



EAGLE
In-The-Hole tools product catalogue





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ABOUT SON-MAK

SON-MAK, which was established by İzzettin TAVUKCU in Bursa in 1983, adopting as a principle high quality standards, customer satisfaction focusing oriented investments.

The company is among the leading and well-established companies in its sector with the principle mutual trust, development and success.

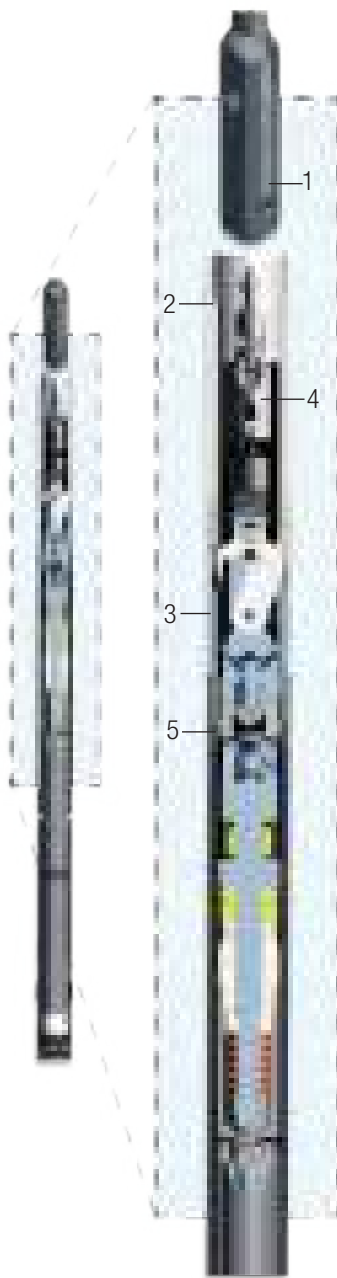
With years of experience, SON-MAK has been producing many a different kinds of drilling machines, which are used in its branch and in the sector with the aim of searching the mines on the surface or underground and also the development of the industrial raw materials.

Not only with its professional and expert staff but also with the the produced exploration drilling rigs, drilling equipments, mud pumps and injection systems, the company address to the strategically important mining and energy sectors of the world.

SON-MAK, which is the leader of the sector, serves at with the most reliable level for the exploration of oil-natural gas, geothermal resources, for the searching of ground water, for the evaluation of dam areas, for the improvement of tunnels, bridges, weak soils.

SON-MAK is a global manufacturer of the drilling machines in with its factory in 14.500 sqm closed area.

SON-MAK, with its own brand name "LEVENT, constantly updating itself by following the new trends in the sector and always taking into consideration of the customer satisfaction higher, strives to produce new machines and equipment in the world standards by keeping up with the sustainable growth and with the high technology in its product range.



Analysis System of Core Barrel

1. OVERSHOT

The Overshot is dropped or pushed into the drill string to bring back the inner – tube assembly by means of wireline cable hoist.

2: LOCKING COUPLING

The Locking Coupling attaches the drill string to the outer – tube assembly and maintain a mating surface which the head assembly latches ride against while performing the drilling.

Besides this, locking couplings maintains directional control for the core barrel assembly by means of wear resistant preserving pads that wear down against the drill hole wall.

3: ADAPTER COUPLING

The adapter coupling matches between the locking coupling and core barrel – tube, maintaining the pocket into which the head assembly secures deploy.

4: HEAD ASSEMBLY

The head assembly maintains latching and also evoting spearpoint mechanism to grant insertion and bringing back of the inner – tube assembly, a bearing assembly to let on the inner – tube to remain stationary and avert sample damage while drilling, fluid pressure operating indications and fluid control valves. All head assemblies integrate a shut off valve assembly which maintains a fluid pressure signal to drill operator, revealing a full or blocked inner – tube.

5: LANDING RING

The Landing Ring sits in the upper – end of the outer tube and is recollected by the mating coupling. As the inner tube assembly trips into drill string the landing shoulder on the Head Assembly collides the Landing Ring setting the inner tube assembly into drilling position.

6. OUTER-TUBE

The outer – tube dwells the inner – tube assembly and connects to the diamond products piercing the hole. The increased wall thickness of the outer – tube maintains supplementary rigidity for directional control and a tighter hole annulus for increased fluid velocity and swift cuttings discharging for bit performance. Multiple outer – tubes can be assembled to extend the potential core sample length.

7. INNER-TUBE

The inner- tube takes the core sample as performing the drilling progresses. Multiple inner – tubes can be assembled with couplers or extensions to get longer core samples.

8. INNER-TUBE STABILIZER

Installed in the reaming Shell or in mated outer – tube extensions, the replaceable and reversible inner – tube stabilizer maintains centralizing for advanced sample recovery and a bearing between the stationary inner – tube and the rotating outer – tube.

9. CORE LIFTER

The core lifter is a pressed steel, split collar with a tapered body that matches to a tapered socket in the core lifter case.

In a core breaking operation, the drill string is climbed off bottom and the core sample starts to slide out of the inner – tube. Grip marks on the inner surface of the core lifter takes the moving core sample and pull the core lifter towards the smaller end of the tapered socket in the core lifter case. The core lifter is compressed against core sample and retains it after it has broken, granting retrieval to surface.

10. CORE LIFTER CASE

The core lifter case mates to the inner-tube and houses the core lifter in a tapered socket which controls movement of the core lifter. As the drill string is lifted during a core breaking operation, the core lifter case bottoms out on the inside of the drill bit transferring the pullback load from the drill string to the core lifter until the core sample breaks.

11. STOP RING

The stop ring is a compressed steel snap ring devised to seat into a mating groove, and maintaining the core lifter in the core lifter case.



Wireline System

Wireline systems are optimal for use in most drilling conditions and applicable in standard DCDMA hole sizes. (B,N,H,P)

Son-Mak presently offers two models of the wireline core barrel system:

0 / 0 3

0 wireline systems, includes the core barrel assembly and the overshot assembly. Both assemblies are essential to the wireline system.

The core barrel assembly is formed by the inner-tube assembly and outer-tube assembly.

The inner-tube assembly is formed:

- Head assembly
- Inner-tube
- Core lifter case
- Core lifter
- Stop ring

The inner-tube assembly takes the core sample during the performing of the drilling process and separate of the outer-tube assembly.

The outer-tube assembly is formed by the remainder of the core barrels components:

- Locking Coupling
- Adapter Coupling
- Outer-tube

The outer tube assembly always stands at the bottom of the hole and dwells the inner-tube assembly during the drilling process.

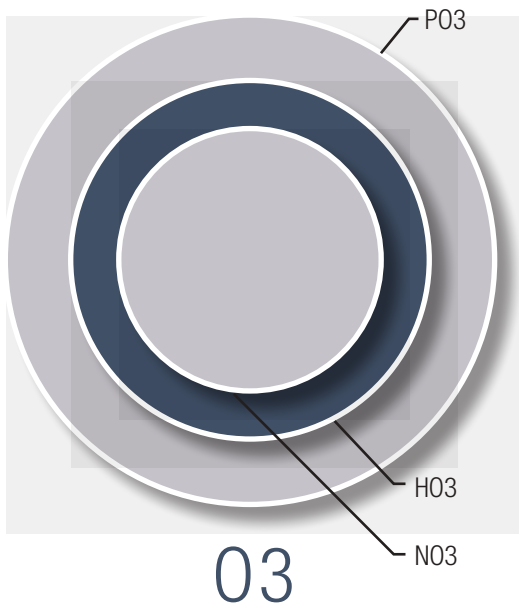
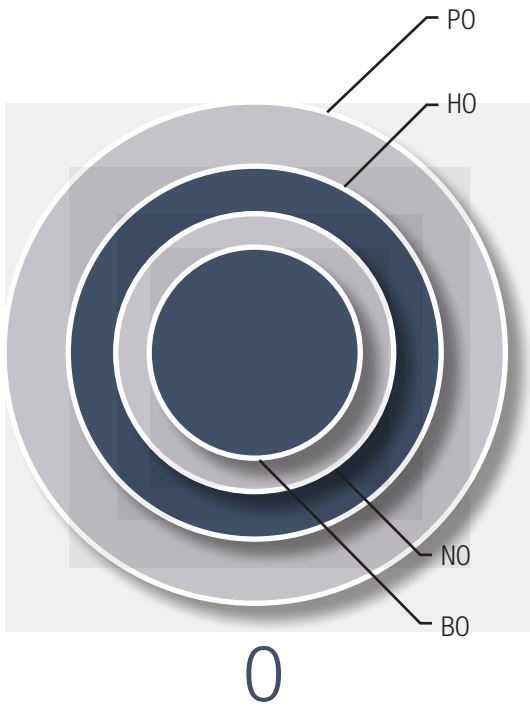
0 3

03 Wireline systems contains the same assemblies as the 0 but utilize a third tube called an inner-tube liner or split tube. The liner is housed inside the inner-tube.

03 systems implements integral core recovery when drilling, clay bearing coal or highly fractured formations. The liner, or split tube, contains the core sample in its received state for easier loading into sample trays or for storage and following presentations to the geologist. The 03 system is only applicable in surface configurations and is possible in N Wireline, H Wireline and P Wireline sizes.



Diameters



O (Standard)				
SIZE	CORE DIAMETER		HOLE DIAMETER	
	Metric (mm)	U.S. (in)	Metric (mm)	U.S. (in)
BO	36.40	1.43	59.50	2.34
NO	47.60	1.88	75.30	2.96
HO	63.50	2.50	95.60	3.76
PO	85.00	3.34	122.00	4.80

O3 (Triple Tube)				
NO3	45.10	1.77	75.30	2.96
HO3	61.10	2.41	95.60	3.76
PO3	83.00	3.26	122.00	4.80

CORE BARRELS STRUCTURES, FEATURES AND CHOICES

Overview of Structure

Within the Core Barrel Assemblies options of this catalog, both core barrel assemblies and inner – tube teams are referred. Both assemblies are separately configurable and incorporate a specific set of components as outlined below.

Core Barrel Assemblies

The Core Barrel Kits include all elements needed to perform a full core barrel and use it within a rod string:

- Head Assembly
- Inner – Tube
- Stop ring
- Core Lifter
- Core Lifter Case
- Locking Coupling
- Adapter Coupling
- Landing ring
- Outer – tube
- Inner – Tube stabilizer

Inner – tube assemblies

Inner – tube assemblies enable the necessary elements to get a core sample from head assembly to core lifter:

- Head Assembly
- Inner – Tube
- Stop Ring
- Core Lifter
- Core Lifter Case

Wireline Core Barrel Assemblies

Wireline core barrels, inner tube and inner tube assembly in particular constitute the most important part of these sets. Both ends of the inner tubes are made of male threaded cold-drawn steel tubes. The types of threads at both ends are the same. Since the part where the core is inserted will be eroded faster than the top section, use of the tube by turning upside down from time to time will extend its service life.

8

The core lifter case where the core lifter (see 8) is inserted is located at the bottom side of the inner tube. There is a case inside the core lifter and just above the part where the core lifter is inserted and the core lifter can be placed there (see 10) . This ring prevents the core lifter to be dragged into the inner tube together with the core.

The inner tube assembly is located at the top of the inner tube.

This assembly is the most important part of wireline system and it includes some systems. When inner tube is inserted into the outer tube, the latches on the inner tube assembly are opened by link affect and are inserted inside the housing on the head of the outer tube. Therefore, the inner tube is prevented to retrocede during progress.

At the end of the progress, when spear head located at the top of the assembly is held and dragged by the overshot, latches retract and close so that the inner tube is released to a free position where it can pass through the rods and be taken upwards.



CORE BARREL KITS

BO Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

10

ID #	PART #	DESCRIPTION				
	SM 2500	BO CORE BARREL ASSEMBLY 1.5 M (5')	SM 2500			
	SM 2501	BO INNER-TUBE GROUP 1.5 M (5')		SM 2501		
	SM 2502	BO CORE BARREL ASSEMBLY 3.0 M (10')			SM 2502	
	SM 2503	BO INNER-TUBE GROUP 3.0 M (10')				SM 2503
1	SM 2504	BO HEAD ASSEMBLY				
2	SM 2505	BO INNER-TUBE 1.5 M (5')				
	SM 2505CP	BO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 2506	BO INNER-TUBE 3.0 M (10')				
	SM 2506CP	BO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 2507	BO STOP RING				
4	SM 2508SL	BO CORE LIFTER, SLOTTED				
	SM 2508FL	BO CORE LIFTER, FLUTED				
5	SM 2509	BO CORE LIFTER CASE				
6	SM 2510	BO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 2510TC	BO LOCKING COUPLING, CARBIDE WITH TANG				
	LC20	BO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 2510/R	BRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 2510TC/R	BRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC20/R	BRO LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 2511	BO ADAPTER COUPLING				
8	SM 2512	BO LANDING RING				
9	SM 2513	BO OUTER-TUBE 1.5 M (5')				
	SM 2513CP	BO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 2514	BO OUTER-TUBE 3.0 M (10')				
	SM 2514CP	BO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 2515	BO INNER-TUBE STABILIZER				



BO Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K2500	BO Core Barrel Spare Parts Kit			
1	3200500	SPEARHEAD ASSEMBLY, BO	1	1.12	2.47
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 2524	COMPRESSION SPRING	1	0.05	0.11
4	SM 2526	LATCH	4	0.36	0.79
5	SM 2527	LINK	4	0.08	0.18
6	SM 2528	PIN 3/8" X 1-1/4"	2	0.02	0.04
7	SM 2529	BALL 22MM	1	0.05	0.11
8	SM 2530	LANDING INDICATOR BUSHING	2	0.02	0.04
9	SM 2531	LANDING SHOULDER	1	0.07	0.15
10	SM 2533	LOCKING NUT, 7/8"UNC	1	0.08	0.18
11	SM 2535	SHUT-OFF VALVE	4	0.40	0.88
12	SM 2537	THRUST BEARING	2	0.14	0.31
13	SM 2538	SPINDLE BUSHING	1	0.43	0.95
14	SM 2540	LOCKING NUT, 5/8"UNC	1	0.03	0.07
15	SM 1549	GREASE FITTING	2	0.02	0.04
16	SM 2507	STOP RING	2	0.02	0.04
17	SM 2508	CORE LIFTER	20	0.60	1.32
18	SM 2509	CORE LIFTER CASE	4	0.36	0.79
19	SM 2512	LANDING RING	2	0.14	0.31
20	SM 2515	INNER-TUBE STABILIZER	2	0.10	0.22



BO-U Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 2500U	BO-U CORE BARREL ASSEMBLY 1.5 M (5')	SM 2500U			
	SM 2501U	BO-U INNER-TUBE GROUP 1.5 M (5')		SM 2501U		
	SM 2502U	BO-U CORE BARREL ASSEMBLY 3.0 M (10')			SM 2502U	
	SM 2503U	BO-U INNER-TUBE GROUP 3.0 M (10')				SM 2503U
1	SM 2504U	BO-U HEAD ASSEMBLY				
2	SM 2505	BO INNER-TUBE 1.5 M (5')				
	SM 2505CP	BO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 2506	BO INNER-TUBE 3.0 M (10')				
	SM 2506CP	BO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 2507	BO STOP RING				
4	SM 2508SL	BO CORE LIFTER, SLOTTED				
	SM 2508FL	BO CORE LIFTER, FLUTED				
5	SM 2509	BO CORE LIFTER CASE				
6	SM 2510	BO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 2510TC	BO LOCKING COUPLING, CARBIDE WITH TANG				
	LC20	BO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 2510/R	BRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 2510TC/R	BRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC20/R	BRO LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 2511U	BO-U ADAPTER COUPLING				
8	SM 2512	BO LANDING RING				
9	SM 2513	BO OUTER-TUBE 1.5 M (5')				
	SM 2513CP	BO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 2514	BO OUTER-TUBE 3.0 M (10')				
	SM 2514CP	BO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 2515	BO INNER-TUBE STABILIZER				



BO-U Wireline Core Barrel Spare Parts Kit

D #	PART #	DESCRIPTION	QTY	KG	LB
	KU2500	BO-U Core Barrel Spare Parts Kit			
1	3200500	SPEARHEAD ASSEMBLY, BO	1	1.10	2.42
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 2553	COMPRESSION SPRING BO-U	1	0.23	0.51
4	SM 2526	LATCH	4	0.36	0.79
5	SM 2527	LINK	4	0.08	0.18
6	SM 2528	SPRING PIN 3/8" X 1-1/4"	1	0.01	0.02
7	SM 2543	VALVE PISTON	1	0.08	0.18
8	SM 2547	SPRING PIN 1/4" X 1-5/8"	2	0.02	0.04
9	SM 2530	LANDING INDICATOR BUSHING	2	0.02	0.04
10	SM 2549	BO-U SEAL	4	0.04	0.09
11	SM 2531	LANDING SHOULDER	2	0.12	0.26
12	SM 2535	SHUT-OFF VALVE	4	0.14	0.31
13	SM 2537	THRUST BEARING	2	0.40	0.88
14	SM 2538	SPINDLE BUSHING	1	0.14	0.31
15	SM 2540	LOCKING NUT, 5/8"UNC	1	0.43	0.95
16	SM 1549	GREASE FITTING	2	0.03	0.07
17	SM 2507	STOP RING	2	0.02	0.04
18	SM 2508	CORE LIFTER	20	0.02	0.04
19	SM 2509	CORE LIFTER CASE	4	0.61	11689
20	SM 2512	LANDING RING	2	0.36	0.79
21	SM 2515	INNER-TUBE STABILIZER	2	0.14	0.31



NO Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

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ID #	PART #	DESCRIPTION				
	SM 3500	NO CORE BARREL ASSEMBLY 1.5 M (5')	SM 3500			
	SM 3501	NO INNER-TUBE GROUP 1.5 M (5')		SM 3501		
	SM 3502	NO CORE BARREL ASSEMBLY 3.0 M (10')			SM 3502	
	SM 3503	NO INNER-TUBE GROUP 3.0 M (10')				SM 3503
1	SM 3504	NO HEAD ASSEMBLY				
2	SM 3505	NO INNER-TUBE 1.5 M (5')				
	SM 3505CP	NO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 3506	NO INNER-TUBE 3.0 M (10')				
	SM 3506CP	NO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 3507	NO STOP RING				
4	SM 3508SL	NO CORE LIFTER, SLOTTED				
	SM 3508FL	NO CORE LIFTER, FLUTED				
5	SM 3509	NO CORE LIFTER CASE				
6	SM 3510	NO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 3510TC	NO LOCKING COUPLING, CARBIDE WITH TANG				
	LC30	NO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 3510/R	NRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 3510TC/R	NRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC30/R	NRO LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 3511	NO ADAPTER COUPLING				
8	SM 3512	NO LANDING RING				
9	SM 3513	NO OUTER-TUBE 1.5 M (5')				
	SM 3513CP	NO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 3514	NO OUTER-TUBE 3.0 M (10')				
	SM 3514CP	NO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 3515	NO INNER-TUBE STABILIZER				



NO Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K3500	NO Core Barrel Spare Parts Kit			
1	3190500	SPEARHEAD ASSEMBLY, NO	1	0.36	0.79
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 2520	COMPRESSION SPRING	1	0.03	0.07
4	SM 3522	LATCH	4	0.40	0.88
5	SM 3523	LINK	4	0.12	0.26
6	SM 3524	SPRING PIN 1/2" X 1-1/2"	2	0.04	0.09
7	SM 2529	BALL 22MM	1	0.05	0.11
8	SM 2530	LANDING INDICATOR BUSHING	2	0.02	0.04
9	SM 3525	LANDING SHOULDER	1	0.11	0.24
10	SM 3528	LOCKING NUT, 1-1/8"UNC	1	0.16	0.35
11	SM 3530	SHUT-OFF VALVE	4	0.08	0.18
12	SM 3532	THRUST BEARING	1	0.16	0.35
13	SM 3533	SPINDLE BUSHING	1	0.73	1.61
14	SM 3534	HANGER BEARING	1	0.09	0.20
15	SM 3536	LOCKING NUT, 3/4"UNC	1	0.05	0.11
16	SM 1549	GREASE FITTING	2	0.02	0.04
17	SM 3507	STOP RING	20	0.02	0.04
18	SM 3508	CORE LIFTER	4	1.00	2.20
19	SM 3509	CORE LIFTER CASE	2	0.80	1.76
20	SM 3512	LANDING RING	2	0.36	0.79
21	SM 3515	INNER-TUBE STABILIZER	2	0.28	0.62



NO-U Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

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ID #	PART #	DESCRIPTION				
	SM 3500U	NO-U CORE BARREL ASSEMBLY 1.5 M (5')	SM 3500U			
	SM 3501U	NO-U INNER-TUBE GROUP 1.5 M (5')		SM 3501U		
	SM 3502U	NO-U CORE BARREL ASSEMBLY 3.0 M (10')			SM 3502U	
	SM 3503U	NO-U INNER-TUBE GROUP 3.0 M (10')				SM 3503U
1	SM 3504U	NO-U HEAD ASSEMBLY				
2	SM 3505	NO INNER-TUBE 1.5 M (5')				
	SM 3505CP	NO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 3506	NO INNER-TUBE 3.0 M (10')				
	SM 3506CP	NO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 3507	NO STOP RING				
4	SM 3508SL	NO CORE LIFTER, SLOTTED				
	SM 3508FL	NO CORE LIFTER, FLUTED				
5	SM 3509	NO CORE LIFTER CASE				
6	SM 3510	NO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 3510TC	NO LOCKING COUPLING, CARBIDE WITH TANG				
	LC30	NO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 3510/R	NRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 3510TC/R	NRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC30/R	NRO LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 3511U	NO-U ADAPTER COUPLING				
8	SM 3512	NO LANDING RING				
9	SM 3513	NO OUTER-TUBE 1.5 M (5')				
	SM 3513CP	NO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 3514	NO OUTER-TUBE 3.0 M (10')				
	SM 3514CP	NO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 3515	NO INNER-TUBE STABILIZER				



NO-U Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KU3500	NO-U Core Barrel Spare Parts Kit			
1	3190500	SPEARHEAD ASSEMBLY, NO	1	0.36	0.79
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 3540	COMPRESSION SPRING NO-U	1	0.05	0.11
4	SM 3522	LATCH	4	0.40	0.88
5	SM 3542	LINK, NO-U	4	0.12	0.26
6	SM 3524	SPRING PIN 1/2" X 1-1/2"	1	0.02	0.04
7	SM 2529	VALVE PISTON	1	0.02	0.04
8	SM 3543	SPRING PIN 1/4" X 2"	1	0.08	0.18
9	SM 2530	LANDING INDICATOR BUSHING	4	0.04	0.09
10	SM 3545	SEAL, NO-U	4	0.24	0.53
11	SM 3525	LANDING SHOULDER	2	0.22	0.48
12	SM 3530	SHUT-OFF VALVE	4	0.08	0.18
13	SM 3532	THRUST BEARING	1	0.16	0.35
14	SM 3533	SPINDLE BUSHING	1	0.73	1.61
15	SM 3534	HANGER BEARING	1	0.09	0.20
16	SM 3536	LOCKING NUT, 3/4"UNC	1	0.05	0.11
17	SM 1549	GREASE FITTING	2	0.02	0.04
18	SM 3507	STOP RING	2	0.02	0.04
19	SM 3508	CORE LIFTER	20	1.00	2.20
20	SM 3509	CORE LIFTER CASE	4	0.80	1.76
21	SM 3512	LANDING RING	2	0.36	0.79
22	SM 3515	INNER-TUBE STABILIZER	2	0.28	0.62



NO-3 Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 35003	NO3 CORE BARREL ASSEMBLY 1.5 M (5')	SM 35003			
	SM 35013	NO3 INNER-TUBE GROUP 1.5 M (5')		SM 35013		
	SM 35023	NO3 CORE BARREL ASSEMBLY 3.0 M (10')			SM 35023	
	SM 35033	NO3 INNER-TUBE GROUP 3.0 M (10')				SM 35033
1	SM 3504	NO HEAD ASSEMBLY				
2	SM 35163	NO3 PUMP-OUT ADAPTER				
3	SM 35173	PISTON PLUG				
4	SM 35183	O-RING				
5	SM 35193	NO3 CORE EJECTION PISTON				
6	SM 35203	NO3 SPLIT TUBE 1.5 M (5')				
	SM 35213	NO3 SPLIT TUBE 3.0 M (10')				
7	SM 3505	NO INNER-TUBE 1.5 M (5')				
	SM 3506	NO INNER-TUBE 3.0 M (10')				
8	SM 35073	NO3 STOP RING				
9	SM 35083FL	NO3 CORE LIFTER, FLUTED				
10	SM 35093	NO3 CORE LIFTER CASE				
11	SM 3510	NO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 3510TC	NO LOCKING COUPLING, CARBIDE WITH TANG				
	LC30	NO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 3510NRO	NRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 3510TCNRO	NRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC30NRO	NRO LOCKING COUPLING, DIAMOND WITH TANG				
12	SM 3511	NO ADAPTER COUPLING				
13	SM 3512	NO LANDING RING				
14	SM 3513	NO OUTER-TUBE 1.5 M (5')				
	SM 3513CP	NO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 3514	NO OUTER-TUBE 3.0 M (10')				
	SM 3514CP	NO OUTER-TUBE 3.0 M (10') CHROME PLATED				
15	SM 3515	NO INNER-TUBE STABILIZER				



NO-3 Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K35003	NO-3 Core Barrel Spare Parts Kit			
1	3190500	SPEARHEAD ASSEMBLY, NO	1	0.46	1.01
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 3520	COMPRESSION SPRING	1	0.03	0.07
4	SM 3522	LATCH	4	0.40	0.88
5	SM 3523	LINK	4	0.12	0.26
6	SM 3524	SPRING PIN 1/2" X 1-1/2"	2	0.04	0.09
7	SM 2529	BALL 22MM	1	0.05	0.11
8	SM 2530	LANDING INDICATOR BUSHING	2	0.02	0.04
9	SM 3525	LANDING SHOULDER	1	0.11	0.24
10	SM 3528	LOCKING NUT,1-1/8"UNC	1	0.16	0.35
11	SM 3530	SHUT OFF VALVE	4	0.08	0.18
12	SM 3532	THRUST BEARING	1	0.16	0.35
13	SM 3533	SPINDLE BUSHING	1	0.73	1.61
14	SM 3534	HANGER BEARING	1	0.09	0.20
15	SM 3536	LOCKING NUT,3/4"UNC	1	0.05	0.11
16	SM 1549	GREASE FITTING	2	0.02	0.04
17	SM 35073	NO3 STOP RING	2	0.02	0.04
18	SM 35083	NO3 CORE LIFTER	20	1.00	2.20
19	SM 35093	NO3 CORE LIFTER CASE	4	1.00	2.20
20	SM 35183	O-RING	5	0.05	0.11
21	SM 3512	LANDING RING	2	0.36	0.79
22	SM 3515	INNER-TUBE STABILIZER	2	0.28	0.62



HO Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 4500	HO CORE BARREL ASSEMBLY 1.5 M (5')	SM 4500			
	SM 4501	HO INNER-TUBE GROUP 1.5 M (5')		SM 4501		
	SM 4502	HO CORE BARREL ASSEMBLY 3.0 M (10')			SM 4502	
	SM 4503	HO INNER-TUBE GROUP 3.0 M (10')				SM 4503
1	SM 4504	HO HEAD ASSEMBLY				
2	SM 4505	HO INNER-TUBE 1.5 M (5')				
	SM 4505CP	HO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 4506	HO INNER-TUBE 3.0 M (10')				
	SM 4506CP	HO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 4507	HO STOP RING				
4	SM 4508SL	HO CORE LIFTER, SLOTTED				
	SM 4508FL	HO CORE LIFTER, FLUTED				
5	SM 4509	HO CORE LIFTER CASE				
6	SM 4510	HO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 4510TC	HO LOCKING COUPLING, CARBIDE WITH TANG				
	LC40	HO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 4510/R	HRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 4510TC/R	HRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC40/R	HRO LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 4511	HO ADAPTER COUPLING				
8	SM 4512	HO LANDING RING				
9	SM 4513	HO OUTER-TUBE 1.5 M (5')				
	SM 4513CP	HO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 4514	HO OUTER-TUBE 3.0 M (10')				
	SM 4514CP	HO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 4515	HO INNER-TUBE STABILIZER				



HO Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K4500	HO Core Barrel Spare Parts Kit			
1	3195500	SPEARHEAD ASSEMBLY,HO	1	0.50	1.10
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 4520	COMPRESSION SPRING	1	0.04	0.09
4	SM 4522	LATCH	4	1.37	3.00
5	SM 4523	LINK	4	0.24	0.53
6	SM 3518	SPRING PIN 1/2" X 2"	2	0.06	0.13
7	SM 2529	BALL 22MM	1	0.05	0.11
8	SM 2530	LANDING INDICATOR BUSHING	2	0.02	0.14
9	SM 4524	LANDING SHOULDER	1	0.17	0.37
10	SM 4527	LOCKING NUT, 1-1/4"UNC	1	0.32	0.70
11	SM 4529	SHUT-OFF VALVE	4	0.20	0.44
12	SM 4531	THRUST BEARING	2	0.45	1.00
13	SM 4532	SPINDLE BUSHING	1	1.38	3.05
14	SM 3532	HANGER BEARING	1	0.16	0.35
15	SM 3536	LOCKING NUT, 1/8"UNC	1	0.12	0.26
16	SM 1549	GREASE FITTING	2	0.02	0.04
17	SM 4507	STOP RING	2	0.04	0.94
18	SM 4508	CORE LIFTER	20	2.20	4.84
19	SM 4509	CORE LIFTER CASE	4	1.36	2.99
20	SM 4512	LANDING RING	2	0.58	1.28
21	SM 4515	INNER-TUBE STABILIZER	2	0.50	1.10



HO-U Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 4500U	HO-U CORE BARREL ASSEMBLY 1.5 M (5')	SM 4500U			
	SM 4501U	HO-U INNER-TUBE GROUP 1.5 M (5')		SM 4501U		
	SM 4502U	HO-U CORE BARREL ASSEMBLY 3.0 M (10')			SM 4502U	
	SM 4503U	HO-U INNER-TUBE GROUP 3.0 M (10')				SM 4503U
1	SM 4504U	HO-U HEAD ASSEMBLY				
2	SM 4505	HO INNER-TUBE 1.5 M (5')				
	SM 4505CP	HO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 4506	HO INNER-TUBE 3.0 M (10')				
	SM 4506CP	HO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 4507	HO STOP RING				
4	SM 4508SL	HO CORE LIFTER, SLOTTED				
	SM 4508FL	HO CORE LIFTER, FLUTED				
5	SM 4509	HO CORE LIFTER CASE				
6	SM 4510	HO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 4510TC	HO LOCKING COUPLING, CARBIDE WITH TANG				
	LC40	HO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 4510/R	HRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 4510TC/R	HRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC40/R	HRO LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 4511U	HO ADAPTER COUPLING				
8	SM 4512	HO LANDING RING				
9	SM 4513	HO OUTER-TUBE 1.5 M (5')				
	SM 4513CP	HO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 4514	HO OUTER-TUBE 3.0 M (10')				
	SM 4514CP	HO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 4515	HO INNER-TUBE STABILIZER				



HO-U Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KU4500	HO-U Core Barrel Spare Parts Kit			
1	3195500	SPEARHEAD ASSEMBLY, HO	1	0.47	1.04
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 4538	COMPRESSION SPRING HO-U	1	0.23	0.51
4	SM 4522	LATCH	4	1.36	2.99
5	SM 4540	LINK, HO-U	4	0.12	0.26
6	SM 3518	SPRING PIN 1/2" X 2"	1	0.03	0.07
7	SM 25301	VALVE PISTON	1	0.08	0.18
8	SM 4542	SPRING PIN 1/4" X 2-3/4"	4	0.01	0.02
9	SM 2530	LANDING INDICATOR BUSHING	4	0.04	0.09
10	SM 4544	SEAL, HO-U	4	0.40	0.88
11	SM 4524	LANDING SHOULDER	2	0.34	0.75
12	SM 4529	SHUT-OFF VALVE	4	0.20	0.44
13	SM 4531	THRUST BEARING	2	0.46	1.01
14	SM 4532	SPINDLE BUSHING	1	1.38	3.04
15	SM 3532	HANGER BEARING	1	0.16	0.35
16	SM 4534	LOCKING NUT, 1/8"UNC	1	0.12	0.26
17	SM 1549	GREASE FITTING	1	0.01	0.02
18	SM 4507	STOP RING	2	0.04	0.09
19	SM 4508	CORE LIFTER	20	2.20	4.84
20	SM 4509	CORE LIFTER CASE	4	1.36	2.99
21	SM 4512	LANDING RING	2	0.58	1.28
22	SM 4515	INNER-TUBE STABILIZER	2	0.50	1.10



HO-3 Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 45003	HO3 CORE BARREL ASSEMBLY 1.5 M (5')	SM 45003			
	SM 45013	HO3 INNER-TUBE GROUP 1.5 M (5')		SM 45013		
	SM 45023	HO3 CORE BARREL ASSEMBLY 3.0 M (10')			SM 45023	
	SM 45033	HO3 INNER-TUBE GROUP 3.0 M (10')				SM 45033
1	SM 4504	HO HEAD ASSEMBLY				
2	SM 45163	HO3 PUMP-OUT ADAPTER				
3	SM 35173	PISTON PLUG				
4	SM 45183	O-RING				
5	SM 45193	HO3 CORE EJECTION PISTON				
6	SM 45203	HO3 SPLIT TUBE 1.5 M (5')				
	SM 45213	HO3 SPLIT TUBE 3.0 M (10')				
7	SM 4505	HO INNER-TUBE 1.5 M (5')				
	SM 4506	HO INNER-TUBE 3.0 M (10')				
8	SM 45073	HO3 STOP RING				
9	SM 45083FL	HO3 CORE LIFTER, FLUTED				
10	SM 45093	HO3 CORE LIFTER CASE				
11	SM 4510	HO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 4510TC	HO LOCKING COUPLING, CARBIDE WITH TANG				
	LC40	HO LOCKING COUPLING, DIAMOND WITH TANG				
	SM 4510/R	HRO LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 4510TC/R	HRO LOCKING COUPLING, CARBIDE WITH TANG				
	LC40/R	HRO LOCKING COUPLING, DIAMOND WITH TANG				
12	SM 4511	HO ADAPTER COUPLING				
13	SM 4512	HO LANDING RING				
14	SM 4513	HO OUTER-TUBE 1.5 M (5')				
	SM 4513CP	HO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 4514	HO OUTER-TUBE 3.0 M (10')				
	SM 4514CP	HO OUTER-TUBE 3.0 M (10') CHROME PLATED				
15	SM 4515	HO INNER-TUBE STABILIZER				



HO-3 Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K45003	HO-3 Core Barrel Spare Parts Kit			
1	3195500	SPEARHEAD ASSEMBLY, HO	1	0.50	1.10
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 4520	COMPRESSION SPRING	1	0.04	0.09
4	SM 4522	LATCH	4	1.36	2.99
5	SM 4523	LINK	4	0.24	0.53
6	SM 3518	SPRING PIN 1/2" X 2"	2	0.06	0.13
7	SM 2529	BALL 22MM	1	0.05	0.11
8	SM 2530	LANDING INDICATOR BUSHING	2	0.02	0.04
9	SM 4524	LANDING SHOULDER	1	0.17	0.37
10	SM 4527	LOCKING NUT, 1-1/4"UNC	1	0.32	0.70
11	SM 4529	SHUT-OFF VALVE	4	0.20	0.44
12	SM 4531	THRUST BEARING	2	0.46	1.01
13	SM 4532	SPINDLE BUSHING	1	1.38	3.04
14	SM 3532	HANGER BEARING	1	0.16	0.35
15	SM 4534	LOCKING NUT, 1/8"UNC	1	0.12	0.26
16	SM 1549	GREASE FITTING	2	0.02	0.04
17	SM 45073	HO3 STOP RING	2	0.04	0.09
18	SM 45083	HO3 CORE LIFTER	20	2.00	4.40
19	SM 45093	HO3 CORE LIFTER CASE	4	1.72	3.78
20	SM 45183	O RING	5	0.05	0.11
21	SM 4512	LANDING RING	2	0.58	1.28
22	SM 4515	INNER-TUBE STABILIZER	2	0.50	1.10



PO Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 5500	PO CORE BARREL ASSEMBLY 1.5 M (5')	SM 5500			
	SM 5501	PO INNER-TUBE GROUP 1.5 M (5')		SM 5501		
	SM 5502	PO CORE BARREL ASSEMBLY 3.0 M (10')			SM 5502	
	SM 5503	PO INNER-TUBE GROUP 3.0 M (10')				SM 5503
1	SM 5504	PO HEAD ASSEMBLY				
2	SM 5505	PO INNER-TUBE 1.5 M (5')				
	SM 5505CP	PO INNER-TUBE 1.5 M (5') CHROME PLATED				
	SM 5506	PO INNER-TUBE 3.0 M (10')				
	SM 5506CP	PO INNER-TUBE 3.0 M (10') CHROME PLATED				
3	SM 5507	PO STOP RING				
4	SM 5508FL	PO CORE LIFTER, FLUTED				
5	SM 5509	PO CORE LIFTER CASE				
6	SM 5510	PHD LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 5510TC	PHD LOCKING COUPLING, CARBIDE WITH TANG				
	LC50	PHD LOCKING COUPLING, DIAMOND WITH TANG				
7	SM 5511	PHD ADAPTER COUPLING				
8	SM 5512	PO LANDING RING				
9	SM 5513	PO OUTER-TUBE 1.5 M (5')				
	SM 5513CP	PO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 5514	PO OUTER-TUBE 3.0 M (10')				
	SM 5514CP	PO OUTER-TUBE 3.0 M (10') CHROME PLATED				
10	SM 5515	PO INNER-TUBE STABILIZER				



PO Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K5500	PO Core Barrel Spare Parts Kit			
1	3195500	SPEARHEAD ASSEMBLY, HO/PO	1	0.50	1.10
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 4520	COMPRESSION SPRING	1	0.04	0.09
4	SM 5516	LATCH, PO	4	1.52	3.34
5	SM 4523	LINK	4	0.24	0.53
6	SM 25301	VALVE PISTON	1	0.10	0.22
7	SM 25303	FLUID RETENTION BUSHING	1	0.03	0.07
8	SM 25304	FLUID RETENTION SPRING LIGHT	1	0.03	0.07
9	SM 25302	SPIROL PIN, 1/4"x2-3/4"	2	0.02	0.04
10	SM 5517	LANDING SHOULDER, PO	1	0.74	1.63
11	SM 5532	LOCKING NUT, 1-1/2" UNC	1	0.32	0.70
12	SM 5521	SHUT-OFF VALVE	4	0.40	0.88
13	SM 4531	THRUST BEARING	2	0.46	0.21
14	SM 5535	SPINDLE BUSHING	1	1.66	3.65
15	SM 1549	GREASE FITTING	2	0.02	0.04
16	SM 4534	LOCKING NUT, 1-1/4" UNC	1	0.23	0.51
17	SM 5507	STOP RING	2	0.14	0.31
18	SM 5508	CORE LIFTER	20	4.20	9.24
19	SM 5509	CORE LIFTER CASE	4	2.72	5.98
20	SM 5512	LANDING RING	2	0.48	44348
21	SM 5515	INNER-TUBE STABILIZER	2	0.70	19725



PO-3 Wireline Core Barrel Kit Selection

1.5 M/5.0 FT & 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	SM 55003	PO3 CORE BARREL ASSEMBLY 1.5 M (5')	SM 45003			
	SM 55013	PO3 INNER-TUBE GROUP 1.5 M (5')		SM 45013		
	SM 55023	PO3 CORE BARREL ASSEMBLY 3.0 M (10')			SM 45023	
	SM 55033	PO3 INNER-TUBE GROUP 3.0 M (10')				SM 45033
1	SM 5504	PO HEAD ASSEMBLY				
2	SM 55163	PO3 PUMP-OUT ADAPTER				
3	SM 35173	PISTON PLUG				
4	SM 55183	O-RING				
5	SM 55193	PO3 CORE EJECTION PISTON				
6	SM 55203	PO3 SPLIT TUBE 1.5 M (5')				
	SM 55213	PO3 SPLIT TUBE 3.0 M (10')				
7	SM 5505	PO INNER-TUBE 1.5 M (5')				
	SM 5506	PO INNER-TUBE 3.0 M (10')				
8	SM 55073	PO3 STOP RING				
9	SM 55083FL	PO3 CORE LIFTER, FLUTED				
10	SM 55093	PO3 CORE LIFTER CASE				
11	SM 5510	PHD LOCKING COUPLING, FULL HOLE-WITH TANG				
	SM 5510TC	PHD LOCKING COUPLING, CARBIDE WITH TANG				
	LC50	PHD LOCKING COUPLING, DIAMOND WITH TANG				
12	SM 5511	PHD ADAPTER COUPLING				
13	SM 5512	PO LANDING RING				
14	SM 5513	PO OUTER-TUBE 1.5 M (5')				
	SM 5513CP	PO OUTER-TUBE 1.5 M (5') CHROME PLATED				
	SM 5514	PO OUTER-TUBE 3.0 M (10')				
	SM 5514CP	PO OUTER-TUBE 3.0 M (10') CHROME PLATED				
15	SM 5515	PO INNER-TUBE STABILIZER				



PO-3 Wireline Core Barrel Spare Parts Kit

ID #	PART #	DESCRIPTION	QTY	KG	LB
	K55003	PO-3 Core Barrel Spare Parts Kit			
1	3195500	SPEARHEAD ASSEMBLY, HO/PO	1	0.50	1.10
2	SM 1524	BOLT 3/8" – 16UNC X 3/4"	2	0.10	0.22
3	SM 4520	COMPRESSION SPRING	1	0.04	0.09
4	SM 5516	LATCH	4	1.52	3.34
5	SM 4523	LINK	4	0.24	0.53
6	SM 3518	SPRING PIN 1/2" X 2"	1	0.07	0.15
7	SM 2529	VALVE PISTON	2	0.06	0.13
8	SM 25303	FLUID RETENTION BUSHING	1	0.03	0.07
9	SM 25304	FLUID RETENTION SPRING LIGHT	1	0.03	0.07
10	SM 5517	LANDING SHOULDER, PO	1	0.74	1.63
11	SM 4527	LOCKING NUT, 1-1/2"UNC	1	0.32	0.70
12	SM 5521	SHUT-OFF VALVE	4	0.40	0.88
13	SM 4531	THRUST BEARING	2	0.46	1.01
14	SM 4532	SPINDLE BUSHING	1	1.66	3.65
15	SM 1549	GREASE FITTING	2	0.02	0.04
16	SM 4534	LOCKING NUT 1-1/4"UNC	1	0.23	0.51
17	SM 55073	STOP RING	2	0.14	0.31
18	SM 55083	PO3 CORE LIFTER	20	5.40	11.88
19	SM 55093	PO3 CORE LIFTER CASE	4	2.56	5.63
20	SM 55183	O-RING	1	0.01	0.02
21	SM 5512	LANDING RING	1	0.24	0.53
22	SM 5515	INNER-TUBE STABILIZER	1	0.35	0.77

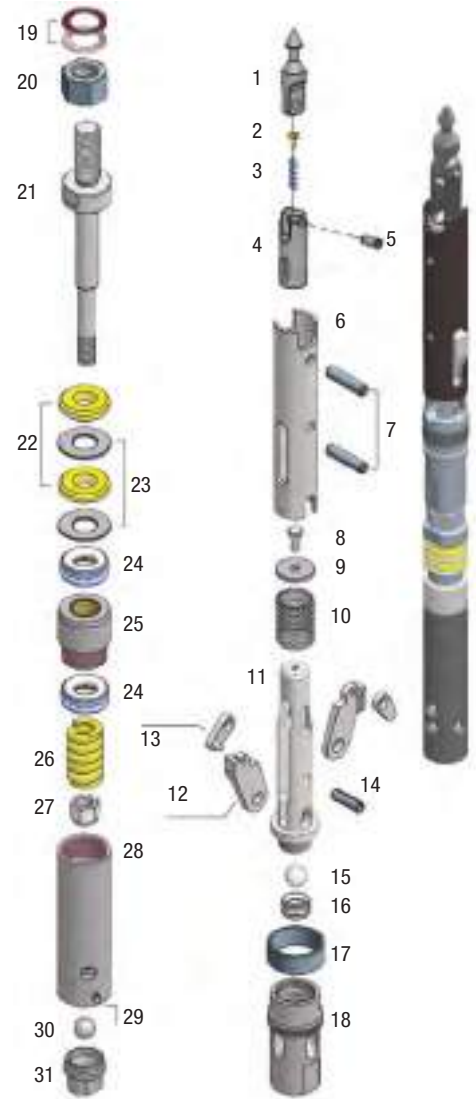




HEAD ASSEMBLIES

B0 Core Barrel Head Assembly

ID #	PART #	DESCRIPTION	QTY
	SM 2504	B0 Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 2519	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 2521	LATCH RETRACTING CASE	1
7	SM 2522	SPRING PIN 3/8" x 1-3/4"	2
8	SM 1524	BOLT 3/8" – 16UNC x 3/4"	1
9	SM 2523	WASHER	1
10	SM 2524	COMPRESSION SPRING	1
11	SM 2525	UPPER LATCH BODY	1
12	SM 2526	LATCH	2
13	SM 2527	LINK	2
14	SM 2528	SPIROL PIN 3/8" x 1-1/4"	1
15	SM 2529	BALL 22 mm	1
16	SM 2530	LANDING INDICATOR BUSHING	1
17	SM 2531	LANDING SHOULDER	1
18	SM 2532	LOWER LATCH BODY	1
19	SM 1538	WASHER NORD-LOCK 7/8"	1
20	SM 2533	HEX NUT 7/8" UNC	1
21	SM 2534	SPINDLE	1
22	SM 2535	SHUT-OFF VALVE, HARD	2
23	SM 2536	VALVE ADJUSTING WASHER	2
24	SM 2537	THRUST BEARING	2
25	SM 2538	SPINDLE BUSHING	1
26	SM 2539	COMPRESSION SPRING	1
27	SM 2540	LOCKING NUT 5/8" UNC	1
28	SM 2541	INNER-TUBE CAP	1
29	SM 1549	GREASE FITTING	1
30	SM 2551	BALL 3/4"	1
31	SM 2544	CHECK VALVE BODY	1



BO-U Core Barrel Head Assembly

ID #	PART #	DESCRIPTION	QTY
	SM 2504U	BO-U Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 2519	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 2542	LATCH RETRACTING CASE	1
7	SM 2522	SPRING PIN 3/8" X 1-3/4"	2
8	SM 1524	BOLT 3/8" – 16UNC X 3/4"	1
9	SM 2523	WASHER	1
10	SM 2553	COMPRESSION SPRING	1
11	SM 2546	UPPER LATCH BODY	1
12	SM 2526	LATCH	2
13	SM 2527	LINK	2
14	SM 2528	SPRING PIN 3/8" x 1-1/4"	1
15	SM 2543	VALVE PISTON	1
16	SM 2547	SPRING PIN 1/4" x 1-5/8"	1
17	SM 2552	LANDING INDICATOR BUSHING	1
18	SM 2548	ADAPTER	1
19	SM 2549	SEAL	2
20	SM 2550	SEAL SEAT	1
21	SM 2531	LANDING SHOULDER	1
22	SM 2532	LOWER LATCH BODY	1
23	SM 2533	LOCKING NUT 7/8" UNC	1
24	SM 2534	SPINDLE	1
25	SM 2535	SHUT-OFF VALVE	2
26	SM 2536	VALVE ADJUSTING WASHER	2
27	SM 2537	THRUST BEARING	2
28	SM 2538	SPINDLE BUSHING	1
29	SM 2539	COMPRESSION SPRING	1
30	SM 2540	LOCKING NUT 5/8" UNC	1
31	SM 2541	INNER-TUBE CAP	1
32	SM 1549	GREASE FITTING	1
33	SM 2551	BALL 3/4"	1
34	SM 2544	CHECK VALVE BODY	1



NO Core Barrel Head Assembly

ID #	PART #	DESCRIPTION	QTY
	SM 3504	NO Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 3516	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 3517	LATCH RETRACTING CASE	1
7	SM 3518	SPRING PIN 1/2" x 2"	2
8	SM 1524	BOLT 3/8" – 16UNC x 3/4"	1
9	SM 3519	WASHER	1
10	SM 3520	COMPRESSION SPRING	1
11	SM 3521	UPPER LATCH BODY	1
12	SM 3522	LATCH	2
13	SM 3523	LINK	2
14	SM 3524	SPIROL PIN 1/2" x 1- 1/2"	1
15	SM 2529	BALL 22 mm	1
16	SM 2530	LANDING INDICATOR BUSHING	1
17	SM 3525	LANDING SHOULDER	1
18	SM 3526	LOWER LATCH BODY	1
19	SM 3527	WASHER NORD-LOCK	1
20	SM 3528	LOCKING NUT 1-1/8"UNC	1
21	SM 3529	SPINDLE	1
22	SM 3530	SHUT-OFF VALVE	2
23	SM 3531	VALVE ADJUSTING WASHER	2
24	SM 3532	THRUST BEARING	1
25	SM 3533	SPINDLE BUSHING	1
26	SM 3534	HANGER BEARING	1
27	SM 3535	COMPRESSION SPRING	1
28	SM 3536	LOCKING NUT 3/4" UNC	1
29	SM 3537	INNER-TUBE CAP	1
30	SM 1549	GREASE FITTING	1
31	SM 2529	BALL 22mm	1
32	SM 3538	CHECK VALVE BODY	1



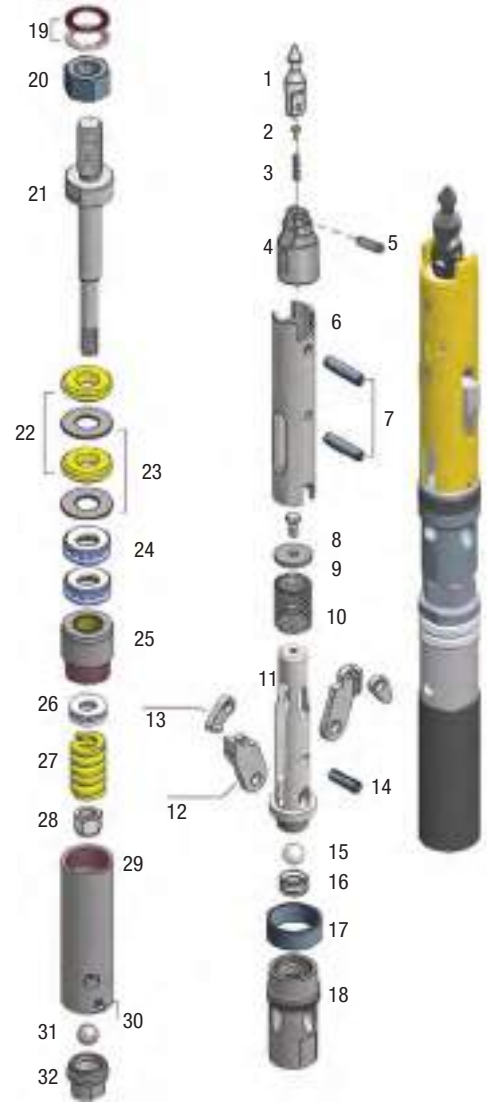
NO-U Core Barrel Head Assembly

ID #	PART #	DESCRIPTION	QTY
	SM 3504U	NO-U Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 3516	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 3539	LATCH RETRACTING CASE	1
7	SM 3518	SPRING PIN 1/2" x 2"	2
8	SM 1524	BOLT 3/8" – 16UNC X 3/4"	1
9	SM 3519	WASHER	1
10	SM 3540	COMPRESSION SPRING	1
11	SM 3541	UPPER LATCH BODY	1
12	SM 3522	LATCH	2
13	SM 3542	LINK	2
14	SM 3524	SPIROL PIN 1/2" x 1- 1/2"	1
15	SM 2543	VALVE PISTON	1
16	SM 3543	SPIROL PIN 1/4" x 2"	1
17	SM 2552	LANDING INDICATOR BUSHING	1
18	SM 3544	ADAPTER	1
19	SM 3545	SEAL	1
20	SM 3546	SEAL SEAT	1
21	SM 3525	LANDING SHOULDER	1
22	SM 3526	LOWER LATCH BODY	1
23	SM 3528	HEX NUT 1-1/8"	1
24	SM 3529	SPINDLE	1
25	SM 3530	SHUT-OFF VALVE	2
26	SM 3531	VALVE ADJUSTING WASHER	2
27	SM 3532	THRUST BEARING	1
28	SM 3533	SPINDLE BUSHING	1
29	SM 3534	HANGER BEARING	1
30	SM 3535	COMPRESSION SPRING	1
31	SM 3536	LOCKING NUT 3/4" UNC	1
32	SM 3537	INNER-TUBE CAP	1
33	SM 1549	GREASE FITTING	1
34	SM 2529	BALL 22mm	1
35	SM 3538	CHECK VALVE BODY	1



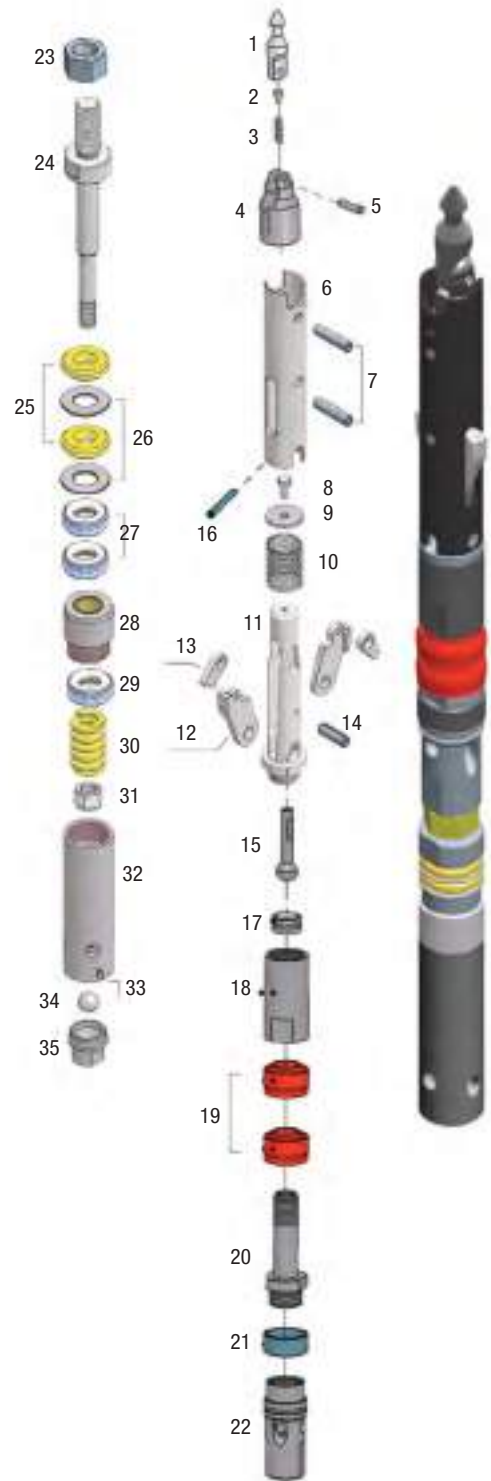
H0 Core Barrel Head Assembly

ID #	PART #	DESCRIPTION	QTY
	SM 4504	H0 Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 4516	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 4517	LATCH RETRACTING CASE	1
7	SM 4518	SPRING PIN 1/2" x 2-3/4"	2
8	SM 1524	BOLT 3/8" – 16UNC x 3/4	1
9	SM 4519	WASHER	1
10	SM 4520	COMPRESSION SPRING	1
11	SM 4521	UPPER LATCH BODY	1
12	SM 4522	LATCH	2
13	SM 4523	LINK	2
14	SM 3518	SPRING PIN 1/2" x 2"	1
15	SM 2529	BALL 22 mm	1
16	SM 2530	LANDING INDICATOR BUSHING	1
17	SM 4524	LANDING SHOULDER	1
18	SM 4525	LOWER LATCH BODY	1
19	SM 4526	WASHER NORD-LOCK 1-1/4"	1
20	SM 4527	LOCKING NUT 1-1/4" UNC	1
21	SM 4528	SPINDLE	1
22	SM 4529	SHUT-OFF VALVE	2
23	SM 4530	VALVE ADJUSTING WASHER	2
24	SM 4531	THRUST BEARING	2
25	SM 4532	SPINDLE BUSHING	1
26	SM 3532	HANGER BEARING	1
27	SM 4533	COMPRESSION SPRING	1
28	SM 4534	LOCKING NUT 1/8" UNC	1
29	SM 4535	INNER-TUBE CAP	1
30	SM 1549	GREASE FITTING	1
31	SM 2529	BALL 22mm	1
32	SM 3538	CHECK VALVE BODY	1



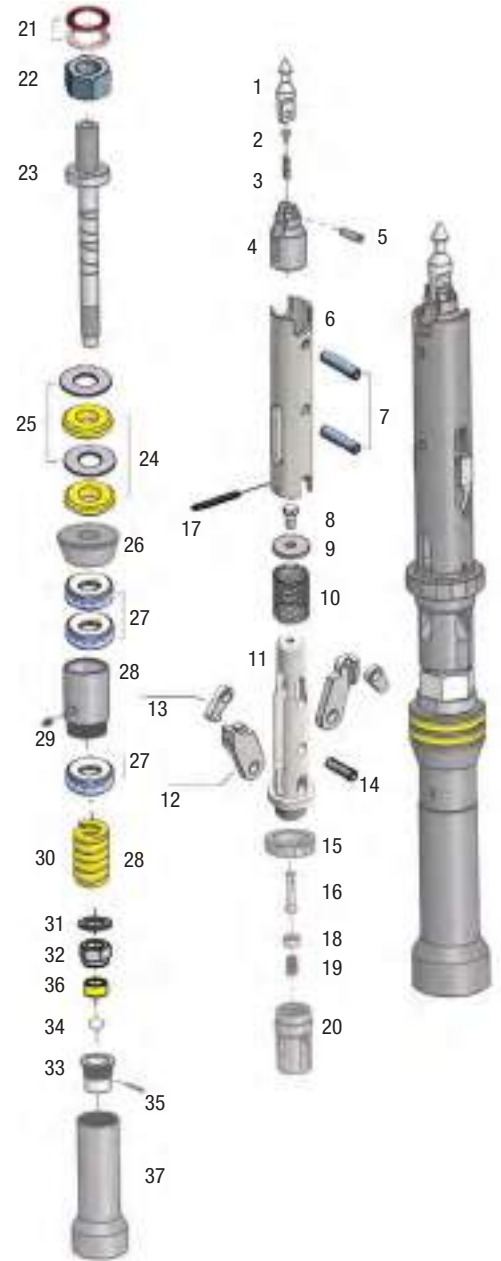
HO-U Core Barrel Head Assembly

ID #	PART #	DESCRIPTION	QTY
	SM 4504U	HO-U Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 4516	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 4537	LATCH RETRACTING CASE	1
7	SM 4518	SPRING PIN 1/2" x 2-3/4"	2
8	SM 4538	COMPRESSION SPRING	1
9	SM 4519	WASHER	1
10	SM 1524	BOLT 3/8" – 16UNC x 3/4"	1
11	SM 4539	UPPER LATCH BODY	1
12	SM 4522	LATCH	2
13	SM 4540	LINK	2
14	SM 3518	SPRING PIN 1/2" x 2"	1
15	SM 25301	VALVE PISTON	1
16	SM 4542	SPIROL PIN 1/4" x 2-3/4"	1
17	SM 2552	LANDING INDICATOR BUSHING	1
18	SM 4543	ADAPTER	1
19	SM 4544	SEAL	2
20	SM 4545	SEAL SEAT	1
21	SM 4524	LANDING SHOULDER	1
22	SM 4525	LOWER LATCH BODY	1
23	SM 4527	HEX NUT 1-1/4" UNC G8	1
24	SM 4528	SPINDLE	1
25	SM 4529	SHUT-OFF VALVE	2
26	SM 4530	VALVE ADJUSTING WASHER	2
27	SM 4531	THRUST BEARING	2
28	SM 4532	SPINDLE BUSHING	1
29	SM 3532	HANGER BEARING	1
30	SM 4533	COMPRESSION SPRING	1
31	SM 4534	LOCKING NUT	1
32	SM 4535	INNER-TUBE CAP	1
33	SM 1549	GREASE FITTING	1
34	SM 2529	BALL 22mm	1
35	SM 3538	CHECK VALVE BODY	1



PO Core Barrel Head Assembly

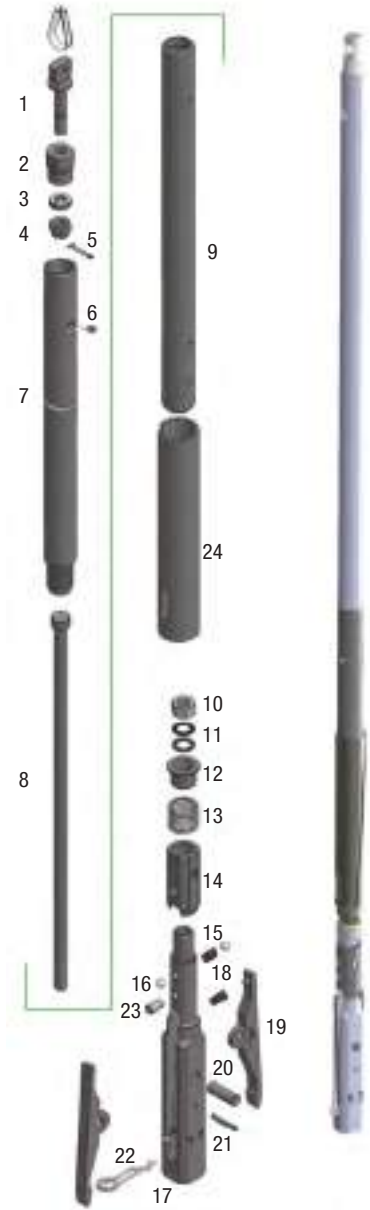
ID #	PART #	DESCRIPTION	QTY
	SM 5504	PO Core Barrel Head Assembly	
1	SM 2516	SPEARHEAD POINT	1
2	SM 2517	COMPRESSION SPRING	1
3	SM 2518	DETENT PLUNGER	1
4	SM 4516	SPEARHEAD BASE	1
5	SM 2520	SPIROL PIN 7/16" x 1-3/4"	1
6	SM 4517	LATCH RETRACTING CASE	1
7	SM 4518	SPRING PIN 1/2" x 2-3/4"	2
8	SM 1524	BOLT 3/8" – 16UNC x 3/4"	1
9	SM 4519	WASHER	1
10	SM 4520	COMPRESSION SPRING	1
11	SM 4521	UPPER LATCH BODY	1
12	SM 5516	LATCH	2
13	SM 4523	LINK	2
14	SM 3518	SPRING PIN 1/2" x 2"	1
15	SM 5517	LANDING SHOULDER	1
16	SM 25301	VALVE PISTON	1
17	SM 25302	SPIROL PIN 1/4" x 2-3/4"	1
18	SM 25303	FLUID RETENTION BUSHING	1
19	SM 25304	FLUID RETENTION SPRING LIGHT	1
20	SM 5530	LOWER LATCH BODY	1
21	SM 5531	WASHER NORD-LOCK 1-1/2"	1
22	SM 5532	LOCKING NUT 1-1/2" UNC	1
23	SM 5533	SPINDLE	2
24	SM 5521	SHUT-OFF VALVE	1
25	SM 5522	VALVE ADJUSTING WASHER	2
26	SM 5534	SHUT-OFF VALVE WASHER	1
27	SM 4531	THRUST BEARING	3
28	SM 4532	SPINDLE BUSHING	1
29	SM 1549	GREASE FITTING	1
30	SM 5536	COMPRESSION SPRING	1
31	SM 5524	FLAT WASHER 1-1/4"	1
32	SM 5537	LOCKING NUT 1-1/4" UNC	1
33	SM 5527	CHECK VALVE BODY	1
34	SM 2529	BALL 22mm	1
35	SM 5528	SPIROL PIN 3/16" x 1-3/4"	1
36	SM 5526	VALVE BUSHING	1
37	SM 5529	INNER-TUBE CAP	1



OVERSHOTS

BO Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVS7500	BO Over-Shot Assembly		15.58	34.28
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" x 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVS7501	CABLE SWIVEL BODY	1	5.15	11.33
8	OVS7502	JAR STAFF	1	0.32	0.70
9	OVS7503	JAR TUBE	1	1.61	3.54
10	OVS7504	HEX NUT 9/16" UNC	1	0.20	0.44
11	OVS7505	NORD-LOCK WASHER 9/16"	1	0.01	0.02
12	OVS7506	LOCKING CAP	1	0.20	0.40
13	OVS7507	COMPRESSION SPRING	1	0.02	0.04
14	OVS7508	LOCKING SLEEVE	1	0.30	0.61
15	OVS7509	COMPRESSION SPRING	1	0.01	0.02
16	OVS7510	BALL 11/32"	2	0.02	0.04
17	OVS7511	OVERSHOT HEAD	1	1.16	2.55
18	OVS7512	COMPRESSION SPRING	1	0.02	0.04
19	OVS7513	LIFTING DOG	2	0.32	0.70
20	OVS7514	PLAIN PIN 1/2" x 1-1/2"	1	0.05	0.11
21	OVS7515	SPRING PIN 3/16" x 1-3/8"	1	0.01	0.02
22	OVS7516	LOCKING PIN	1	0.03	0.06
23	OVS7517	SET SCREW 3/8" UNF x 3/4"	1	0.02	0.04
24	OVS7518	LOCKING SLEEVE	1	0.70	1.54



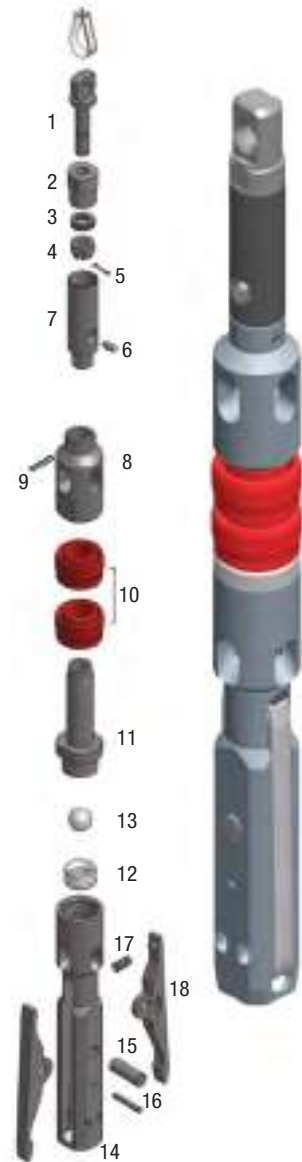
BO Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KB065	BO Over-Shot Spare Parts Kit		6.73	14.80
1	OVS6503	THRUST BEARING	1	0.01	0.02
2	OVS6504	CASTLE NUT, 1/2" UNF	1	0.02	0.04
3	OVS6505	COTTER PIN, 3/32" x 3/4"	2	0.02	0.04
4	SM 1549	GREASE FITTING	1	0.01	0.02
5	OVS7504	HEX NUT 9/16" UNC	1	0.20	0.44
6	OVS7510	BALL 11/32"	2	0.02	0.04
7	OVS7509	COMPRESSION SPRING	2	0.02	0.04
8	OVS7512	COMPRESSION SPRING	1	0.02	0.04
9	OVS7513	LIFTING DOG, BO	2	0.32	0.70
10	OVS7514	PLAIN PIN 1/2" X 1-1/2"	1	0.05	0.11
11	OVS7515	SPRING PIN 3/16" X 1-3/8"	1	0.01	0.02
12	OVS7516	LOCKING PIN	1	0.03	0.06
13	OVS7517	SET SCREW 3/8" UNF X 3/4"	1	0.02	0.04



BO-U Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVSU7500	BO-U Over-Shot Assembly		2.82	6.21
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" X 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVSU6518	CABLE SWIVEL BODY	1	0.27	0.59
8	OVSU7519	OVERSHOT UPPER BODY	1	0.30	0.66
9	OVSU6520	SPIROL PIN 3/16"X1-1/8"	1	0.01	0.02
10	SM 2549	SEAL	2	0.06	0.13
11	SM 2550	SEAL SEAT	1	0.60	1.32
12	SM 2530	LATCH INDICATOR BUSHING	1	0.01	0.02
13	SM 2529	BALL 22MM	1	0.10	0.22
14	OVSU7523	OVERSHOT HEAD	1	0.80	1.76
15	OVS7514	SPIROL PIN 1/2"X1-1/2"	1	0.05	0.11
16	OVS7515	SPRING PIN 3/16"X1-3/8"	1	0.01	0.02
17	OVS7512	COMPRESSION SPRING	1	0.02	0.04
18	OVS7513	LIFTING DOG	2	0.32	0.70



BO-U Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KBOU65	BO-U Over-Shot Spare Parts Kit		0.66	1.45
1	OVS6503	THRUST BEARING	1	0.01	0.02
2	OVS6504	CASTLE HEX NUT 1/2" UNF	1	0.02	0.04
3	OVS6505	COTTER PIN 3/32" X 3/4"	1	0.02	0.04
4	SM 1549	GREASE FITTING	1	0.01	0.02
5	OVSU6520	SPIROL PIN 3/16" X 1-1/8"	2	0.02	0.02
6	SM 2529	BALL, 22MM	1	0.05	0.11
7	SM 2530	INDICATOR BUSHING	2	0.02	0.04
8	SM 2549	SEAL	2	0.12	0.26
9	OVS7513	LIFTING DOG, BO	2	0.32	0.07
10	OVS7512	COMPRESSION SPRING	1	0.02	0.04
11	OVS7514	PRESS – FIT PIN 1/2" X 1-1/2"	1	0.05	0.11
12	OVS7515	SPRING PIN 3/16" X 1-3/8"	1	0.01	0.02

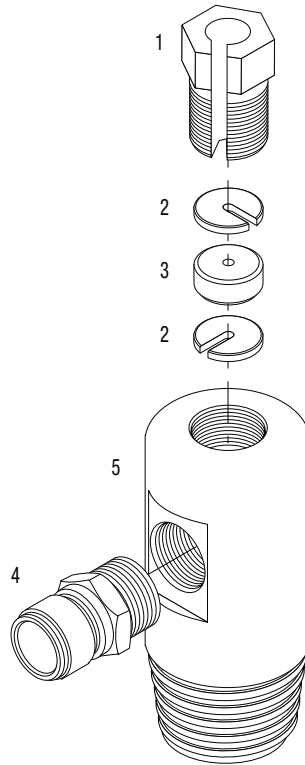


BO Loading Chamber Assembly

ID #	PART #	DESCRIPTION	QTY
1-5	1000130874	BO, Loading Chamber Assembly	
1	1000130880	Packing Plug	1
2	1000130881	Guide Washer	2
3	1000130882	Cable Packing	1
4	1000130883	Nipple	1
5	1000130884	BO, Loading Chamber Body	1

BRO Loading Chamber Assembly

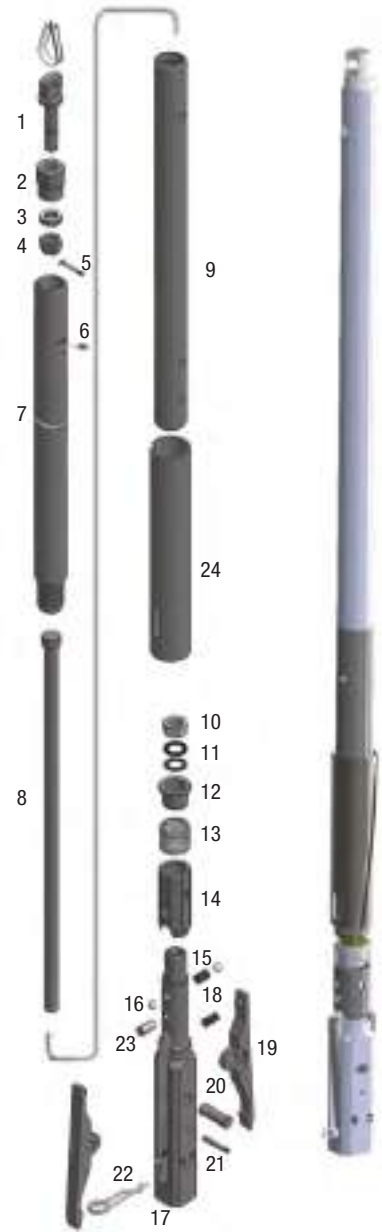
ID #	PART #	DESCRIPTION	QTY
1-5	1000130875	BRO, Loading Chamber Assembly	
1	1000130880	Packing Plug	1
2	1000130881	Guide Washer	2
3	1000130882	Cable Packing	1
4	1000130883	Nipple	1
5	1000130885	BRO, Loading Chamber Body	1





NO Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVS8500	NO Over-Shot Assembly		22.75	50.00
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" x 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVS8501	CABLE SWIVEL BODY	1	7.23	15.91
8	OVS8502	JAR STAFF	1	1.00	2.20
9	OVS8503	JAR TUBE	1	2.81	6.18
10	OVS8504	HEX NUT 3/4"UNC	1	0.05	0.11
11	OVS8505	NORD-LOCK WASHER 3/4"	1	0.01	0.02
12	OVS8506	LOCKING CAP	1	0.09	0.20
13	OVS8507	COMPRESSION SPRING	1	0.03	0.06
14	OVS8508	LOCKING SLEEVE	1	0.36	0.80
15	OVS7512	COMPRESSION SPRING	1	0.02	0.04
16	OVS7510	BAL 11/32"	2	0.02	0.04
17	OVS8510	OVERSHOT HEAD	1	2.66	5.85
18	OVS8511	COMPRESSION SPRING	1	0.01	0.02
19	OVS8512	LIFTING DOG	2	0.54	1.19
20	OVS8513	PLAIN PIN 1/2" x 1-15/16"	1	0.05	0.11
21	OVS8514	SPRING PIN 1/4" x 1-3/4"	1	0.01	0.02
22	OVS7516	LOCKING PIN	1	0.03	0.06
23	OVS7517	SET SCREW 3/8" UNF x 3/4"	1	0.02	0.04
24	OVS8515	LOCKING SLEEVE	1	1.56	3.43



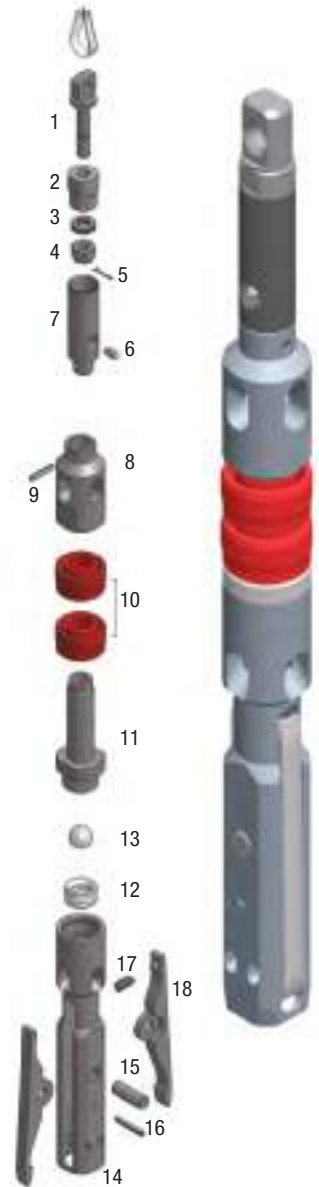
NO Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KN065	NO Over-Shot Spare Parts Kit		0.20	0.44
1	OVS6503	THRUST BEARING	1	0.01	0.02
2	OVS6504	CASTLE HEX NUT, 1/2" UNF	1	0.02	0.04
3	OVS6505	COTTER PIN, 3/32" X 3/4"	2	0.02	0.04
4	SM 1549	GREASE FITTING	1	0.01	0.02
5	OVS8504	HEX NUT 3/4"UNC	1	0.05	0.11
6	OVS7510	BALL 11/32"	2	0.02	0.04
7	OVS7512	COMPRESSION SPRING	1	0.02	0.04
8	OVS8511	LIFTING DOG SPRING	1	0.01	0.02
9	OVS8512	LIFTING DOG	2	0.54	1.19
10	OVS8513	PLAIN PIN 1/2" X 1-15/16"	1	0.05	0.11
11	OVS8514	SPRING PIN 1/4" X 1-3/4"	1	0.01	0.02
12	OVS7516	LOCKING PIN	1	0.03	0.06
13	OVS7517	SET SCREW 3/8"UNF X 3/4"	1	0.02	0.04



NO-U Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVSU8500	NO-U Over-Shot Assembly		2.88	6.30
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" X 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVSU6518	CABLE SWIVEL BODY	1	0.27	0.59
8	OVSU8516	OVERSHOT UPPER BODY	1	0.30	0.66
9	OVSU6520	SPIROL PIN 3/16" X 1-1/8"	1	0.01	0.02
10	SM 3545	SEAL	2	0.10	0.22
11	SM 3546	SEAL SEAT	1	0.60	1.32
12	SM 2530	INDICATOR BUSHING	1	0.01	0.02
13	SM 2529	BALL 22MM	1	0.10	0.22
14	OVSU8519	OVERSHOT HEAD	1	0.80	1.76
15	OVS8513	SPIROL PIN 1/2" X 1-15/16"	1	0.05	0.11
16	OVS8514	SPRING PIN 1/4" X 1-3/4"	1	0.01	0.02
17	OVS7511	COMPRESSION SPRING	1	0.02	0.04
18	OVS8512	LIFTING DOG	2	0.32	0.70



NO-U Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KNOU65	NO-U Over-Shot Spare Parts Kit		0.92	2.02
1	OVS6503	THRUST BEARING	1	0.01	0.02
2	OVS6504	CASTLE HEX NUT 1/2" UNF	1	0.02	0.04
3	OVS6505	COTTER PIN 3/32" X 3/4"	2	0.01	0.02
4	SM 1549	GREASE FITTING	1	0.02	0.04
5	OVSU6520	SPIROL PIN, 3/16"X 1-1/8"	1	0.01	0.02
6	SM 2529	BALL, 22MM	2	0.01	0.22
7	SM 2530	INDICATOR BUSHING	4	0.02	0.04
8	SM 3545	SEAL	1	0.12	0.26
9	OVS8512	LIFTING DOG	2	0.54	1.19
10	OVS8511	LIFTING DOG SPRING	1	0.01	0.02
11	OVS8513	PIN, PLAIN 1/2" X 1-15/16"	1	0.05	0.11
12	OVS8514	PIN, SPRING 1/4" X 1-3/4"	1	0.01	0.02

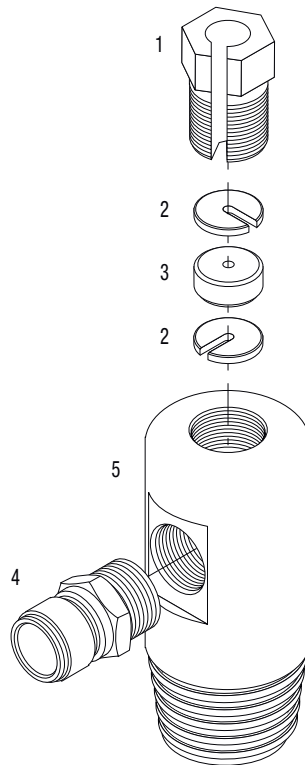


NO Loading Chamber Assembly

ID #	PART #	DESCRIPTION	QTY
1-5	1000130876	NO, Loading Chamber Assembly	
1	1000130880	Packing Plug	1
2	1000130881	Guide Washer	2
3	1000130882	Cable Packing	1
4	1000130883	Nipple	1
5	1000130886	NO, Loading Chamber Body	1

NRO Loading Chamber Assembly

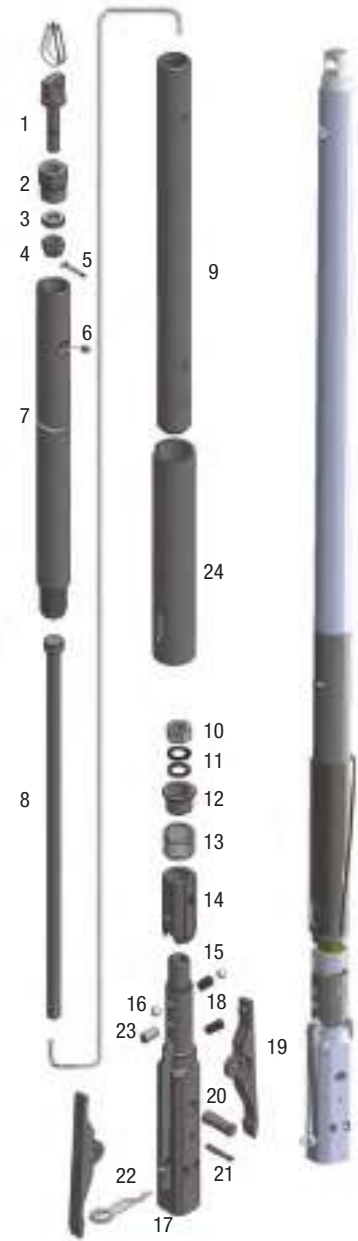
ID #	PART #	DESCRIPTION	QTY
1-5	1000130877	NRO, Loading Chamber Assembly	
1	1000130880	Packing Plug	1
2	1000130881	Guide Washer	2
3	1000130882	Cable Packing	1
4	1000130883	Nipple	1
5	1000130887	NRO, Loading Chamber Body	1





HO Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVS9500	HO Over-Shot Assembly		25.52	56.15
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" x 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVS8501	CABLE SWIVEL BODY	1	7.23	15.91
8	OVS8502	JAR STAFF	1	1.00	2.20
9	OVS8503	JAR TUBE	1	2.80	6.18
10	OVS8504	HEX NUT 3/4" UNC	1	0.05	0.11
11	OVS8505	NORD-LOCK WASHER 3/4"	1	0.01	0.02
12	OVS8506	LOCKING CAP	1	0.09	0.20
13	OVS8507	COMPRESSION SPRING	1	0.03	0.06
14	OVS8508	LOCKING SLEEVE	1	0.36	0.80
15	OVS7512	COMPRESSION SPRING	1	0.02	0.04
16	OVS7510	BAL 11/32"	2	0.02	0.04
17	OVS9501	OVERSHOT HEAD	1	5.45	12.00
18	OVS8511	COMPRESSION SPRING	1	0.01	0.02
19	OVS8512	LIFTING DOG	2	0.54	1.19
20	OVS9502	PLAIN PIN 1/2" x 2-1/8"	1	0.02	0.04
21	OVS9503	SPRING PIN 1/4" x 2"	1	0.01	0.02
22	OVS7516	LOCKING PIN	1	0.03	0.06
23	OVS7517	SET SCREW 3/8" UNF x 3/4"	1	0.02	0.04
24	OVS8515	LOCKING SLEEVE	1	1.56	3.43



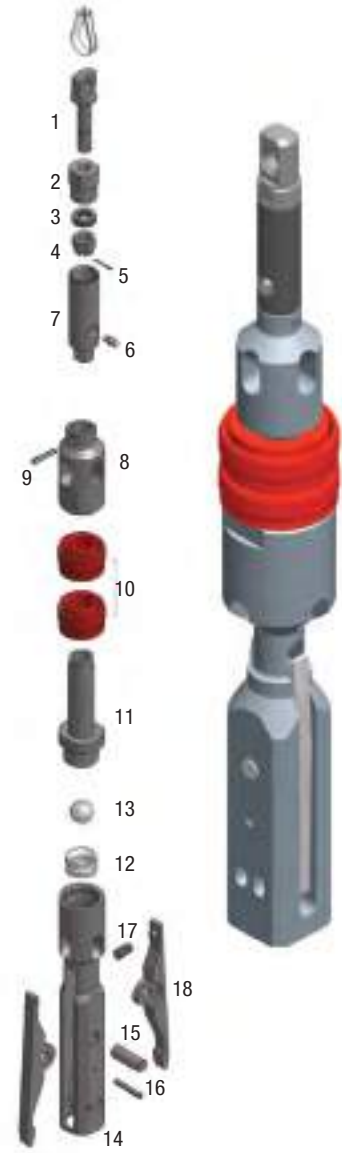
HO Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KHO65	HO Over-Shot Spare Parts Kit		6.76	14.87
1	OVS6503	THRUST BEARING	1	0.02	0.04
2	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
3	OVS6505	COTTER PIN 3/32" X 3/4	2	0.02	0.04
4	OVS6506	GREASE FITTING	1	0.01	0.02
5	OVS8504	HEX NUT 3/4" UNC	1	0.05	0.11
6	OVS7510	BALL 11/32"	2	0.02	0.04
7	OVS7512	COMPRESSION SPRING	1	0.02	0.04
8	OVS8511	LIFTING DOG SPRING	1	0.01	0.02
9	OVS8512	LIFTING DOG	2	0.54	0.19
10	OVS9502	PLAIN PIN 1/2" X 2-1/8"	1	0.02	0.04
11	OVS9503	SPRING PIN 1/4" X 2"	1	0.01	0.02
12	OVS7516	LOCKING PIN	1	0.03	0.06
13	OVS7517	SET SCREW 3/8" UNF X 3/4"	1	0.02	0.04



HO-U Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVSU9500	HO-U Over-Shot Assembly		6.13	13.51
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" X 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVSU6518	CABLE SWIVEL BODY	1	0.27	0.59
8	OVSU9504	OVERSHOT UPPER BODY	1	0.50	1.27
9	OVSU6520	SPIROL PIN 3/16" X 1-1/8"	1	0.01	0.02
10	SM 4544	SEAL	2	0.20	0.44
11	SM 4545	SEAL SEAT	1	1.29	2.84
12	SM 2530	INDICATOR BUSHING	1	0.01	0.02
13	SM 2529	BALL 22MM	1	0.10	0.22
14	OVSU9507	OVERSHOT HEAD	1	2.90	6.39
15	OVS9502	SPIROL PIN 1/2" X 2-1/8"	1	0.02	0.04
16	OVS9503	SPRING PIN 1/4" X 2"	1	0.01	0.02
17	OVS8511	COMPRESSION SPRING	1	0.01	0.02
18	OVS8512	LIFTING DOG	2	0.54	1.19



HO-U Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KHOU65	HO-U Over-Shot Spare Parts Kit		0.92	2.02
1	OVS6503	THRUST BEARING	1	0.01	0.02
2	OVS6504	CASTLE NUT 1/2" UNF G2	1	0.02	0.04
3	OVS6505	COTTER PIN 3/32" X 3/4"	2	0.01	0.02
4	SM 1549	GREASE FITTING	1	0.01	0.02
5	OVSU6520	SPIROL PIN 3/16" X 1-1/8"	1	0.02	0.04
6	SM 2529	BALL, 22MM	4	0.05	0.11
7	SM 2530	INDICATOR BUSHING	1	0.02	0.04
8	SM 4544	SEAL	2	0.02	0.04
9	OVS8512	LIFTING DOG	2	0.59	43466
10	OVS8511	LIFTING DOG SPRING	1	0.01	0.02
11	OVS9503	PIN, SPRING 1/4" X 2"	1	0.01	0.02
12	OVS9502	SPIROL PIN 1/2" X 2-1/8"	1	0.02	0.04

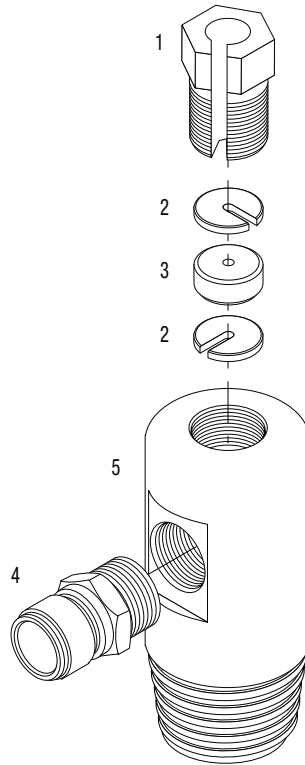


HO Loading Chamber Assembly

ID #	PART #	DESCRIPTION	QTY
1-5	1000130878	HO, Loading Chamber Assembly	
1	1000130880	Packing Plug	1
2	1000130881	Guide Washer	2
3	1000130882	Cable Packing	1
4	1000130883	Nipple	1
5	1000130888	HO, Loading Chamber Body	1

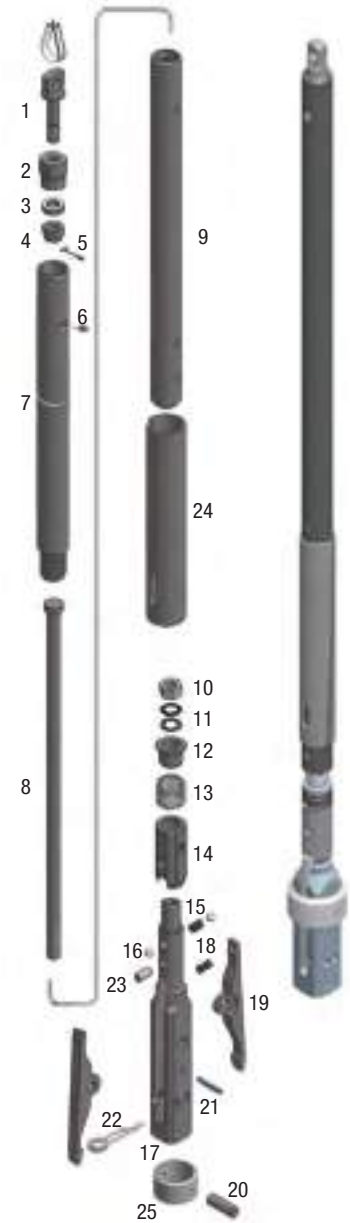
HRO Loading Chamber Assembly

ID #	PART #	DESCRIPTION	QTY
1-5	1000130879	HRO, Loading Chamber Assembly	
1	1000130880	Packing Plug	1
2	1000130881	Guide Washer	2
3	1000130882	Cable Packing	1
4	1000130883	Nipple	1
5	1000130889	HRO, Loading Chamber Body	1



PO Overshot Assembly

ID #	PART #	DESCRIPTION	QTY	KG	LB
	OVS10500	PO Over-Shot Assembly		25.52	56.15
1	OVS6501	CABLE SWIVEL EYE BOLT	1	0.11	0.24
2	OVS6502	CABLE SWIVEL COLLAR	1	0.11	0.24
3	OVS6503	THRUST BEARING	1	0.01	0.02
4	OVS6504	CASTLE NUT 1/2" UNF	1	0.02	0.04
5	OVS6505	COTTER PIN 3/32" x 3/4"	1	0.01	0.02
6	SM 1549	GREASE FITTING	1	0.01	0.02
7	OVS8501	CABLE SWIVEL BODY	1	7.23	15.91
8	OVS8502	JAR STAFF	1	1.00	2.20
9	OVS8503	JAR TUBE	1	2.80	6.18
10	OVS8504	HEX NUT 3/4"UNC	1	0.05	0.11
11	OVS8505	NORD-LOCK WASHER 3/4"	1	0.01	0.02
12	OVS8506	LOCKING CAP	1	0.09	0.20
13	OVS8507	COMPRESSION SPRING	1	0.03	0.06
14	OVS8508	LOCKING SLEEVE	1	0.36	0.80
15	OVS7512	COMPRESSION SPRING	1	0.02	0.04
16	OVS7510	BAL 11/32"	2	0.02	0.04
17	OVS9501	OVERSHOT HEAD	2	5.45	12.00
18	OVS8511	COMPRESSION SPRING	1	0.01	0.02
19	OVS8512	LIFTING DOG	2	0.54	1.19
20	OVS10502	PLAIN PIN 1/2" x 3-1/4"	1	0.02	0.04
21	OVS9503	SPRING PIN 1/4" x 2"	1	0.01	0.02
22	OVS7516	LOCKING PIN	1	0.03	0.06
23	OVS7517	SET SCREW 3/8" UNF x 3/4"	1	0.02	0.04
24	OVS8515	LOCKING SLEEVE	1	1.56	3.43
25	OVS10503	HEAD SLEEVE	1	0.15	0.33



PO Overshot Spares

ID #	PART #	DESCRIPTION	QTY	KG	LB
	KP065	PO Over-Shot Spare Parts Kit		6.76	14.87
1	OVS6503	THRUST BEARING	1	0.02	0.04
2	OVS6504	CASTLE NUT 1/2"UNF	1	0.02	0.04
3	OVS6505	COTTER PIN 3/32" X 3/4	2	0.02	0.04
4	SM 1549	GREASE FITTING	1	0.01	0.02
5	OVS7504	HEX NUT 3/4" UNC	1	0.05	0.11
6	OVS7510	BALL 11/32"	2	0.02	0.04
7	OVS7512	COMPRESSION SPRING	1	0.02	0.04
8	OVS8511	LIFTING DOG SPRING	1	0.01	0.02
9	OVS8512	LIFTING DOG	2	0.54	0.19
10	OVS10502	PLAIN PIN 1/2" X 3-1/4"	1	0.02	0.04
11	OVS9503	SPRING PIN 1/4" X 2"	1	0.01	0.02
12	OVS7516	LOCKING PIN	1	0.03	0.06
13	OVS7517	SET SCREW 3/8" UNF X 3/4"	1	0.02	0.04





ACCESSORIES

Compact Plus Water Swivel

Compact Plus Water Swivel Features:

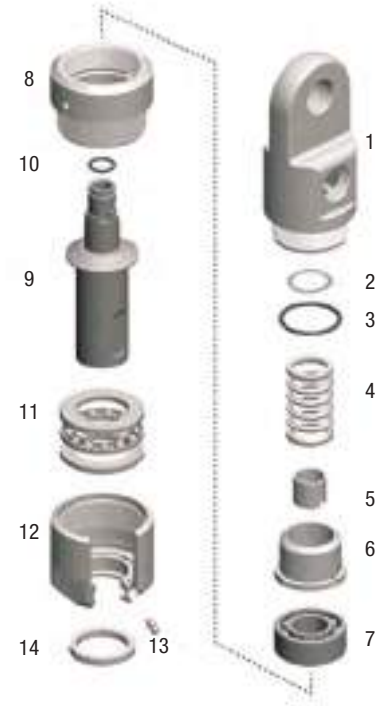
#16 NPT hose connection

AW rod box spindle connection

5/8" spindle fluid porting



ID #	PART #	DESCRIPTION	QTY
1-14	1000130754	Compact Plus Water Swivel	
1	1000130760	Swivel Cap	1
2	1000130761	Washer	1
3	1000130762	O-ring	1
4	1000130763	Swivel Packing	1
5	1000130764	Wear Sleeve	1
6	1000130765	Packing Cage	1
7	1000130766	Thrust Bearing	1
8	1000130767	Upper Swivel Body	1
9	1000130768	Spindle	1
10	1000130769	O-ring	1
11	1000130770	Thrust Bearing	1
12	1000130771	Lower Swivel Body	1
13	1000130772	Grease Fitting 3/8"	1
14	1000130773	Felt Seal	1



Compact Plus Water Swivel Spares

ID #	PART #	DESCRIPTION	QTY
1-8	1000130755	Compact Duty Water Swivel Spares	
1	1000130761	Washer	1
2	1000130762	O-ring	1
3	1000130763	Swivel Packing	1
4	1000130764	Wear Sleeve	1
5	1000130766	Thrust Bearing	1
6	1000130769	O-ring	1
7	1000130770	Thrust Bearing	1
8	1000130773	Felt Seal	1

Standard Duty Water Swivel

Standart Duty Water Swivel Features:

#20 NPT hose connection

BW rod box spindle connection

1-1/4" spindle fluid porting

ID #	PART #	DESCRIPTION	QTY
1-15	1000130756	Standard Duty Water Swivel	
1	1000130774	Hoisting Cap	1
2	1000130775	Compression Spring	1
3	1000130776	Swivel Packing	1
4	1000130777	O-Ring	1
5	1000130778	Packing Housing	1
6	1000130779	Spindle Nut	1
7	1000130780	Lock Washer	1
8	1000130781	Spacer	1
9	1000130782	Retaining Ring	1 </td
10	1000130783	Ball Bearing	1
11	1000130784	Spindle Extension	1
12	1000130785	Spindle	1
13	1000130786	Thrust Bearing	1
14	1000130787	Swivel Body	1
15	1000130772	Grease Fitting 3/8"	1



Standard Duty Water Swivel Spares

ID #	PART #	DESCRIPTION	QTY
1-7	1000130757	Standart Duty Water Swivel Spares	
1	1000130776	Swivel Packing	1
2	1000130777	O-ring	1
3	1000130780	Lock Washer	1
4	1000130782	Retaining Ring	1
5	1000130783	Ball Bearing	1
6	1000130784	Spindle Extension	1
7	1000130786	Thrust Bearing	1

Heavy Duty Water Swivel

Standart Duty Water Swivel Features:

#20 NPT hose connection

NW rod box spindle connection

1-1/2" spindle fluid porting



ID #	PART #	DESCRIPTION	QTY
1-16	1000130758	Heavy Duty Water Swivel	
1	1000130788	Hoisting Cap	1
2	1000130789	Compression Spring	1
3	1000130790	Swivel Packing	1
4	1000130791	O-Ring	1
5	1000130792	Packing Housing	1
6	1000130793	Loading Nut	1
7	1000130794	Screw	1
8	1000130795	Washer	1
9	1000130796	Thrust Washer	1
10	1000130797	Circlip	1
11	1000130798	Ball Bearing	1
12	1000130799	Spindle Extension	1
13	1000130800	Spindle	1
14	1000130801	Loading Washer	1
15	1000130802	Swivel Body	1
16	1000130803	Grease Fitting	1

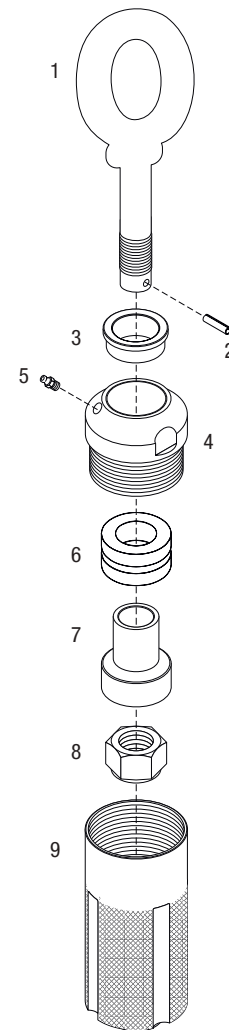


Heavy Duty Water Swivel Spares

ID #	PART #	DESCRIPTION	QTY
1-7	1000130759	Heavy Duty Water Swivel Spares	
1	1000130798	Ball Bearing	1
2	1000130797	Circlip	1
3	1000130791	O-ring	1
4	1000130790	Swivel Packing	1
5	1000130796	Thrust Washer	1
6	1000130792	Packing Housing	1
7	1000130800	Spindle	1
8	1000130773	Felt Seal	1

Hoist Plugs

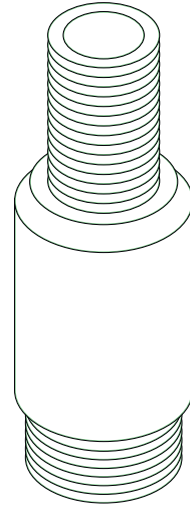
ID #	PART #	DESCRIPTION	QTY
1-9	1000130821	Hoist Plug, Standard	
1	1000130804	Eye Bolt	1
2	1000130805	Spring Pin 1/4"x 1-3/4"	1
3	1000130806	Wear Sleeve	1
4	1000130807	Bearing Housing	1
5	1000130808	Grease Fitting	1
6	1000130809	Hoist Plug Bearing	1
7	1000130810	Shaft Sleeve	1
8	1000130811	Lock Nut	1
9	1000130812	Lower Housing	1



ID #	PART #	DESCRIPTION	QTY
1-9	1000130822	Hoist Plug, Heavy Duty	
1	1000130813	Eye Bolt	1
2	1000130814	Wear Sleeve	1
3	1000130808	Grease Fitting	1
4	1000130815	Bearing Housing	1
5	1000130816	Thrust Bearing	1
6	1000130817	Shaft Sleeve	1
7	1000130818	Lock Nut	1
8	1000130819	Spring Pin 1/4" x 2"	1
9	1000130820	Lower Housing	1

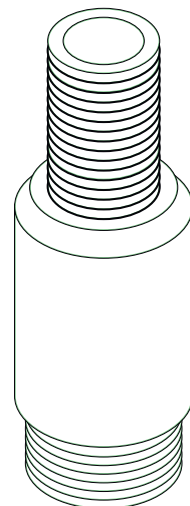
Water Swivel Adapter Subs

ID #	PART #	DESCRIPTION
Compact Plus Water Swivel		
1	1000130607	AW Rod Pin to BRO Rod Pin
2	1000130608	AW Rod Pin to BO Rod Pin
3	1000130609	AW Rod Pin to NRO Rod Pin
4	1000130610	AW Rod Pin to NO Rod Pin
5	1000130611	AW Rod Pin to HRO Rod Pin
6	1000130612	AW Rod Pin to HO Rod Pin
Standard Duty Water Swivel		
1	1000130613	BW Rod Pin to BRO Rod Pin
2	1000130614	BW Rod Pin to BO Rod Pin
3	1000130615	BW Rod Pin to NRO Rod Pin
4	1000130616	BW Rod Pin to NO Rod Pin
5	1000130617	BW Rod Pin to HRO Rod Pin
6	1000130618	BW Rod Pin to HO Rod Pin
7	1000130619	BW Rod Pin to PHD Rod Pin
Heavy Duty Water Swivel		
1	1000130620	NW Rod Pin to BRO Rod Pin
2	1000130621	NW Rod Pin to BO Rod Pin
3	1000130622	NW Rod Pin to NRO Rod Pin
4	1000130623	NW Rod Pin to NO Rod Pin
5	1000130624	NW Rod Pin to HRO Rod Pin
6	1000130625	NW Rod Pin to HO Rod Pin
7	1000130626	NW Rod Pin to PHD Rod Pin



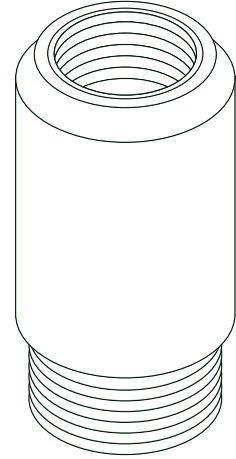
Hosting Plug Adapter Subs

ID #	PART #	DESCRIPTION
1	1000130620	NW Rod Pin to BRO Rod Pin
2	1000130621	NW Rod Pin to BO Rod Pin
3	1000130622	NW Rod Pin to NRO Rod Pin
4	1000130623	NW Rod Pin to NO Rod Pin
5	1000130624	NW Rod Pin to HRO Rod Pin
6	1000130625	NW Rod Pin to HO Rod Pin
7	1000130626	NW Rod Pin to PHD Rod Pin
8	1000130634	NW Rod Pin to PWT Casing Pin



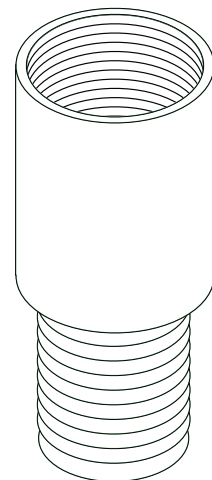
Casing Adapter Subs

ID #	PART #	DESCRIPTION
1	1000130635	BRO Rod Box to BW Casing Pin
2	1000130636	BO Rod Box to BW Casing Pin
3	1000130637	NRO Rod Box to BW Casing Pin
4	1000130638	NO Rod Box to BW Casing Pin
5	1000130639	NRO Rod Box to NW Casing Pin
6	1000130640	NO Rod Box to NW Casing Pin
7	1000130641	NRO Rod Box to HW Casing Pin
8	1000130642	NO Rod Box to HW Casing Pin
9	1000130643	NRO Rod Box to HWT Casing Pin
10	1000130644	NO Rod Box to HWT Casing Pin
11	1000130645	HRO Rod Box to NW Casing Pin
12	1000130646	HO Rod Box to NW Casing Pin
13	1000130647	HRO Rod Box to HW Casing Pin
14	1000130648	HO Rod Box to HW Casing Pin
15	1000130649	HRO Rod Box to HWT Casing Pin
16	1000130650	HO Rod Box to HWT Casing Pin
17	1000130651	PHD Rod Box to PWT Casing Pin
18	1000130652	PW Casing Box to PWT Casing Pin
19	1000130653	PWT Casing Box to PW Casing Pin



Recovery Tool Adapter Subs

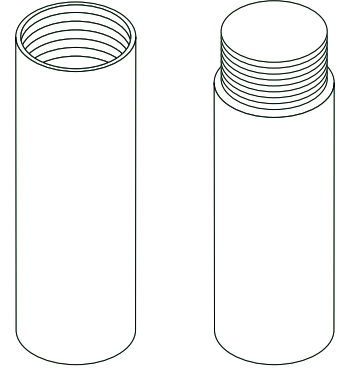
ID #	PART #	DESCRIPTION
1	1000130654	BRO Rod Box to AW Rod Pin
2	1000130655	BO Rod Box to AW Rod Pin
3	1000130656	BRO Rod Box to BW Rod Pin
4	1000130657	BO Rod Box to BW Rod Pin
5	1000130658	NRO Rod Box to BW Rod Pin
6	1000130659	NO Rod Box to BW Rod Pin
7	1000130660	NRO Rod Box to NW Rod Pin
8	1000130661	NO Rod Box to NW Rod Pin
9	1000130662	HRO Rod Box to NW Rod Pin
10	1000130663	HO Rod Box to NW Rod Pin
11	1000130664	PHD Rod Box to NW Rod Pin



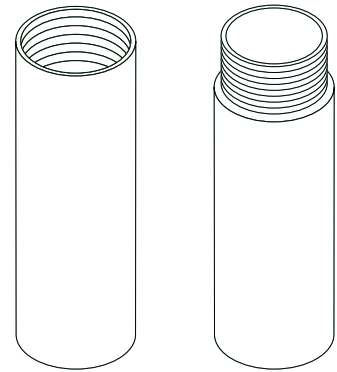
Blank End Adapter Subs

ID #	PART #	DESCRIPTION
1	1000130665	BRO Rod Box to Solid Blank
2	1000130666	BO Rod Box to Solid Blank
3	1000130667	BRO Rod Pin to Solid Blank
4	1000130668	BO Rod Pin to Solid Blank
5	1000130669	BRO Rod Box to Tubing Blank
6	1000130670	BRO Rod Pin to Tubing Blank
7	1000130671	NRO Rod Box to Solid Blank
8	1000130672	NO Rod Box to Solid Blank
9	1000130673	NRO Rod Pin to Solid Blank
10	1000130674	NO Rod Pin to Solid Blank
11	1000130675	NRO Rod Box to Tubing Blank
12	1000130676	NRO Rod Pin to Tubing Blank
13	1000130677	HRO Rod Box to Solid Blank
14	1000130678	HO Rod Box to Solid Blank
15	1000130679	HRO Rod Pin to Solid Blank
16	1000130680	HO Rod Pin to Solid Blank
17	1000130681	HRO Rod Box to Tubing Blank
18	1000130682	HRO Rod Pin to Tubing Blank
19	1000130683	PHD Rod Box to Solid Blank
20	1000130684	PWT Casing Pin to Solid Blank
21	1000130685	PHD Rod Box to Tubing Blank
22	1000130686	PHD Rod Pin to Tubing Blank

Solid Blank Bar End Sub



Tubing Blank End Sub



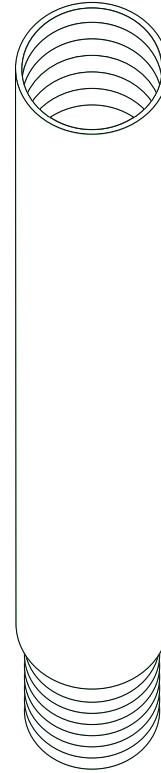
Drill Rod Adapter Subs

ID #	PART #	DESCRIPTION
1	1000130687	BRO Rod Box to BO Rod Pin
2	1000130688	BO Rod Box to BRO Rod Pin
3	1000130689	NRO Rod Box to NO Rod Pin
4	1000130690	NO Rod Box to NRO Rod Pin
5	1000130691	HRO Rod Box to HO Rod Pin
6	1000130692	HO Rod Box to HRO Rod Pin
7	1000130693	PHD Casing Box to PO Rod Pin
8	1000130694	PO Rod Box to PHD Pin
9	1000130662	HRO Rod Box to NW Rod Pin
10	1000130663	HO Rod Box to NW Rod Pin
11	1000130664	PHD Rod Box to NW Rod Pin



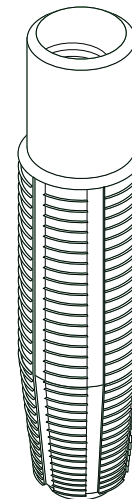
Rotation Unit Adapter Subs

ID #	PART #	DESCRIPTION
1	1000130695	AW Rod, Rotation Sub - Levent1001
2	1000130696	AW Rod, Rotation Sub - Levent2002
3	1000130697	AWJ Rod, Rotation Sub - Levent1001
4	1000130698	AWJ Rod, Rotation Sub - Levent2002
5	1000130699	BW Rod, Rotation Sub - Levent2002
6	1000130700	BW Rod, Rotation Sub - Levent3003
7	1000130701	BWJ Rod, Rotation Sub - Levent2002
8	1000130702	BWJ Rod, Rotation Sub - Levent3003
9	1000130703	NW Rod, Rotation Sub - Levent2002
10	1000130704	NW Rod, Rotation Sub - Levent3003
11	1000130705	NWJ Rod, Rotation Sub - Levent2002
12	1000130706	NWJ Rod, Rotation Sub - Levent3003
13	1000130707	AO Rod, Rotation Sub - Levent1001
14	1000130708	AO Rod, Rotation Sub - Levent2002
15	1000130709	BO Rod, Rotation Sub - Levent2002
16	1000130710	BO Rod, Rotation Sub - Levent3003
17	1000130711	NO Rod, Rotation Sub - Levent2002
18	1000130712	NO Rod, Rotation Sub - Levent3003
19	1000130713	HO Rod, Rotation Sub - Levent3003



Recovery Taps

ID #	PART #	DESCRIPTION
1	1000130714	BO Rod Recovery Tap
2	1000130715	NO Rod Recovery Tap
3	1000130716	HO Rod Recovery Tap
4	1000130717	PHD Rod Recovery Tap
5	1000130718	BW Casing Recovery Tap
6	1000130719	NW Casing Recovery Tap
7	1000130720	HW Casing Recovery Tap
8	1000130721	PWT Casing Recovery Tap

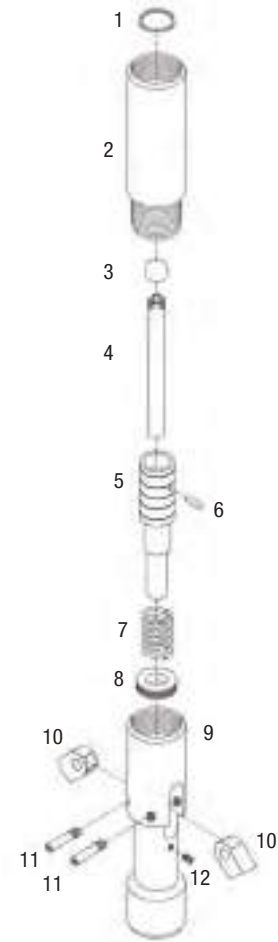


Casing Cutters

BW Casing Cutter Applications:

Used for cutting BW casing and N Wireline rods.
BO Rod box connection.

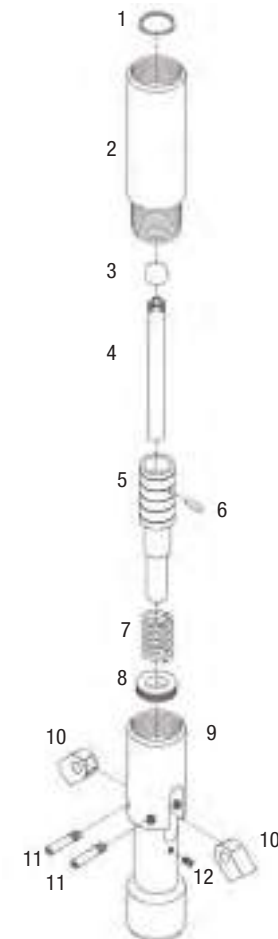
ID #	PART #	DESCRIPTION
1-12	1000130722	BW Casing Cutter Assembly
1	1000130726	Retaining Ring
2	1000130727	Plunger Case
3	1000130728	Ball, 15/16"
4	1000130729	Water Tube
5	1000130730	Plunger
6	1000130731	Pin
7	1000130732	Spring
8	1000130733	Spring Rest
9	1000130734	Body
10	1000130735	Casing Cutter Lug
11	1000130736	Casing Cutter Pin
12	1000130737	Set Screw, 1/4" UNC x 3/8"



NW Casing Cutter Applications:

Used for cutting NW casing and H Wireline rods.
BO Rod box connection.

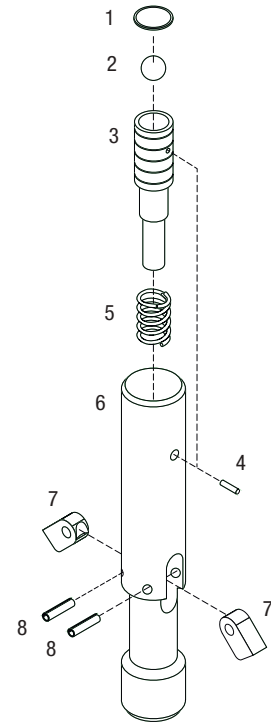
ID #	PART #	DESCRIPTION
1-12	1000130723	NW Casing Cutter Assembly
1	1000130738	Retaining Ring
2	1000130739	Plunger Case
3	1000130740	Ball, 1-1/8"
4	1000130741	Water Tube
5	1000130742	Plunger
6	1000130743	Pin, 3/16" x 1-11/16"
7	1000130744	Spring
8	1000130745	Spring Rest
9	1000130746	Body
10	1000130747	Casing Cutter Lug
11	1000130748	Casing Cutter Pin
12	1000130737	Set Screw, 1/4" UNC x 3/8"



HW Casing Cutter Applications:

Used for cutting HW casing and P Wireline rods.
HO Rod box connection.

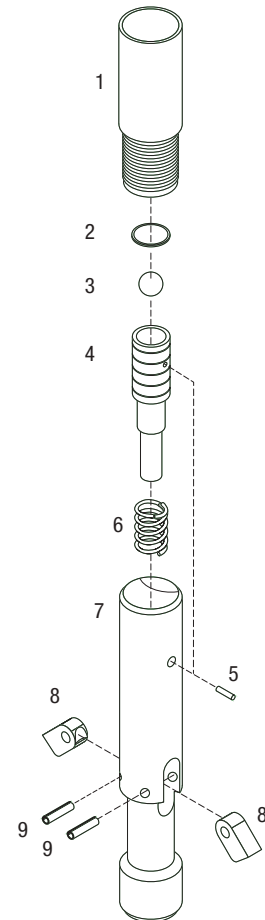
ID #	PART #	DESCRIPTION
1-8	1000130724	HW Casing Cutter Assembly
1	1000130738	Retaining Ring
2	1000130740	Ball, 1-1/8"
3	1000130742	Plunger
4	1000130743	Pin, 3/16" x 1-11/16"
5	1000130744	Spring
6	1000130749	Body
7	1000130750	Cutter Lug
8	1000130751	Spring Pin, 7/16" x 3"



PW Casing Cutter Applications:

Used for cutting PW casing.
PHD Rod box connection.

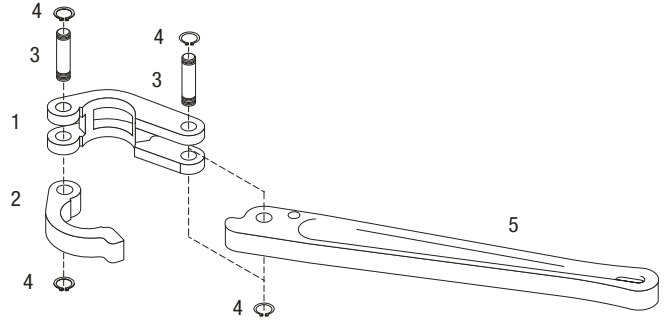
ID #	PART #	DESCRIPTION
1-9	1000130725	PW Casing Cutter Assembly
1	1000130753	Sub, PHD/HWT Rod Box to HO Rod Pin
2	1000130738	Retaining Ring
3	1000130740	Ball, 1-1/8"
4	1000130742	Plunger
5	1000130743	Pin, 3/16" x 1-11/16"
6	1000130744	Spring
7	1000130749	Body
8	1000130752	Cutter Lug
9	1000130751	Spring Pin, 7/16" x 3"



Coring Wrenches - B Wireline

ID #	PART #	DESCRIPTION	QTY
1-5	1000130823	BO Inner-tube Wrench	
1	1000130828	Hook Jaw	1
2	1000130829	Heel Jaw	1
3	1000130830	Pin	2
4	1000130831	Retaining Ring	4
5	1000130832	Handle	1

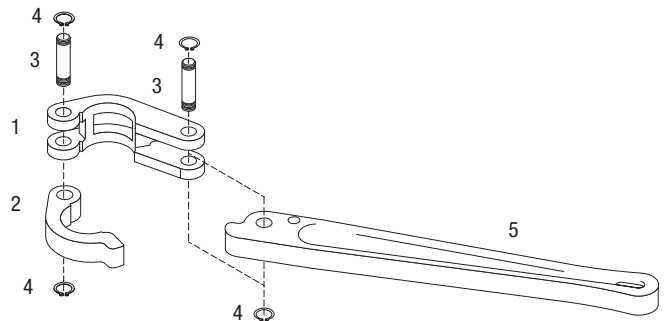
ID #	PART #	DESCRIPTION	QTY
1-5	1000130824	BO Outer-tube Wrench	
1	1000130833	Hook Jaw	1
2	1000130834	Heel Jaw	1
3	1000130830	Pin	2
4	1000130831	Retaining Ring	4
5	1000130832	Handle	1



Coring Wrenches - N Wireline

ID #	PART #	DESCRIPTION	QTY
1-5	1000130824	NO Inner-tube Wrench	
1	1000130833	Hook Jaw	1
2	1000130834	Heel Jaw	1
3	1000130830	Pin	2
4	1000130831	Retaining Ring	4
5	1000130832	Handle	1

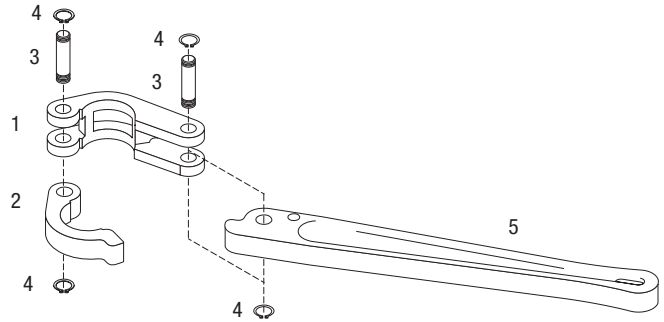
ID #	PART #	DESCRIPTION	QTY
1-5	1000130825	NO Outer-tube Wrench	
1	1000130835	Hook Jaw	1
2	1000130836	Heel Jaw	1
3	1000130837	Pin	2
4	1000130838	Retaining Ring	4
5	1000130839	Handle	1



Coring Wrenches - H Wireline

ID #	PART #	DESCRIPTION	QTY
1-5	1000130825	HO Inner-tube Wrench	
1	1000130835	Hook Jaw	1
2	1000130836	Heel Jaw	1
3	1000130837	Pin	2
4	1000130838	Retaining Ring	4
5	1000130839	Handle	1

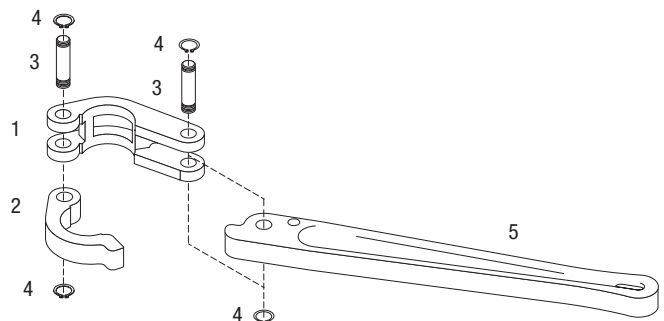
ID #	PART #	DESCRIPTION	QTY
1-5	1000130826	HO Outer-tube Wrench	
1	1000130840	Hook Jaw	1
2	1000130841	Heel Jaw	1
3	1000130837	Pin	2
4	1000130838	Retaining Ring	4
5	1000130839	Handle	1



Coring Wrenches - P Wireline

ID #	PART #	DESCRIPTION	QTY
1-5	1000130826	PO Inner-tube Wrench	
1	1000130840	Hook Jaw	1
2	1000130841	Heel Jaw	1
3	1000130837	Pin	2
4	1000130838	Retaining Ring	4
5	1000130839	Handle	1

ID #	PART #	DESCRIPTION	QTY
1-5	1000130827	PO Outer-tube Wrench	
1	1000130842	Hook Jaw	1
2	1000130843	Heel Jaw	1
3	1000130837	Pin	2
4	1000130838	Retaining Ring	4
5	1000130839	Handle	1





DIAMOND PRODUCTS

Impregnated Bits

Eagle impregnated diamond bits are the most widely used impregnated diamond bits in the core drilling operations by adjusting the combination of metal powders and diamonds in the matrix.

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Eagle impregnated diamond bits can be manufactured to maximize penetration rates and bit life in a variety of rock formations.

As drilling progresses, the crown is slowly worn away exposing new diamonds on the cutting surface. When the wear rate between the matrix material and the diamonds is balanced, optimum penetration rates and bit life will be achieved.

Eagle Bits are offered as a non-customizable design with a standard crown height and waterways.

Eagle Bits offer a great combination of quality and value.





EAĞALE DIAMOND BITS HARDNESS CHART

EXTREMELY ABRASIVE	SOFT - VERY ABRASIVE	SOFT - HIGHLY ABRASIVE	MEDIUM ABRASIVE	HARD ABRASIVE	HARD - MEDIUM ABRASIVE	VERY HARD ABRASIVE	LOW ABRASIVE	NON ABRASIVE
Soapstone Talc Coal Tuff Chalk	Gypsum Shale Loose Sandstone Siltstone Amber	Calcite Dolomite Claystone Salt Soft Schist	Fluorite Limestone Serpentine Sandstone Hard Shale	Apatite Pegmatite Dolomitic Limestone Volcanic Sandstone Schist	Feldspar Diorite Granite Dolomite Hematite	Quartzite Gneiss Rhyolite Diorite Basalt	Taconite Banded Iron Gabbro Topaz Chert	Corundum Conglomerate Sapphire
1	2	3	4	5	6	7	8	9

SOFTER

HARDER



EAĞALE 1/2
Hardness: 1 - 4.5



EAĞALE 3/4
Hardness: 2.5 - 6



EAĞALE 5/8
Hardness: 4.5 - 7.5



EAĞALE 7/8
Hardness: 6 - 8.5



EAĞALE 9/10
Hardness: 7 - 9



EAĞALE 11/12
Hardness: 7.5 - 9

EAĞALE 3/4

EAĞALE 5/8

EAĞALE 7/8

EAĞALE 9/10

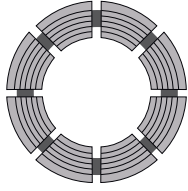
EAĞALE 11/12

Eagle Bit's are typically designated by series. Each series is designed to work under specific condions of ground hardness and abrasiveness.

Please refer to the selection table to identify the appropriate series for your drilling conditions.

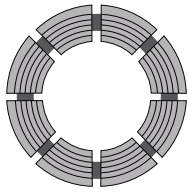
Eagle Bits are offered as a non-customizable design with a standard crown height and waterways.

Eagle Bits offer a great combination of quality and value.



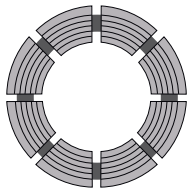
SERIES 1/2

Eagle 1/2 is made with an extremely wear resistant matrix for long life in soft formations, but can also be used in medium broken formations.



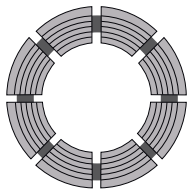
SERIES 3/4

Eagle 3/4 is a good choice for cutting soft to medium formations. Recommended for low powered drills only. High loads will seriously reduce bit life.



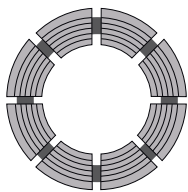
SERIES 5/6

Eagle 5/6 is a general purpose formula for cutting formations in the medium hard range. 5/6 also works well in formations of variable hardness.



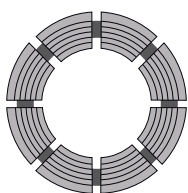
SERIES 7/8

Eagle 7/8 Series is a general purpose bit for cutting hard formations. For hard competent and nonabrasive formations. This free cutting bit requires high rotational speeds and light bit loads for best performance.



SERIES 9/10

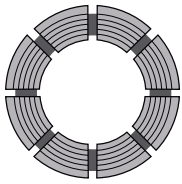
Eagle 9/10 is made to cut ultra hard fine grain formations. This is an alternative when drilling very hard formations with a low torque drill rig.



SERIES 11/12

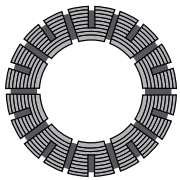
Eagle 11/12 is made to cut ultra hard fine grain formations. This is an alternative when drilling ultra hard formations with a low torque drill rig.

Waterway Configurations



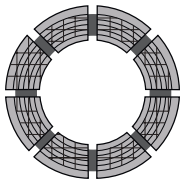
STANDARD WATERWAYS(S)

Standard waterways are recommended for most general purpose coring operations and off great fluid circulation in a variety of conditions.



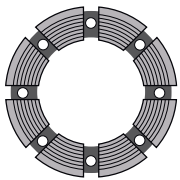
TURBO(T)

SON-MAK Turbo Bits waterways provide increased flushing ability and lessen the contact area of the bit to the rock, therefore giving the bit more cutting ability with less pressure. The allows for reduced torque and increased penetration rate. Only available in impregnated diamond bits.



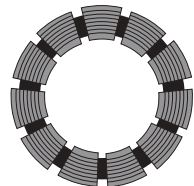
TAPERED WATERWAYS(TW)

Recommended for soft and broken formations when standard waterways may become blocked. The taper flushes cuttings to help keep the waterways clear.



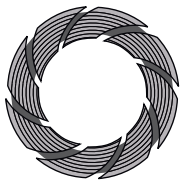
FACE DISCHARGE(FD)

Recommended for very soft and broken formations or when using Triple-tube (O3) barrels SON-MAK Face Discharge waterways increase flushing characteristics to prevent waterway blockage by ejecting fluid through ports molded into the face of the bit.



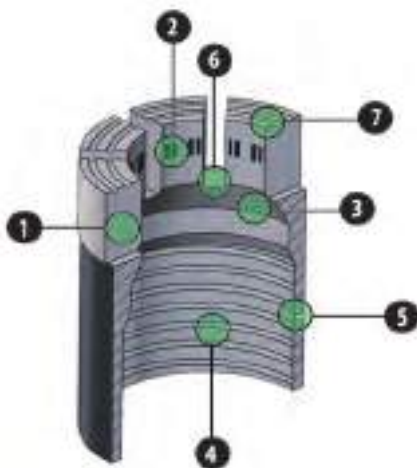
DEEP I.D. WATERWAYS(DD)

Designed to maximize the waterway depth on the I.D of the bit, which reduces the jetting or washing away of the core. The extra clearance minimizes the vacuum effect caused by the water flow past the lifter case in a lost circulation application.



SPIRAL(SP)

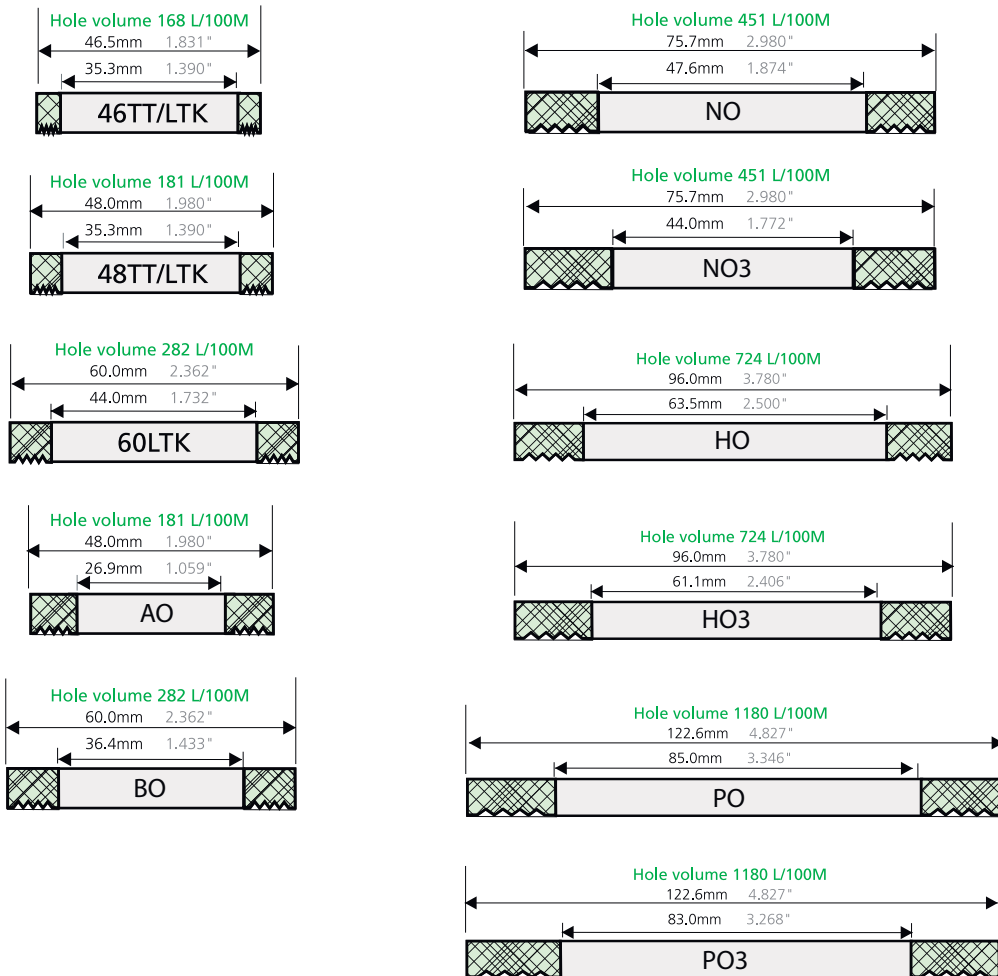
Recommended for drilling in broken formations. Specifically angled waterways allow for greater fluid ejection.



- 1. Crown:** Available in a wide variety of formations. The crown is the cutting edge of the bit.
- 2. Tungsten Carbide:** Protect stability of the crown.
- 3. Core Lifter Case Seat:** Supports core lifter case when breaking core.
- 4. Bitthreads:** Precision cut industry standart bit threads.
- 5. Bit Body:** Made of superior quality steel and machined in small batches to maintain manufacturing standarts.
- 6. Waterways:** Controls fluid flow around the cutting edge of the bit.
- 7. Bit Face:** Ideal design allow for quick startup of new bit.

Diamond Drill Bit Gauges

Size	Metric System (mm)		Imperial System (in)		Hole Volume	
	Hole Diameter	Core diameter	Hole Diameter	Core Diameter	L/100m	Gal./100ft
Wireline						
AO	47,60	26,90	1,87	1,06	181,00	14,50
BO	59,50	36,40	2,34	1,43	282,00	22,70
NO	75,30	47,60	2,96	1,88	451,00	36,30
HO	95,60	63,50	3,76	2,50	724,00	58,30
PO	122,00	85,00	4,80	3,34	1180,00	95,10
NO3	75,30	45,10	2,96	1,77	451,00	36,30
HO3	95,60	61,10	3,76	2,41	724,00	58,30
PO3	122,00	83,00	4,80	3,26	1180,00	95,10
Conventional						
LTK46	46,00	35,10	1,81	1,38	168,00	13,50
LTK48	47,60	35,30	1,87	1,39	181,00	14,50
LTK60	59,50	44,00	2,34	1,73	282,00	22,70
GEOBOR S	146,00	102,00	5,75	4,05	1673,00	134,70



Drilling Parameters

IMPREGNATED BIT DRILLING GUIDELINES									
	Fluid Volume		Rotation	Penetration Rates				Bit Weight Range	
	Range		Speed	in/min		cm/min		lb	kN
Dimensions	gpm	l/min	rpm	200 rpi	250 rpi	80 r/cm	100 r/cm		
LTK 46			2300	11.5	9.2	29	23		
	2.5 - 3.5	10 - 13	1400	7	5.6	18	14	1000 - 3000	5 - 13
			1000	5	4	13	10		
LTK48			2000	11	8.8	28	22		
	2.5 - 4	11 - 20	1500	7.5	6	19	15	1900 - 3100	8 - 14
			900	4.5	3.6	11	9		
LTK60			2000	8.5	6.8	22	17		
	5 - 7	20 - 25	1700	5	4	13	10	2000 - 5000	9 - 23
			1500	3.5	2.8	9	7		
AO Wireline			2000	10	8	25	20		
	3 - 5	11 - 15	1200	6	4.8	15	12	2000 - 5000	9 - 23
			850	4.25	3.4	11	9		
BO Wireline			1700	8.5	6.8	22	17		
	6 - 8	23 - 30	1000	5	4	13	10	2000 - 5000	9 - 23
			700	3.5	2.8	9	7		
NO Wireline NO3 Wireline			1350	6.75	5.4	17	14		
	8 - 10	30 - 38	800	4	3.2	10	8	3000 - 6000	14 - 27
HO Wireline HO3 Wireline			1000	5	4	13	10		
	10 - 12	38 - 45	600	3	2.4	8	6	4000 - 8000	18 - 36
PO Wireline PO3 Wireline			800	4	3.2	10	8		
	18 - 23	68 - 87	500	2.5	2	6	5	5000 - 10000	23 - 45
Geobore S			600	2	1.6	5	4		
	20 - 30	75 - 100	400	1.5	1.2	3.8	3	5000 - 10000	23 - 45

Sample Calculation of RPI or RPC

RPI or RPC = RPM ÷ Penetration Rate

Rod Size

Calculation

$$\begin{aligned} & \text{RPM} \\ & \div \text{Penetration Rate} \\ & = \text{RPI/ RPC} \end{aligned}$$

$$\begin{aligned} & \mathbf{N} \\ & 1200 \\ & \div 8''/\text{min} \\ & = 150 \text{ RPI} \end{aligned}$$

$$\begin{aligned} & \mathbf{N} \\ & 1200 \\ & \div 20.3 \text{ cm/min} \\ & = 59 \text{ RPC} \end{aligned}$$

AO Impregnated Core Bit

Part No	Size	Description	Matrix	Crown Height	Waterway Sizes	Waterway Width	
EA1102S	AO	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	14	4	5
EA1104S	AO	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	14	4	5
EA1106S	AO	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	14	4	5
EA1108S	AO	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	14	4	5
EA1110S	AO	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	14	4	5
EA1112S	AO	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	14	4	5
EA1102T	AO	IMP. DIAMOND BIT, 1/2	TURBO (T)	1/2	14	4	5
EA1104T	AO	IMP. DIAMOND BIT, 3/4	TURBO (T)	3/4	14	4	5
EA1106T	AO	IMP. DIAMOND BIT, 5/6	TURBO (T)	5/6	14	4	5
EA1108T	AO	IMP. DIAMOND BIT, 7/8	TURBO (T)	7/8	14	4	5
EA1110T	AO	IMP. DIAMOND BIT, 9/10	TURBO (T)	9/10	14	4	5
EA1112T	AO	IMP. DIAMOND BIT, 11/12	TURBO (T)	11/12	14	4	5
EA1102FD	AO	IMP. DIAMOND BIT, 1/2	FACE DISCHARGE (FD)	1/2	14	4	5
EA1104FD	AO	IMP. DIAMOND BIT, 3/4	FACE DISCHARGE (FD)	3/4	14	4	5
EA1106FD	AO	IMP. DIAMOND BIT, 5/6	FACE DISCHARGE (FD)	5/6	14	4	5
EA1108FD	AO	IMP. DIAMOND BIT, 7/8	FACE DISCHARGE (FD)	7/8	14	4	5
EA1110FD	AO	IMP. DIAMOND BIT, 9/10	FACE DISCHARGE (FD)	9/10	14	4	5
EA1112FD	AO	IMP. DIAMOND BIT, 11/12	FACE DISCHARGE (FD)	11/12	14	4	5
EA1102DD	AO	IMP. DIAMOND BIT, 1/2	DEEP I.D. WATERWAYS (DD)	1/2	14	4	5
EA1104DD	AO	IMP. DIAMOND BIT, 3/4	DEEP I.D. WATERWAYS (DD)	3/4	14	4	5
EA1106DD	AO	IMP. DIAMOND BIT, 5/6	DEEP I.D. WATERWAYS (DD)	5/6	14	4	5
EA1108DD	AO	IMP. DIAMOND BIT, 7/8	DEEP I.D. WATERWAYS (DD)	7/8	14	4	5
EA1110DD	AO	IMP. DIAMOND BIT, 9/10	DEEP I.D. WATERWAYS (DD)	9/10	14	4	5
EA1112DD	AO	IMP. DIAMOND BIT, 11/12	DEEP I.D. WATERWAYS (DD)	11/12	14	4	5
EA1102TW	AO	IMP. DIAMOND BIT, 1/2	TAPERED WATERWAYS (TW)	1/2	14	4	5
EA1104TW	AO	IMP. DIAMOND BIT, 3/4	TAPERED WATERWAYS (TW)	3/4	14	4	5
EA1106TW	AO	IMP. DIAMOND BIT, 5/6	TAPERED WATERWAYS (TW)	5/6	14	4	5
EA1108TW	AO	IMP. DIAMOND BIT, 7/8	TAPERED WATERWAYS (TW)	7/8	14	4	5
EA1110TW	AO	IMP. DIAMOND BIT, 9/10	TAPERED WATERWAYS (TW)	9/10	14	4	5
EA1112TW	AO	IMP. DIAMOND BIT, 11/12	TAPERED WATERWAYS (TW)	11/12	14	4	5
EA1102SP	AO	IMP. DIAMOND BIT, 1/2	SPIRAL (SP)	1/2	14	4	5
EA1104SP	AO	IMP. DIAMOND BIT, 3/4	SPIRAL (SP)	3/4	14	4	5
EA1106SP	AO	IMP. DIAMOND BIT, 5/6	SPIRAL (SP)	5/6	14	4	5
EA1108SP	AO	IMP. DIAMOND BIT, 7/8	SPIRAL (SP)	7/8	14	4	5
EA1110SP	AO	IMP. DIAMOND BIT, 9/10	SPIRAL (SP)	9/10	14	4	5
EA1112SP	AO	IMP. DIAMOND BIT, 11/12	SPIRAL (SP)	11/12	14	4	5

BO Impregnated Core Bit

Part No	Size	Description	Matrix	Crown Height	Waterway Sizes	Waterway Width	
EA2202S	BO	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	14	6	6
EA2204S	BO	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	14	6	6
EA2206S	BO	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	14	6	6
EA2208S	BO	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	14	6	6
EA2210S	BO	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	14	6	6
EA2212S	BO	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	14	6	6
EA2202T	BO	IMP. DIAMOND BIT, 1/2	TURBO (T)	1/2	14	6	6
EA2204T	BO	IMP. DIAMOND BIT, 3/4	TURBO (T)	3/4	14	6	6
EA2206T	BO	IMP. DIAMOND BIT, 5/6	TURBO (T)	5/6	14	6	6
EA2208T	BO	IMP. DIAMOND BIT, 7/8	TURBO (T)	7/8	14	6	6
EA2210T	BO	IMP. DIAMOND BIT, 9/10	TURBO (T)	9/10	14	6	6
EA2212T	BO	IMP. DIAMOND BIT, 11/12	TURBO (T)	11/12	14	6	6
EA2202FD	BO	IMP. DIAMOND BIT, 1/2	FACE DISCHARGE (FD)	1/2	14	6	6
EA2204FD	BO	IMP. DIAMOND BIT, 3/4	FACE DISCHARGE (FD)	3/4	14	6	6
EA2206FD	BO	IMP. DIAMOND BIT, 5/6	FACE DISCHARGE (FD)	5/6	14	6	6
EA2208FD	BO	IMP. DIAMOND BIT, 7/8	FACE DISCHARGE (FD)	7/8	14	6	6
EA2210FD	BO	IMP. DIAMOND BIT, 9/10	FACE DISCHARGE (FD)	9/10	14	6	6
EA2212FD	BO	IMP. DIAMOND BIT, 11/12	FACE DISCHARGE (FD)	11/12	14	6	6
EA2202DD	BO	IMP. DIAMOND BIT, 1/2	DEEP I.D. WATERWAYS (DD)	1/2	14	6	6
EA2204DD	BO	IMP. DIAMOND BIT, 3/4	DEEP I.D. WATERWAYS (DD)	3/4	14	6	6
EA2206DD	BO	IMP. DIAMOND BIT, 5/6	DEEP I.D. WATERWAYS (DD)	5/6	14	6	6
EA2208DD	BO	IMP. DIAMOND BIT, 7/8	DEEP I.D. WATERWAYS (DD)	7/8	14	6	6
EA2210DD	BO	IMP. DIAMOND BIT, 9/10	DEEP I.D. WATERWAYS (DD)	9/10	14	6	6
EA2212DD	BO	IMP. DIAMOND BIT, 11/12	DEEP I.D. WATERWAYS (DD)	11/12	14	6	6
EA2202TW	BO	IMP. DIAMOND BIT, 1/2	TAPERED WATERWAYS (TW)	1/2	14	6	6
EA2204TW	BO	IMP. DIAMOND BIT, 3/4	TAPERED WATERWAYS (TW)	3/4	14	6	6
EA2206TW	BO	IMP. DIAMOND BIT, 5/6	TAPERED WATERWAYS (TW)	5/6	14	6	6
EA2208TW	BO	IMP. DIAMOND BIT, 7/8	TAPERED WATERWAYS (TW)	7/8	14	6	6
EA2210TW	BO	IMP. DIAMOND BIT, 9/10	TAPERED WATERWAYS (TW)	9/10	14	6	6
EA2212TW	BO	IMP. DIAMOND BIT, 11/12	TAPERED WATERWAYS (TW)	11/12	14	6	6
EA2202SP	BO	IMP. DIAMOND BIT, 1/2	SPIRAL (SP)	1/2	14	6	6
EA2204SP	BO	IMP. DIAMOND BIT, 3/4	SPIRAL (SP)	3/4	14	6	6
EA2206SP	BO	IMP. DIAMOND BIT, 5/6	SPIRAL (SP)	5/6	14	6	6
EA2208SP	BO	IMP. DIAMOND BIT, 7/8	SPIRAL (SP)	7/8	14	6	6
EA2210SP	BO	IMP. DIAMOND BIT, 9/10	SPIRAL (SP)	9/10	14	6	6
EA2212SP	BO	IMP. DIAMOND BIT, 11/12	SPIRAL (SP)	11/12	14	6	6

NO Impregnated Core Bit

Part No	Size	Description	Matrix	Crown Height	Waterway Sizes	Waterway Width	
EA3302S	NO	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	14	8	6
EA3304S	NO	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	14	8	6
EA3306S	NO	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	14	8	6
EA3308S	NO	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	14	8	6
EA3310S	NO	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	14	8	6
EA3312S	NO	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	14	8	6
EA3302T	NO	IMP. DIAMOND BIT, 1/2	TURBO (T)	1/2	14	8	6
EA3304T	NO	IMP. DIAMOND BIT, 3/4	TURBO (T)	3/4	14	8	6
EA3306T	NO	IMP. DIAMOND BIT, 5/6	TURBO (T)	5/6	14	8	6
EA3308T	NO	IMP. DIAMOND BIT, 7/8	TURBO (T)	7/8	14	8	6
EA3310T	NO	IMP. DIAMOND BIT, 9/10	TURBO (T)	9/10	14	8	6
EA3312T	NO	IMP. DIAMOND BIT, 11/12	TURBO (T)	11/12	14	8	6
EA3302FD	NO	IMP. DIAMOND BIT, 1/2	FACE DISCHARGE (FD)	1/2	14	8	6
EA3304FD	NO	IMP. DIAMOND BIT, 3/4	FACE DISCHARGE (FD)	3/4	14	8	6
EA3306FD	NO	IMP. DIAMOND BIT, 5/6	FACE DISCHARGE (FD)	5/6	14	8	6
EA3308FD	NO	IMP. DIAMOND BIT, 7/8	FACE DISCHARGE (FD)	7/8	14	8	6
EA3310FD	NO	IMP. DIAMOND BIT, 9/10	FACE DISCHARGE (FD)	9/10	14	8	6
EA3312FD	NO	IMP. DIAMOND BIT, 11/12	FACE DISCHARGE (FD)	11/12	14	8	6
EA3302DD	NO	IMP. DIAMOND BIT, 1/2	DEEP I.D. WATERWAYS (DD)	1/2	14	8	6
EA3304DD	NO	IMP. DIAMOND BIT, 3/4	DEEP I.D. WATERWAYS (DD)	3/4	14	8	6
EA3306DD	NO	IMP. DIAMOND BIT, 5/6	DEEP I.D. WATERWAYS (DD)	5/6	14	8	6
EA3308DD	NO	IMP. DIAMOND BIT, 7/8	DEEP I.D. WATERWAYS (DD)	7/8	14	8	6
EA3310DD	NO	IMP. DIAMOND BIT, 9/10	DEEP I.D. WATERWAYS (DD)	9/10	14	8	6
EA3312DD	NO	IMP. DIAMOND BIT, 11/12	DEEP I.D. WATERWAYS (DD)	11/12	14	8	6
EA3302TW	NO	IMP. DIAMOND BIT, 1/2	TAPERED WATERWAYS (TW)	1/2	14	8	6
EA3304TW	NO	IMP. DIAMOND BIT, 3/4	TAPERED WATERWAYS (TW)	3/4	14	8	6
EA3306TW	NO	IMP. DIAMOND BIT, 5/6	TAPERED WATERWAYS (TW)	5/6	14	8	6
EA3308TW	NO	IMP. DIAMOND BIT, 7/8	TAPERED WATERWAYS (TW)	7/8	14	8	6
EA3310TW	NO	IMP. DIAMOND BIT, 9/10	TAPERED WATERWAYS (TW)	9/10	14	8	6
EA3312TW	NO	IMP. DIAMOND BIT, 11/12	TAPERED WATERWAYS (TW)	11/12	14	8	6
EA3302SP	NO	IMP. DIAMOND BIT, 1/2	SPIRAL (SP)	1/2	14	8	6
EA3304SP	NO	IMP. DIAMOND BIT, 3/4	SPIRAL (SP)	3/4	14	8	6
EA3306SP	NO	IMP. DIAMOND BIT, 5/6	SPIRAL (SP)	5/6	14	8	6
EA3308SP	NO	IMP. DIAMOND BIT, 7/8	SPIRAL (SP)	7/8	14	8	6
EA3310SP	NO	IMP. DIAMOND BIT, 9/10	SPIRAL (SP)	9/10	14	8	6
EA3312SP	NO	IMP. DIAMOND BIT, 11/12	SPIRAL (SP)	11/12	14	8	6

HO Impregnated Core Bit

Part No	Size	Description	Matrix	Crown Height	Waterway Sizes	Waterway Width	
EA4402S	HO	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	14	10	6
EA4404S	HO	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	14	10	6
EA4406S	HO	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	14	10	6
EA4408S	HO	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	14	10	6
EA4410S	HO	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	14	10	6
EA4412S	HO	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	14	10	6
EA4402T	HO	IMP. DIAMOND BIT, 1/2	TURBO (T)	1/2	14	10	6
EA4404T	HO	IMP. DIAMOND BIT, 3/4	TURBO (T)	3/4	14	10	6
EA4406T	HO	IMP. DIAMOND BIT, 5/6	TURBO (T)	5/6	14	10	6
EA4408T	HO	IMP. DIAMOND BIT, 7/8	TURBO (T)	7/8	14	10	6
EA4410T	HO	IMP. DIAMOND BIT, 9/10	TURBO (T)	9/10	14	10	6
EA4412T	HO	IMP. DIAMOND BIT, 11/12	TURBO (T)	11/12	14	10	6
EA4402FD	HO	IMP. DIAMOND BIT, 1/2	FACE DISCHARGE (FD)	1/2	14	10	6
EA4404FD	HO	IMP. DIAMOND BIT, 3/4	FACE DISCHARGE (FD)	3/4	14	10	6
EA4406FD	HO	IMP. DIAMOND BIT, 5/6	FACE DISCHARGE (FD)	5/6	14	10	6
EA4408FD	HO	IMP. DIAMOND BIT, 7/8	FACE DISCHARGE (FD)	7/8	14	10	6
EA4410FD	HO	IMP. DIAMOND BIT, 9/10	FACE DISCHARGE (FD)	9/10	14	10	6
EA4412FD	HO	IMP. DIAMOND BIT, 11/12	FACE DISCHARGE (FD)	11/12	14	10	6
EA4402DD	HO	IMP. DIAMOND BIT, 1/2	DEEP I.D. WATERWAYS (DD)	1/2	14	10	6
EA4404DD	HO	IMP. DIAMOND BIT, 3/4	DEEP I.D. WATERWAYS (DD)	3/4	14	10	6
EA4406DD	HO	IMP. DIAMOND BIT, 5/6	DEEP I.D. WATERWAYS (DD)	5/6	14	10	6
EA4408DD	HO	IMP. DIAMOND BIT, 7/8	DEEP I.D. WATERWAYS (DD)	7/8	14	10	6
EA4410DD	HO	IMP. DIAMOND BIT, 9/10	DEEP I.D. WATERWAYS (DD)	9/10	14	10	6
EA4412DD	HO	IMP. DIAMOND BIT, 11/12	DEEP I.D. WATERWAYS (DD)	11/12	14	10	6
EA4402TW	HO	IMP. DIAMOND BIT, 1/2	TAPERED WATERWAYS (TW)	1/2	14	10	6
EA4404TW	HO	IMP. DIAMOND BIT, 3/4	TAPERED WATERWAYS (TW)	3/4	14	10	6
EA4406TW	HO	IMP. DIAMOND BIT, 5/6	TAPERED WATERWAYS (TW)	5/6	14	10	6
EA4408TW	HO	IMP. DIAMOND BIT, 7/8	TAPERED WATERWAYS (TW)	7/8	14	10	6
EA4410TW	HO	IMP. DIAMOND BIT, 9/10	TAPERED WATERWAYS (TW)	9/10	14	10	6
EA4412TW	HO	IMP. DIAMOND BIT, 11/12	TAPERED WATERWAYS (TW)	11/12	14	10	6
EA4402SP	HO	IMP. DIAMOND BIT, 1/2	SPIRAL (SP)	1/2	14	10	6
EA4404SP	HO	IMP. DIAMOND BIT, 3/4	SPIRAL (SP)	3/4	14	10	6
EA4406SP	HO	IMP. DIAMOND BIT, 5/6	SPIRAL (SP)	5/6	14	10	6
EA4408SP	HO	IMP. DIAMOND BIT, 7/8	SPIRAL (SP)	7/8	14	10	6
EA4410SP	HO	IMP. DIAMOND BIT, 9/10	SPIRAL (SP)	9/10	14	10	6
EA4412SP	HO	IMP. DIAMOND BIT, 11/12	SPIRAL (SP)	11/12	14	10	6

PO Impregnated Core Bit

Part No	Size	Description	Matrix	Crown Height	Waterway Sizes	Waterway Width	
EA5502S	PO	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	14	12	6
EA5504S	PO	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	14	12	6
EA5506S	PO	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	14	12	6
EA5508S	PO	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	14	12	6
EA5510S	PO	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	14	12	6
EA5512S	PO	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	14	12	6
EA5502T	PO	IMP. DIAMOND BIT, 1/2	TURBO (T)	1/2	14	12	6
EA5504T	PO	IMP. DIAMOND BIT, 3/4	TURBO (T)	3/4	14	12	6
EA5506T	PO	IMP. DIAMOND BIT, 5/6	TURBO (T)	5/6	14	12	6
EA5508T	PO	IMP. DIAMOND BIT, 7/8	TURBO (T)	7/8	14	12	6
EA5510T	PO	IMP. DIAMOND BIT, 9/10	TURBO (T)	9/10	14	12	6
EA5512T	PO	IMP. DIAMOND BIT, 11/12	TURBO (T)	11/12	14	12	6
EA5502FD	PO	IMP. DIAMOND BIT, 1/2	FACE DISCHARGE (FD)	1/2	14	12	6
EA5504FD	PO	IMP. DIAMOND BIT, 3/4	FACE DISCHARGE (FD)	3/4	14	12	6
EA5506FD	PO	IMP. DIAMOND BIT, 5/6	FACE DISCHARGE (FD)	5/6	14	12	6
EA5508FD	PO	IMP. DIAMOND BIT, 7/8	FACE DISCHARGE (FD)	7/8	14	12	6
EA5510FD	PO	IMP. DIAMOND BIT, 9/10	FACE DISCHARGE (FD)	9/10	14	12	6
EA5512FD	PO	IMP. DIAMOND BIT, 11/12	FACE DISCHARGE (FD)	11/12	14	12	6
EA5502DD	PO	IMP. DIAMOND BIT, 1/2	DEEP I.D. WATERWAYS (DD)	1/2	14	12	6
EA5504DD	PO	IMP. DIAMOND BIT, 3/4	DEEP I.D. WATERWAYS (DD)	3/4	14	12	6
EA5506DD	PO	IMP. DIAMOND BIT, 5/6	DEEP I.D. WATERWAYS (DD)	5/6	14	12	6
EA5508DD	PO	IMP. DIAMOND BIT, 7/8	DEEP I.D. WATERWAYS (DD)	7/8	14	12	6
EA5510DD	PO	IMP. DIAMOND BIT, 9/10	DEEP I.D. WATERWAYS (DD)	9/10	14	12	6
EA5512DD	PO	IMP. DIAMOND BIT, 11/12	DEEP I.D. WATERWAYS (DD)	11/12	14	12	6
EA5502TW	PO	IMP. DIAMOND BIT, 1/2	TAPERED WATERWAYS (TW)	1/2	14	12	6
EA5504TW	PO	IMP. DIAMOND BIT, 3/4	TAPERED WATERWAYS (TW)	3/4	14	12	6
EA5506TW	PO	IMP. DIAMOND BIT, 5/6	TAPERED WATERWAYS (TW)	5/6	14	12	6
EA5508TW	PO	IMP. DIAMOND BIT, 7/8	TAPERED WATERWAYS (TW)	7/8	14	12	6
EA5510TW	PO	IMP. DIAMOND BIT, 9/10	TAPERED WATERWAYS (TW)	9/10	14	12	6
EA5512TW	PO	IMP. DIAMOND BIT, 11/12	TAPERED WATERWAYS (TW)	11/12	14	12	6
EA5502SP	PO	IMP. DIAMOND BIT, 1/2	SPIRAL (SP)	1/2	14	12	6
EA5504SP	PO	IMP. DIAMOND BIT, 3/4	SPIRAL (SP)	3/4	14	12	6
EA5506SP	PO	IMP. DIAMOND BIT, 5/6	SPIRAL (SP)	5/6	14	12	6
EA5508SP	PO	IMP. DIAMOND BIT, 7/8	SPIRAL (SP)	7/8	14	12	6
EA5510SP	PO	IMP. DIAMOND BIT, 9/10	SPIRAL (SP)	9/10	14	12	6
EA5512SP	PO	IMP. DIAMOND BIT, 11/12	SPIRAL (SP)	11/12	14	12	6

LTK Impregnated Core Bit

Part No	Size	Description	Matrix	Crown Height	Waterway Sizes	Waterway Width	
LTK4602S	LTK46	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	10	8	6
LTK4604S	LTK46	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	10	8	6
LTK4606S	LTK46	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	10	8	6
LTK4608S	LTK46	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	10	8	6
LTK4610S	LTK46	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	10	8	6
LTK4612S	LTK46	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	10	8	6
LTK4802S	LTK48	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	12	8	6
LTK4804S	LTK48	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	12	8	6
LTK4806S	LTK48	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	12	8	6
LTK4808S	LTK48	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	12	8	6
LTK4810S	LTK48	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	12	8	6
LTK4812S	LTK48	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	12	8	6
LTK6002S	LTK60	IMP. DIAMOND BIT, 1/2	STANDARD (S)	1/2	12	10	6
LTK6004S	LTK60	IMP. DIAMOND BIT, 3/4	STANDARD (S)	3/4	12	10	6
LTK6006S	LTK60	IMP. DIAMOND BIT, 5/6	STANDARD (S)	5/6	12	10	6
LTK6008S	LTK60	IMP. DIAMOND BIT, 7/8	STANDARD (S)	7/8	12	10	6
LTK6010S	LTK60	IMP. DIAMOND BIT, 9/10	STANDARD (S)	9/10	12	10	6
LTK6012S	LTK60	IMP. DIAMOND BIT, 11/12	STANDARD (S)	11/12	12	10	6

Impregnated Reaming Shell

Part No	Size	Description	Reaming Shell OD	
			mm	in
RS100	A0	Impregnated Reaming Shell	48,00	1,89
RS200	B0	Impregnated Reaming Shell	60,00	2,36
RS300	N0	Impregnated Reaming Shell	75,60	2,98
RS400	H0	Impregnated Reaming Shell	96,10	3,78
RS500	P0	Impregnated Reaming Shell	122,70	4,81
RS600	LTK46	Impregnated Reaming Shell	46,30	1,82
RS700	LTK48	Impregnated Reaming Shell	48,00	1,89
RS800	LTK60	Impregnated Reaming Shell	60,00	2,36



Impregnated Casing Shoe

Part No	Size	Description	Casing Shoe OD		Casing Shoe ID	
			mm	in	mm	in
CS100	AW	Impregnated Casing Shoe	59,70	2,35	48,30	1,90
CS200	BW	Impregnated Casing Shoe	75,40	2,97	60,20	2,37
CS300	NW	Impregnated Casing Shoe	91,90	3,62	76,00	2,99
CS310	NWT	Impregnated Casing Shoe	91,90	3,62	76,00	2,99
CS400	HW	Impregnated Casing Shoe	117,60	4,63	99,80	3,93
CS410	HWT	Impregnated Casing Shoe	117,60	4,63	99,80	3,93
CS500	PW	Impregnated Casing Shoe	143,80	5,66	122,90	4,84
CS510	PWT	Impregnated Casing Shoe	143,80	5,66	122,90	4,84

Impregnated Rod Shoe

Part No	Size	Description	Casing Shoe OD		Casing Shoe ID	
			mm	in	mm	in
RCS200	B0	Impregnated Rod Shoe	59,70	2,35	48,30	1,90
RCS210	BRO	Impregnated Rod Shoe	59,70	2,35	48,30	1,90
RCS300	N0	Impregnated Rod Shoe	75,40	2,97	60,20	2,37
RCS310	NRO	Impregnated Rod Shoe	75,40	2,97	60,20	2,37
RCS320	NT	Impregnated Rod Shoe	75,40	2,97	60,20	2,37
RCS400	H0	Impregnated Rod Shoe	91,90	3,62	76,00	2,99
RCS410	HRO	Impregnated Rod Shoe	91,90	3,62	76,00	2,99
RCS420	HT	Impregnated Rod Shoe	91,90	3,62	76,00	2,99
RCS500	PHD	Impregnated Rod Shoe	117,6	4,63	99,80	3,93
RCS510	PT	Impregnated Rod Shoe	117,6	4,63	99,80	3,93

Troubleshooting



NEW IMPREGNATED
DIAMOND BIT



IDEAL WEAR



RETIREMENT IMPREGNATED
DIAMOND BIT



FACE GLAZED

Sand blast face or use other recommended methods to re-expose diamond. Try again with rpi (r/cm) in the 200/250 (80/100) range. If the face glazes repeatedly, change to a higher bit.



CRACKED WATERWAYS

Possible Reasons:

- Excessive bit load; dropped rods; free fall of inner tube in dry hole
- Bit crushed by rod holder, foot clamp or pipe wrench
- Pushed down an undersized hole (i.e., reaming shell worn out).



BURNT

Possible Reasons:

- Lack of fluid.
- Too high of weight on bit being used.

Solutions

- Check pump and rod string for leaks, check inner tube adjustment, maintain coolant flow rates.



CONCAVE FACE WEAR

Possible Reasons:

- Often caused by excessive penetration rate for the rpm used - rpi (r/cm) too low.
- Also can be caused by core grinding, overdrilling.

Solutions

- Reduce penetration rate or increase RPM



CONVEX FACE WEAR

Possible Reasons:

- Insufficient water flow.

Solutions

- Check pump and rod string for leaks; increase pump output.



GAUGE LOSS ID

Possible Reasons:

- Overfeeding
- Broken formations
- Drilling over lost core
- Insufficient drilling fluid

Solutions

- Reduce penetration rate
- Cement or change to a lower series bit
- Check core barrel/core lifter/core lifter case
- Check inner tube length adjustment; check pump and rod string for leaks – increase pump output.



GAUGE LOSS OD

Possible Reasons:

- Lack of circulation
- Bit being reamed down under-size hole
- Vibration

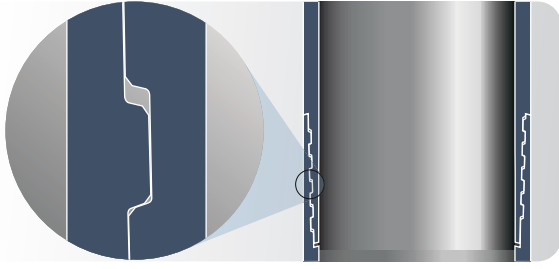
Solutions

- Increase coolant flow rate
- Check reamer shell gauge and replace if under-sized
- Alter RPM



RODS AND CASINGS

Rods Thread Overview



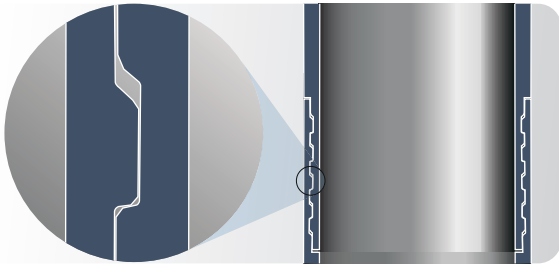
O Thread

- High quality alloy steel tubing
- Wireline thread
- Easy make - break



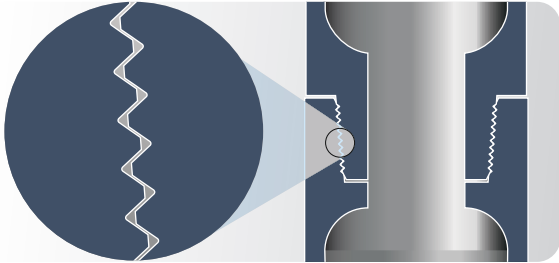
RO Thread

- High quality alloy steel tubing
- Increased strength and wear life
- Upgrade over O wireline rod



HD Thread

- High quality alloy steel tubing
- Strong thread
- Large diameter drilling



WJ Thread

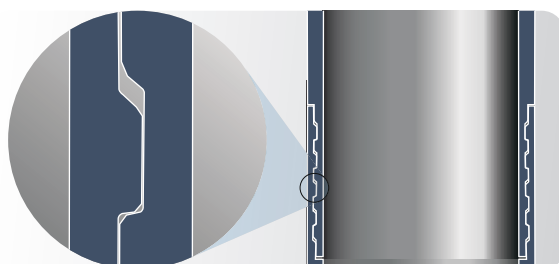
- High quality alloy steel tubing
- Standard DCDMA thread
- Friction welded

Casings Thread Overview



W Thread

- Standard DCDMA thread



WT Thread

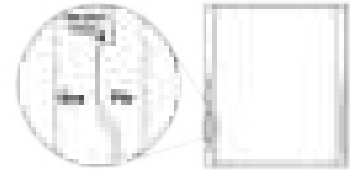
- Premium over W Casing
- Compatible with HD rod threads.
- Easy make and break

Wireline Rods - B0

PART #	DESCRIPTION
1000130844	B0 Wireline Rod, 1.5m
1000130845	B0 Wireline Rod, 3.0m
1000130846	BRO Wireline Rod, 1.5m
1000130847	BRO Wireline Rod, 3.0m



O Wireline Thread Profile



RO Wireline Thread Profile

OD (mm)	ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
55,60	46,10	18,00	8,50	44,45	167,50

OD (in)	ID (in)	Weight (lb/3.0m)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
2,19	1,82	40,00	3,00	1,75	13,00

B0 Bundle Specifications

1.5m/5ft ROD BUNDLE (19 RODS)

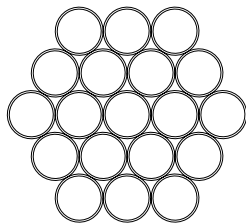
Dimensions (L x W x H)	1600 x 290 x 260 mm (63 x 11.5 x 10 in)
Volume	0.11 m ³ (4 ft ³)
Gross Weight	183 kg (404 lb)

3.0m/10ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H)	3100 x 290 x 260 mm (122 x 11.5 x 10 in)
Volume	0.23 m ³ (8 ft ³)
Gross Weight	350 kg (772 lb)

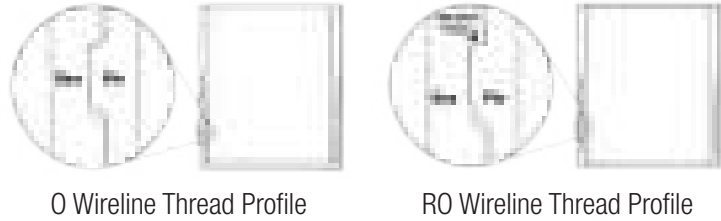
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft rods holds 53 bundles (1007 rods)
 40 ft container load of 3.0 m/10 ft rods holds 68 bundles (1292 rods)



Wireline Rods - NO

PART #	DESCRIPTION
1000130848	NO Wireline Rod, 1.5m
1000130849	NO Wireline Rod, 3.0m
1000130850	NRO Wireline Rod, 1.5m
1000130851	NRO Wireline Rod, 3.0m



O Wireline Thread Profile

RO Wireline Thread Profile

OD (mm)	ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
69,90	60,30	23,40	8,50	44,45	285,00

OD (in)	ID (in)	Weight (lb/3.0m)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
2,75	2,38	51,00	3,00	1,75	22,50

NO Bundle Specifications

1.5m/5ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H)

1600 x 355 x 325 mm (63 x 15.5 x 13 in)

Volume

0.20 m³ (7 ft³)

Gross Weight

240 kg (529 lb)

3.0m/10ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H)

3100 x 355 x 325 mm (123 x 15.5 x 10 in)

Volume

0.40 m³ (14 ft³)

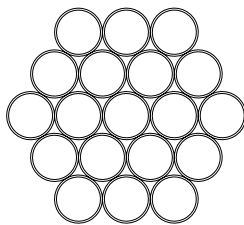
Gross Weight

455 kg (1003 lb)

CONTAINER SHIPMENTS

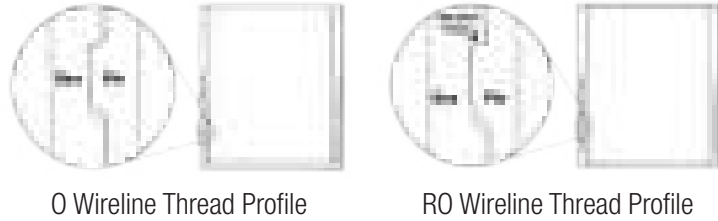
20 ft container load of 3.0 m/10 ft rods holds 32 bundles (608 rods)

40 ft container load of 3.0 m/10 ft rods holds 45 bundles (855 rods)



Wireline Rods - HO

PART #	DESCRIPTION
1000130852	HO Wireline Rod, 1.5m
1000130853	HO Wireline Rod, 3.0m
1000130854	HRO Wireline Rod, 1.5m
1000130855	HRO Wireline Rod, 3.0m



O Wireline Thread Profile

RO Wireline Thread Profile

OD (mm)	ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
88,90	77,80	34,50	8,50	44,45	475,00

OD (in)	ID (in)	Weight (lb/3.0m)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
3,50	3,06	78,00	3,00	1,75	38,00

HO Bundle Specifications

1.5m/5ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H)

Volume

Gross Weight

1600 x 450 x 405 mm (63 x 17.7 x 16 in)

0.31 m³ (11 ft³)

347,5 kg (766 lb)

3.0m/10ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H)

Volume

Gross Weight

3125 x 450 x 405 mm (123 x 17.7 x 16 in)

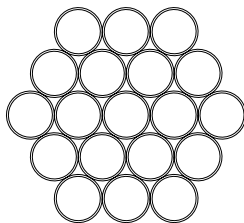
0.60 m³ (21 ft³)

655,5 kg (1445 lb)

CONTAINER SHIPMENTS

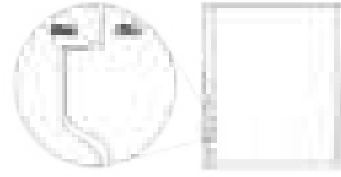
20 ft container load of 3.0 m/10 ft rods holds 20 bundles (380 rods)

40 ft container load of 3.0 m/10 ft rods holds 30 bundles (570 rods)



Wireline Rods - PHD

PART #	DESCRIPTION
1000130856	PHD Wireline Rod, 1.5m
1000130857	PHD Wireline Rod, 3.0m



HD Wireline Thread Profile

OD (mm)	ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
114,30	101,60	52,20	10,20	62,70	811,00

OD (in)	ID (in)	Weight (lb/3.0m)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
4,50	4,00	117,00	2,50	2,47	65,30

PHD Bundle Specifications

1.5m/5ft ROD BUNDLE (7 RODS)

Dimensions (L x W x H)	1600 x 355 x 406,5 mm (63 x 18.5 x 16 in)
Volume	0.31 m ³ (11 ft ³)
Gross Weight	185,22 kg (764 lb)

3.0m/10ft ROD BUNDLE (7 RODS)

Dimensions (L x W x H)	3125 x 355 x 406,5 mm (123 x 18.5 x 16 in)
Volume	0.60 m ³ (21 ft ³)
Gross Weight	375,44 kg (827 lb)

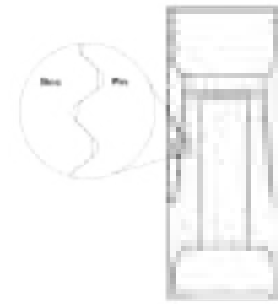
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft rods holds 30 bundles (210 rods)
 40 ft container load of 3.0 m/10 ft rods holds 54 bundles (378 rods)



Conventional Rods - AWJ AND AWJLW

PART #	DESCRIPTION
1000130858	AWJ Conventional Rod, 1.5m
1000130859	AWJ Conventional Rod, 3.0m
1000130860	AWJLW Conventional Rod, 1.5m
1000130861	AWJLW Conventional Rod, 3.0m



WJ Conventional Rod Thread Profile

OD (mm)	ROD BODY ID (mm)	JOINT ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
44,50	AWJ: 35,00 AWJLW: 38,10	15,90	AWJ: 14,50 AWJLW: 10,40	5,10	44,45	94,40

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
1,75	AWJ: 1-3/8" AWJLW: 1-1/2"	0,63	AWJ: 31,00 AWJLW: 22,00	5,00	1,75	7,40

AWJ and AWJLW Bundle Specifications

1.5m/5ft ROD BUNDLE (19 RODS)

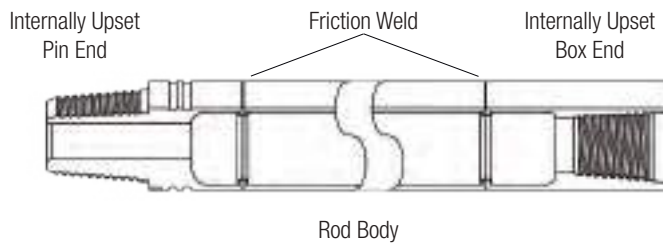
Dimensions (L x W x H) 1600 x 200 x 200 mm (63 x 7.88 x 7.88 in)
 Volume 0.10 m³ (3.5 ft³)
 Gross Weight AWJ: 150 kg (330 lb) ; AWJLW: 109 kg (242 lb)

3.0m/10ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H) 3200 x 200 x 200 mm (126 x 7.88 x 7.88 in)
 Volume 0.20 m³ (7.1 ft³)
 Gross Weight AWJ: 288,5 kg (636 lb) ; AWJLW: 209,0 kg (461 lb)

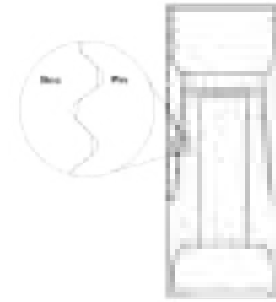
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft rods holds 75 bundles (1425 rods)
 40 ft container load of 3.0 m/10 ft rods holds 97 bundles (1843 rods)



Conventional Rods - BWJ AND BWJLW

PART #	DESCRIPTION
1000130862	BWJ Conventional Rod, 1.5m
1000130863	BWJ Conventional Rod, 3.0m
1000130864	BWJLW Conventional Rod, 1.5m
1000130865	BWJLW Conventional Rod, 3.0m



WJ Conventional Rod Thread Profile

OD (mm)	ROD BODY ID (mm)	JOINT ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
55,80	BWJ: 44,50 BWJLW: 48,40	19,00	BWJ: 18,50 BWJLW: 14,78	5,10	44,45	94,40

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
1,75	BWJ: 1-3/8" BWJLW: 1-1/2"	0,63	BWJ: 40,00 BWJLW: 32,00	5,00	1,75	7,40

BWJ and BWJLW Bundle Specifications

1.5m/5ft ROD BUNDLE (19 RODS)

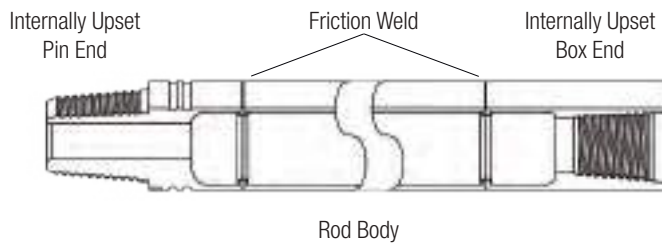
Dimensions (L x W x H) 1600 x 300 x 300 mm (63 x 11.80 x 11.80 in)
 Volume 0.10 m³ (3.5 ft³)
 Gross Weight BWJ: 193 kg (427 lb) ; BWJLW: 164 kg (362 lb)

3.0m/10ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H) 3200 x 300 x 300 mm (126 x 11.80 x 11.80 in)
 Volume 0.20 m³ (7.1 ft³)
 Gross Weight BWJ: 360 kg (796 lb) ; BWJLW: 289,00 kg (639 lb)

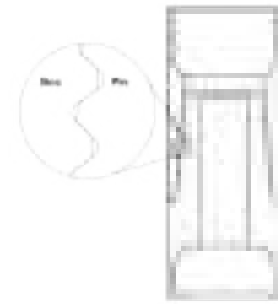
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft rods holds 45 bundles (855 rods)
 40 ft container load of 3.0 m/10 ft rods holds 69 bundles (1311 rods)



Conventional Rods - NWJ AND NWJLW

PART #	DESCRIPTION
1000130866	NWJ Conventional Rod, 1.5m
1000130867	NWJ Conventional Rod, 3.0m



WJ Conventional Rod Thread Profile

OD (mm)	ROD BODY ID (mm)	JOINT ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
66,70	57,20	28,60	23,50	6,40	63,50	243,60

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
2,63	2,25	1,13	52,00	4,00	2,50	20,00

NWJ and NWJLW Bundle Specifications

1.5m/5ft ROD BUNDLE (19 RODS)

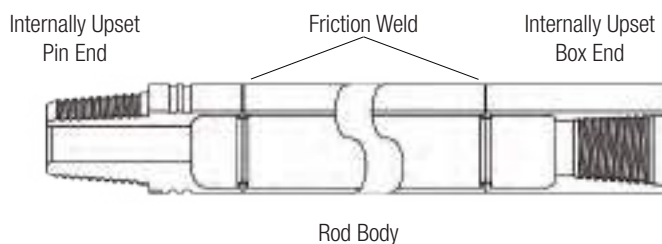
Dimensions (L x W x H)	1600 x 300 x 300 mm (63 x 11.80 x 11.80 in)
Volume	0.10 m ³ (3.5 ft ³)
Gross Weight	248 kg (597 lb)

3.0m/10ft ROD BUNDLE (19 RODS)

Dimensions (L x W x H)	3200 x 300 x 300 mm (126 x 11.80 x 11.80 in)
Volume	0.20 m ³ (7.1 ft ³)
Gross Weight	458 kg (1012 lb)

CONTAINER SHIPMENTS

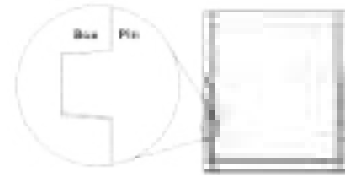
20 ft container load of 3.0 m/10 ft rods holds 34 bundles (646 rods)
 40 ft container load of 3.0 m/10 ft rods holds 45 bundles (855 rods)





Casings - NW

PART #	DESCRIPTION
1000130890	NW Casing, 1.5m
1000130891	NW Casing, 3.0m



W Casing Thread Profile

OD (mm)	ROD BODY ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
88,90	76,20	38,40	10,20	62,70	455,70

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
3,50	3,00	86,00	2,50	2,47	36,70	7,40

NW Bundle Specifications

1.5m/5ft CASING BUNDLE (19 PCS)

Dimensions (L x W x H)	1600 x 500 x 400 mm (63 x 19.70 x 15.70 in)
Volume	0.30 m ³ (11.00 ft ³)
Gross Weight	390 kg (860 lb)

3.0m/10ft CASING BUNDLE (19 PCS)

Dimensions (L x W x H)	3200 x 500 x 400 mm (126 x 19.70 x 15.70 in)
Volume	0.60 m ³ (21.00 ft ³)
Gross Weight	760 kg (1676 lb)

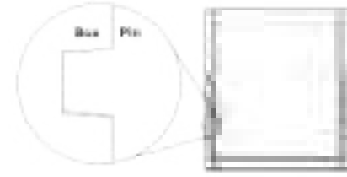
CONTAINER SHIPMENTS

- 20 ft container load of 3.0 m/10 ft casings holds 20 bundles (380 casings)
- 40 ft container load of 3.0 m/10 ft casings holds 26 bundles (494 casings)



Casings - HW

PART #	DESCRIPTION
1000130892	HW Casing, 1.5m
1000130893	HW Casing, 3.0m



W Casing Thread Profile

OD (mm)	ROD BODY ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
114,30	101,60	52,20	10,20	44,40	810,80

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
4,50	4,00	117,00	2,50	2,47	65,30	7,40

HW Bundle Specifications

1.5m/5ft CASING BUNDLE (7 PCS)

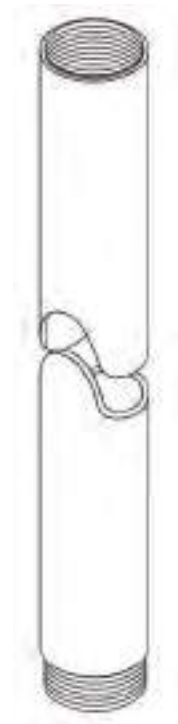
Dimensions (L x W x H)	1600 x 400 x 300 mm (63 x 15.70 x 11.80 in)
Volume	0.20 m ³ (7.10 ft ³)
Gross Weight	194 kg (428 lb)

3.0m/10ft CASING BUNDLE (7 PCS)

Dimensions (L x W x H)	3200 x 400 x 300 mm (126 x 15.70 x 11.80 in)
Volume	0.40 m ³ (14.10 ft ³)
Gross Weight	373 kg (823 lb)

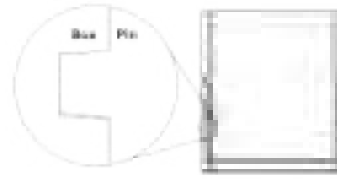
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft casings holds 30 bundles (210 casings)
 40 ft container load of 3.0 m/10 ft casings holds 54 bundles (378 casings)



Casings - PW

PART #	DESCRIPTION
1000130894	PW Casing, 1.5m
1000130895	PW Casing, 3.0m



W Casing Thread Profile

OD (mm)	ROD BODY ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
139,70	127,00	64,30	10,20	44,40	1267,00

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
5,50	5,00	144,00	2,50	2,47	102,00	7,40

PW Bundle Specifications

1.5m/5ft CASING BUNDLE (7 PCS)

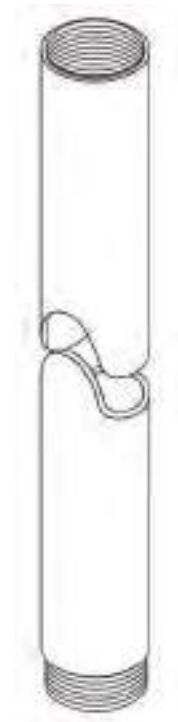
Dimensions (L x W x H)	1600 x 500 x 400 mm (63 x 19.70 x 15.70 in)
Volume	0.30 m ³ (11.00 ft ³)
Gross Weight	254 kg (560 lb)

3.0m/10ft CASING BUNDLE (7 PCS)

Dimensions (L x W x H)	3200 x 500 x 400 mm (126 x 19.70 x 15.70 in)
Volume	0.60 m ³ (21.00 ft ³)
Gross Weight	466 kg (1027 lb)

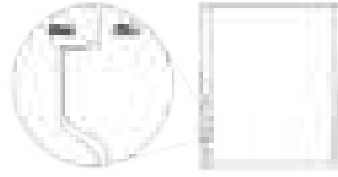
CONTAINER SHIPMENTS

- 20 ft container load of 3.0 m/10 ft casings holds 20 bundles (140 casings)
- 40 ft container load of 3.0 m/10 ft casings holds 44 bundles (308 casings)



Casings - NWT

PART #	DESCRIPTION
1000130868	NWT Casing, 1.5m
1000130869	NWT Casing, 3.0m



WT Casing Thread Profile

OD (mm)	ROD BODY ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
88,90	76,20	38,40	10,20	62,70	455,70

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
3,50	3,00	86,00	2,50	2,47	36,70	7,40

NWT Bundle Specifications

1.5m/5ft CASING BUNDLE (19 PCS)

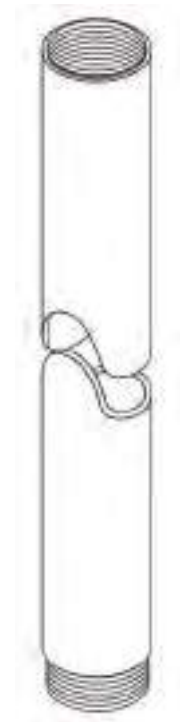
Dimensions (L x W x H)	1600 x 500 x 400 mm (63 x 19.70 x 15.70 in)
Volume	0.30 m ³ (11.00 ft ³)
Gross Weight	390 kg (860 lb)

3.0m/10ft CASING BUNDLE (19 PCS)

Dimensions (L x W x H)	3200 x 500 x 400 mm (126 x 19.70 x 15.70 in)
Volume	0.60 m ³ (21.00 ft ³)
Gross Weight	760 kg (1676 lb)

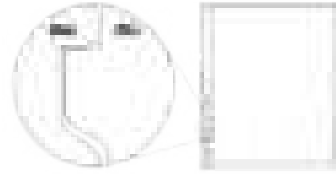
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft casings holds 20 bundles (380 casings)
 40 ft container load of 3.0 m/10 ft casings holds 26 bundles (494 casings)



Casings - HWT

PART #	DESCRIPTION
1000130870	HWT Casing, 1.5m
1000130871	HWT Casing, 3.0m



WT Casing Thread Profile

OD (mm)	ROD BODY ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
114,30	101,60	52,20	10,20	44,40	810,80

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
4,50	4,00	117,00	2,50	2,47	65,30	7,40

HWT Bundle Specifications

1.5m/5ft CASING BUNDLE (7 PCS)

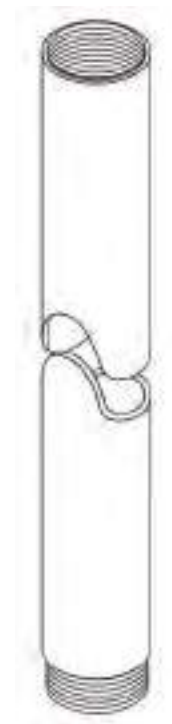
Dimensions (L x W x H)	1600 x 400 x 300 mm (63 x 15.70 x 11.80 in)
Volume	0.20 m ³ (7.10 ft ³)
Gross Weight	194 kg (428 lb)

3.0m/10ft CASING BUNDLE (7 PCS)

Dimensions (L x W x H)	3200 x 400 x 300 mm (126 x 15.70 x 11.80 in)
Volume	0.40 m ³ (14.10 ft ³)
Gross Weight	373 kg (823 lb)

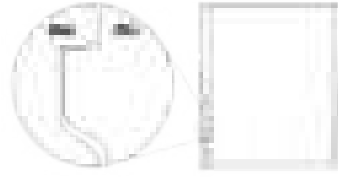
CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft casings holds 30 bundles (210 casings)
 40 ft container load of 3.0 m/10 ft casings holds 54 bundles (378 casings)



Casings - PWT

PART #	DESCRIPTION
1000130872	PWT Casing, 1.5m
1000130873	PWT Casing, 3.0m



WT Casing Thread Profile

OD (mm)	ROD BODY ID (mm)	Weight (kg/3.0m)	Threads Pitch (mm)	Pin Length (mm)	Content (l/100m)
139,70	127,00	64,30	10,20	44,40	1267,00

OD (in)	ID (in)	JOINT ID (in)	Weight (lb/10ft)	Threads Pitch (in)	Pin Length (in)	Content (gal./100ft)
5,50	5,00	144,00	2,50	2,47	102,00	7,40

PWT Bundle Specifications

1.5m/5ft CASING BUNDLE (7 PCS)

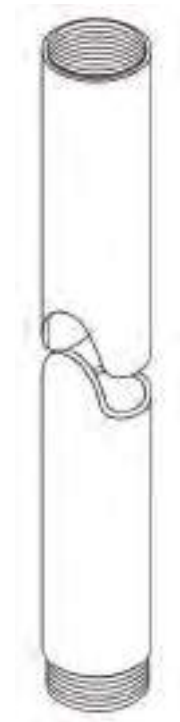
Dimensions (L x W x H) 1600 x 500 x 400 mm (63 x 19.70 x 15.70 in)
 Volume 0.30 m³ (11.00 ft³)
 Gross Weight 254 kg (560 lb)

3.0m/10ft CASING BUNDLE (7 PCS)

Dimensions (L x W x H) 3200 x 500 x 400 mm (126 x 19.70 x 15.70 in)
 Volume 0.60 m³ (21.00 ft³)
 Gross Weight 466 kg (1027 lb)

CONTAINER SHIPMENTS

20 ft container load of 3.0 m/10 ft casings holds 20 bundles (140 casings)
 40 ft container load of 3.0 m/10 ft casings holds 44 bundles (308 casings)







SON-MAK

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