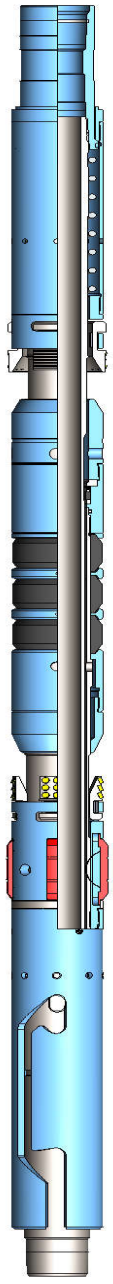
SAZ OMEGA-IX PACKER



The **SAZ OMEGA-IX** Mechanical Production Packer is a retrievable, double-grip compression-set or tension-set production packer that can be left in tension, compression, or in a neutral position, and will hold pressure from above or below. A large internal bypass reduces the swabbing effect during run-in and retrieval and closes when the packer is set. When the packer is released, the bypass opens first, allowing the pressure to equalize before the upper slips are released.

The **SAZ OMEGA-IX** also features a upper-slip releasing system that reduces the force required to release the packer. A non-directional slip is released first, making it easier to release the other slips.

APPLICATIONS

- Effectively meets several requirements for zonal isolation, injection, pumping, and production
- Full opening gives unrestricted flow and allows the passage of wireline tools and other accessories

FEATURES & BENEFITS

- Holds high pressure differentials from above or below
- The J-slot design allows easy setting and releasing; 1/4 turn right-hand (or Left hand as per J slot orientation) set, 1/4 turn right-hand(or Left hand as per J slot orientation) release.
- Can be set using tension or compression Only
- one-quarter right (or Left hand as per J slot orientation) rotation is required to set and release
- Field-proven releasing system
- Optional safety-release features available upon request
- Bypass valve is below upper slips, so the debris is washed from slips when the valve is opened Benefits.
- Can be run with a Model T-2 On-Off Tool
- Can be left in tension, compression, or neutral position
- Bypass valve opens before upper slips are released
- Available in All API material grades
- Available in material conforming to NACE MR 0175 or H2S, CO2 well environment services requirements.
- Available in All API & premium thread connections and Elastomer's type
- Validated to withstand 10,000 psi differential pressure and 325° F.

LEFT HAND

RIGHT HAND

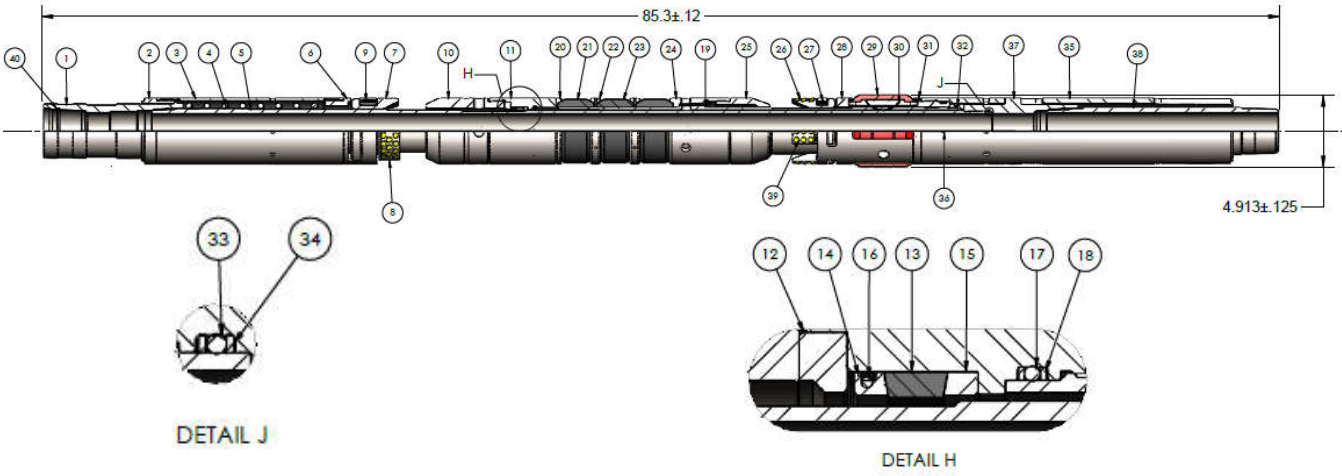
TECHNICAL SPECIFICATION

CASING		RECOMMENDED CASING ID (in)	MAX GAUGE OD (in)	MIN ID OF PACKER (in)	THREAD CONNECTION
OD (in)	WEIGHT RANGE (lbs/ft)				
5-1/2	20-23	4.670- 4.778	4.500	2.375	2-7/8" EUE

- **Packer can be supplied with any API and premium threads on request.**

BILL OF MATERIALS

S.NO	DESCRIPTION	QTY	S.NO	DESCRIPTION	QTY
1	TOP SUB	1	21	END PACKING ELEMENT	2
2	SPRING CAGE CAP	1	22	ELEMENT SPACER	2
3	SPRING CAGE	1	23	CENTER PACKING ELEMENT	1
4	FOLLOWER SPRING	1	24	ELEMENT RETAINER	1
5	INNER MANDREL	1	25	LOWER CONE	1
6	UPPER SLIP BODY	1	26	LOWER SLIP	4
7	RELEASING SLIP	1	27	LOWER SLIP SPRING	12
8	UPPER SLIP	2	28	CONTROL BODY	1
9	UPPER SLIP SPRING	9	29	DRAG BLOCK	4
10	UPPER CONE	1	30	DRAG BLOCK SPRING	16
11	CENTER COUPLING	1	31	DRAG BLOCK RETAINER	1
12	BEARING BUSHING	1	32	ELEMENT MANDREL CAP	1
13	UNLOADER SEAL HNBR 90 DURO	1	33	O-RING 231*	1
14	SEAL RING A	1	34	O-RING 231 BACKUP*	2
15	SEAL RING B	1	35	J-BODY	1
16	O- RING 151*	1	36	HEX SOCKET SET SCREW 3/8-16 X 0.375 LT*	3
17	O-RING 235*	1	37	BOTTOM SUB	1
18	O-RING 235 BACKUP	2	38	BOTTOM NIPPLE	1
19	ELEMENT MANDREL	1	39	CARBIDE BUTTON	58
20	GAUGE RING	1	40	SEAL RING FOR 2-7/8 EU THREAD	3



Note: * Items are required for redress kit.

PRE-JOB INSPECTION AND RUNNING PROCEDURE

- Torque/tighten all connections properly before operating tool.
- Before 1st use, it is recommended disassembly and inspection of the tool unless stated otherwise. Ensure parts have not been damaged during shipping. Replace damaged parts with SAZ replacement parts. Contact SAZ sales for replacement part information.
- Reassemble the tool after inspection. Install parts in the correct order and orientation. Properly tighten connections.
- Before re-using the tool, it is recommended, disassembly and inspection of the tool. Clean parts & ensure parts are in good working condition. Replace worn or damaged parts with SAZ replacement parts.
- When redressing the tool, it is recommended, replacement of all seals, elements, O-rings shear screws etc. contact SAZ sales for redress kit and/or other replacement part information

GENERAL THREAD CONNECTION TORQUE RECOMMENDATION			
STUB ACME/ACME THREAD	INTERNAL TAPERED TUBING THREAD		PREMIUM THREADS
	UPTO 2-3/8	ABOVE 2-3/8	
600-800 FT-LBS	600-800 FT-LBS	800-1200 FT-LBS	Consult Thread Manufacturer Recommendations

GENERAL SCREW TORQUE RECOMMENDATION									
SCREW SIZE (INCH)	#6	#8	#10	1/4	5/16	3/8	7/16	1/2	5/8 & LARGER
TORQUE RANGE (INCH-LBS)	5-8	10-15	18-25	25-40	50-80	90-135	160-210	250-330	450-650

RUNNING PROCEDURE

Maximum recommended running speed of 150 ft./min

SETTING PROCEDURE

The packer should be run one foot below setting depth. To set the packer, pick up the tubing to desired setting position, rotate ¼ turn to right (or Left hand as per J slot orientation), and slack off. The J-pin will move clear of the J slot and the cone will move under the slips.

Application of set-down weight, for standard packing element system as per table below, closes and seals the by-pass valve, sets the slips, and packs-off the packing elements.

Set down weight (LBS)	Size (inch)
7000	4-1/2 thru 5-1/2
5000	5-1/2x2-7/8
9000	7
11000	8-5/8
15000	9-5/8

The formation below the packer is now completely isolated from the annulus above, is accessible only through the tubing string.

RELEASING PROCEDURE

The releasing procedures are the same whether the packer is in tension or compression. Set down weight (normally1,000 lb. is sufficient) on the packer and rotate the tubing ¼ turn to the right (or Left hand as per J slot orientation) at the packer, then pick up holding the right hand(or Left hand as per J slot orientation) torque. The internal bypass will open, allowing pressure to equalize. Further pick up, releases the releasing sequential slip system, relaxing the elements, allowing the packer to be removed from the well.

ADDITIONAL NOTE:

- Apply appropriate grease to all concealed surfaces, Elastomer, O-rings and on O-ring grooves as the assembly progresses.
- Based on availability, Molykote 55 Silicone Grease with similar properties may be used.
- Threads and metal components must apply with anti-seize compound like KOPR-KOTE or any other
- All tubing / drill pipe threads are to be torqued as per recommended torque value.

DISSASSEMBLY PROCEDURE

1. Place top sub (1) in vise.
2. Remove bottom sub (37) from inner mandrel (5).
3. Remove O-ring (33) from bottom sub (37).
4. Remove element mandrel assembly (from 10 through 37) and set aside.
5. Remove inner mandrel (5) from top sub (1).
   DO NOT WRENCH OR CLAMP ON SEAL SURFACE OF MANDREL.
6. Remove upper slip (8), releasing slip (7), and slip springs (9) from upper slip body (6).
7. Place spring cage (3) in vise.
8. Remove spring cage cap (2) from spring cage (3).
9. Remove top sub (1) from spring cage cap (2).
10. Remove follower spring (4) from spring cage (3).
11. Remove upper slip body (6) from spring cage (3).
12. Place set aside element mandrel assembly in vise with element retainer (24) in vise.
13. Remove set screws (36) from J-body (35).
14. Remove J-body (35) from control body (28). [**LEFT HAND THREADS**].
15. Align hole on element retainer (24) with hole in element mandrel (19).
16. Insert a bar to prevent movement of element mandrel (19).
17. Remove element mandrel cap (32) from element mandrel (19).
18. Remove control body (28) from element mandrel (19) and remove lower slips (26), slipsprings (27), and drag block retainer (31) from control body (28).
19. Remove upper cone (10) from center coupling (11).
20. Remove center coupling (11) from element mandrel (19).
21. Remove bearing bushing (12) and seal (13) from center coupling (11).
22. Remove O-ring (16) from seal (13).
23. Remove O-ring (17) from center coupling (11).
24. Remove gage ring (20) from element mandrel (19).
25. Remove packing elements (21 & 23) and element spacers (22) from element mandrel (19).
26. Remove bar from element retainer (24).
27. Remove lower cone (25) from element retainer (24).
28. Remove element mandrel (19) from element retainer (24).
29. Clean and inspect all parts before re-assembly.
30. Replace all worn or damaged parts.

ASSEMBLY PROCEDURE

1. Place element retainer (24) in vise.
2. Place element mandrel (19) in element retainer (24) as shown.
3. Install lower cone (25) in element retainer (24).
4. Place a bar thru hole in element retainer (24) and hole in element mandrel (19).
5. Install packing elements (21 & 23), element spacers (22) and gage ring (20) on elementmandrel (19) as shown.
6. Install O-ring (17) in center coupling (11).
7. Install O-ring (16) on seal (13).
8. Install seal (13) in center coupling (11).
9. Install center coupling (11) on element mandrel (19).
10. Install bearing bushing (12) in center coupling (11).
11. Install upper cone (10) on center coupling (11).
12. Install lower slips (26) and slip springs (27) in control body (28).
13. Install drag block retainer (31) on control body (28).
14. Slide control body (28) onto element mandrel (19).
15. Install element mandrel cap (32) on element mandrel (19).
16. Install J-body (35) [**LEFT HAND THREAD**] on control body (28). **DO NOT TIGHTEN**.Set element mandrel subassembly (10 thru 37) aside.
17. Place spring cage (3) in vise.
18. Install upper slip body (6) on spring cage (3).
19. Place follower spring (4) in spring cage (3).
20. Place top sub (1) in spring cage cap (2).
21. Install spring cage cap (2) on spring cage (3).
22. Place top sub (1) in vise.
23. Install slip springs (9), upper slips (8) and releasing slip (7) in upper slip body (6).
24. Install inner mandrel (5) in top sub (1).
25. Slide element mandrel (10 thru 37) onto inner mandrel (5).
26. Install O-ring (33) in bottom sub (37).
27. Install bottom sub (37) on inner mandrel (5).
28. Install nipple (38) in bottom sub (37).
29. Move J-body (35) to set position on bottom sub (37) J-pins.
30. Remove control body (28) from J-body (35) to expose slots in element mandrelcap (32).
31. Align slots in element mandrel cap (32).
32. Install control body (28) onto J-body (35).
33. Install set screws (36) in control body (28).

HANDLING OF PACKER

Handling of the Packer shall be as below:

- Do not drop, bend, or scratch the Equipment.
- Lift the equipment by using lifting sub in well to use.
- Lift the equipment by Forklift by using wooden pallet.
- Avoid making stack over another one.
- Do not transfer equipment weight to the Packing Elements.
- Transfer the Equipment's with proper packing inside wooden box to avoid any damage of equipment's during transportation.
- Protect sealing surface by using paper tape during handling of equipment.

STORAGE/PRESERVATION OF PACKER

Storage/Preservation of the Packer shall be as below:

- Prevent the equipment from direct sunlight and rain for long period by using cover.
- Protect the Elastomer section by using the grease/Paper Tape to prevent deterioration.
- Protect the threads by using Thread protectors or Grease tape.
- Clean all components by using petrol/diesel before redress the equipment's or store.
- Store in ambient temperature atmosphere and protect from durst and other contaminating particles.

REDRESS/REPAIR OF PACKER

Redress/Repair of the Packer shall be as below when return from the customer or well:

- Disassemble the Packer as per disassembly procedure mentioned above.
- Check for substantial damage on any component, if found replace it.
- Clean all the components
- Redress all the Elastomers and shear screws and set screws with new one.

  Assemble The Packer as per assembly procedure mentioned above.