33.7	29.8-50.2	4-1/2 8RD CSG	114.3	6.625	168.3	4.0	101.6	T440-75A-000
7-5/8	193.7	20-33.7	29.8-50.2	5-1/2 8RD CSG	139.7	6.625	168.3	5.0	127	T440-76A-000
8-5/8	219.1	24-40	35.7-59.5	4-1/2 8RD CSG	114.3	7.50	190.5	4.0	101.6	T440-84A-000
8-5/8	219.1	24-40	35.7-59.5	5-1/2 8RD CSG	139.7	7.50	190.5	5.0	127	T440-85A-000
8-5/8	219.1	24-40	35.7-59.5	6-5/8 8RD CSG	168.3	7.50	190.5	5.50	139.7	T440-86A-000
8-5/8	219.1	32 PPF	47.6	7.0 8RD CSG	177.8	7.656	194.5	6.50	165.1	T440-87B-000
9-5/8	244.5	32.3-43.5	48.1-64.7	7.0 8RD CSG	177.8	8.50	215.9	6.50	165.1	T440-97A-000
9-5/8	244.5	40-53.5	59.5-79.6	7.0 8RD CSG	177.8	8.25	209.6	6.50	165.1	T440-97B-000
10-3/4	273.1	40-55.5	59.5-82.6	7.0 8RD CSG	177.8	9.50	241.3	6.50	165.1	T440-10A-000
10-3/4	273.1	40-55.5	59.5-82.6	7.0 8RD CSG	177.8	9.50	241.3	7.0	177.8	T440-101A-000

P441 WS HANGER PACKER

The P441 WS Hanger packer is a compression set liner hanger packer for use in open hole or casing. *The P441 WS hanger* uses deep wide wicker slips that penetrate in scaly casing and open hole formations. The *WS Hanger* cone is shear pinned to eliminate premature setting of the packing element while running, once the slips engage the cone the brass shear screws break energizing the packing element. *The P441 WS Hanger Packer* is run in using the *WS Running Tool*. The running tool comes with a two foot stroke allowing rotation at the hanger without picking up on the casing string, this allows the right hand break thread to rotate free and disconnect without damage.

- ◆ SIMPLE OPERATION
- ◆ DEEP WIDE WICKER SLIPS
- ◆ FULL OPENING
- ◆ STAINLESS STEEL SLIP ARMS AND DRAG SPRINGS
- ◆ AVAILABLE IN STAINLESS STEEL CONSTRUCTION





RETRIEVABLE PACKERS

P441 WS HANGER PACKER

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	2-7/8 EUE 8RD	73.0	3.750	95.25	2.50	63.5	T441-45A-000
5.0	127	11.5-15	17.1-22.3	2-7/8 EUE 8RD	73.0	4.125	104.78	2.50	63.5	T441-50A 000
5.0	127	18-20.8	26.8-31.0	2-7/8 EUE 8RD	73.0	4.000	101.6	2.50	63.5	T441-50A-000
5-1/2	139.7	13-20	19.3-29.8	3-1/2 EUE 8RD	88.9	4.625	117.4	3.0	76.2	T441-55A-000
5-1/2	139.7	20-23	29.8-34.2	3-1/2-EUE 8RD	88.9	4.500	114.3	3.0	76.2	T441-55B-000
5-1/2	139.7	13-15.5	19.3-23.1	4 NU 8RD	101.6	4.781	121.4	3.50	88.9	T441-56A-000
5-1/2	139.7	13-17	19.3-25.3	4NU 8RD	101.6	4.650	118.1	3.50	88.9	T441-56B-000
7.0	177.8	17-38	25.3-56.5	4-1/2 8RD CSG	114.3	5.750	146.1	4.0	101.6	T441-70A-000
7.0	177.8	17-29	25.3-43.2	5.0 8RD CSG	127	5.969	151.6	4.5	114.3	T441-71B-000
7.0	177.8	17-23	25.3-34.2	5-1/2 8RD CSG	139.7	6.187	157.1	5.0	127	T441-72B-000
7-5/8	193.7	20-33.7	29.8-50.2	4-1/2 8RD CSG	114.3	6.625	168.3	4.0	101.6	T441-75A-000
7-5/8	193.7	20-33.7	29.8-50.2	5-1/2 8RD CSG	139.7	6.625	168.3	5.0	127	T441-76A-000
8-5/8	219.1	24-40	35.7-59.5	4-1/2 8RD CSG	114.3	7.50	190.5	4.0	101.6	T441-84A-000
8-5/8	219.1	24-40	35.7-59.5	5-1/2 8RD CSG	139.7	7.50	190.5	5.0	127	T441-85A-000
8-5/8	219.1	24-40	35.7-59.5	6-5/8 8RD CSG	168.3	7.50	190.5	5.50	139.7	T441-86A-000
8-5/8	219.1	32 PPF	47.6	7.0 8RD CSG	177.8	7.656	194.5	6.50	165.1	T441-87B-000
9-5/8	244.5	32.3-43.5	48.1-64.7	6-5/8 8RD CSG	168.3	8.50	215.9	6.0	152.4	T441-94A-000
9-5/8	244.5	40-53.5	59.5-79.6	6-5/8 8RD CSG	168.3	8.25	209.6	6.0	152.4	T441-94B-000
9-5/8	244.5	32.3-43.5	48.1-64.7	7.0 8RD CSG	177.8	8.50	215.9	6.50	165.1	T441-97A-000
9-5/8	244.5	40.53.5	59.5-79.6	7.0 8RD CSG	177.8	8.25	209.6	6.50	165.1	T441-97B-000
10-3/4	273.1	40-53.5	59.5-79.6	7.0 8RD CSG	177.8	9.50	241.3	6.50	165.1	T441-10A-000
10-3/4	273.1	40-53.5	59.5-79.6	7-5/8 8RD CSG	193.7	9.50	241.3	7.0	177.8	T441-101A-000

P442 V.I.P GAS VENT PACKER SYSTEM

The P442 V.I.P. PACKER is used in conjunction with the *TEAM full bore CASING PACKER*. Together these tools create a unique packer system that are used to isolate bad areas of casing while allowing gas to vent from below. The *V.I.P. PACKER SYSTEM* can be used in tension or compression, but is ideally suited for pumping wells with the tubing string landed in tension. The *V.I.P. PACKER* is designed with a double element system for setting in heavily corroded casing.

- ◆ FULL BORE DESIGN ALLOWS MAXIMUM TUBING SIZE
- ◆ DOUBLE ELEMENT SYSTEM INSURES SEALING
- ◆ TORQUE MECHANISM ALLOWS MANIPULATION OF PACKER SYSTEM
- ◆ EASILY ADJUSTABLE SHEAR MECHANISM
- ◆ NO O-RING SEALS
- ◆ PACKING ELEMENT DESIGN



P442 V.I.P GAS VENT PACKER SYSTEM

CASING SIZE		CASING WEIGHT		LINER SIZE		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	3" 8V LP	76.2	2-3/8 NU	60.3	3.750	95.25	2.0	50.8	T442-45A-000
5.0	127	11.5-15	17.1-22.3	3" 8V LP	76.2	2-3/8 NU	60.3	4.000	101.6	2.0	50.8	T442-50A-000
5.0	127	18-20.8	26.8-31.0	3" 8V LP	76.2	2-3/8 NU	60.3	4.125	104.8	2.0	50.8	T442-50B-000
5-1/2	139.7	13-20	19.3-29.8	3" 8V LP	76.2	2-3/8 EU	60.3	4.625	117.4	2.0	50.8	T442-55A-000
5-1/2	139.7	20-23	29.8-34.2	3" 8V LP	76.2	2-3/8 EU	60.3	4.500	114.3	2.0	50.8	T442-55B-000
5-1/2	139.7	13-15.5	19.3-23.1	4" NU 8RD	101.6	2-7/8 EU	73.0	4.781	121.4	2.50	63.5	T442-56A-000
5-1/2	139.7	17-20	25.3-29.8	4" NU 8RD	101.6	2-7/8 EU	73.0	4.650	118.1	2.50	63.5	T442-56B-000
7.0	177.8	17-38	25.3-56.5	4-1/2 8RD CSG	114.3	2-7/8 EU	73.0	5.750	146	2.50	63.5	T442-70A 000

** Available in single or double element design.*

P444 CS COMPRESSION PACKER

The P444 CS Compression Packer is an inexpensive means of isolating the casing string from the open hole formation or used with the *P444 Casing Packer* for zone isolation. The *P444* is set by applying sufficient weight to shear the setting screws energizing the packing elements.

- ◆ LARGE BORE DESIGN
- ◆ DOUBLE ELEMENT DESIGN FOR OPEN HOLE FORMATIONS
- ◆ SIMPLE OPERATION/ ECONOMICAL





RETRIEVABLE PACKERS

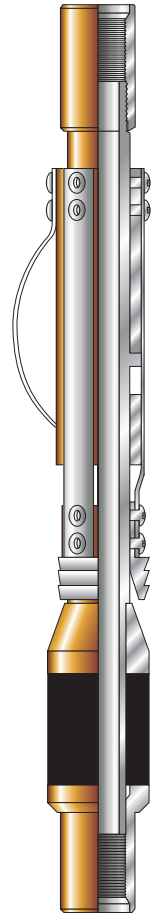
P444 CS COMPRESSION PACKER

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.2-20.9	2-7/8 EUE 8RD	73.0	3.750	95.25	2.50	63.5	T444-45A-000
5.0	127	11.5-15	17.14-22.3	2-7/8 EUE 8RD	73.0	4.000	101.6	2.50	63.5	T444-50A-000
5.0	127	18-20.8	26.8-31.0	2-7/8 EUE 8RD	73.0	4.125	104.8	2.50	63.5	T444-50B-000
5-1/2	139.7	13-20	19.3-29.8	3-1/2 EUE 8RD	88.9	4.625	117.4	3.0	76.2	T444-55A-000
5-1/2	139.7	20-23	29.8-34.2	3-1/2 EUE 8RD	88.9	4.500	114.3	3.0	76.2	T444-55B-000
5-1/2	139.7	13-15.5	19.3-23.1	4 NU 8RD	101.6	4.781	121.4	3.50	88.9	T444-56A-000
5-1/2	139.7	17-20	25.3-29.8	4 NU 8RD	101.6	4.650	118.1	3.50	88.9	T444-56B-000
7.0	177.8	17-38	25.3-56.5	4-1/2 8RD CSG	114.3	5.750	146	4.0	101.6	T444-70A-000
7.0	177.8	17-29	25.3-43.2	5.0 8RD CSG	127	5.969	151.6	4.5	114.3	T444-71B-000
7.0	177.8	17-23	25.3-34.2	5-1/2 8RD CSG	139.7	6.187	157.1	5.0	127	T444-72B-000
7-5/8	193.7	20-33.7	29.8-50.2	4-1/2 8RD CSG	114.3	6.625	168.3	4.0	101.69	T444-75A-000
7-5/8	193.7	20-33.7	29.8-50.2	5-1/2 8RD CSG	139.7	6.625	168.3	5.0	127	T444-76A-000
8-5/8	219.1	24-40	35.7-59.5	4-1/2 8RD CSG	114.3	7.50	190.5	4.0	101.6	T444-84A-000
8-5/8	219.1	24-40	35.7-59.5	5-1/2 8RD CSG	139.7	7.50	190.5	5.0	127	T444-85A-000
8-5/8	219.1	24-40	35.7-59.5	6-5/8 8RD CSG	168.3	7.50	190.5	5.50	139.7	T444-86A-000
8-5/8	219.1	32 PPF	47.6	7.0 8RD CSG	177.8	7.656	194.5	6.50	165.1	T444-87B-000
9-5/8	244.5	32.3-43.5	48.1-64.7	7.0 8RD CSG	177.8	8.50	215.9	6.50	165.1	T444-97A-000
9-5/8	244.5	40-55.5	59.5-82.6	7.0 8RD CSG	177.8	8.25	209.6	6.50	165.1	T444-97B-000
10-3/4	273.1	40-55.5	59.5-82.6	7.0 8RD CSG	177.8	9.50	241.3	6.50	165.1	T444-10A-000
10-3/4	273.1	40-55.5	59.5-82.6	7-5/8 8RD CSG	193.7	9.50	241.3	7.0	177.8	T444-101A-000

P445 TUBING PRESSURE PACKER

The P445 TUBING PRESSURE PACKER is an economical packer used for producing gas, acidizing, water injection and cementing in liner strings. The *P445 packer* can be set in tension or compression and is available in manual or automatic release J-slot configuration. The *P445* incorporates wide wicker slips with single or double element system to allow setting in scaly pipe or open hole formations.

- ◆ **FULL BORE DESIGN**
- ◆ **TENSION OR COMPRESSION SET**
- ◆ **AVAILABLE WITH ROTATIONAL SAFETY RELEASE SYSTEM**
- ◆ **AVAILABLE IN SINGLE OR DOUBLE ELEMENT DESIGN**
- ◆ **ECONOMICAL**
- ◆ **STAINLESS STEEL DRAG SPRINGS & SLIP ARMS**

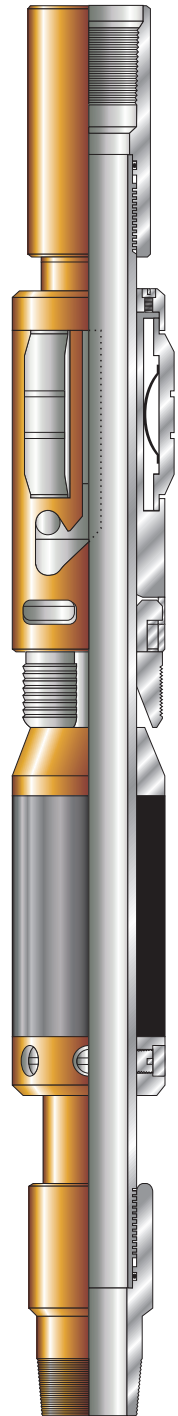


CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-3/8	60.3	4.6	6.8	1" 11-1/2 LP	33.4	1.813	46.1	.750	19	T445-20A-000
2-7/8	73.0	6.4-6.5	9.5-9.7	1" 11-1/2 LP	33.4	2.250	57.15	.750	19	T445-25A-000
2-7/8	73.0	6.4-6.5	9.5-9.7	1.660 NU 10	42.2	2.250	57.15	1.250	31.8	T445-26A-000
2-7/8	73.0	6.4-6.5	9.5-9.7	1.900 NU 10	48.3	2.281	57.9	1.500	38.1	T445-27A-000
3-1/2	88.9	7.7-10.2	11.5-15	1.900 NU 10	48.3	2.750	69.9	1.125	28.6	T445-35A-000
3-1/2	88.9	7.7-10.2	11.5-15	1.900 NU 10	48.3	2.812	71.4	1.500	38.1	T445-36A-000

P456 M-2 SHEAR TENSION PACKER

The P456 M-2 SHEAR TENSION PACKER is used for water injection testing and , pumping wells. The *M-2* design uses an external J-slot unlike most drag block tension packers that use internal J-slots. The external J-slot is extremely durable and will accept torque without damage, it also allows for increased cross-section of the mandrel for optimum wear. The top and bottom connections of the *M-2 Packers* are interchangeable which allows the packer to convert to compression set tool while maintaining a rotational safety release system. The shear release mechanism use slotted brass screws that remain visible and are easily adjusted in the field.

- ◆ EXTERNAL J-SLOT DESIGN FOR DURABILITY
- ◆ USES DRAG BLOCKS FOR EXTENDED LIFE
- ◆ INTERCHANGEABLE TOP AND BOTTOM CONNECTIONS ALLOWS TOOL TO INVERT (TENSION OR COMPRESSION)
- ◆ AUTOMATIC J-SLOT FOR EASY RELEASE
- ◆ ROTATIONAL SAFETY RELEASE
- ◆ SHEAR SAFETY RELEASE
- ◆ USES COMMON REPLACEMENT PARTS





RETRIEVABLE PACKERS

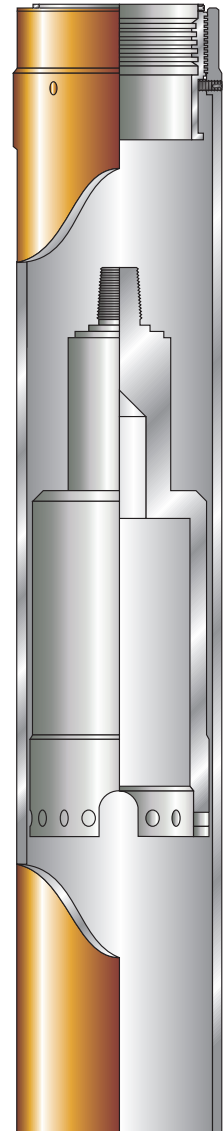
P456 M-2 SHEAR TENSION PACKER

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE	60.3	3.750	95.25	1.938	49.2	T456-45A-000
5.0	127	11.5-15	17.1-26.8	2-3/8 EUE	60.3	4.125	104.8	1.938	49.2	T456-45A-000
5.0	127	18-20.8	26.8-31.0	2-3/8 EUE	60.3	4.000	101.6	1.938	49.2	T456-45A-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE	60.3	4.625	117.4	1.938	49.2	T456-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE	60.3	4.500	114.3	1.938	49.2	T456-55B-000
5-1/2	139.7	14-20	20.8-29.8	2-7/8 EUE	73.0	4.625	117.4	2.375	60.3	T456-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EUE	73.0	4.500	114.3	2.375	60.3	T456-56A-000
7.0	177.8	17-26	25.3-38.7	2-7/8 EUE	73.0	6.000	152.4	2.500	63.5	T456-70B-000
7.0	177.8	26-32	38.7-47.6	2-7/8 EUE	73.0	5.875	149.2	2.500	63.5	T456-70A-000
7.0	177.8	17-26	25.3-38.7	3-1/2 EUE	88.9	6.000	152.4	3.000	76.2	T456-73B-000
7.0	177.8	26-32	38.7-47.6	3-1/2 EUE	88.9	5.875	149.2	3.000	76.2	T456-73A-000
8-5/8	219.1	24-40	35.7-59.5	2-7/8 EUE	73.0	7.500	190.5	2.500	63.5	T456-85A-000
8-5/8	219.1	24-40	35.7-59.5	3-1/2 EUE	88.9	7.500	190.5	3.000	76.2	T456-86A-000
9-5/8	244.5	32.3-43.5	48.0-64.7	2-7/8 EUE	73.0	8.500	215.9	2.500	63.5	T456-95B-000
9-5/8	244.5	40-53.5	59.5-79.6	2-7/8 EUE	73.0	8.250	209.6	2.500	63.5	T456-95A-000
9-5/8	244.5	32.3-43.5	48.0-64.7	3-1/2 EUE	88.9	8.500	215.9	3.000	76.2	T456-96B-000
9-5/8	244.5	40-53.5	59.5-79.6	3-1/2 EUE	88.9	8.250	209.6	3.000	76.2	T456-96A-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 is the preferred method creating a shorter packer assembly.

- ◆ **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.		PART NUMBER
in.	mm	in.	mm	
4-1/2	114.3	3.750	95.25	T598-45A-000
5.0	127	3.750	95.25	T598-45A-000
5-1/2 x 2-3/8	139.7 X 60.3	4.500	114.3	T598-55A-000
5-1/2 x 2-3/8	139.7 X 73.0	4.500	114.3	T598-56A-000
7 x 2-3/8	177.8 X 60.3	4.500	114.3	T598-55A-000
7 x 2-7/8	177.8 X 73.0	4.500	114.3	T598-56A-000
7-5/8 x 2-7/8	193.7 X 73.0	4.500	114.3	T598-56A-000
7 x 3	177.8 X 88.9	5.500	139.7	T598-73A-000

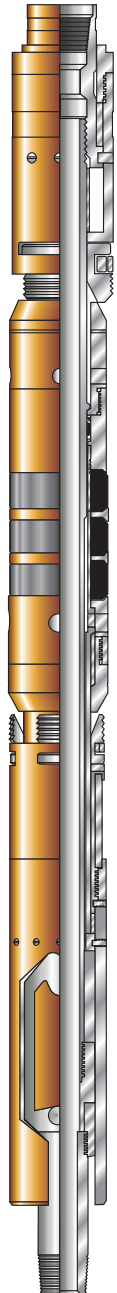
P601 ASI-XW HP WIRELINE SET PRODUCTION PACKER

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.

- ◆ 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





RETRIEVABLE PACKERS

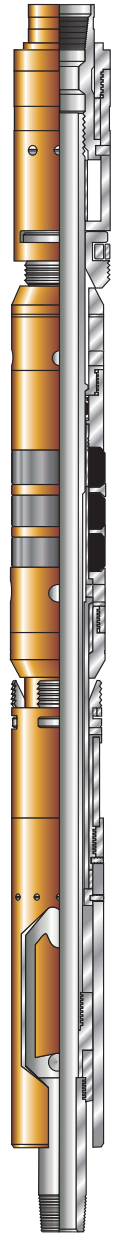
P601 ASI-XW HP WIRELINE SET PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4'	101.6	9.5-11	14.1-16.4	1.900 EUE 10RD	48.3	3.250	82.55	1.500	38.10	T601-40A-000
4-1/2"	114.3	9.5-13.5	14.1-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	1.938	49.23	T601-45A-000
4-1/2"	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	1.938	49.23	T601-45B-000
4-1/2"	114.3	15.1-16.6	22.5-24.7	1.900 EUE 10RD	48.3	3.594	91.29	1.500	38.10	T601-45D-000
4-1/2"	114.3	15.1-20	22.5-29.8	2-3/8 EUE 8RD	60.3	3.500	88.90	1.703	43.26	T601-45C-000
5"	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	1.938	49.23	T601-50A-000
5"	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	1.938	49.23	T601-50B-000
5-1/2"	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T601-55C-000
5-1/2"	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T601-55A-000
5-1/2"	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T601-55B-000
5-1/2"	139.7	13-14	19.3-20.8	2-7/8 EUE 8RD	73.0	4.812	122.22	2.375	60.30	T601-56C-000
5-1/2"	139.7	13-15.5	19.3-23.1	2-7/8 EUE 8RD	73.0	4.781	121.44	2.375	60.30	T601-56D-000
5-1/2"	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T601-56A-000
5-1/2"	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T601-56B-000
6"	152.4	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	5.188	131.78	2.375	60.30	T601-60A-000
6-5/8"	168.3	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T601-65A-000
7"	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T601-70A-000
7"	177.8	23-29	34.2-43.2	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T601-70B-000
7"	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T601-70C-000
7-5/8"	193.7	24-29.7	35.7-44.2	2-7/8 EUE 8RD	73.0	6.672	169.47	2.500	63.50	T601-75A-000
7-5/8"	193.7	33.7-39	50.2-58.0	2-7/8 EUE 8RD	73.0	6.453	163.91	2.500	63.50	T601-75B-000
8-5/8"	219.1	24-40	35.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	T601-85A-000
9-5/8"	244.5	32.3-43.5	48.1-64.7	4-1/2 EUE 8RD	114.3	8.500	215.90	4.000	101.60	T601-95B-000
9-5/8"	244.5	40-53.5	59.5-79.6	4-1/2 EUE 8RD	114.3	8.250	209.60	4.000	101.60	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.

- ◆ **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**





RETRIEVABLE PACKERS

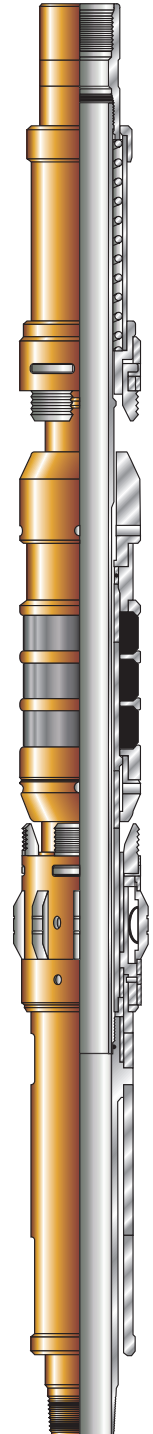
P601 ASI-XW WIRELINE SET PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4	101.6	9.5-11	14.1-16.4	1.900 EUE 10RD	48.3	3.250	82.55	1.500	38.10	T601-40A-000
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE 8RD	60.3	3.750	95.25	1.938	49.23	T601-45A-000
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T601-46A-000
4-1/2	114.3	9.5-15.1	14.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	2.000	50.80	T601-46B-000
4-1/2	114.3	13.5-15.1	20.9-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	1.938	49.23	T601-45B-000
4-1/2	114.3	15.1-16.6	22.5-24.7	1.900 EUE 10RD	48.3	3.594	91.29	1.500	38.10	T601-45D-000
4-1/2	139.7	15.1-20	22.5-29.8	2-3/8 EUE 8RD	60.3	3.500	88.90	1.703	43.26	T601-45C-000
5	168.3	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	1.938	49.23	T601-50A-000
5	139.7	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	1.938	49.23	T601-50B-000
5-1/2	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T601-55C-000
5-1/2	152.4	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T601-55A-000
5-1/2	177.8	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.3	2.000	50.80	T601-55B-000
5-1/2	177.8	13-14	19.3-20.8	2-7/8 EUE 8RD	73.0	4.812	122.22	2.375	60.30	T601-56C-000
5-1/2	177.8	13-15.5	19.3-23.1	2-7/8 EUE 8RD	73.0	4.781	121.44	2.375	60.30	T601-56D-000
5-1/2	177.8	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T601-56A-000
5-1/2	177.8	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T601-56B-000
6	193.7	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	5.188	131.78	2.375	60.30	T601-60A-000
6-5/8	193.7	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T601-65A-000
7	219.1	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T601-70A-000
7	114.3	23-29	34.2-43.2	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T601-70B-000
7	127	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T601-70C-000
7	127	17-26	25.3-38.7	3-1/2 EUE 8RD	88.9	6.000	152.40	3.000	76.20	T601-73B-000
7	139.7	26-32	38.7-47.6	3-1/2 EUE 8RD	88.9	5.875	149.23	3.000	76.20	T601-73A-000
7-5/8	139.7	24-29.7	35.7-44.2	2-7/8 EUE 8RD	73.0	6.672	169.47	2.500	63.50	T601-75A-000
7-5/8	139.7	33-39	49.1-58.0	2-7/8 EUE 8RD	73.0	6.453	163.91	2.500	63.50	T601-75B-000
8-5/8	139.7	24-40	35.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	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

- ◆ 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





RETRIEVABLE PACKERS

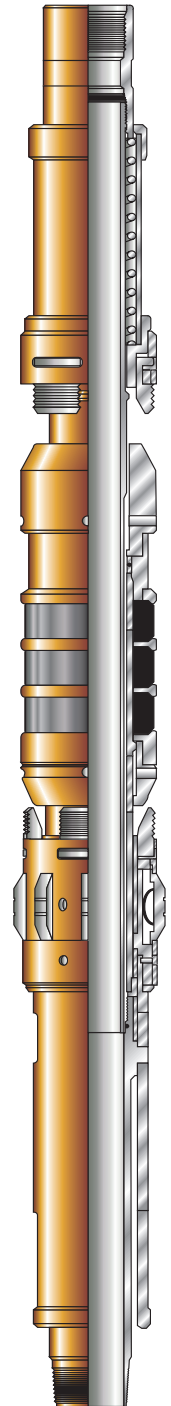
P603 ASI-X HP PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	15.1-16.6	22.5-24.7	1.900 EUE 10RD	48.3	3.594	91.29	1.500	38.10	T603-45D-000
4-1/2	114.3	9.5-13.5	14.14-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	1.938	49.23	T603-45A-000
4-1/2	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	1.938	49.23	T603-45B-000
4-1/2	114.3	9.5-13.5	14.14-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T603-46A-000
4-1/2	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	2.000	50.80	T603-46B-000
5	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	1.938	49.23	T603-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	1.938	49.23	T603-50B-000
5-1/2	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T603-55C-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T603-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T603-55B-000
5-1/2	139.7	13-14	19.3-20.8	2-7/8 EUE 8RD	73.0	4.812	122.22	2.375	60.30	T603-56C-000
5-1/2"	139.7	13-15.5	19.3-23.1	2-7/8 EUE 8RD	73.0	4.781	121.44	2.375	60.30	T603-56D-000
5-1/2"	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T603-56A-000
5-1/2"	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T603-56B-000
6"	152.4	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	5.188	131.78	2.375	60.30	T603-60A-000
6-5/8"	168.3	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T603-65A-000
7"	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T603-70B-000
7"	177.8	23-29	34.2-43.2	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T603-70C-000
7"	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T603-70A-000
7-5/8"	193.7	24-29.7	35.7-44.2	2-7/8 EUE 8RD	73.0	6.672	169.47	2.500	63.50	T603-75B-000
7-5/8"	193.7	33.7-39	50.2-58.0	2-7/8 EUE 8RD	73.0	6.453	163.91	2.500	63.50	T603-75A-000
8-5/8"	219.1	28-40	41.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	T603-85A-000
8-5/8"	219.1	24-40	35.7-59.5	3-1/2 EUE 8RD	88.9	7.500	190.50	3.000	76.20	T603-86A-000
9-5/8"	244.5	32.3-43.5	48.1-64.7	4-1/2 EUE 8RD	114.3	8.500	215.90	4.000	101.60	T603-95B-000
9-5/8"	244.5	43.5-53.5	59.5-79.6	4-1/2 EUE 8RD	114.3	8.250	209.60	4.000	101.60	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 at the packer.

- ◆ 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





RETRIEVABLE PACKERS

P603 ASI-X PRODUCTION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-7/8	73.0	6.4-6.5	9.5-9.7	1.050 EUE 10RD	26.67	2.250	57.15	.625	15.88	T603-25A-000
3-1/2	88.9	9.2-10.2	13.7-15	1.900 NU 10RD	48.3	2.781	70.62	1.250	31.75	T603-35A-000
4	101.6	9.5-11	14.14-16.4	1.900 EUE 10RD	48.3	3.250	82.55	1.500	38.10	T603-40A-000
4-1/2	114.3	15.1-16.6	22.5-24.7	1.900 EUE 10RD	48.3	3.594	91.29	1.500	38.10	T603-45C-000
4-1/2	114.3	9.5-13.5	14.14-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	1.938	49.23	T603-45A-000
4-1/2	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	1.938	49.23	T603-45B-000
4-1/2	114.3	9.5-13.5	14.14-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T603-46A-000
4-1/2	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	2.000	50.80	T603-46B-000
5	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	1.938	49.23	T603-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	1.938	49.23	T603-50B-000
5-1/2	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T603-55C-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T603-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T603-55B-000
5-1/2	139.7	13-14	19.3-20.8	2-7/8 EUE 8RD	73.0	4.812	122.22	2.375	60.30	T603-56C-000
5-1/2"	139.7	13-15.5	19.3-23.1	2-7/8 EUE 8RD	73.0	4.781	121.44	2.375	60.30	T603-56D-000
5-1/2"	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T603-56A-000
5-1/2"	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T603-56B-000
6"	152.4	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	5.188	131.78	2.375	60.30	T603-60A-000
6-5/8"	168.3	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T603-65A-000
7"	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T603-70B-000
7"	177.8	23-29	34.2-43.2	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T603-70C-000
7"	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T603-70A-000
7-5/8"	193.7	24-29.7	35.7-44.2	2-7/8 EUE 8RD	73.0	6.672	169.47	2.500	63.50	T603-75A-000
7-5/8"	193.7	33.7-39	50.2-58.0	2-7/8 EUE 8RD	73.0	6.453	163.91	2.500	63.50	T603-75B-000
8-5/8"	219.1	24-40	35.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	T603-85A-000
9-5/8"	244.5	32.3-43.5	48.1-64.7	4-1/2 EUE 8RD	114.3	8.500	215.90	4.000	101.60	T603-95B-000
9-5/8"	244.5	43.5-53.5	59.5-79.6	4-1/2 EUE 8RD	114.3	8.250	209.60	4.000	101.60	T603-95A-000
10-3/4	273.1	32.75-45.5	48.6-67.9	4-1/2 EUE 8RD	114.3	9.687	246.05	4.000	101.60	T603-10A-000

P604 ASI-XS INJECTION PACKER

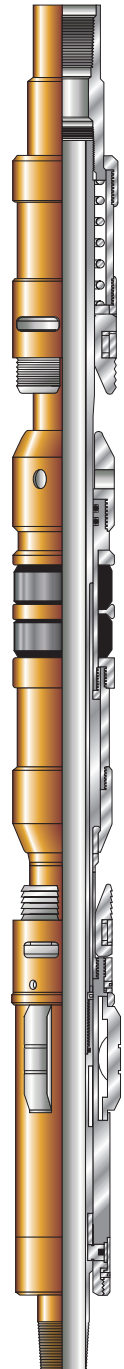
The P604 ASI-XS Injection Packer is a short economical packer designed for shallow injection wells. The design allows the packing elements to be energized in tension or compression making the *ASI-XS* ideal for shallow wells run on fiberglass tubing string. The doublegrip design makes the *ASI-XS* ideal 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.

- ◆ TENSION OR COMPRESSION SET
- ◆ ¼ TURN TO SET AND RELEASE
- ◆ TUBING CAN BE LEFT IN TENSION, COMPRESSION OR NEUTRAL
- ◆ SHEAR RELEASE





RETRIEVABLE PACKERS

P604 ASI-XS INJECTION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	1.938	49.23	T604-45A-000
4-1/2	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	1.938	49.23	T604-45B-000
5	127	11.5-18	17.1-26.8	2-3/8 EUE 8RD	60.3	4.125	101.78	1.938	49.23	T604-50A-000
5	127	18.-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	1.938	49.23	T604-50B-000
5-1/2	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T604-55C-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T604-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T604-55B-000
5-1/2	139.7	13-14	19.3-20.8	2-7/8 EUE 8RD	73.0	4.812	122.22	2.375	60.30	T604-56C-000
5-1/2	139.7	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T604-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T604-56B-000
6	152.4	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	5.188	131.78	2.375	60.30	T604-60A-000
6-5/8	168.3	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T604-65B-000
7	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T604-70B-000
7	177.8	23-29	34.2-43.2	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T604-70C-000
7	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T604-70A-000
7	177.8	17-26	25.3-38.7	3-1/2 EUE 8RD	88.9	6.000	152.40	3.000	76.20	T604-73B-000
7	177.8	23-29	34.2-43.2	3-1/2 EUE 8RD	88.9	5.969	151.61	3.000	76.20	T604-73C-000
7	177.8	26-35	38.7-52.1	3-1/2 EUE 8RD	88.9	5.875	149.23	3.000	76.20	T604-73A-000
7	177.8	35-38	52.1-56.5	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T604-66C-000

P611 ASII COMPRESSION PACKER

The P611 ASII DOUBLE GRIP RETRIEVABLE PACKER is used for production, stimulation and testing. The mechanical upper hold down system reduces the cost and maintenance of a button type hydraulic hold down system. The **ASII Packer** is equipped with a running bypass that reduces swabbing. Set down weight closes the bypass valve, sets the upper and lower slips and energizes the packing elements. The closed bypass valve activates the pressure balanced hold down system. Pressure from below aids in holding the bypass valve closed and preventing upward movement of the tubing string.

- ◆ **NO HYDRAULIC HOLD DOWN BUTTONS**
- ◆ **BUILT IN UNLOADER WASHES DEBRIS FROM WHEN RETRIEVING**
- ◆ **SEQUENTIAL RELEASE UPPER SLIP SYSTEM**
- ◆ **AVAILABLE IN AUTOMATIC AND MANUAL CONFIGURATIONS**





RETRIEVABLE PACKERS

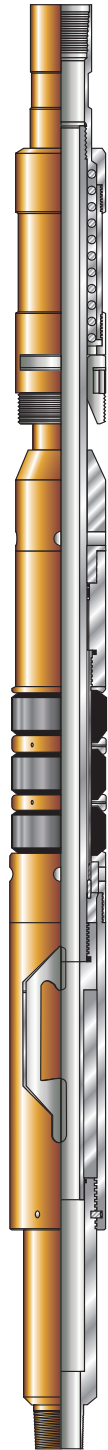
P611 ASII COMPRESSION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-7/8	73.0	6.4-6.5	9.5-9.7	1.050 EU 10RD	26.7	2.250	57.15	.625	15.88	T611-25A-000
3-1/2	88.9	7.7-10.2	11.5-15	1.900 NU 10RD	48.3	2.781	70.63	1.250	37.75	T611-35A-000
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T611-45A-000
5	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	2.000	50.80	T611-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	2.000	50.80	T611-50B-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T611-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T611-55B-000
5-1/2	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T611-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T611-56B-000
7	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T611-70B-000
7	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T611-70A-000

P628 AS-5 ANCHOR PACKER

The P628 AS-5 ANCHOR PACKER is the upper packer in a zone isolation completion. The packer was designed to run above the AS-6 COMPRESSION PACKER. The AS-5 Packer sets by applying weight closing the bypass seal and energizing the packing elements. Once set the AS-5 can be locked in place allowing the tubing string to be removed using the T-2 On/Off Tool. The AS-5 sets and releases with one quarter turn right hand rotation at the packer.

- ◆ **ALLOWS TUBING DISCONNECT IN STRADDLE COMPLETIONS**
- ◆ **SEQUENTIAL RELEASE SLIP SYSTEM**
- ◆ **LARGE BYPASS AREA**
- ◆ **EQUALIZING BYPASS SYSTEM OPENS BEFORE UPPER SLIPS ARE RELEASED**





RETRIEVABLE PACKERS

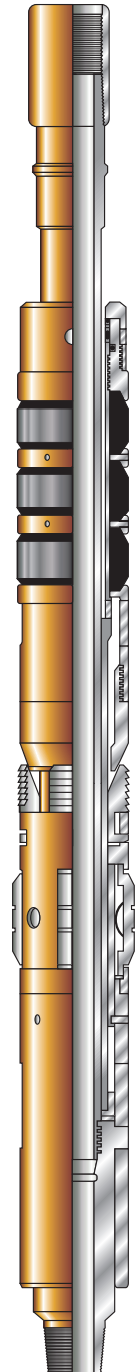
P628 AS-5 ANCHOR PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T628-45A-000
5	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	2.000	50.80	T628-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	2.000	50.80	T628-50B-000
5-1/2	139.7	13-20	19.3-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T628-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T628-55B-000
5-1/2	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T628-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T628-56B-000
7	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T628-70B-000
7	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T628-70A-000
7-5/8	193.7	24-29.7	35.7-44.2	3-1/2 EUE 8RD	88.9	6.672	169.47	3.000	76.20	T628-76A-000
8-5/8	219.1	24-40	35.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	T628-85A-000

P629 AS-6 SINGLE GRIP COMPRESSION PACKER

The P629 As-6 Single Grip Compression Packer was specifically designed as the lower packer in a zone isolation completion. It is run with the *AS-5* anchor packer above creating a system that sets with compression, but allows the tubing string to be removed from the upper packer using the *T-2 ON/OFF TOOL*. The extended stroke seal area of the *AS-6* allows for tubing movement or pressure changes between the two packers while maintaining a seal. The *AS-6 PACKER* is available in right and left hand automatic or manual j-slot configurations. The *AS-6 PACKER* can also be used as a single grip production packer in completions where low differential pressure from below the packer is expected.

- ◆ EXTENDED STROKE SEAL AREA
- ◆ LARGE BYPASS AREA
- ◆ USES COMMON REPLACEMENT PARTS





RETRIEVABLE PACKERS

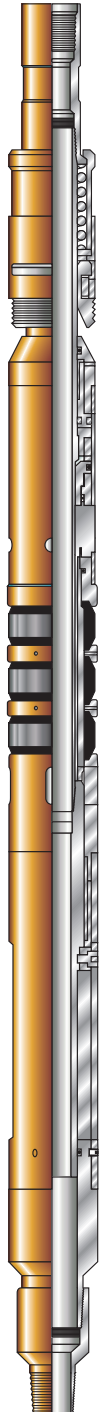
P629 AS-6 SINGLE GRIP COMPRESSION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.9	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T629-45A-000
5	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	2.000	50.80	T629-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	2.000	50.80	T629-50B-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T629-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T629-55B-000
5-1/2	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T629-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T629-56B-000
7	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T629-70B-000
7	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T629-70A-000
8-5/8	219.1	24-40	35.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	T629-85A-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..

- ◆ 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





RETRIEVABLE PACKERS

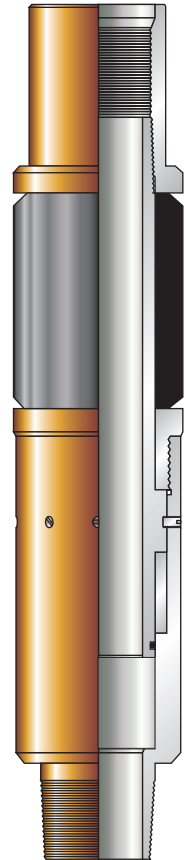
P636 SNAPSET II COMPRESSION SET ISOLATION PACKER

CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
2-7/8	73.0	6.4-6.5	9.5-9.7	1.050 EUE 10RD	26.67	2.250	57.15	.625	15.88	T636-25A-000
4	101.6	9.5-11	14.14-16.4	1.900 EUE 10RD	48.3	3.250	82.55	1.500	38.10	T636-40A-000
4-1/2	114.3	15.1-16.6	22.5-24.7	1.900 EUE 10RD	48.3	3.594	91.29	1.500	38.10	T636-45C-000
4-1/2	114.3	9.5-13.5	14.14-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	1.938	49.23	T636-45A-000
4-1/2	114.3	13.5-15.1	20.1-22.5	2-3/8 EUE 8RD	60.3	3.656	92.86	1.938	49.23	T636-45B-000
5	127	11.5-15	17.1-22.3	2-3/8 EUE 8RD	60.3	4.125	104.78	1.938	49.23	T636-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	1.938	49.23	T636-50B-000
5-1/2	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T636-55C-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T636-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T636-55B-000
5-1/2	139.7	13-14	19.3-20.8	2-7/8 EUE 8RD	73.0	4.812	122.22	2.375	60.30	T636-56C-000
5-1/2"	139.7	13-15.5	19.3-23.1	2-7/8 EUE 8RD	73.0	4.781	121.44	2.375	60.30	T636-56D-000
5-1/2"	139.7	15.5-20	23.1-29.8	2-7/8 EUE 8RD	73.0	4.625	117.48	2.375	60.30	T636-56A-000
5-1/2"	139.7	20-23	29.8-34.2	2-7/8 EUE 8RD	73.0	4.500	114.30	2.375	60.30	T636-56B-000
6"	152.4	14-20	20.8-29.8	2-7/8 EUE 8RD	73.0	5.188	131.78	2.375	60.30	T636-60A-000
6-5/8"	168.3	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T636-65A-000
7"	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T636-70B-000
7"	177.8	23-29	34.2-43.2	2-7/8 EUE 8RD	73.0	5.969	151.61	2.500	63.50	T636-70C-000
7"	177.8	26-32	38.7-47.6	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T636-70A-000
7-5/8"	193.7	24-29.7	35.7-44.2	2-7/8 EUE 8RD	73.0	6.672	169.47	2.500	63.50	T636-75A-000
7-5/8"	193.7	33.7-39	50.2-58.0	2-7/8 EUE 8RD	73.0	6.453	163.91	2.500	63.50	T636-75B-000
8-5/8"	219.1	24-40	35.7-59.5	2-7/8 EUE 8RD	73.0	7.500	190.50	2.500	63.50	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.

- ◆ ECONOMICAL
- ◆ ADJUSTABLE SHEAR VALUES
- ◆ RESETABLE
- ◆ SIMPLE OPERATION



CASING SIZE		TUBING		MAX O.D		MIN. I.D.		PRODUCT NUMBER
in.	mm	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	2-3/8	60.3	3.750	95.25	2.000	50.8	T641-45A-000
5	127	2-3/8	60.3	4.000	101.60	2.000	50.8	T641-50A-000
5-1/2	139.7	2-3/8	60.3	4.625	117.40	2.000	50.8	T641-55A-000
5-1/2	139.7	2-7/8	73.0	4.625	117.40	2.000	50.8	T641-56A-000
7	177.8	2-7/8	73.0	6.000	152.40	2.500	63.5	T641-70B-000
7	177.8	2-7/8	73.0	5.875	149.23	2.500	63.5	T641-70A-000
7	177.8	3-1/2	88.9	5.875	149.23	3.000	76.2	T641-73A-000
7	177.8	3-1/2	88.9	6.000	152.40	3.000	76.2	T641-73B-000
9-5/8	244.5	4-1/2	101.6	8.500	215.90	4.000	101.6	T641-97A-000

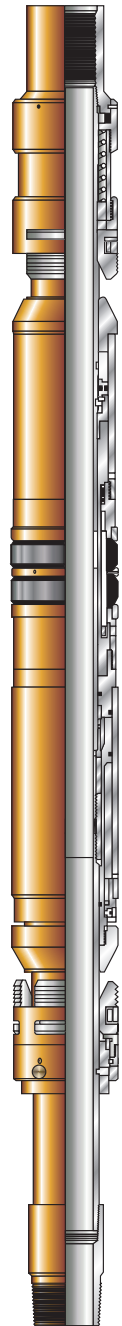
P650 HS-1 HYDROW GRIP

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.

- ◆ **RUNNING BYPASS**
- ◆ **RELEASE EQUALIZING SYSTEM**
- ◆ **PRESSURE BALANCED SYSTEM**
- ◆ **INTERNAL COMPONENTS LOCKED ELIMINATES PREMATURE SET**
- ◆ **STRAIGHT PULL RELEASE**





RETRIEVABLE PACKERS

P650 HS-1 HYDRAULIC SET PACKER

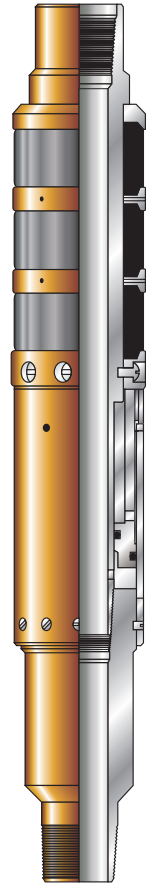
CASING SIZE		CASING WEIGHT		THREAD CONNECTION		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	2-3/8 EUE 8RD	60.3	3.750	95.25	2.000	50.80	T650-45A-000
5	127	11.5-18	17.1-26.8	2-3/8 EUE 8RD	60.3	4.125	104.78	2.000	50.80	T650-50A-000
5	127	18-20.8	26.8-31.0	2-3/8 EUE 8RD	60.3	4.000	101.60	2.000	50.80	T650-50B-000
5-1/2	139.7	13-14	19.3-20.8	2-3/8 EUE 8RD	60.3	4.812	122.22	2.000	50.80	T650-55C-000
5-1/2	139.7	14-20	20.8-29.8	2-3/8 EUE 8RD	60.3	4.625	117.48	2.000	50.80	T650-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EUE 8RD	60.3	4.500	114.30	2.000	50.80	T650-55B-000
6-5/8"	168.3	17-20	25.3-29.8	2-7/8 EUE 8RD	73.0	5.750	146.10	2.500	63.50	T650-65A-000
7"	177.8	17-26	25.3-38.7	2-7/8 EUE 8RD	73.0	6.000	152.40	2.500	63.50	T650-70A-000
7"	177.8	26-35	38.7-52.1	2-7/8 EUE 8RD	73.0	5.875	149.23	2.500	63.50	T650-70C-000
7"	177.8	17-26	25.3-38.7	3-1/2 EUE 8RD	88.9	6.000	152.40	3.000	76.20	T650-73B-000
7	177.8	26-32	38.7-47.6	3-1/2 EUE 8RD	88.9	5.875	149.23	3.000	76.20	T650-73A-000
9-5/8	244.5	32.3-43.5	48.1-64.7	3-1/2 EUE 8RD	88.9	8.500	215.90	3.000	76.20	T650-95B-000
9-5/8	244.5	43.5-53.5	64.7-79.6	3-1/2 EUE 8RD	88.9	8.250	209.60	3.000	76.20	T650-95A-000
9-5/8	244.5	32.3-43.5	48.1-64.7	4-1/2 EUE 8RD	114.3	8.500	215.90	4.000	101.60	T650-96B-000
9-5/8	244.5	43.5-53.5	64.7-79.6	4-1/2 EUE 8RD	114.3	8.250	209.60	4.000	101.60	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.

- ◆ **ECONOMICAL DESIGN**
- ◆ **EASILY ADJUSTABLE SET AND RELEASE SHEAR SCREWS**
- ◆ **COMPACT**



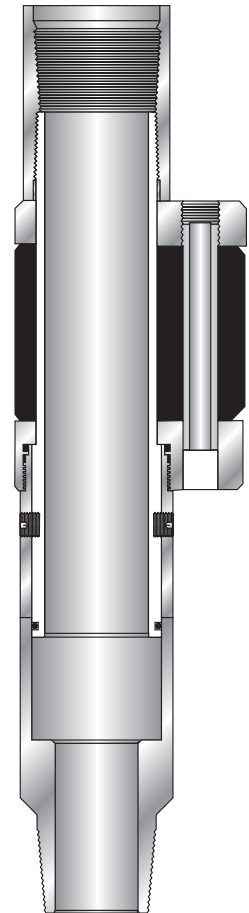
CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5 PPF	14.1-20.9	2-3/8 EUE	60.3	3.750	95.25	2.000	50.80	T654-45A-000
5.0	127	11.5-15 PPF	17.1-22.3	2-3/8 EUE	60.3	4.125	104.78	2.000	50.80	T654-50A-000
5.0	127	18-20 PPF	26.8-31.0	2-3/8 EUE	60.3	4.000	101.6	2.000	50.80	T654-50B-000
5-1/2	139.7	13-20 PPF	19.3-29.8	2-3/8 EUE	60.3	4.625	117.48	2.000	50.80	T654-55A-000
5-1/2	139.7	20-23 PPF	29.8-34.2	2-3/8 EUE	60.3	4.500	114.3	2.000	50.80	T654-55B-000
7.0	177.8	17-16 PPF	25.3-38.7	2-7/8 EUE	73	6.000	152.40	2.500	63.50	T654-70B-000
7.0	177.8	26-32 PPF	38.7-47.6	2-7/8 EUE	73	5.875	149.23	2.500	63.50	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: straight pick-up of the tubing string.



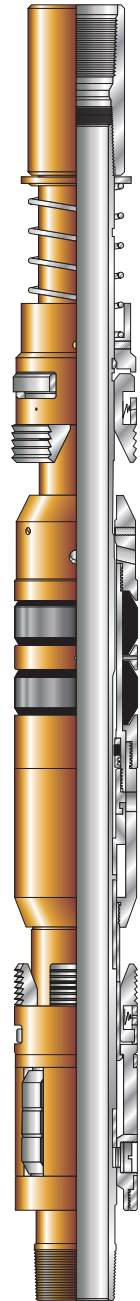
- ◆ SIMPLE OPERATION
- ◆ RUGGED CONSTRUCTION
- ◆ ADJUSTABLE SETTING SHEAR SCREWS

CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBERS
in.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114	9.5-11.6	14.14-17.26	1.900	48.3	3.813	96.85	1.500	38.1	T900-45A-000
5	127	11.5-18	17.1-26.8	1.900	48.3	4.062	103.17	1.500	38.1	T900-50A-000
5-1/2	139.7	14-20	20.8-29.8	1.900	48.3	4.625	117.48	1.500	38.1	T900-55A-000
6-5/8	168.3	20-28	29.8-41.7	2-7/8	73.0	5.625	142.88	2.500	63.5	T900-65A-000
7	177.8	17-29	25.3-43.2	2-7/8	73.0	6.000	152.40	2.500	63.5	T900-70B-000
7	177.8	26-32	38.7-47.6	2-7/8	73.0	5.875	149.23	2.500	63.5	T900-70A-000
7-5/8	193.7	33.7-39	50.2-58.0	2-7/8	73.0	6.453	163.91	2.500	63.5	T900-75A-000
9-5/8	244.5	32-43.5	47.6-64.7	2-7/8	73.0	8.500	215.90	2.500	63.5	T900-95B-000
9-5/8	244.5	43.5-53.5	59.5-79.6	2-7/8	73.0	8.250	209.55	2.500	63.5	T900-95A-000

PEAK RETRIEVABLE DOUBLE GRIP PACKER

The Peak Retrievable Double Grip Packer is designed to effectively meet the requirements for production , testing , zone isolation and injection applications.

- * PRESSURE RATED TO 7.500 PSI (51 MPA)
- * ¼ TURN RIGHT HAND SET AND RELEASE.
- * LARGE INSIDE DIAMETER
- * LARGE BY-PASS FOR RUNNING AND RETRIEVING.
- * BY-PASS OPENS BEFORE UPPER SLIPS RELEASE FOR DEBRIS REMOVAL.
- * SHEAR SAFETY RELEASE.
- * SET WITH TENSION OR COMPRESSION
- * WIRELINE SET



CASING				PACKER						PACKER LENTGH W/ UPPER COUPLING	PRODUCT NUMBER	
SIZE		WEIGHT		O.D. GAUGE RING		MIN. BORE		CONNECTION BOX-PIN				
in.	mm	lb/ft	kg/m	in.	mm	in.	mm	in.	mm			
4-1/2	114.3	9.5-13.5	14.1-20.1	3.75	95.25	1.933	49.10	2-3/8 EUE	60.33	49	1.24	071-450
5-1/2	139.7	13-17	19.5-25.3	4.688	119.07	2.441	62.00	2-7/8 EUE	73.00	48	1.22	071-550
7	177.8	17-26	25.2-38.7	6.05	146	2.441	62.00	2-7/8 EUE	73.00	51.5	1.295	071-700

HYDRO SEAL PACKER

Open Hole Isolation Packer

The Peak Hydro-Seal Packer is designed to be run in either open or cased hole applications. The Hydro-Seal can be ran alone or in tandem in order to provide water shut-off or zonal isolation in either vertical or horizontal wells. The packer is hydraulically set with an internal locking mechanism providing a positive and reliable long-term pack-off. Both durable construction and a small OD makes the Peak Hydro-Seal Packer an excellent alternative to the use of inflatable packers.

Operation

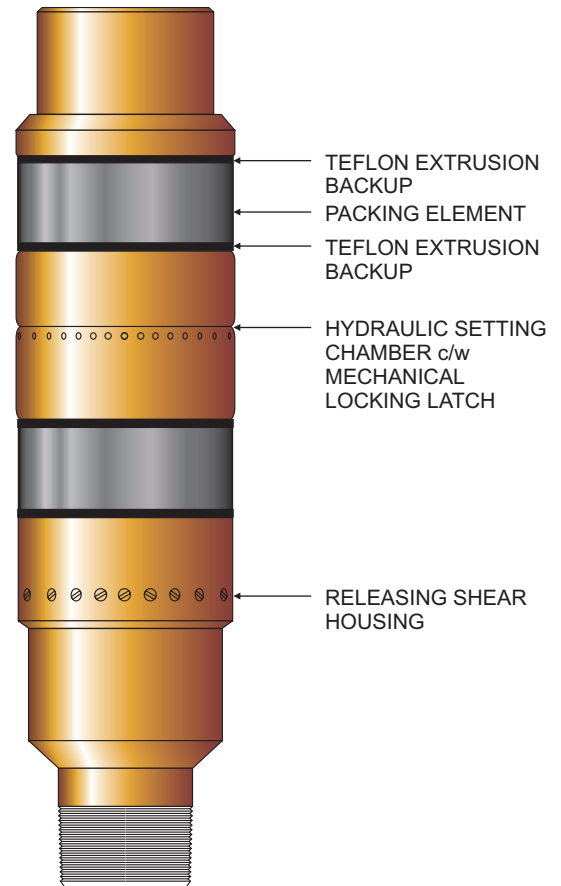
The Hydro-Seal is hydraulically set by applying pressure against a temporary plugging device in the tubing below the packer. The setting pressure can be adjusted through field accessible setting shear pins. The Hydro-Seal is released simply by applying tubing tension at the tool and can be assisted with applied tubing pressure. The shear release can also be adjusted in the field. The Hydro-Seal can be run in conjunction with other Peak completion tools and accessories as required.

Applications

- ✍ Zonal isolation in cased or open hole
- ✍ Gas or water shut-off
- ✍ Testing
- ✍ Selective stimulation
- ✍ Formative fracture isolation
- ✍ Excellent alternative to inflatable packers

Features

- ✍ Multiple packing elements
- ✍ Dual action setting piston
- ✍ Internal locking mechanism
- ✍ Field adjustable setting pressure
- ✍ Field adjustable shear release
- ✍ Tubing pressure shear release assist
- ✍ Minimum OD ideally suited for open hole and horizontal applications
- ✍ Can be ran alone or in tandem
- ✍ Can be used in conjunction with other completion tools and accessories
- ✍ Available in standard, sour service, or premium service version



PACKER O.D.

CASING OD (IN.)	3.750	2.375	4.50	2.375	4.50	2.375	4.625	2.875	5.875	2.875	5.875	2.875	6.0	2.875
CASING OD (mm)	95.25	60.3	114.3	60.3	114.3	60.3	117.4	73.0	149.23	73.0	149.23	73.0	152.4	73.0



PEAK
COMPLETIONS

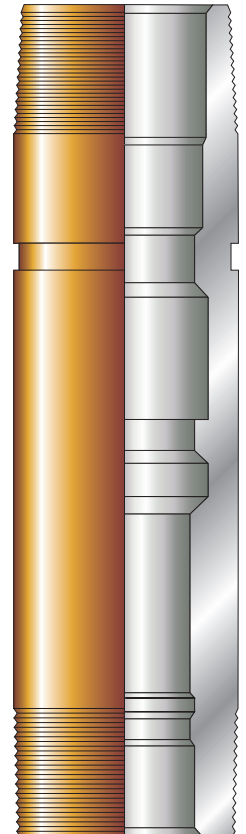
FLOW CONTROL

MODEL "SLXN" LANDING NIPPLE

The ESS-ELI Model "SLXN" 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 "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 are 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 AVAILABILITY CHART*						
Tubing Size (Metric)	1.900	2-1/6	2-3/8	2-7/8	3-1/2	
	48 mm	52mm	60mm	73mm	89mm	
Seal Bore (Metric)	1.500	1.625	1.875	2.312	2.750	2.813
	38mm	41mm	47mm	58mm	69mm	71mm

DIMENSIONAL DATA						
Seal Bore (Metric)	1.500	1.625	1.875	2.312	2.750	2.813
	38mm	41mm	47mm	58mm	69mm	71mm
Length*	13.56	13.75	14.0	14.2	16.14	
OD**	2.12	2.34	2.71	3.23	4.25	
OD**	1.448	1.536	1.791	2.205	2.635	2.698

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

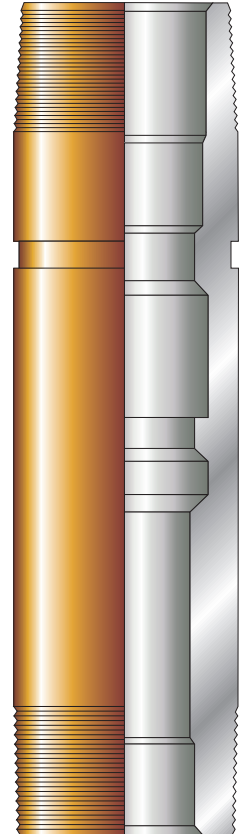
** Nipple OD may vary depending on the type of thread used.

MODEL "SLX" LANDING NIPPLE

The ESS-ELL Model "SLX" Landing Nipple is a Full Bore landing nipple that allows for the location of many FlowControl 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 are 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 AVAILABILITY CHART*						
Tubing Size (Metric)	1.900	2-1/6	2-3/8	2-7/8	3-1/2	
	48 mm	52mm	60mm	73mm	89mm	
Seal Bore (Metric)	1.500	1.625	1.875	2.312	2.750	2.813
	38mm	41mm	47mm	58mm	69mm	71mm

DIMENSIONAL DATA						
Seal Bore (Metric)	1.500	1.625	1.875	2.312	2.750	2.813
	38mm	41mm	47mm	58mm	69mm	71mm
Length*	13.56	13.75	14.0	14.2	16.14	
Min. OD**	2.12	2.34	2.71	3.23	4.25	

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

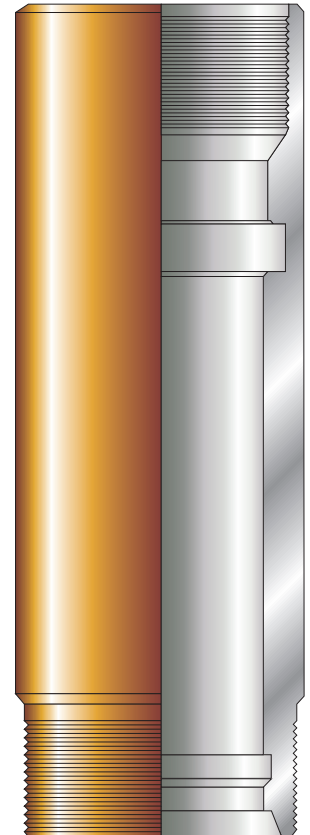
** Nipple OD may vary depending on the type of thread used.

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 AVAILABILITY CHART*										
Tubing Size (Metric)	1.900		2-1/6		2-3/8			2-7/8		3-1/2
	48 mm		52mm		60mm			73mm		89mm
Seal Bore (Metric)	1.43	1.50	1.56	1.62	1.78	1.81	1.87	2.25	2.31	2.75
	36	38	39	41	45	46	47	57	58	

DIMENSIONAL DATA										
Seal Bore (Metric)	1.43	1.50	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. OD**	2.109		2.250		2.560			3.109		3.687
No-Go ID	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

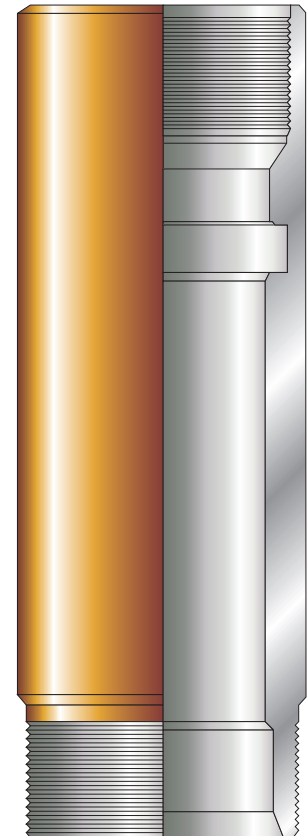
MODEL "EF" LANDING NIPPLE

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. In addition, 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 AVAILABILITY CHART*												
Tubing Size (Metric)	1.900		2-1/6		2-3/8			2-7/8			3-1/2	
	48 mm		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												
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	58	69	71
Length*(in.)	11-15		11-15		12-17			13-18			13-18	
Min. Odt (in.)	2.109		2.25		2.56			3.109			3.687	

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

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

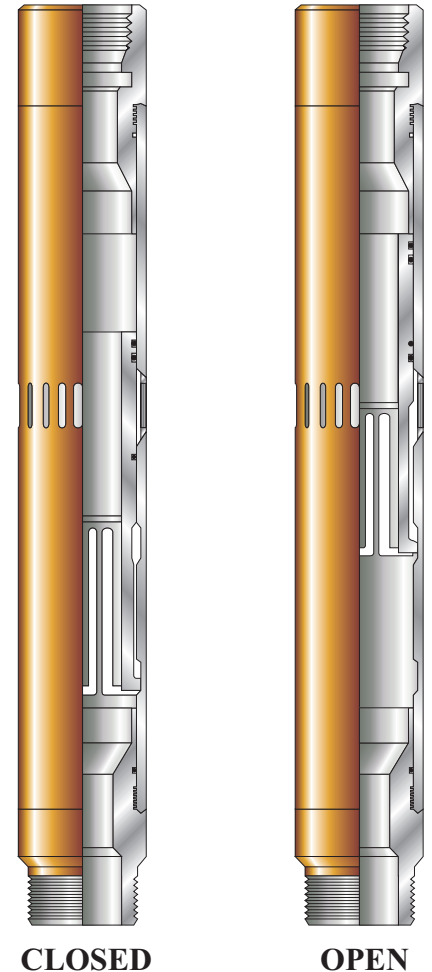
MODEL "EL" SLIDING SLEEVE

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

The closing sleeve has bonded upper seals to ensure the integrity of the seals for the extended periods of time downhole. They can 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.

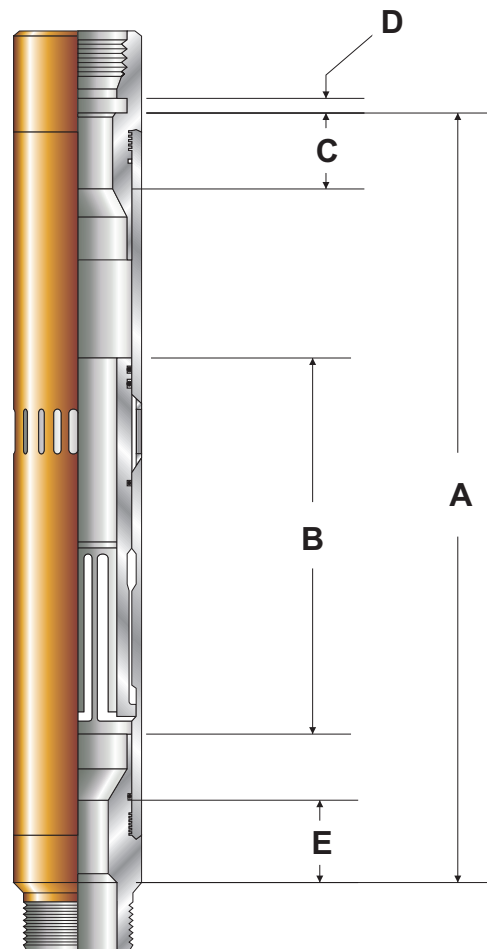
The ESS-ELL Model ED-2 Shifting Tool is used to shift the EL Sliding Sleeve open and closed. The sleeve is designed so that normal wireline activities will not open or close the sleeve inadvertently. Upward jarring opens the sleeve and downward jarring closes it.



SIZE AVAILABILITY CHART													
Tubing Size (Metric)	1.900		2-1/6		2-3/8			2-7/8		3-1/2		4-1/2	
	48 mm		52mm		60mm			73mm		89mm		114mm	
Seal Bore (Metric)	1.43	1.50	1.56	1.62	1.78	1.81	1.87	2.25	2.31	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. OD**	2.375		2.500		2.910			3.410		4.500		5.50	
Inner Sleeve ID	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.

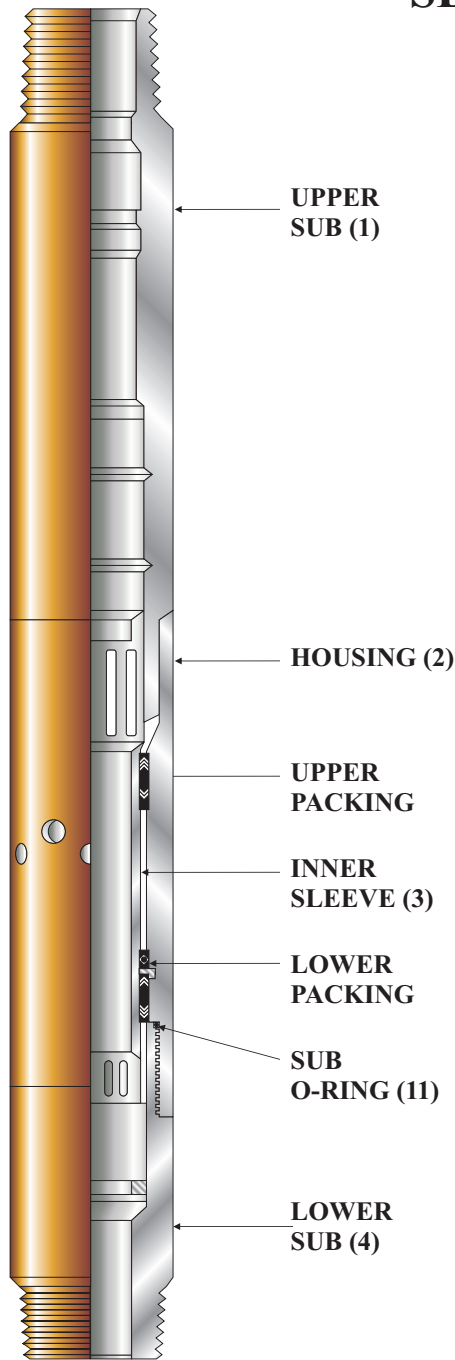
** Maximum OD may be greater if special threads are used.

MODEL "EL" SLIDING SLEEVE

ASSEMBLY:

1. The Inner Sleeve is always assembled from the lower end of the Housing.
2. Replace the O-rings on both the Upper and Lower Sub.
3. Replace the two (2) 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 atop point of the Upper Sub.
8. Install the Lower Sub onto the Housing.9. Shift the Inner Sleeve down the fully closed position.
9. 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 casing.

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.

PARTS LIST

NO.	DESCRIPTION	QTY
1	Upper Sub	1
2	Housing	1
3	Inner Sleeve	11
4	Lower Sub	1
5	Female Adaptor	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 AVAILABILITY CHART					
Seal Bore (Metric)	1.50	1.62	1.87	2.31	2.75
Length*	30.75	31.28	33.91	35.62	44.88
Nom. OD**	2.375	2.62	3.09	3.75	4.28
Minimum ID	1.500	1.625	1.875	2.312	2.750

SIZE AVAILABILITY CHART						
Tubing Size (Metric)	1.900 48mm	2-1/16 52mm	2-3/8 60mm	2-7/8 73mm	3-1/2 89mm	4-1/2 114mm
Seal Bore (Metric)	1.50 38	1.62 41	1.87 47	2.31 58	2.75 69	2.81 71
						3.81 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-in ²	.897	2.355	2.981	4.459
Max. Pressure-psi	10,000	10,000	10,000	8,000
Vee packing reqd.	12	8	12	12
Split Ring Segs reqd.	4	4	4	6

The logo for Peak Completions features the word "PEAK" in large, bold, gold-colored 3D block letters. A light blue, stylized mountain range graphic is positioned behind the letters, with peaks and valleys. Below "PEAK", the word "COMPLETIONS" is written in a smaller, gold-colored, blocky font.

PEAK
COMPLETIONS

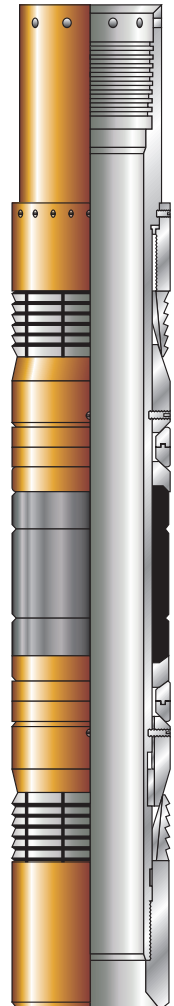
SEAL BORE PACKERS

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.***

- ◆ 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





SEAL BORE PACKERS

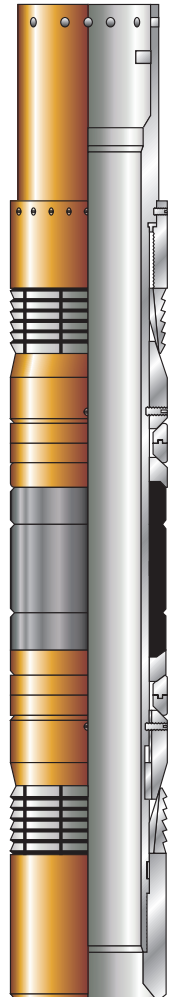
P670 TL PERMA-PACK SEAL BORE PACKER

CASING SIZE		CASING WEIGHT		MAX. O.D. OF TOOL		PACKER BORE		MIN. BORE THRU SEALS		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5 PPF	14.4-20.1	3.750	95.25	2.390	60.71	1.703	43.26	T670-43A-000
4-1/2	114.3	13.5-15.10 PPF	20.1-22.5	3.594	91.29	2.500	63.50	1.901	48.29	T670-44B-000
4-1/2	114.3	9.5-13.5 PPF	14.1-20.1	3.750	95.25	2.688	68.28	1.938	49.23	T670-45A-000
5	127	15-20.8 PPF	22.3-31.0	3.968	100.79	2.390	60.71	1.703	43.26	T670-50A-000
5	127	15-20.8 PPF	22.3-31.0	3.968	100.79	2.688	68.28	1.938	49.23	T670-51A-000
5	127	11.5-13 PPF	17.1-19.3	4.250	107.95	2.688	68.28	1.938	49.23	T670-55C-000
5-1/2	139.7	13-17 PPF	19.3-25.3	4.562	115.87	2.688	68.28	1.938	49.23	T670-55A-000
5-1/2	139.7	17-23 PPF	25.3-34.2	4.437	112.70	2.688	68.28	1.938	49.23	T670-55B-000
5-1/2	139.7	13-17 PPF	19.3-25.3	4.562	115.87	3.000	76.20	2.375	60.30	T670-56A-000
5-1/2	139.7	17-23 PPF	25.3-34.2	4.437	112.70	3.000	76.20	2.375	60.30	T670-56B-000
7	177.8	23-32 PPF	34.2-47.6	5.687	144.45	3.250	82.55	2.406	61.11	T670-70A-000
7	177.8	32-38 PPF	47.6-56.5	5.468	138.89	3.250	82.55	2.406	61.11	T670-70C-000
7	177.8	17-20 PPF	25.3-29.8	6.187	157.15	3.250	82.55	2.406	61.11	T670-70B-000
7	177.8	20-23 PPF	29.8-34.2	6.000	152.40	4.000	101.60	3.000	76.20	T670-71A-000
7	177.8	26-29 PPF	38.7-43.2	5.875	149.23	4.000	101.60	3.000	76.20	T670-71B-000
7-5/8	193.7	24-39 PPF	35.7-58.0	6.625	158.75	3.250	82.55	2.406	61.11	T670-75A-000
7-5/8	193.7	24-33.7 PPF	35.7-50.2	6.500	165.10	4.000	101.60	3.000	76.20	T670-76A-000
7-5/8	193.7	33.7-39 PPF	50.2-58.0	6.125	155.58	4.000	101.60	3.000	76.20	T670-76B-000
9-5/8	244.5	29.3-53.5 PPF	43.6-79.6	8.125	206.38	3.250	82.55	2.406	61.11	T670-95A-000
9-5/8	244.5	29.3-53.5 PPF	43.6-79.6	8.125	206.38	4.000	101.60	3.000	76.20	T670-96A-000
9-5/8	244.5	29.3-53.5 PPF	43.6-79.6	8.125	206.38	4.750	120.65	3.875	98.43	T670-97A-000
9-5/8	244.5	36-47 PPF	53.6-69.9	8.438	214.33	6.000	152.40	4.875	123.83	T670-98B-000
9-5/8	244.5	40-58.4 PPF	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 an equalizing packer plug into the top connection. The *PERMA-PACK* is available with a complete line of tubing seal accessories and elastomers.

- ◆ 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



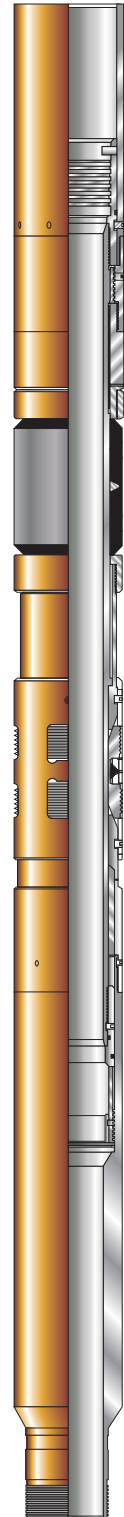
P671 JL PERMA-PACK SEAL BORE PACKER

CASING SIZE		CASING WEIGHT		MAX. O.D. OF TOOL		PACKER BORE		MIN. BORE THRU SEALS		PRODUCT NUMBERS
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	114.3	9.5-13.5 PPF	14.4-20.1	3.750	95.25	2.390	60.71	1.703	43.26	T671-43A-000
4-1/2	114.3	13.5-15.10 PPF	20.1-22.5	3.594	91.29	2.500	63.50	1.901	48.29	T671-44B-000
4-1/2	114.3	9.5-13.5 PPF	14.1-20.1	3.750	95.25	2.688	68.28	1.938	49.23	T671-45A-000
5	127	15-20.8 PPF	22.3-31.0	3.968	100.79	2.390	60.71	1.703	43.26	T671-50A-000
5	127	15-20.8 PPF	22.3-31.0	3.968	100.79	2.688	68.28	1.938	49.23	T671-51A-000
5	127	11.5-13 PPF	17.1-19.3	4.250	107.95	2.688	68.28	1.938	49.23	T671-55C-000
5-1/2	139.7	13-17 PPF	19.3-25.3	4.562	115.87	2.688	68.28	1.938	49.23	T671-55A-000
5-1/2	139.7	17-23 PPF	25.3-34.2	4.437	112.70	2.688	68.28	1.938	49.23	T671-55B-000
5-1/2	139.7	13-17 PPF	19.3-25.3	4.562	115.87	3.000	76.20	2.375	60.30	T671-56A-000
5-1/2	139.7	17-23 PPF	25.3-34.2	4.437	112.70	3.000	76.20	2.375	60.30	T671-56B-000
7	177.8	23-32 PPF	34.2-47.6	5.687	144.45	3.250	82.55	2.406	61.11	T671-70A-000
7	177.8	32-38 PPF	47.6-56.5	5.468	138.89	3.250	82.55	2.406	61.11	T671-70C-000
7	177.8	17-20 PPF	25.3-29.8	6.187	157.15	3.250	82.55	2.406	61.11	T671-70B-000
7	177.8	20-23 PPF	29.8-34.2	6.000	152.40	4.000	101.60	3.000	76.20	T671-71A-000
7	177.8	26-29 PPF	38.7-43.2	5.875	149.23	4.000	101.60	3.000	76.20	T671-71B-000
7-5/8	193.7	24-39 PPF	35.7-58.0	6.625	158.75	3.250	82.55	2.406	61.11	T671-75A-000
7-5/8	193.7	24-33.7 PPF	35.7-50.2	6.500	165.10	4.000	101.60	3.000	76.20	T671-76A-000
7-5/8	193.7	33.7-39 PPF	50.2-58.0	6.125	155.58	4.000	101.60	3.000	76.20	T671-76B-000
9-5/8	244.5	29.3-53.5 PPF	43.6-79.6	8.125	206.38	3.250	82.55	2.406	61.11	T671-95A-000
9-5/8	244.5	29.3-53.5 PPF	43.6-79.6	8.125	206.38	4.000	101.60	3.000	76.20	T671-96A-000
9-5/8	244.5	29.3-53.5 PPF	43.6-79.6	8.125	206.38	4.750	120.65	3.875	98.43	T671-97A-000
9-5/8	244.5	36-47 PPF	53.6-69.9	8.438	214.33	6.000	152.40	4.875	123.83	T671-98B-000
9-5/8	244.5	40-58.4 PPF	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.

- **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 8-5/8-9-5/8 219.8 mm - 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.

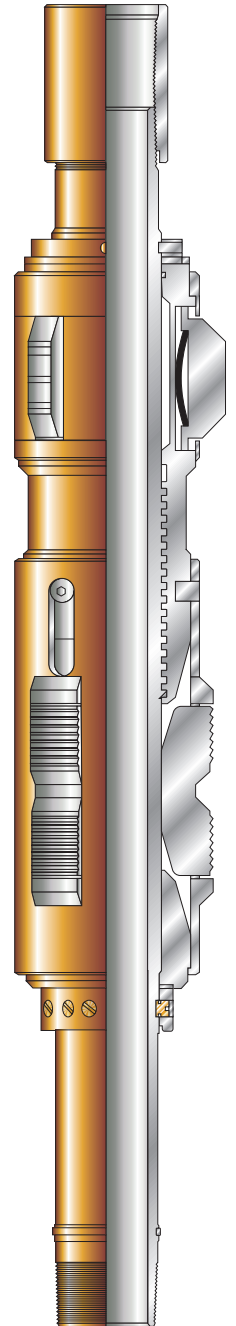
FEATURES:

- * Fully retrievable.
- * Released by right hand rotation or optional left hand.
- * Drag blocks for setting and releasing control.
- * Emergency shear release, each pin is 5000 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.

TECHNICAL DATA:

CASING				ANCHOR	
O.D		WEIGHT		MAX. SLIP TRAVEL	
In.	mm	lbs.	kg	in.	mm
8-5/8	219.08	24.00-44.00	35.71-65.47	8.29	210.56
9-5/8	244.48	32.30-58.00	48.06-86.30	9.26	235.20

ANCHOR			
BODY MAX O.D.	MANDREL I.D.	STD. EUE BOX PIN	NUMBER PRODUCT
6.75	3.00	3.500	058-858
171.45	76.20	88.90	058-958



DRAG BLOCK TYPE ANCHOR CATCHER # 008-01

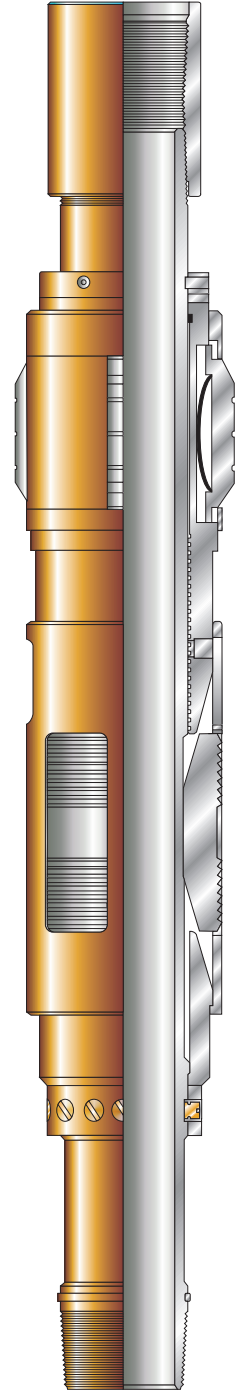
The Drag Block Anchor Catcher is a reliable, retrievable, double grip anchor catcher.

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 5000 lbs shear.
- * When the anchor catcher has been sheared, the slips are completely retracted. Permitting the tubing to move up or down. Eliminating potential damage to the anchor catcher, tubing or casing.



DRAG BLOCK TYPE ANCHOR CATCHER TECHNICAL DATA

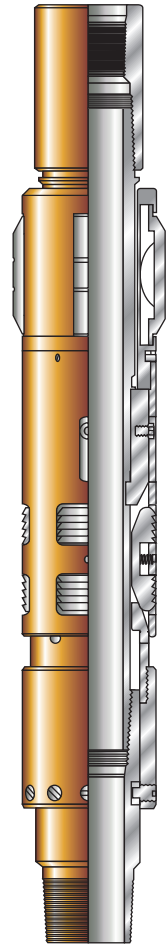
CASING			
O.D.		WEIGHT	
In.	mm	in.	mm
4-1/2	114.3	9.5-11.6	14.14-17.26
5-1/2	139.7	17-20	25.30-29.76
5-1/2	139.7	13-17	19.34-25.30
6-5/8	168.28	12-22	17.86-32.74
7	177.8	23-35.3	14.1-17.2
7	177.8	17-32	25.30-47.62
7-5/8	193.68	36-45	53.57-66.96
9-5/8	244.48	32.3-58	48.06-86.30

ANCHOR								PRODUCT NUMBER
MAXIMUM SLIP TRAVEL		BODY MAX OD		MANDREL ID		EUE BOX/PIN		
In.	mm	in.	mm	in.	mm	in.	mm	
4.25	107.95	3.75	111.13	2.000	50.800	2.375	60.325	008-450
5.58	141.73	4.50	114.30	2.440	61.976	2.875	73.025	008-550-A
5.58	141.73	4.50	114.30	2.440	61.976	2.875	73.025	008-550-B
6.80	141.73	5.75	146.05	3.000	76.200	3.500	88.900	008-700-A
6.80	141.73	5.75	146.05	3.000	76.200	3.500	88.900	008-700-A
6.80	141.73	5.75	146.05	3.000	76.200	3.500	88.900	008-700-B
6.80	141.73	5.75	146.05	3.000	76.200	3.500	88.900	008-700-B
9.20	233.68	7.76	197.10	3.000	76.200	3.500	88.900	008-958-B

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.

- ◆ DRAG BLOCK DESIGN FOR DURABILITY AND TORQUE
- ◆ EASILY ADJUSTABLE SHEAR RELEASE MECHANISM
- ◆ FULL BORE DESIGN
- ◆ AVAILABLE IN RIGHT HAND SET FOR PCP APPLICATIONS

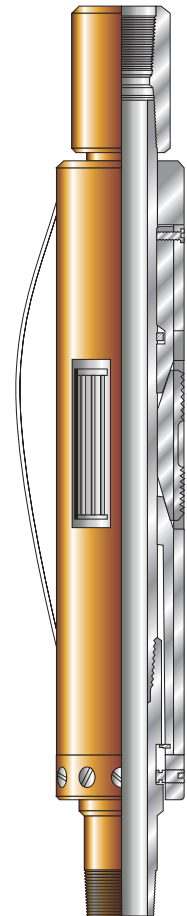


CASING SIZE		CASING WEIGHT		TUBING SIZE		MAX. O.D.		MIN. I.D.		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	In.	mm	
4-1/2	114.3	9.5-13.5	14.14-20.1	2-3/8 EU	60.3	3.750	95.2	2.0	50.8	T312-45A-000
5.0	127	11.5-15	17.1-22.3	2-3/8 EU	60.3	4.000	101.6	2.0	50.8	T312-50A-000
5.0	127	18-20.8	26.8-31.0	2-3/8 EU	60.3	4.125	104.77	2.0	50.8	T312-50B-000
5-1/2	139.7	13-20	19.3-29.8	2-3/8 EU	60.3	4.625	117.47	2.0	50.8	T312-55A-000
5-1/2	139.7	20-23	29.8-34.2	2-3/8 EU	60.3	4.500	114.3	2.0	50.8	T312-55B-000
5-1/2	139.7	13-20	19.3-29.8	2-7/8 EU	73.0	4.625	117.47	2.50	63.5	T312-56A-000
5-1/2	139.7	20-23	29.8-34.2	2-7/8 EU	73.0	4.500	114.3	2.50	63.5	T312-56B-000
7.0	177.8	17-38	25.3-56.5	2-7/8 EU	73.0	5.750	146.1	2.50	63.5	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 left or straight pull of the tubing string will engage the adjustable shear safety release mechanism.

- ◆ 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.		THREAD CONNECTION		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	In.	mm	
4-1/2	114.3	9.5-13.5	14.1-20.1	3.750	95.25	2.000	50.8	2-3/8 EUE 8RD	60.3	T354-45A-000
5-1/2	139.7	13-23	19.3-34.2	4.500	114.3	2.000	50.8	2-3/8 EUE 8RD	60.3	T354-55A-000
5-1/2	139.7	13-23	19.3-34.2	4.500	114.3	2.375	60.3	2-7/8 EUE 8RD	73.0	T354-56A-000
7	177.8	17-35	25.3-52.08	5.875	149.2	2.500	63.5	2-7/8 EUE 8RD	73.0	T354-70A-000
7	177.8	17-35	25.03-52.08	5.875	149.2	2.000	50.8	2-3/8 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.

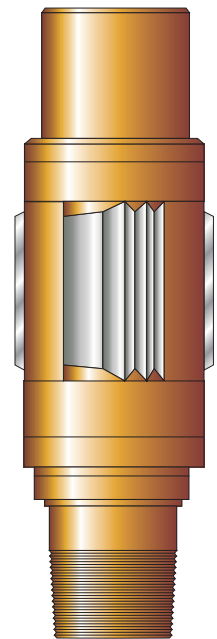
Operation

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							
OD		WEIGHT		ID RANGE			
In.	mm	lb/ft	kg/m	MIN		MAX	
				in.	mm	in.	mm
4-1/2	114.3	9.5-13.5	14.1-20.1	3.92	99.6	4.09	103.9
5-1/2	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
8-5/8	219.0	24-44	35.7-65.5	7.625	193.7	8.191	208.1
9-5/8	244.5	32-53.5	47.6-79.6	8.435	214.2	9.001	228.6

ANCHOR OD		ANCHOR ID 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	62.0	2.875	73.0
5.880	149.0	2.440	62.0	2.875	NA
7.000	177.8	3.000	76.20	3.500	88.90
8.250	209.6	3.000	76.20	3.500	88.90



PEAK
COMPLETIONS

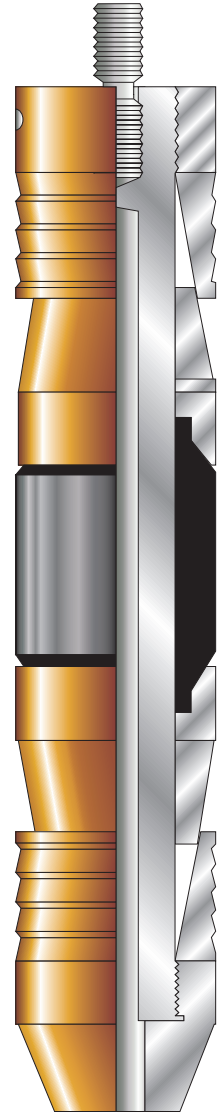
PLUGS AND RETAINERS

MODEL DB-5 BRIDGE PLUG

The Model DB-5 Bridge Plug is an economical, fully drillable bridge plug. For applications where 35 mpa (5000psi) plug is sufficient. The **DB-5** is suitable for well abandonments or zone suspension.

QUALITIES:

- * COST COMPETITIVE
- * CONSTRUCTED WITH DRILLABLE MATERIALS
- * 35 MPA (5000 PSI) RATED
- * TEMPERATURE RATING 93 DEGREES CELSIUS OR 200 DEGREES FAHRENHEIT
- * RUNS ON EXISTING WIRELINE SETTING TOOL OR HYDRAULIC SETTING TOOLS.



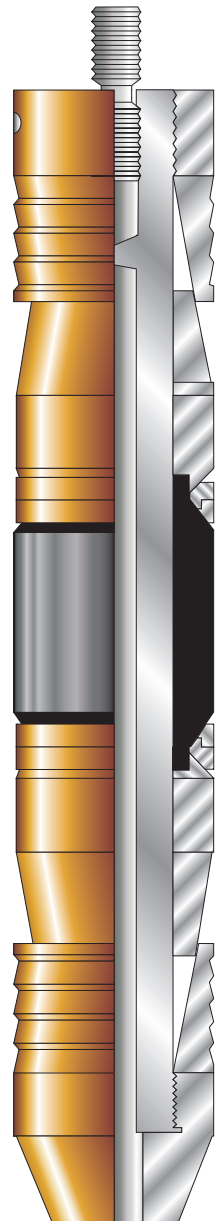
CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SETTING FORCE		PRODUCT NUMBER
						MIN		MAX				
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in	mm	lbs	daN	
4-1/2	114.3	9.5-16.6	14.1-24.7	3.500	88.9	3.826	97.18	4.090	103.89	33,000	14,678	450DB5-00
5-1/2	139.7	13-23	20.8-34.2	4.312	109.52	4.580	116.33	5.044	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 (10,000psi) plug is sufficient. The **DB-10** is suitable for well abandonments or zone suspension.

QUALITIES:

- * COST COMPETITIVE
- * 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 SPECIFICATION GUIDE

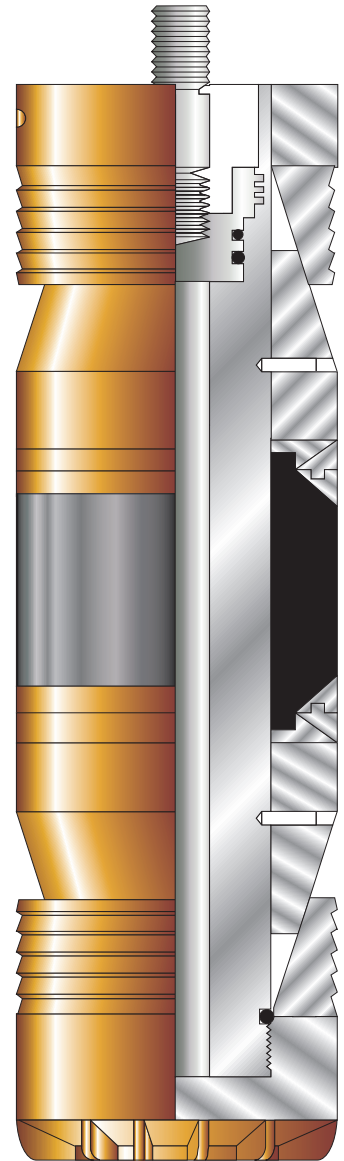
CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SETTING FORCE		PRODUCT NUMBER
						MIN.		MAX.				
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	lbs	daN	
2-3/8	60.3	4-5.8	5.95-8.6	1.750	44.45	1.780	45.21	2.074	52.68	13,000	5,782	238DB10-00
2-7/8	73.0	6.4-6.5	9.5-9.7	2.220	56.39	2.340	59.44	2.525	64.14	13,000	5,782	278DB10-00
3-1/2	88.9	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
4-1/2	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
5-1/2	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
5-3/4	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
6-5/8	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
7-5/8	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
8-5/8	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.

QUALITIES:

- * COST COMPETITIVE
- * 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.





PLUGS & RETAINERS

MODEL DB 9-5/8”-20” BRIDGE PLUG

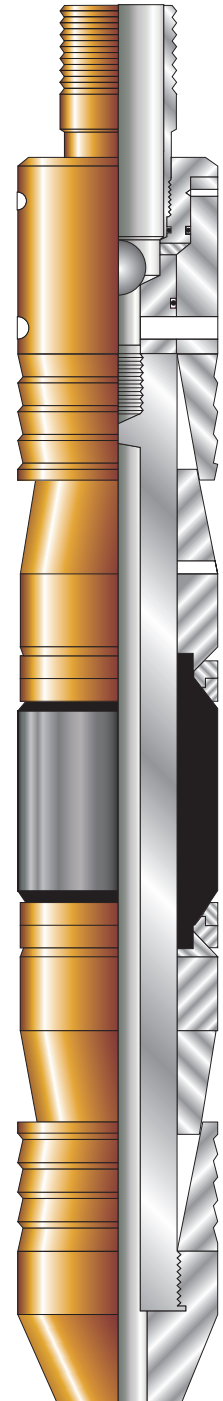
CASING SIZE		CASING WEIGHT		PLUG O.D.		SETTING RANGE				SETTING FORCE		
In.	mm	lbs/ft	kg/m	in.	mm	MIN		MAX		lbs	daN	
						in.	mm	in.	mm			
9-5/8	244.5	29.3-58.4	43.6-86.9	8.125	206.38	8.379	212.83	9.063	230.20	50,000	22,240	958DB-8
10-3/4	269.9	32.7-60.7	48.7-90.3	9.437	239.70	9.660	245.36	10.192	258.88	50,000	22,240	1075DB-5
11-3/4	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
11-3/4	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
13-3/8	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.

QUALITIES:

- * COST COMPETITIVE
- * 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 HYDRAULIC MECHANICAL BRIDGE PLUG SPECIFICATION GUIDE

CASING SIZE	CASING WEIGHT		PLUG O.D.		SETTING RANGE			SURFACE PRESSURE		MINIMUM PULL FORCE		MAXIMUM PULL FORCE		PRODUCT NUMBER	
	in.	mm	lbs/ft	kg/m	in.	mm	mm	in.	mm	psi	mPa	lbs	daN		
3-1/2	88.9	5.7-10.3	8.6-15.3	2.750	69.85	2.867	72.82	3.258	82.75	10.3	10,000	4448	13,000	5782	350HM2-10
4	101.6	5.6-14	8.3-20.8	3.190	81.03	3.340	84.84	3.732	94.79	10.3	17,000	7566	20,000	8896	400HM2-10
4-1/2	114.3	9.5-16.6	14.1-24.7	3.562	90.47	3.826	97.18	4.090	103.89	10.3	28,000	12,454	30,000	13,344	450HM2-10
5	127	11.5-20.8	17.1-31.0	3.937	100.0	4.154	105.51	4.560	115.82	10.3	28,000	12,454	30,000	13,344	500HM2-10
5-1/2	139.7	13-23	19.3-34.2	4.312	109.52	4.580	116.33	5.044	128.12	10.3	28,000	12,454	30,000	13,344	550HM2-10
5-3/4	146.1	14-25.2	20.8-37.5	4.699	119.35	4.890	124.21	5.290	134.37	10.3	30,000	13,344	33,000	14,678	575HM2-10
6-5/8	168.3	17-32	25.3-47.6	5.375	136.53	5.595	142.11	6.135	155.83	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	10.3	45,000	20,016	50,000	22,240	700HM2-10
7-5/8	193.7	20-39	29.8-58.0	6.312	160.32	6.625	168.28	7.125	180.98	10.3	45,000	20,016	50,000	22,240	758HM2-10
8-5/8	219.1	24-49	35.7-72.9	7.125	180.98	7.310	185.67	8.097	205.66	10.3	45,000	20,016	50,000	22,240	858HM2-10
9-5/8	244.5	29.3-58.4	43.6-86.9	8.175	207.65	8.379	212.83	9.063	230.20	10.3	45,000	20,016	50,000	22,240	958HM2-8
10-3/4	273.1	32.7-60.7	48.6-90.3	9.437	239.70	9.660	245.36	10.192	258.88	10.3	45,000	20,016	50,000	22,240	1075HM2-5
13-3/8	339.7	48-84.5	71.4-125.7	11.880	301.75	12.175	309.25	12.715	322.96	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

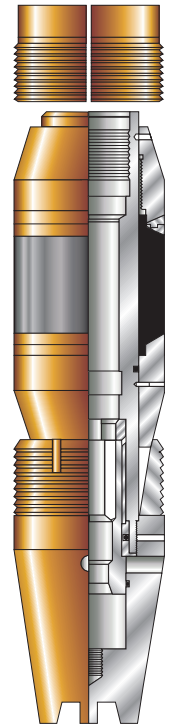
The Model CR Cement Retainer is an economical, fully drillable cement retainer. Easily converted from wireline set to mechanical set with minimal changes. This provides the user with reliable high pressure plugging devices.

APPLICATION:

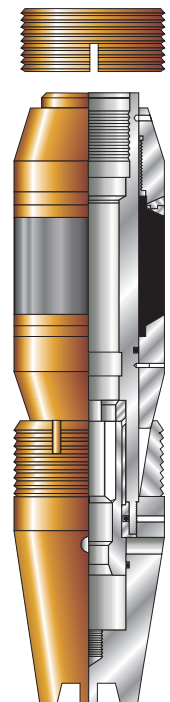
THE CR CEMENT RETAINER IS DESIGNED FOR DEEP, HOT, HIGH RISK, PROLONGED OR COMPLICATED SQUEEZE CEMENT JOBS.

QUALITIES:

- * 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



**Mechanical Set
Cement Retainer**



**Wireline Set
Cement Retainer**

MODEL CR CEMENT RETAINER SPECIFICATION GUIDE

CASING SIZE						SETTING RANGE.			
						MINIMUM.		MAXIMUM	
CASING WEIGHT		RETAINER O.D.		MINIMUM.		MAXIMUM			
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm
4-1/2	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	17.1-31.0	3.937	100	4.156	105.56	4.560	115.82
5-1/2	139.7	13-23	19.3-34.2	4.312	109.52	4.580	116.33	5.044	128.12
5-3/4	146	14-25.2	20.8-37.5	4.7000	119.38	4.890	124.21	5.290	134.37
6-5/8	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	25.3-52.0	5.688	144.48	6.004	152.50	6.538	166.07
7-5/8	193.7	28-39	29.8-58.0	6.312	160.32	6.625	168.28	7.125	180.98
8-5/8	219.1	24-49	35.7-72.9	7.125	180.98	7.511	190.78	8.097	206.66
9-5/8	244.5	29.3-58.4	43.6-86.9	8.125	206.38	8.435	214.25	9.063	230.20
10-3/4	273	32.8-60.7	48.7-90.3	9.437	239.70	9.660	245.36	10.192	258.88
11-3/4	298.5	38-60	56.5-89.3	10.437	265.10	10.772	273.61	11.150	283.21
11-3/4	298.5	60-83	89.3-123.5	9.937	252.40	10.192	258.88	10.772	273.61
13-3/8	339.7	48-80.7	71.4-120.0	11.875	301.63	12.175	309.25	12.715	322.96
316	406.4	65.-118	97.6-175.5	14.125	358.78			15.250	387.35
20	508	94-133	139.8-197.8	18.375	466.73	18.730	475.74	19.124	485.75

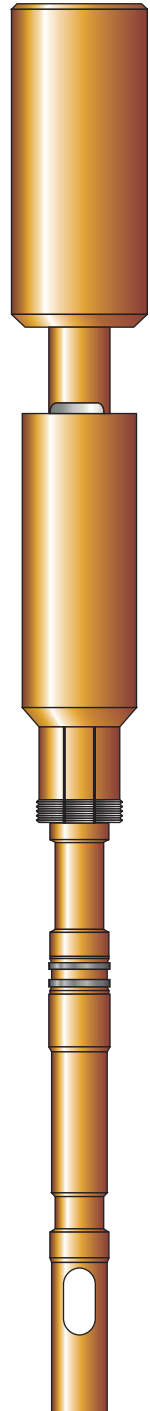
MECHANICAL J-LATCH STINGER

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.

QUALITIES:

- * 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
4-1/2	114.3	2-3/8	60.3
5-1/2	139.7	2-7/8	73.0
7	177.8	2-7/8	73.0



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.

PRODUCT FEATURES:

- * **SIMPLE OPERATION**
- * **DEPENDABLE SEALS**

OPERATION PROCEDURE:

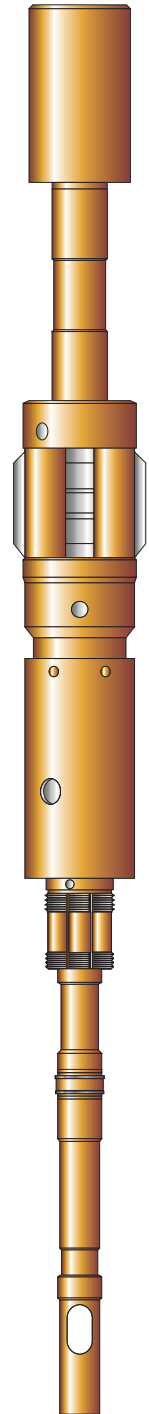
Run the Retainer Mechanical Setting Tool/Retainer combination assembly at a moderate rate of speed while preventing right-hand rotation transmitting to the setting tool. It is recommended tubing be rotated left every 10 stands until positive resistance is felt.

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 below.

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 reattached 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.



CASING SIZE		TUBING SIZE	
In.	mm	in.	mm
4-1/2	114.3	2-3/8	60.3
5-1/2	139.7	2-7/8	73.0
7	177.8	2-7/8	73.0



PLUGS & RETAINERS

MECHANICAL SETTING TOOL

CASING				RETAINER MECHANICAL SETTING TOOL						
SIZE		WEIGHT		O.D.		I.D.		CONNECTION		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	in.	mm	
4-1/2	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	127.0	11.5-18.0	17.1-26.8	3.593	91.3	0.785	22.2	2.375	60.3	985-2350-0000
5-1/2	139.7	13.0-23.0	19.3-34.2	4.312	109.5	0.785	22.2	2.375	60.3	985-2355-0000
6-5/8	168.3	17.0-34.0	25.3-50.6	4.938	125.4	1.250	31.8	2.875	73.0	985-2765-0000
7	177.8	17.0-35.0	25.3-52.1	5.375	136.5	1.250	31.8	2.875	73.0	985-2770-0000
7-5/8	193.7	20.0-39.0	29.8-58.0	6.312	160.3	1.250	31.8	2.875	73.0	985-2775-0000
8-5/8	219.1	24.0-49.0	35.7-72.9	7.125	181.0	1.250	31.8	2.875	73.0	985-2785-0000
9-5/8	244.5	29.3-53.5	43.6-79.6	8.125	206.4	1.250	31.8	2.875	73.0	985-2795-0000

Other sizes available upon request

The logo features the word "PEAK" in large, bold, gold-colored 3D block letters. A light blue, wavy line resembling a mountain range or a stylized wave passes behind the letters. Below "PEAK" is the word "COMPLETIONS" in a smaller, gold-colored, blocky font.

PEAK
COMPLETIONS

OPEN HOLE PACKERS

ISO-PAK Hydraulic Set Isolation Packer

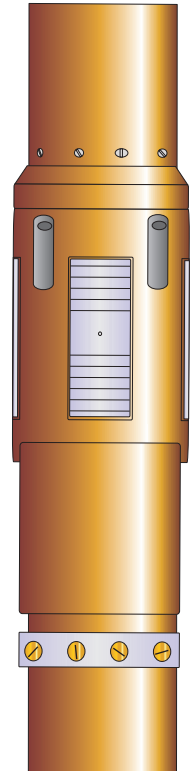
The Peak ISO-PAK Isolation Packer is a **solid element, solid mandrel, hydraulic** set open-hole isolation packer that holds pressure from above and below. The **ISO-PAK** is used for isolation in open-hole environments and is capable of high differential ratings in most formations. The **ISO-PAK** is more dependable than the inflatable tools and uses a patent pending dual anti-preset to ensure the packer will not set without hydraulic pressure being applied to the tool. The **ISO-PAK** is one part of the most versatile open-hole completion system available and is used in conjunction with the Peak STRATA-PAK Anchor Packer.

For ISO-PAK Tech data and information contact your Peak Completion Technologies Sales Representative.

- ◆ **FULL BORE DESIGN**
- ◆ **SOLID ELEMENT / SOLID MANDREL DESIGN**
- ◆ **HOLDS PRESSURE FROM ABOVE AND BELOW**
- ◆ **DUAL ANTI-PRESET ENSURES PACKER IS NOT ACCIDENTLY SET**
- ◆ **DURABLE CONSTRUCTION**
- ◆ **EASILY ADJUSTABLE SETTING PRESSURE**
- ◆ **ADJUSTABLE SHEAR VALUES**
- ◆ **TYPICALLY PROVIDED WITH 10K RATING**
- ◆ **AVAILABLE FOR SERVICE IN HOSTILE ENVIRONMENTS**
- ◆ **ELEMENT SYSTEM IS NOT AFFECTED BY PRESSURE AND TEMPERATURE CHANGES**

HYDRA-PAK Hydraulic Set Anchor

The Peak HYDRA-PAK Anchor is a solid mandrel, hydraulic set open-hole anchor that employs a durable open hole slip configuration. The STRATA-PAK is used for anchoring completion systems in open-hole environments when isolation is not required. The HYDRA-PAK uses a patent pending dual anti-preset to ensure the packer will not set without hydraulic pressure being applied to the tool. The HYDRA-PAK can be used in conjunction with the Peak TOP-PAK open hole weight set packer. Together they provide the customer with a dependable open hole liner hanger system.



- ◆ FULL BORE DESIGN
- ◆ DUAL ANTI-PRESET ENSURES ANCHOR IS NOT ACCIDENTLY SET
- ◆ DURABLE OPEN HOLE SLIP DESIGN ENSURES ANCHOR STAYS PUT
- ◆ EASILY ADJUSTABLE SETTING PRESSURE
- ◆ ADJUSTABLE SHEAR VALUES
- ◆ TYPICALLY PROVIDED WITH 10K RATING
- ◆ AVAILABLE FOR SERVICE IN HOSTILE ENVIRONMENTS

STRATA-PAK Hydraulic Set Anchor Packer

The Peak STRATA-PAK Anchor Packer is a solid element, solid mandrel, hydraulic set open-hole anchor packer that holds pressure from above and below. The STRATA-PAK is used for both isolation and anchoring completion systems in open-hole environments. It is capable of high differential ratings in most formations. The STRATA-PAK employs a much more dependable triple element design and uses a patent pending dual anti-preset to ensure the packer will not set without hydraulic pressure being applied to the tool. The STRATA-PAK is one part of the most versatile open-hole completion system available and typically is used in conjunction with the Peak ISO-PAK Isolation Packer. However, it can be also be used as a stand alone tool for anchoring open hole whip-stocks, door stops for lateral steering, and can be easily converted to an open hole retrievable bridge plug.

For STRATA-PAK
Tech data and
information contact
your Peak Completion
Technologies Sales
Representative.

- ◆ FULL BORE DESIGN
- ◆ SOLID TRIPLE ELEMENT / SOLID MANDREL DESIGN
- ◆ HOLDS PRESSURE FROM ABOVE AND BELOW
- ◆ DUAL ANTI-PRESET ENSURES PACKER IS NOT ACCIDENTLY SET
- ◆ DURABLE OPEN HOLE SLIP DESIGN ENSURES PACKER STAYS PUT
- ◆ EASILY ADJUSTABLE SETTING PRESSURE
- ◆ ADJUSTABLE SHEAR VALUES
- ◆ TYPICALLY PROVIDED WITH 10K RATING
- ◆ AVAILABLE FOR SERVICE IN HOSTILE ENVIRONMENTS
- ◆ ELEMENT SYSTEM IS NOT AFFECTED BY PRESSURE AND TEMPERATURE CHANGES

STRATA-PAK Hydraulic Set Open Hole Bridge Plug

The Peak STRATA-PAK OPEN HOLE RETRIEVABLE BRIDGE PLUG is a solid element, solid mandrel, hydraulic set tool that holds pressure from above and below. The STRATA-PAK OPEN HOLE RETRIEVABLE BRIDGE PLUG uses the same dependable open hole slip design as the STRATA-PAK open hole packer, ensuring it stays secure. A triple element design ensures plug is capable of holding high differential pressures in extreme open hole environments.

Peak Open Hole on off tool allows for a relatively easy process for disengagement and re-engagement.

For STRATA-PAK
Tech data and
information contact
your Peak Completion
Technologies Sales
Representative.

- ◆ **SOLID TRIPLE ELEMENT / SOLID MANDREL DESIGN**
- ◆ **HOLDS PRESSURE FROM ABOVE AND BELOW**
- ◆ **DUAL ANTI-PRESET ENSURES PLUG IS NOT ACCIDENTLY SET**
- ◆ **DURABLE OPEN HOLE SLIP DESIGN ENSURES PLUG STAYS PUT**
- ◆ **EASILY ADJUSTABLE SETTING PRESSURE**
- ◆ **DEPENDABLE ON/OFF PROCESS**
- ◆ **TYPICALLY PROVIDED WITH 10K RATING**
- ◆ **AVAILABLE FOR SERVICE IN HOSTILE ENVIRONMENTS**
- ◆ **ELEMENT SYSTEM IS NOT AFFECTED BY PRESSURE AND TEMPERATURE CHANGES**
- ◆ **INNOVATIVE SHEAR SYSTEM ALLOWS FOR RETRIEVAL**

STRATA-PAK Hydraulic Set Open Hole Cement Retainer

The Peak STRATA-PAK OPEN HOLE CEMENT RETAINER is a ***solid element, solid mandrel, hydraulic*** set tool that holds pressure from above and below. The ***STRATA-PAK OPEN HOLE CEMENT RETAINER*** uses the same dependable open hole slip design as the STRATA-PAK open hole packer, ensuring it stays secure. A triple element design ensures retainer is capable of holding high differential pressures in extreme open hole environments. This retainer uses a dependable valve system that is controlled from surface.

Valve automatically closes when stinger is removed from retainer.

For STRATA-PAK
Tech data and
information contact
your Peak Completion
Technologies Sales
Representative.

- ◆ **SOLID TRIPLE ELEMENT / SOLID MANDREL DESIGN**
- ◆ **HOLDS PRESSURE FROM ABOVE AND BELOW**
- ◆ **DUAL ANTI-PRESET ENSURES PLUG IS NOT ACCIDENTLY SET**
- ◆ **DURABLE OPEN HOLE SLIP DESIGN ENSURES PLUG STAYS PUT**
- ◆ **EASILY ADJUSTABLE SETTING PRESSURE**
- ◆ **VALVE AUTOMATICALLY CLOSES WHEN STINGER IS REMOVED FROM RETAINER**
- ◆ **TYPICALLY PROVIDED WITH 10K RATING**
- ◆ **AVAILABLE FOR SERVICE IN HOSTILE ENVIRONMENTS**
- ◆ **ELEMENT SYSTEM IS NOT AFFECTED BY PRESSURE AND TEMPERATURE CHANGES**
- ◆ **INNOVATIVE SHEAR SYSTEM ALLOWS FOR RETRIEVAL**
- ◆ **ALLOWS PRESSURE TESTING BEFORE SQUEEZE JOB IS PERFORMED**

The logo features the word "PEAK" in large, bold, gold-colored 3D block letters. A light blue, wavy line resembling a mountain range or a signal waveform passes behind the letters. Below "PEAK" is the word "COMPLETIONS" in a smaller, gold-colored, blocky font.

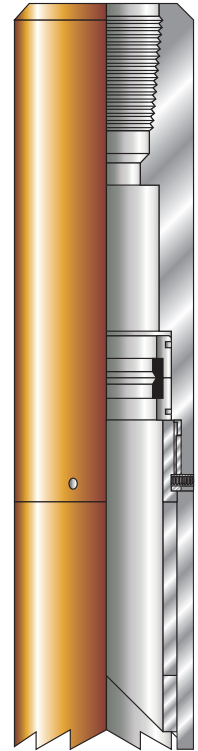
PEAK
COMPLETIONS

ACCESSORIES

P512 T-2 ON/OFF OVERSHOT

The P512 T-2 ON/OFF OVERSHOT was designed to disconnect and connect the tubing string from 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 profiles sizes and materials.

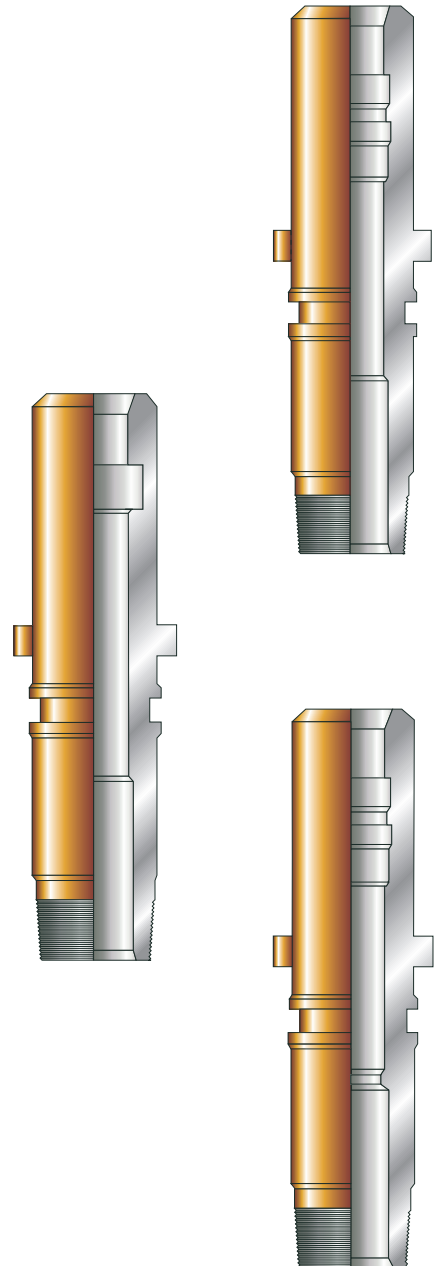
- ◆ **PROVEN BONDED SEAL SYSTEM**
- ◆ **BUILT FOR STRENGTH AND DURABILITY**
- ◆ **VARIETY OF PROFILE NIPPLES**
- ◆ **AVAILABLE IN SPECIAL METALLURGY**
- ◆ **AVAILABLE SHEAR PINNED UP OR DOWN POSITION**
- ◆ **AVAILABLE IN SPRING LOADED DESIGN**



CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	
2-7/8	73.0	2.250	57.15	1.000	25.4	1.660 EUE	42.2	T512-25A-000
3-1/2	88.9	2.750	69.85	1.500	38.1	1.900 NUE	48.3	T512-35A-000
4	101.6	3.250	82.55	1.500	38.1	1.900 EUE	48.3	T512-40A-000
4-1/2-5	114.3-127	3.750	95.25	2.000	50.8	2-3/8 EUE	60.3	T512-45A-000
4-1/2-5	114.3-127	3.750	95.25	2.375	60.3	2-7/8 EUE	73.0	T512-46A-000
5-1/2-6-5/8	139.7-168.3	4.500	114.3	2.000	50.8	2-3/8 EUE	60.3	T512-55A-000
5-1/2-6-5/8	139.7-168.3	4.500	114.3	2.500	63.5	2-7/8 EUE	73.0	T512-56A-000
7-7-5/8	177.8-193.7	5.750	146	2.500	63.5	2-7/8 EUE	73.0	T512-70A-000
7-7-5/8	177.8-193.7	5.750	146	3.000	76.2	3-1/2 EUE	88.9	T512-73A-000
8-5/8	219.1	6.500	165.1	2.500	63.5	2-7/8 EUE	73.0	T512-85A-000
8-5/8	219.1	6.500	165.1	4.000	101.6	4-1/2 EUE	114.3	T512-86A-000
9-5/8	244.5	7.500	190.5	2.500	63.5	2-7/8 EUE	73.0	T512-95A-000
9-5/8	244.5	7.500	190.5	4.000	101.6	4-1/2 EUE	114.3	T512-96A-000
10-3/4	273.1	8.500	215.9	2.500	63.5	2-7/8 EUE	73.0	T512-10A-000
10-3/4	273.1	8.500	215.9	4.000	101.6	4-1/2 EUE	114.3	T512-11A-000

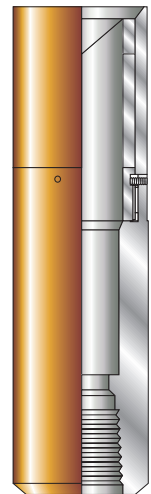
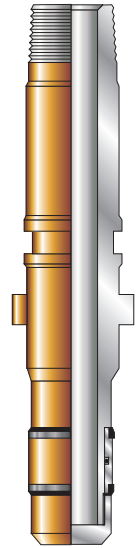
P510 T-2 ON/OFF TOOL STINGER

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

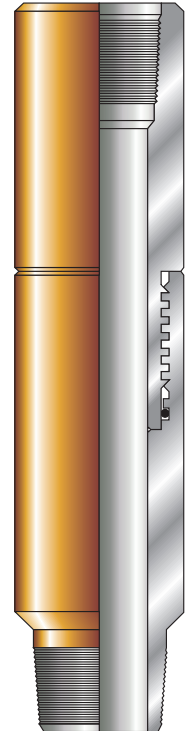
The P513 T-2 Type “H” On/Off Tool is used in liner applications to disconnect the liner from the tubing string. The overshoot is the liner top or guide, while the stinger is used for the running tool. The seals have been relocated to the stinger allowing the seal to be replaced.



CASING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
In.	mm	in.	mm	in.	mm	in.	mm	
4-1/2-5.0	114.3-127	3.750	95.25	2.375	60.3	2-3/8 EUE 8RD	60.3	T513-46A-000

P568 RH ROTATIONAL SAFETY JOINT

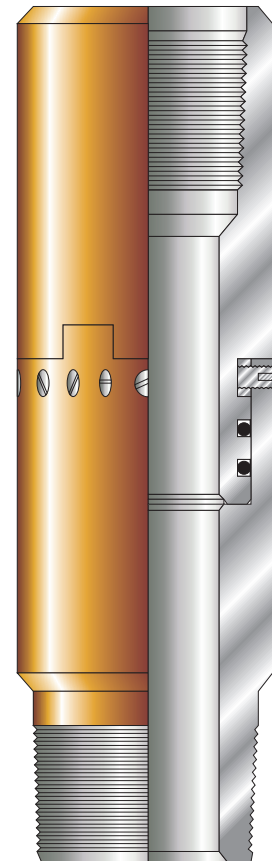
The P568 Rotational Safety Joint provides for emergency release of the tubing string. The **RH Rotational Safety Joint** uses larger square left-hand threads to separate the upper and lower subs with right-hand rotation abandoning any production equipment below.



TUBING 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
2-3/8	60.3	3.062	77.8	2.000	50.8	2-3/8 EUE 8RD	60.3	T568-20A-000
2-7/8	73.0	3.688	93.7	2.500	63.5	2-7/8 EUE 8RD	73.0	T568-25A-000
3-1/2	88.9	4.500	114.3	3.000	76.2	3-1/2 EUE 8RD	88.9	T568-35A-000

P569 MODEL “K” SHEAR SAFETY JOINT

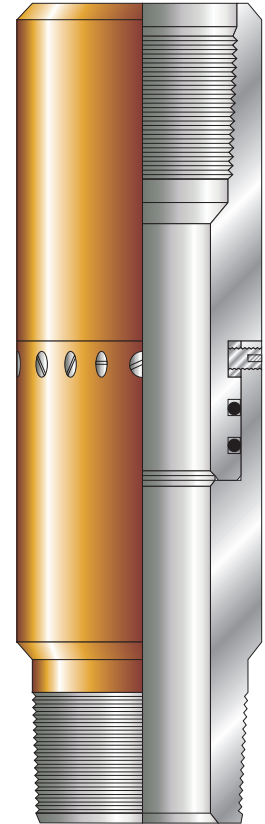
The P569 Model “K” Shear Safety Joint provides for emergency release of the tubing string. Straight pull separates the tool at a predetermined shear value. The P569 Model “K” Shear Safety Joint allows torque to be transmitted through the tool without affecting the shear screws.



TUBING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	in.	mm	
1.660	42.2	2.220	56.4	1.375	34.9	1.660 EUE 10RD	42.2	T569-16A-005
1.900	48.3	2.500	63.5	1.500	38.1	1.900 EUE 10RD	48.3	T569-19A-005
2-3/8	60.3	3.062	77.8	2.000	50.8	2-3/8 EUE 8RD	60.3	T569-20A-005
2-7/8	73.0	3.688	93.7	2.500	63.5	2-7/8 EUE 8RD	73.0	T569-25A-005
3-1/2	88.9	4.500	114.3	3.000	76.2	3-1/2 EUE 8RD	88.9	T569-35A-005

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.



TUBING SIZE		MAX. O.D.		MIN. I.D.		THREAD CONNECTION		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	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
2-3/8	60.3	3.062	77.8	2.000	50.8	2-3/8 EUE 8RD	60.3	T569-20A-000
2-7/8	73.0	3.688	93.7	2.500	63.5	2-7/8 EUE 8RD	73.0	T569-25A-000
3-1/2	88.9	4.500	114.3	3.000	76.2	3-1/2 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 Joint may also be used directly below the well head to protect from the abrasion of doing a hydraulic fracturing operation down the annulus.

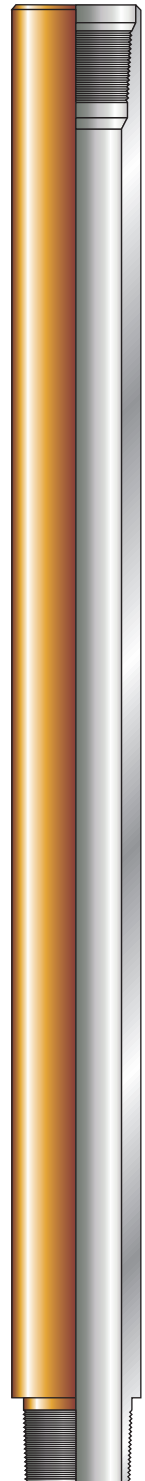
The Blast Joint is made from high quality steel treated to between 28 & 36 RC hardness to insure maximum abrasion resistance and strength. For H2S service, the blast joint is available heat treated to between 18 & 22 RC hardness as per N.A.C.E. specification MR-0175. Other materials are available on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

SPECIFICATION GUIDE

BLAST JOINT						
CONNECTION		ID		CONNECTION		PRODUCT NUMBER
In.	mm	in.	mm	in.	mm	
1.900	48.3	1.500	38.1	2.500	63.5	082-1900-0000
2.375	60.3	1.995	50.7	3.062	77.8	082-2300-0000
2.875	73.0	2.441	62.0	3.688	93.7	082-2700-0000
3.500	88.9	3.000	76.2	4.500	114.3	082-3500-0000

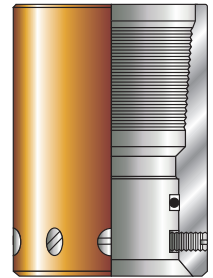
AVAILABLE LENGTH: 2 ft (0.61 m)
 4 ft (1.22 m)
 6 ft (1.83 m)
 8 ft (2.44 m)
 10 ft (3.05 m)
 20 ft (6.56 m)



P597 PACKER TUBING ACCESSORIES

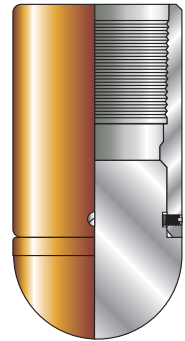
The Model A Pump-out Plug Assembly is used below a production packer or tailpipe. The assembly holds pressure from below and unseats with a predetermined amount of tubing pressure.

THREAD CONNECTION		MAX. O.D.		BODY I.D.		PRODUCT NUMBER
in.	mm	lbs/ft	kg/m	in.	mm	
1.660 EUE	42.2	2.200	55.88	1.250	31.75	ALUMINUM
1.900 EUE	48.3	2.500	63.50	1.500	38.10	ALUMINUM
2-3/8 EUE	60.3	3.063	77.80	2.000	50.80	ALUMINUM
2-7/8 EUE	73.0	3.750	95.25	2.500	63.50	ALUMINUM
3-1/2 EUE	88.9	4.500	114.3	3.000	76.20	ALUMINUM



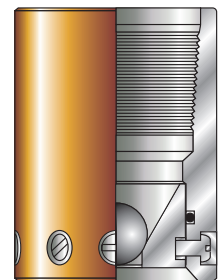
The Model AR Pump-out Plug Assembly is used below a production packer or tailpipe. The assembly holds pressure from below and unseats with a predetermined amount of tubing pressure. The AR pump out plug assembly is recommended when running into lines or highly deviated wells.

THREAD CONNECTION		MAX. O.D.		BODY I.D.		PRODUCT NUMBER
In.	mm	lbs/ft	kg/m	in.	mm	
1.660 EUE	42.2	2.200	55.88	1.250	31.75	ALUMINUM
1.900 EUE	48.3	2.500	63.50	1.500	38.10	ALUMINUM
2-3/8 EUE	60.3	3.063	77.80	2.000	50.80	ALUMINUM
2-7/8 EUE	73.0	3.750	95.25	2.500	63.50	ALUMINUM
3-1/2 EUE	88.9	4.500	114.3	3.000	76.20	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 from 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 available

THREAD CONNECTION		MAX. O.D.		SEAT I.D.		BODY I.D.	
In.	mm	lbs/ft	kg/m	in.	mm		
2-3/8 EUE	60.3	3.250	82.55	1.000	2.500	2.000	25.40
2-7/8 EUE	73.0	4.250	107.95	1.187	3.000	2.500	30.15
3-1/2 EUE	88.9	4.500	114.3	1.187	31.75	3.000	30.15



TYPE N.R.
PACKER

The Type "NR" Single Grip Packer is primarily used as a production packer where excessive bottom hole pressures are not a concern or where a production zone

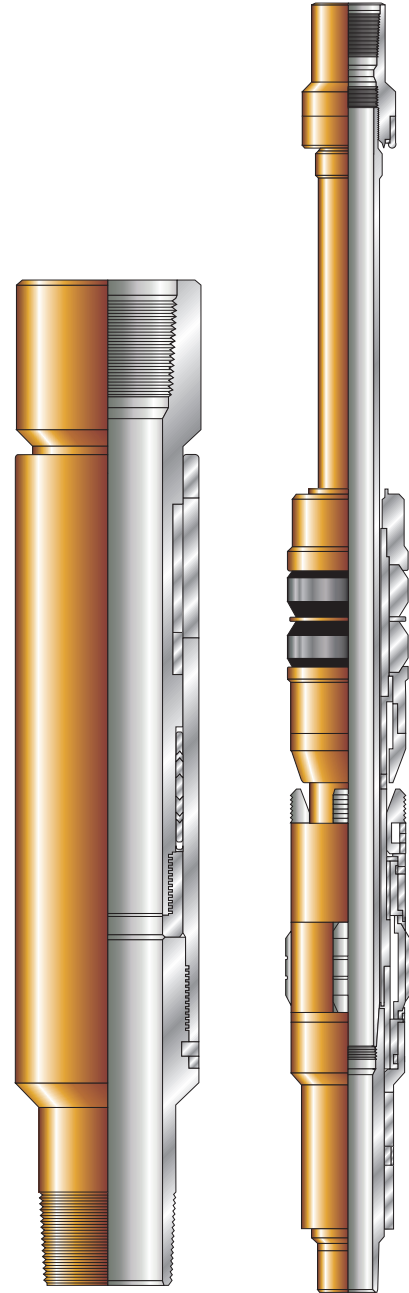
This is a proven packer used for swab

TYPE "A" EXPANSION JOINT

The Type "A" Expansion Joint is placed in the tubing string to allow for pipe contraction or expansion. This expansion joint may be run in conjunction with retrievable or permanent

The expansion joint is a spline type assembly that can be used for left or right-hand rotation for setting or releasing packers or seal units in

This expansion joint may be ordered to accommodate different length

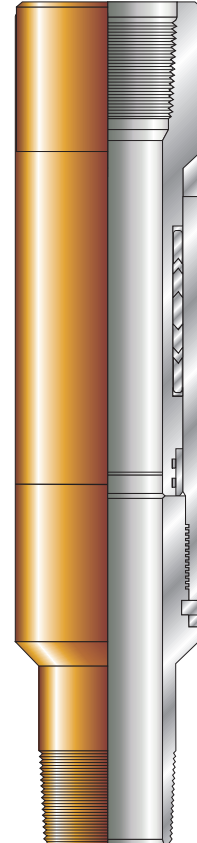


PEAK HTHP DOWNHOLE TUBING SWIVEL

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

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED					INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST) PRESSURE** (PSI)	JOINT YIELD STRENGTH**				
	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 (LB/FT)	UPSET (LB/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LB/FT)	UPSET REGULAR (LB/FT)	UPSET SPECIAL (LB/FT)					NON UPSET (LB/FT)	UPSET (LB/FT)			
3/4	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	---	
	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	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	J-55*	---	---	2.25	.957	---	---	---	---	.848	1.600	12,940	13,100	---	---	35,000	---	
	1.315	C-75	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	C-75*	---	---	2.25	.957	---	---	---	---	.848	1.600	17,640	17,870	---	---	48,000	---	
	1.315	N-80	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	---	
1-1/4	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	---	
	1.660	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	---	
1-1/2	1.900	F-25*	---	---	3.02	1.278	---	---	---	---	1.184	1.927	21,380	21,140	---	---	93,000	---	
	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	---	
	1.900	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	---	
1-1/2	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	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 (PRESSURE)** (kPa)	INTERNAL JOINT (BURST) PRESSURE** (kPa)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (in.)	OUTSIDE DIAMETER (mm)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (mm)	DRIFT DIAMETER (mm)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (mm)	BOX OUTSIDE DIAMETER (mm)			THREADED AND COUPLED		INTEGRAL JOINT (N)
			NON UPSET (kg/m)	UPSET (kg/m)	INTEGRAL JOINT (kg/m)			NON UPSET (mm)	UPSET REGULAR (mm)	UPSET SPECIAL (mm)					NON UPSET (N)	UPSET (N)	
3/4	26.67	F-25*	---	1.79	---	20.93	18.54	---	42.16	---	---	---	41090	32480	---	37010	---
	26.67	H-40	1.70	1.79	---	20.93	18.54	33.35	42.16	---	---	---	52950	51920	28290	59210	---
	26.67	J-55	1.70	1.79	1.79	20.93	18.54	33.35	42.16	---	16.46	33.71	72810	71430	38880	81360	80070
	26.67	C-75	1.70	1.79	1.79	20.93	18.54	33.35	42.16	---	16.46	33.71	99350	97360	53020	110980	111210
	1.050	N-80	1.70	1.79	1.79	20.93	18.54	33.35	42.16	---	16.46	33.71	105980	103910	56540	118370	120100
	26.67	D-55*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	94940	97360	---	106760	106760
	26.67	C-75*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	129420	132730	---	146790	146790
	26.67	N-80*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	138040	141550	---	155690	155690
26.67	P-105*	---	2.23	2.23	18.85	16.46	---	34.01	---	16.46	33.71	181200	185820	---	204620	204620	
1	33.40	F-25*	---	2.68	---	26.64	24.26	---	48.26	---	---	---	38200	30540	---	54940	---
	33.40	H-40	2.53	2.68	2.56	26.64	24.26	42.16	48.26	---	24.26	39.37	50130	48820	48750	87900	71040
	33.40	J-55	2.53	2.68	2.56	26.64	24.26	42.16	48.26	---	24.26	39.37	68950	67090	66990	120810	97680
	33.40	J-55*	---	---	3.35	24.31	---	---	---	---	21.54	40.64	89220	90320	---	---	155690
	33.40	C-75	2.53	2.68	2.56	26.64	24.26	42.16	48.26	---	24.26	39.37	94050	91500	91370	164760	133180
	33.40	C-75*	---	---	3.35	24.31	---	---	---	---	21.54	40.64	121630	123210	---	---	213510
	33.40	N-80	2.53	2.68	1.72	26.64	24.26	42.16	48.26	---	24.26	39.37	100320	97630	97460	175750	142080
	33.40	N-80*	---	---	3.35	24.31	---	---	---	---	21.54	40.64	129760	131420	---	---	226860
33.40	P-105*	---	---	3.35	24.31	---	---	---	---	21.54	40.64	170310	172440	---	---	298030	
1-1/4	42.16	F-25*	---	3.57	---	35.05	32.66	---	55.88	---	---	---	30610	25440	---	74330	---
	42.16	H-40	---	---	3.12	35.81	---	---	---	---	32.66	47.75	36340	36340	---	---	98660
	42.16	H-40	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	42610	40680	69080	118950	98660
	42.16	J-55	---	---	3.12	35.81	---	---	---	---	32.66	47.75	52820	49990	---	---	135670
	42.16	J-55	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	58540	55990	95010	163560	135670
	42.16	J-55*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	77220	76330	---	---	213510
	42.16	C-75	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	79840	76330	129530	223030	185050
	42.16	C-75*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	105290	104110	---	---	293580
	42.16	N-80	3.42	3.57	3.47	35.05	32.66	52.17	55.88	---	32.66	47.75	85220	81430	138610	237890	197370
	42.16	N-80*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	112320	111080	---	---	315820
42.16	P-105*	---	---	4.49	32.46	---	---	---	---	30.07	48.95	147420	145760	---	---	413680	
1-1/2	48.26	F-25*	4.09	4.32	---	40.89	38.51	55.88	63.50	---	---	---	27030	23030	53070	88920	---
	48.26	H-40	---	---	3.57	41.91	---	---	---	---	38.51	53.59	33920	31790	---	---	119610
	48.26	H-40	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	38890	36820	84920	142250	119610
	48.26	J-55	---	---	3.57	41.91	---	---	---	---	38.51	53.59	45780	43650	---	---	164450
	48.26	J-55	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	53440	50680	116770	195590	164450
	48.26	J-55*	---	---	5.42	38.10	---	---	---	---	35.71	54.91	71430	69850	---	---	253550
	48.26	C-75	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	72880	69090	159250	266720	224280
	48.26	C-75*	---	---	5.42	38.10	---	---	---	---	35.71	54.91	97430	95290	---	---	355860
	48.26	N-80	4.09	4.32	4.11	40.89	38.51	55.88	63.50	---	38.51	53.59	77780	73640	169830	284510	239230
	48.26	N-80*	---	---	5.42	38.10	35.71	---	---	---	35.71	54.91	103910	101630	---	---	373650
48.26	P-105*	---	---	5.42	38.10	---	---	---	---	35.71	54.91	136280	133350	---	---	489300	

TUBING PERFORMANCE PROPERTIES

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED					INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST) PRESSURE** (PSI)	JOINT YIELD STRENGTH**		
	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 (LB/FT)	UPSET (LB/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LB/FT)	UPSET REGULAR (LB/FT)	UPSET SPECIAL (LB/FT)					NON UPSET (LB/FT)	UPSET (LB/FT)	
2	2.000	J-55*	3.40	---	---	1.670	1.576	2.50	---	---	---	---	8,320	7,940	52,320	---	---
	2.000	C-75*	3.40	---	---	1.670	1.576	2.50	---	---	---	---	11,350	10,830	71,330	---	---
	2.000	N-80*	3.40	---	---	1.670	1.576	2.50	---	---	---	---	12,110	11,550	76,080	---	---
	2.000	P-105*	3.40	---	---	1.670	1.576	2.50	---	---	---	---	15,890	15,160	99,880	---	---
2-1/16	2063	H-40	---	---	3.25	1.751	---	---	---	---	1.657	2.325	5,590	5,290	---	---	35,690
	2063	J-55	---	---	3.25	1.751	---	---	---	---	1.657	2.325	7,690	7,280	---	---	49,070
	2063	C-75	---	---	3.25	1.751	---	---	---	---	1.657	2.325	10,480	9,920	---	---	66,910
	2063	N-80	---	---	3.25	1.751	---	---	---	---	1.657	2.325	11,180	10,590	---	---	71,370
2-3/8	2.375	F-25*	4.00	---	---	2.041	1.947	2.875	---	---	---	---	3,530	3,080	18,830	---	---
	2.375	F-25*	4.60	4.70	---	1.955	1.901	2.875	3.063	---	---	---	4,160	3,500	22,480	32,600	---
	2.375	H-40	4.00	---	---	2.041	1.947	2.875	---	---	---	---	5,230	4,920	30,130	---	---
	2.375	H-40	4.60	4.70	---	1.955	1.901	2.875	3.063	2.910	---	---	5,890	5,600	35,960	52,170	---
	2.375	J-55	4.00	---	---	2.041	1.947	2.875	---	---	---	---	7,190	6,770	41,430	---	---
	2.375	J-55	4.60	4.70	4.70	1.955	1.901	2.875	3.063	2.910	1.901	2.700	8,100	7,700	49,450	71,730	72,000
	2.375	J-55*	---	---	---	5.30	1.939	---	---	---	1.845	2.740	9,170	8,840	---	---	81,000
	2.375	J-55*	---	---	---	6.20	1.853	---	---	---	1.759	2.937	10,760	10,580	---	---	95,000
	2.375	J-55*	---	---	---	7.70	1.703	---	---	---	1.609	3.125	13,360	13,620	---	---	118,000
	2.375	C-75	4.00	---	---	2.041	1.947	2.875	---	---	---	---	9,520	9,230	56,500	---	---
	2.375	C-75	4.60	4.70	4.70	1.995	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*	---	---	---	5.30	1.939	---	---	---	1.845	2.740	12,510	12,050	---	---	111,000
	2.375	C-75	5.80	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*	---	---	---	6.20	1.853	---	---	---	1.759	2.937	14,670	14,420	---	---	130,000
	2.375	C-75*	---	---	---	7.70	1.703	---	---	---	1.609	3.125	18,220	18,570	---	---	161,000
	2.375	N-80	4.00	---	---	2.041	1.947	2.875	---	---	---	---	9,980	9,840	60,260	---	---
	2.375	N-80	4.60	4.70	4.70	---	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*	---	---	---	5.30	1.995	---	---	---	1.845	2.740	13,340	12,860	---	---	118,000
	2.375	N-80	5.80	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*	---	---	---	6.20	1.853	---	---	---	1.759	2.937	15,650	15,390	---	---	139,000
	2.375	N-80*	---	---	---	7.70	1.703	---	---	---	1.609	3.125	19,430	19,810	---	---	172,000
	2.375	P-105	4.60	4.70	4.70	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*	---	---	---	5.30	1.939	---	---	---	1.845	2.740	17,510	16,870	---	---	155,000
	2.375	P-105	5.80	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*	---	---	---	6.20	1.853	---	---	---	1.759	2.937	20,540	20,200	---	---	182,000
	2.375	P-105*	---	---	---	7.70	1.703	---	---	---	1.609	3.125	25,510	26,010	---	---	226,000
2.375	P-110*	4.60	4.70	---	1.995	1.901	2.875	3.063	---	---	---	13,800	15,400	98,900	143,470	---	
2.375	P-110*	5.80	5.95	---	1.867	1.773	2.875	3.063	---	---	---	17,910	20,590	141,610	186,170	---	

TUBING PERFORMANCE PROPERTIES

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED					INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (kPa)	INTERNAL JOINT (BURST) PRESSURE** (kPa)	JOINT YIELD STRENGTH**			
	OUTSIDE DIAMETER (mm)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (mm)	DRIFT DIAMETER (mm)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (mm)	BOX OUTSIDE DIAMETER (mm)			THREADED AND COUPLED		INTEGRAL JOINT (N)	
			NON UPSET (kg/m)	UPSET (kg/m)	INTEGRAL JOINT (kg/m)			NON UPSET (mm)	UPSET REGULAR (mm)	UPSET SPECIAL (mm)					NON UPSET (N)	UPSET (N)		
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	74,670	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	---	---	
2-1/16	52.40	H-40	---	---	4.84	44.48	---	---	---	---	4209	59.06	38,540	36,470	---	---	158,760	
	52.40	J-55	---	---	4.84	44.48	---	---	---	---	4209	59.06	53,020	502,000	---	---	218,270	
	52.40	C-75	---	---	4.84	44.48	---	---	---	---	4209	59.06	72,260	68,400	---	---	297,630	
	52.40	N-80	---	---	4.84	44.48	---	---	---	---	4209	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	H-40	5.95	---	---	51.84	49.45	73.03	---	---	---	---	36,060	33,920	134,020	---	---	
	4.90	H-40	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	---	---	---	---	49,580	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	---	---	---	---	---	46,860	69.60	63,230	60,950	---	360,310
	4.90	J-55*	---	---	---	9.23	47.07	---	---	---	---	---	44,680	74.60	74,190	72,950	---	422,580
	4.90	J-55*	---	---	---	11.46	43.26	---	---	---	---	---	40,870	79.38	92,120	93,910	---	524,890
	4.90	C-75	5.95	---	---	351.84	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	---	---	---	---	---	46,860	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	---	---	---	---	---	44,680	74.60	101,150	99,430	---	578,270
	4.90	C-75*	---	---	---	11.46	43.26	---	---	---	---	---	40,670	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	---	---	---	---	---	46,860	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	---	---	---	---	---	44,680	74.60	107,910	106,110	---	618,300
	4.90	N-80*	---	---	---	11.46	43.26	---	---	---	---	---	40,870	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	---	---	---	---	---	46,860	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	---	---	---	---	---	44,680	74.60	141,620	139,280	---	809,580
	4.90	P-105*	---	---	---	11.46	43.26	---	---	---	---	---	40,870	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

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (psi)	INTERNAL JOINT (BURST) PRESSURE** (psi)	JOINT YIELD STRENGTH**			
	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 (lb)
			NON UPSET (lb/ft)	UPSET (lb/ft)	INTEGRAL JOINT (lb/ft)			NON UPSET (in.)	UPSET REGULAR (in.)	UPSET SPECIAL (in.)					NON UPSET (lb)	UPSET (lb)	
2-7/8	2.875	F-25*	6.40	6.50	---	2.441	2.347	3.500	3.668	---	---	---	3,870	3,300	32,990	45,300	---
	2.875	H-40	6.40	6.50	---	2.441	2.347	3.500	3.668	3.460	---	---	5,580	5,280	52,780	72,480	---
	2.875	J-55	6.40	6.50	6.50	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*	---	---	7.90	2.323	---	---	---	---	2.229	3.437	9,550	9,250	---	---	124,000
	2.875	J-55*	---	---	8.70	2.259	---	---	---	---	2.165	3.500	10,530	10,320	---	---	137,000
	2.875	J-55*	---	---	9.50	2.195	---	---	---	---	2.101	3.625	11,470	11,390	---	---	149,000
	2.875	J-55*	---	---	10.70	2.091	---	---	---	---	1.997	3.687	12,960	13,120	---	---	168,000
	2.875	J-55*	---	---	11.00	2.065	---	---	---	---	1.971	3.750	13,310	13,570	---	---	173,000
	2.875	C-75	6.40	6.50	6.50	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*	---	---	7.90	3.323	---	---	---	---	2.229	3.437	13,020	12,600	---	---	169,000
	2.875	C-75	8.60	8.70	8.70	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*	---	---	9.50	2.195	---	---	---	---	2.101	3.625	15,640	15,520	---	---	203,000
	2.875	C-75*	---	---	10.70	2.091	---	---	---	---	1.997	3.687	17,670	17,890	---	---	229,000
	2.875	C-75*	---	---	11.00	2.065	---	---	---	---	1.971	3.750	18,150	18,490	---	---	236,000
	2.875	N-80	6.40	6.50	6.50	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*	---	---	7.90	2.323	---	---	---	---	2.229	3.437	13,890	13,450	---	---	180,000
	2.875	N-80	8.60	8.70	8.70	2.259	2.165	3.500	3.668	3.460	2.165	3.500	15,300	15,000	159,310	198,710	198,000
	2.875	N-80*	---	---	9.50	2.195	---	---	---	---	2.101	3.625	16,690	16,560	---	---	217,000
	2.875	N-80*	---	---	10.70	2.091	---	---	---	---	1.997	3.687	18,850	19,090	---	---	245,000
	2.875	N-80*	---	---	11.00	2.065	---	---	---	---	1.971	3.750	19,360	19,730	---	---	251,000
	2.875	P-105	6.40	6.50	6.50	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*	---	---	7.90	3.323	---	---	---	---	2.229	3.437	18,230	17,650	---	---	236,000
	2.875	P-105	8.60	8.70	8.70	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*	---	---	9.50	2.195	---	---	---	---	2.101	3.625	21,900	21,730	---	---	285,000
2.875	P-105*	---	---	10.70	2.091	---	---	---	---	1.997	3.687	24,740	25,050	---	---	321,000	
2.875	P-110*	6.40	6.50	---	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)** (kPa)	INTERNAL JOINT (BURST) PRESSURE** (kPa)	JOINT YIELD STRENGTH**		
NOMINAL SIZE (in.)	OUTSIDE DIAMETER (mm)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (mm)	DRIFT DIAMETER (mm)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (mm)	BOX OUTSIDE DIAMETER (mm)			THREADED AND COUPLED		INTEGRAL JOINT (N)
			NON UPSET (kg/m)	UPSET (kg/m)	INTEGRAL JOINT (kg/m)			NON UPSET (mm)	UPSET REGULAR (mm)	UPSET SPECIAL (N)					NON UPSET (N)	UPSET (N)	
2-7/8	73.03	F-25*	9.52	9.67	---	62.00	59.61	88.90	93.17	---	---	---	26,680	22,750	146,750	201,500	---
	73.03	H-40	9.52	9.67	---	62.00	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	62.00	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	59.00	---	---	---	---	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	---	---	---	---	53.37	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	---	---	769,540
	73.03	C-75	9.52	9.67	9.67	62.00	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	59.00	---	---	---	---	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	---	---	---	---	53.37	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	62.00	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	59.00	---	---	---	---	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	105,490	103,430	708,650	883,910	880,750
	73.03	N-80*	---	---	14.14	55.75	---	---	---	---	53.37	92.08	115,080	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	62.00	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	59.00	---	---	---	---	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	---	---	---	---	53.37	92.08	151,000	149,830	---	---	1,267,740	
73.03	P-105*	---	---	15.92	53.11	---	---	---	---	50.72	93.65	170,580	172,720	---	---	1,427,880	
73.03	P-110*	9.52	9.67	---	62.00	59.61	88.90	93.17	---	---	---	90,190	100,180	645,700	886,620	---	

TUBING PERFORMANCE PROPERTIES

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED					INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST) PRESSURE** (PSI)	JOINT YIELD STRENGTH**		
	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 (LB/FT)	UPSET (LB/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LB/FT)	UPSET REGULAR (LB/FT)	UPSET SPECIAL (LB/FT)					NON UPSET (LB/FT)	UPSET (LB/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	----	----	2.922	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	2.922	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	2.922	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	207,000
	3.500	N-80	10.20	----	10.30	2.922	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	2.922	----	----	----	----	2.797	3.955	15,920	15,180	----	----	306,000
	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	13,970	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

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (PSI)	INTERNAL JOINT (BURST) PRESSURE** (PSI)	JOINT YIELD STRENGTH**			
	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 (LB/FT)	UPSET (LB/FT)	INTEGRAL JOINT (LBS/FT)			NON UPSET (LB/FT)	UPSET REGULAR (LB/FT)	UPSET SPECIAL (LB/FT)					NON UPSET (LB/FT)	UPSET (LB/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	----	76.00	72.82	107.95	114.3	----	----	----	25,370	21,930	221,120	288,070	----
	88.9	F-25*	15.18	----	----	76.00	71.04	107.95	----	----	----	----	29,860	24,890	257,290	----	----
	88.9	H-40	11.46	----	----	77.93	74.75	107.95	----	----	----	----	31,920	29,790	289,450	----	----
	88.9	H-40	13.69	13.84	----	76.00	72.82	107.95	114.3	106.17	----	----	37,100	35,030	353,810	460,880	----
	88.9	H-40	15.18	----	----	76.00	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	76.00	72.82	107.95	114.3	106.17	72.82	99.19	51,020	48,130	486,500	633,690	631,650
	88.9	J-55	15.18	----	15.33	76.00	71.04	107.95	----	----	71.04	100.46	57,440	54,820	566,040	----	711,720
	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	76.00	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	76.00	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	76.00	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	76.00	71.04	107.95	----	----	71.04	100.46	83,570	79,710	823,370	----	1,036,435
	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	103,430	1,096,000	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	76.00	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	76.00	----	----	----	----	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	----	----	2,112,900	
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	----	76.00	72.82	107.95	114.3	----	----	----	87,010	96,320	973,000	1,267,390	----	
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

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED					INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (psi)	INTERNAL JOINT (BURST) PRESSURE** (psi)	JOINT YIELD STRENGTH**		
	OUTSIDE DIAMETER (in.)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (in.)	DRIFT DIAMETER (in.)	COUPLING			DRIFT DIAMETER (in.)	BOX OUTSIDE DIAMETER (in.)			THREADED AND COUPLED		INTEGRAL JOINT (lb)
			NON UPSET (lb/ft)	UPSET (lb/ft)	INTEGRAL JOINT (lb/ft)			NON UPSET (in)	UPSET REGULAR (in)	UPSET SPECIAL (in)					NON UPSET (lb)	UPSET (lb)	
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	-----	123070	-----
	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	-----	169220	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	-----	230760	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	144010	-----	-----
	4.000	N-80	-----	11.00	11.00	3.476	3.351	-----	5.000	-----	3.351	4.405	8,800	9,170	-----	246140	246,000
4.000	N-80*	-----	-----	13.40	3.340	-----	-----	-----	-----	3.215	4.0625	12,110	11,550	-----	-----	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	90010	-----
	4.500	H-40	12.60	12.75	-----	3.958	3.833	5.200	5.563	-----	-----	-----	4,500	4,220	104360	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

NOMINAL SIZE (in.)	TUBING SIZE					THREADED AND COUPLED				INTEGRAL JOINT		COLLAPSE RESISTANCE (PRESSURE)** (kPa)	INTERNAL JOINT (BURST) PRESSURE** (kPa)	JOINT YIELD STRENGTH**			
	OUTSIDE DIAMETER (mm)	GRADE	WEIGHT WITH COUPLINGS			INSIDE DIAMETER (mm)	DRIFT DIAMETER (mm)	COUPLING OUTSIDE DIAMETER			DRIFT DIAMETER (mm)			BOX OUTSIDE DIAMETER (mm)	THREADED AND COUPLED		INTEGRAL JOINT (N)
			NON UPSET (kg/m)	UPSET (kg/m)	INTEGRAL JOINT (kg/m)			NON UPSET (mm)	UPSET REGULAR (mm)	UPSET SPECIAL (mm)					NON UPSET (N)	UPSET (N)	
4	101.4	F-25*	14.14	----	----	90.120	86.94	120.65	----	----	----	18,130	17,030	200,170	----	----	
	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	320,270	----	----	
	101.4	H-40	----	16.37	----	88.290	89.15	----	127.000	----	----	33,790	31,650	----	547,440	----	
	101.4	J-55	14.14	----	----	90.120	86.94	120.65	----	----	----	35,230	37,510	440,420	----	----	
	101.4	J-55	----	16.37	16.37	88.290	89.15	----	127.000	----	89.15	111.89	45,440	43,440	----	752,730	751,750
	101.4	J-55*	----	----	17.26	87.070	----	----	----	----	83.9	101.4	50,330	47,440	----	----	609,410
	101.4	C-75	14.14	----	----	90.120	86.94	120.65	----	----	----	----	43,780	51,160	600,550	----	----
	101.4	C-75	----	16.37	16.37	88.290	89.15	----	127.000	----	89.15	111.89	57,990	59,300	----	1,026,470	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	640,590	----	----
	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	1,094,260
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	290,160	400,380	----	
	114.3	H-40	18.75	18.97	----	100.530	97.36	132.08	141.300	----	----	31,030	29,100	464,220	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	638,320	880,880	880,750
	114.3	J-55*	----	----	20.09	99.570	----	----	----	----	96.39	125.35	44,270	42,750	----	----	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	870,430	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	928,480	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

NOMINAL SIZE (in.)	TUBING SIZE				INSIDE DIAMETER (in)	DRIFT DIAMETER	WALL THICKNESS (in)	OUTSIDE AREA (sq.in)	INSIDE AREA (sq.in)	CROSS SECTIONAL AREA (sq.in)	MOMENT OF INERTIA (in ⁴)	RATIO OF O.D. TO I.D. - R
	OUTSIDE DIAMETER (in)	WEIGHT WITH COUPLINGS (lb/ft)										
		NON UPSET	UPSET	INTEGRAL JOINT								
3/4	1.050	1.14	1.20	1.20	.824	.730	0.113	.866	.533	.333	.037	1.274
	1.050	----	1.50	1.50	.742	.730	.154	.866	.432	.434	.045	1.415
1	1.315	1.70	1.80	1.72	1.049	.955	.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	1.939	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	9.610	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 DIAMETER (mm)	WEIGHT (kg/m)	INSIDE DIAMETER (mm)	DRIFT DIAMETER (mm)	WALL THICKNESS (mm)	OUTSIDE AREA (sq.cm) A _o	INSIDE AREA (sq.cm) A _i	CROSS SECTIONAL AREA (sq.cm) A _s	MOMENT OF INERTIA (cm ⁴)	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	21.99	4.55	8.76	4.64	4.12	4.4	1.374
1-1/4	2.10	42.164	3.12	35.81	33.43	3.17	13.96	10.07	3.89	7.4	1.177
	2.40	42.164	3.57	35.05	32.67	3.56	13.96	9.65	4.31	8.1	1.203
	302.00	42.164	4.49	32.46	30.08	4.85	13.96	8.28	5.69	10.1	1.299
1-1/2	2.40	48.260	3.57	41.91	39.53	3.17	18.29	13.80	4.50	11.5	1.152
	2.90	48.260	4.32	40.89	38.51	3.68	18.29	13.13	5.16	12.9	1.180
	3.64	48.260	5.42	38.10	35.72	5.08	18.29	11.40	6.89	16.3	1.267
2	3.40	50.800	5.06	42.42	40.04	4.19	20.27	14.13	6.14	16.8	1.198
2-1/16	3.25	52.400	4.84	44.48	42.10	3.96	21.57	15.54	6.03	17.8	1.178
2-3/8	4.00	60.325	5.95	51.84	49.46	4.24	28.58	21.11	7.47	29.6	1.164
	4.70	60.325	6.99	50.67	48.29	4.83	28.58	20.17	8.41	32.7	1.190
	5.30	60.325	7.89	49.25	46.87	5.54	28.58	19.05	9.53	36.1	1.225
	5.95	60.325	8.85	47.42	45.04	6.45	28.58	17.66	10.92	40.2	1.272
	6.20	60.325	9.23	47.07	44.69	6.63	28.58	17.40	11.18	40.9	1.282
	7.70	60.325	11.46	43.26	40.88	6.53	28.58	14.70	13.89	47.8	1.395
2-7/8	6.50	73.025	9.67	62.00	59.62	5.51	41.88	30.19	11.69	67.1	1.178
	7.90	73.025	11.76	59.00	56.62	7.01	41.88	27.34	14.54	80.1	1.238
	8.70	73.025	12.95	57.38	55.00	7.82	41.88	25.86	16.02	86.4	1.273
	9.50	73.025	14.14	55.75	53.37	8.64	41.88	24.41	17.47	92.2	1.310
	10.70	73.025	15.92	53.11	50.73	9.96	41.88	22.15	19.73	100.6	1.375
	11.00	73.025	16.37	52.45	50.07	10.29	41.88	21.61	20.28	102.5	1.392
3-1/2	7.70	88.900	11.46	77.93	74.75	5.49	62.07	47.69	14.38	125.6	1.141
	9.30	88.900	13.84	76.00	72.82	6.45	62.07	45.36	16.71	142.9	1.170
	10.30	88.900	15.33	74.22	71.04	7.34	62.07	43.26	18.81	157.7	1.198
	12.80	88.900	19.05	70.21	67.03	9.35	62.07	38.71	23.36	187.4	1.266
	12.95	88.900	19.27	69.85	66.67	9.52	62.07	38.32	23.75	189.8	1.273
	15.80	88.900	23.51	64.72	61.54	12.09	62.07	32.90	29.17	220.5	1.374
	16.70	88.900	24.85	62.99	59.81	12.95	62.07	31.16	30.91	229.4	1.411
4	9.50	101.600	14.14	90.12	86.94	5.74	81.07	63.79	17.29	199.3	1.127
	11.00	101.600	16.37	88.29	85.11	6.65	81.07	61.22	19.85	224.8	1.151
	11.60	101.600	17.26	87.07	83.89	7.26	81.07	59.54	21.53	241.0	1.167
	13.40	101.600	19.94	84.84	81.66	8.38	81.07	56.53	24.55	268.9	1.198
4-1/2	12.75	114.300	18.97	100.53	97.35	6.88	102.61	79.38	23.23	366.5	1.137
	13.50	114.300	20.09	99.57	96.39	7.37	102.61	77.86	24.75	355.5	1.148
	15.50	114.300	23.06	97.18	94.00	8.56	102.61	74.17	28.44	400.1	1.178
	19.20	114.300	28.57	92.46	89.28	10.92	102.61	67.14	35.47	479.3	1.236

API CASING DATA

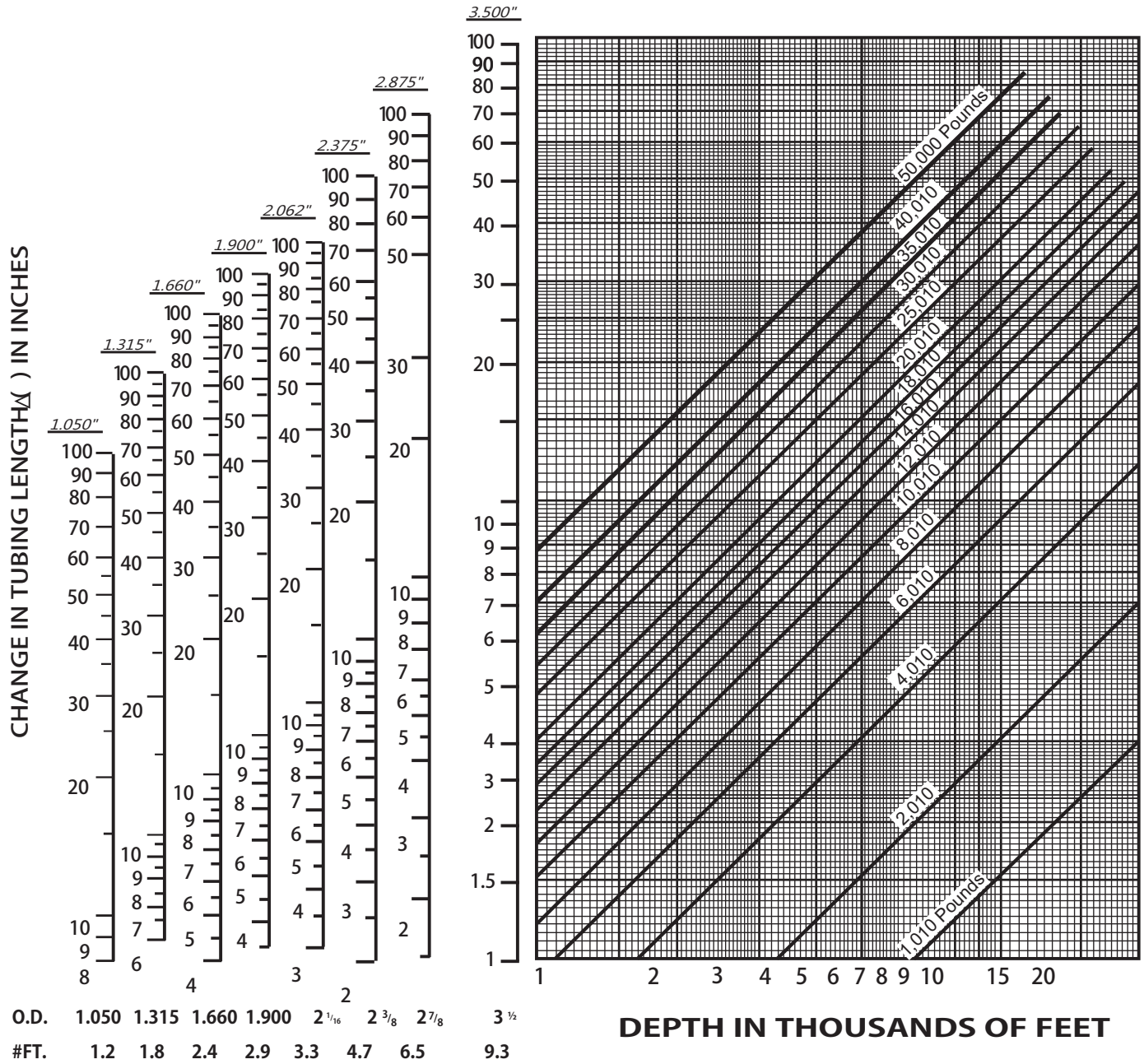
O.D. mm	WEIGHT kg/m	I.D. mm	DRIFT I.D. mm	AREA mm sq.	CAPACITY m ³ /100m
114.30 (4-1/2")	10.04	10709	103.91	9032.24	.273
	12.86	104.75	101.57	8580.63	.262
	14.14	103.89	100.71	8451.60	.259
	15.62	102.90	99.72	8322.56	.254
	16.37	102.26	99.09	8258.05	.251
	17.26	101.60	98.43	8129.02	.246
	18.75	100.53	97.36	7935.47	.242
	20.09	99.57	96.39	7806.44	.237
24.70	97.18	94.01	7419.34	.226	
127.00 (6")	11.90	119.28	116.10	11161.27	.340
	17.11	115.82	112.65	10516.11	.321
	19.34	114.15	110.97	10193.53	.312
	19.58	113.79	110.62	10193.53	.310
	22.32	111.96	108.79	9870.95	.300
	26.78	108.61	105.44	9290.30	.283
31.25	105.51	102.34	8709.66	.266	
139.70 (5-1/2")	13.39	131.88	128.70	13677.39	.417
	19.34	128.12	124.94	12903.20	.393
	20.83	127.30	124.13	12709.65	.388
	22.32	126.34	123.16	12516.10	.382
	22.44	125.98	122.81	12451.59	.380
	23.06	125.73	122.56	12387.07	.378
	25.30	124.26	121.08	12193.52	.369
	29.76	121.36	118.19	11548.36	.353
34.22	118.62	115.70	11032.24	.337	
168.28 (6-5/8")	17.86	159.69	156.51	20064.48	.612
	19.34	158.88	155.70	19806.41	.604
	25.30	155.83	152.65	19096.74	.582
	27.28	154.56	151.38	18774.16	.572
	28.94	154.05	150.88	18645.12	.568
	29.76	153.64	150.47	18516.09	.564
	32.74	152.12	148.95	18193.51	.555
	35.71	150.39	147.22	17741.90	.542
	37.50	151.51	148.34	18064.48	.550
	38.69	148.72	145.54	17419.32	.531
	39.43	148.26	145.08	17290.29	.526
	41.66	147.09	143.92	16967.71	.518
43.15	146.41	143.23	16838.68	.514	
47.62	144.15	141.10	16322.55	.498	
50.59	142.11	138.94	15870.94	.483	
177.80 (7")	19.34	168.96	165.79	22387.05	.682
	25.30	166.07	162.89	21677.38	.660
	28.88	164.08	161.16	21161.25	.645
	29.76	163.98	160.81	21096.73	.644
	32.74	162.51	159.33	20709.64	.631
	34.22	161.70	158.52	20580.60	.626
	35.71	160.93	157.76	20322.54	.620
	38.69	159.41	156.24	19935.44	.609
41.66	157.84	154.66	19548.35	.596	

O.D. mm	WEIGHT kg/m	I.D. mm	DRIFT I.D. mm	AREA mm sq.	CAPACITY m ³ /100m
177.80 (7")	43.15	157.07	153.90	19354.80	.591
	43.90	156.67	153.49	19290.28	.588
	44.64	156.31	153.14	19225.77	.585
	47.62	154.79	151.61	18838.67	.574
	50.15	153.62	150.44	18516.09	.564
	50.59	153.42	150.24	18516.09	.563
	52.08	152.50	149.33	18258.03	.556
	52.53	152.40	149.23	18253.03	.556
	56.54	150.37	147.19	17741.90	.540
	59.52	148.23	145.06	17290.29	.526
193.68 (7-5/8")	29.76	180.98	177.80	25741.88	.784
	31.56	179.96	176.78	25419.30	.774
	35.71	178.44	175.26	25032.21	.762
	39.28	177.01	173.84	24645.11	.750
	44.19	174.63	171.45	23935.44	.730
	50.15	171.83	168.66	23161.24	.708
	53.57	170.31	167.13	22774.15	.695
	56.54	169.04	165.86	22451.57	.684
	58.03	168.29	165.10	22258.02	.677
	66.96	163.70	160.53	21032.22	.641
219.08 (8-5/8")	29.76	208.05	204.88	33999.93	1.037
	35.71	205.66	202.49	33225.74	1.013
	38.02	205.00	201.83	33032.19	1.006
	38.63	204.85	201.68	32967.68	1.005
	41.66	203.63	200.46	32580.58	.992
	43.67	202.72	199.54	32258.00	.983
	47.62	201.19	198.02	31806.39	.970
	48.21	201.09	197.92	31806.39	.968
	53.57	198.76	195.58	31032.20	.946
	56.54	197.49	194.36	30645.10	.933
	59.52	196.22	193.04	30258.00	.922
	65.47	193.68	190.50	29483.81	.898
72.91	190.78	187.60	28580.59	.871	
244.48 (9-5/8")	48.06	228.63	224.66	41032.18	1.251
	53.57	226.59	222.63	40322.50	1.229
	56.54	225.68	221.72	39999.92	1.220
	59.52	224.41	220.45	39548.31	1.205
	62.50	233.49	219.53	39225.73	1.196
	64.73	222.38	218.41	38838.63	1.184
	69.94	220.50	216.54	38193.47	1.164
	79.61	216.79	213.08	36967.67	1.126
273.05 (10-3/4")	86.30	214.25	210.54	36064.44	1.099
	48.73	258.89	254.91	52645.06	1.604
	60.26	255.27	251.31	51161.19	1.560
	67.70	252.73	248.77	50193.45	1.529
	75.89	250.19	246.23	49161.19	1.499
	82.58	247.90	243.94	48257.97	1.471
	90.32	245.36	241.40	47290.23	1.440
	97.76	242.82	238.86	46322.49	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
	8.64	4.124	3.999	13.3	1.65
	9.50	4.090	3.965	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	4.696	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	19.7	2.44
	15.00	4.974	4.849	19.4	2.40
	15.08	4.960	4.835	19.3	2.39
	15.50	4.950	4.825	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	5.730	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	28.3	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	6.91	
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