



## PRODUCT CATALOG

(701) 444-3699 | [legacytool.net](http://legacytool.net)

## TABLE OF CONTENTS

### Mechanical Set Packers

|  |       |
|--|-------|
| ASI-X Packer.....                                | 5-7   |
| WLAK - for VSI-X Packer .....                    | 8     |
| VSI-X Packer.....                                | 9-10  |
| Jettset Packer .....                             | 11    |
| AS-II Packer .....                               | 12    |
| AS-III Packer .....                              | 13    |
| AS-5 Packer.....                                 | 14    |
| Snapset I Packer .....                           | 15    |
| Snapset II Packer.....                           | 16    |
| CT Thermal Packer .....                          | 17    |
| IE Thermal Packer.....                           | 18    |
| D-H Tension Packer .....                         | 19-20 |
| DL Tension & DL Shear Tension Packer .....       | 21-22 |
| Casing Packer .....                              | 23    |
| GV Cup Packer.....                               | 24    |
| Gas Vent Pumping Packer .....                    | 25    |
| Retrievable Seal Bore Packer - Single Bore ..... | 26    |
| Retrievable Seal Bore Packer - Dual Bore .....   | 27    |
| RSB Retrieving Tool.....                         | 28    |
| Type DL-IB Tandem Tension Packer .....           | 29    |
| Set Down Isolation Packer.....                   | 30    |
| Mechanical Ball Valve.....                       | 31    |
| Yo-Yo Tension Packer (YYT) .....                 | 32    |

### Hydraulic Set Packers

|   |       |
|---|-------|
| DLH Packer .....                          | 35-36 |
| Hydroset II Packer.....                   | 37-38 |
| Hydroset II-A Packer.....                 | 39    |
| DLESP Packer.....                         | 40    |
| Hydroset IV Packer .....                  | 41-42 |
| Hydraulic Open Hole Packer.....           | 43    |
| Permanent Hydraulic Isolation Packer..... | 44    |

### Permanent Packers

|                                    |       |
|------------------------------------|-------|
| Permapak Packer - Single Bore..... | 47-48 |
| Permapak Packer - Dual Bore.....   | 49    |
| Hydraulic Permapak Packer.....     | 50    |
| Permapak Accessories .....         | 51-52 |
| Seal Information.....              | 53    |
| WLAK - for Permapak Packer .....   | 54    |

### Service Tools

|   |       |
|---|-------|
| HD Retrievable Packer.....                  | 57-58 |
| AS Retrievable Bridge Plug .....            | 59-60 |
| Spring Loaded Retrieving Tool .....         | 61    |
| WLAK - for ASW Retrievable Bridge Plug..... | 62    |
| Type T Squeeze Packer .....                 | 63-64 |
| SC Tension Unloader .....                   | 65    |
| DA-II Unloader.....                         | 66    |

|  |    |
|--|----|
| Type C Perforation Wash Tool.....                  | 67 |
| Stradasnap Packer.....                             | 68 |
| HD Abandonment Packer .....                        | 69 |
| Abandonment Valve.....                             | 70 |
| Ball Abandonment Valve .....                       | 71 |
| Abandonment Packer Accessories.....                | 72 |
| Model "H" Hydraulic Setting Tool .....             | 73 |
| LC Hydraulic Setting Tool.....                     | 74 |
| Cement Retainer .....                              | 75 |
| CR Bridge Plug .....                               | 76 |
| CIW Bridge Plug.....                               | 77 |
| WLAK - for Cement Retainer & CR Bridge Plug.....   | 78 |
| WLAK - for CIW Bridge Plug.....                    | 79 |
| DLT Retrievable Packer.....                        | 80 |
| V-III Unloader .....                               | 81 |
| Storm Valve .....                                  | 82 |
| Bumper Sub .....                                   | 83 |
| RR Safety Joint .....                              | 84 |
| Axial Installation HD Packer.....                  | 85 |
| WR Bridge Plug.....                                | 86 |
| Compression Unloader .....                         | 87 |
| Latch Locator - for Cement Retainer.....           | 88 |
| Mechanical Setting Tool - for Cement Retainer..... | 89 |
| WG Wireline Set Retrievable Bridge Plug .....      | 90 |

### Anchors

|   |     |
|---|-----|
| ASI-X Anchor .....                          | 92  |
| DL-CS Anchor .....                          | 93  |
| Drag Block Tubing Anchor/Catcher.....       | 94  |
| Hydraulic Tubing Anchor.....                | 95  |
| Quarter Turn Reduced OD Tubing Anchor ..... | 96  |
| TM Anchor/Catcher.....                      | 97  |
| Trilobite Hydro Anchor .....                | 98  |
| Trilobite Quarter Turn Anchor.....          | 99  |
| ESP Tubing Catcher.....                     | 100 |
| Set Down (SD) Anchor .....                  | 101 |

### Tool Accessories

|  |         |
|--|---------|
| Profile Nipple.....                                  | 104     |
| Bit Release Joint.....                               | 105     |
| Safety Joint - Shear, Rotational & Swivel Shear..... | 106     |
| Pump-Out Plug .....                                  | 107     |
| Downhole Tubing/Casing Swivel .....                  | 108     |
| Surface Tubing Swivel.....                           | 109     |
| Cross Flow Assembly .....                            | 110     |
| Expansion Joint.....                                 | 111     |
| Pump-Out Cementing Sleeve.....                       | 112     |
| Type E Valve.....                                    | 113     |
| Running Tool - for Type E Valve.....                 | 114     |
| Annulus Operated Tubing Drain .....                  | 115     |
| D&L On/Off Tool .....                                | 116-117 |
| Protension Safe Tension Tool .....                   | 118     |



## LEGACY TOOL & RENTAL

Legacy Tool and Rental offers superior tools and supervisors that you can depend on. Our team is dedicated to providing you with the best possible solutions to minimize your rig time and get your well flowing to its maximized potential. When you partner with Legacy, you can expect:

- Honest, transparent, and timely communication
- Reliable solutions derived from our team's 225+ years of combined oilfield experience
- Integrity and perfection of all tools built and redressed by our experienced shop team
- Excellence from the time your tools are inspected in the shop to the time our supervisor leaves your location

### Shop Locations

NORTH DAKOTA  
1308 8th Street SW  
Watford City, ND 58854  
(701) 444-3699

WYOMING  
401 N. Works Ave.  
Gillette, WY 82716  
(307) 257-2177

# Mechanical Set Packers



## Mechanical Set Packers CONTENTS

|   |       |
|---|-------|
| ASI-X Packer .....                              | 5-7   |
| WLAK - for VSI-X Packer .....                   | 8     |
| VSI-X Packer .....                              | 9-10  |
| Jettset Packer .....                            | 11    |
| AS-II Packer.....                               | 12    |
| AS-III Packer.....                              | 13    |
| AS-5 Packer.....                                | 14    |
| Snapset I Packer .....                          | 15    |
| Snapset II Packer .....                         | 16    |
| CT Thermal Packer .....                         | 17    |
| IE Thermal Packer .....                         | 18    |
| D-H Tension Packer .....                        | 19-20 |
| DL Tension & DL Shear Tension Packer.....       | 21-22 |
| Casing Packer .....                             | 23    |
| GV Cup Packer .....                             | 24    |
| Gas Vent Pumping Packer.....                    | 25    |
| Retrievable Seal Bore Packer - Single Bore..... | 26    |
| Retrievable Seal Bore Packer - Dual Bore .....  | 27    |
| RSB Retrieving Tool .....                       | 28    |
| Type DL-IB Tandem Tension Packer .....          | 29    |
| Set Down Isolation Packer .....                 | 30    |
| Mechanical Ball Valve .....                     | 31    |
| Yo-Yo Tension Packer (YYT).....                 | 32    |

# ASI-X PACKER

The ASI-X Single String Double-Grip Production Packer is the most versatile of the mechanically set retrievable packers and may be used in any production application. This packer is suited for treating, testing, or injection applications, in pumping or flowing wells, either deep or shallow. This packer can be left in tension or compression depending on well conditions and the required application.

A large internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and opens prior to releasing the upper slips when retrieving to allow pressure equalization. The J-slot design allows easy setting and releasing; 1/4 turn right-hand set, 1/4 turn right-hand release.

The standard ASI-X Packer is designed for differential pressures up to 7,000 PSI

(unless noted otherwise). This packer is also available in an HT version which is designed for differential pressures up to 10,000 PSI (unless noted otherwise). The HT version allows this packer to be utilized in completions where high pressure treating operations are performed and it is desirable to leave the tool in the well for production.

## Special Features

- By-pass below upper slips to wash debris when valve is opened
- By-pass is opened before upper slips are released
- Can be set with tension for shallow well applications
- Can be left in tension, compression or neutral
- 1/4 turn right-hand set, 1/4 turn right-hand release
- Additional J-Slot arrangements available

## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number        |                      |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|--------------------|----------------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      | Std                | HT                   |
| 2-7/8         | 6.4 - 6.5       | 2.375 - 2.441                  | 2.250            | 2.263 <sup>1</sup> | 0.63             | 1.050 EUE                            | 60325-3E*          | -                    |
|               | 8.6             | 2.259                          | 2.125            | 2.152 <sup>1</sup> | 0.63             | 1.050 EUE                            | 60324-3E*          | -                    |
| 3-1/2         | 7.5 - 7.7       | 3.068 - 3.250                  | 2.938            | -                  | 1.25             | 1.900 NUE                            | 60336*             | -                    |
|               | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | -                  | 1.25             | 1.900 NUE                            | 60335*             | -                    |
|               | 12.95           | 2.750                          | 2.562            | -                  | 1.00             | 1.315 EUE / 1.660 EUE                | 60337*             | -                    |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | 3.312 <sup>1</sup> | 1.50             | 1.900 EUE                            | 60340*             | -                    |
|               | 10.46 - 12.95   | 3.340 - 3.476                  | 3.187            | -                  | 1.50             | 1.900 EUE                            | 60341*             | -                    |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 1.94             | 2-3/8 EUE                            | 60345 <sup>2</sup> | 60345HT <sup>2</sup> |
|               | 13.5 - 15.1     | 3.826 - 3.920                  | 3.650            | -                  | 1.94             | 2-3/8 EUE                            | 60344 <sup>2</sup> | 60344HT <sup>2</sup> |
|               | 15.1            | 3.826                          | 3.641            | -                  | 1.94             | 2-3/8 EUE                            | 60346              | -                    |
|               | 15.1 - 16.6     | 3.754 - 3.826                  | 3.594            | -                  | 1.50             | 1.900 EUE                            | 60343              | -                    |
|               | 18.8            | 3.640                          | 3.437            | -                  | 1.50             | 1.900 EUE                            | 60342              | -                    |

<sup>1</sup>Maximum OD is across retracted drag blocks.

<sup>2</sup>Drilled for wireline.

\* Designed for differential pressures up to 10,000 PSI.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM

**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.



## ASI-X Packer Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number        |                      |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|--------------------|----------------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      | Std                | HT                   |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 4.220 <sup>1</sup> | 1.94             | 2-3/8 EUE                            | 60350              | 60350HT              |
|               | 15.0 - 18.0     | 4.276 - 4.408                  | 4.063            | -                  | 1.94             | 2-3/8 EUE                            | 60349              | -                    |
|               | 18.0 - 20.8     | 4.156 - 4.276                  | 4.000            | 4.010 <sup>1</sup> | 1.94             | 2-3/8 EUE                            | 60352              | 60352HT              |
|               | 21.4            | 4.126                          | 3.938            | -                  | 1.94             | 2-3/8 EUE                            | 60353              | 60353HT              |
| 5-1/2         | 13.0 - 14.0     | 5.012                          | 4.813            | -                  | 2.38             | 2-7/8 EUE                            | 60358              | 60358HT              |
|               | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -                  | 2.00             | 2-3/8 EUE                            | 60355 <sup>2</sup> | 60355HT <sup>2</sup> |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 60356 <sup>2</sup> | 60356HT <sup>2</sup> |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                  | 2.00             | 2-3/8 EUE                            | 60357 <sup>2</sup> | 60357HT <sup>2</sup> |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 60359 <sup>2</sup> | 60359HT <sup>2</sup> |
|               | 23.0 - 26.0     | 4.548 - 4.670                  | 4.375            | -                  | 1.94             | 2-3/8 EUE                            | 60354              | 60354HT              |
|               |                 |                                | 4.406            | -                  | 2.38             | 2-7/8 EUE                            | 60351              | 60351HT              |
| 5-3/4         | 15.0 - 16.1     | 5.201-5.240                    | 5.000            | -                  | 2.00             | 2-3/8 EUE                            | 60357X             | 60357XHT             |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 60358X             | 60358XHT             |
|               | 17.6 - 19.4     | 5.083-5.146                    | 4.875            | -                  | 2.00             | 2-3/8 EUE                            | 60357Y             | 60357YHT             |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 60358Y             | 60358YHT             |
|               | 21.5 - 24.0     | 4.909-5.004                    | 4.720            | -                  | 2.00             | 2-3/8 EUE                            | 60357Z             | 60357ZHT             |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 60358Z             | 60358ZHT             |
| 6             | 10.0            | 5.672                          | 5.375            | -                  | 2.50             | 2-7/8 EUE                            | 60361              | -                    |
|               | 12.0 - 20.0     | 5.352 - 5.620                  | 5.188            | -                  | 2.38             | 2-7/8 EUE                            | 60360              | 60360HT              |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | -                  | 2.50             | 2-7/8 EUE                            | 60367              | 60367HT              |
|               | 20.0 - 24.0     | 5.921 - 6.049                  | 5.750            | -                  | 3.00             | 3-1/2 EUE                            | 60368              | 60368HT              |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                  | 2.50             | 2-7/8 EUE                            | 60365              | 60365HT              |
|               |                 |                                |                  | -                  | 3.00             | 3-1/2 EUE                            | 60369              | 60369HT              |
|               | 32.0 - 34.5     | 5.575 - 5.675                  | 5.312            | -                  | 2.50             | 2-7/8 EUE                            | 60366              | 60366HT              |

<sup>1</sup>Maximum OD is across retracted drag blocks.<sup>2</sup>Drilled for wireline.

\* Designed for differential pressures up to 10,000 PSI.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.

## ASI-X Packer Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)     | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number        |                      |
|---------------|-----------------|--------------------------------|------------------|---------------------|------------------|--------------------------------------|--------------------|----------------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                     |                  |                                      | Std                | HT                   |
| 7             | 17.0 - 20.0     | 6.456 - 6.538                  | 6.250            | 6.281 <sup>1</sup>  | 2.50             | 2-7/8 EUE                            | 60372-625          | -                    |
|               |                 |                                |                  | -                   | 3.00             | 3-1/2 EUE                            | 60374-625          | -                    |
|               | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup>  | 2.50             | 2-7/8 EUE                            | 60372 <sup>2</sup> | 60372HT <sup>2</sup> |
|               |                 |                                |                  | 6.125 <sup>1</sup>  | 3.00             | 3-1/2 EUE                            | 60374              | 60374HT              |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                   | 2.50             | 2-7/8 EUE                            | 60370 <sup>2</sup> | 60370HT <sup>2</sup> |
|               |                 |                                |                  | 5.936 <sup>1</sup>  | 3.00             | 3-1/2 EUE                            | 60373              | 60373HT              |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | -                   | 2.50             | 2-7/8 EUE                            | 60375              | 60375HT              |
|               |                 |                                |                  | -                   | 3.00             | 3-1/2 EUE                            | 60378              | 60378HT              |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | -                   | 2.50             | 2-7/8 EUE                            | 60376              | 60376HT              |
|               |                 |                                |                  | -                   | 3.00             | 3-1/2 EUE                            | 60377              | 60377HT              |
|               | 20.0 - 24.0     | 8.097 - 8.191                  | 7.750            | -                   | 2.50             | 2-7/8 EUE                            | 60384              | -                    |
|               |                 |                                |                  | 7.827 <sup>1</sup>  | 4.00             | 4-1/2 EUE                            | 60381              | 60381HT              |
| 8-5/8         | 20.0 - 28.0     | 8.017 - 8.191                  | 7.750            | -                   | 2.50             | 2-7/8 EUE                            | 60385              | 60385HT              |
|               |                 |                                |                  | -                   | 3.00             | 3-1/2 EUE                            | 60387              | 60387HT              |
|               | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | -                   | 4.00             | 4-1/2 EUE                            | 60382              | 60382HT              |
|               |                 |                                |                  | -                   | 2.50             | 2-7/8 EUE                            | 60386              | 60386HT              |
|               | 32.0 - 40.0     | 7.725 - 7.921                  | 7.500            | -                   | 4.00             | 4-1/2 EUE                            | 60382              | 60382HT              |
|               |                 |                                |                  | -                   | 2.50             | 2-7/8 EUE                            | 60386              | 60386HT              |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                   | 4.00             | 4-1/2 EUE                            | 60396S**           | 60396HT <sup>△</sup> |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                   | 4.00             | 4-1/2 EUE                            | 60395S**           | 60395HT <sup>△</sup> |
| 10-3/4        | 32.75 - 51.0    | 9.850 - 10.192                 | 9.625            | -                   | 4.00             | 4-1/2 EUE                            | 60301**            | -                    |
|               | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | -                   | 4.00             | 4-1/2 EUE                            | 60310**            | -                    |
| 11-3/4        | 42.0 - 65.0     | 10.682 - 11.084                | 10.438           | 10.502 <sup>1</sup> | 4.00             | 4-1/2 EUE                            | 60311**            | -                    |
|               | 66.7 - 80.5     | 10.406 - 10.656                | 10.200           | -                   | 4.00             | 4-1/2 EUE                            | 60311Y             | -                    |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | -                   | 4.00             | 4-1/2 EUE                            | 60313**            | -                    |
| 16            | 65.0 - 109.0    | 14.688 - 15.250                | 14.438           | -                   | 5.00             | 7" LTC                               | 60316***           | -                    |
| 18-5/8        | 87.5 - 117.5    | 17.439 - 17.755                | 17.000           | -                   | 5.00             | 7" LTC                               | 60318              | -                    |
| 20            | 133.0 - 169.0   | 18.376 - 18.730                | 18.000           | -                   | 5.00             | 7" LTC                               | 60320              | -                    |

<sup>1</sup>Maximum OD is across retracted drag blocks.<sup>2</sup>Drilled for wireline.

\*\* Designed for differential pressures up to 6,000 PSI.

\*\*\* Designed for differential pressures up to 5,000 PSI.

△Designed for differential pressures up to 8,000 PSI.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.

# WIRELINE ADAPTER KIT - FOR VSI-X PACKER

The Wireline Adapter Kit (WLAK) for VSI-X Packers and VSI-X HT Packers is used with a stinger to set VSI-X Packers and VSI-X HT Packers on electric wireline or with a hydraulic setting assembly on tubing. The WLAK is designed to be used on a Baker E-4 wireline powder charge, hydraulic setting assembly or any setting assembly with the same configuration.

When used with a Profile Stinger, the plug-in-place design allows the running of a profile blanking plug to be run in place

to convert the packer to a temporary Bridge Plug. Use of a profile blanking plug also reduces debris build-up and eliminates the need to run Profile Nipples or Pump-Out Plugs below the packer.

The WLAK automatically disconnects from the packer during packer setting to be easily retrieved and prepared to run again.



## Product Specifications

| Casing Size (inches) | Description   | Part Number  |
|----------------------|---|--------------|
| 2-7/8                | For 2-7/8" VSI-XW Packer                                      | 97125        |
| 3-1/2                | For #5 Hydraulic Setting Tool                                 | 97130        |
|                      | For 3-1/2" VSI-XW Packer (12.95#)                             | 97137        |
| 4                    | For 4" VSI-XW Packer  | 97140        |
| 4-1/2                | For 4-1/2" VSI-XW Packer                                      | 97145        |
|                      | For 4-1/2" VSI-XW Packer (13.5-15.1#) Short Version           | 97144-SHORT  |
|                      | For 4-1/2" VSI-XW Packer (15.1#)                              | 97144        |
| 5-1/2                | For 5-1/2" X 2-3/8" VSI-XW Packer*                            | 97155*       |
|                      | For 5-1/2" X 2-7/8" VSI-XW Packer (23.0 - 26.0#)              | 97151        |
|                      | For 5-1/2" X 2-7/8" VSI-XW Packer (23.0 - 26.0#) *            | 97151-1*     |
|                      | For 5-1/2", 6-5/8", 7", 7-5/8" X 2-7/8" VSI-XW Packer         | 97156        |
|                      | For: 5-1/2", 7", 7-5/8" X 2-7/8" VSI-XW Packer Short Version* | 97156-SHORT* |
| 7                    | For 7" X 3-1/2" VSI-XW Packer                                 | 97174        |
| 9-5/8                | For 8-5/8" & 9-5/8" X 2-7/8" VSI-XW Packer                    | 97196-BAC    |
|                      | For 9-5/8" X 3-1/2" VSI-XW Packer                             | 97195        |
|                      | For 8-5/8" & 9-5/8" X 4-1/2" VSI-XW Packer                    | 97196        |
| 10-3/4               | For 8-5/8" Through 10-3/4" X 4-1/2" VSI-XW Packer             | 97196        |

\* Compatible with Baker Style 20 Setting Equipment.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## VSI-X PACKER

The VSI-X Single String Double-Grip Production Packer is one of the most versatile packers on the market. This packer is a modification of the ASI-X Packer with the advantage of being able to set on electric line or hydraulically.

An On-Off Tool Stinger with a Wireline Plug installed can be attached to the top of this packer. This packer can then be lubricated in the hole and set under pressure. Once set, casing pressure can be bled off, and the tubing with an On-Off Tool Overshot can be run and latched onto the packer. The Wireline Plug can then be removed.

This packer easily converts to a mechanically set ASI-X Packer – just remove the shear screws and install drag

blocks and drag block springs. The ASI-X Packer sets with 1/4 right-hand rotation and releases with 1/4 right-hand rotation. The ASI-X Packer can be left in tension, compression or neutral.

NOTE: Stinger and setting equipment must be purchased separately.

### Special Features

- Wireline or tubing set
- Sequentially released upper slip system
- By-pass valve opens before upper slips are released
- Available in shear release
- Easily converts to ASI-X version - 1/4 turn to set, 1/4 turn to release

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |         |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|---------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      | Std         | HT      |
| 2-7/8         | 6.4 - 6.5       | 2.375 - 2.441                  | 2.250            | 0.63             | 1.050 EUE                            | 60125-3E*   | -       |
| 3-1/2         | 7.5 - 7.7       | 3.068 - 3.250                  | 2.938            | 1.25             | 1.900 NUE                            | 60136*      | -       |
|               | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | 1.25             | 1.900 NUE                            | 60135*      | -       |
|               | 12.95           | 2.750                          | 2.562            | 1.00             | 1.315 EUE / 1.660 EUE                | 60137-3E*   | -       |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | 1.50             | 1.900 EUE                            | 60140*      | -       |
|               | 10.46 - 12.95   | 3.340 - 3.476                  | 3.187            | 1.50             | 1.900 EUE                            | 60141*      | -       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 60145       | 60145HT |
|               | 13.5 - 15.1     | 3.826 - 3.920                  | 3.650            | 1.94             | 2-3/8 EUE                            | 60144       | 60144HT |
|               | 15.1            | 3.826                          | 3.641            | 1.94             | 2-3/8 EUE                            | 60146       | 60146HT |
|               | 15.1 - 16.6     | 3.754 - 3.826                  | 3.594            | 1.50             | 1.900 EUE                            | 60143       | 60143HT |
|               | 18.8            | 3.640                          | 3.437            | 1.50             | 1.900 EUE                            | 60142       | 60142HT |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 60150       | 60150HT |
|               | 18.0 - 20.8     | 4.156 - 4.276                  | 4.000            | 1.94             | 2-3/8 EUE                            | 60152       | 60152HT |
|               | 21.4            | 4.126                          | 3.938            | 1.94             | 2-3/8 EUE                            | 60153       | 60153HT |

\* Designed for differential pressures up to 10,000 PSI.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM

**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.



## VSI-X Packer Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |                      |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|----------------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      | Std         | HT                   |
| 5-1/2         | 13.0 - 14.0     | 5.012 - 5.044                  | 4.813            | 2.38             | 2-7/8 EUE                            | 60158       | 60158HT              |
|               | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                            | 60155       | 60155HT              |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 60156       | 60156HT              |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 2.00             | 2-3/8 EUE                            | 60157       | 60157HT              |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 60159       | 60159HT              |
|               | 23.0 - 26.0     | 4.548 - 4.670                  | 4.390            | 1.94             | 2-3/8 EUE                            | 60154       | 60154HT              |
|               |                 |                                | 4.406            | 2.38             | 2-7/8 EUE                            | 60151       | 60151HT              |
| 6             | 12.0 - 20.0     | 5.352 - 5.620                  | 5.188            | 2.38             | 2-7/8 EUE                            | 60160       | 60160HT              |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | 2.50             | 2-7/8 EUE                            | 60167       | 60167HT              |
|               | 20.0 - 24.0     | 5.921 - 6.049                  | 5.750            | 3.00             | 3-1/2 EUE                            | 60168       | 60168HT              |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.50             | 2-7/8 EUE                            | 60165       | 60165HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60169       | 60169HT              |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 60172       | 60172HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60174       | 60174HT              |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 60170       | 60170HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60173       | 60173HT              |
|               | 29.0 - 35.0     | 6.004 - 6.184                  | 5.812            | 2.50             | 2-7/8 EUE                            | 60171       | 60171HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60175       | 60175HT              |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 2.50             | 2-7/8 EUE                            | 60175       | 60175HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60178       | 60178HT              |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | 2.50             | 2-7/8 EUE                            | 60176       | 60176HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60177       | 60177HT              |
| 8-5/8         | 20.0 - 28.0     | 8.017 - 8.191                  | 7.750            | 4.00             | 4-1/2 EUE                            | 60181       | 60181HT              |
|               | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 2.50             | 2-7/8 EUE                            | 60185       | 60185HT              |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60187       | 60187HT              |
|               | 32.0 - 40.0     | 7.725 - 7.921                  | 7.500            | 4.00             | 4-1/2 EUE                            | 60182       | 60182HT              |
| 9-5/8         | 44.0 - 49.0     | 7.511 - 7.625                  | 7.312            | 2.50             | 2-7/8 EUE                            | 60186       | 60186HT              |
|               | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | 4.00             | 4-1/2 EUE                            | 60196S**    | 60196HT <sup>△</sup> |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 4.00             | 4-1/2 EUE                            | 60195S**    | 60195HT <sup>△</sup> |
|               |                 |                                |                  |                  |                                      |             |                      |
| 10-3/4        | 32.75 - 51.0    | 9.850 - 10.192                 | 9.625            | 4.00             | 4-1/2 EUE                            | 60101**     | -                    |
|               | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | 4.00             | 4-1/2 EUE                            | 60110**     | -                    |
| 11-3/4        | 42.0 - 65.0     | 10.682 - 11.084                | 10.438           | 4.00             | 4-1/2 EUE                            | 60111**     | -                    |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | 4.00             | 4-1/2 EUE                            | 60113**     | -                    |

\*\* Designed for differential pressures up to 6,000 PSI.

<sup>△</sup> Designed for differential pressures up to 8,000 PSI

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM

**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.

## JETTSET PACKER

The Jettset Packer is a versatile mechanically set retrievable packer and may be used in any production application. This packer is suited for treating, testing, or injection applications, in pumping or flowing wells, either deep or shallow. This packer can be left in tension or compression, depending on well conditions and the required application. An internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and opens prior to releasing the upper slips when retrieving to allow pressure equalization. The J-Slot design allows easy setting and releasing; 1/4 turn right-hand set, 1/4 turn right-hand release.

This packer is rated to 7,000 PSI and can be configured with different elastomers and metalics to suit downhole conditions.

### Special Features

- By-pass below upper slips to wash debris when valve is opened
- By-pass is opened before upper slips are released
- Can be set with tension for shallow well applications
- Can be left in tension, compression or neutral
- 1/4 turn right-hand set, 1/4 turn right-hand release standard
- Additional J-Slot arrangements available
- Short, compact design



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 1.94             | 2-3/8 EUE                            | 12045       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -                  | 2.00             | 2-3/8 EUE                            | 12055       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                  | 2.00             | 2-3/8 EUE                            | 12057       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup> | 2.50             | 2-7/8 EUE                            | 12072       |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**NOTE:** All pricing includes standard Nitrile trim. Carbide, other sizes and connections are available upon request.

## AS-II PACKER

The AS-II Packer is a large-opening, compression-set packer with mechanical slip hold-downs. This packer withstands high pressure from above or below by using a 3-element packing system, and upper and lower mechanical slips. A J-slot and a drag block mechanism are incorporated for easy setting. This packer has a built-in unloader which circulates across the mechanical hold-down slips to improve retrievability. The unloader has a pressure compensating piston to keep it closed when pressure is greater below the set packer.

The AS-II Packer is available in the standard J-slot arrangement - right-hand auto set with straight pick-up release. Other J-slot arrangements are available: right-hand manual set, left-hand auto set, and left-hand manual set. All J-slot arrangements are straight pick-up release.

### Special Features

- Large internal by-pass
- Mechanical slips vs. hydraulic buttons
- Differential pressure holds valve closed
- Additional J-slot arrangements available

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Min ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|-----------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                 |                                      |             |
| 2-7/8         | 6.4 - 6.5       | 2.375 - 2.441                  | 2.250            | 2.263 <sup>1</sup> | 0.62            | 1.050 EUE                            | 61125       |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | -                  | 1.25            | 1.900 NUE                            | 61135       |
|               |                 |                                | 2.938            | -                  | 1.25            | 1.900 NUE                            | 61136       |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | 3.312 <sup>1</sup> | 1.50            | 1.900 EUE                            | 61140       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 1.94            | 2-3/8 EUE                            | 61145       |
|               | 15.1            | 3.826                          | 3.656            | -                  | 1.94            | 2-3/8 EUE                            | 61144       |
| 5             | 11.5 - 18.0     | 4.276 - 4.560                  | 4.125            | 4.220 <sup>1</sup> | 1.94            | 2-3/8 EUE                            | 61150       |
|               | 18.0 - 21.4     | 4.126 - 4.276                  | 4.000            | -                  | 1.94            | 2-3/8 EUE                            | 61152       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -                  | 2.00            | 2-3/8 EUE                            | 61155       |
|               |                 |                                |                  | -                  | 2.38            | 2-7/8 EUE                            | 61156       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                  | 2.00            | 2-3/8 EUE                            | 61157       |
|               |                 |                                |                  | -                  | 2.38            | 2-7/8 EUE                            | 61159       |
| 5-3/4         | 17.6 - 19.4     | 4.958 - 5.021                  | 4.875            | -                  | 2.38            | 2-7/8 EUE                            | 61158Y      |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | -                  | 2.50            | 2-7/8 EUE                            | 61167       |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                  | 2.50            | 2-7/8 EUE                            | 61165       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup> | 2.50            | 2-7/8 EUE                            | 61172       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                  | 2.50            | 2-7/8 EUE                            | 61170       |
|               |                 |                                |                  | 5.936 <sup>1</sup> | 3.00            | 3-1/2 EUE                            | 61173       |
|               | 29.0 - 35.0     | 6.004 - 6.184                  | 5.812            | -                  | 2.50            | 2-7/8 EUE                            | 61171       |
| 7-5/8         | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | -                  | 3.00            | 3-1/2 EUE                            | 61177       |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                  | 3.00            | 3-1/2 EUE                            | 61198       |
|               |                 |                                |                  | -                  | 4.00            | 4-1/2 EUE                            | 61196       |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                  | 3.00            | 3-1/2 EUE                            | 61197       |
|               |                 |                                |                  | -                  | 4.00            | 4-1/2 EUE                            | 61195       |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | -                  | 4.00            | 4-1/2 EUE                            | 61113       |

<sup>1</sup>Maximum OD is across retracted drag blocks.

**OPTIONS:** RS (Right-Hand Auto Set, Straight Pick-Up Release), RM (Right-Hand Manual Set, Straight Pick-Up Release)

LS (Left-Hand Auto Set, Straight Pick-Up Release), LM (Left-Hand Manual Set, Straight Pick-Up Release)

**NOTE:** All pricing includes standard Nitrile trim. Carbide, other sizes and connections are available upon request.



## AS-III PACKER

The AS-III Packer is a single-grip packer with no upper hold-down for use where no differential pressure from below is present. From the packing elements down, this packer operates identically to the AS-II Packer. This packer also features a large by-pass area to prevent swabbing when running or retrieving. This packer is ideal for isolating casing

holes or perforations when used as the lower packer in conjunction with the Snapset Packer as the upper packer.

### Special Features

- Large internal by-pass
- 1/4 turn set / straight pick-up release
- Additional J-slot arrangements available

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | -                  | 1.25             | 1.900 NUE                            | 63135RS     |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 1.94             | 2-3/8 EUE                            | 63145RS     |
|               | 13.5 - 15.1     | 3.826 - 3.920                  | 3.650            | -                  | 1.94             | 2-3/8 EUE                            | 63144RS     |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 4.220 <sup>1</sup> | 1.94             | 2-3/8 EUE                            | 63150RS     |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -                  | 1.94             | 2-3/8 EUE                            | 63155RS     |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 63156RS     |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                  | 2.00             | 2-3/8 EUE                            | 63157RS     |
|               |                 |                                |                  |                    | 2.38             | 2-7/8 EUE                            | 63159RS     |
| 5-3/4         | 21.5 - 24.0     | 4.784 - 4.879                  | 4.720            | -                  | 2.38             | 2-7/8 EUE                            | 63158Z      |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | -                  | 2.50             | 2-7/8 EUE                            | 63167RS     |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                  | 2.50             | 2-7/8 EUE                            | 63165RS     |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup> | 2.50             | 2-7/8 EUE                            | 63172RS     |
|               |                 |                                | 6.000            | 6.125 <sup>1</sup> | 3.00             | 3-1/2 EUE                            | 63174RS     |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                  | 2.50             | 2-7/8 EUE                            | 63170RS     |
|               |                 |                                |                  | 5.936 <sup>1</sup> | 3.00             | 3-1/2 EUE                            | 63173RS     |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | -                  | 2.50             | 2-7/8 EUE                            | 63175RS     |
| 8-5/8         | 28.0 - 40.0     | 7.725 - 8.017                  | 7.500            | -                  | 3.00             | 3-1/2 EUE                            | 63182RS     |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                  | 3.00             | 3-1/2 EUE                            | 63196RS     |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                  | 2.50             | 2-7/8 EUE                            | 63198RS     |
|               |                 |                                |                  | -                  | 4.00             | 4-1/2 EUE                            | 63195       |

<sup>1</sup>Maximum OD is across retracted drag blocks.

**OPTIONS:** RS (Right-Hand Auto Set, Straight Pick-Up Release), RM (Right-Hand Manual Set, Straight Pick-Up Release),

LS (Left-Hand Auto Set, Straight Pick-Up Release), LM (Left-Hand Manual Set, Straight Pick-Up Release)

**NOTE:** All pricing includes standard Nitrile trim. Carbide, other sizes, connections, and J-slot configurations are available upon request.



## AS-5 PACKER

The AS-5 Packer is a compression set tool with a J-slot to control pack-off. It is run above other packers - such as the AS-III Packer - to selectively treat, produce or inject in multiple zone completions. It is also used to isolate casing hole perforations. This packer features a large by-pass area to prevent swabbing when running and retrieving. When releasing, the valve allows debris to be washed from the upper slips.

### Special Features

- Large internal by-pass
- Mechanical slips vs. hydraulic buttons
- Additional J-slot arrangements available

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 60845       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                            | 60855       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 60856       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 2.00             | 2-3/8 EUE                            | 60857       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 60859       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 60872       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 60874       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 60870       |

**NOTE:** All pricing includes standard Nitrile trim. Carbide, other sizes, connections, and J-slot configurations are available upon request.



# SNAPSET I PACKER

The Snapset I Packer is a compression set packer requiring only straight set down weight to pack-off. This packer is run above other packers (such as the ASI-X Packer, AS-II Packer or AS-III Packer) for selective production to isolate casing holes and perforations.

This packer has no upper or lower slips and should be used only where intermediate differential pressures from below are expected. This packer has an internal

latch to prevent the packer from setting prematurely when running down the hole. When releasing, the latch re-engages to allow movement downhole and re-setting.

## Special Features

- Large internal by-pass
- Set down to pack off, pick up to release
- Compact design

## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | 1.25             | 1.900 NUE                            | 63535       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 63545       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                            | 63555       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 63556       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 2.00             | 2-3/8 EUE                            | 63557       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 63558       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 63572       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 63570       |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 2.50             | 2-7/8 EUE                            | 63575       |
| 9-5/8         | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 3.00             | 3-1/2 EUE                            | 63595-BAE   |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## SNAPSET II PACKER

The Snapset II Packer is a compression set tool requiring only straight set down weight to pack-off. This packer is run above another compression set packer (such as the AS-III Packer) to selectively treat, produce or inject in multiple zone completions. This packer is also used to isolate casing hole perforations.

This packer features a large by-pass area to prevent swabbing when running and retrieving. Once the packer is set, pressure from above or below acts down on the valve to maintain the seal and prevent upward movement of the tubing.

When releasing, the valve allows debris to be washed from the upper slips. This packer is equipped with an internal latch to prevent setting prematurely when running in the hole. When releasing, the latch re-engages to allow movement downhole.

### Special Features

- Large internal by-pass
- Set down to pack off, pick up to release
- Mechanical slips vs. hydraulic buttons
- Differential pressure holds valve closed

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | 1.25             | 1.900 NUE                            | 63635       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 63645       |
|               | 15.1            | 3.826                          | 3.656            | 1.94             | 2-3/8 EUE                            | 63644       |
|               | 18.8            | 3.640                          | 3.437            | 1.50             | 1.900 EUE                            | 63646       |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 63650       |
|               | 18.0 - 21.0     | 4.154 - 4.276                  | 4.000            | 1.94             | 2-3/8 EUE                            | 63652       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                            | 63655       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 63656       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 2.00             | 2-3/8 EUE                            | 63657       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 63658       |
| 6-5/8         | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.50             | 2-7/8 EUE                            | 63665       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 63672       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 63674       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 63670       |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 2.50             | 2-7/8 EUE                            | 63675       |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | 2.50             | 2-7/8 EUE                            | 63676       |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | 3.00             | 3-1/2 EUE                            | 63696       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



# CT THERMAL PACKER

The CT Thermal Packer is used in steam injection/production applications. This packer maintains the design features of our reliable ASI-X Packer and includes a packing element that can be packed-off with tension to allow the packer to be set at shallow depth. This packer is capable of setting in shallow wells, and will hold pressure from above and below. Its design also features an adjustable safety shear release. This packer needs 1/4 right-hand rotation to set it, and 1/4 right-hand rotation to release it (other J-slot designs are available). The thermal elements are available in 450° F to 625° F versions.

An Expansion Joint can be run above this packer to allow for tubing expansion and contraction.

## Special Features

- 1/4 right-hand set, 1/4 right-hand release (standard)
- Variable safety shear release
- Capable of setting in shallow depths
- Holds pressure from above and below
- Thermal elements 450° F to 625° F
- Additional J-slot arrangements available

## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Min ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|-----------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                 |                                      |             |
| 5-1/2         | 13.0 - 17.0     | 4.892 - 5.044                  | 4.750            | -                  | 2.00            | 2-3/8 EUE                            | 74055       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                  | 2.00            | 2-3/8 EUE                            | 74056       |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | -                  | 2.50            | 2-7/8 EUE                            | 74066       |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                  | 2.50            | 2-7/8 EUE                            | 74065       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup> | 2.50            | 2-7/8 EUE                            | 74072       |
|               |                 |                                |                  |                    | 3.00            | 3-1/2 EUE                            | 74074       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                  | 2.50            | 2-7/8 EUE                            | 74070       |
|               |                 |                                |                  | -                  | 3.00            | 3-1/2 EUE                            | 74073       |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## IE THERMAL PACKER

The IE Thermal Packer is a CT Thermal Packer with an Internal Expansion (IE) Joint. This packer is a double-grip retrievable packer designed for steam injection/production. This packer's design is based on our highly successful ASI-X Packer.

This packer features a double-grip hold down system capable of holding pressure from above and below. This feature allows the packer to maintain pack-off and prevent movement of the packing element without having the packer in tension or compression. The double-grip feature allows the packer to be ideally suited for huff and puff operations as well as continuous steam injection.

This packer is equipped with high temperature EPDM elements with wire mesh backups to prevent extrusion for service up to 450° F (an element package for 650° F is also available).

### Special Features

- J-Slot controlled expansion joint
- Based on proven ASI-X Packer design
- Safety shear release
- Expansion joint up to 20 Ft available

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 4220 <sup>1</sup>  | 1.50             | 2-3/8 EUE                            | 74150       |
|               | 18.0 - 20.8     | 4.156 - 4.276                  | 4.000            | -                  | 1.50             | 2-3/8 EUE                            | 74152       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.125 <sup>1</sup> | 3.00             | 3-1/2 EUE                            | 74170       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                  | 3.00             | 3-1/2 EUE                            | 74171       |
| 9-5/8         | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                  | 4.00             | 4-1/2 EUE                            | 74195       |

<sup>1</sup>Maximum OD is across retracted drag blocks.

**OPTIONS:** Available with carbide and other expansion joint lengths (10 FT, 15 FT, and 20 FT).

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## D-H TENSION PACKER

The D-H Tension Packer is for use in water flood, injection or producing wells. This tension packer has a built-in safety system to eliminate problems should conventional retrieval methods fail. Right-hand rotation releases the first safety joint allowing the slips to pull off the cone and release the packer. Should the packer fail to release, a second safety joint can be broken to release the packer. This safety feature allows for circulation down the tubing to remove debris.

In addition, the D-H Tension Packer is available for open-hole applications and

incorporates dual elongated packing elements and deep wickered slips for better bite into the formation.

### Special Features

- Full opening
- Built-in safety joint
- Stainless steel drag springs
- Available to set in open hole
- Long packing element to give maximum sealing area

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 2-7/8         | 6.4 - 6.5       | 2.375 - 2.441                  | 2.250            | 0.75             | 1.900 EUE                            | 40525       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 40545       |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 40550       |
|               | 15.0 - 20.8     | 4.156 - 4.408                  | 4.000            | 1.94             | 2-3/8 EUE                            | 40551       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 1.94             | 2-3/8 EUE                            | 40555       |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 40556       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 1.94             | 2-3/8 EUE                            | 40557       |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 40558       |
| 6             | 15.0 - 20.0     | 5.352 - 5.524                  | 5.188            | 2.44             | 2-7/8 EUE                            | 40560       |
| 6-5/8         | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.44             | 2-7/8 EUE                            | 40565       |
| 7             | 17.0 - 29.0     | 6.184 - 6.538                  | 6.000            | 2.44             | 2-7/8 EUE                            | 40570       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40573       |
| 7-5/8         | 20.0 - 33.7     | 6.765 - 7.125                  | 6.625            | 2.44             | 2-7/8 EUE                            | 40575       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40576       |
| 8-5/8         | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 2.50             | 2-7/8 EUE                            | 40585       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40587       |
| 9-5/8         | 29.3 - 43.5     | 8.755 - 9.063                  | 8.500            | 2.50             | 2-7/8 EUE                            | 40595       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40597       |
| 10-3/4        | 32.75 - 55.5    | 9.760 - 10.192                 | 9.500            | 3.00             | 3-1/2 EUE                            | 40510       |
| 13-3/8        | 48.0 - 72.0     | 12.347 - 12.715                | 12.000           | 3.00             | 3-1/2 EUE                            | 40513       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## D-H Tension Open Hole Packer Product Specifications

| Casing Size (inches) | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| 4-1/2                | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 40645       |
| 5                    | 4.276 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 40650       |
| 5-1/2                | 4.670 - 4.778                  | 4.500            | 1.94             | 2-3/8 EUE                            | 40657       |
|                      |                                |                  | 2.44             | 2-7/8 EUE                            | 40658       |
|                      | 4.778 - 5.044                  | 4.625            | 1.94             | 2-3/8 EUE                            | 40655       |
|                      |                                |                  | 2.50             | 2-7/8 EUE                            | 40656       |
| 6                    | 5.000 - 6.220                  | 4.875            | 1.94             | 2-3/8 EUE                            | 40660       |
| 6-5/8                | 5.675 - 5.921                  | 5.500            | 2.50             | 2-7/8 EUE                            | 40665       |
| 7                    | 6.094 - 6.135                  | 5.750            | 2.00             | 2-3/8 EUE                            | 40674       |
|                      |                                |                  | 2.50             | 2-7/8 EUE                            | 40671       |
|                      | 6.184 - 6.538                  | 6.000            | 2.00             | 2-3/8 EUE                            | 40672       |
|                      |                                |                  | 2.50             | 2-7/8 EUE                            | 40670       |
|                      |                                |                  | 3.00             | 3-1/2 EUE                            | 40673       |
| 7-5/8                | 6.765 - 7.125                  | 6.625            | 2.44             | 2-7/8 EUE                            | 40675       |
|                      |                                |                  | 3.00             | 3-1/2 EUE                            | 40676       |
| 8-5/8                | 7.725 - 8.097                  | 7.500            | 2.50             | 2-7/8 EUE                            | 40685       |
|                      |                                |                  | 3.00             | 3-1/2 EUE                            | 40687       |
| 9-5/8                | 8.755 - 9.063                  | 8.500            | 2.50             | 2-7/8 EUE                            | 40695       |
|                      |                                |                  | 3.00             | 3-1/2 EUE                            | 40697       |
| 10-3/4               | 9.760 - 10.050                 | 9.500            | 3.00             | 3-1/2 EUE                            | 40610       |
| 13-3/8               | 12.347 - 12.715                | 12.000           | 3.00             | 3-1/2 EUE                            | 40613       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## DL TENSION & DL SHEAR TENSION PACKER

The DL Tension Packer and DL Shear Tension Packer are economical, compact tools for injection, pumping, medium range treating and production applications. These packers are set by 1/4 right-hand rotation of the tubing and then pull tension. To release these packers, slack off the tubing and the packer will automatically re-jay into the release position. These packers have a right-hand rotation release allowing retrieval of the tubing string.

The DL Tension Packer can be run in tension or compression. When the DL Tension Packer is run in compression, the right-hand release option cannot be utilized.

The DL Shear Tension Packer features an adjustable straight pull safety shear release. This packer is not designed to be run in compression.

### Special Features

- Long element for increased pack-off
- Rotational safety tubing release
- Safety shear release (DL Shear Tension Packer Only)
- Deep wickered slips



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |                  |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|------------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      | DL Tension  | DL Shear Tension |
| 2-7/8         | 6.4 - 6.5       | 2.375 - 2.441                  | 2.250            | 0.75             | 3/4" LINE PIPE / 1.315 NUE           | 40125       | 41225            |
|               |                 |                                |                  | 1.13             | 1.315 EUE                            | 40127       | 41227            |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | 1.50             | 1.900 EUE                            | 40135       | 41235            |
|               | 12.8            | 2.764                          | 2.437            | 1.25             | 1.900 EUE / 1.900 NUE                | 40136       | 41236            |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | 1.50             | 2-3/8 EUE                            | 40140       | 41240            |
|               |                 |                                |                  | 1.88             | 2-3/8 EUE                            | 40141       | 41241            |
|               | 14.8            | 3.240                          | 3.090            | 1.50             | 1.900 EUE                            | 40139       | 41239            |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 40145       | 41245            |
|               | 12.6            | 3.958                          | 3.187            | 1.50             | 2-3/8 EUE                            | 40142       | 41242            |
|               | 15.1            | 3.826                          | 3.656            | 1.94             | 2-3/8 EUE                            | 40143       | 41243            |
|               | 15.1 - 16.6     | 3.754 - 3.826                  | 3.500            | 1.94             | 2-3/8 EUE                            | 40144       | 41244            |
| 5             | 11.5 - 18.0     | 4.276 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 40150       | 41250            |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## DL Tension & DL Shear Tension Packer Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |                  |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|------------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      | DL Tension  | DL Shear Tension |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 1.94             | 2-3/8 EUE                            | 40155       | 41255            |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 40156       | 41256            |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 1.94             | 2-3/8 EUE                            | 40157       | 41257            |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 40158       | 41258            |
| 6             | 15.0 - 20.0     | 5.352 - 5.524                  | 5.125            | 2.44             | 2-7/8 EUE                            | 40161       | 41261            |
|               | 20.0 - 23.0     | 5.240 - 5.352                  | 5.000            | 2.44             | 2-7/8 EUE                            | 40160       | 41260            |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | 2.44             | 2-7/8 EUE                            | 40166       | 41266            |
|               | 20.0 - 28.0     | 5.791 - 6.049                  | 5.625            | 2.44             | 2-7/8 EUE                            | 40164       | 41264            |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.44             | 2-7/8 EUE                            | 40165       | 41265            |
| 7             | 17.0 - 29.0     | 6.184 - 6.538                  | 6.000            | 2.44             | 2-7/8 EUE                            | 40170       | 41270            |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40173       | 41273            |
| 7-5/8         | 20.0 - 33.7     | 6.765 - 7.125                  | 6.625            | 2.44             | 2-7/8 EUE                            | 40175       | 41275            |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40176       | 41276            |
| 8-5/8         | 20.0 - 28.0     | 8.017 - 8.191                  | 7.750            | 2.50             | 2-7/8 EUE                            | 40186       | 41286            |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40188       | 41288            |
|               | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 2.50             | 2-7/8 EUE                            | 40185       | 41285            |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40187       | 41287            |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | 2.50             | 2-7/8 EUE                            | 40195       | 41299-XBAC       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40197       | 41299-XBAE       |
|               |                 |                                |                  | 4.00             | 4-1/2 LTC                            | 40199       | 41299            |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 2.50             | 2-7/8 EUE                            | 40194       | 41298-XBAC       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 40196       | 41298-XBAE       |
|               |                 |                                |                  | 4.00             | 4-1/2 LTC                            | 40198       | 41298            |
| 10-3/4        | 32.75 - 55.5    | 9.760 - 10.192                 | 9.500            | 4.00             | 4-1/2 EUE                            | 40110       | 41210            |
| 11-3/4        | 38.0 - 66.7     | 10.656 - 11.150                | 10.375           | 2.50             | 2-7/8 EUE                            | 40111       | 41211            |
| 12-3/4        | 43.0 - 65.42    | 11.750 - 12.130                | 11.590           | 4.00             | 4-1/2 EUE                            | -           | 41212            |
| 13-3/8        | 48.0 - 72.0     | 12.347 - 12.715                | 12.000           | 4.00             | 4-1/2 EUE                            | 40113       | 41213            |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

# CASING PACKER

The Casing Packer is a large bore, single grip packer used to isolate damaged casing and for production or injection. This packer can be run in tension or compression and can be used as a liner hanger when equipped with a right-hand release sub. Coarse, deep wickered slips allow this packer to set in open-hole or scaly casing. For open-hole set, this packer can be equipped with two elongated packing elements to assure a positive seal.

## Special Features

- Set/run in tension or compression
- Applicable for set in open hole
- Can be used as a liner hanger
- Full opening
- Coarse, deep wickered slip teeth
- Available with right-hand or left-hand set, manual or automatic release

## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Box Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 2.50             | 2-7/8 EUE                            | 44145       |
|               | 15.1            | 3.826                          | 3.656            | 2.50             | 2-7/8 EUE                            | 44144       |
| 5             | 11.5 - 20.3     | 4.184 - 4.560                  | 4.000            | 2.50             | 2-7/8 EUE                            | 44150       |
|               | 18.0 - 21.4     | 4.126 - 4.276                  | 3.875            | 2.50             | 2-7/8 EUE                            | 44151       |
| 5-1/2         | 13.0 - 17.0     | 4.892 - 5.044                  | 4.650            | 3.50             | 4" NUE                               | 44156       |
|               | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 3.00             | 3-1/2 EUE                            | 44155       |
| 5-3/4         | 14.0 - 17.0     | 5.190 - 5.290                  | 4.875            | 3.50             | 4-1/2 EUE                            | 44157       |
| 6             | 18.0 - 23.0     | 5.240 - 5.424                  | 5.000            | 3.50             | 4" NUE                               | 44160       |
| 6-5/8         | 20.0 - 28.0     | 5.791 - 6.049                  | 5.625            | 4.00             | 4-1/2 LTC                            | 44165       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 4.75             | 5-1/2 LTC                            | 44172       |
|               | 17.0 - 38.0     | 5.920 - 6.538                  | 5.750            | 4.00             | 4-1/2 LTC                            | 44170       |
|               | 20.0 - 29.0     | 6.184 - 6.456                  | 5.969            | 4.50             | 5" LTC                               | 44171       |
| 7-5/8         | 20.0 - 33.7     | 6.765 - 7.125                  | 6.500            | 4.00             | 4-1/2 LTC                            | 44175       |
|               |                 |                                |                  | 5.00             | 5-1/2 LTC                            | 44176       |
| 8-5/8         | 24.0 - 36.0     | 7.825 - 8.097                  | 7.656            | 6.00             | 6-5/8 LTC                            | 44186       |
|               |                 |                                |                  | 6.50             | 7" LTC                               | 44187       |
|               |                 |                                |                  | 4.15             | 4-1/2 LTC                            | 44184       |
|               | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 5.00             | 5-1/2 LTC                            | 44185       |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | 6.50             | 7" LTC                               | 44195       |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 6.50             | 7" LTC                               | 44196       |
| 10-3/4        | 32.75 - 55.5    | 9.760 - 10.192                 | 9.500            | 6.50             | 7" LTC                               | 44110       |
| 11-3/4        | 42.0 - 65.0     | 10.682 - 11.084                | 10.500           | 8.00             | 8-5/8 LTC                            | 44111       |
| 13-3/8        | 48.0 - 77.0     | 12.275 - 12.715                | 12.000           | 8.75             | 9-5/8 LTC                            | 44113       |
| 18-5/8        | 87.5 - 117.5    | 17.439 - 17.755                | 17.000           | 12.50            | 13-3/8 STC                           | 44118       |

OPTIONS: RS (Right-Hand Auto Set), RM (Right-Hand Manual Set), LS (Left-Hand Auto Set), LM (Left-Hand Manual Set)

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## GV CUP PACKER

The Type GV Cup Packer is an economical means of isolating casing leaks and depleted zones and is also a production or injection packer for low pressure applications. Depending on application, this packer can be run with cups opposed or in the same direction. This packer is also available with packing element back-up rings for higher pressure

applications and comes in a full range of tubing and casing sizes in two-cup or four-cup models.

### Special Features

- Economic design
- Cup direction option
- Tubing size options

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 3-1/2         | 9.2 - 10.3      | 2.922 - 2.992                  | 2.810            | 1.50             | 1.900 NUE                            | 43935       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 2.00             | 2-3/8 EUE                            | 43945       |
|               |                 |                                |                  | 2.50             | 2-7/8 EUE                            | 43946       |
|               | 15.1            | 3.826                          | 3.650            | 2.00             | 2-3/8 EUE                            | 43947       |
| 5             | 13.0 - 15.0     | 4.408 - 4.494                  | 4.250            | 2.00             | 2-3/8 EUE                            | 43951       |
|               | 18.0            | 4.276                          | 4.130            | 2.00             | 2-3/8 EUE                            | 43950       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 3.00             | 3-1/2 EUE                            | 43953       |
|               | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.50             | 2-7/8 EUE                            | 43956       |
|               | 17.0 - 20.0     | 4.778 - 4.892                  | 4.625            | 2.00             | 2-3/8 EUE                            | 43955       |
|               | 20.0 - 26.0     | 4.548 - 4.778                  | 4.375            | 2.50             | 2-7/8 EUE                            | 43957       |
| 6-5/8         | 20.0            | 6.049                          | 5.750            | 3.00             | 3-1/2 EUE                            | 43965       |
|               | 20.0 - 24.0     | 5.921 - 6.049                  | 5.750            | 4.00             | 4-1/2 EUE                            | 43966       |
| 7             | 17.0 - 29.0     | 6.184 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 43971       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 43973       |
|               | 20.0 - 29.0     | 6.184 - 6.456                  | 6.000            | 2.00             | 2-3/8 EUE                            | 43970       |
|               |                 |                                |                  | 4.00             | 4-1/2 LTC                            | 43974       |
| 7-5/8         | 24.0 - 26.4     | 6.969 - 7.025                  | 6.750            | 2.50             | 2-7/8 EUE                            | 43976       |
|               | 29.7 - 33.7     | 6.765 - 6.875                  | 6.375            | 2.50             | 2-7/8 EUE                            | 43975       |
| 8-5/8         | 28.0 - 36.0     | 7.825 - 8.017                  | 7.375            | 2.50             | 2-7/8 EUE                            | 43985       |
| 9-5/8         | 40.0 - 47.0     | 8.681 - 8.835                  | 8.450            | 3.00             | 3-1/2 EUE                            | 43995       |
| 10-3/4        | 40.5 - 55.5     | 9.760 - 10.050                 | 9.710            | 4.00             | 4-1/2 LTC                            | 4391075     |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections are available upon request.



2 Cup Version



4 Cup Version

## GAS VENT PUMPING PACKER

The Gas Vent Pumping Packer offers an inexpensive option for isolating casing leaks or depleted perforations in pumping wells. This tool prevents gas lock by allowing gas to vent to the surface past damaged zones. The interval between top and bottom cups can be any length. This packer is available with double or multiple cups.

### Special Features

- Inexpensive alternative to squeeze job
- Variable intervals easily adjusted
- Optional double cups to multiple cups

### Product Specifications

| Casing        |                 | Liner Size (inches) | Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Part Number |
|---------------|-----------------|---------------------|----------------------|------------------|------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                     |                      |                  |                  |             |
| 4-1/2         | 9.5 - 13.5      | 3" Line Pipe        | 2-3/8                | 3.813            | 2.69             | 42145       |
| 5-1/2         | 13.0 - 20.0     | 3" Line Pipe        | 2-3/8                | 4.000            | 2.75             | 42155       |
|               |                 | 3-1/2" Line Pipe    | 2-7/8                | 4.630            | 3.13             | 42156       |
| 7             | 20.0 - 29.0     | 4-1/2" LTC          | 2-3/8                | 5.000            | 2.75             | 42171       |
|               |                 |                     | 2-7/8                | 5.000            | 3.13             | 42170       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Standard



4 Cup Version

# RETRIEVABLE SEAL BORE PACKER - SINGLE BORE

The Retrieval Seal Bore (RSB) Packer delivers high performance with simplicity of design and desirable economics. This packer is rated for 7,000 PSI and can be equipped to withstand severe corrosion and high temperatures. The RSB Packer is set on wireline (with minor changes) or on tubing with a hydraulic setting tool and is retrieved using a retrieving tool.

NOTE: A retrieving tool is required to retrieve these packers and must be purchased separately.

## Special Features

- Simple operation
- Economical
- Easy to retrieve
- Many applications
- Easily modified for a wide range of conditions and temperatures

## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Packer Bore (inches) | Min ID Thru Seals (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------------|----------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                      |                            |             |
| 5             | 15.0 - 18.0     | 4.276 - 4.408                  | 4.000            | 2.688                | 1.940                      | 26550       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 2.688                | 1.940                      | 26055       |
|               |                 |                                |                  | 3.000                | 2.380                      | 26555       |
| 6-5/8         | 20.0 - 32.0     | 5.675 - 6.049                  | 5.468            | 3.250                | 2.410                      | 26565       |
| 7             | 17.0 - 20.0     | 6.456 - 6.538                  | 6.125            | 3.000                | 2.380                      | 26071       |
|               |                 |                                |                  | 4.000                | 3.000                      | 26571       |
|               |                 |                                |                  | 3.000                | 2.380                      | 26070       |
|               | 23.0 - 29.0     | 6.184 - 6.366                  | 5.938            | 3.250                | 2.420                      | 26073       |
|               |                 |                                |                  | 4.000                | 3.000                      | 26574       |
|               |                 |                                |                  | 3.000                | 2.380                      | 26072       |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 4.000                | 3.00                       | 26575       |
|               |                 |                                |                  | 3.000                | 2.380                      | 26078       |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.375            | 4.000                | 3.000                      | 26578       |
|               |                 |                                |                  | 4.000                | 3.000                      | 26085       |
| 8-5/8         | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 4.750                | 4.000                      | 26585       |
|               |                 |                                |                  | 4.000                | 3.000                      | 26086       |
|               | 40.0 - 49.0     | 7.511 - 7.725                  | 7.312            | 4.750                | 4.000                      | 26586       |
|               |                 |                                |                  | 4.000                | 3.000                      | 26086       |
| 9-5/8         | 40.0 - 47.0     | 8.681 - 8.835                  | 8.500            | 6.000                | 4.750                      | 26596-2     |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 4.750                | 3.500                      | 26094-2     |
|               |                 |                                |                  | 6.000                | 4.750                      | 26595-2     |
| 13-3/8        | 54.5 - 68.0     | 12.415 - 12.615                | 12.250           | 9.000                | 8.000                      | 26513       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



# RETRIEVABLE SEAL BORE PACKER - DUAL BORE

The Retrieval Seal Bore (RSB) Dual Bore Packer delivers high performance with simplicity of design and desirable economics. This packer allows for a larger ID through the packer by sealing in an upper sealbore. This packer is rated for 7,000 PSI and can be equipped to withstand severe corrosion and high temperatures.

NOTE: A retrieving tool is required to retrieve these packers and must be purchased separately.

## Special Features

- Simple operation
- Economical
- Easy to retrieve
- Easily modified for a wide range of conditions and temperatures



## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Packer Bore (inches) | Upper Seal Bore (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------------|--------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                      |                          |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 2.062                | 2.688                    | 26845       |
| 5             | 15.0 - 18.0     | 4.276 - 4.408                  | 4.000            | 2.688                | 3.000                    | 26850       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 3.000                | 4.000                    | 26855       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 3.000                | 4.000                    | 26857       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 5.938            | 4.000                | 5.250                    | 26870       |
|               | 23.0 - 29.0     | 6.184 - 6.366                  | 5.938            | 4.000                | 4.750                    | 26874       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 4.000                | 5.250                    | 26871       |
|               |                 |                                |                  |                      | 5.000                    | 26871X      |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 4.000                | 4.750                    | 26875       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## RSB RETRIEVING TOOL

The RSB Retrieving Tool is used to retrieve RSB Packers. This retrieving tool latches into the top sub with a standard anchor latch to allow the RSB Packer to be retrieved with a straight pull. A spring-loaded collet locates below the support ring that keeps the packer locked in a set position. Latch fingers latch into the packer. A pull shears the support ring and releases the packer. If

the packer cannot be retrieved normally, this retrieving tool has a safety release that allows it to be disconnected from the packer with right-hand rotation.

### Special Features

- Simple operation
- Safety shear release
- Rugged design for multiple use

### Product Specifications - Single Bore RSB

| Packer Size (inches) | Packer Bore (inches) | Tool OD (inches) | Tool ID (inches) | Top Connection | Part Number |
|----------------------|----------------------|------------------|------------------|----------------|-------------|
| 5                    | 2.688                | 3.500            | 1.00             | 2-3/8 EUE      | 26650       |
| 5-1/2                | 3.000                | 3.688            | 1.25             | 2-7/8 EUE      | 26655       |
| 6-5/8                | 3.250                | 4.250            | 1.38             | 2-7/8 EUE      | 26665       |
| 7                    | 3.000                | 3.688            | 1.25             | 2-7/8 EUE      | 26655       |
|                      | 4.000                | 5.062            | 1.75             | 2-7/8 EUE      | 26670       |
| 9-5/8                | 6.000                | 6.980            | 2.75             | 4-1/2 EUE      | 26696       |
|                      |                      |                  |                  |                | 26696-2     |
| 13-3/8               | 9.000                | 9.365            | 5.75             | 7" LTC         | 26613       |

NOTE: Other sizes and connections available upon request.

### Product Specifications - Dual Bore RSB

| Packer Size (inches) | Packer Bore (inches) | Tool OD (inches) | Tool ID (inches) | Top Connection | Part Number |
|----------------------|----------------------|------------------|------------------|----------------|-------------|
| 4-1/2                | 3.50                 | 0.50             | 2.688 / 2.062    | 2-3/8 EUE      | 26945RT     |
| 5                    | 3.000 / 2.688        | 3.688            | 1.00             | 2-7/8 EUE      | 26950RT     |
| 5-1/2                | 3.000                | 3.688            | 1.25             | 2-7/8 EUE      | 26655       |
| 7                    | 5.250 / 4.000        | 5.062            | 1.75             | 2-7/8 EUE      | 26670       |
| 7-5/8                | 4.750 / 4.000        | 5.810            | 1.75             | 2-7/8 EUE      | 26975       |

NOTE: Other sizes and connections available upon request.

### Product Specifications - Hydraulic Set RSB

| Packer Size (inches) | Packer Bore (inches) | Tool OD (inches) | Tool ID (inches) | Top Connection | Part Number |
|----------------------|----------------------|------------------|------------------|----------------|-------------|
| 5-1/2                | 3.000                | 3.688            | 1.25             | 2-7/8 EUE      | 27655       |
| 7                    | 4.000                | 5.062            | 1.75             | 2-7/8 EUE      | 27670       |

NOTE: Other sizes and connections available upon request.



## TYPE DL-IB TANDEM TENSION PACKER

The Type DL-IB Tandem Tension Packer is an economical, compact, low-pressure, tension set, isolation packer used in casing or perforations and multi-zone injection installations. This packer runs with a tension set packer below. It can be run with the J-pins in the un-jayed position or in the jayed position. In the un-jayed position, applying tension shears the shear pins and allows pack-off.

If run in the jayed position, the DL-IB Tandem Tension Packer must be used in

conjunction with an ASI-X Packer. Set down weight shears the pins; left-hand rotation and applied tension will set the tool.

### Special Features

- Economical
- Run in jayed position, or un-jayed position
- Optional J-configurations

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 3-1/2         | 7.7 - 10.3      | 2.922 - 3.068                  | 2.781            | 1.53             | 1.900 EUE                            | 43635       |
| 4-1/2         | 9.5 - 11.6      | 4.000 - 4.090                  | 3.844            | 1.94             | 2-3/8 EUE                            | 43644       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 43646       |
|               | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.50             | 2-3/8 EUE                            | 43647       |
|               |                 |                                |                  | 1.94             | 2-3/8 EUE                            | 43645       |
|               | 15.1            | 3.826                          | 3.650            | 1.94             | 2-3/8 EUE                            | 43643       |
| 5             | 15.0 - 18.0     | 4.276 - 4.408                  | 4.125            | 1.94             | 2-3/8 EUE                            | 43651       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 43650       |
|               | 18.0 - 20.8     | 4.156 - 4.276                  | 4.000            | 1.94             | 2-3/8 EUE                            | 43652       |
| 5-1/2         | 13.0 - 15.5     | 4.950 - 5.044                  | 4.781            | 2.00             | 2-3/8 EUE                            | 43655       |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 43656       |
|               | 13.0 - 20.0     | 4.778 - 5.044                  | 4.750            | 3.00             | 3-1/2 EUE                            | 43653       |
|               | 15.5 - 20.0     | 4.778 - 4.950                  | 4.641            | 2.00             | 2-3/8 EUE                            | 43657       |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 43658       |
|               | 15.5 - 23.0     | 4.670 - 4.950                  | 4.500            | 2.00             | 2-3/8 EUE                            | 43654       |
| 7             | 17.0 - 23.0     | 6.366 - 6.538                  | 6.125            | 2.00             | 2-3/8 EUE                            | 43671       |
|               |                 |                                |                  | 2.44             | 2-7/8 EUE                            | 43670       |
|               | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 3.00             | 3-1/2 EUE                            | 43673       |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 2.44             | 2-7/8 EUE                            | 43675       |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | 3.00             | 3-1/2 EUE                            | 43696       |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 2.50             | 2-7/8 EUE                            | 43695       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## SET DOWN ISOLATION PACKER

The Set Down Isolation Packer is an economical, compact compression set tool used to isolate casing or perforations. It can also be used in multi-zone injection applications. This packer runs above a compression set packer (such as the AS-II Packer or AS-III Packer). Applied compression will shear the shear screws and allow pack-off. Straight pick-up releases the packer.

### Special Features

- Economical design
- Adjustable delayed set
- No rotation needed to set or un-set

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 2-7/8         | 6.5             | 2.375                          | 2.250            | 1.50             | 1.900 NUE / 1.900 EUE                | 64125       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 64145       |
| 5             | 11.5 - 20.8     | 4.156 - 4.560                  | 4.000            | 1.94             | 2-3/8 EUE                            | 64150       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 1.94             | 2-3/8 EUE                            | 64155       |
|               |                 |                                |                  | 2.50             | 2-7/8 EUE                            | 64156       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 64158       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 64170       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 64174       |
|               |                 |                                |                  | 2.00             | 2-3/8 EUE                            | 64171       |
| 7-5/8         | 33.7 - 39.0     | 6.625 - 6.765                  | 5.938            | 2.82             | 2-7/8 EUE / 4-1/2 LTC                | 64175       |
| 8-5/8         | 32.0 - 40.0     | 7.725 - 7.921                  | 7.500            | 3.00             | 3-1/2 EUE                            | 64182       |
| 9-5/8         | 32.3 - 47.0     | 8.681 - 9.001                  | 8.438            | 3.00             | 3-1/2 EUE                            | 64196       |
|               | 40.0 - 47.0     | 8.681 - 8.835                  | 8.438            | 4.00             | 4-1/2 EUE                            | 64195       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## MECHANICAL BALL VALVE

The Mechanical Ball Valve is a means for pressure control downhole at the packer. The ball valve provides a seal for pressure above or below the valve. This allows for pressure operation to be conducted above a set packer without disturbing formations below. No tubing plugs need to be run.

### Special Features

- Holds pressure both directions
- Will not open under tubing pressure
- Full opening
- Non-elastomeric seat seal for repeated opening and closings
- Simple collet stinger design

### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 4-1/2         | 5.875            | 3.25             | 4-1/2 VAM TOP                        | 54945       |
| 5-1/2         | 8.190            | 4.30             | 4-1/2 VAM TOP                        | 54955       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## YO-YO TENSION PACKER (YYT)

The YYT Packer is an economical, compact tool for injection, pumping, medium range treating and production applications. The yo-yo J-slot design allows the packer to be set and unset without rotation of the tubing.

The packer features an adjustable straight pull safety shear release. This packer is not designed to be run in compression.

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 40945C-3    |
|               | 13.5 - 15.1     | 3.826 - 3.920                  | 3.656            | 1.94             | 2-3/8 EUE                            | 40944C-3    |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 1.94             | 2-3/8 EUE                            | 40955C-3    |



## Mechanical Set Packers

[illegible]

# Hydraulic Set Packers



## Hydraulic Set Packers CONTENTS

|   |       |
|---|-------|
| DLH Packer.....                           | 35-36 |
| Hydroset II Packer .....                  | 37-38 |
| Hydroset II-A Packer .....                | 39    |
| DLESP Packer.....                         | 40    |
| Hydroset IV Packer .....                  | 41-42 |
| Hydraulic Open Hole Packer .....          | 43    |
| Permanent Hydraulic Isolation Packer..... | 44    |

## DLH PACKER

The DLH Packer is a hydraulic set single-string retrievable packer and may be used in virtually any production application. Tubing pump pressure is used to set the packer and the setting force is locked into the packer by a body lock ring. A large internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set, and opens during the releasing process to allow pressure equalization. Shear screws are used to control the packer release. The standard DLH Packer is designed for differential pressures up to 7,500 PSI.

### Special Features

- Adjustable setting initiation pressure
- Adjustable shear release
- Straight pull release



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 93545       |
|               | 15.1            | 3.826                          | 3.656            | 1.94             | 2-3/8 EUE                            | 93546       |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 93550       |
|               | 18.0 - 21.0     | 4.154 - 4.276                  | 4.000            | 1.94             | 2-3/8 EUE                            | 93552       |
| 5-1/2         | 13.0 - 15.5     | 4.950 - 5.044                  | 4.813            | 2.38             | 2-7/8 EUE                            | 93558       |
|               | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                            | 93555       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 93556       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 2.00             | 2-3/8 EUE                            | 93557       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 93559       |
|               | 12.0 - 20.0     | 5.352 - 5.620                  | 5.188            | 2.38             | 2-7/8 EUE                            | 93561       |
| 6             | 17.0 - 23.0     | 5.240 - 5.450                  | 5.063            | 2.38             | 2-7/8 EUE                            | 93560       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM

## DLH Packer Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | 2.50             | 2-7/8 EUE                            | 93567       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93568       |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.50             | 2-7/8 EUE                            | 93566       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93565       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 93572       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93574       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 93570       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93573       |
|               | 29.0 - 35.0     | 6.004 - 6.184                  | 5.812            | 2.50             | 2-7/8 EUE                            | 93571       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93573HW     |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 2.50             | 2-7/8 EUE                            | 93575       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93578       |
|               | 29.7 - 33.7     | 6.765 - 6.875                  | 6.563            | 3.00             | 3-1/2 EUE                            | 93578A      |
|               |                 |                                |                  | 2.50             | 2-7/8 EUE                            | 93576       |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | 3.00             | 3-1/2 EUE                            | 93577       |
| 8-5/8         | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 4.00             | 4-1/2 EUE                            | 93585       |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | 2.50             | 2-7/8 EUE                            | 93596-WBAC  |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93596-WBAE  |
|               |                 |                                |                  | 4.00             | 4-1/2 EUE                            | 93596       |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | 2.50             | 2-7/8 EUE                            | 93595-XBAC  |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 93595-WBAE  |
|               |                 |                                |                  | 4.00             | 4-1/2 EUE                            | 93595       |
| 10-3/4        | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | 4.00             | 4-1/2 EUE                            | 93510       |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | 5.00             | 5-1/2 LTC                            | 93513       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM

## HYDROSET II PACKER

The Hydroset II Packer is a hydraulic set, mechanically held dual string production packer normally run above a single string hydraulic set or wireline set seal bore packer. Because no tubing manipulation is required to set this packer, the well head can be installed and flanged up before setting.

This packer is available with short string or long string setting capabilities and a variety of tubing connections. This packer is also adaptable for electrical submersible pump applications. This packer features a sequential upper slip release system designed to release each slip individually to reduce the pull required to release the packer. The angles on the upper slips and upper slip body result in the slips releasing smoothly from the casing.

### Design Options

- Several short string options available:
  - Solid connection (flat top)
  - J-Latch (complete with scoop head)
  - “C” Latch (Snap Latch - complete with scoop head)
- Feed-through tubes can be added to most designs
- Accessories
  - Adjustable unions
  - Telescoping unions



## Hydroset II Packer Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Long String |                 | Short String          |                 | Part Number   |
|---------------|-----------------|--------------------------------|------------------|-------------|-----------------|-----------------------|-----------------|---------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Connections | Min ID (inches) | Connections           | Min ID (inches) |               |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 1.900 EUE   | 1.50            | 1.900 NUE / 1.660 EUE | 1.38            | 90555-BAA-BBA |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.062            | 2-3/8 EUE   | 1.94            | 2-3/8 EUE             | 1.94            | 90572-BAB     |
|               |                 |                                |                  | 2-7/8 EUE   | 2.50            | 1.900 EUE             | 1.61            | 90572-BAC-BAA |
|               |                 |                                |                  |             | 2.50            | 1.900 NUE             | 1.50            | 90572-BAC-BBA |
|               |                 |                                |                  | 2-3/8 EUE   | 1.94            | 2-3/8 EUE             | 1.94            | 90570-BAB     |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.938            | 2-7/8 EUE   | 2.50            | 1.900 EUE             | 1.50            | 90570-BAC-BBA |
|               |                 |                                |                  | 2-7/8 NUE   | 2.50            | 1.900 NUE / 1.900 EUE | 1.50            | 90570-BBC-BAA |
|               |                 |                                |                  | 2-7/8 EUE   | 2.50            | 1.900 NUE             | 1.50            | 90570-BAC-BAA |
|               | 29.0 - 35.0     | 6.004 - 6.184                  | 5.875            | 2-3/8 EUE   | 1.94            | 2-3/8 EUE             | 1.94            | 90571-BAB     |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 2-7/8 EUE   | 2.39            | 2-3/8 NUE / 2-3/8 EUE | 1.94            | 90575-BAC-BAB |
| 8-5/8         | 24.0 - 32.0     | 7.921 - 8.097                  | 7.688            | 2-7/8 EUE   | 2.39            | 2-7/8 NUE / 2-7/8 EUE | 2.39            | 90585-BAC     |
|               |                 |                                |                  | 3-1/2 EUE   | 3.00            | 2-3/8 EUE             | 2.00            | 90585-BAE-BAB |
|               | 36.0 - 40.0     | 7.725 - 7.825                  | 7.438            | 2-7/8 EUE   | 2.44            | 2-3/8 EUE             | 1.94            | 90586-BAC-BAB |
| 9-5/8         | 32.3 - 40.0     | 8.835 - 9.001                  | 8.615            | 3-1/2 EUE   | 3.00            | 1.900 EUE             | 1.61            | 90597-BAE-BAA |
|               |                 |                                |                  |             |                 | 2-3/8 EUE             | 1.94            | 90597-BAE-BAB |
|               |                 |                                |                  |             |                 | 2-7/8 EUE             | 2.44            | 90597-BAE-BAC |
|               |                 |                                |                  | 4-1/2 EUE   | 4.00            | 1.900 EUE             | 1.61            | 90597-BAG-BAA |
|               | 32.3 - 47.0     | 8.681 - 9.001                  | 8.500            | 3-1/2 EUE   | 3.00            | 3-1/2 EUE             | 3.00            | 90595-BAE     |
|               | 36.0 - 43.5     | 8.755 - 8.921                  | 8.500            | 3-1/2 EUE   | 3.00            | 2-3/8 EUE             | 2.00            | 90595-BAE-BAB |
|               |                 |                                |                  |             |                 | 2-7/8 EUE             | 2.39            | 90595-BAE-BAC |
|               |                 |                                |                  | 4-1/2 EUE   | 4.00            | 1.900 EUE             | 1.19            | 90595-BAG-BAA |
|               | 47.0 - 53.5     | 8.535 - 8.681                  | 8.312            | 3-1/2 EUE   | 3.00            | 1.900 EUE             | 1.61            | 90596-BAE-BAA |
|               |                 |                                |                  |             |                 | 1.900 NUE             | 1.61            | 90596-BAE-BBA |
|               |                 |                                |                  |             |                 | 2-3/8 EUE             | 2.00            | 90596-BAE-BAB |
|               |                 |                                |                  |             |                 | 2-7/8 EUE             | 2.39            | 90596-BAE-BAC |
|               |                 |                                |                  |             |                 | 3-1/2 EUE             | 3.00            | 90596-BAE     |
|               |                 |                                |                  |             |                 |                       |                 |               |
| 10-3/4        | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | 4" EUE      | 3.50            | 2-7/8 EUE             | 2.39            | 90510-BAF-BAC |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

**Available Designs:** Flat Top, J-Latch, "C" Latch (Snap Latch), Dual/Multiple Feed Thru

## HYDROSET II-A PACKER

The Hydroset II-A Packer is a hydraulic set, mechanically held dual string production packer normally run above a single string hydraulic set or wireline set seal bore packer. Because no tubing manipulation is required to set this packer, the well head can be installed and flanged up before setting.

This packer is available with short string or long string setting capabilities and a variety of tubing connections. This packer is also adaptable for electrical submersible pump applications. This packer features a sequential upper slip release system designed to release each slip individually to reduce the pull required to release the packer. The angles on the upper slips and upper slip body result in the slips releasing smoothly from the casing.

### Hydroset II Packer Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Long String |                 | Short String |                 | Part Number   |
|---------------|-----------------|--------------------------------|------------------|-------------|-----------------|--------------|-----------------|---------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Connections | Min ID (inches) | Connections  | Min ID (inches) |               |
| 7             | 26.0 - 32.0     | 6.094 - 6.276                  | 5.938            | 2-7/8 EUE   | 2.39            | 1.900 NUE    | 1.50            | 94570-BAC-BBA |



## DLESP PACKER

The DLESP Packer is a hydraulic set, mechanically held, Electric Submersible Pump (ESP) production packer, with secondary bores for ESP feed through cable and optional chemical feed through lines. Because no tubing manipulation is required to set this packer, the wellhead can be installed and flanged up before setting.

This packer is available with a variety of tubing connections. The packer features a sequential upper slip release system designed to release each slip individually to reduce the pull required to release it. The angles on the upper slips and upper slip body result in the slips releasing smoothly from the casing.

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Long String |                 | Short String         |                 | Feed Thru Holes ID (inches)       | Part Number     |
|---------------|-----------------|--------------------------------|------------------|-------------|-----------------|----------------------|-----------------|-----------------------------------|-----------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Connections | Min ID (inches) | Connections          | Min ID (inches) |                                   |                 |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.781            | 1.900 EUE   | 1.50            | -                    | -               | 3/8 NPT X 1/4 NPT = 0.42          | 94845-BAA-2     |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 1.900 EUE   | 1.00            | -                    | -               | (QTY 4) 3/8 NPT = 0.50            | 94855V-BBA-5    |
| 6-5/8         | 20.0 - 28.0     | 5.791 - 6.049                  | 5.640            | 2-7/8 EUE   | 2.39            | -                    | -               | (QTY 5) 1/2 NPT = 0.62            | 94866-BAC-5     |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.062            | 3-1/2 EUE   | 2.94            | -                    | -               | (QTY 4) 1/4 NPT = 0.37            | 94872-BAE-4     |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.938            | 2-7/8 EUE   | 2.39            | 1.900 NUE            | 1.50            | 3/8 NPT = 0.50 AND 3/4 NPT = 0.82 | 94870-BAC-BBA-3 |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 3-1/2 EUE   | 2.94            | 1.900 EUE/ 1.900 NUE | 1.50            | 3/4 NPT = 0.82 AND 3/8 NPT = 0.50 | 94875-BAE-BBA-3 |
| 9-5/8         | 53.5 - 58.4     | 8.435 - 8.535                  | 8.250            | 3-1/2 EUE   | 2.94            | 1.900 NUE            | 1.50            | 3/4 NPT = 0.82                    | 94894-BAE-BBA   |
|               | 47.0 - 53.5     | 8.535 - 8.681                  | 8.312            | 3-1/2 EUE   | 2.94            | 1.900 NUE            | 1.50            | 3/4 NPT = 0.82                    | 94896-BAE-BBA   |
|               | 36.0 - 47.0     | 8.681 - 8.921                  | 8.500            | 3-1/2 EUE   | 2.94            | 1.900 NUE            | 1.50            | 3/4 NPT = 0.82                    | 94895-BAE-BBA   |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

\*Call for custom configurations



Hydraulic Set Packers

## HYDROSET IV PACKER

The Hydroset IV Packer is a hydraulic set single string retrievable packer. Tubing pump pressure is used to set the packer and the setting force is locked into the packer by a body lock ring. Its design allows for multiple zone completions. It can be run with other hydraulic packers or mechanical set packers.

This packer is ideal to run as a tandem packer with double grip packers that will lock the tubing in place. This packer is released with a straight pull to shear releasing screws.

This packer features a three element packing arrangement, a lock ring mechanism to lock in setting force, and field adjustable shear screws to allow adjustment of setting initiation and releasing force required to release the packer.

### Special Features

- Simple operation
- Compact
- Field adjustable setting initiation pressure
- Field adjustable releasing force



## Hydroset IV Packer Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connection Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|-------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                     |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | 1.25             | 1.900 NUE                           | 65435       |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | 1.75             | 2-3/8 EUE                           | 65440       |
|               | 12.95           | 3.340                          | 3.187            | 1.75             | 2-3/8 EUE                           | 65441       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 2.00             | 2-3/8 EUE                           | 65445       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                           | 65455       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                           | 65456       |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | 2.50             | 2-7/8 EUE                           | 65467       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                           | 65468       |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.50             | 2-7/8 EUE                           | 65465       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                           | 65466       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                           | 65472       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                           | 65474       |
|               | 20.0 - 29.0     | 6.184 - 6.456                  | 5.938            | 2.50             | 2-7/8 EUE                           | 65471       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                           | 65470       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                           | 65473       |
|               | 7-5/8           | 24.0 - 29.7                    | 6.875 - 7.025    | 6.672            | 2.50                                | 2-7/8 EUE   |
| 3.00          |                 |                                |                  |                  | 3-1/2 EUE                           | 65478       |
| 33.7 - 39.0   |                 | 6.625 - 6.765                  | 6.453            | 2.50             | 2-7/8 EUE                           | 65476       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                           | 65477       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

**Rubber Trim Upgrade Options** (additional cost, inquire with a D&L sales associate): HSN, Viton, ECNER/Aflas, ECNER/HSN, EPDM

## HYDRAULIC OPEN HOLE PACKER

The D&L Hydraulic Open Hole Packer is a hydraulic set, single string packer suitable for use in open hole applications. Tubing pressure is used to set the packer and the setting force is locked into the packer by a body lock ring. This packer features a double backup element system that is capable of holding high pressures in open hole or large ID cased holes. A large ID is maintained through the packer for increased flow potential. It is ideal for use as a tandem isolation packer between ports in a



### Product Specifications

| Packer Size (inches) | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| 7                    | 5.875 - 6.600                  | 5.750            | 3.92             | 4-1/2 LTC                            | 33570-1     |
| 7-1/2                | 7.500 - 8.250                  | 7.350            | 4.75             | 5-1/2 BTC                            | 33575-1     |
| 8-1/2                | 8.000 - 9.000                  | 7.780            | 4.75             | 5-1/2 BTC                            | 33580-1     |
|                      | 8.500 - 8.750                  | 8.000            | 4.75             | 5-1/2 BTC                            | 33581-1     |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

# PERMANENT HYDRAULIC ISOLATION PACKER

The Permanent Hydraulic Isolation Packer is a robust production packer capable of handling large amounts of weight hung below the packer. This packer features a large ID for increased flow potential. This packer also has upper and lower centralizing slips which increases its ability to set in deviated sections of wells. This packer uses our proven Permapak components.

The setting equipment for the Permanent Hydraulic Isolation Packer is built into the packer. It requires pressurizing the tubing/casing it is run on once the packer reaches setting depth.

## Special Features

- Adjustable setting initiation pressure
- Uses proven Permapak components



Hydraulic Set Packers

## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Packer Bore (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                      |                                      |             |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 4.000                | 4-1/2 LTC                            | 68570       |
|               |                 |                                |                  |                      | 4-1/2 BTC                            | 68570-XBLA  |
|               | 23.0 - 32.0     | 6.094 - 6.366                  | 5.875            | 4.000                | 4-1/2 LTC                            | 68571       |
|               |                 |                                |                  |                      | 4-1/2 BTC                            | 68571-XBLA  |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.250            | 4.000                | 4-1/2 LTC                            | 68575       |
|               |                 |                                |                  |                      | 4-1/2 BTC                            | 68575-XBLA  |
| 9-5/8         | 36.0 - 53.5     | 8.535 - 8.921                  | 8.125            | 5.000                | 5-1/2 LTC                            | 68595-XBCC  |
|               |                 |                                |                  | 5.500                | 6-5/8 LTC                            | 68595       |
|               |                 |                                |                  | 6.000                | 7" LTC                               | 68595-XBCE  |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## Hydraulic Set Packers

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

# Permanent Packers



## Permanent Packers CONTENTS

|                                     |       |
|-------------------------------------|-------|
| Permapak Packer - Single Bore ..... | 47-48 |
| Permapak Packer - Dual Bore .....   | 49    |
| Hydraulic Permapak Packer .....     | 50    |
| Permapak Accessories.....           | 51-52 |
| Seal Information .....              | 53    |
| WLAK - for Permapak Packer .....    | 54    |

## PERMAPAK PACKER - SINGLE BORE

The Permapak Seal Bore Packer can be used for single or multiple zone completions. It is designed for wells where high pressure/temperatures and corrosive fluids are present and it is available in a variety of elastomers and seal bore materials to meet a wide range of hostile downhole environments. This packer is recommended for injection stimulation and testing or can become a temporary bridge plug when used with our knock-out or pump-out bottom assembly (refer to Permapak Packer

Tubing and Accessories product sheet). The Permapak Seal Bore Packer comes with a complete line of tubing seal accessories and elastomers.

### Special Features

- Electric line, hydraulic or mechanical set
- Components keyed for milling
- Anti-extrusion rings expand to casing ID to prevent rubber extrusion
- Full circle slips allow for faster run time



### Product Specifications - Single Bore

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Packer Bore (inches) | Min ID Thru Seals (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------------|----------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                      |                            |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.750            | 1.750                | 1.187                      | 67235       |
| 4             | 9.5 - 11.6      | 3.428 - 3.548                  | 3.281            | 1.750                | 1.187                      | 67240       |
|               | 11.6 - 14.8     | 3.240 - 3.428                  | 3.090            | 1.750                | 1.187                      | 67241       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 2.500                | 1.910                      | 67045       |
|               |                 |                                |                  | 2.688                | 1.938                      | 67245       |
|               | 15.1            | 3.826                          | 3.600            | 2.500                | 1.910                      | 67246       |
| 5             | 15.0 - 21.4     | 4.126 - 4.408                  | 3.968            | 2.500                | 1.910                      | 67050       |
|               |                 |                                |                  | 2.688                | 1.938                      | 67250       |
| 5-1/2         | 13.0 - 17.0     | 4.892 - 5.044                  | 4.532            | 2.688                | 1.938                      | 67055       |
|               |                 |                                |                  | 3.000                | 2.375                      | 67255       |
|               | 17.0 - 23.0     | 4.670 - 4.892                  | 4.438            | 2.688                | 1.938                      | 67056       |
|               |                 |                                |                  | 3.000                | 2.375                      | 67256       |
|               | 23.0 - 26.0     | 4.548 - 4.670                  | 4.250            | 2.688                | 1.938                      | 67057       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## Permapak Single Bore Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Packer Bore (inches) | Min ID Thru Seals (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------------|----------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                      |                            |             |
| 6             | 18.0 - 26.0     | 5.132 - 5.424                  | 4.875            | 3.000                | 2.375                      | 67260       |
| 6-5/8         | 17.0 - 32.0     | 5.675 - 6.135                  | 5.468            | 3.250                | 2.416                      | 67065       |
| 7             | 17.0 - 23.0     | 6.366 - 6.538                  | 6.000            | 3.250                | 2.406                      | 67070       |
|               |                 |                                |                  | 4.000                | 3.000                      | 67270       |
|               | 23.0 - 32.0     | 6.094 - 6.366                  | 5.813            | 3.250                | 2.406                      | 67071       |
|               |                 |                                |                  | 4.000                | 3.000                      | 67271       |
|               | 32.0 - 38.0     | 5.920 - 6.094                  | 5.625            | 3.250                | 2.406                      | 67072       |
|               |                 |                                |                  | 4.000                | 3.000                      | 67272       |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.250            | 3.250                | 2.416                      | 67075       |
|               |                 |                                |                  | 4.000                | 3.000                      | 67275       |
| 8-5/8         | 24.0 - 32.0     | 7.921 - 8.097                  | 7.625            | 4.000                | 3.000                      | 67085       |
|               |                 |                                |                  | 5.250                | 4.250                      | 67286       |
| 9-5/8         | 36.0 - 53.5     | 8.535 - 8.921                  | 8.125            | 3.250                | 2.416                      | 67093       |
|               |                 |                                |                  | 4.000                | 3.000                      | 67094       |
|               |                 |                                |                  | 4.750                | 3.500                      | 67095       |
|               |                 |                                |                  | 6.000                | 4.750                      | 67295       |
| 10-3/4        | 40.5 - 55.5     | 9.760 - 10.050                 | 9.496            | 4.000                | 3.000                      | 67010       |
|               |                 |                                | 9.300            | 6.000                | 4.750                      | 67210       |
|               | 45.5 - 60.7     | 9.660 - 9.950                  | 9.300            | 4.000                | 3.000                      | 67010-9.3   |
| 11-3/4        | 42.0 - 65.0     | 10.682 - 11.084                | 10.430           | 6.000                | 4.750                      | 67211       |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | 9.000                | 8.000                      | 67213       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## PERMAPAK PACKER - DUAL BORE

The Dual Bore Permapak Packer is a highly versatile packer which has a large upper sealbore to allow for a large bore through the packer. This packer may be set on wireline or hydraulically and can be used for single or multiple zone completions. This packer is designed for wells where high flow rates, high pressure, high temperatures and corrosive fluids are present. This packer is available in a variety of elastomers and seal bore materials to meet a wide range of hostile downhole environments. This packer is recommended for production, injection, stimulation and testing or can become a temporary plug when used with the Knock-Out or Pump-Out Bottom Assembly.

The Dual Bore Permapak Packer comes with a complete line of accessories and elastomers. Contact D&L sales for more information.

### Special Features

- Large packer through bore
- Large seal mandrel through bore
- Proven Permapak Packer design



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Seal Bore      |                | Min ID Thru Seals (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------|----------------|----------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Upper (inches) | Lower (inches) |                            |             |
| 4             | 9.5 - 11.6      | 3.428 - 3.548                  | 3.281            | 2.688          | 1.750          | 1.750                      | 67340       |
|               | 11.6 - 14.8     | 3.240 - 3.428                  | 3.090            | 2.688          | 1.750          | 1.750                      | 67341       |
| 5             | 15.0 - 21.0     | 4.154 - 4.408                  | 3.968            | 3.000          | 2.688          | 2.375                      | 67350       |
| 5-1/2         | 17.0 - 23.0     | 4.670 - 4.892                  | 4.438            | 4.000          | 3.000          | 3.000                      | 67355       |
| 7             | 23.0 - 32.0     | 6.094 - 6.366                  | 5.813            | 4.750          | 4.000          | 3.500                      | 67371       |
|               |                 |                                |                  | 5.000          | 4.000          | 4.000                      | 67371X      |
|               | 26.0 - 29.0     | 6.184 - 6.276                  | 5.900            | 5.250          | 4.375          | 4.250                      | 67373       |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.250            | 5.000          | 4.000          | 4.000                      | 67375X      |
| 9-5/8         | 36.0 - 53.5     | 8.535 - 8.921                  | 8.125            | 7.000          | 6.000          | 4.750                      | 67395       |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | 10.000         | 9.000          | 8.000                      | 67313       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

# HYDRAULIC PERMAPAK PACKER

The Hydraulic Permapak Packer is a hydraulic set seal bore packer and is the hydraulic set equivalent of the Permapak Seal Bore Packer. The full range of Permapak Seal Bore Accessories may be used with the Hydraulic Permapak.

Pressure sets the packer via a setting chamber built into the tool. Pressure enters the setting chamber via holes in the polished bore of this packer. These holes can be isolated with a ball-operated sub so other hydraulic operated tools can be functioned before setting the packer.

## Special Features

- Uses proven Permapak components
- Compatible with Permapak options
- Optional upper sealbore available
- Single bore or dual bore option

## Product Specifications - Single Bore

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Packer Bore (inches) | Min ID Thru Seals (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------------|----------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                      |                            |             |
| 7             | 23.0 - 32.0     | 6.094 - 6.366                  | 5.875            | 4.000                | 3.000                      | 68371       |
|               | 32.0 - 38.0     | 5.920 - 6.094                  | 5.813            | 4.000                | 3.000                      | 68372       |
| 9-5/8         | 36.0 - 53.5     | 8.535 - 8.921                  | 8.125            | 4.750                | 3.500                      | 68393       |
|               |                 |                                |                  | 5.000                | 4.750                      | 68395       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## Product Specifications - Dual Bore

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Seal Bore      |                | Min ID Thru Seals (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|----------------|----------------|----------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Upper (inches) | Lower (inches) |                            |             |
| 7             | 17.0 - 23.0     | 6.366 - 6.538                  | 6.000            | 5.250          | 4.000          | 4.000                      | 68170       |
|               | 23.0 - 32.0     | 6.094 - 6.366                  | 5.875            | 5.250          | 4.000          | 4.000                      | 68171       |
| 9-5/8         | 36.0 - 53.5     | 8.535 - 8.921                  | 8.250            | 7.500          | 6.000          | 6.000                      | 68195       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Permanent Packers

## PERMAPAK ACCESSORIES



### Seal Bore Extension

A Seal Bore Extension is used in installations where floating seals are required due to tubing contractions. This packer accessory allows for a continuous seal bore and is available in lengths up to twenty feet.



### Seal Bore to Mill-Out Coupling

A Seal Bore to Mill-Out Coupling is used to connect mill-out extensions to seal bore extensions.



### Concentric Bottom

A Concentric Bottom is used to connect a seal bore extension to a packer.



### Knock-Out Plug Bottom

When a Knock-Out Bottom is run below the packer, the knock-out plug allows a packer to serve as a bridge plug holding pressure from above and below.



### Knock-Out Plug

A Knock-Out Plug is knocked out when the production string is landed.



### Mill-Out Extension

A Mill-Out Extension is used in installations where floating seals are required due to tubing contractions. In addition, this packer accessory provides a larger ID between a packer bore and a seal bore extension allowing a packer plucker when a packer is milled out.



### Pump Out Plug

A Pump-Out Plug is available with a choice of threads allowing the pump-out plug to be attached to a packer, seal bore extension, mill-out extension or tailpipe and hold pressure from below after the packer is set. Once the production string is landed, pressure is applied to the tubing and the pump-out plug is removed to allow full opening.



### Mill-Out Bottom

A Mill-Out Bottom is used to connect a mill-out extension to a packer.



### Concentric Coupling

A Concentric Coupling is used to connect seal bore extensions to increase length.



### Wireline Re-Entry Bottom

A Wireline Re-Entry Bottom is used as the packer bottom when an extension below a packer is not required.

## PERMAPAK ACCESSORIES



### Anchor Latch Assembly

The Anchor Latch Seal Assembly is used when floating seals are not required. This assembly allows the tubing string to be in tension or compression. Upon set down the anchor latches into the packer and can be removed with eight to ten right-hand turns.



### Snap Latch Assembly

The Snap Latch Seal Assembly latches into the packer upon set down (like our Anchor Latch Seal Assembly). It can be removed with straight pull of 10,000 to 12,000 lbs. above tubing weight. The Snap Latch Seal Assembly is used where a mechanical indication is required to verify the seal assembly is properly positioned in the packer bore.



### Seal Unit

The standard Seal Unit is furnished with bonded nitrile rings and a 12-inch make-up length. These units may be ordered in various lengths and with severe service seal rings for high temperature and corrosive environmental conditions.



### Locator Seal Assembly

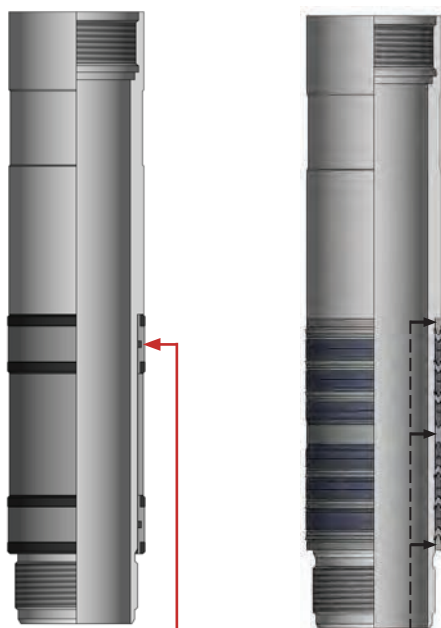
The Locator Seal Assembly is used in installations which require floating seals. Once landed, the seal locator prevents downward movement of the tubing while allowing the seal to move with tubing contraction.



### Half Mule Shoe Guide

The Half Mule Shoe Guide is standard with the Seal Assembly to allow for easy entry into the packer bore.

# SEAL INFORMATION SHEET



## CHEVRON SEAL STACKS ARE AVAILABLE FOR HIGH TEMPERATURE SEALING CAPABILITY.

A collection of seals and spacers provides high pressure sealing capability at higher temperatures. The seal stacks are arranged in opposing pairs that allow them to seal from both directions using multiple redundant seals.



## CHEVRON SEALS, OR "V" SEALS

are seals designed to have an interference fit with the Seal Mandrel and a sealing surface so seals develop at the points of interference. The seal is only present when pressure comes from the direction of the "V". This is why Chevron Seals are usually used in opposing directional sets. They are made from rubber to take advantage of the elastomeric properties needed to form a low pressure (and high pressure) seal. Chevron seals are available in Viton and Aflas.



## TEFLON SEALS

are a soft plastic seal with a slight interference with the Seal Mandrel and sealing surface. They act as a secondary seal to Chevron Seals and as an anti-extrusion device for the elastomer seal above them in a seal stack.

## RYTON SPACERS

are a hard plastic spacer that provides extrusion resistance to the elastomeric and plastic seals above them in a seal stack. They do not form a seal but help restrict damaging extrusion to the seals.

## SEAL SPACERS

hold the seals in the proper arrangement and keep the seal sets from interfering with one another. Seal Spacers are generally made from carbon steel but can be made from other steels where needed.

## BONDED SEALS ARE DESIGNED TO BE GENERAL PURPOSE SEALS.

Rubber bonded to the seal is designed to have an interference fit with a sealing surface so a seal develops at the point of interference. The Bonded Seals also have an O-ring inside to eliminate any leak path under the Bonded Seal. Generally there are two Bonded Seals to a seal unit but this can be changed if desired. Bonded Seals are available in Nitrile, HNBR (HSN), and Viton with the O-ring matching the rubber type.

| SEAL              | TEMPERATURE RATING | OPERATING ENVIRONMENT(S)                            |
|-------------------|--------------------|---|
| Bonded Nitrile    | 250 ° F            | General Duty, Seal Unloading, Wiper Seal            |
| Bonded HSN (HNBR) | 300° F             | Medium Duty, Seal Unloading, ED Applications        |
| Bonded Viton      | 350° F             | Heavy Duty, Seal Unloading, ED Applications         |
| VTR Stack         | 350° F             | Heavy Duty, Corrosive Environments, ED Applications |
| ATR Stack         | 400° F             | HT/HP, Corrosive Environments                       |

\*Elastomers available up to 650° F.

AFLAS® is a registered trademark of the Asahi Glass Co., Ltd. | Teflon™ is a registered trademark and a brand name owned by Chemours  
 Viton is a registered trademark of Dupont Performance Elastomers | RYTON is a registered trademark of Chevron Phillips Chemical Company

| SEAL MANDRELS                      | ENVIRONMENT  |
|------------------------------------|--|
| Standard Steels                    | Oil/Gas, Steam, <.2% H <sub>2</sub> S/CO <sub>2</sub>                      |
| Nickle Plated Standard Steels      | Oil/Gas, Steam, Disposal Water, < .4% H <sub>2</sub> S/CO <sub>2</sub>     |
| Stainless/ Duplex Stainless Steels | Oil/Gas, Steam, Disposal Water, < 5% H <sub>2</sub> S/CO <sub>2</sub>      |
| Nickle Based Alloys                | Oil/gas, Steam, Disposal Chemicals, < 25% H <sub>2</sub> S/CO <sub>2</sub> |

## WIRELINER ADAPTER KIT – FOR PERMAPAK PACKER

The Wireline Adapter Kit (WLAK) – for Permapak Packer is designed to set Permapak Seal Bore Packers with industry standard wireline pressure setting assemblies or comparable equipment.

This setting equipment can also be used with hydraulic setting tools that are configured like the standard setting tool. The setting equipment is designed so the outer sleeve can be adjusted to provide a proper make up to the packer.

### Product Specifications

| Setting Tool Size | Setting Tool OD (inches) | External Threads | Internal Threads | Packer Sizes               |
|-------------------|--------------------------|------------------|------------------|----------------------------|
| 05                | 1.718                    | 1-1/4" UNS       | 5/8" UNF         | 2-3/8"<br>2-7/8"<br>3-1/2" |
| 10                | 2.750                    | 2-1/2" ACME      | 1" UNC           | 4"<br>4-1/2"<br>5"         |
| 20                | 3.800                    | 3-1/2" STUB ACME | 2" ACME          | 5-1/2" & LARGER            |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Permanent Packers

## Permanent Packers

[illegible]

# Service Tools



## Service Tools CONTENTS

|   |       |
|---|-------|
| HD Retrievable Packer .....                         | 57-58 |
| AS Retrievable Bridge Plug .....                    | 59-60 |
| Spring Loaded Retrieving Tool .....                 | 61    |
| WLAK - for ASW Retrievable Bridge Plug .....        | 62    |
| Type T Squeeze Packer .....                         | 63-64 |
| SC Tension Unloader .....                           | 65    |
| DA-II Unloader .....                                | 66    |
| Type C Perforation Wash Tool .....                  | 67    |
| Stradasnap Packer .....                             | 68    |
| HD Abandonment Packer .....                         | 69    |
| Abandonment Valve .....                             | 70    |
| Ball Abandonment Valve .....                        | 71    |
| Abandonment Packer Accessories .....                | 72    |
| Model "H" Hydraulic Setting Tool .....              | 73    |
| LC Hydraulic Setting Tool .....                     | 74    |
| Cement Retainer .....                               | 75    |
| CR Bridge Plug .....                                | 76    |
| CIW Bridge Plug .....                               | 77    |
| WLAK-for Cement Retainer & CR Bridge Plug .....     | 78    |
| WLAK-for CIW Bridge Plug .....                      | 79    |
| DLT Retrievable Packer .....                        | 80    |
| V-III Unloader .....                                | 81    |
| Strom Valve .....                                   | 82    |
| Bumper Sub .....                                    | 83    |
| RR Safety Joint .....                               | 84    |
| Axial Installation HD Packer .....                  | 85    |
| WR Bridge Plug .....                                | 86    |
| Compression Unloader .....                          | 87    |
| Latch Locator - for Cement Retainer .....           | 88    |
| Mechanical Setting Tool - for Cement Retainer ..... | 89    |
| WG Wireline Set Retrievable Bridge Plug .....       | 90-91 |

## HD RETRIEVABLE PACKER

The HD Retrievable Packer is a heavy duty service packer ideally suited for all types of squeeze cementing, formation fracturing, high pressure acidizing, etc. It is a large opening compression set packer with hydraulic button-type hold down. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. This packer has a built-in unloader which circulates across the hold down buttons to improve retrievability and run in performance.

### Special Features

- Large internal by-pass
- Built in pressure-balanced unloader
- 1/4 turn set-straight pick up release (standard)
- Equalizing ports directly above elements
- Additional J-slot arrangements available

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|-----------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                 |                  |                                      |             |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | -               | 1.50             | 1.900 NUE                            | 61340RS     |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -               | 1.88             | 2-3/8 EUE                            | 61345RS     |
|               | 11.6 - 15.1     | 3.826 - 4.000                  | 3.656            | -               | 1.75             | 2-3/8 EUE                            | 61346RS     |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | -               | 1.88             | 2-3/8 EUE                            | 61350RS     |
|               | 18.0 - 21.0     | 4.154 - 4.276                  | 3.969            | -               | 1.88             | 2-3/8 EUE                            | 61352RS     |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -               | 2.00             | 2-3/8 EUE                            | 61357RS     |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -               | 2.00             | 2-3/8 EUE                            | 61356RS     |
| 5-3/4         | 15.0 - 16.1     | 5.201-5.240                    | 5.000            | -               | 2.00             | 2-3/8 EUE                            | 61357XRS    |
|               | 17.6 - 19.4     | 5.083-5.146                    | 4.875            | -               | 2.00             | 2-3/8 EUE                            | 61357YRS    |
|               | 21.5 - 24.0     | 4.909-5.004                    | 4.720            | -               | 2.00             | 2-3/8 EUE                            | 61357ZRS    |
| 6             | 17.0 - 20.0     | 5.352 - 5.450                  | 5.188            | -               | 2.00             | 2-3/8 EUE                            | 61360RS     |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**OPTIONS:** RS (Right-Hand Auto Set, Straight Pick-Up Release), RM (Right-Hand Manual Set, Straight Pick-Up Release)

LS (Left-Hand Auto Set, Straight Pick-Up Release), LM (Left-Hand Manual Set, Straight Pick-Up Release)

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## HD Retrievable Packer Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)     | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number  |
|---------------|-----------------|--------------------------------|------------------|---------------------|------------------|--------------------------------------|--------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                     |                  |                                      |              |
| 6-5/8         | 20.0 - 24.0     | 5.921 - 6.049                  | 5.750            | -                   | 2.50             | 2-7/8 EUE                            | 61367RS      |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                   | 2.50             | 2-7/8 EUE                            | 61365RS      |
|               | 32.0 - 35.0     | 5.575 - 5.675                  | 5.375            | -                   | 2.00             | 2-3/8 EUE                            | 61366RS      |
|               | 36.7 - 40.2     | 5.375 - 5.501                  | 5.188            | -                   | 2.00             | 2-3/8 EUE                            | 61360RS      |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup>  | 2.50             | 2-7/8 EUE                            | 61372RS      |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                   | 2.50             | 2-7/8 EUE                            | 61370RS      |
|               | 29.0 - 35.0     | 6.004 - 6.184                  | 5.812            | 5.874 <sup>1</sup>  | 2.50             | 2-7/8 EUE                            | 61371RS      |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | -                   | 2.50             | 2-7/8 EUE                            | 61375RS      |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | 6.499 <sup>1</sup>  | 2.50             | 2-7/8 EUE                            | 61376RS      |
| 8-5/8         | 20.0 - 28.0     | 8.017 - 8.191                  | 7.750            | -                   | 3.00             | 3-1/2 EUE                            | 61385RS      |
|               | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 7.504 <sup>1</sup>  | 3.00             | 3-1/2 EUE                            | 61387RS      |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                   | 4.00             | 4-1/2 EUE                            | 61396RS      |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                   | 4.00             | 4-1/2 EUE                            | 61395RS      |
| 10-3/4        | 32.75 - 45.5    | 9.950 - 10.192                 | 9.700            | -                   | 4.00             | 4-1/2 EUE                            | 61301RS      |
|               | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | 9.375 <sup>1</sup>  | 4.00             | 4-1/2 EUE                            | 61310RS      |
|               | 65.7 - 91.2     | 9.032 - 9.560                  | 8.813            | -                   | 4.00             | 4-1/2 EUE                            | 61399RS      |
| 11-3/4        | 42.0 - 65.0     | 10.682 - 11.084                | 10.438           | 10.500 <sup>1</sup> | 4.00             | 4-1/2 EUE                            | 61311RS      |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | -                   | 4.00             | 4-1/2 EUE                            | 61313RS      |
| 16            | 65.0 - 109.0    | 14.688 - 15.250                | 14.438           | -                   | 5.00             | 6-5/8 API FULL HOLE TOOL JOINT       | 61316        |
| 17-7/8        | -               | 16.500 - 17.000                | 16.250           | -                   | 3.75             | 4-1/2 IF TOOL JOINT                  | 61317RS-XBEE |
| 18            | 78.0 - 96.5     | 16.986 - 17.194                | 16.750           | -                   | 5.00             | 6-5/8 API FULL HOLE TOOL JOINT       | 61318X       |
| 18-5/8        | 87.5 - 117.5    | 17.439 - 17.755                | 17.000           | -                   | 5.00             | 6-5/8 API FULL HOLE TOOL JOINT       | 61318        |
| 20            | 129.0-169.0     | 18.376 - 18.730                | 18.000           | -                   | 5.00             | 6-5/8 API FULL HOLE TOOL JOINT       | 61320        |
| 22            | -               | 19.875 - 20.375                | 19.500           | -                   | 5.00             | 6-5/8 API FULL HOLE TOOL JOINT       | 61322RS      |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**OPTIONS:** RS (Right-Hand Auto Set, Straight Pick-Up Release), RM (Right-Hand Manual Set, Straight Pick-Up Release)

LS (Left-Hand Auto Set, Straight Pick-Up Release), LM (Left-Hand Manual Set, Straight Pick-Up Release)

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## AS RETRIEVABLE BRIDGE PLUG

The AS Retrievable Bridge Plugs a high pressure plug for multiple zone and selective single zone operations such as acidizing, fracturing, cementing and testing. It features a large internal by-pass to reduce swabbing when running and retrieving. The by-pass closes during the setting of the plug and opens prior to releasing the upper slips to equalize pressure when unsetting. The by-pass is located directly below the upper slips to help wash debris when the by-pass is open.

This tool can be set in tension or compression. It can be set shallow in unsupported casing to contain pressure while working on wellhead equipment. It can be set in tension making it ideal for setting shallow to test wellhead equipment and also deep, high-pressure wells.

The ASW Retrievable Bridge Plug is a version of the AS Retrievable Bridge Plug that allows the plug to be set on wireline

or with a hydraulic setting tool, and retrieved with tubing. It cannot be reset in the wellbore once it is unset, but it can be pulled, re-dressed and run again. A Wireline Adapter Kit is required for this version.

### Special Features

- 1/4 right-hand set and release (standard)
- Large internal by-pass
- Set shallow or deep
- Pressure equalization before release
- High pressure rating
- Additional J-slot arrangements available
- AS Bridge Plug is set mechanically in tension or compression
- ASW Bridge Plug version can be set using wireline or hydraulic setting tool



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches) | Thread Connection Pin Down | Part Number |              |
|---------------|-----------------|--------------------------------|------------------|-----------------|----------------------------|-------------|--------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                 |                            | Std         | Wireline Set |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | -               | 1.900 EUE                  | 72535RR     | 72435RR      |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | -               | 1.900 EUE                  | 72540RR     | 72440RR      |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -               | 2-3/8 EUE                  | 72545RR     | 72445RR      |
|               | 15.1            | 3.826                          | 3.656            | -               | 2-3/8 EUE                  | 72544RR     | 72444RR      |
|               | 15.1 - 16.6     | 3.754 - 3.826                  | 3.625            | -               | 2-3/8 EUE                  | 72541RR     | 72441RR      |

<sup>1</sup>Maximum OD is across retracted drag blocks.

OPTIONS: RR (Right-Hand Set, Right-Hand Release), LR (Left-Hand Set, Right-Hand Release)

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## AS Retrievable Bridge Plug Product Specifications (continued)

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)     | Thread Connection Pin Down | Part Number  |              |
|---------------|-----------------|--------------------------------|------------------|---------------------|----------------------------|--------------|--------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                     |                            | Std          | Wireline Set |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 4.215 <sup>1</sup>  | 2-3/8 EUE                  | 72550RR      | 72450RR      |
|               | 18.0 - 21.0     | 4.154 - 4.276                  | 3.969            | 4.010 <sup>1</sup>  | 2-3/8 EUE                  | 72552RR      | 72452RR      |
| 5-1/2         | 9.0 - 13.0      | 5.044 - 5.192                  | 4.812            | -                   | 2-3/8 EUE                  | 72554RR      | 72454RR      |
|               | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | -                   | 2-3/8 EUE                  | 72555RR      | 72455RR      |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                   | 2-3/8 EUE                  | 72557RR      | 72457RR      |
| 6             | 17.0 - 20.0     | 5.352 - 5.450                  | 5.188            | -                   | 2-3/8 NUE                  | 72560RR      | 72460RR      |
| 6-5/8         | 17.0 - 24.0     | 5.921 - 6.135                  | 5.750            | -                   | 2-3/8 EUE                  | 72567RR      | 72467RR      |
|               | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                   | 2-3/8 EUE                  | 72565RR      | 72465RR      |
|               | 32.0 - 35.0     | 5.575 - 5.675                  | 5.375            | -                   | 2-3/8 NUE                  | 72566RR      | 72466RR      |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 5.969            | 6.062 <sup>1</sup>  | 2-3/8 EUE                  | 72570RR      | 72470RR      |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                   | 2-3/8 EUE                  | 72571RR      | 72471RR      |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | 6.687 <sup>1</sup>  | 2-3/8 EUE                  | 72575RR      | 72475RR      |
|               | 29.7 - 33.7     | 6.765 - 6.875                  | 6.527            | -                   | 2-3/8 EUE                  | 72576RR      | 72476RR      |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | 6.499 <sup>1</sup>  | 2-3/8 EUE                  | 72577RR      | 72477RR      |
| 8-5/8         | 20.0 - 28.0     | 8.017 - 8.191                  | 7.750            | -                   | 3-1/2 EUE                  | 72581RR      | 72481RR      |
|               | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | -                   | 3-1/2 EUE                  | 72585RR      | 72485RR      |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                   | 3-1/2 EUE                  | 72596RR      | 72496RR      |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                   | 3-1/2 EUE                  | 72595RR      | 72495RR      |
| 10-3/4        | 32.75 - 51.0    | 9.850 - 10.192                 | 9.625            | -                   | 3-1/2 EUE                  | 72501RR      | 72401RR      |
|               | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | 9.374 <sup>1</sup>  | 3-1/2 EUE                  | 72510RR      | 72410RR      |
| 11-3/4        | 42.0 - 71.0     | 10.586 - 11.084                | 10.375           | 10.500 <sup>1</sup> | 3-1/2 EUE                  | 72511RR      | 72411RR      |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | -                   | 3-1/2 EUE                  | 72513RR      | 72413RR      |
| 14            | 82.5 - 101.5    | 12.600 - 12.876                | 12.438           | 12.500 <sup>1</sup> | 3-1/2 EUE                  | 72514RR      | 72414RR      |
| 16            | 65.0 - 109.0    | 14.688 - 15.250                | 14.438           | -                   | 4-1/2 IF TOOL JOINT        | 72516RR      | -            |
| 18-5/8        | 87.5 - 117.5    | 17.439 - 17.755                | 17.000           | -                   | 4-1/2 IF TOOL JOINT        | 72518RR-XBEE | -            |
| 20            | 133.0 - 169.0   | 18.376 - 18.730                | 18.000           | -                   | 4-1/2 IF TOOL JOINT        | 72520RR-XBEE | -            |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**OPTIONS:** RR (Right-Hand Set, Right-Hand Release), LR (Left-Hand Set, Right-Hand Release)

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## SPRING LOADED RETRIEVING TOOL

The Spring Loaded Retrieving Tool is used to run and retrieve the AS Retrievable Bridge Plug.

### Special Features

- Mill-toothed shoe
- Sturdy design
- Left-hand release standard
- Straight set down to re-attach
- Right-hand release available

### Product Specifications

| Size (inches) | Tool OD (inches) | Thread Connections Box Up | Part Number |
|---------------|------------------|---------------------------|-------------|
| 3-1/2         | 2.750            | 1.900 EUE                 | 57735       |
| 4             | 3.125            | 1.900 EUE                 | 57740       |
| 4-1/2         | 3.625            | 2-3/8 EUE                 | 57741       |
|               | 3.656            | 2-3/8 EUE                 | 57744       |
|               | 3.750            | 2-3/8 EUE                 | 57745       |
| 5             | 4.125            | 2-3/8 EUE                 | 57750       |
|               | 4.000            | 2-3/8 EUE                 | 57752       |
| 5-1/2         | 4.500            | 2-3/8 EUE                 | 57755       |
|               |                  | 2-7/8 EUE                 | 57756       |
| 6             | 5.000            | 2-3/8 EUE                 | 57760       |
| 6-5/8         | 5.437            | 2-7/8 EUE                 | 57765       |
| 7             | 5.875            | 2-7/8 EUE                 | 57770       |
| 7-5/8         | 6.375            | 2-7/8 EUE                 | 57775       |
| 8-5/8         | 7.500            | 3-1/2 EUE                 | 57785       |
| 9-5/8         | 8.250            | 3-1/2 EUE                 | 57795       |
|               |                  | 4-1/2 EUE                 | 57796       |
| 10-3/4        | 9.312            | 2-7/8 EUE                 | 57701       |
|               |                  | 3-1/2 EUE                 | 57710       |
| 11-3/4        | 10.370           | 4-1/2 EUE                 | 57711       |
| 13-3/8        | 11.750           | 4-1/2 EUE                 | 57713       |
| 14            | 12.000           | 4-1/2 IF TOOL JOINT       | 57714       |
| 16            | 14.000           | 4-1/2 IF TOOL JOINT       | 57716-XBEE  |
| 18-5/8        | 16.750           | 4-1/2 IF TOOL JOINT       | 57718-XBEE  |
| 20            | 17.500           | 4-1/2 IF TOOL JOINT       | 57720-XBEE  |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## WIRELINE ADAPTER KIT - FOR ASW RETRIEVABLE BRIDGE PLUG

The Wireline Adapter Kit (WLAK) for the ASW Retrievable Bridge Plug is used to set the ASW Retrievable Bridge Plug on electric wireline or with a hydraulic setting assembly on tubing. This WLAK is designed to be used on a Baker E-4 wireline powder charge, a hydraulic setting assembly, or any setting assembly with the same configuration.

The WLAK automatically disconnects from the AS Bridge Plug during packer setting to be easily retrieved and prepared to run again.

### Product Specifications

| Size (inches) | Tool OD (inches) | Wireline Setting Tool Box Up | Part Number |
|---------------|------------------|------------------------------|-------------|
| 3-1/2         | 2.750            | BAKER E-4, #05               | 72335       |
| 4-1/2         | 3.750            | BAKER E-4, #10               | 72345       |
|               | 3.620            | BAKER E-4, #10               | 72341       |
|               | 3.650            | BAKER E-4, #10               | 72344       |
| 5-1/2         | 4.500            | BAKER E-4, #20               | 72355WLAK   |
| 6-5/8         | 5.440            | BAKER E-4, #20               | 72365       |
| 7             | 5.875            | BAKER E-4, #20               | 72370       |
| 8-5/8 - 14    | 6.000            | BAKER E-4, #20               | 72385       |

**NOTE:** Other sizes and connections available upon request.



Service Tools

## TYPE T SQUEEZE PACKER

The Type T Squeeze Packer is a versatile, easy to use tension set tool which holds differential pressure from above or below. This packer is designed to run, set, reset and retrieve easily, even under adverse conditions. This packer can be set at any depth and is used when insufficient weight is available to set a compression packer. This packer is ideal for squeeze cementing, casing testing, stimulation treatments and straddle operations using a retrievable bridge plug.

An SC Tension Unloader is generally run above this packer allowing pressure equalization before release. The SC Tension Unloader also provides a by-pass when running and retrieving to minimize swabbing of the elements.

This packer features a full bore that minimizes the potential for screening out during fracturing, does not restrict the flow rates and allows the use of through-tubing tools without pulling the packer.

This packer also features an emergency release system that uses a high-ratio left-hand thread. Applying right-hand rotation of the tubing relaxes the packing elements and moves the lower cone well away from the slips allowing the slips to fully retract.

### Special Features

- Holds pressure from above or below
- Safety release allows circulation around the slips
- Full opening
- Optional setting configuration
- Bi-directional slips



## Type T Squeeze Packer Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 2-7/8         | 6.4 - 6.5       | 2.375 - 2.441                  | 2.250            | -                  | 0.75             | 1.660 EUE                            | 62125RM     |
| 4             | 9.5 - 11.0      | 3.476 - 3.548                  | 3.250            | -                  | 1.63             | 2-3/8 EUE                            | 62140RM     |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 2.00             | 2-3/8 EUE                            | 62145RM     |
|               | 15.1 - 16.9     | 3.740 - 3.826                  | 3.594            | -                  | 1.63             | 2-3/8 EUE                            | 62143RM     |
| 5             | 13.0 - 18.0     | 4.276 - 4.494                  | 4.125            | -                  | 2.00             | 2-3/8 EUE                            | 62150RM     |
|               | 18.0 - 20.8     | 4.156 - 4.276                  | 4.000            | -                  | 2.00             | 2-3/8 EUE                            | 62152RM     |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -                  | 2.00             | 2-3/8 EUE                            | 62155RM     |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | -                  | 2.00             | 2-3/8 EUE                            | 62157RM     |
| 6             | 14.0 - 20.0     | 5.352 - 5.552                  | 5.188            | -                  | 2.00             | 2-3/8 EUE                            | 62160RM     |
| 6-5/8         | 24.0 - 28.0     | 5.791 - 5.921                  | 5.625            | -                  | 2.50             | 2-7/8 EUE                            | 62165RM     |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.057 <sup>1</sup> | 2.50             | 2-7/8 EUE                            | 62171RM     |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                  | 2.50             | 2-7/8 EUE                            | 62170RM     |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | -                  | 2.50             | 2-7/8 EUE                            | 62175RM     |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | -                  | 2.50             | 2-7/8 EUE                            | 62177RM     |
| 8-5/8         | 20.0 - 28.0     | 8.017 - 8.191                  | 7.750            | -                  | 3.00             | 3-1/2 EUE                            | 62186RM     |
|               | 28.0 - 40.0     | 7.725 - 8.097                  | 7.500            | -                  | 3.00             | 3-1/2 EUE                            | 62185RM     |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                  | 3.00             | 3-1/2 EUE                            | 62195RM     |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                  | 3.00             | 3-1/2 EUE                            | 62196RM     |
| 10-3/4        | 32.75 - 55.5    | 9.760 - 10.192                 | 9.500            | -                  | 4.00             | 4-1/2 EUE                            | 62110RM     |
|               | 60.7 - 85.3     | 9.156 - 9.660                  | 9.000            | -                  | 4.00             | 4-1/2 EUE                            | 62110XRM    |
| 13-3/8        | 48.0 - 77.0     | 12.275 - 12.715                | 12.000           | -                  | 4.00             | 4-1/2 EUE                            | 62113RM     |
| 16            | 65.0 - 109.00   | 14.688 - 15.250                | 14.438           | -                  | 5.00             | 6-5/8 FULL HOLE TOOL JOINT           | 62116RM     |
| 20            | 133.0 - 169.0   | 18.376 - 18.730                | 18.000           | -                  | 5.00             | 6-5/8 FULL HOLE TOOL JOINT           | 62120RM     |

<sup>1</sup>Maximum OD is across retracted drag blocks.

**OPTIONS:** RS (Right-Hand Set w/Automatic J-Slot), RM (Right-Hand Set w/Manual J-Slot),

LS (Left-Hand Set w/Automatic J-Slot), LM (Left-Hand Set w/Manual J-Slot)

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

# SC TENSION UNLOADER

The SC Tension Unloader provides a means of equalizing tubing and annulus pressures when used with a tension packer. It also serves as a by-pass to allow fluid to pass through the mandrel of the packer while running the tubing string in and out of the well.

## Special Features

- Apply set-down weight to open, and tension to close
- Unloads pressure from either direction
- May be run in open or closed position
- Bonded seal allows repeated opening
- Transmits torque for packer operations

## Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 7/8           | 2.250            | 0.88             | 1.660 EUE                            | 52504       |
| 1-5/8         | 3.250            | 1.63             | 2-3/8 EUE                            | 52506       |
| 2-3/8         | 3.750            | 2.00             | 2-3/8 EUE                            | 52520       |
| 2-7/8         | 4.500            | 2.50             | 2-7/8 EUE                            | 52525       |
| 3-1/2         | 5.250            | 3.00             | 3-1/2 EUE                            | 52535       |
| 4-1/2         | 6.250            | 4.00             | 4-1/2 EUE                            | 52545       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## DA-II UNLOADER

The DA-II Unloader is designed as a high-pressure accessory for compression set packers. This unloader is run above the packer in the open position. After the packer is run to setting depth, the procedures required to set the packer will automatically close the unloader. The J-slot locks in both the open and closed positions. With the packer set and the unloader closed, well operations may proceed.

When run above a compression set packer, this unloader is opened by rotating the tubing 1/4 turn and picking up (standard is right-hand close, right-hand open). After opening the unloader, allow differential pressure to equalize before releasing the packer below.

### Special Features

- Standard J-slot locks in open and closed positions
- Standard J-slot is right-hand close, right-hand open
- J-slot is available in various configurations



Service Tools

### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 4-1/2         | 3.750            | 2.00             | 2-3/8 EUE                            | 53145       |
| 5-1/2         | 4.500            | 2.50             | 2-7/8 EUE                            | 53155       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## TYPE C PERFORATION WASH TOOL

The Type C Perforation Wash Tool is for washing or acidizing perforations in casing and sand screens. It is also used for checking non-perforations, to verify injection rates and penetration, or for opening voids behind the casing for more effective gravel pack operations. The straddle interval is easily field converted from one foot (1ft) to any distance by simply adding tubing above the bottom cups.

### Special Features

- Straddle-spacing easily adjusted in the field
- Reverse circulate without manipulation
- No ball and seat required

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                                      |             |
| 3-1/2         | 9.2 - 10.2*     | 2.922 - 2.992                  | 2.810            | 1.900 NUE                            | 46035       |
| 4             | 9.5 - 13.4*     | 3.340 - 3.548                  | 3.250            | 1.900 NUE                            | 46040       |
| 4-1/2         | 9.5 - 11.6      | 4.000 - 4.090                  | 3.690            | 1.900 NUE                            | 46045       |
| 5             | 13.0 - 15.0     | 4.408 - 4.494                  | 4.000            | 1.900 NUE                            | 46050       |
|               | 18.0 - 20.3     | 4.184 - 4.276                  | 4.000            | 1.900 NUE                            | 46051       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.625            | 2-7/8 EUE                            | 46055       |
| 6-5/8         | 20.0 - 24.0     | 5.921 - 6.049                  | 5.750            | 3-1/2 EUE / 4-1/2 STC                | 46065       |
| 7             | 20.0 - 29.0     | 6.184 - 6.456                  | 6.000            | 3-1/2 EUE                            | 46070       |
| 9-5/8         | 29.3 - 53.5*    | 8.535 - 9.063                  | 8.450            | 3-1/2 EUE                            | 46095       |
| 10-3/4        | 40.5 - 55.5*    | 9.760 - 10.050                 | 9.710            | 3-1/2 EUE                            | 46010       |

\* May require cup change.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## STRADASNAP PACKER

The Stradasnap Packer consists of a modified Snapset II Packer combined with an AS-III Packer. A Stradasnap Packer is used for selectively treating short intervals of casing perforations to evenly break down the entire formation. The span covered is determined by the spacing between the two sets of packing elements and is adjustable to any distance down to eighteen inches.

The bottom of the Stradasnap Packer is plugged by using an Equalizing Standing Valve (or similar device). A Spot Control Valve or Acid Valve can be run above the Stradasnap Packer to control the tubing hydrostatic pressure across the perforations and contain the acid in the tubing when moving the packer to another perforation.

After locating the Stradasnap Packer across the lower most perforation, the Stradasnap Packer is set and the perforation is treated. Straight pick-up of the tubing releases the Stradasnap Packer to be moved up to the next perforation. Repeat the setting procedure to reset. When retrieving the Stradasnap Packer, retrieve the Spot Control Valve or Acid Valve so that tubing fluid can be dumped through the ports between the packing elements to prevent pulling a wet string.

### Special Features

- Combination of existing packers
- Straight pull release
- Adjustable spacing with pup joint

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 1.94             | 2-3/8 EUE                            | 64545       |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 4.220 <sup>1</sup> | 1.94             | 2-3/8 EUE                            | 64550       |
|               | 18.0 - 21.0     | 4.154 - 4.276                  | 4.000            | -                  | 1.94             | 2-3/8 EUE                            | 64552       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | -                  | 1.94             | 2-3/8 EUE                            | 64555       |
|               |                 |                                |                  | -                  | 2.38             | 2-7/8 EUE                            | 64556       |
| 6-5/8         | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                  | 2.50             | 2-7/8 EUE                            | 64565       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup> | 2.50             | 2-7/8 EUE                            | 64572       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                  | 2.50             | 2-7/8 EUE                            | 64570       |
|               |                 |                                |                  | -                  | 3.00             | 3-1/2 EUE                            | 64573       |
| 9-5/8         | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                  | 4.00             | 4-1/2 EUE                            | 64595       |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## HD ABANDONMENT PACKER

The HD Abandonment Packer is a heavy duty service packer ideally suited for all types of squeeze cementing, formation fracturing, high pressure acidizing, etc. This packer is a large opening compression set packer with hydraulic button-type hold down. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. This packer

has a built-in unloader which circulates across the hold down buttons to improve retrievability and run in performance

### Special Features

- Heavy duty mandrels for high load capacity
- Extra lower slips to distribute hanging load

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)     | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number  |
|---------------|-----------------|--------------------------------|------------------|---------------------|------------------|--------------------------------------|--------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                     |                  |                                      |              |
| 6-5/8         | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | -                   | 2.50             | 3-1/2 IF TOOL JOINT                  | 61565-XBEC   |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 6.062 <sup>1</sup>  | 2.50             | 3-1/2 IF TOOL JOINT                  | 61572-XBEC   |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | -                   | 2.50             | 3-1/2 IF TOOL JOINT                  | 61570-XBEC   |
| 7-5/8         | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | 6.500 <sup>1</sup>  | 2.50             | 3-1/2 IF TOOL JOINT                  | 61576RS-XBEC |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.500            | -                   | 3.50             | 4-1/2 EUE                            | 61596HD      |
|               |                 |                                |                  |                     |                  | 4-1/2 IF TOOL JOINT                  | 61596-XBEE   |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.250            | -                   | 3.50             | 4-1/2 EUE                            | 61595HD      |
|               |                 |                                |                  |                     |                  | 4-1/2 IF TOOL JOINT                  | 61595-XBEE   |
| 10-3/4        | 32.75 - 45.5    | 9.950 - 10.192                 | 9.700            | -                   | 3.50             | 4-1/2 IF TOOL JOINT                  | 61501-XBEE   |
|               | 51.0 - 65.7     | 9.560 - 9.850                  | 9.312            | 9.374 <sup>1</sup>  | 3.50             | 4-1/2 IF TOOL JOINT                  | 61510-XBEE   |
|               | 65.7 - 91.2     | 9.032 - 9.560                  | 8.813            | -                   | 3.50             | 4-1/2 IF TOOL JOINT                  | 61599-XBEE   |
| 11-3/4        | 42.0 - 65.0     | 10.682 - 11.084                | 10.438           | 10.500 <sup>1</sup> | 3.50             | 4-1/2 IF TOOL JOINT                  | 61511-XBEE   |
| 13-3/8        | 54.5 - 77.0     | 12.275 - 12.615                | 12.000           | -                   | 3.50             | 4-1/2 EUE                            | 61513HD      |
|               |                 |                                |                  |                     |                  | 4-1/2 EUE                            | 61513HD-YBAG |
|               |                 |                                |                  |                     |                  | 4-1/2 IF TOOL JOINT                  | 61513LS-XBEE |
|               |                 |                                |                  |                     |                  | 4-1/2 IF TOOL JOINT                  | 61513-XBEE   |

<sup>1</sup> Maximum OD is across retracted drag blocks.

OPTIONS: LM (Left-Hand Manual), LS (Left-Hand Auto), RM (Right-Hand Manual), RS (Right-Hand Auto)

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## ABANDONMENT VALVE

The Abandonment Valve provides a means for temporarily abandoning a well without tripping out a workstring. This valve is run in conjunction with a heavy duty service packer. The Abandonment Valve and packer are designed to allow heavy loads to hang through them and thus allowing a workstring to hang below during abandonment. The most common use of the Abandonment Valve and packer combination is offshore for storm abandonment, but can also be used for working on BOP's during drilling without tripping the drill string out.

This valve uses a colleted sliding valve (lower collet) that is opened and closed by the disconnect and reconnect operations. The valve is designed so that the flow slots in the valve line up with the flow slots in the valve case to allow for higher rates of circulation without damaging the valve.

This valve uses a colleted latch that has a left-hand buttress thread allowing easy insertion of the latch while providing a strong connection. The colleted latch is supported during loading to ensure the latch threads stay completely engaged. All external threads are locked with set screws to ensure against backing off during packer setting.

### Special Features

- Right-hand release
- Straight set down re-attachment
- 2.75" ID with Pump-Out Plug removed
- Screw-on casing centralizer ring

### Product Specifications

| Size (inches) | Tool OD (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|--------------------------------------|-------------|
| 3-5/8         | 3.600*           | 2-3/8 IF TOOL JOINT                  | 61736       |
| 5-1/8         | 5.125*           | 3-1/2 IF TOOL JOINT                  | 61751       |
| 6-1/4         | 6.250*           | 4-1/2 IF TOOL JOINT                  | 61762       |

\* OD of centralizer ring is larger than the basic tool OD.

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

### Centralizer Sizes

| Casing Size (inches) | Centralizer OD (inches) |
|----------------------|-------------------------|
| 7                    | 5.75                    |
| 9-5/8                | 8.13                    |
| 10-3/4               | 9.25                    |
| 11-3/4               | 10.25                   |
| 13-3/8               | 11.63                   |
| 18-5/8               | 16.75                   |



Service Tools

## BALL ABANDONMENT VALVE

The Ball Abandonment Valve provides a means for temporarily abandoning a well without tripping out a workstring. The valve is run in conjunction with a heavy duty service packer. The Ball Abandonment Valve and Packer are designed to allow heavy loads to hang through them and thus allowing a workstring to hang below during abandonment. The most common use of the Ball Abandonment Valve and Packer combination is offshore for storm abandonment, but can also be used for working on BOP's during drilling without tripping the drill string out.

The Ball Abandonment Valve uses a ball valve that is opened and closed by raising and lowering the workstring. The ball valve is designed to allow full movement

through the workstring and allows for higher rates of circulation without damaging the valve.

The Ball Abandonment Valve uses a colleted latch that has a left-hand buttress thread that allows easy insertion of the latch while providing a strong connection. The colleted latch is supported during loading to ensure the latch threads stay completely engaged. All external threads are locked with set screws to ensure against backing off during packer setting.

### Special Features

- Full opening through ball valve
- Right-hand release, straight set down to re-attach



### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 6-1/4         | 6.500*           | 2.70             | 4-1/2 IF TOOL JOINT                  | 62262       |

\* OD of centralizer ring is larger than the basic tool OD.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

### Centralizer Sizes

| Casing Size (inches) | Centralizer OD (inches) |
|----------------------|-------------------------|
| 9-5/8                | 8.13                    |
| 10-3/4               | 9.25                    |
| 11-3/4               | 10.25                   |
| 13-3/8               | 11.63                   |

## ABANDONMENT PACKER ACCESSORIES

D&L has accessories available to run in conjunction with the Abandonment Packer: a High Load Swivel and a Plug Catcher.

The High Load Swivel allows an Abandonment Packer (ASI-X Design) to be unset with pipe weight hanging below. This swivel can be rotated with up to 80,000 lbs. hanging through it.

The Pump-Out Plug Catcher is designed to catch the Pump-Out Plug in the Abandonment Valve while maintaining a large flow area around the plug.

### Product Specifications

| Tool Description | Tool OD (inches) | Tool ID (inches) | Thread Connections<br>Box Up / Pin Down | Part Number |
|------------------|------------------|------------------|---|-------------|
| High Load Swivel | 6.250            | 3.00             | 4-1/2 IF TOOL JOINT                     | 61662       |
| Plug Catcher     | 6.500            | 1.75             | 4-1/2 IF TOOL JOINT                     | 61663       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



High Load Swivel



Plug Catcher

## MODEL “H” HYDRAULIC SETTING TOOL

The Model “H” Hydraulic Setting Assembly (HST) is a hydraulic setting tool designed for setting packers and plugs without pipe manipulations. It is used to set packers and plugs that are normally set with a Model “E-4” Wireline Pressure Setting Assembly (or similar wireline setting equipment). The same adapter kit that is used on wireline can be used with the Model “H” HST.

The Model “H” HST and packer (or plug) is run in on the tubing to the desired setting depth and a ball is dropped to the HST. Pressure is applied to close the fill ports, which also opens the setting pistons to pressure. As pressure is applied, force is transmitted to the packer (or plug) to set. Tubing tension can also be applied to supplement the setting force generated by the pressure applied.

The standard setting tool comes with three pistons, but additional pistons can be added to reduce setting pressure.

### Special Features

- Large internal by-pass
- Tubing fills automatically as HST is run in the hole
- Premature setting is prevented by means of a shear screw in the cross link sleeve
- Ported top sub permits circulation through the HST
- Use existing wireline adapter kits



### Product Specifications

| Size (inches) | Tool Max PSI | Max Pull (lbs) | Tool OD (inches) | Total Effective Piston Area (in <sup>2</sup> ) | Connection |                    | Part Number |
|---------------|--------------|----------------|------------------|--|------------|--------------------|-------------|
|               |              |                |                  |  | Top        | Bottom (Baker E-4) |             |
| #05           | 10,000       | 31,000         | 1.718            | 1.49   | 1.315 EUE  | SIZE 05            | 39105       |
| #10           | 10,000       | 75,000         | 2.750            | 3.44   | 1.900 EUE  | SIZE 10            | 39110-3     |
|               |              |                |                  | 6.88   | 1.900 NUE  | SIZE 10            | 39110       |
| #20           | 6,000        | 120,000        | 3.81             | 13.980   | 2-3/8 EUE  | SIZE 20            | 39120-2     |
|               | 4,000        | 120,000        | 3.81             | 20.940   | 2-3/8 EUE  | SIZE 20            | 39120-3     |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## LC HYDRAULIC SETTING TOOL

The LC Hydraulic Setting Tool (HST) is used to set packers and plugs on tubing that are normally set on wireline. This allows setting in high-angle wells or deviated wells where it is difficult to use wireline equipment. The LC HST allows for packers and plugs to be set with a combination of hydraulic and mechanical forces. This can reduce the setting pressure needed by supplementing the set with tubing tension. A single size LC HST may be used to set a multitude of packer sizes by simply attaching the proper size LC Hydraulic Adapter Kit.

### Special Features

- Heavy-duty design
- Multiple setting chambers for lower setting pressures
- Operable in heavy mud systems
- Can be equipped to operate in high temperatures
- Circulation through the tool during run in



### Product Specifications

| Tool    | Setting Area (in <sup>2</sup> /Cylinder) | Tool OD (inches) | Tool ID (inches) | Thread Connection Box Up / Pin Down | Part Number |
|---------|--|------------------|------------------|-------------------------------------|-------------|
| LC-15   | 4.70                                     | 3.718            | 1.50             | 2-7/8 EUE                           | 39415       |
| LC-20   | 4.60                                     | 4.375            | 2.00             | 3-1/2 IF TOOL JOINT                 | 39420       |
| LC-20HD | 4.60                                     | 4.375            | 1.75             | 3-1/2 IF TOOL JOINT                 | 39420HD     |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## CEMENT RETAINER

The Cement Retainer is a drillable packer that provides the end user with a tool that will consistently contain well pressures at elevated temperatures and pressures. This tool is designed to be used for remedial cementing operations and light service applications. This tool permits faster removal from the well with either rotary or cable tool methods due to its compact size and the selection of high quality construction materials.

### Special Features

- Surface controlled valve
- Allows pressure testing before squeeze
- Valve automatically closes when the stinger is removed, locking in the squeeze pressure
- Valve protects sensitive zones in low fluid wells
- Simple conversion to bridge plug
- Mechanical or wireline set available
- Components rotationally locked for easy drillout



Wireline Set  
Cement Retainer



Mechanical  
Slip Kit

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Part Number    |              |
|---------------|-----------------|--------------------------------|------------------|----------------|--------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Mechanical Set | Wireline Set |
| 4-1/2         | 9.5 - 15.1      | 3.826 - 4.090                  | 3.612            | 84045MS        | 84045WS      |
| 5             | 11.5 - 18.0     | 4.276 - 4.560                  | 3.937            | 84050MS        | 84050WS      |
| 5-1/2         | 14.0 - 23.0     | 4.670 - 5.012                  | 4.315            | 84055MS        | 84055WS      |
| 6-5/8         | 17.0 - 32.0     | 5.675 - 6.135                  | 5.375            | 84065MS        | 84065WS      |
| 7             | 17.0 - 35.0     | 6.004 - 6.538                  | 5.680            | 84070MS        | 84070WS      |
| 7-5/8         | 20.0 - 39.0     | 6.625 - 7.125                  | 6.313            | 84075MS        | 84075WS      |
| 8-5/8         | 24.0 - 52.0     | 7.435 - 8.097                  | 7.125            | 84085MS        | 84085WS      |
| 9-5/8         | 29.3 - 58.4     | 8.435 - 9.063                  | 8.125            | 84095MS        | 84095WS      |
| 10-3/4        | 32.75 - 60.7    | 9.660 - 10.192                 | 9.437            | 84010MS        | 84010WS      |
| 11-3/4        | 38.0 - 60.0     | 10.772 - 11.150                | 10.437           | 84011MS        | 84011WS      |
| 13-3/8        | 48.0 - 72.0     | 12.347 - 12.715                | 12.000           | 84013MS        | 84013WS      |

**OPTIONS:** MS (Mechanical Set), WS (Wireline Set)

**NOTE<sup>1</sup>:** Conversion Kits are available for converting either way.

**NOTE<sup>2</sup>:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

**NOTE<sup>3</sup>:** Not compatible with setting tools from other manufacturers.

## CR BRIDGE PLUG

The CR Bridge Plug provides the end user with tools that will consistently contain well pressures at elevated temperatures and pressures. This plug permits faster removal from the well with either rotary or cable tool methods due to its compact size and the selection of high quality construction material.

The short, compact, interlocked construction assures the user that the CR Bridge Plug will provide faster, safer run-in, dependable set and pack-off and hold pressure that is safe for the casing weight and grade. The interlock construction and compact size requires minimal material removal during drill out. The outside diameter of these products has been held to a minimum to provide maximum tool-to-casing clearance for

safe running and maximum fluid by-pass area during displacement procedures even in heavy mud systems.

A Wireline Adapter Kit (WLAK) and Hydraulic Setting Tool are used for setting CR Bridge Plugs.

NOTE: The CR Bridge Plug is designed to provide a temporary wellbore seal. For a permanent wellbore seal, cement must be set on top of the plug.

### Special Features

- Convertible to Cement Retainer
- Sets on wireline or on tubing with mechanical setting tool



Wireline Set  
Cement Retainer



Mechanical  
Slip Kit

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Part Number    |              |
|---------------|-----------------|--------------------------------|------------------|----------------|--------------|
| Size (inches) | Weight (lbs/ft) |                                |                  | Mechanical Set | Wireline Set |
| 4-1/2         | 9.5 - 15.1      | 3.826 - 4.090                  | 3.612            | 84245MS        | 84245WS      |
| 5             | 11.5 - 18.0     | 4.276 - 4.560                  | 3.937            | 84250MS        | 84250WS      |
| 5-1/2         | 14.0 - 23.0     | 4.670 - 5.012                  | 4.315            | 84255MS        | 84255WS      |
| 6-5/8         | 17.0 - 32.0     | 5.675 - 6.135                  | 5.375            | 84265MS        | 84265WS      |
| 7             | 17.0 - 35.0     | 6.004 - 6.538                  | 5.680            | 84270MS        | 84270WS      |
| 7-5/8         | 20.0 - 39.0     | 6.625 - 7.125                  | 6.313            | 84275MS        | 84275WS      |
| 8-5/8         | 24.0 - 52.0     | 7.435 - 8.097                  | 7.125            | 84285MS        | 84285WS      |
| 9-5/8         | 29.3 - 58.4     | 8.435 - 9.063                  | 8.125            | 84295MS        | 84295WS      |
| 10-3/4        | 32.75 - 60.7    | 9.660 - 10.192                 | 9.437            | 84210MS        | 84210WS      |
| 11-3/4        | 38.0 - 60.0     | 10.772 - 11.150                | 10.437           | 84211MS        | 84211WS      |
| 13-3/8        | 48.0 - 72.0     | 12.347 - 12.715                | 12.000           | 84213MS        | 84213WS      |

OPTIONS: MS (Mechanical Set), WS (Wireline Set)

NOTE <sup>1</sup>: Conversion Kits are available for converting either way.

NOTE <sup>2</sup>: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

NOTE <sup>3</sup>: Not compatible with setting tools from other manufacturers.

## CIW BRIDGE PLUG

The CIW Bridge Plug is designed to have excellent running characteristics and secure sets. This plug can be set on different types of Wireline Pressure Setting Tools as well as with Hydraulic Setting Tools. This plug is designed for rapid drill-out while maintaining sufficient strength during the set. It is designed for high differential pressures and temperatures up to 250°F with standard Nitrile element and O-ring. Different elastomers are available for higher temperatures.

The short, compact, interlocked construction assures the CIW Bridge Plug will provide faster, safer run-in, dependable set and pack-off, and hold

pressure that is safe for the casing weight and grade. The interlock construction and compact size requires minimal material removal during drill out.

### Special Features

- Electric, wireline or hydraulic set
- Drillable, cast iron construction
- One piece break-apart slips
- Rubber extrusion resisting backups on elements
- Sets with common setting sleeves
- Locking mechanism for ease in drilling multiple plugs



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Part Number |
|---------------|-----------------|--------------------------------|------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.750            | 85035       |
| 4-1/2         | 9.5 - 15.1      | 3.826 - 4.090                  | 3.613            | 85045       |
| 5-1/2         | 13.0 - 23.0     | 4.670 - 5.044                  | 4.315            | 85055       |
| 7             | 17.0 - 35.0     | 6.004 - 6.538                  | 5.680            | 85070       |
| 7-5/8         | 20.0 - 39.0     | 6.625 - 7.125                  | 6.312            | 85075       |
| 8-5/8         | 24.0 - 52.0     | 7.435 - 8.097                  | 7.125            | 85085       |
| 9-5/8         | 29.3 - 61.1     | 8.375 - 9.063                  | 8.125            | 85095       |
| 10-3/4        | 32.75 - 60.7    | 9.660 - 10.192                 | 9.437            | 85010       |
| 11-3/4        | 38.0 - 60.0     | 10.772 - 11.150                | 10.437           | 85011       |
| 13-3/8        | 48.0 - 72.0     | 12.347 - 12.715                | 12.000           | 85013       |
| 16            | 65.0 - 128.0    | 14.438 - 15.250                | 14.125           | 85016       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## WIRELINER ADAPTER KIT - FOR CEMENT RETAINER & CR BRIDGE PLUG

The Wireline Adapter Kit (WLAK) for Cement Retainers and CR Bridge Plugs is used to set Cement Retainers and CR Bridge Plugs on electric wireline or with a hydraulic setting assembly on tubing. The WLAK is designed to be used on a Baker E-4 wireline powder charge or hydraulic setting assembly or any setting assembly with the same configuration.

The WLAK automatically disconnects from the Bridge Plug during packer setting to be easily retrieved and prepared to run again.

### Product Specifications

| Size (inches) | Tool OD (inches) | Wireline Setting Tool Box Up | Part Number |
|---------------|------------------|------------------------------|-------------|
| 4-1/2         | 3.500            | BAKER E-4, #10               | 52345       |
| 5-1/2         | 4.000            | BAKER E-4, #20               | 52355       |
| 7             | 5.688            | BAKER E-4, #20               | 52370       |
| 9-5/8         | 8.125            | BAKER E-4, #20               | 52395       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Service Tools

# WIRELINE ADAPTER KIT - FOR CIW BRIDGE PLUG

The Wireline Adapter Kit (WLAK) for CIW Bridge Plugs is used to set CIW Bridge Plugs on electric wireline or with a hydraulic setting assembly on tubing. The WLAK is designed to be used on a Baker E-4 wireline powder charge or hydraulic setting assembly, but can be used with any setting assembly with the same configuration.



## Product Specifications

| Size (inches) | Tool OD (inches) | Wireline Setting Tool Box Up | Part Number |
|---------------|------------------|------------------------------|-------------|
| 3-1/2         | 2.600            | BAKER E-4, #05               | 85535       |
| 4-1/2         | 3.500            | BAKER E-4, #10               | 85545       |
| 5-1/2         | 4.240            | BAKER E-4, #20               | 85555       |
| 7             | 5.250            | BAKER E-4, #20               | 85570       |
| 8-5/8         | 6.750            | BAKER E-4, #20               | 85585       |
| 9-5/8         | 7.750            | BAKER E-4, #20               | 85595       |
| 10-3/4        | 8.750            | BAKER E-4, #20               | 85510       |
| 11-3/4        | 10.200           | BAKER E-4, #20               | 85511       |
| 13-3/8        | 11.000           | BAKER E-4, #20               | 85513       |
| 16            | 13.500           | BAKER E-4, #20               | 85516       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## DLT RETRIEVABLE PACKER

The DLT Retrievable Packer is a compression set packer with hydraulic hold down that is designed to provide an extra measure of dependability for rugged service. The hydraulic actuated upper hold-down provides more than the usual surface area to ensure that the packer will not move up the hole. It is ideally suited for high pressure, high temperature service work.

Some unique features of this packer include positive rotational locks on all internal connections, which allow for extreme values of torque (left-hand or right-hand) to be transmitted through the packer. Backup rings on all the o-rings provide for more reliable sealing at high temperature and pressure.

This packer also comes with extra-long top and bottom subs which allow for hydraulic tong make-up and break out.

### Special Features

- Hydraulic actuated upper hold down slips
- Positive rotational locks on all internal connections
- Backup rings on all o-rings provide for more reliable sealing at high temperatures and high pressures
- Available with extra-long top and bottom subs allowing hydraulic tong make-up and break out

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 7             | 17.0 - 23.0     | 6.366 - 6.538                  | 6.188            | 6.200 <sup>1</sup> | 2.69             | 3-1/2 IF TOOL JOINT                  | 68873A      |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.954            | -                  | 2.69             | 3-1/2 IF TOOL JOINT                  | 68873B      |
|               | 32.0 - 38.0     | 5.920 - 6.094                  | 5.781            | -                  | 2.69             | 3-1/2 IF TOOL JOINT                  | 68873C      |
|               | 38.0 - 46.4     | 5.626 - 5.920                  | 5.525            | -                  | 2.69             | 3-1/2 IF TOOL JOINT                  | 68873D      |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.672            | -                  | 2.69             | 3-1/2 IF TOOL JOINT                  | 68875A      |
|               | 33.7 - 39.0     | 6.625 - 6.765                  | 6.453            | -                  | 2.69             | 3-1/2 IF TOOL JOINT                  | 68875B      |
| 9-5/8         | 32.3 - 43.5     | 8.755 - 9.001                  | 8.584            | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68896       |
|               | 43.5 - 53.5     | 8.535 - 8.755                  | 8.365            | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68895       |
|               | 58.4 - 59.4     | 8.407 - 8.435                  | 8.250            | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68894       |
| 10-3/4        | 51.0 - 55.5     | 9.760 - 9.850                  | 9.500            | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68810A      |
|               | 60.7 - 65.7     | 9.560 - 9.660                  | 9.375            | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68810B      |
|               | 71.1 - 73.2     | 9.406 - 9.450                  | 9.125            | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68810C      |
| 11-3/4        | 42.0 - 54.0     | 10.880 - 11.084                | 10.625           | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68811A      |
|               | 60.0 - 71.0     | 10.586 - 10.772                | 10.406           | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68811B      |
| 13-3/8        | 48.0 - 77.0     | 12.275 - 12.715                | 12.000           | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68813       |
|               | 80.7 - 92.0     | 12.031 - 12.215                | 11.750           | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68813B      |
| 14            | 82.5 - 92.68    | 12.700 - 12.876                | 12.500           | -                  | 3.75             | 4-1/2 IF TOOL JOINT                  | 68814A      |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## V-III UNLOADER

The V-III Unloader is designed as a high-pressure accessory for the DLT Retrievable Packer designed to withstand severe operating conditions. This unloader provides a means of equalizing tubing and annulus pressures as well as a by-pass to allow fluid to pass through the mandrel of the packer while running the tubing string in and out of the well. Circulating can be established to spot fluids to the packer or circulating debris from the hole.

### Special Features

- Standard slot locks in open and closed positions
- Standard slot is right-hand close, right-hand open
- Additional J-slot arrangements available

### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 3-1/2         | 5.500            | 2.69             | 3-1/2 IF TOOL JOINT                  | 52735       |
| 4-1/2         | 7.250            | 3.75             | 4-1/2 IF TOOL JOINT                  | 52745       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## STORM VALVE

The Storm Valve is designed to run above a compression set packer similar to the DLT Retrievable Packer. The Storm Valve allows the drill pipe or tubing close to the surface to be disconnected without tripping the entire string. It is designed to be used in situations where the rig must be abandoned quickly. It can also be used for changing surface equipment without tripping a drill string. And it will remain closed to provide a secure seal until the drill pipe or tubing is re-connected.

### Special Features

- Rugged, field proven design
- Pump-out plug allows full access for wireline and circulation
- Automatic valve operation during disconnect and reconnect operations

### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 4-3/4         | 5.469            | 1.50             | 3-1/2 IF TOOL JOINT                  | 68210       |
| 6-1/8         | 6.125            | 2.00             | 4-1/2 IF TOOL JOINT                  | 68220       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## BUMPER SUB

The Bumper Sub is a heavy duty travel joint that is designed to transmit high torque. A hex-shaped mandrel is incorporated in the tool design providing a large contact surface which transmits the torque through the tool. Proven bonded seals are used to provide a seal across the full stroke of the bumper sub.

### Special Features

- Heavy duty design
- Large contact surfaces to transmit high torque thru tool
- Bonded seals provide seal on full stroke
- Other extended lengths available

### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 3-1/2         | 4.750            | 2.50             | 3-1/2 IF TOOL JOINT                  | 53335       |
| 4-1/2         | 6.250            | 3.75             | 4-1/2 IF TOOL JOINT                  | 53345       |
|               | 6.500            | 3.75             | 4-1/2 IF TOOL JOINT                  | 53346       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## RR SAFETY JOINT

The RR Safety Joint is a means for backing off a workstring from tools below. Right-hand rotation and reciprocation is needed to back off the release mechanism. Shear screws hold the mandrel locked until a straight pull shears the screws. This insures the back-off mechanism does not operate until needed.

### Special Features

- Shear release to eliminate premature back-off
- Heavy duty construction

### Product Specifications

| Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|------------------|--------------------------------------|-------------|
| 2-3/8         | 3.250            | 1.88             | 2-3/8 EUE                            | 57020       |
| 2-7/8         | 4.500            | 2.50             | 2-7/8 EUE                            | 57025       |
| 3-1/2         | 5.250            | 2.69             | 3-1/2 IF TOOL JOINT                  | 57035-BEC   |
| 4-1/2         | 6.250            | 3.75             | 4-1/2 IF TOOL JOINT                  | 57045-BEE   |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Service Tools

## AXIAL INSTALLATION HD PACKER

The Axial Installation (AI) HD Packer is a heavy-duty service packer ideally suited for all types of squeeze cementing, formation fracturing, high pressure acidizing, etc. It is a large opening compression set packer with hydraulic button-type hold down. It is set and unset with simple up and down motion. This motion is controlled with a continuous J-slot so multiple settings are possible. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. The packer has a built-in unloader which circulates across the hold down buttons to improve retrievability and run in performance.

### Special Features

- Heavy duty design
- No rotation at surface
- Built-in unloader



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.00             | 2-3/8 EUE                            | 62557       |
|               | 20.0 - 23.0     | 4.670 - 4.778                  | 4.500            | 2.00             | 2-3/8 EUE                            | 62556       |
| 6-5/8         | 24.0 - 32.0     | 5.675 - 5.921                  | 5.500            | 2.50             | 2-7/8 EUE                            | 62565       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## WR BRIDGE PLUG

The WR Bridge Plug is a wireline set, wireline retrieve, packer-type bridge plug capable of holding differential pressure from above or below. The WR Bridge Plug is used as a temporary bridge plug for acidizing, fracturing, cementing, casing pressure tests, wellhead replacement, and zone isolation. The WR Bridge Plug utilizes standard wireline or hydraulic setting tools.

### Special Features

- Wireline set/ wireline retrieve
- 10,000 psi differential pressure rating above and below the plug
- Bi-directional slips
- Equalization feature prevents premature release against differential pressure

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Top Connection  | WLAK     | Retrieving Tool | Part Number |
|---------------|-----------------|--------------------------------|------------------|-----------------|----------|-----------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                 |          |                 |             |
| 3-1/2         | 7.7-10.2        | 2.922-3.068                    | 2.700            | 5/8-18 UNF PIN  | 73535-05 | 73535RT         | 73535       |
| 4             | 9.5-11.0        | 3.476-3.548                    | 3.250            | 5/8-18 UNF PIN  | 73535-05 | 73540RT         | 73540       |
|               | 10.46-12.95     | 3.340-3.476                    | 3.187            | 5/8-18 UNF PIN  | 73535-05 | 73540RT         | 73541       |
| 4-1/2         | 9.5-13.5        | 3.920-4.090                    | 3.750            | 1.000-8 UNC PIN | 73545-10 | 73545RT         | 73545       |
|               | 13.5-15.1       | 3.826-3.920                    | 3.650            | 1.000-8 UNC PIN | 73545-10 | 73545RT         | 73544       |
|               | 15.1-16.6       | 3.754-3.826                    | 3.625            | 1.000-8 UNC PIN | 73545-10 | 73545RT         | 73543       |
| 5             | 11.5-15.0       | 4.408-4.560                    | 4.125            | 1.000-8 UNC PIN | 73545-10 | 73545RT         | 73550       |
|               | 18.0-21.0       | 4.154-4.276                    | 3.969            | 1.000-8 UNC PIN | 73545-10 | 73545RT         | 73552       |
| 5-1/2         | 13.0-20.0       | 4.778-5.156                    | 4.625            | 7/8-14 UNF PIN  | 73557-20 | 73557RT         | 73555       |
|               | 20.0-23.0       | 4.670-4.778                    | 4.500            | 7/8-14 UNF PIN  | 73557-20 | 73557RT         | 73557       |
|               | 23.0-26.0       | 4.548-4.670                    | 4.406            | 7/8-14 UNF PIN  | 73554-20 | 73554RT         | 73554       |
| 7             | 17.0-26.0       | 6.276-6.538                    | 5.969            | 7/8-14 UNF PIN  | 73570-20 | 73570RT         | 73570       |
|               | 26.0-32.0       | 6.094-6.276                    | 5.875            | 7/8-14 UNF PIN  | 73570-20 | 73570RT         | 73571       |

\*73035 and 73040 are currently available as reduced pressure rated versions of 73535 and 73540 respectively. 73035 is rated to 6,000 psi below, and 73040 is rated to 4,500 psi below. 73535 and 73540 will both be rated to 10,000 psi above and below, when available.



Service Tools

## COMPRESSION UNLOADER

The Compression Unloader is designed as a high-pressure accessory for compression set packers. The Unloader is run above the packer pinned in the open or closed position. After the packer is run to setting depth, the procedures required to set the packer will automatically close the unloader. With the packer set and the unloader closed, well operations may proceed.

When run above a compression set packer, the Compression Unloader is opened to allow differential pressure to equalize before releasing the packer below.

### Special Features

- The Compression Unloader can be pinned in the open or closed position
- Allows equalizing of tubing/annulus pressure differential
- When pinned in the open position, allows for fluid bypass through the ID of the packer to reduce swabbing of packer elements



### Product Specifications

| Casing<br>Size<br>(inches) | Tool OD<br>(inches) | Tool ID<br>(inches) | Thread Connections<br>Box Up / Pin Down | Part<br>Number |
|----------------------------|---------------------|---------------------|---|----------------|
| 4-1/2                      | 3.500               | 2.00                | 2-3/8 EUE                               | 52845          |
| 7                          | 5.500               | 2.867               | 3-1/2 EUE                               | 52873          |

## LATCH LOCATOR - FOR CEMENT RETAINER

The Latch Locator for Cement Retainer is designed to be run on tubing and is used to manipulate the Cement Retainer collet (a.k.a. sleeve valve) during cementing operations. The Latch Locator is designed with a latching mechanism to aid in maintaining connection between the Latch Locator and the Cement Retainer and to give a positive indication of release when removing the Latch Locator from the Cement Retainer.

### Product Specifications

| Size (inches) | Tool OD (inches) | Thread Connection Box Up | Part Number |
|---------------|------------------|--------------------------|-------------|
| 4-1/2         | 3.48             | 2-3/8 EUE                | 84545       |
| 5-1/2         | 4.29             | 2-3/8 EUE                | 84555       |
| 7             | 5.648            | 2-7/8 EUE                | 84570       |
| 9-5/8         | 8.09             | 2-7/8 EUE                | 84595       |
| 13-3/8        | 11.737           | 2-7/8 EUE                | 84513       |



**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.

## MECHANICAL SETTING TOOL - FOR CEMENT RETAINER

The Mechanical Setting Tool (MST) is designed to run and mechanically set a Cement Retainer or converted Bridge Plug at any depth on tubing or drill pipe. Cement Retainers can be set, pressure tested, and squeezed in a single trip.

The MST and Cement Retainer or Bridge Plug are shear pinned together and the slips are held in a retracted position for safer running.

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connection Box Up | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                          |             |
| 4-1/2         | 9.5 - 15.1      | 3.826 - 4.090                  | 3.750            | 0.75             | 2-3/8 EUE                | 52445       |
| 5             | 11.5 - 18.0     | 4.276 - 4.560                  | 3.930            | 0.75             | 2-3/8 EUE                | 52450       |
| 5-1/2         | 14.0 - 23.0     | 4.670 - 5.012                  | 4.500            | 0.75             | 2-3/8 EUE                | 52455       |
| 6-5/8         | 17.0 - 32.0     | 5.675 - 6.135                  | 5.375            | 1.12             | 2-7/8 EUE                | 52465       |
| 7             | 17.0 - 35.0     | 6.004 - 6.538                  | 5.500            | 1.12             | 2-7/8 EUE                | 52470       |
| 7-5/8         | 20.0 - 39.0     | 6.625 - 7.125                  | 5.800            | 1.12             | 2-7/8 EUE                | 52475       |
| 8-5/8         | 24.0 - 52.0     | 7.435 - 8.097                  | 7.125            | 1.12             | 2-7/8 EUE                | 52485       |
| 9-5/8         | 29.3 - 58.4     | 8.435 - 9.063                  | 8.125            | 1.12             | 2-7/8 EUE                | 52495       |
| 10-3/4        | 32.75 - 60.7    | 9.660 - 10.192                 | 9.312            | 1.12             | 2-7/8 EUE                | 52410       |
| 11-3/4        | 38.0 - 60.0     | 10.772 - 11.150                | 10.437           | 1.12             | 2-7/8 EUE                | 52411       |
| 13-3/8        | 48.0 - 72.0     | 12.347 - 12.715                | 12.000           | 1.13             | 2-7/8 EUE                | 52413       |



## WG WIRELINE SET RETRIEVABLE BRIDGE PLUG

The WG™ Wireline Set Retrievable Bridge Plug is a high performance Retrievable Bridge Plug that combines the advantages of tubing or wireline retrievability with the advantages of accurate, wireline setting. The WG is designed to be set using a #10 Wireline Hydraulic Setting Tool and a Wireline Adapter Kit. The WG can also be set using a Hydraulic Setting Tool, when coiled tubing conveyance is desirable.

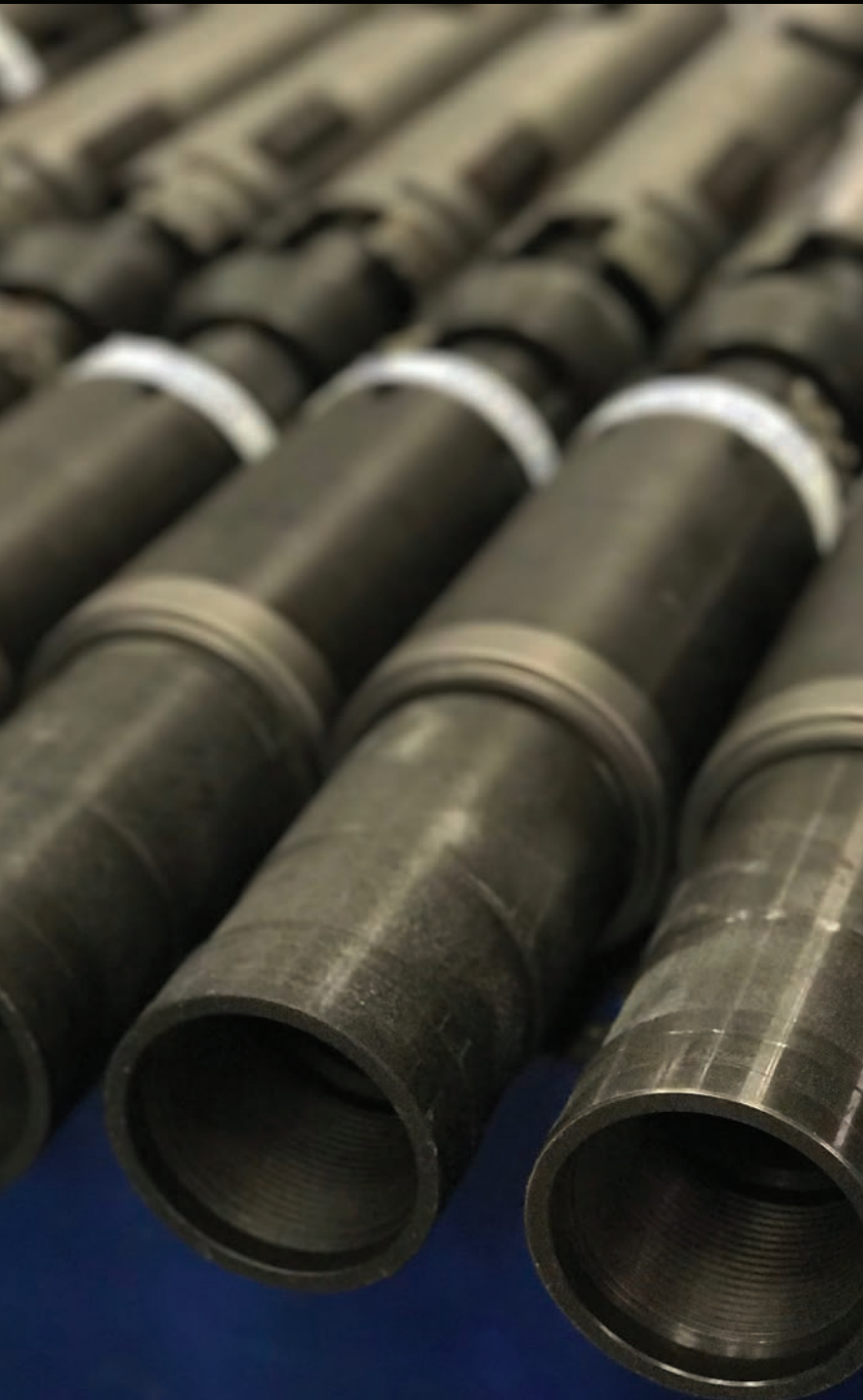
The WG can be used to conduct various types of remedial operations including zone isolation, formation fracturing, acidizing, or surface equipment repair while utilizing the advantages of wire-line or coiled tubing conveyance methods.

### Special Features

- Body Lock Ring retains setting force through Element System.
- Bridge Plug is set on wireline using the E-4
- W.L.P.S.A. or on coiled tubing using the J Hydraulic Setting Tool.
- High Performance Rating - 10,000 psi from above or below at 275°F. Size 47 rated to 300°F.
- Can be lubricated in and out of a live well.
- Opposed non-load transferring dovetail slips.
- Safety Sub or optional Shear Sub for emergency release.
- Straight pick up to release.
- Alignment of equalization flowpath reduces flowcutting during equalization.



# ANCHORS



## Anchors CONTENTS

|   |     |
|---|-----|
| ASI-X Anchor.....                           | 92  |
| DL-CS Anchor .....                          | 93  |
| Drag Block Tubing Anchor/Catcher.....       | 94  |
| Hydraulic Tubing Anchor .....               | 95  |
| Quarter Turn Reduced OD Tubing Anchor ..... | 96  |
| TM Anchor/Catcher .....                     | 97  |
| Trilobite Hydro Anchor.....                 | 98  |
| Trilobite Quarter Turn Anchor .....         | 99  |
| ESP Tubing Catcher .....                    | 100 |
| Set Down (SD) Anchor.....                   | 101 |

## ASI-X ANCHOR

The ASI-X Anchor is a mechanically set double grip tubing anchor designed to be exceptionally durable and debris tolerant. This anchor is based on the proven ASI-X Packer design, but has been shortened, simplified and does not have a sealing element. This anchor is suited for treating, testing, injecting, pumping wells, and flowing wells, deep or shallow. This anchor is built using durable ASI-X Packer parts making redress both quick and economical.

The double slip design allows the anchor to be left in tension or compression, depending on well conditions and the required application. The J-slot design allows easy setting and releasing; 1/4 turn right-hand set, right-hand release. With the variety of J-body configurations available, this anchor can also be set with

other packers in tandem. This anchor is also equipped with an adjustable straight pickup emergency shear release and when released in this manner, the anchor will reset when moved down the hole.

### Special Features

- Based on proven ASI-X Packer design
- Can be set with tension for shallow well applications
- Can be left in tension, compression or neutral
- 1/4 turn right-hand set, 1/4 turn right-hand release
- Additional J-Slot configurations available
- Adjustable emergency shear release



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 3-1/2         | 7.7 - 10.2      | 2.922 - 3.068                  | 2.781            | 1.25             | 1.900 NUE                            | 32335       |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 32345       |
|               | 13.5 - 15.1     | 3.826 - 3.920                  | 3.650            | 1.94             | 2-3/8 EUE                            | 32344       |
| 5             | 18.0 - 20.8     | 4.156 - 4.276                  | 4.00             | 1.94             | 2-3/8 EUE                            | 32352       |
| 5-1/2         | 14.0 - 20.0     | 4.778 - 5.012                  | 4.625            | 2.38             | 2-7/8 EUE                            | 32356       |
|               | 20.0 - 23.0     | 4.670 - 4.788                  | 4.500            | 2.38             | 2-7/8 EUE                            | 32359       |
|               | 23.0 - 26.0     | 4.548 - 4.670                  | 4.406            | 2.38             | 2-7/8 EUE                            | 32351       |
| 7             | 17.0 - 26.0     | 6.276 - 6.538                  | 6.000            | 2.50             | 2-7/8 EUE                            | 32372       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 32374       |
|               | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 32370       |
| 7-5/8         | 24.0 - 29.7     | 6.875 - 7.025                  | 6.453            | 2.50             | 2-7/8 EUE                            | 32375       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes, connections, and rubber options available upon request.  
Available with wicker or carbide slips.

## DL-CS ANCHOR

The DL-CS Anchor is used to anchor downhole equipment from rotating and/or moving up the hole. The anchor is designed to resist up to 12,000 Ft-lbs of torque with a unique cone and slip design while preventing movement up or down hole. It can be set in casing or open hole.

### Special Features

- Heavy duty design
- Hex mandrel for torque transmission
- Adjustable shear set and release

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Thread Connection Box Up / Pin Down       | Part Number |
|---------------|-----------------|--------------------------------|------------------|---|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |   |             |
| 5-1/2         | 13.0 - 23.0     | 4.670 - 5.044                  | 4.375            | 2-7/8 IF TOOL JOINT / 2-3/8 IF TOOL JOINT | 32255       |
| 7             | 17.0 - 23.0     | 6.366 - 6.538                  | 6.125            | 3-1/2 IF TOOL JOINT / NO THREAD           | 32272       |
|               | 26.0 - 35.0     | 6.004 - 6.276                  | 5.875            | 3-1/2 IF TOOL JOINT / NO THREAD           | 32270       |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.375            | 3-1/2 IF TOOL JOINT / NO THREAD           | 32275       |
| 8-5/8         | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 3-1/2 IF TOOL JOINT / NO THREAD           | 32285       |
|               |                 |                                |                  | 4-1/2 IF TOOL JOINT / NO THREAD           | 32285-XBEE  |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Anchors

## DRAG BLOCK TUBING ANCHOR/CATCHER

The Drag Block Tubing Anchor/Catcher (DB Anchor) is a retrievable positive-action tubing anchor designed to hold the tubing string in tension or compression. It has drag blocks to allow the anchor to be run deeper than conventional drag spring anchors. The anchor prevents movement of the tubing during pumping strokes; and holds it stationary if it should part. The use of a tension tubing anchor increases pump efficiency, reduces rod and tubing wear, and keeps tubing and rods from falling into the well in case of a part.

### Special Features

- Enclosed slips
- Rotational release or shear release
- Safety release value easily adjusted



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Max OD (inches)    | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|--------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                    |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | -                  | 1.94             | 2-3/8 EUE                            | 32545       |
| 5-1/2         | 13.0 - 20.0     | 4.778 - 5.044                  | 4.500            | 4.640 <sup>1</sup> | 2.00             | 2-3/8 EUE                            | 32555       |
|               |                 |                                |                  |                    | 2.44             | 2-7/8 EUE                            | 32556       |
| 7             | 17.0 - 32.0     | 6.094 - 6.538                  | 5.750            | 5.854 <sup>1</sup> | 2.50             | 2-7/8 EUE                            | 32570       |
|               |                 |                                |                  |                    | 3.00             | 3-1/2 EUE                            | 32573       |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.400            | 6.404 <sup>1</sup> | 2.50             | 2-7/8 EUE                            | 32575       |
| 8-5/8         | 24.0 - 40.0     | 7.725 - 8.097                  | 7.500            | 7.687 <sup>1</sup> | 4.00             | 4-1/2 EUE                            | 32585       |
| 9-5/8         | 32.3 - 53.5     | 8.535 - 9.001                  | 8.250            | -                  | 3.00             | 3-1/2 EUE                            | 32595-XBAE  |
|               |                 |                                |                  | -                  | 4.00             | 4-1/2 EUE                            | 32595       |

<sup>1</sup> Maximum OD is across retracted drag blocks.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## HYDRAULIC TUBING ANCHOR

The Hydraulic Tubing Anchor is a hydraulically-activated retrievable anchor designed to hold the tubing string in tension or compression. The Hydraulic Tubing Anchor catcher prevents movement of the tubing during pumping strokes and holds it stationary if it should part. The use of a tubing anchor increase pump efficiency, reduces rod and tubing wear, and keeps tubing and rods from falling into the well in case of a part.

The Hydraulic Tubing Anchor is operated by applying pressure to the tubing. This pressure shears screws that hold the anchor unset. A setting piston drives the slips set while locking the setting force in place. The Hydraulic Tubing Anchor utilizes specially designed slips - heat-treated steel alloy double-acting slips for maximum holding power in tension or compression. Slips are fully enclosed for extra breakage resistance and will be retained if slips break. The Hydraulic Tubing Anchor is retrieved by shearing screws with tension. Shear pins are added in 5,000 lb increments to achieve the desired shear value necessary to release.

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.94             | 2-3/8 EUE                            | 32445       |
| 5             | 11.5 - 15.0     | 4.408 - 4.560                  | 4.125            | 1.94             | 2-3/8 EUE                            | 32452       |
|               | 18.0 - 21.0     | 4.154 - 4.276                  | 4.000            | 1.94             | 2-3/8 EUE                            | 32450       |
| 5-1/2         | 13.0 - 23.0     | 4.670 - 5.044                  | 4.500            | 2.44             | 2-7/8 EUE                            | 32455       |
| 7             | 17.0 - 32.0     | 6.094 - 6.538                  | 5.750            | 3.00             | 3-1/2 EUE                            | 32473       |
|               |                 |                                |                  | 3.88             | 4-1/2 EUE                            | 32474       |



Anchors

## QUARTER TURN REDUCED OD TUBING ANCHOR

The Quarter Turn Reduced OD Tubing Anchor is a mechanically set, retrievable, tubing anchor designed to allow increased fluid bypass in the annulus. The anchor is suited for treating, testing, injecting, pumping wells, and flowing wells, deep or shallow. The slip design allows the anchor to be left in tension or compression, depending on well conditions and the required application. The J-slot design allows easy setting and releasing with 1/4 turn right-hand set, right-hand release.

### Special Features

- 1/4 turn right-hand set, 1/4 turn right-hand release
- Safety shear release
- Large flow area around tool



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 1.20             | 2-3/8 EUE                            | 31545       |
| 5-1/2         | 13.0 - 23.0     | 4.670 - 5.044                  | 4.500            | 2.00             | 2-7/8 EUE                            | 31556       |
| 7             | 23.0 - 35.0     | 6.004 - 6.366                  | 5.750            | 2.44             | 2-7/8 EUE                            | 31570       |
|               |                 |                                |                  | 2.44             | 3-1/2 EUE                            | 31573       |

## TM ANCHOR/CATCHER

The TM Anchor/Catcher is a retrievable positive action anchor tool to hold tubing strings in tension or compression during pump strokes to prevent tubing buckling. This increases pumping efficiency while reducing rod and tubing wear. This tool also catches the tubing should it part. Stainless steel drag springs employ low stress value to minimize failure under corrosive conditions. If the TM Anchor/Catcher cannot be released with right-hand rotation, it is equipped with a shear release activated by an upward pull.

### Special Features

- Stainless steel drag springs
- Enclosed slips
- Rotation or shear release
- Safety release value easily adjusted

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 - 13.5      | 3.920 - 4.090                  | 3.750            | 2.00             | 2-3/8 EUE                            | 32045       |
|               | 13.5 - 15.1     | 3.826 - 3.920                  | 3.656            | 2.00             | 2-3/8 EUE                            | 32044       |
| 5-1/2         | 13.0 - 23.0     | 4.670 - 5.044                  | 4.500            | 2.00             | 2-3/8 EUE                            | 32055       |
|               |                 |                                |                  | 2.38             | 2-7/8 EUE                            | 32056       |
| 6-5/8         | 20.0 - 32.0     | 5.675 - 6.049                  | 5.500            | 2.50             | 2-7/8 EUE                            | 32065       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 32066       |
| 7             | 17.0 - 32.0     | 6.094 - 6.538                  | 5.875            | 2.00             | 2-3/8 EUE                            | 32071       |
|               |                 |                                |                  | 2.50             | 2-7/8 EUE                            | 32070       |
|               |                 |                                |                  | 3.00             | 3-1/2 EUE                            | 32073       |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.400            | 2.50             | 2-7/8 EUE                            | 32075       |
| 9-5/8         | 32.3 - 53.5     | 8.535 - 9.001                  | 8.250            | 3.00             | 3-1/2 EUE                            | 32095-BAE   |
|               |                 |                                |                  | 4.00             | 4-1/2 EUE                            | 32095       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Anchors

## TRILOBITE HYDRO ANCHOR

The Trilobite Hydro Anchor is a hydraulically-set, retrievable, tubing anchor / catcher featuring D&L's patent pending slip / cone design. The Trilobite Hydro Anchor utilizes heat-treated steel alloy double-acting slips for maximum holding power in tension or compression. The fully enclosed slips allow for maximum bypass area around the outside of the anchor while maintaining a full open ID through the tubing. This versatile design can be used to route multiple capillary lines or monitoring cables past the anchor and to provide a gas/debris bypass area around the three slips.

The Trilobite Hydro Anchor catcher prevents movement of the tubing during pumping strokes and holds it stationary if it should part. This increases pump efficiency, reduces rod and tubing wear, and keeps tubing and rods from falling into the well in case of a part.

### Special Features

- Patent pending, fully enclosed slip/ cone design
- Maximum holding power in tension or compression
- Large flow area around tool
- Full open ID
- Shear release



### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Max OD (inches) | Reduced OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|-----------------|---------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                 |                     |                  |                                      |             |
| 5-1/2         | 14.0 - 23.0     | 4.670 - 5.040                  | 4.50            | 3.67                | 2.44             | 2-7/8 EUE                            | 31956       |
| 7             | 17.0 - 32.0     | 6.094 - 6.538                  | 5.75            | 4.50                | 3.00             | 3-1/2 EUE                            | 31973       |

## TRILOBITE QUARTER TURN ANCHOR

The Trilobite Quarter Turn Anchor is a mechanically set retrievable tubing anchor / catcher featuring D&L's patent pending slip / cone design. The Trilobite Quarter Turn Anchor utilizes heat-treated steel alloy double-acting slips for maximum holding power in tension or compression. The fully enclosed slips allow for maximum bypass area around the outside of the anchor while maintaining a full open ID through the tubing. This versatile design can be used to route multiple capillary lines or monitoring cables past the anchor and to provide a gas/debris bypass area around the three slips.

The Trilobite Quarter Turn Anchor catcher prevents movement of the tubing during pumping strokes and holds it stationary if it should part. The use of a tubing anchor increases pump efficiency, reduces rod and tubing wear, and keeps tubing and rods from falling into the well in case of a part.

### Special Features

- 1/4 turn right-hand set, 1/4 turn right-hand release
- Patent pending, fully enclosed slip / cone design
- Maximum holding power in tension or compression
- Full open ID
- Large flow area around tool
- Safety shear release

### Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Max OD (inches) | Reduced OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|-----------------|---------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                 |                     |                  |                                      |             |
| 5             | 18.0 - 20.8     | 4.156 - 4.276                  | 4.000           | 3.67                | 2.44             | 2-7/8 EUE                            | 31752       |
| 5-1/2         | 14.0 - 23.0     | 4.670 - 5.040                  | 4.50            | 3.67                | 2.44             | 2-7/8 EUE                            | 31756       |
| 7             | 26.0 - 32.0     | 6.094 - 6.276                  | 5.875           | 3.67                | 2.44             | 2-7/8 EUE                            | 31770       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



# ESP TUBING CATCHER

The ESP Tubing Catcher is a retrievable positive-action tubing catcher designed to run below an ESP to catch the equipment if the tubing string parts. The design includes drag blocks to allow the catcher to be run deeper than conventional drag spring catchers. The catcher features a J-slot design that allows the catcher to be easily set and released without rotating the tubing. A simple up and down movement is all that is required to cycle the catcher to the setting position after running in. Ample stroke length allows plenty of tubing travel to account for tubing movement or when landing the wellhead to avoid inadvertently returning the catcher to the run in position.



## Product Specifications

| Casing        |                 | Recommended Hole Size (inches) | Gage OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|-----------------|--------------------------------|------------------|------------------|--------------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                  |                                      |             |
| 4-1/2         | 9.5 – 13.5      | 3.920 - 4.090                  | 3.750            | 2.00             | 2-3/8 EUE                            | 30545C      |
| 5-1/2         | 20.0 – 23.0     | 4.670 - 4.778                  | 4.500            | 2.50             | 2-7/8 EUE                            | 30559C      |
| 7             | 26.0 – 32.0     | 6.094 - 6.276                  | 5.875            | 2.50             | 2-7/8 EUE                            | 30570C      |

Anchors

## SET DOWN (SD) ANCHOR

The Set Down (SD) Anchors used to anchor downhole equipment from rotating and/or moving up the hole. The anchor is designed to resist torque with a unique cone and slip design. The SD Anchor can be used in open hole applications.

### Product Specifications

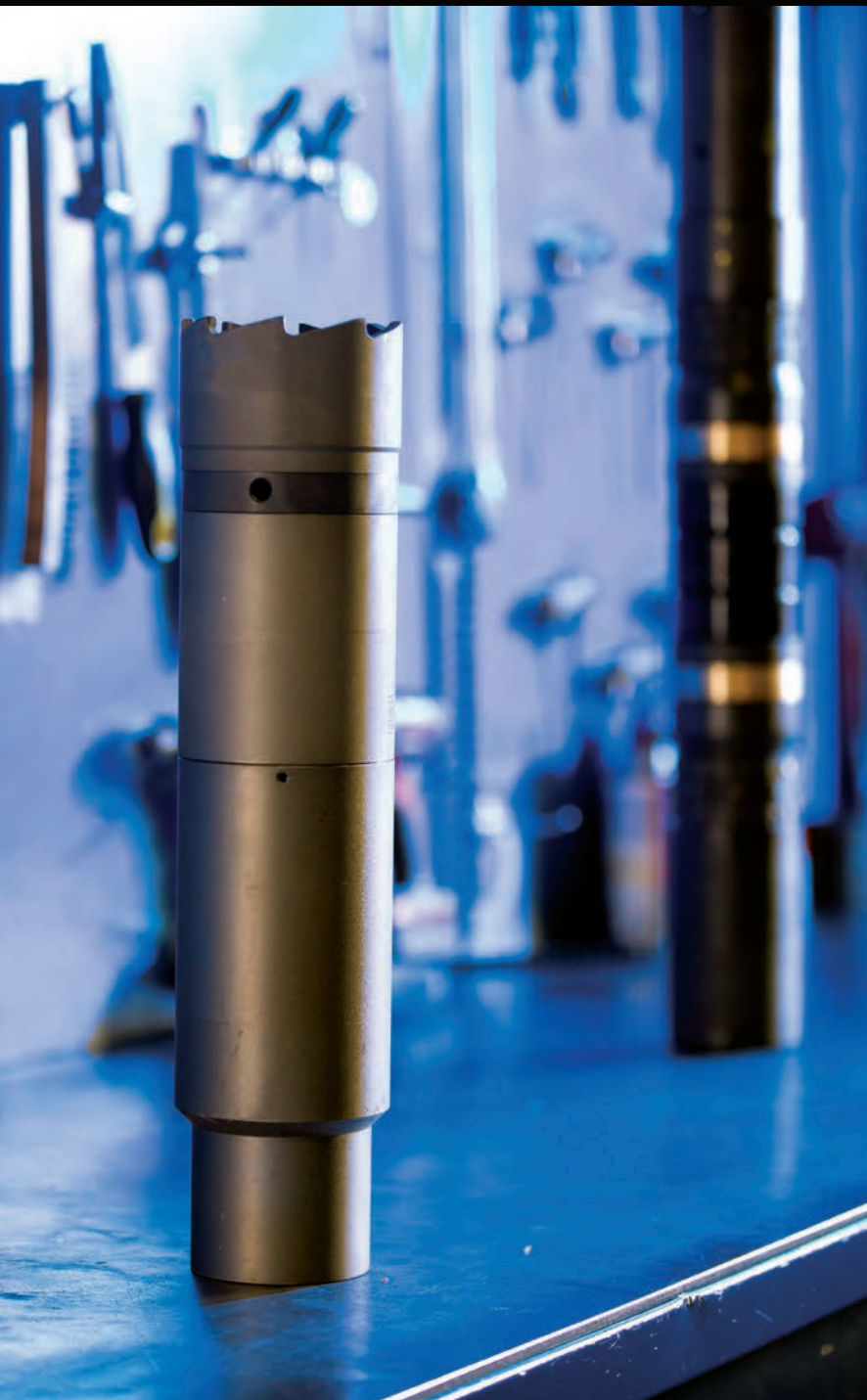
| Casing        |                 | Recommended Hole Size (inches) | Tool OD (inches) | Tool Thread Connection (Box Up) | Part Number |
|---------------|-----------------|--------------------------------|------------------|---------------------------------|-------------|
| Size (inches) | Weight (lbs/ft) |                                |                  |                                 |             |
| 5-1/2         | 14.0 - 23.0     | 4.670 - 5.012                  | 4.500            | 2-7/8 IF TOOL JOINT             | 32155       |
| 7             | 17.0 - 35.0     | 6.004 - 6.538                  | 5.750            | 3-1/2 IF TOOL JOINT             | 32170       |
| 7-5/8         | 24.0 - 39.0     | 6.625 - 7.025                  | 6.400            | 3-1/2 IF TOOL JOINT             | 32175       |
| 14            | 82.5 - 101.5    | 12.600 - 12.876                | 12.438           | 4-1/2 IF TOOL JOINT             | 32114       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



[illegible]

# Tool Accessories



## Tool Accessories CONTENTS

|  |         |
|--|---------|
| Profile Nipple .....                               | 104     |
| Bit Release Joint .....                            | 105     |
| Safety Joint-Shear, Rotational & Swivel Shear..... | 106     |
| Pump-Out Plug.....                                 | 107     |
| Downhole Tubing/Casing Swivel.....                 | 108     |
| Surface Tubing Swivel .....                        | 109     |
| Cross Flow Assembly.....                           | 110     |
| Expansion Joint.....                               | 111     |
| Pump-Out Cementing Sleeve .....                    | 112     |
| Type E Valve.....                                  | 113     |
| Running Tool - for Type E Valve .....              | 114     |
| Annulus Operated Tubing Drain.....                 | 115     |
| D&L On/Off Tool .....                              | 116-117 |
| Protension Safe Tension Tool.....                  | 118     |

## PROFILE NIPPLE

The Profile Nipple is designed to allow common slickline plugs and equipment to be placed successfully downhole. API and Premium threads can be cut on the nipples to reduce crossovers. Common profile and sizes are available.

### Special Features

- ID profiles made per customer requirements
- API and Premium threads available
- “F”, “R”, “DX”, and “DXN” profiles available
- CRA trim available

### Product Specifications

| Tubing Size (inches) | Profile Size (inches) | Profile    |
|----------------------|-----------------------|------------|
| 1.900                | 1.500                 | DX DXN     |
| 2-3/8                | 1.437                 | F          |
|                      | 1.500                 | F R DX DXN |
|                      | 1.625                 | F          |
|                      | 1.781                 | F R        |
|                      | 1.812                 | F R        |
|                      | 1.875                 | F R DX DXN |
| 2-7/8                | 1.812                 | F R        |
|                      | 1.875                 | F R DX DXN |
|                      | 2.130                 | R          |
|                      | 2.187                 | F R        |
|                      | 2.250                 | F R        |
|                      | 2.312                 | R DX DXN   |
| 3-1/2                | 2.250                 | F          |
|                      | 2.312                 | DX         |
|                      | 2.562                 | F R        |
|                      | 2.750                 | F R DX DXN |
|                      | 2.812                 | F R DX DXN |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Box X Pin



Pin X Pin

## BIT RELEASE JOINT

The Bit Release Joint is used in operations for drilling out cement, cast iron bridge plugs, composite bridge plugs, and other drillable tools and thereby leaving the drill string intact as the production string. The spring loaded check valve prevents tubing back-flow during drill out. After drill out, a ball is dropped through the drill string and seats in the piston. Pressure applied to the drill string forces the drill bit to release and fall to the bottom of the hole.

### Special Features

- Simple design
- Dual float option
- Full opening after release
- High shear option available

### Product Specifications

| Thread Connections |                          | Tool OD<br>(inches) | Part<br>Number |
|--------------------|--------------------------|---------------------|----------------|
| Top                | Bottom                   |                     |                |
| 2-3/8 EUE          | 2-3/8 REGULAR TOOL JOINT | 3.500               | 80120          |
| 2-7/8 EUE          | 2-7/8 REGULAR TOOL JOINT | 3.750               | 80125          |
| 4" IF TOOL JOINT   | 4-1/2 REGULAR TOOL JOINT | 6.500               | 80145          |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## SAFETY JOINT - SHEAR, ROTATIONAL & SWIVEL SHEAR

The Safety Joint allows positive release of the tubing string in completions where retrieval problems are anticipated. These safety joints are available in straight pull shear release, rotational release, and swivel shear release versions.

### Product Specifications - Shear Safety Joint

| Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|------------------|------------------|--------------------------------------|-------------|
| 1-1/4                | 2.060            | 1.25             | 1-1/4 NPT                            | 56912NPT    |
| 1.660                | 2.063            | 1.25             | 1.660 NUE                            | 56916N      |
| 1.900                | 2.300            | 1.50             | 1.900 NUE                            | 56919N      |
|                      | 2.500            | 1.50             | 1.900 EUE                            | 56919E      |
| 2-3/8                | 3.063            | 2.00             | 2-3/8 EUE                            | 56920K      |
| 2-7/8                | 3.688            | 2.50             | 2-7/8 EUE                            | 56927K      |
| 3-1/2                | 4.500            | 3.00             | 3-1/2 EUE                            | 56935K      |
| 4                    | 5.000            | 3.50             | 4" EUE                               | 56940K      |
| 4-1/2                | 5.560            | 4.00             | 4-1/2 EUE                            | 56945K      |
| 5                    | 5.560            | 4.50             | 5" LTC                               | 56950K      |
| 5-1/2                | 6.050            | 4.67             | 5-1/2 LTC                            | 56955K      |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Shear  
Safety Joint



Rotational  
Safety Joint



Swivel Shear  
Safety Joint

### Product Specifications - Rotational Safety Joint

| Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|------------------|------------------|--------------------------------------|-------------|
| 1.660                | 2.250            | 1.38             | 1.660 NUE                            | 56816N      |
| 1.900                | 2.500            | 1.61             | 1.900 EUE                            | 56819       |
| 2-3/8                | 3.060            | 2.00             | 2-3/8 EUE                            | 56820       |
| 2-7/8                | 3.690            | 2.50             | 2-7/8 EUE                            | 56827EH     |
| 3-1/2                | 4.250            | 3.00             | 3-1/2 NUE                            | 56835       |
|                      | 4.500            | 3.00             | 3-1/2 EUE                            | 56835E      |
| 4-1/2                | 5.200            | 4.00             | 4-1/2 EUE                            | 56845-BAG   |
|                      | 5.000            | 4.00             | 4-1/2 LTC                            | 56845LTC    |

**OPTIONS:** RH (Right-Hand Release), LH (Left-Hand Release)

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

### Product Specifications - Swivel Shear Safety Joint

| Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|------------------|------------------|--------------------------------------|-------------|
| 2-3/8                | 3.060            | 2.00             | 2-3/8 EUE                            | 56320       |
| 2-7/8                | 3.690            | 2.50             | 2-7/8 EUE                            | 56327E      |
| 3-1/2                | 4.500            | 3.00             | 3-1/2 EUE                            | 56335       |
| 4-1/2                | 5.560            | 4.00             | 4-1/2 EUE                            | 56345       |
|                      |                  |                  | 4-1/2 LTC                            | 56345-XBCA  |
|                      | 5.000            | 3.92             | 4-1/2 LTC                            | 56346-XBAC  |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## PUMP-OUT PLUG

The Pump-Out Plug is available with a variety of threads allowing installation to the bottom of the tubing string to isolate the tubing from the annulus. To remove the plug, pressure is applied to the tubing and the Pump-Out Plug is removed to allow full opening. The pump-out pressure value is easily adjusted in the field by adding or removing shear screws. Also available with ball seat.

### Special Features

- Ball seat available
- Adjustable shear value (high shear available)
- Special Pump-Out Plug designs available



Pump-Out Plug  
w/ Shear Screws

### Product Specifications

| Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connection Box Up | Part Number |
|----------------------|------------------|------------------|--------------------------|-------------|
| 1.050                | 1.660            | -                | 1.050 EUE                | 59710E      |
| 1.315                | 1.900            | 1.20             | 1.315 EUE                | 59713E      |
| 1.660                | 2.062            | 1.38             | 1.660 NUE                | 59716N      |
|                      | 2.200            | 1.38             | 1.660 EUE                | 59716E      |
| 1.900                | 2.500            | 1.50             | 1.900 EUE                | 59719E      |
|                      | 2.200            | 1.50             | 1.900 NUE                | 59719N      |
| 2-3/8                | 3.060            | 2.00             | 2-3/8 EUE                | 59720E      |
| 2-7/8                | 3.670            | 2.50             | 2-7/8 EUE                | 59727E      |
| 3-1/2                | 4.500            | 3.46             | 3-1/2 EUE                | 59735E      |
|                      |                  | 2.88             | 3-1/2 EUE                | 59736E      |
| 4-1/2                | 5.560            | 4.00             | 4-1/2 EUE                | 59745E      |
|                      |                  |                  | 4-1/2 LTC                | 59745LTC    |
| 5-1/2                | 6.000            | 5.13             | 5-1/2 LTC                | 59755LTC    |
| 6-5/8                | 7.390            | 6.23             | 6-5/8 LTC                | 59766LTC    |
| 7                    | 7.650            | 6.60             | 7" LTC                   | 59770LTC    |
| 8-5/8                | 9.620            | 8.18             | 8-5/8 LTC                | 59786LTC    |
| 9-5/8                | 10.620           | 9.17             | 9-5/8 LTC                | 59796LTC    |

**OPTIONS:** Available with high shear, also with ball and ball seat.

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Pump-Out Plug  
w/ Shear Screws  
and Ball Seat

## DOWNHOLE TUBING/CASING SWIVEL

The Downhole Tubing/Casing Swivel isolates tools, casing, or tubing from rotation above. Bronze bearing rings insure smooth rotation under load. Simple design allows for easy tool redress.

### Special Features

- Simple design for easy redress
- Full casing/tubing ID

### Product Specifications - Tubing Swivel

| Tubing Size (inches) | Swivel OD (inches) | Swivel ID (inches) | Thread Connection Box Up / Pin Down | Part Number |
|----------------------|--------------------|--------------------|-------------------------------------|-------------|
| 1.900                | 2.750              | 1.43               | 1.900 EUE / 1.900 NUE               | 83019       |
| 2-3/8                | 3.580              | 2.00               | 2-3/8 EUE                           | 83021       |
|                      | 3.750              | 2.00               | 2-3/8 EUE                           | 83020       |
| 2-7/8                | 4.400              | 2.50               | 2-7/8 EUE                           | 83025       |
| 3-1/2                | 5.000              | 3.00               | 3-1/2 EUE                           | 83035       |
| 4                    | 4.500              | 3.38               | 4" NUE                              | 83040       |
| 4-1/2                | 5.750              | 4.00               | 4-1/2 LTC                           | 83045       |
|                      | 6.000              | 4.00               | 4-1/2 EUE                           | 83046       |
| 5                    | 5.875              | 4.50               | 5" LTC                              | 83051       |
|                      | 6.250              | 4.50               | 5" LTC                              | 83050       |
| 5-1/2                | 6.450              | 4.80               | 5-1/2 LTC                           | 83056       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Tubing Swivel

### Product Specifications - Casing Swivel

| Casing OD (inches) | Swivel OD (inches) | Swivel ID (inches) | Thread Connection Box Up / Pin Down | Part Number |
|--------------------|--------------------|--------------------|-------------------------------------|-------------|
| 7                  | 8.500              | 6.25               | 7" LTC                              | 48070       |
|                    |                    | 6.50               | 7" BUTTRESS                         | 48070B      |
| 9-5/8              | 12.000             | 9.00               | 9-5/8 LTC                           | 48095       |
|                    |                    |                    | 9-5/8 BUTTRESS                      | 48095B      |
|                    |                    |                    | 9-5/8 LTC                           | 48013       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Casing Swivel

## SURFACE TUBING SWIVEL

The Surface Tubing Swivel allows tubing to freely rotate under load during well service operations. Roller thrust bearings ensure smooth rotation under pressure and tensile loads. Simple design allows for easy tool redress. The Top Sub is designed to accommodate 2-3/8" and 2-7/8" Elevators. The Bottom Nipple has 2-3/8" EUE threads and a crossover to 2-7/8" EUE to accommodate either thread.

### Special Features

- Easily adaptable to 2-3/8" and 2-7/8" EUE tubing
- Rugged but compact design that is time tested

### Product Specifications

| Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|------------------|------------------|--------------------------------------|-------------|
| 2-7/8                | 6.50             | 2.38             | 2-7/8 EUE                            | 832K27      |



## CROSS FLOW ASSEMBLY

The Cross Flow Assembly is designed to allow for a fluid path between the casing annulus and tailpipe below a packer. It primarily is used for gaslift operations where gas from above a set retrievable production packer is directed through the packer and tailpipe to be used to lift produced fluids. The produced fluids and gas are routed through the Cross Flow Assembly into the production string. The ported sub on bottom allows long tailpipe sections below the packer since the weight of the tailpipe hangs on the bottom of the packer.

The Cross Flow Assembly is designed to screw into the top of a standard retrievable production packer (such as an ASI-X Packer). The setting and retrieving of the production packer is not altered by the addition of the Cross Flow Assembly.

### Special Features

- Simple design
- Easily re-dressed
- Adaptable to different retrievable packers

### Product Specifications

| Tubing Size (inches) | Production ID (inches) | Vent ID (inches) | Thread Connection Box Up / Pin Down | Part Number  |
|----------------------|------------------------|------------------|-------------------------------------|--------------|
| 1.900                | 1.19                   | 0.62             | 1.900 NUE w/1/4" NPT PORT           | 67646        |
| 2-3/8                | 1.12                   | 0.62             | 2-3/8 EUE                           | 67645RCF     |
| 2-7/8                | 1.63                   | 0.88             | 2-7/8 EUE / 2-3/8 EUE               | 67656        |
| 3-1/2                | 2.00                   | 2.00             | 3-1/2 EUE                           | 67670-3500EU |
| 4                    | 3.50                   | 2.00             | 2-3/8 NUE / 4" NUE                  | 67640        |
|                      | 2.00                   | 2.00             | 4" NUE                              | 67670-4000NU |
| 5                    | 2.50                   | 2.39             | 2-3/8 EUE                           | 67650LCFV    |
| 5-1/2                | 1.25                   | 0.88             | 2-7/8 EUE                           | 67657        |
|                      |                        |                  |                                     | 67656-BBA    |
|                      |                        |                  |                                     | 67656-XBAC   |
| 5-3/4                | 2.00                   | 2.00             | 4" NUE                              | 67640LCF     |
| 7                    | 1.25                   | 1.25             | 3-1/2 EUE                           | 67673        |
|                      | 2.50                   | 2.50             | 5" LTC                              | 67650LCF     |
|                      |                        |                  | 2-3/8 EUE                           | 67650LCF-E   |
|                      | 1.25                   | 1.25             | 3-1/2 EUE                           | 67673-E      |
|                      |                        |                  |                                     | 67673-XBAC   |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

Cross Flow Assembly

Cross Flow Assembly with ASI-X Packer



## EXPANSION JOINT

The Expansion Joint is used to allow expansion and contraction during injection or production operations. They are also used between packers to allow stroke for setting and releasing packers and provides for rotation through the tool. Available with optional seals for low to high temperatures and in lengths up to twenty (20) feet.

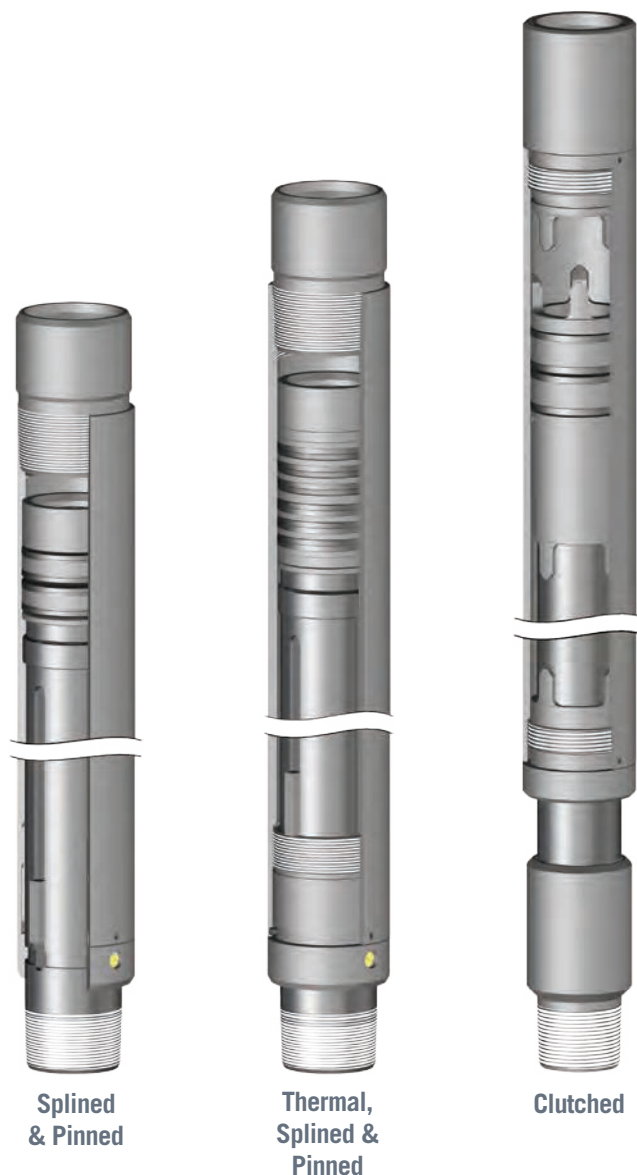
### Special Features

- Pinned (P/N 537xx)
- Splined (Keyed) (P/N 538xx)
- Clutched (P/N 539xx)
- Thermal (P/N 532xx)
  - Combinations of two or more options available in one tool.

### Product Specifications

| Tubing Size<br>(inches) |
|-------------------------|
| 1.900                   |
| 2-3/8                   |
| 2-7/8                   |
| 3-1/2                   |
| 4                       |
| 4-1/2                   |
| 5                       |
| 5-1/2                   |
| 7                       |
| 9-5/8                   |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## PUMP-OUT CEMENTING SLEEVE

The Pump-Out Cementing Sleeve is used for cementing tubing strings in both cased and open holes. It allows for internal parts to be pumped out after the cementing process leaving a full open bore with no loss of tubing strength. It is available in a variety of materials. A basket or packer placed below the sleeve provides a seal-point for pumping cement up the outside of the tubing string.

### Special Features

- Full ID after pump out
- Simple design
- Adjustable shear value

### Product Specifications

| Size (inches) | Tool OD (inches) | Ball Seat ID (inches) | ID After Pump Out (inches) | Thread Connections Box Up / Pin Down | Part Number |
|---------------|------------------|-----------------------|----------------------------|--------------------------------------|-------------|
| 2-3/8         | 3.250            | 1.00                  | 1.93                       | 2-3/8 EUE                            | 22020       |
|               |                  |                       |                            |                                      | 22021       |
| 2-7/8         | 3.750            | 1.25                  | 2.40                       | 2-7/8 EUE                            | 22027       |
| 3-1/2         | 4.410            | 1.25                  | 2.90                       | 3-1/2 EUE                            | 22035       |
| 4             | 4.630            | 1.25                  | 3.45                       | 4" NUE                               | 22040       |
| 4-1/2         | 5.500            | 1.25                  | 3.97                       | 4-1/2 LTC / 4-1/2 STC                | 22045       |
| 5-1/2         | 6.130            | 1.25                  | 4.63                       | 5-1/2 LTC                            | 22055       |

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## TYPE E VALVE

The Type E Valve converts double-grip mechanical packers like the ASI-X Packer into Retrievable Bridge Plugs. The valve is in the open position when running and closed by left-hand rotation after setting the packer. When retrieving, the valve is opened by the rotation required to release the packer. Safety dogs lock the tool and valve together during running and retrieving.

### Special Features

- Valve locked closed
- Bonded seals
- Equalized before releasing packer
- Safety interlock when running and retrieving

### Product Specifications

| Size (inches) | Tool OD (inches) | Thread Connection Pin Down | Part Number |
|---------------|------------------|----------------------------|-------------|
| 1.900         | 2.130            | 1.900 NUE                  | 12435       |
| 2-3/8         | 3.094            | 2-3/8 EUE                  | 12445       |
| 2-7/8         | 3.094            | 2-7/8 EUE                  | 12455       |
| 3-1/2         | 4.344            | 3-1/2 EUE                  | 12473       |
| 4-1/2         | 4.750            | 4-1/2 EUE                  | 12495       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



## RUNNING TOOL - FOR TYPE E VALVE

The Running Tool for the Type E Valve is designed to be used with the Type E Valve to convert double grip mechanical packers (like the ASI-X Packer) into a retrievable bridge plug. This Running Tool features cutting teeth on the running shoe for breaking up compacted trash for easy removal. Running shoes are available in different OD sizes to aid for centering the running tool in larger casing if needed.

### Product Specifications

| Casing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connection Box Up | Part Number |
|----------------------|------------------|------------------|--------------------------|-------------|
| 3-1/2                | 2.750            | 1.16             | 1.900 NUE                | 12435RT     |
| 4-1/2                | 3.680            | 1.78             | 2-3/8 EUE                | 12444RT     |
|                      | 3.750            | 1.78             | 2-3/8 EUE                | 12445RT     |
| 5-1/2                | 4.500            | 1.78             | 2-7/8 EUE                | 12455RT     |
|                      |                  |                  | 2-3/8 EUE                | 12456RT     |
| 7                    | 5.880            | 1.78             | 2-7/8 EUE                | 12470RT     |
| 10-3/4               | 9.700            | 3.00             | 4-1/2 EUE                | 12401RT     |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



# ANNULUS OPERATED TUBING DRAIN

The Annulus Operated Tubing Drain is an annulus pressure operated drain valve that can be opened to allow fluid to drain from the tubing on a trip out. Shear screws hold the valve closed until enough pressure is applied to the annulus to shear the screws. Once the valve is opened, it cannot be closed.



## Product Specifications

| Tubing Size (inches) | Tool OD (inches) | Tool ID (inches) | Thread Connections Box Up / Pin Down | Part Number |
|----------------------|------------------|------------------|--------------------------------------|-------------|
| 2-7/8                | 3.750            | 2.50             | 2-7/8 EUE                            | 55025       |
| 3-1/2                | 4.750            | 3.00             | 3-1/2 EUE                            | 55035       |

**NOTE:** All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

## D&L ON/OFF TOOL

The D&L On/Off Tool is a fully machined, weld-free tubing seal receptacle allowing isolation of a lower zone using a wireline blanking plug. The tubing string can then be removed from the well. When re-run, the tubing string automatically re-engages to the stinger, and the blanking plug can be retrieved by wireline.

The D&L On/Off Tool is run above an ASI-X Packer, a VSI-X Packer or a Permapak Seal Bore Packer with a latch seal mandrel.

The D&L On/Off Tool is fully compatible with D&L's existing DT-2 Stingers and On/Off Tool Top Subs. Utilizing a common J-body among all casing sizes (per connection / stinger size) translates to less inventory items for customers to stock. Interchangeable milling shoes are available in all casing sizes to quickly and easily convert from one size to another.

### Special Features

- Fully machined, weld-free design
- Common J-body = less inventory to stock
- Improved manufacturability = better availability
- Compatible with existing D&L DT-2 tools and accessories



### Product Specifications

| Stinger Size<br>(Pin Down) | Tool Thread<br>Connection<br>(Box Up) | J-body/Cover<br>Part Numbers          | Casing Size<br>(inches) | Shoe Part<br>Number | Shoe OD<br>(In.) | Part<br>Number |
|----------------------------|---------------------------------------|---------------------------------------|-------------------------|---------------------|------------------|----------------|
| 1.050                      | 1.900                                 | 51227340                              | 2-7/8                   | -                   | 2.250            | 51228          |
|                            |                                       | 51237340                              | 3-1/2 (12.95#)          | -                   | 2.500            | 51237          |
| 1.900 NUE                  | 1.900                                 | 51235340                              | 3-1/2                   | -                   | 2.750            | 51235          |
| 1.900 EUE                  | 1.900                                 | 51540340A/<br>51540340B<br>(3.250 OD) | 4                       | 51540340C           | 3.250            | 51540          |
|                            |                                       |                                       | 4-1/2<br>(18.8#)        | 51542340C           | 3.437            | 51542          |
|                            |                                       |                                       | 4-1/2<br>(15.1 - 16.9#) | 51543340C           | 3.580            | 51543          |

## D&L On/Off Tool Product Specifications (continued)

| Stinger Size<br>(Pin Down) | Tool Thread<br>Connection<br>(Box Up) | J-body/Cover<br>Part Numbers          | Casing Size<br>(inches) | Shoe Part<br>Number | Shoe OD<br>(In.) | Part<br>Number |
|----------------------------|---------------------------------------|---------------------------------------|-------------------------|---------------------|------------------|----------------|
| 2-3/8                      | 2-3/8                                 | 51545340A/<br>51545340B<br>(3.656 OD) | 4-1/2                   | 51544340C           | 3.656            | 51544          |
|                            |                                       |                                       |                         | 51545340C           | 3.750            | 51545          |
|                            |                                       |                                       | 5                       | 51552340C           | 4.000            | 51552          |
|                            |                                       |                                       |                         | 51550340C           | 4.250            | 51550          |
|                            |                                       |                                       | 5-1/2                   | 51554340C           | 4.375            | 51554          |
|                            |                                       |                                       |                         | 51555340C           | 4.500            | 51555          |
|                            |                                       |                                       | 6-5/8                   | 51565340C           | 5.500            | 51565          |
|                            |                                       |                                       | 7                       | 51570340C           | 5.875            | 51570          |
| 2-7/8                      | 2-7/8                                 | 51556340A/<br>51556340B<br>(4.406 OD) | 5-1/2                   | 51551340C           | 4.406            | 51551          |
|                            |                                       |                                       |                         | 51556340C           | 4.500            | 51556          |
|                            |                                       |                                       | 6-5/8                   | 51566340C           | 5.500            | 51566          |
|                            |                                       |                                       | 7                       | 51571340C           | 5.875            | 51571          |
|                            |                                       |                                       | 7-5/8                   | 51575340C           | 6.375            | 51575          |
|                            |                                       |                                       | 8-5/8                   | 51585340C           | 7.500            | 51585          |
|                            |                                       |                                       | 9-5/8                   | 51595340C           | 8.250            | 51595          |
|                            |                                       |                                       | 11-3/4                  | 51511B340C          | 10.000           | 51511B         |
| 3-1/2                      | 3-1/2                                 | 51573340A/<br>51573340B<br>(5.250 OD) | 6-5/8                   | 51567340C           | 5.500            | 51567          |
|                            |                                       |                                       | 7                       | 51573340C           | 5.875            | 51573          |
|                            |                                       |                                       | 7-5/8                   | 51576340C           | 6.375            | 51576          |
|                            |                                       |                                       | 8-5/8                   | 51586340C           | 7.500            | 51586          |
|                            |                                       |                                       | 9-5/8                   | 51596340C           | 8.250            | 51596          |
| 4-1/2                      | 4-1/2                                 | 51577340A/<br>51577340B<br>(6.375 OD) | 9-5/8                   | 51597340C           | 8.250            | 51597          |
|                            |                                       |                                       | 10-3/4                  | -                   | -                | 51501          |
|                            |                                       |                                       | 13-3/8                  | 51513340C           | 11.875           | 51513          |

## PROTENSION SAFE TENSION TOOL

The patented ProTension™ Safe Tension Tool (STT) was designed as a safety tool to eliminate the potential for loss of well control when pulling a tubing string into tension. Additionally, it allows operators to safely set tubing anchors and other downhole tools in tension.

The ProTension™ STT is ideally suited for oil wells that will eventually require artificial lift. The tool ensures continuous well control when setting the production string in tension. When installed between the tubing hanger and production tubing, tension can be pulled into the work string without removing the blowout preventer (BOP) or overstretching the tubing.

The ProTension™ STT eliminates the need to use Low Line or Shallow Well Slips and helps protect personnel from high-tension loads. Once the tubing hanger is landed (isolating the annulus), tension is pulled into the tubing string and safely locked into place without losing well control. The ProTension™ STT allows for free rotation of the tubing for setting downhole tools in the string.

### Special Features

- Allows tension to be pulled or released from tubing while the BOP or wellhead is still safely installed.
- Eliminates the need to overstretch tubing.
- Snubbing compatible for tensioning tubing string while under pressure
- Sour service coating available (Nickel)
- Reduced OD versions available

### Product Specifications

| Tubing Size (inches) | Thread Connection | Inches of Stretch Range | Closed Length (inches) | Extended Length (inches) | J Spacing (inches) | No. of J Hooks | Standard OD (inches) | Tool ID (inches) | Part Number |
|----------------------|-------------------|-------------------------|------------------------|--------------------------|--------------------|----------------|----------------------|------------------|-------------|
| 2-3/8                | 2-3/8 EUE         | 10-30                   | 60.05                  | 90.05                    | 5.00               | 5              | 3.650                | 2.00             | 41720-30    |
|                      |                   | 20-45                   | 75.05                  | 120.05                   | 5.00               | 6              | 3.650                | 2.00             | 41720-45    |
|                      |                   | 30-60                   | 90.05                  | 150.05                   | 5.00               | 7              | 3.650                | 2.00             | 41720-60    |
| 2-7/8                | 2-7/8 EUE         | 10-30                   | 60.42                  | 90.42                    | 5.00               | 5              | 4.500                | 2.44             | 41727-30    |
|                      |                   | 20-45                   | 75.42                  | 120.42                   | 5.00               | 6              | 4.500                | 2.44             | 41727-45    |
|                      |                   | 30-60                   | 90.42                  | 150.42                   | 5.00               | 7              | 4.500                | 2.44             | 41727-60    |

NOTE: All tools include standard HSN trim. Other sizes, materials and connections available upon request.

\* Retrieving Tools sold separately.





**LEG CY**  
TOOL & RENTAL

(701) 444-3699 | [legacytool.net](http://legacytool.net)