



# AS-II PACKER

## 9-5/8" X 3-1/2"

Manual No:  
**DL-611-9625-368**

Revision: **D**

Revision Date:  
**11/18/2022**

Authored by: B.Mathis

Approved by: K.Plunkett

### A) DESCRIPTION

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.

### 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)		
9-5/8	32.3 – 43.5	8.755 – 9.001	8.500	3.00	3-1/2 EUE	61198RS 61198RSH <sup>1</sup> 61198RSV <sup>2</sup> 61198RSC <sup>3</sup> 61198RSHC <sup>4</sup> 61198RSVC <sup>5</sup>
	43.5 – 53.5	8.535 – 8.755	8.250	3.00	3-1/2 EUE	61197RS 61197RSH <sup>1</sup> 61197RSV <sup>2</sup> 61197RSC <sup>3</sup> 61197RSHC <sup>4</sup> 61197RSVC <sup>5</sup>

Tool Options: <sup>1</sup>HSN, <sup>2</sup>Viton, <sup>3</sup>Nitrile, Carbide, <sup>4</sup>HSN, Carbide, <sup>5</sup>Viton, Carbide

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
6,000 PSI	156,225 LBS

### C) PRE-INSTALLATION INSPECTION PROCEDURES

**CAUTION:** D&L ships tool connections made-up **HAND TIGHT**—labeled with hand-tight tape on the tool (Fig. 1)—unless stated otherwise. Tighten/torque all connections properly before operating tool.



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](http://www.dloiltools.com)



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### 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:** 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 tubing and rotate 1/4 right-hand 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 20,000 lbs at the packer is required to pack off the elements.

### E) RELEASING PROCEDURES

Pick up on the work string to open the unloader. Allow time for the tubing and casing pressure to equalize. Continue to pick up on the work string to unset the top slips, relax the 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. Elements 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.



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### G) 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
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON	100° - 350°F

### H) RECOMMENDED TOOLS

#### H-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
- STRAP WRENCH
- 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

#### H-2) OPTIONAL SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT010110

### I) DISASSEMBLY

**NOTE<sub>1</sub>:** For added leverage, insert a rod through central body (10) or lower cone (16) as needed.

#### I-1) Clamp top sub (1) in vise.

- I-1.1) Unscrew and remove set screws (39) from J-pin bottom sub (23). Move J-body (20) as needed to access set screws (39).

**NOTE<sub>2</sub>:** Drag block body assembly must be free to rotate.

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

I-1.2.1) Remove o-ring (43) from J-pin bottom sub (23).

- I-1.3) Compress drag blocks (22) using drag block body assembly tool (T1).

- I-1.4) Unscrew and remove set screws (40) from J-body (20). Rotate drag block retainer (21) as needed to access set screws (40).

- I-1.5) Unscrew and remove J-body (20) from drag block body (18) (**NOTE<sub>3</sub>:** Left-hand threads).

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

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

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

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

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

I-1.9.1) Unscrew and remove socket cap screws (38) from lower slip support (32).

I-1.9.2) Wedge lower slips (17) outwards (if needed). Remove lower slip support (32) from drag block body (18).



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### I) DISASSEMBLY (cont'd)

- I-1.9.3) Remove wedges (if needed). Remove lower slips (17) and lower slip springs (25) from drag block body (18).
- I-1.10) Unscrew and remove lower cone (16) from rubber retainer (15).
- I-1.11) Unscrew rubber mandrel (11) from valve body (36).
- I-1.12) Remove rubber mandrel assembly and disassemble:
  - I-1.12.1) Remove elements (13, 14), rubber spacers (12), and rubber retainer (15) from secondary rubber mandrel (37).
  - I-1.12.2) Remove secondary rubber mandrel (37) from rubber mandrel (11).
    - I-1.12.2.1) Remove o-ring (42) from rubber mandrel (11).
- I-1.13) Unscrew and remove gage ring (29) from valve body (36).
- I-1.14) Unscrew and remove valve body (36) from central body (10).
  - I-1.14.1) Remove o-ring (41) from valve body (36).
- I-1.15) Unscrew and remove central body (10) from upper cone (9).
- I-1.16) Unscrew and remove seal retainer (30) from valve piston (34).
  - I-1.16.1) Remove bonded seal (24) from seal retainer (30).
- I-2) Remove top sub (1) from vise and clamp inner mandrel (2) in vise.

**NOTE4:** Do NOT wrench or clamp on seal surface.

  - I-2.1) Unscrew and remove spring cage cap (27) from spring cage (5).

**CAUTION1:** Compression spring (4) is compressed with spring tension against upper slip support (33).
  - I-2.2) Unscrew and remove top sub (1) from inner mandrel (2).
  - I-2.3) Remove compression spring (4) from inner mandrel (2).
  - I-2.4) Unscrew and remove spring cage (5) from upper slip support (33).
  - I-2.5) Remove upper slip body assembly and disassemble:
    - I-2.5.1) Wedge releasing slip (7) and upper slips (8) outward (if needed). Unscrew and remove upper slip support (33) from upper slip body (6).
    - I-2.5.2) Remove wedges (if needed). Remove releasing slip (7), upper slips (8), and upper slip springs (26) from upper slip body (6).
  - I-2.6) Remove upper cone (9) from inner mandrel (2).
    - I-2.6.1) Remove o-ring (44) from upper cone (9).
  - I-2.7) Remove compensating piston (28) from inner mandrel (2).
    - I-2.7.1) Remove o-rings (44, 45) from compensating piston (28).
  - I-2.8) Unscrew and remove valve piston cap (35) from valve piston (34).
- I-3) Remove inner mandrel (2) from vise.
- I-4) Remove valve piston (34) from inner mandrel (2).
  - I-4.1) Remove o-ring (45) from valve piston (34).



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### J) ASSEMBLY

**NOTE<sub>5</sub>:** Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

J-1) Install o-ring (45) in groove in valve piston (34).

J-2) Install valve piston (34) onto inner mandrel (2).

J-3) Clamp inner mandrel (2) in vise.

**NOTE<sub>4</sub>:** Do NOT wrench or clamp on seal surface.

J-3.1) Screw valve piston cap (35) into valve piston (34).

J-3.2) Install o-rings (44, 45) in grooves in compensating piston (28).

J-3.3) Install compensating piston (28) onto inner mandrel (2).

**CAUTION<sub>2</sub>:** Do not rip or tear o-ring during installation.

J-3.4) Install o-ring (44) in groove in upper cone (9).

J-3.5) Install upper cone (9) onto inner mandrel (2).

**CAUTION<sub>2</sub>:** Do not rip or tear o-ring during installation.

J-3.6) Assemble upper slip body assembly and install:

J-3.6.1) Install releasing slip (7), upper slips (8), and upper slip springs (26) in upper slip body (6) (Fig. 1).

**NOTE<sub>5</sub>:** Uses two (2ea) springs per slip.

J-3.6.2) Wedge releasing slip (7) and upper slips (8) outward. Screw upper slip support (33) into upper slip body (6). Remove wedges.

J-3.6.3) Install upper slip body assembly onto inner mandrel (2).

J-3.7) Screw spring cage (5) into upper slip support (33).

J-3.8) Install compression spring (4) onto inner mandrel (2).

J-3.9) Screw top sub (1) onto inner mandrel (2).

J-3.10) Compress compression spring (4) by forcing the upper slip body assembly upwards. Screw spring cage cap (27) onto spring cage (5).

**CAUTION<sub>1</sub>:** Compression spring (4) is compressed with spring tension against upper slip support (33).

J-4) Remove inner mandrel (2) from vise. Clamp top sub (1) in vise.

J-4.1) Install bonded seal (24) in groove in seal retainer (30).

J-4.2) Screw seal retainer (30) onto valve piston (34).

**CAUTION<sub>2</sub>:** Do not rip or tear seal during installation.

J-4.3) Screw central body (10) onto upper cone (9).

**CAUTION<sub>2</sub>:** Do not rip or tear o-ring during installation.

J-4.4) Install o-ring (41) in groove in valve body (36).

J-4.5) Screw valve body (36) into central body (10).

J-4.6) Screw gage ring (29) onto valve body (36).

J-4.7) Assemble rubber mandrel assembly and install:

J-4.7.1) Install o-ring (42) in groove in rubber mandrel (11).

J-4.7.2) Install secondary rubber mandrel (37) onto rubber mandrel (11).

**CAUTION<sub>2</sub>:** Do not rip or tear o-ring during installation.

J-4.7.3) Slide rubber retainer (15), elements (13, 14), and rubber spacers (12) onto secondary rubber mandrel (37).

J-4.7.4) Install rubber mandrel assembly onto inner mandrel (2).

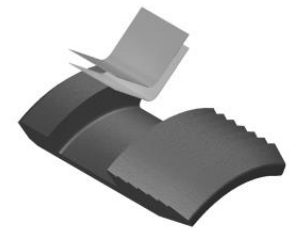


Fig. 1



# AS-II PACKER

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### J) ASSEMBLY (cont'd)

J-4.7.5) Screw rubber mandrel (11) into valve body (36).

**CAUTION<sub>2</sub>:** Do not rip or tear o-ring during installation.

J-4.8) Screw lower cone (16) into rubber retainer (15).

J-4.9) Assemble drag block body assembly and install:

J-4.9.1) Install lower slips (17) and lower slip springs (25) into drag block body (18) (Fig. 2). Wedge slips outward.

**NOTE<sub>6</sub>:** Uses two (2ea) springs per slip.

J-4.9.2) Install lower slip support (32) into drag block body (18).

J-4.9.3) Align threaded hole in drag block body (18) with hole in lower slip support (32). Screw socket cap screw (38) into drag block body (18). Remove wedges.

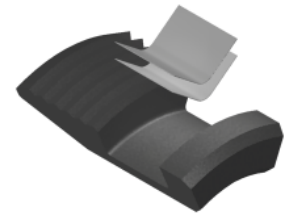


Fig. 2

J-4.10) Screw rubber mandrel cap (19) onto rubber mandrel (11).

J-4.11) Install drag blocks (22) and drag block springs (3) into drag block body (18) (Fig. 3). Compress drag blocks (22) using drag block body assembly tool (T1).

**NOTE<sub>7</sub>:** Uses six (6ea) springs per drag block.

J-4.12) Install drag block retainer (21) onto drag block body (18) capturing ends of drag blocks (22).

**NOTE<sub>8</sub>:** Align holes in drag block retainer (21) to access threaded holes in drag block body (18).



Fig. 3

J-4.13) Slide retainer ring (31) onto J-body (20).

J-4.14) Screw J-body (20) onto drag block body (18) (**NOTE<sub>3</sub>:** Left-hand threads).

J-4.15) Release drag blocks (22). Install drag block body assembly onto rubber mandrel (11).

J-4.16) Screw set screws (40) into drag block body (18).

J-4.17) Install o-ring (43) in groove in J-pin bottom sub (23).

J-4.18) Screw J-pin bottom sub (23) onto inner mandrel (2).

**NOTE<sub>2</sub>:** Drag block body (18) must be free to rotate.

**CAUTION<sub>2</sub>:** Do not rip or tear o-ring during installation.

J-4.19) Screw set screws (39) into J-pin bottom sub (23). Move J-body (20) as needed to access set screws (39).

J-5) Unclamp top sub (1) from vise and remove assembled tool.



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### K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61197RS	P/N 61198RS
1	1	TOP SUB	DLMS80	60095612	
2	1	INNER MANDREL	DLMS80	61197210	
3	36	DRAG BLOCK SPRING	-	9101900	
4	1	COMPRESSION SPRING	CHROME VANADIUM	60095920	
5	1	SPRING CAGE	DLMS60	61197310	
6	1	UPPER SLIP BODY	-	60395320	
7	1	RELEASING SLIP	DLMS110	60095125	
8	2	UPPER SLIP	DLMS35	60095115	
9	1	UPPER CONE	DLMS80	61197410	
10	1	CENTRAL BODY	DLMS80	61197370	
11	1	RUBBER MANDREL	DLMS60	60313220	
12	2	RUBBER SPACER	DLMS35	60295840S	60296840S
13	1	ELEMENT	70 DURO NITRILE	60295511S	60296511S
14	2	ELEMENT	90 DURO NITRILE	60295513S	60296513S
15	1	RUBBER RETAINER	DLMS35	60295850S	60296850S
16	1	LOWER CONE	DLMS35	60395420S	
17	4	LOWER SLIP	DLMS35	60095135	
18	1	DRAG BLOCK BODY	DLMS35	60395335	
19	1	RUBBER MANDREL CAP	DLMS80	60095230	
20	1	J-BODY	DLMS110	61395340	
21	1	DRAG BLOCK RETAINER	DLMS60	60395910	
22	6	DRAG BLOCK	DLMSDB8	9080900	
23	1	J-PIN BOTTOM SUB	DLMS80	61197630	
24	1	BONDED SEAL	90 DURO NITRILE	61395520	
25	8	LOWER SLIP SPRING	-	7170901	
26	6	UPPER SLIP SPRING	-	7170902	
27	1	SPRING CAGE CAP	DLMS35	60095810	
28	1	COMPENSATING PISTON	DLMS80	61197710	
29	1	GAGE RING	DLMS35	60295830	60296830
30	1	SEAL RETAINER	DLMS35	63195530	
31	1	RETAINER RING	DLMS35	60095911	
32	1	LOWER SLIP SUPPORT	DLMS35	60395912	
33	1	UPPER SLIP SUPPORT	DLMS80	60395880	
34	1	VALVE PISTON	DLMS80	61197730	



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### K) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61197RS	P/N 61198RS
35	1	VALVE PISTON CAP	DLMS80	61197720	
36	1	VALVE BODY	DLMS80	61197350	
37	1	SECONDARY RUBBER MANDREL	DLMS80	60095221	
38	1	SOCKET CAP SCREW 1/2-13 UNC X 3/4	STEEL	SCS050C075	
39	2	SET SCREW 5/16-18 UNC X 3/8	STEEL	SSS031C037	
40	3	SET SCREW 3/8-16 UNC X 1/2	STEEL	SSS037C050	
41	1	252-90 O-RING	90 DURO NITRILE	90252	
42	1	254-90 O-RING	90 DURO NITRILE	90254	
43	1	348-90 O-RING	90 DURO NITRILE	90348	
44	2	351-90 O-RING	90 DURO NITRILE	90351	
45	2	363-90 O-RING	90 DURO NITRILE	90363	

REDRESS KIT (RDK)		61197050	61198050
ASSEMBLED WEIGHT		623 LBS	627 LBS

### K-1) ELASTOMER TRIM OPTIONS

**NOTE4:** For temperature range, refer to Elastomer Trim Temperature Guide.

#### K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61197RSH	P/N 61198RSH
13	1	ELEMENT	70 DURO HSN	60295511SH	60296511SH
14	2	ELEMENT	90 DURO HSN	60295513SH	60296513SH
24	1	BONDED SEAL	90 DURO HSN	61395520H	
41	1	252-90 O-RING	90 DURO HSN	90252H	
42	1	254-90 O-RING	90 DURO HSN	90254H	
43	1	348-90 O-RING	90 DURO HSN	90348H	
44	2	351-90 O-RING	90 DURO HSN	90351H	
45	2	363-90 O-RING	90 DURO HSN	90363H	

REDRESS KIT (RDK)		61197050H	61198050H
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### K) PARTS LIST (cont'd)

#### K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61197RSV	P/N 61198RSV
13	1	ELEMENT	70 DURO VITON	60295511SV	60296511SV
14	2	ELEMENT	90 DURO VITON	60295513SV	60296513SV
24	1	BONDED SEAL	90 DURO VITON	61395520V	
41	1	252-90 O-RING	90 DURO VITON	90252V	
42	1	254-90 O-RING	90 DURO VITON	90254V	
43	1	348-90 O-RING	90 DURO VITON	90348V	
44	2	351-90 O-RING	90 DURO VITON	90351V	
45	2	363-90 O-RING	90 DURO VITON	90363V	

REDRESS KIT (RDK)		61197050V	61198050V
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#### K-2) CARBIDE OPTIONS

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61197RSC	P/N 61198RSC
8	2	CARBIDE UPPER SLIP	DLMS110	60095115C	
17	4	CARBIDE LOWER SLIP	DLMS110	60095135C	



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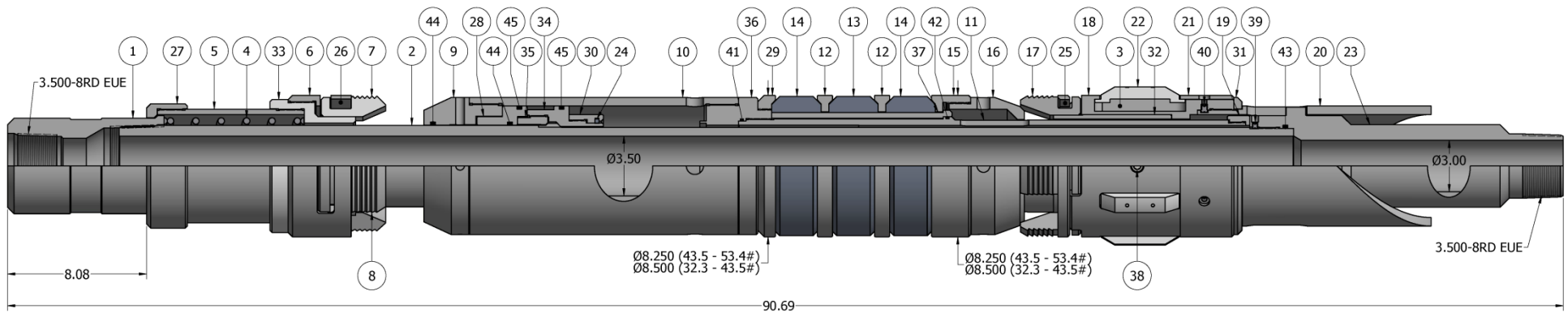
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## L) TECHNICAL ILLUSTRATION



	<h1>AS-II PACKER</h1> <h2>9-5/8” X 3-1/2”</h2>	Manual No: <b>DL-611-9625-368</b>
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### M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
11/18/2022	D	Revised P/N 61198RS was 61198, 61197RS was 61197, temp. ratings; Added carbide options	J.Anderson	K.Plunkett
07/15/13	C	Revised P/N SCS050C075 was SCS050C050, P/N 90252 was 90161; Added recommended hand tools, HSN and Viton options (P/N 61197H, 61197V, 61198H, 61198V), revision history; Removed AFLAS from element selection guide	J.Anderson	K.Plunkett