A) DESCRIPTION

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.

B) SPECIFICATION GUIDE

CASING			TOOL		THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
SIZE (INCHES)	**WEIGHT** (LBS/FT)	**RECOMMENDED HOLE SIZE** (INCHES)	**GAGE OD** (INCHES)	**NOMINAL ID** (INCHES)		
7-5/8	24.0 - 29.7	6.875 – 7.025	6.672	2.50	2-7/8 EUE	61375RS 61375RSH[1] 61375RSV[2]
	33.7 – 39.0	6.625 – 6.765	6.453 6.499*	2.50	2-7/8 EUE	61376RS 61376RSH[1] 61376RSV[2]

*Maximum OD across retracted drag blocks.

Elastomer Trim Options: [1]HSN, [2]Viton

NOTE$_1$: Tools listed are right-hand set / straight pick-up.

DIFFERENTIAL PRESSURE (MAX)	HANGING WEIGHT (MAX)	TENSILE LOAD THRU TOOL (MAX)	TORQUE THRU TOOL (MAX)
10,000 PSI	133,500 LBS	133,500 LBS	2,000 FT-LBS

*Casing must be cemented for this load rating.

CAUTION$_1$: Before running the tool, check the pressure affected areas chart and consider other effects to be certain that the unloader will remain closed during operation.

CAUTION$_2$: If the HD Packer is run with a retrievable bridge plug, make sure the bridge plug J-slot is compatible with the J-slot on the packer. Whichever direction you set the plug, the packer should set in the opposite direction.

C) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION$_3$: D&L ships tool connections made-up hand-tight—labeled with hand-tight tape on the tool—unless stated otherwise. Properly tighten connections before operating tool (Fig. 1).

Fig. 1

GENERAL THREAD CONNECTION TORQUE RECOMMENDATIONS			
STUB ACME / ACME THREADS	**INTERNAL TAPERED TUBING THREADS**		**PREMIUM THREADS**
	UP TO 2-3/8"	**GREATER THAN 2-3/8"**	
600 – 800 FT-LBS	600 – 800 FT-LBS	800 – 1,200 FT-LBS	Consult thread manufacturer's recommendations.

D & L OIL TOOLS
P.O. BOX 52220 TULSA, OK 74152
PHONE: (800) 441-3504 www.dloiltools.com

C) PRE-INSTALLATION INSPECTION PROCEDURES (cont'd)

GENERAL SCREW TORQUE RECOMMENDATIONS									
SCREW SIZE (INCHES)	#6	#8	#10	1/4	5/16	3/8	7/16	1/2	5/8 and larger
TORQUE RANGE (INCH-POUNDS)	5 – 8	10 – 15	18 – 25	25 – 40	50 – 80	90 – 135	160 – 210	250 – 330	450 - 650

Before first use, D&L recommends disassembly and inspection of the tool unless stated otherwise. Ensure parts have not been damaged during shipping. Replace damaged parts with D&L replacement parts. Contact D&L sales for replacement part information.

Re-assemble the tool after inspection. Install parts in the correct order and orientation. Properly tighten connections.

Before re-using the tool, D&L recommends disassembly and inspection of the tool. Clean parts and ensure parts are in good working condition. Replace worn or damaged parts with D&L replacement parts.

When redressing the tool, D&L recommends replacement of all seals, elements, o-rings, shear screws, etc. Contact D&L sales for redress kit and/or other replacement part information.

D) SETTING PROCEDURES

CAUTION$_4$: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

Run to setting depth. The unloader remains open while running in. Pick up the work string and rotate 1/4 turn at the packer. Slack off weight and set down on the packer to set the slips, close the unloader and compress the packing elements. A minimum weight of 15,000 lbs. at the packer is required to pack off the elements.

CAUTION$_5$: Run the tool slowly, as with any hold down type packer, to help prevent dulling of the hydraulic buttons.

E) RELEASING PROCEDURES

Pick up on the work string to open the unloader, allowing time for the tubing and casing pressure to equalize. Refer to Pressure Affected Area Guide to determine weight in addition to pipe weight required to pick up on packer. Continued upward movement of the work string unsets the slips, relaxes the packing elements and re-jays the packer. The tool may now be moved and reset, or pulled from the well.

F) STORAGE RECOMMENDATIONS

When preparing the tool for storage, follow the Pre-Installation Inspection Procedures. Re-assemble the tool with connections hand-tight only and in running position if applicable. Elastomers should be in a relaxed state—free from tension, compression, and other stresses that could cause deformation.

Store the tool, if possible, in an enclosed, temperature and humidity controlled environment. Avoid excessively high temperatures over long periods of time. Shield elastomeric parts from ultraviolet light sources. Keep tool dry and protected from condensation. Do not store in contact with or near volatile or corrosive chemicals. Do not store near ozone generating equipment or operations such as welding.

G) PRESSURE AFFECTED AREAS GUIDE

When set downhole, the packer mandrel is subjected to a force created by differential pressure above or below the packer that acts on the pressure affected area (i.e., the piston effect). Depending on the tubing size and weight and the seal area of the packer the force created by differential pressure acts upwards or downwards on the packer mandrel. An upward force, designated as a negative (-) value, acts to push the packer mandrel up hole and must be accounted for to ensure that the packer remains set. A downward force, designated as a positive value, acts to push the packer mandrel down hole and must be accounted for when releasing the packer. Other factors (e.g., tubing movement due to temperature change) must be considered separately to determine all the forces acting on the packer.

PACKER SIZE (IN)	TUBING PIPE TO PACKER			PRESSURE AFFECTED AREA (IN^2)			
	SIZE (IN)	WEIGHT (LB/FT)	ID (IN)	ABOVE		BELOW	
7-5/8	2.375	4.00	2.041	2.764	(DOWN)	3.920	(DOWN)
		4.70	1.995	2.764	(DOWN)	3.774	(DOWN)
		5.95	1.867	2.764	(DOWN)	3.386	(DOWN)
	2.875	6.50	2.441	0.702	(DOWN)	5.328	(DOWN)
		7.90	2.323	0.702	(DOWN)	4.886	(DOWN)
		8.70	2.259	0.702	(DOWN)	4.656	(DOWN)
	3.500	7.70	3.068	-2.427	(UP)	8.041	(DOWN)
		9.30	2.992	-2.427	(UP)	7.679	(DOWN)
		10.20	2.922	-2.427	(UP)	7.354	(DOWN)
		12.95	2.750	-2.427	(UP)	6.588	(DOWN)
	4.000	9.50	3.548	-5.373	(UP)	10.535	(DOWN)
		11.00	3.476	-5.373	(UP)	10.138	(DOWN)
	4.500	12.75	3.958	-8.711	(UP)	12.952	(DOWN)

Example: Consider a 7-5/8" X 2-7/8" HD Packer set on 2.875", 7.90 lb/ft tubing with a differential pressure of 3,000 PSI in the annulus around the tubing above the packer. What is the force acting on the seal area of the mandrel?

To calculate the force (lbs) acting on the seal area of the mandrel, refer to the Pressure Affected Area Guide for a 7-5/8" X 2-7/8" HD Packer run on 2.875", 7.90 lb/ft tubing. In this example, the differential pressure from above the packer acts on the seal area of the packer mandrel across a pressure affected area of 0.702 in^2. Multiplying the differential pressure (3,000 PSI) by the pressure affected area (0.702 in^2) results in a force of 2,106 lbs. The piston effect on the packer mandrel is a downward force of 2,106 lbs.

H) ELASTOMER TRIM TEMPERATURE GUIDE

NITRILE (STD)			
TEMPERATURE RANGE (F°)	DUROMETER		
	END	MIDDLE	END
40° - 125°	80	70	80
125° - 250°	90	70	90
150° - 250°	90	80	90
250° +	Contact D&L Sales		

RUBBER TYPE	TEMPERATURE RANGE (F°)
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON	100° - 350°F

I) RECOMMENDED TOOLS

I-1) HAND TOOLS

- VISE
- GLOVES
- ALLEN WRENCHES
- TAPE MEASURE
- O-RING PICK
- BAR
  - 1/2-INCH
  - 3/4-INCH
- PAINT BRUSH, 2-INCH
- PIPE WRENCH, 3-FT (2 EA)
- "CHEATER" PIPE, 4-FT LONG
- ADJUSTABLE WRENCH, 12-INCH
- CORDLESS DRILL, 18V
- SNAP RING SPREADER PLIERS
- ALIGNING PUNCH
- SCREWDRIVER SET, FLAT-TIPPED
- SOCKET SETS
  - 3/8-INCH DRIVE
  - 1/2-INCH DRIVE
- HAMMERS
  - SLEDGE
  - BALL PEEN
  - DEAD BLOW

I-2) SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT010110
T2	1	BUTTON REMOVAL TOOL	AT-BRT000
T3	1 GAL	KOPR-KOTE® ANTI-SEIZE LUBRICANT	DL-KOPR-KOTE-1G

J) DISASSEMBLY

J-1) Clamp top sub (1) in vise.

J-1.1) Unscrew and remove set screws (35) from J-pin bottom sub (23). Move J-body (20) as needed to access set screws (35).

J-1.2) Unscrew and remove J-pin bottom sub (23) from inner mandrel (2).

NOTE2: Drag block body assembly must be free to rotate.

J-1.2.1) Remove o-ring (40) from J-pin bottom sub (23).

J-1.3) Compress drag blocks (22) with drag block assembly tool (T1).

J-1.4) Unscrew and remove set screws (34) from drag block body (18). Rotate drag block retainer (21) as needed to access set screws (34).

J-1.5) Unscrew and remove J-body (20) from drag block body (18) (**NOTE3**: Left-hand threads).

J-1.5.1) Remove retaining ring (31) from J-body (20).

J-1.6) Remove drag block retainer (21) from drag block body (18).

J-1.7) Release drag blocks (22). Remove drag blocks (22) and drag block springs (3) from drag block body (18).

J-1.8) Unscrew and remove rubber mandrel cap (19) from rubber mandrel (11).

NOTE4: For added leverage, insert a rod through rubber retainer (15) and rubber mandrel (11) as needed.

J-1.9) Remove drag block body assembly and disassemble:

J-1.9.1) Unscrew and remove cap screws (38) from drag block body (18).

J-1.9.2) Wedge lower slips (17) outward (if needed). Remove lower slip support (37) from drag block body (18).

J-1.9.3) Remove wedges (if needed). Remove lower slips (17) and lower slip springs (25) from drag block body (18).

J-1.10) Unscrew and remove lower cone (16) from rubber retainer (11).

J-1.11) Unscrew rubber mandrel (11) from valve body (36).

J-1.12) Remove rubber mandrel assembly and disassemble:

J-1.12.1) Remove elements (13, 14), rubber spacers (12) and rubber retainer (15) from rubber mandrel (11).

J-1.12.2) Unscrew and remove gage ring (29) from rubber retainer (15).

J) DISASSEMBLY (cont'd)

J-1.13) Unscrew and remove gage ring (29) from valve body (36).

J-1.14) Unscrew and remove valve body (36) from central body (10).

J-1.14.1) Remove o-ring (42) from valve body (36).

J-1.15) Unscrew and remove central body (10) from hold down body (4).

J-2) Unclamp and remove top sub (1) from vise. Clamp lower end of inner mandrel (2) in vise.

CAUTION$_6$: Do NOT wrench or clamp on seal surface.

J-2.1) Unscrew and remove set screws (35) from top sub (1).

J-2.2) Unscrew and remove top sub (1) from inner mandrel (2).

J-2.2.1) Remove o-ring (41) from top sub (1).

J-2.3) Unscrew and remove hold down extension (8) from hold down body (4).

J-2.3.1) Remove o-rings (44) from hold down extension (8).

J-2.4) Unscrew and remove hold down cap (7) from hold down body (4).

J-2.5) Move strap retainer (26) downwards temporarily out of way.

J-2.6) Unscrew and remove flat head cap screws (33) from hold down body (4).

J-2.7) Remove hold down straps (9) from hold down body (4).

J-2.8) Remove hold down button springs (6) from hold down buttons (5).

J-2.9) Remove hold down buttons (5) from hold down body (4) with button removal tool (T2).

J-2.9.1) Remove o-rings (39) from hold down buttons (5).

J-2.10) Remove hold down body (4) from inner mandrel (2).

J-2.10.1) Remove o-rings (42, 46) from hold down body (4).

J-2.11) Remove strap retainer (26) from inner mandrel (2).

J-2.12) Unscrew and remove compensating mandrel (30) from seal receptacle (27).

CAUTION$_6$: Do NOT wrench or clamp on seal surface.

J-2.13) Remove compensating piston (32) from compensating mandrel (30).

J-2.13.1) Remove o-rings (45, 46) from compensating piston (32).

J-3) Unclamp and remove inner mandrel (2) from vise.

J-3.1) Remove seal receptacle (27) from inner mandrel (2).

J-3.1.1) Unscrew and remove seal retainer (28) from seal receptacle (27).

J-3.1.2) Remove o-rings (42, 43) and seal ring (24) from seal receptacle (27).

K) ASSEMBLY

NOTE$_5$: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, orientation and tighten/torque all connections properly.

CAUTION$_7$: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs (Fig. 2).

NOTE$_6$: Apply KOPR-KOTE® anti-seize lubricant (T3) on STUB ACME and drill pipe connections when making up connections.

K-1) Assemble seal receptacle assembly and install:

K-1.1) Install o-rings (42, 43) into o-ring grooves in seal receptacle (27).

K-1.2) Set seal ring (24) in place on seal receptacle (27).

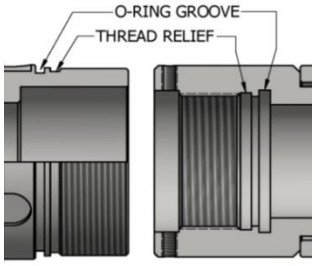


Fig. 2

K) ASSEMBLY (cont'd)

K-1.3) Screw seal retainer (28) onto seal receptacle (27).

CAUTION$_9$: Do not rip or tear seal ring during installation.

K-1.4) Install seal receptacle assembly onto inner mandrel (2).

K-2) Clamp lower end of inner mandrel (2) in vise.

CAUTION$_6$: Do NOT wrench or clamp on seal surface.

K-2.1) Assemble compensating mandrel assembly and install:

K-2.1.1) Install o-rings (45, 46) into o-ring grooves in compensating piston (32).

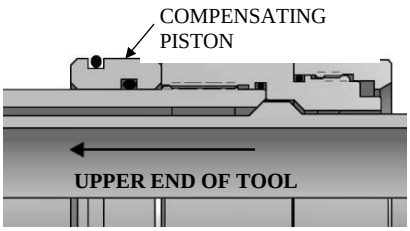


Fig. 3

K-2.1.2) Install compensating piston (32) onto compensating mandrel (30).

NOTE$_7$: Compensating piston MUST be installed in correct direction (Fig. 3).

CAUTION$_8$: Do not rip or tear o-ring during installation.

K-2.1.3) Screw compensating mandrel (30) into seal receptacle (27).

CAUTION$_8$: Do not rip or tear o-ring during installation.

K-2.2) Place strap retainer (26) onto inner mandrel (2) to be installed onto hold down body (4) in later step.

K-2.3) Assemble hold down body assembly and install:

K-2.3.1) Install o-rings (42, 46) into o-ring grooves in hold down body (4).

K-2.3.2) Install o-rings (44) into o-ring grooves in hold down extension (8).

K-2.3.3) Screw hold down extension (8) into hold down body (4).

K-2.3.4) Install hold down body assembly onto inner mandrel (2).

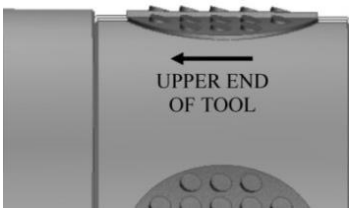


Fig. 4

K-2.4) Assemble hold down buttons (5) and install:

K-2.4.1) Install o-rings (39) into o-ring grooves in hold down buttons (5).

K-2.4.2) Install hold down buttons (5) into hold down body (4) (Fig. 4).

CAUTION$_8$: Do not rip or tear o-rings during installation.

K-2.4.3) Align slots in hold down buttons (5) with slot in hold down body (9). Install hold down button springs (6) into hold down buttons (5).

NOTE$_8$: Uses three (3 ea) hold down button springs per hold down button (Fig. 5).

K-2.4.4) Set hold down straps (9) in slots in hold down buttons (5) and hold down body (4) (Fig. 5).

K-2.4.5) Screw flat head cap screws (33) into hold down body (4) securing hold down straps (9) (Fig. 5).

K-2.5) Install strap retainer (26) onto hold down body (4) capturing ends of hold down straps (9).

K-2.6) Screw hold down cap (7) onto hold down body (4) capturing ends of hold down straps (9).

K-2.7)Install o-ring (41) into o-ring groove in top sub (1).

K-2.8) Screw top sub (1) onto inner mandrel (2).

CAUTION$_8$: Do not rip or tear o-ring during installation.

K-2.9) Screw set screws (35) into top sub (1).

K-3) Unclamp and remove inner mandrel (2) from vise. Clamp top sub (1) in vise.

K-3.1) Screw central body (10) onto hold down body (6).

CAUTION$_8$: Do not rip or tear o-ring during installation.


Fig. 5

K) ASSEMBLY (cont'd)

K-3.2) Install o-ring (42) into o-ring groove in valve body (36).

K-3.3) Screw valve body (36) into central body (10).

CAUTION$_8$: Do not rip or tear o-ring during installation.

K-3.4) Screw gage ring (29) onto valve body (36).

K-3.5) Assemble rubber mandrel assembly:

K-3.5.1) Screw gage ring (29) onto rubber retainer (15).

K-3.5.2) Install rubber retainer (15), rubber spacers (12), and elements (13, 14) onto rubber mandrel (11).

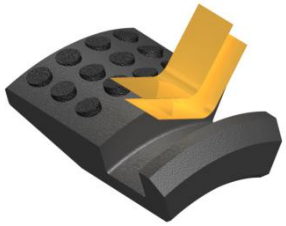


Fig. 6

K-3.5.3) Install rubber mandrel assembly onto inner mandrel (2).

K-3.5.4) Screw inner mandrel (11) into valve body (36).

CAUTION$_8$: Do not rip or tear o-ring during installation.

K-3.6) Screw lower cone (16) into rubber retainer (11).

K-3.7) Assemble drag block body assembly and install:

K-3.7.1) Install lower slips (17) and lower slip springs (25) into drag block body (18). Wedge slips outward.

NOTE$_9$: Uses two (2ea) slip springs per slip (Fig. 6).

K-3.7.2) Install lower slip support (37) into drag block body (18). Align threaded holes in drag block body (18) with holes in lower slip support (37).

K-3.7.3) Screw cap screws (38) into lower slip support (37). Remove wedges.

K-3.7.4) Install drag block body assembly onto rubber mandrel (11).

K-3.8) Screw rubber mandrel cap (19) onto rubber mandrel (11).

K-3.9) Install drag blocks (22) and drag block springs (3) in drag block body (18). Compress drag blocks (22) with drag block assembly tool (T1).

NOTE$_{10}$: Uses six (6ea) drag block springs per drag block (Fig. 7).

Fig. 7

K-3.10) Install drag block retainer (21) capturing ends of drag blocks (22).

K-3.11) Install retaining ring (31) onto J-body (20).

K-3.12) Install o-ring (40) into o-ring groove in J-pin bottom sub (23).

K-3.13) Screw J-body (20) into drag block body (18) (**NOTE$_3$**: Left-hand threads).

K-3.14) Screw set screws (34) into drag block body (18). Rotate drag block retainer (21) as needed to access threaded holes in drag block body (18). Release drag blocks (22).

K-3.15) Screw J-pin bottom sub (23) onto inner mandrel (2).

NOTE$_2$: Drag block body assembly must be free to rotate.

CAUTION$_8$: Do not rip or tear o-ring during installation.

K-3.16) Screw set screws (35) into J-pin bottom sub (23). Move J-body (20) as needed to access threaded holes in J-pin bottom sub (23).

K-4) Unclamp top sub (1) from vise and remove assembled tool.

L) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61375RS	P/N 61376RS
1	1	TOP SUB	DLMS110	61370615	
2	1	INNER MANDREL	DLMS110	61370215	
3	36	DRAG BLOCK SPRING	-	9101900	
4	1	HOLD DOWN BODY	DLMS110	61370320	
5	6	HOLD DOWN BUTTON W/ CARBIDE	DLMSSP	61375140C	
6	18	HOLD DOWN BUTTON SPRING	-	61370975	
7	1	HOLD DOWN CAP	DLMS110	61375370	61376370
8	1	HOLD DOWN EXTENSION	DLMS110	61370310	
9	3	HOLD DOWN STRAP	DLMS110	61370360	
10	1	CENTRAL BODY	DLMS110	61370385	
11	1	RUBBER MANDREL	DLMS110	61370220	
12	2	RUBBER SPACER	DLMS35	60275840	60276840
13	1	ELEMENT	80 DURO NITRILE	60275512	60276512
14	2	ELEMENT	90 DURO NITRILE	60275513	60276513
15	1	RUBBER RETAINER	DLMS110	61375850	
16	1	LOWER CONE	DLMS110	60375421HT	
17	4	LOWER SLIP W/ CARBIDE	DLMS110	60075135C	
18	1	DRAG BLOCK BODY	DLMS35 / DLMS60	60075335	
19	1	RUBBER MANDREL CAP	DLMS60	60170230	
20	1	J-BODY	DLMS110	61370340	
21	1	DRAG BLOCK RETAINER	DLMS60	60075910	
22	6	DRAG BLOCK W/ CARBIDE	DLMSDB4	9070900C	
23	1	J-PIN BOTTOM SUB	DLMS110	61370630	
24	1	SEAL RING	90 DURO NITRILE	61370520	
25	8	LOWER SLIP SPRING	-	7170901	
26	1	STRAP RETAINER	DLMS110	61375650	61376650
27	1	SEAL RECEPTACLE	DLMS110	61370730	
28	1	SEAL RETAINER	DLMS110	61370530	
29	2	GAGE RING	-	60378830	60277830
30	1	COMPENSATING MANDREL	DLMS110	61370240	
31	1	RETAINER RING	DLMS35	60075911	
32	1	COMPENSATING PISTON	DLMS110	61370715	

L) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61375RS	P/N 61376RS
33	3	FLAT HEAD CAP SCREW 5/16-18 UNC X 1/2	STEEL	FHSC031C050	
34	3	SET SCREW 5/16-18 UNC X 1/2	STEEL	SSS031C050	
35	5	SET SCREW 3/8-16 UNC X 3/8	STEEL	SSS037C037	
36	1	VALVE BODY	DLMS110	61370350	
37	1	LOWER SLIP SUPPORT	DLMS60	60075912	
38	2	CAP SCREW 1/2-13 UNC X 1"	STEEL	SCS050C100	
39	6	230 O-RING	90 DURO NITRILE	90230	
40	1	233 O-RING	90 DURO NITRILE	90233	
41	1	235 O-RING	90 DURO NITRILE	90235	
42	3	241 O-RING	90 DURO NITRILE	90241	
43	1	243 O-RING	90 DURO NITRILE	90243	
44	2	339 O-RING	90 DURO NITRILE	90339	
45	1	344 O-RING	90 DURO NITRILE	90344	
46	2	350 O-RING	90 DURO NITRILE	90350	

REDRESS KIT (RDK)		61375050	61376050
ASSEMBLED WEIGHT		326 LBS	321 LBS

L) PARTS LIST (cont'd)

L-1) ELASTOMER TRIM OPTIONS

NOTE$_{11}$: For temperature range, refer to Elastomer Trim Temperature Guide.

L-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61375RSH	P/N 61376RSV
13	1	ELEMENT	80 DURO HSN	60275512H	60276512H
14	2	ELEMENT	90 DURO HSN	60275513H	60276513H
24	1	SEAL RING	90 DURO HSN	61370520H	
39	6	230 O-RING	90 DURO HSN	90230H	
40	1	233 O-RING	90 DURO HSN	90233H	
41	1	235 O-RING	90 DURO HSN	90235H	
42	3	241 O-RING	90 DURO HSN	90241H	
43	1	243 O-RING	90 DURO HSN	90243H	
44	2	339 O-RING	90 DURO HSN	90339H	
45	1	344 O-RING	90 DURO HSN	90344H	
46	2	350 O-RING	90 DURO HSN	90350H	

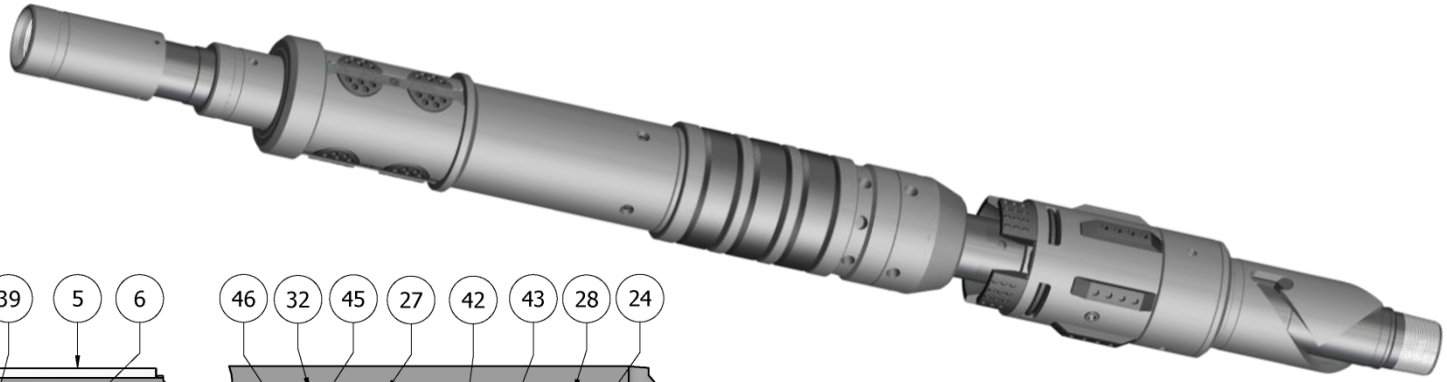
REDRESS KIT (RDK)		61375050H	61376050H	

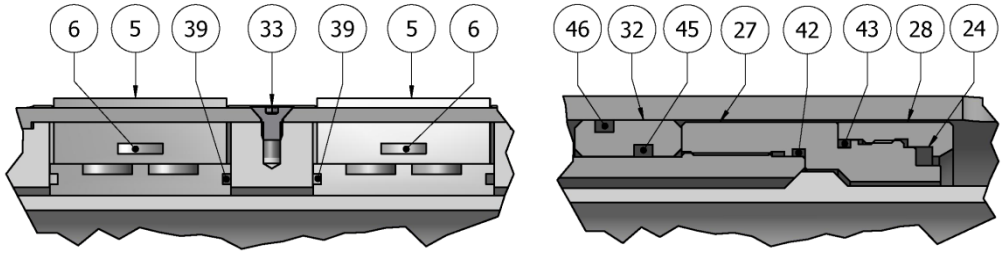
L-1.2) VITON

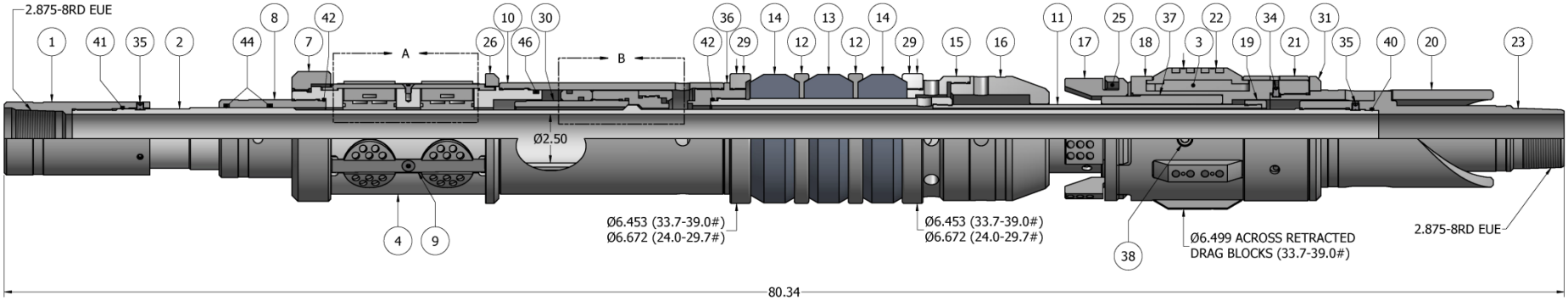
ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61375RSH	P/N 61376RSV
13	1	ELEMENT	80 DURO VITON	60275512V	60276512V
14	2	ELEMENT	90 DURO VITON	60275513V	60276513V
24	1	SEAL RING	90 DURO VITON	61370520V	
39	6	230 O-RING	90 DURO VITON	90230V	
40	1	233 O-RING	90 DURO VITON	90233V	
41	1	235 O-RING	90 DURO VITON	90235V	
42	3	241 O-RING	90 DURO VITON	90241V	
43	1	243 O-RING	90 DURO VITON	90243V	
44	2	339 O-RING	90 DURO VITON	90339V	
45	1	344 O-RING	90 DURO VITON	90344V	
46	2	350 O-RING	90 DURO VITON	90350V	

REDRESS KIT (RDK)		61375050V	61376050V	

M) TECHNICAL ILLUSTRATION







N) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
09/22/2022	K	Revised trim temperature guide, 60170230 was 60070230	J.Anderson	J.Johnson
01/09/2017	J	Revised Elastomer Trim Options parts lists: 90230H/V qty 6 was 8, 90241H/V qty 3 was 2, 90339H/V qty 2 was 1, 90350H/V qty 2 was 1	J.Anderson	K.Plunett
07/06/2016	H	Added General Screw Torque Recommendations; Revised P/N 61370975 qty 18 was 12	J.Anderson	C.Colvin
12/09/2015	G	Revised: Elastomer Durometer Temperatures – Nitrile (90/80/90 Duro) was 250° - 300°F, Nitrile (Contact D&L Sales) was 300°F +, Rubber Type Temperature Ranges – Nitrile was 70° - 300°F, HSN was 70° - 325°F; in Parts List headers - P/N 61375RS was P/N 61375, P/N 61375RSH was P/N 61375H, P/N 61375RSV was P/N 61375V	B.Mathis	B.Oligschlaeger
10/13/2015	F	Revised: max. hanging weight; Removed: tool drift ID;	J.Anderson	T.Myerley
12/11/2014	E	Revised: P/N 61375RS was P/N 61375 and pressure affected area guide; Added: HSN and Viton Options (P/N 61375RSH, 61376RSH, 61375RSV, 61376RSV), tool drift ID, max tensile load, pre-installation inspection procedures, storage procedures, max OD over retracted drag blocks for P/N 61376RS and figures 1, 2, 3, 6 and 7 to assembly instructions.	D.Barlow	J.McArthur