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IN-HOLE TOOLS

Global Performance Tooling Catalog



ON THE COVER:

Boart Longyear's Quick Pump-In™
Roller Latch™ Head Assembly.
Learn more about Roller Latch
technology on page 93.

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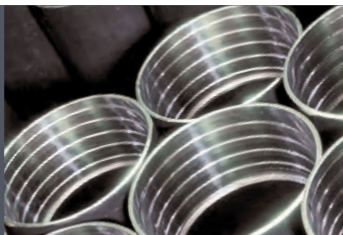
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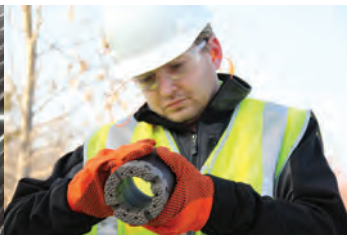
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V-Wall™ Coring Rods:
Increased Depth Capacities



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Ultramatrix™ Diamond
Coring Bits



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ABOUT BOART LONGYEAR

Boart Longyear is the industry's leading integrated drilling services and products provider, combining engineering excellence, global manufacturing facilities and the most experienced drilling services group in the business. Our customers rely on our unique ability to develop, field test, and deliver all combinations of drilling consumables, capital equipment, and expertise to any corner of the world.

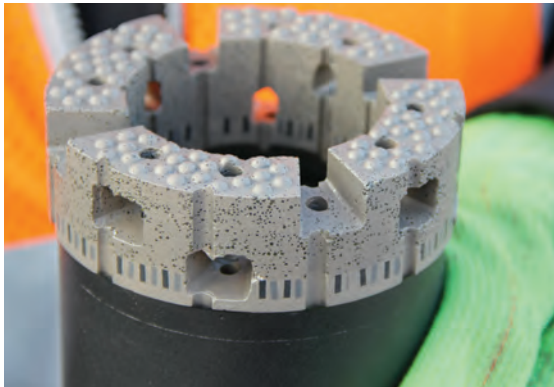
EXPLORATION DRILLING PRODUCTS

Boart Longyear is globally recognized as the leader in exploration drilling technology. From the rig and the drill string, to the innovative Stage™ diamond coring bit at the bottom of the hole, our customers trust us to deliver the most advanced and complete solutions available.



Wireline Components

- Core barrel assemblies
- Water swivels and hoisting plugs
- Subs and adaptors
- Overshots and recovery tools



Diamond Products

- Surface set bits
- Impregnated bits
- Reamers
- Casing shoes
- PCD bits
- Carbon bits



RC Consumables

- Rods
- Swivels
- Swivel accessories
- Subs



Rods and Casing

- Q™ and Patented RQ™ Drill Threads
- Coring Rod
- Casing



Exploration Drill Rigs

- Surface core drills
- Underground core drills
- Multi-purpose drills
- Reverse circulation drills
- Sonic drills

OTHER DRILLING PRODUCTS

In addition to our exploration drilling technology, Boart Longyear also engineers and manufactures world-class drill rigs and consumables for construction, overburden and percussive drilling.



Construction Drilling Consumables

- DeltaTools™ rods and casing
- DeltaTools™ bits and casing shoes
- DeltaTools™ jet grouting tools



Aftermarket Support

- Genuine spare parts
- Spare part kits
- First-aid drill repair boxes
- Maintenance programs



Rock Drill and Blast Rigs

- Production drill rigs
- Rock drills and breakers
- HRT consumables
- Threaded bits, rods, couplings, and shank adaptors
- Tapered bits and rods
- Integral drill steel
- Down-the-hole hammer bits

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Rod Lifter, Split Tube Loader

SAFETY FIRST

Rod Lifter 8
Split Tube Loader 10

ROD LIFTER PART#: 5008890

Global Drilling Products



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Boart Longyear's Global EHS Management System revealed that the leading injury on most job sites involves hands. In an attempt to keep workers safe, we make significant efforts to eliminate work-related risks through product engineering. In combination with automated rod handlers, designed to keep workers safely away from machinery, we also provide a number of hand-tool solutions to eliminate hand injuries.

Rod Lifter* Part#: 5008890

- Ergonomically keeps the wrist and hand in a neutral position and eliminates strain
- Removes fingers from pinch points and sharp surfaces
- Allows for proper lifting techniques and body positioning
- Prevents thread damage
- Prevents pipe slippage through the use of a specially designed carbide grip

*Patent pending

SPLIT TUBE LOADER PART#: 5006293

Global Drilling Products



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Boart Longyear is pleased to introduce the Split Tube Loader. In the field, it is often documented that split tubes and the outer casing become sharp and contain metal burrs. Drillers have continually received hand lacerations and injuries due to these conditions, many times even through protective gloves. The Split Tube Loader is an innovative tool designed to eliminate these injuries.

Split Tube Loader* Part#: 5006293

- Ergonomically fits drillers' hands, keeping fingers away from dangerous areas
- Fits multiple split tube diameters with one device
- Eliminates hand contact with sharp edges

* US Patent No. D676,877; AU Design No. 338,612; CA Design No. 141,642; Patents Pending.



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Core Retrieval, Location: Canada

GENUINE Q™ WIRELINE SYSTEM

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WIRELINING CORE RETRIEVAL SYSTEM HISTORY

Boart Longyear developed the wireline core retrieval system in 1958, being the first diamond drilling exploration product manufacturer to offer this revolutionary system. The wireline system increased productivity on the work site and made tripping core from the bottom of the hole safer for the drilling assistant.

Prior to introducing wireline technology, crews were required to pull the entire rod string out of the ground to gain access to the conventional core barrel located behind the drill bit. Once the core barrel was emptied, the complete rod string would be lowered into the exploration hole prior to drilling the next core run.

The introduction of wireline technology allowed for the retrieval of the full inner-tube without the need to pull the rod string out of the hole. This is accomplished by creating a completely independent inner-tube which isn't attached to the rod string but directly rests at the bottom of the rod string, behind the drill bit. Mounted at the top of the inner-tube assembly is a device called a head assembly.

The head assembly includes the latching and retrieval hardware required to bring the inner-tube to the surface. When the inner-tube is full, a device called an overshot is lowered down the hole via a wireline cable and brought to the surface by use of a winch. Once the inner-tube assembly is at the surface, an empty inner-tube is lowered into the hole so drilling can resume.

Genuine Q™ Wireline System

The Boart Longyear engineering design team

continued to refine the initial wireline system, resulting in the launch of the patented Q™ wireline system in 1966. The original Q coring system has remained the most trusted technology in the business for over 50 years.

With the aim of providing customers a larger diameter core sample without increasing hole diameter, Boart Longyear introduced the Thin Kerf wireline system product line in 1989.

Link Latch™ Mechanism

In 1998, Boart Longyear once again secured its position as the leading innovator in wireline technology by introducing the patented Link Latch™ mechanism. This innovation virtually eliminated “stuck tubes” during wireline retraction by providing mechanical leverage, directly pivoting the latches into the retracted position, whereas conventional technology attempts to indirectly push the latches while fighting poor mechanical leverage and interference with the latch seat.

Quick Pump-In™ Head Assembly

In 2002 Boart Longyear adapted the Q system to address the needs of the underground market, announcing the patented Quick Pump-In™ head assembly. This head assembly added positive latch indication and removed the pump-in lip seal from the latch retracting case, eliminating latching concerns against in-ground fluid, gas pressure zones and fluid evacuation or suction.

Quick Descent™ Head Assembly

In 2008, Boart Longyear launched the patented Quick Descent™ core barrel head assembly. This new head assembly provided customers the potential to increase core barrel descent speeds up to 30%. The Quick Descent head assembly is a central component of the High Productivity Coring System which also includes the Stage™ diamond coring bit and the V-Wall™ coring rod.

CORE BARREL HISTORICAL TIMELINE

1950

1958: Boart Longyear introduced the original wireline core retrieval system

1960

1966: Improved, patented Q™ Wireline system launched

1970

1989: Thin Kerf (QTK) added to the Q™ Wireline system

1980

ROLLER LATCH™ TECHNOLOGY

Boart Longyear is proud to introduce the latest innovation in underground coring products – the Roller Latch™ Head Assembly. This revolutionary new patented design features bearing roller balls as a replacement for the traditional link latch mechanism, and offers greater pump-in speed, increased product life and most importantly: improved safety.

Safer Operations

The Roller Latch head assembly offers the first hold-back braking system in any underground wireline drilling system. The unique design utilizes the rollers to retain the inner tube assembly in the drill string. This feature protects drillers from dangerous incidents such as free-falling inner tubes or blow-back situations.

Drill Deeper with V-Wall™ Capability

The Quick Pump-In™ Roller Latch™ underground head assemblies are equipped with variable lip pump-in seals compatible with Boart Longyear's advanced V-Wall™ coring rods. For the first time ever, drillers are able to take advantage of significantly lighter V-Wall rods in underground applications, thus leading to deeper drilling capacity and reduced driller fatigue.

For more information about Quick Descent™ and Quick Pump-In™ Roller Latch™ Technology, see page 93.



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Quick Pump-In™ Roller Latch™
Head Assembly

1990

1998: Patented Link Latch™ Wireline system introduced

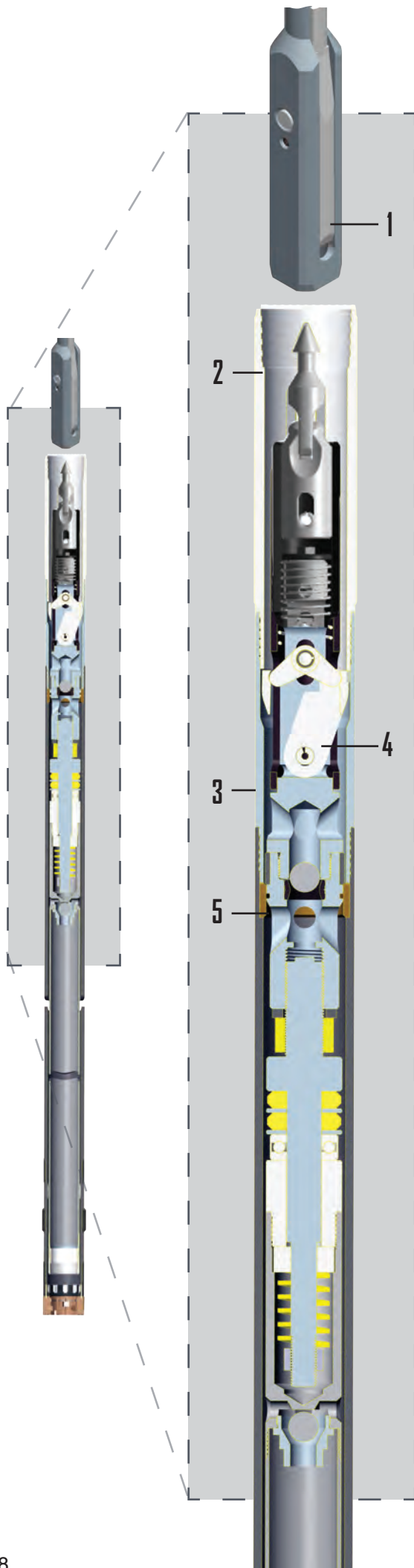
2000

2002: Patented Quick Pump-In™ Head Assembly launched

2010

2008: Patented Quick Descent™ Head Assembly launched

2011: Patented Roller Latch™ Head Assembly launched



CORE BARREL SYSTEM OVERVIEW

1: OVERSHOT

The overshot is dropped or pumped into the drill string to retrieve the inner-tube assembly via wireline cable and hoist.

2: LOCKING COUPLING

The Locking Coupling connects the drill string to the outer-tube assembly and provides a mating surface which the head assembly latches ride against while drilling.

Additionally, locking couplings provide directional control for the core barrel assembly through wear resistant stabilizing pads that wear down against the drill hole wall.

3: ADAPTER COUPLING

Not Required for Roller Latch™ Assemblies

The adapter coupling mates between the locking coupling and core barrel outer-tube, providing the pocket into which the head assembly latches deploy.

4: HEAD ASSEMBLY

The head assembly provides latching and pivoting spearpoint mechanisms to allow insertion and retrieval of the inner-tube assembly, a bearing assembly to allow the inner-tube to remain stationary and avoid sample damage while drilling, fluid pressure operating indications and fluid control valves. All head assemblies incorporate a shut off valve assembly which provides a fluid pressure signal to the drill operator when the valve members are compressed, indicating a full or blocked inner-tube.

5: LANDING RING

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

6: OUTER-TUBE

The outer-tube houses the inner-tube assembly and connects to the diamond products cutting the hole. The increased wall thickness of the outer-tube provides additional rigidity for directional control and a tighter hole annulus for increased fluid velocity and rapid cuttings evacuation for bit performance. Multiple outer-tubes can be assembled to extend the possible core sample length.

7: INNER-TUBE

The inner-tube captures the core sample as drilling progresses. Multiple inner-tubes can be assembled with couplers or extensions to accept longer core samples.

8: INNER-TUBE STABILIZER

Seated in the reaming shell or in mated outer-tube extensions, the replaceable and reversible inner-tube stabilizer provides centralizing for improved sample recovery and a bearing between the stationary inner-tube and the rotating outer-tube.

9: 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.

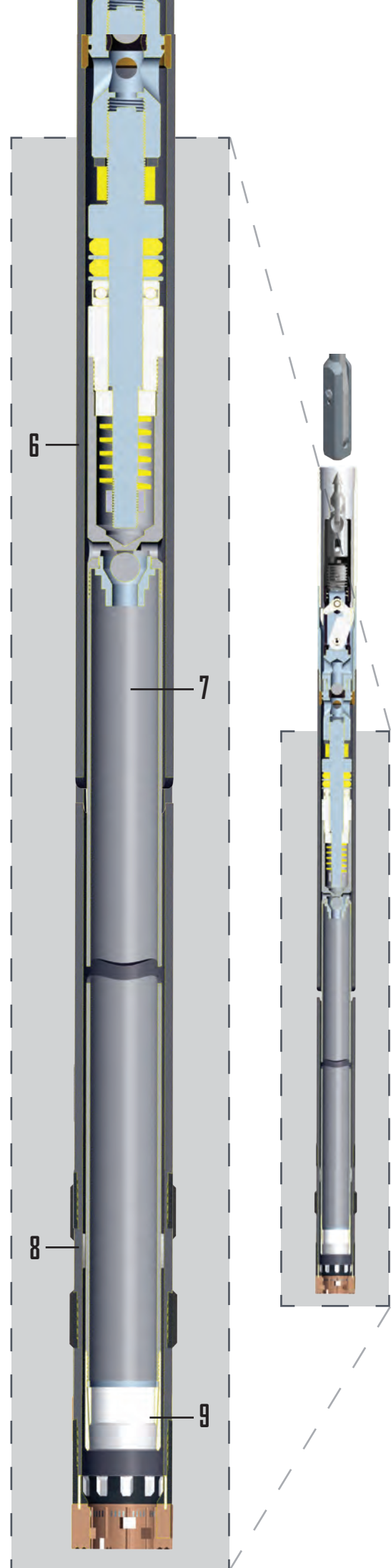
9: CORE LIFTER

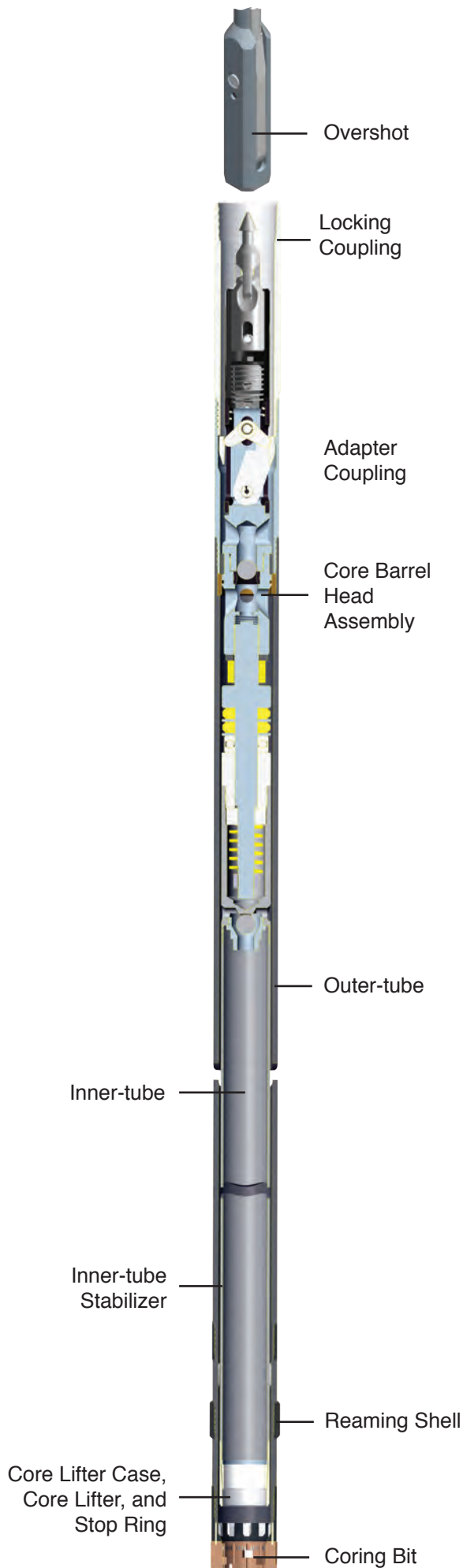
The core lifter is a hardened steel, split collar with a tapered body that mates to a tapered socket in the core lifter case.

In a core breaking operation, the drill string is lifted off bottom and the core sample begins to slide out of the inner-tube. Grip features on the inner surface of the core lifter catch 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 constricted against the core sample and retains it after it has broken, allowing retrieval to surface.

9: STOP RING

The Stop Ring is a hardened steel snap ring designed to seat into a mating groove and retain the core lifter in the core lifter case.





GENUINE Q™ WIRELINE SYSTEMS

Genuine Q™ wireline systems are ideal for use in most drilling conditions and are available for application in standard DCDMA hole sizes (A, B, N, H, P).

Boart Longyear currently offers four models of the wireline core barrel system:

Q™ / Q™TK / Q™3 / Q™TT

Q™ / Q™TK*

Q / QTK wireline systems (pictured left) consist of the core barrel assembly and the overshot assembly. Both assemblies are integral to the wireline system.

The core barrel assembly is composed of the inner-tube group and outer-tube group.

The inner-tube group is composed of:

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

The inner-tube group collects the core sample during the drilling process and is independent of the outer-tube group.

The outer-tube group is composed of the remainder of the core barrel components:

- Locking coupling
- Adapter coupling
- Outer-tube

The outer-tube group always remains at the bottom of the hole and houses the inner-tube group during the drilling process.

QTK* systems are optimized to allow for a larger core sample while retaining the same hole, low fluid pressure, and robust inner- and outer-tubes. QTK systems are offered in the A, B and N sizes.

*NQTK also known as NQ2

Q™3

Q3 wireline systems consist of the same groups as the Q and QTK but utilize a third tube called an inner-tube liner or split tube. The liner is placed inside the inner-tube.

Q3 systems enable integral core recovery when drilling coal, clay bearing or highly fractured formations. The liner, or split tube, retains the core sample in its received state for easier loading into sample trays or for storage and subsequent presentation to the geologist. The Q3 system is only available in surface configurations and is available in N, H and P sizes.

Q™TT

The QTT system is similar to the Q3 system but includes a specialized core lifer case and bit. These components enable change in the water flow by creating a seal which routes water flow away from the inner-tube – further improving core recovery.

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HIGH PRODUCTIVITY CORING SYSTEM

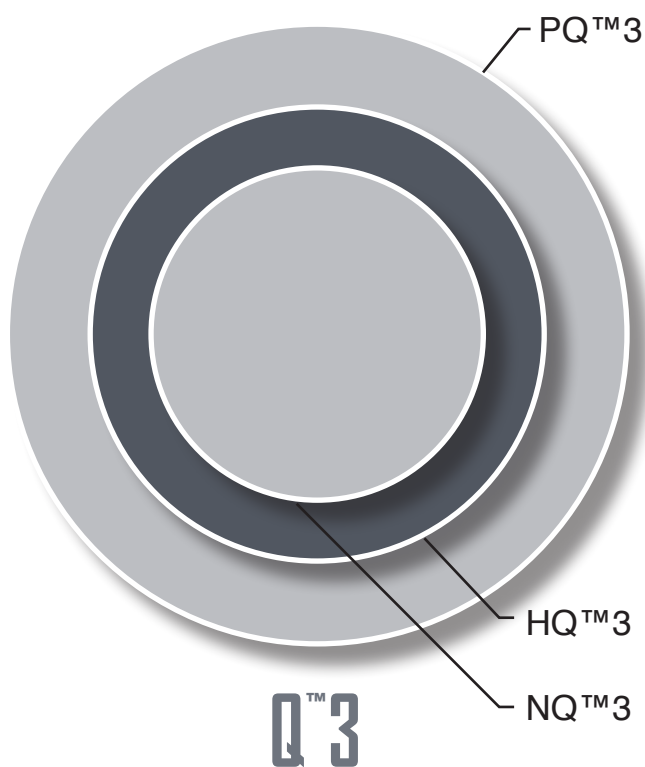
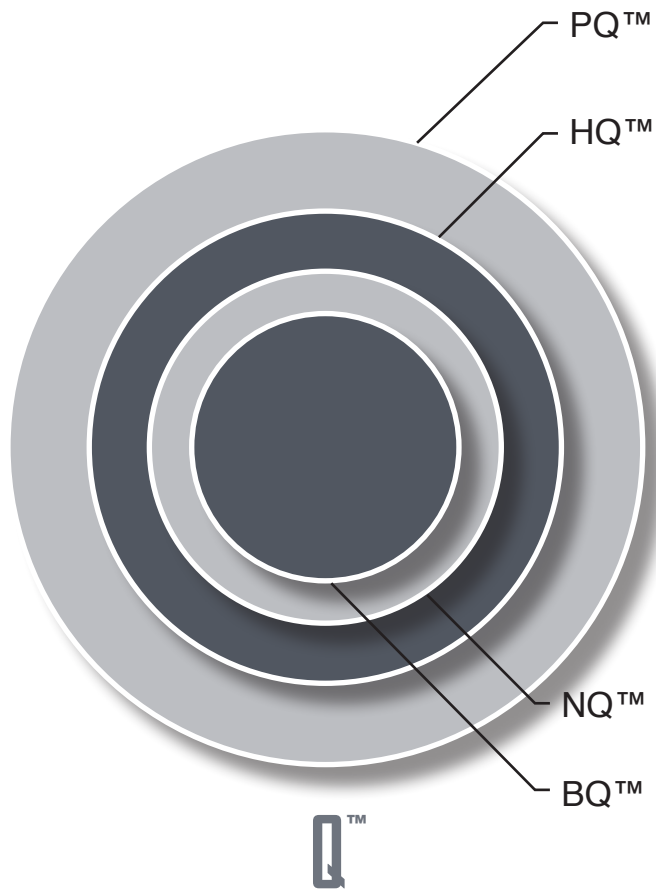
The High Productivity Coring System is a time-saving surface coring system which includes:

- Quick Descent™ head assembly
- V-Wall™ coring rods
- Stage™3 diamond coring bit

Each system component increases core recovery and productivity, delivering greater efficiencies to the driller. When all three products are used together, the High Productivity Coring System provides increased bit life by up to 145 percent and core barrel tripping speed by up to 50 percent over most coring systems.



DIAMETER OFFERINGS (ACTUAL CORE SIZE)



Q™ WIRELINE*

Q (Standard)				
SIZE	CORE DIAMETER		HOLE DIAMETER	
	Metric (mm)	U.S. (in)	Metric (mm)	U.S. (in)
BQ	36.4	1-7/16	60.0	2-23/64
NQ	47.6	1-7/8	75.7	2-63/64
HQ	63.5	2-1/2	96.0	3-25/32
PQ	85.0	3-11/32	122.6	4-53/64

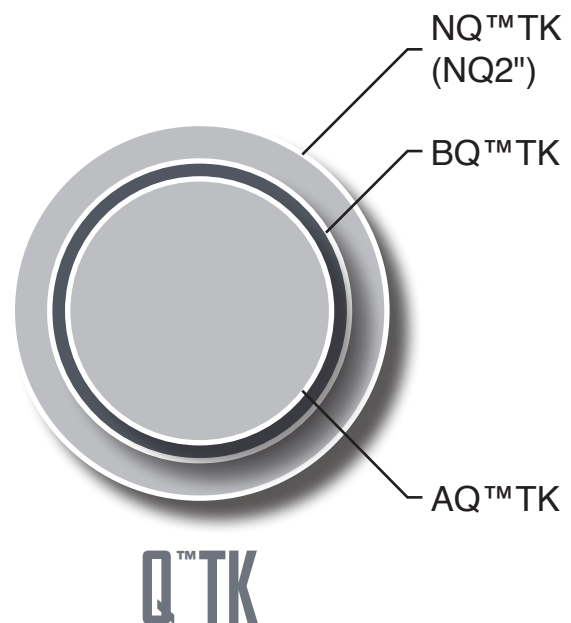
QTK (Thin Kerf)				
AQTK	30.5	1-13/64	48.0	1-57/64
BQTK	40.7	1-39/64	60.0	2-23/64
NQTK**	50.6	2	75.7	2-63/64

Q3 (Triple Tube)				
NQ3	45.0	1-25/32	75.7	2-63/64
HQ3	61.1	2-13/32	96.0	3-25/32
PQ3	83.0	3-9/32	122.6	4-53/64

*Compared to most core drilling systems, Q™ systems provide maximum performance, balancing drilling fluid and cuttings management with reliable inner and outer-tubes.

The Boart Longyear nomenclature and hole sizes are based on the globally accepted Diamond Core Drilling Manufacturers Association (DCDMA) "W" series. Also note that the DCDMA specifications were adopted into ISO3551 (1992) and British Standard BS4019 (1993) Rotary Drilling Equipment.

**NQTK also known as NQ2



CORE BARREL CONFIGURATIONS, FEATURES AND OPTIONS

Standard

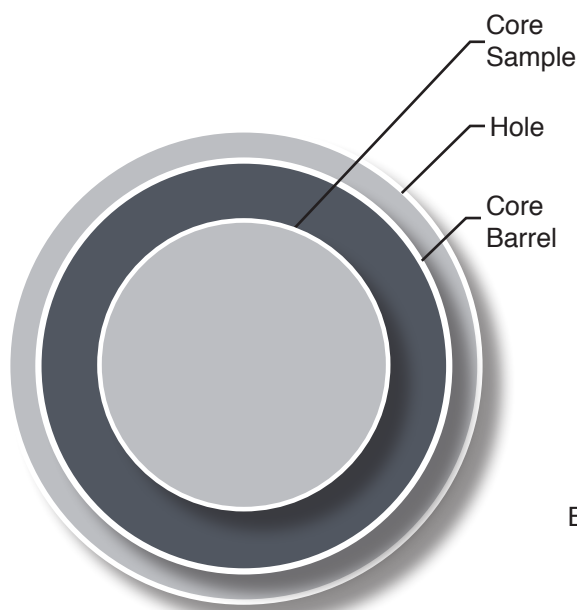
Boart Longyear™ core barrel kits and inner-tube groups are available in A, B, N, H and P, as well as two standard lengths of 1.5 M / 5.0 FT and 3.0 M / 10.0 FT. These lengths refer to the inner-tube length which dictates the maximum amount of core that can be retrieved in one drilling run before the inner-tube must be retrieved.

Note that optional couplings and adapters are available, for Q™ and QTK systems, to extend the core barrel in 1.5 M / 5.0 FT or 3.0 M / 10.0 FT multiples. Also, optional inner-tube couplings and extensions are available to allow for extended length reaming shells.

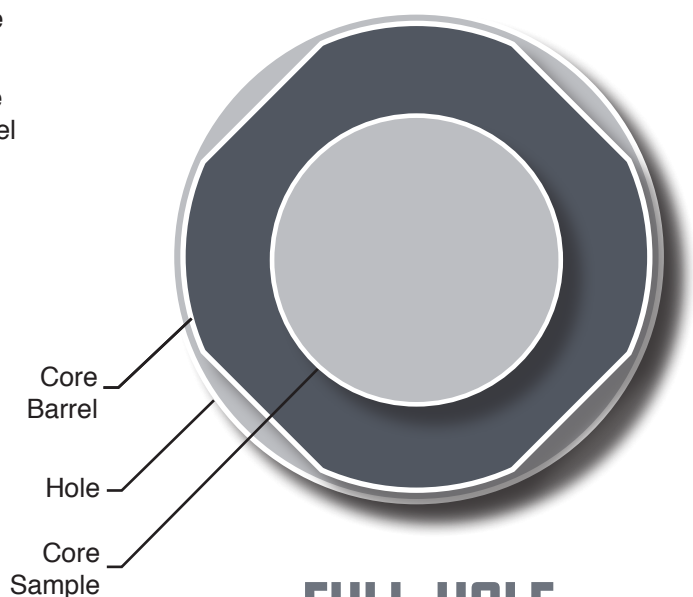
Full-hole

Full-hole systems are designed for operation in competent ground formations where hole accuracy is top priority. The oversized outer diameter and four-flat design keeps the core barrel system tight to the hole while allowing adequate cutting flow. This system is comprised of standard core barrel components, the full-hole induction-hardened locking coupling and the full-hole chrome-plated outer-tube. When ordering a core barrel kit, these two optional full-hole items must be selected.

Boart Longyear A, B, N, and H size core barrel systems can be configured as full-hole wireline coring systems. This system is comprised of standard core barrel components, the full-hole locking coupling and outer-tube. When ordering a core barrel kit, these two optional full hole items must be selected.



STANDARD
TOP VIEW



FULL-HOLE
TOP VIEW

CORE BARREL CONFIGURATIONS, FEATURES AND OPTIONS

Configuration Overview

Within the Core Barrel Assemblies section of this catalog, both core barrel assemblies and inner-tube groups are referenced. Both assemblies are independently configurable and include a distinct set of components as outlined below.

Core Barrel Kits

The Core Barrel Kits include all components required to complete a full core barrel and utilize 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
- Thread protector (optional)
- In-hole tool product manual
- Safety poster
- Link Latch only

Inner-Tube Groups

The Inner-tube groups provide the necessary components to collect a core sample from head assembly to core lifter:

- Head Assembly
- Inner-tube
- Stop Ring
- Core Lifter
- Core Lifter Case
- In-hole Tool Product Manual
- Safety Poster

CONFIGURATION WALK-THROUGH

Boart Longyear offers a variety of core barrel systems to meet the different drilling conditions in the field. Customers have the ability to tailor the core barrel kit to best suit their needs.

On the following page is an example of our core barrel assembly configurator which includes the inner-tube group. The components within the core barrel kit and inner-tube groups can be separated into three types of components:

Standard Component

These components are standard for a specific application within the core barrel kit or inner-tube group.

User Configured (Choose One)

These are required components within the core barrel kit; however, users must select a specific component to be included in the core barrel kit or inner-tube group.

Optional Component

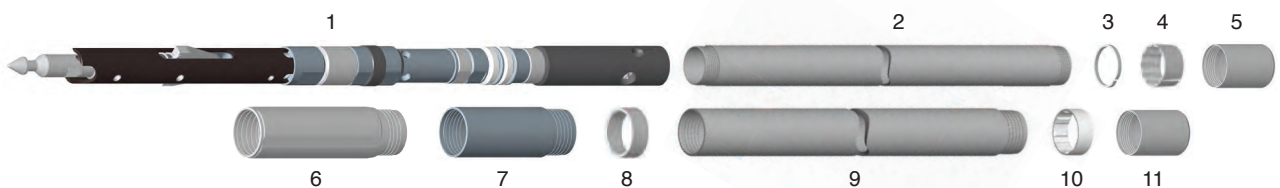
These are components that are fully optional to the customer. The core barrel kit or inner-tube group can be ordered without these components.

EXAMPLE TABLE

CONFIGURATION WALK-THROUGH

ID #	PART #	DESCRIPTION				
	3545922	Core Barrel Kits, AQTK 1.5 M / 5 FT	3545922			
	3543021	Inner-tube Group, AQTK 1.5 M / 5 FT	↓	3543021		
	3545923	Core Barrel Kits, AQTK 3.0 M / 10 FT		↓	3545923	
	3543022	Inner-tube Group, AQTK 3.0 M / 10 FT	↓	↓	↓	3543022
1	3545920	Link Latch Head Assembly, AQTK	✓	✓	✓	✓
2	52911	Inner-tube, AQTK 1.5 M / 5 FT				
	52911CP	Inner-tube, AQTK 1.5 M / 5 FT, Chrome Plated				
	52585	Inner-tube, AQTK 3.0 M / 10 FT				
	52585CP	Inner-tube, AQTK 3.0 M / 10 FT, Chrome Plated				
3	52588	Stop Ring, AQTK	✓	✓	✓	✓
4	52877	Core Lifter, AQTK, Spiral				
	3545588	Core Lifter, AQTK, Spiral, Diamond Coated				
5	5001021	Case, AQTK, Core Lifter	✓	✓	✓	✓
6	52911CP	Locking Coupling, ARQTK, Full-hole				
	5007771	Locking Coupling, ARQTK, Carbide				
7	3547073	Adapter Coupling, AQTK	✓		✓	
8	52589	Landing Ring, AQTK	✓		✓	
9	52908	Outer-tube, AQTK 1.5 M / 5 FT				
	52908CP	Outer-tube, AQTK 1.5 M / 5 FT, Chrome Plated				
	3545384	Outer-tube, AQTK 1.5 M / 5 FT, Full-hole				
	52578	Outer-tube, AQTK 3.0 M / 10 FT				
	52578CP	Outer-tube, AQTK 3 M / 10 FT, Chrome Plated				
	3545385	Outer-tube, AQTK 3.0 M / 10 FT, Full-hole				
10	52635	Inner-tube Stabilizer, AQTK	✓	✓	✓	✓
11	61390	Thread Protector AQTK, Outer-tube	✓	✓	✓	✓
	3542826	Drift Tool, Link Latch A	✓	✓	✓	✓
	61353	Inner-tube Loading Sleeve	✓	✓	✓	✓
	3541994	In-hole Tool Product Manual	✓	✓	✓	✓
	306390	Core Barrel Safety Poster	✓	✓	✓	✓

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item



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Quick Descent™ Link Latch™ Head Assembly, Location: Australia

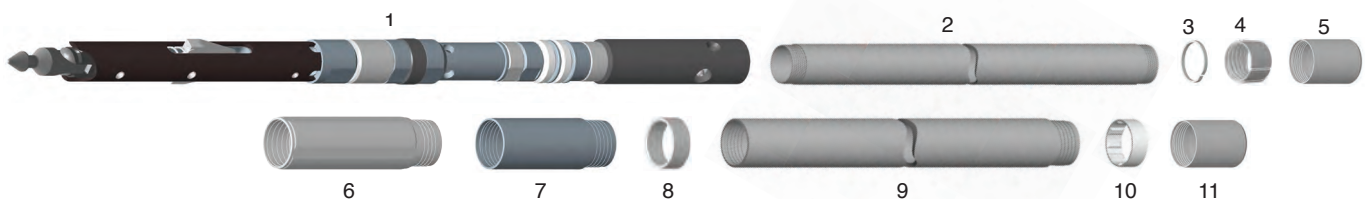
Q™ CORE BARREL KITS

AQTK	26
BQ	32
BQTK	40
NQ	48
NQTK (NQ2)	56
HQ	70
PQ	82

AQ™ TK CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3545922	Core Barrel Kit, AQTK 1.5 M / 5.0 FT	3545922			
	3543021	Inner-tube Group, AQTK 1.5 M / 5.0 FT	↓	3543021		
	3545923	Core Barrel Kit, AQTK 3.0 M / 10.0 FT		↓	3545923	
	3543022	Inner-tube Group, AQTK 3.0 M / 10.0 FT	↓	↓	↓	3543022
1	3545920MKII	Head Assembly, AQTK	✓	✓	✓	✓
2	52911	Inner-tube, AQTK, 1.5 M / 5.0 FT				
	52911CP	Inner-tube, AQTK, 1.5 M / 5.0 FT, Chrome Plated				
	52585	Inner-tube, AQTK, 3.0 M / 10.0 FT				
	52585CP	Inner-tube, AQTK, 3.0 M / 10.0 FT, Chrome Plated				
3	52588	Stop Ring, AQTK	✓	✓	✓	✓
4	52877	Core Lifter, AQTK Spiral				
	3545588	Core Lifter, AQTK Spiral, Diamond Coated				
5	5001021	Core Lifter Case, AQTK	✓	✓	✓	✓
6	3546397	Locking Coupling, ARQTK Full-hole				
	5007771	Locking Coupling, ARQTK Stabilizer, Carbide				
7	3547073	Adapter Coupling, AQTK	✓		✓	
8	52589	Landing Ring, AQTK	✓		✓	
9	52908	Outer-tube, AQTK 1.5 M / 5.0 FT				
	52908CP	Outer-tube, AQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545384	Outer-tube, AQTK 1.5 M / 5.0 FT, Full-hole				
	52578	Outer-tube, AQTK 3.0 M / 10.0 FT				
	52578CP	Outer-tube, AQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545385	Outer-tube, AQTK 3.0 M / 10.0 FT, Full-hole				
10	52635	Stabilizer, AQTK, Inner-tube	✓		✓	
11	61390	Protector, AQTK, Outer-tube Thread	✓		✓	
	3542826	Drift Tool, Link Latch A	✓	✓	✓	✓
	61353	Loading Sleeve, ARQTK	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – AQ™TK

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	61129	Inner-tube Coupling
2	62200	Inner-tube Extenda, 1.5 M / 5.0 FT



Example A: To assemble a 6.0 M / 20 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example B: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

AQ™TK CORE BARREL SPARE PARTS KIT 3545924

ID #	PART #	DESCRIPTION	QTY
	3545924	Core Barrel Spare Parts Kit, AQTK	
1	5008322	MKII Spearhead Assembly, AQTK	1
2	23942	Coiled Pin, 1/4" x 1-1/4"	1
3	3541932	Nylok Bolt 3/8" 16UNC x 3/4"	2
4	3543077	Compression Spring, AQTK	1
5	104874	Link, AQTK / AQTKU	4
6	104873	Latch, AQTK / AQTKU	4
7	3540466	Coiled Pin, 5/16" x 7/8"	2
8	3543921	Latch Indicator Bushing, AQTK	4
9	3543888	Landing Shoulder, AQTK	2
10	100387	Shut-off Valve, AQTK, Hard	4
11	24220	Thrust Bearing	1
12	101683	Spindle Bushing, AQTK	1
13	25986	Thrust Bearing	1
14	5008636	Lock Nut, 1/2 UNC	1
15	17447	Hydraulic Grease Fitting	2
16	52588	Stop Ring, AQTK	2
17	52877	Spiral Core Lifter, AQTK	20
18	5001021	Core Lifter Case, AQTK	4
19	52589	Landing Ring, AQTK	2
20	52635	Inner-tube Stabilizer, AQTK	2

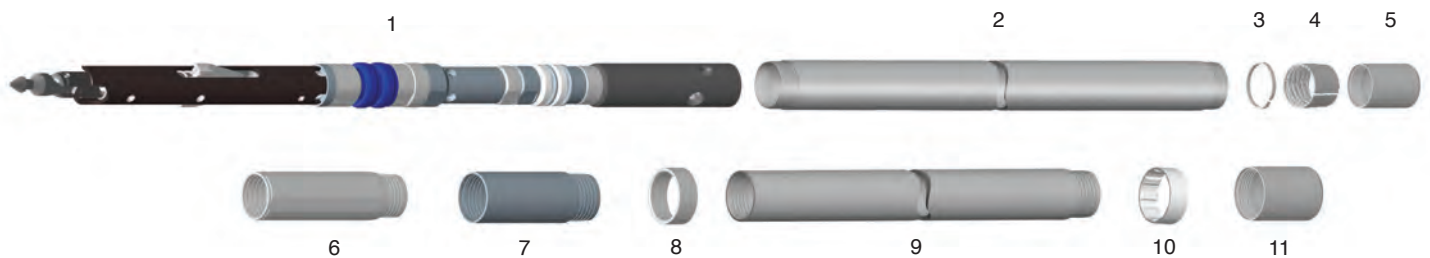


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

AQ™ TKU CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3544017	Core Barrel Kit, AQTKU 1.5 M / 5.0 FT	3544017			
	3544029	Inner-tube Group, AQTKU 1.5 M / 5.0 FT	↓	3544029		
	3544023	Core Barrel Kit, AQTKU 3.0 M / 10.0 FT		↓	3544023	
	3544035	Inner-tube Group, AQTKU 3.0 M / 10.0 FT	↓	↓	↓	3544035
1	3544011MKII	Head Assembly, AQTKU Quick Pump-In	✓	✓	✓	✓
2	52911	Inner-tube, AQTK 1.5 M / 5.0 FT				
	52911CP	Inner-tube, AQTK 1.5 M / 5.0 FT, Chrome Plated				
	52585	Inner-tube, AQTK 3.0 M / 10.0 FT				
	52585CP	Inner-tube, AQTK 3.0 M / 10.0 FT, Chrome Plated				
3	52588	Stop Ring, AQTK	✓	✓	✓	✓
4	52877	Core Lifter, AQTK, Spiral				
	3545588	Core Lifter, AQTK, D / C				
5	5001021	Case, AQTK Core Lifter	✓	✓	✓	✓
6	3546397	Locking Coupling, ARQTK Full-hole				
	5007771	Locking Coupling, ARQTK Stabilized, Carbide				
7	3547073	Adapter Coupling, AQTKU, Q / P	✓		✓	
8	52589	Landing Ring, AQTK	✓		✓	
9	52908	Outer-tube, AQTK 1.5 M / 5.0 FT				
	52908CP	Outer-tube, AQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545384	Outer-tube, AQTK 1.5 M / 5.0 FT, Full-hole				
	52578	Outer-tube, AQTK 3.0 M / 10.0 FT				
	52578CP	Outer-tube, AQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545385	Outer-tube, AQTK 3.0 M / 10.0 FT, Full-hole				
10	52635	Stabilizer, AQTK Inner-tube	✓		✓	
11	61390	Protector, AQTK Outer-tube Thread	✓		✓	
	3542826	Drift Tool, Link Latch A	✓	✓	✓	✓
	61353	Loading Sleeve, ARQTK	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – AQ™ TKU

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	61129	Inner-tube Coupling
2	62200	Inner-tube Extenda, 1.5 M / 5.0 FT



Example A: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

Inner-tube extendas can also be used to extend core barrels.

Example B: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 / 5.0 FT

AQ™ TKU CORE BARREL SPARE PARTS KIT 3544046

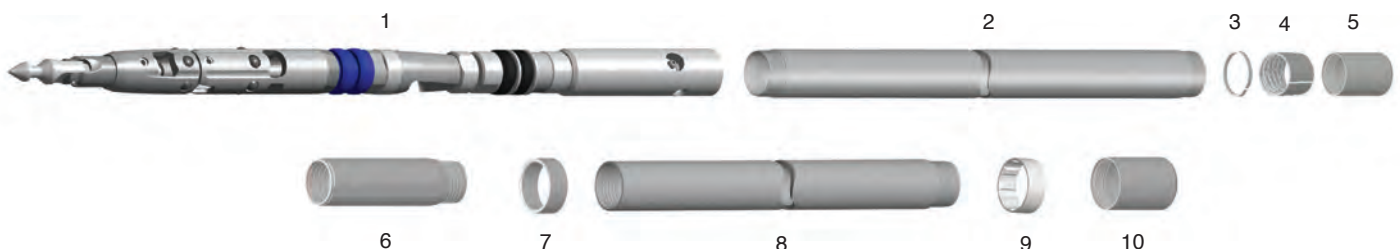
ID #	PART #	DESCRIPTION	QTY
	3544046	AQTKU Core Barrel Spare Parts Kit	
1	5008322	MKII Spearhead Assembly, AQTKU	1
2	23942	Coiled Pin, 1/4" x 1-1/4"	1
3	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
4	3543077	Compression Spring, AQTK	1
5	104874	Link, AQTK / AQTKU	4
6	104873	Latch, AQTK / AQTKU	4
7	3540466	Coiled Pin, 5/16" x 7/8"	2
8	3543921	Latch Indicator Bushing, AQTK	4
9	100695	Pump-in Lip Seal, AQTK	4
10	3543888	Landing Shoulder, AQTK	2
11	100387	Shut-off Valve, AQTK, Hard	4
12	24220	Thrust Bearing	1
13	101683	Spindle Bushing, AQTK	1
14	25986	Thrust Bearing	1
15	5008636	Lock Nut, 1/2 UNC	1
16	17447	Hydraulic Grease Fitting	2
17	52588	Stop Ring, AQTK	2
18	52877	Core Lifter, Spiral	20
19	5001021	Core Lifter Case	4
20	52589	Landing Ring, AQTK	2
21	52635	Inner-tube Stabilizer, AQTK	2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

AQ™ TKU QUICK PUMP-IN™ ROLLER LATCH™ CORE BARREL KIT SELECTION

ID #	PART #	DESCRIPTION				
	5007677	Roller Latch Core Barrel Kit, AQTKU 1.5 M / 5.0 FT	5007677			
	5007679	Roller Latch Inner-tube Group, AQTKU 1.5 M / 5.0 FT	↓	5007679		
	5007678	Roller Latch Core Barrel Kit, AQTKU 3.0 M / 10.0 FT	↓	↓	5007678	
	5007680	Roller Latch Inner-tube Group, AQTKU 3.0 M / 10.0 FT	↓	↓	↓	5007680
1	5006464	Head Assembly, AQTKU, Roller Latch, Quick Pump-In	✓	✓	✓	✓
2	52911	Inner-tube, AQTK 1.5 M / 5.0 FT				
	52911CP	Inner-tube, AQTK 1.5 M / 5.0 FT, Chrome Plated				
	52585	Inner-tube, AQTK 3.0 M / 10.0 FT				
	52585CP	Inner-tube, AQTK 3.0 M / 10.0 FT, Chrome Plated				
3	52588	Stop Ring, AQTK	✓	✓	✓	✓
4	52877	Core Lifter, AQTK Spiral				
	3545588	Core Lifter, AQTK D / C				
5	5001021	Core Lifter Case, AQTK	✓	✓	✓	✓
6	5007716	Locking Coupling, ARQTK Stabilized				
	5006000	Locking Coupling, ARQTK Full-hole				
7	52589	Landing Ring, AQTK	✓	✓		
8	52908	Outer-tube, AQTK 1.5 M / 5.0 FT				
	52908CP	Outer-tube, AQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545384	Outer-tube, AQTK 1.5 M / 5.0 FT, Full-hole				
	52578	Outer-tube, AQTK 3.0 M / 10.0 FT				
	52578CP	Outer-tube, AQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545385	Outer-tube, AQTK 3.0 M / 10.0 FT, Full-hole				
9	52635	Stabilizer, AQTK Inner-tube	✓	✓		
10	61390	Protector, AQTK Outer-tube Thread	✓	✓		
	5007707	Assembly Tool, AQTK	✓	✓	✓	✓
	61353	Loading Sleeve, ARQTK	✓	✓	✓	✓
	3541994	In-hole Tools Product Manual	✓	✓		
	306390	Core Barrel Assembly Safety Poster	✓	✓		



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

AQ™ TKU QUICK PUMP-IN™ ROLLER LATCH™ SPARE PARTS KIT 5007681

ID #	PART #	DESCRIPTION	QTY
	5007681	Roller Latch Spare Parts Kit, AQTKU	
1	5008322	MKII Spearhead Assembly, AQTK	1
2	5008349	Wedge, AQTK Roller Latch Brake	1
3	5008318	Body, AQTKU Valve Piston	1
4	5008917	Lock Washer, 5/16"	
5	5009031	Head, Valve Piston	
6	5005421	Coiled Pin, 5/16" x 1-3/8"	2
7	5005065	Jam Nut, Roller Latch, AQTKU	1
8	5005393	Wave Spring, AQTKU Roller Latch	1
9	5005422	Coiled Pin, 5/16" x 1-1/4"	2
10	5008907	Roller Latch, AQTK / AQTKU	10
11	62380	Indicator Bushing, 22 mm	4
12	100695	Lip Seal, AQTK Pump-in	4
13	3543888	Landing Shoulder, AQTK	2
14	100387	Shut-Off Valve, AQTK, Hard	4
15	101683	Spindle Bushing, AQTK / AQTKU	1
16	25986	Thrust Bearing	1
17	5008636	Lock Nut, 1/2" UNC	1
18	24220	Thrust Bearing	1
19	17447	Hydraulic Grease Fitting	2
20	52588	Stop Ring, AQTK	2
21	52877	Core Lifter, AQTK, Spiral	20
22	5001021	Core Lifter Case, AQTK	4
23	52589	Landing Ring, AQTK	2
24	52635	Stabilizer, AQTK Inner-tube	2



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

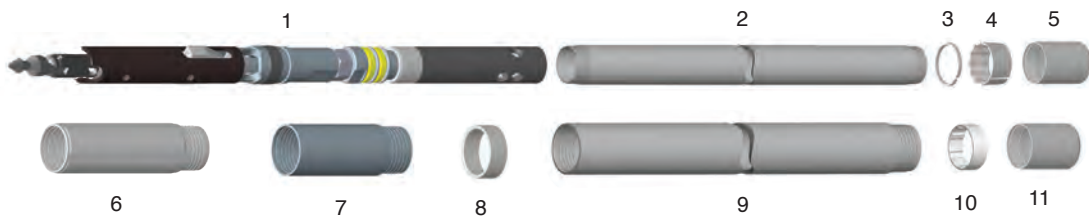
Warning: While it improves safety, the hold-back brake feature is not intended as a fail-safe device. Keep hands and body clear of open rods at all times. When in use, always apply fluid pressure to compensate for any wireline retraction resistance from the core barrel. Failure to do so may result in product failure or injury.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

BQ™ CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	306411	Core Barrel Kit, BQ 1.5 M / 5.0 FT	306411			
	3542999	Inner-tube Group, BQ 1.5 M / 5.0 FT	↓	3542999		
	306412	Core Barrel Kit, BQ 3.0 M / 10.0 FT		↓	306412	
	3543000	Inner-tube Group, BQ 3.0 M / 10.0 FT	↓	↓	↓	3543000
1	3542292MKII	Head Assembly, BQ				
2	24356	Inner-tube, BQ 1.5 M / 5.0 FT				
	24356CP	Inner-tube, BQ 1.5 M / 5.0 FT, Chrome Plated				
	24339	Inner-tube, BQ 3 M / 10.0 FT				
	24339CP	Inner-tube, BQ 3 M / 10 FT, Chrome Plated				
3	24831	Stop Ring, BQ	✓	✓	✓	✓
4	30487	Core Lifter, BQ Slotted				
	24342	Core Lifter, BQ Fluted				
	3546910	Core Lifter, BQ, Slotted, Diamond Coated				
	5001509	Core Lifter, BQ, Fluted, Diamond Coated				
5	24830	Core Lifter Case, BQ	✓	✓	✓	✓
6	3545400	Locking Coupling, BQ Full-hole with Tang				
	3545401	Locking Coupling, BQ Full-hole				
	5007783	BQ Stabilized Locking Coupling with Tang				
	5007781	BQ Stabilized Locking Coupling				
	3545399	Locking Coupling, BRQ Full-hole				
	3545398	Locking Coupling, BRQ Full-hole with Tang				
	5007782	BRQ Stabilized Locking Coupling				
5007784	BRQ Stabilized Locking Coupling with Tang					
7	24833	Adapter Coupling, BQ	✓		✓	
8	24345	Landing Ring, BQ	✓		✓	
9	24357	Outer-tube, BQ 1.5 M / 5.0 FT				
	24357CP	Outer-tube, BQ 1.5 M / 5.0 FT, Chrome Plated				
	3545386	Outer-tube, BQ 1.5 M / 5.0 FT, Full-hole				
	24346	Outer-tube, BQ 3.0 M / 10.0 FT				
	24346CP	Outer-tube, BQ 3.0 M / 10.0 FT, Chrome Plated				
	3545387	Outer-tube, BQ 3.0 M / 10.0 FT, Full-hole				
10	44406	Stabilizer, BQ Inner-tube	✓		✓	
11	24348	Protector, BQ Outer-tube Thread	✓		✓	
	3542827	Drift Tool, Link Latch B	✓	✓	✓	✓
	3542636	Loading sleeve, BQ / BRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

EXTENDED CORE BARRELS – BQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M/5.0 FT to 4.5 M/15.0 FT, or 3.0 M/10.0 FT to 6.0 M/20.0 FT lengths in consolidated ground conditions.

1	31402	Inner-tube Coupling, BQ
2	64384	Inner-tube Extenda, 1.5 M / 5.0 FT, BQ



Example: To assemble a 6.0 M/20.0 FT core barrel, use a 3.0 M/10 FT core barrel plus the following:

- 1 outer-tube 3.0 M/10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M/10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M/5.0 FT lengths:

- 1 outer-tube 1.5 M/15.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M/5.0 FT

BQ™ CORE BARREL SPARE PARTS KIT 3542578

ID #	PART #	DESCRIPTION	QTY
	3542578	BQ Core Barrel Spare Parts Kit	
1	5008323	MKII Spearhead Assembly, BQ/BQTK	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543180	Latch Compression Spring, BQ/BQTK	1
4	306417	Latch, BQ	4
5	306418	Link, BQ	4
6	23944	Coiled Pin, 3/8" x 1-1/4"	2
7	62374	Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	306421	Landing Shoulder, BQ	1
10	44601	Hex Nut, 7/8" UNC	1
11	44208	Shut-off Valve, BQ, Hard	4
12	24030	Thrust Bearing	2
13	24336	Spindle Bushing, BQ	1
14	5008633	Lock Nut, 5/8" UNC	1
15	17447	Hydraulic Grease Fitting	2
16	24831	Stop Ring, BQ	2
17	30487	Core Lifter Slotted, BQ	20
18	24830	Core Lifter Case, BQ	4
19	24345	Landing Ring, BQ	2
20	44406	Inner-tube Stabilizer, BQ	2

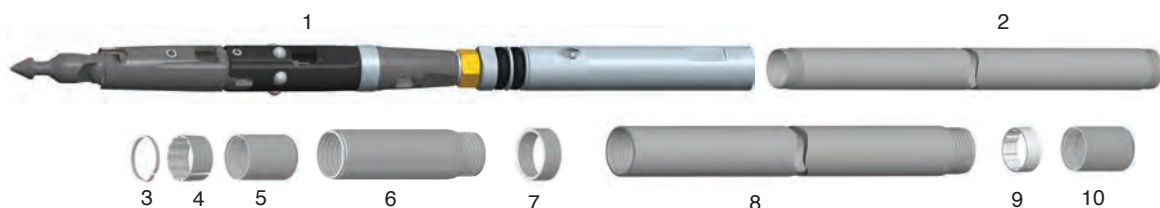


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

BQ™ QUICK DESCENT™ ROLLER LATCH™

CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008220	Core Barrel Kit, BQ 1.5 M / 5.0 FT	5008220			
	5008225	Inner-tube Group, BQ 1.5 M / 5.0 FT	↓	5008225		
	5008221	Core Barrel Kit, BQ 3.0 M / 10.0 FT		↓	5008221	
	5008226	Inner-tube Group, BQ 3.0 M / 10.0 FT	↓		↓	5008226
1	5007740	Head Assembly, BQ Quick Descent				
2	24356	Inner-tube, BQ 1.5 M / 5.0 FT				
	24356CP	Inner-tube, BQ 1.5 M / 5.0 FT, Chrome Plated				
	24339	Inner-tube, BQ 3 M / 10.0 FT				
	24339CP	Inner-tube, BQ 3 M / 10 FT, Chrome Plated				
3	24831	Stop Ring, BQ	✓	✓	✓	✓
4	30487	Core Lifter, BQ Slotted				
	24342	Core Lifter, BQ Fluted				
	3546910	Core Lifter, BQ, Slotted, Diamond Coated				
	5001509	Core Lifter, BQ, Fluted, Diamond Coated				
5	24830	Core Lifter Case, BQ	✓	✓	✓	✓
6	5007902	Locking Coupling, BQ Full-hole				
	50077910	BQ Stabilized Locking Coupling				
	5007901	Locking Coupling, BRQ Full-hole				
	5007909	Locking Coupling, BRQ Stabilized				
7	24345	Landing Ring, BQ	✓		✓	
8	24357	Outer-tube, BQ 1.5 M / 5.0 FT				
	24357CP	Outer-tube, BQ 1.5 M / 5.0 FT, Chrome Plated				
	3545386	Outer-tube, BQ 1.5 M / 5.0 FT, Full-hole				
	24346	Outer-tube, BQ 3.0 M / 10.0 FT				
	24346CP	Outer-tube, BQ 3.0 M / 10.0 FT, Chrome Plated				
	3545387	Outer-tube, BQ 3.0 M / 10.0 FT, Full-hole				
9	44406	Stabilizer, BQ Inner-tube	✓		✓	
10	24348	Protector, BQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3542827	Drift Tool, Link Latch B	✓	✓	✓	✓
	3542636	Loading sleeve, BQ / BRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – BQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31402	Inner-tube Coupling, BQ
2	64384	Inner-tube Extenda, 1.5 M / 5.0 FT, BQ



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 15.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

BQ™ CORE BARREL SPARE PARTS KIT 5008224

ID #	PART #	DESCRIPTION	QTY
	5008224	BQ Core Barrel Spare Parts Kit	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5004409	Latch Spring, BQ / BQTK	1
3	5007954	Coiled Pin, 7/16" x 1-5/8"	2
4	5009029	Body, BQ/BQTK Valve Piston	1
5	5008917	L/Washer, 5/16"	
6	5009031	Head, Valve Piston	
7	5005593	Coiled Pin, 3/8" x 1-3/4"	2
8	5006047	Roller Latch, BQ	5
9	62380	Indicator Bushing, 22 mm	4
10	306421	Landing Shoulder, BQ	2
11	24943	Ball 3/4"	1
12	3548183	Washer, Nord-Lock 7/8"	1
13	44601	Hex Nut, 7/8" UNC	1
14	44208	Shut-off Valve, BQ, Hard	4
15	24335	Valve Adjusting Washer, BQ	2
16	24030	Thrust Bearing	3
17	5007924	Spindle Bushing, BQ	1
18	17447	Hydraulic Grease Fitting	2
19	5008633	Lock Nut, 5/8" UNC	1
20	5007925	Inner-Tube Cap Bushing	1
21	24831	Stop Ring, BQ	1
22	30487	Core Lifter Slotted, BQ	20
23	24830	Core Lifter Case, BQ	4
24	24345	Landing Ring, BQ	2
25	44406	Inner-tube Stabilizer, BQ	2

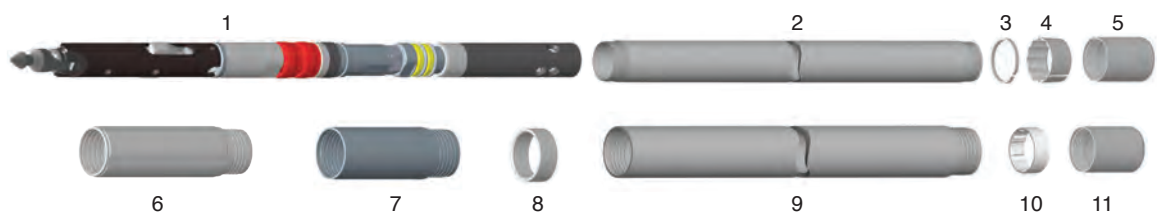


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

BQ™ U CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3544018	Core Barrel Kit, BQU 1.5 M / 5.0 FT	3544018			
	3544030	Inner-tube Group, BQU 1.5 M / 5.0 FT	↓	3544030		
	3544024	Core Barrel Kit, BQU 3.0 M / 10.0 FT		↓	3544024	
	3544036	Inner-tube Group, BQU 3.0 M / 10.0 FT	↓	↓	↓	3544036
1	3544012MKII	Head Assembly, BQU Quick Pump-In				
2	24356	Inner-tube, BQ 1.5 M / 5.0 FT				
	24356CP	Inner-tube, BQ 1.5 M / 5.0 FT Chrome Plated				
	24339	Inner-tube, BQ 3.0 M / 10.0 FT				
	24339CP	Inner-tube, BQ 3.0 M / 10.0 FT Chrome Plated				
3	24831	Stop Ring, BQ	✓	✓	✓	✓
4	30487	Core Lifter, BQ Slotted				
	24342	Core Lifter, BQ Fluted				
	3546910	Core Lifter, BQ Slotted, Diamond Coated				
	5001509	Core Lifter, BQ Fluted, Diamond Coated				
5	24830	Case, BQ Core Lifter	✓	✓	✓	✓
6	3545401	Locking Coupling, BQ Full-hole				
	5007781	BQ Stabilized Locking Coupling				
	3545399	Locking Coupling, BRQ Full-hole				
	5007782	BRQ Stabilized Locking Coupling				
7	3546704	Adapter Coupling, BQ / BQU	✓		✓	
8	24345	Landing Ring, BQ	✓		✓	
9	24357	Outer-tube, BQ 1.5 M / 5.0 FT				
	24357CP	Outer-tube, BQ 1.5 M / 5.0 FT, Chrome Plated				
	3545386	Outer-tube, BQ 1.5 M / 5.0 FT, Full-hole				
	24346	Outer-tube, BQ 3.0 M / 10.0 FT				
	24346CP	Outer-tube, BQ 3.0 M / 10.0 FT, Chrome Plated				
	3545387	Outer-tube, BQ 3.0 M / 10.0 FT, Full-hole				
10	44406	Stabilizer, BQ Inner-tube	✓		✓	
11	24348	Protector, BQ Outer-tube Thread	✓		✓	
	3542827	Drift Tool, Link Latch B	✓	✓	✓	✓
	3542636	Loading sleeve, BQ / BRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – BQ™ U

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31402	Inner-tube Coupling, BQ
2	64384	Inner-tube Extenda, 1.5 M / 5.0 FT, BQ



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

BQ™ U CORE BARREL SPARE PARTS KIT 3544047

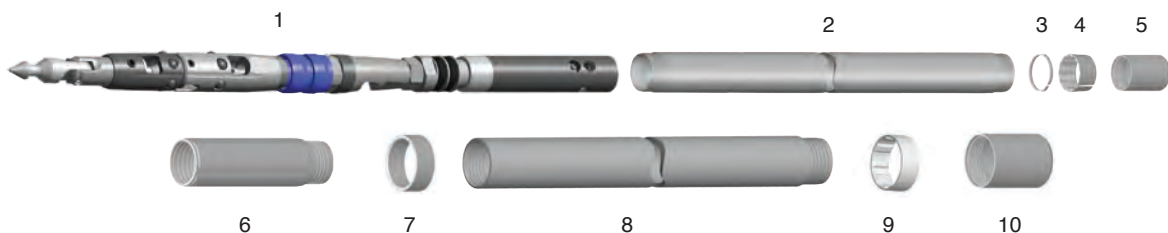
ID #	PART #	DESCRIPTION	QTY
	3544047	BQU Core Barrel Spare Parts Kit	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	2
3	3541836	Compression Spring, BQ / BQTK	1
4	306417	Latch, BQ	4
5	306418	Link, BQ	4
6	23944	Coiled Pin, 3/8" x 1-1/4"	1
7	3547672	Valve Piston, BQ / NQ	1
8	23946	Coiled Pin, 1/4" x 1-5/8"	1
9	3543904	Indicator Bushing, 22 mm	4
10	100690	Lip Seal, BQ, Pump-in	4
11	306421	Landing Shoulder, BQ	2
12	44208	Shut-off Valve, BQ, Hard	4
13	24030	Thrust Bearing	2
14	24336	Spindle Bushing, BQ	1
15	103144	Lock Nut, 5/8" UNC	1
16	17447	Grease Fitting	2
17	24831	Stop Ring, BQ	2
18	30487	Core Lifter, BQ, Slotted	20
19	24830	Core Lifter Case, BQ	4
20	24345	Landing Ring, BQ	2
21	44406	Inner-tube Stabilizer, BQ	2



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

BQ™ U QUICK PUMP-IN™ ROLLER LATCH™ CORE BARREL KIT SELECTION

ID #	PART #	DESCRIPTION				
	5007682	Roller Latch Core Barrel Kit, BQU 1.5 M / 5.0 FT	5007682			
	5007684	Roller Latch Inner-tube Group, BQU 1.5 M / 5.0 FT	↓	5007684		
	5007683	Roller Latch Core Barrel Kit, BQU 3.0 M / 10.0 FT	↓	↓	5007683	
	5007685	Roller Latch Inner-tube Group, BQU 3.0 M / 10.0 FT	↓	↓	↓	5007685
1	5008840	Head Assembly, BQU, Roller Latch, Quick Pump-In	✓	✓	✓	✓
2	24356	Inner-tube, BQ 1.5 M / 5.0 FT				
	24356CP	Inner-tube, BQ 1.5 M / 5.0 FT Chrome Plated				
	24339	Inner-tube, BQ 3.0 M / 10.0 FT				
	24339CP	Inner-tube, BQ 3.0 M / 10.0 FT Chrome Plated				
3	24831	Stop Ring, BQ	✓	✓	✓	✓
4	30487	Core Lifter, BQ Slotted				
	24342	Core Lifter, BQ Fluted				
	3546910	Core Lifter, BQ Slotted, Diamond Coated				
	5001509	Core Lifter, BQ Fluted, Diamond Coated				
5	24830	Case, BQ Core Lifter	✓	✓	✓	✓
6	5008912	Locking Coupling, BQ Full-hole				
	5007717	Locking Coupling, BQ Stabilized				
	5004361	Locking Coupling, BRQ Full-hole				
	5007718	Locking Coupling, BRQ Stabilized				
7	24345	Landing Ring, BQ	✓	✓		
8	24357	Outer-tube, BQ 1.5 M / 5.0 FT				
	24357CP	Outer-tube, BQ 1.5 M / 5.0 FT, Chrome Plated				
	3545386	Outer-tube, BQ 1.5 M / 5.0 FT, Full-hole				
	24346	Outer-tube, BQ 3.0 M / 10.0 FT				
	24346CP	Outer-tube, BQ 3.0 M / 10.0 FT, Chrome Plated				
	3545387	Outer-tube, BQ 3.0 M / 10.0 FT, Full-hole				
9	44406	Stabilizer, BQ Inner-tube	✓	✓		
10	24348	Protector, BQ Outer-tube Thread	✓	✓		
	5007708	Assembly Tool, B / N / H Roller Latch	✓	✓	✓	✓
	3542636	Loading Sleeve, BQ / BRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Safety Manual	✓	✓		
	306390	Core Barrel Assembly Safety Poster	✓	✓		



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

BQ™ U QUICK PUMP-IN™ ROLLER LATCH™ SPARE PARTS KIT 5007686

ID #	PART #	DESCRIPTION	QTY
	5007686	Roller Latch Spare Parts Kit, BQU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008401	Brake, Roller Latch, BQU Wedge	1
3	5009029	Body, BQ/BQTK Valve Piston	1
4	5008917	Lock Washer, 5/16"	
5	5009031	Head, Valve Piston	
6	5007954	Coiled Pin, 7/16" x 1-5/8"	2
7	5004369	Jam Nut, Roller Latch BQU / BQTKU	1
8	5004409	Wave Spring, Roller Latch BQU / BQTKU	1
9	5005593	Coiled Pin, 3/8" x 1-3/4"	2
10	5006047	Roller, BQ / BQU	10
11	62380	Indicator Bushing, 22 mm	4
12	100690	Lip Seal, Roller Latch BQ Pump-in	4
13	306421	Landing Shoulder, BQ	2
14	44208	Valve, BQ Hard Shut-off	4
15	24336	Spindle Bushing, BQ	1
16	24030	Thrust Bearing	2
17	5008633	Lock Nut, 5/8" UNC	1
18	17447	Hydraulic Grease Fitting	2
19	24831	Stop Ring, BQ	2
20	30487	Core Lifter, BQ Slotted	20
21	24830	Core Lifter Case, BQ	4
22	24345	Landing Ring, BQ	2
23	44406	Stabilizer, BQ Inner-tube	2



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

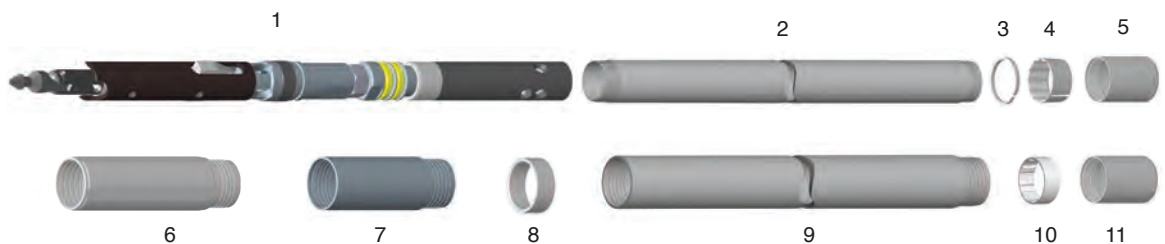
Warning: While it improves safety, the hold-back brake feature is not intended as a fail-safe device. Keep hands and body clear of open rods at all times. When in use, always apply fluid pressure to compensate for any wireline retraction resistance from the core barrel. Failure to do so may result in product failure or injury.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

BQ™ TK CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3540458	Core Barrel Kit, BQTK 1.5 M / 5.0 FT	3540458			
	3543001	Inner-tube Group, BQTK 1.5 M / 5.0 FT	↓	3543001		
	3540459	Core Barrel Kit, BQTK 3.0 M / 10.0 FT		↓	3540459	
	3543002	Inner-tube Group, BQTK 3.0 M / 10.0 FT	↓	↓	↓	3543002
1	306434MKII	Head Assembly, BQTK				
2	61518	Inner-tube, BQTK 1.5 M / 5.0 FT				
	61518CP	Inner-tube, BQTK 1.5 M / 5.0 FT Chrome Plated				
	53197	Inner-tube, BQTK 3 M / 10.0 FT				
	53197CP	Inner-tube, BQTK 3 M / 10 FT Chrome Plated				
3	53198	Stop Ring, BQTK	✓	✓	✓	✓
4	61536	Core Lifter, BQTK Slotted				
	3545885	Core Lifter, BQTK, Diamond Coated				
5	53199	Case, BQTK Core Lifter	✓	✓	✓	✓
6	5002420	Locking Coupling, BRQTK Full-hole with Tang				
	3545402	Locking Coupling, BRQTK Full-hole				
7	5001567	Coupling, BQTK Adapter	✓		✓	
8	53202	Landing Ring BQTK	✓		✓	
9	61517	Outer-tube, BQTK 1.5 M / 5.0 FT				
	61517CP	Outer-tube, BQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545388	Outer-tube, BQTK 1.5 M / 5.0 FT, Full-hole				
	53193	Outer-tube, BQTK 3.0 M / 10.0 FT				
	53193CP	Outer-tube, BQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545389	Outer-tube, BQTK 3.0 M / 10.0 FT, Full-hole				
10	53201	Stabilizer, BQTK Inner-tube	✓		✓	
11	61664	Protector, BQTK Outer-tube Thread	✓		✓	
	3542827	Drift Tool, Link Latch B	✓	✓	✓	✓
	61663	Loading Sleeve, BRQTK	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – BQ™ TK

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	61520	Inner-tube Coupling
2	62775	Inner-tube Extenda, 1.5 M/5.0 FT

Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.



Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

BQ™ TK CORE BARREL SPARE PARTS KIT 3542582

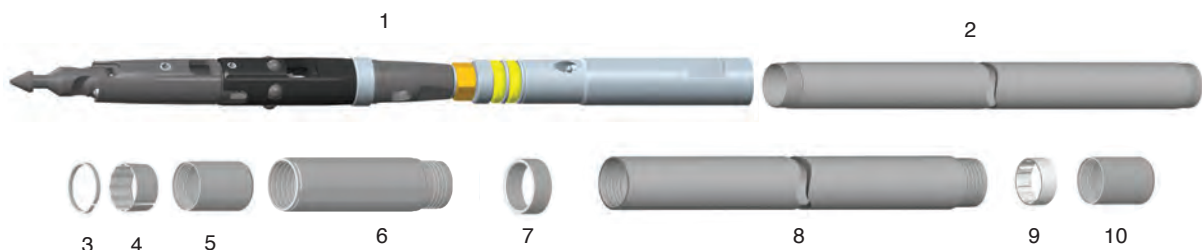
ID #	PART #	DESCRIPTION	QTY
	3542582	BQTK Core Barrel Spare Parts Kit	
1	5008323	MKII Spearhead Assembly, BQTK	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543180	Latch Compression Spring	1
4	306435	Latch	4
5	306418	Link	4
6	23944	Spring Pin 3/8" x 1-1/4"	2
7	62374	Stainless Steel Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	306437	Landing Shoulder	1
10	44601	Hex Nut	1
11	64354	Shut-off Valve, Hard	4
12	24030	Thrust Bearing	2
13	24336	Spindle Bushing	1
14	5008633	Lock Nut, 5/8" UNC	1
15	17447	Grease Fitting	2
16	53198	Stop Ring	2
17	61536	Core Lifter Slotted	20
18	53199	Core Lifter Case	4
19	53202	Landing Ring	2
20	53201	Inner-tube Stabilizer	2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

BQ™ TK QUICK DESCENT™ ROLLER LATCH™ CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008222	Core Barrel Kit, BQTK 1.5 M / 5.0 FT	5008222			
	5008227	Inner-tube Group, BQTK 1.5 M / 5.0 FT	↓	5008227		
	5008223	Core Barrel Kit, BQTK 3.0 M / 10.0 FT		↓	5008223	
	5008228	Inner-tube Group, BQTK 3.0 M / 10.0 FT			↓	5008228
1	5007745	Head Assembly, BQTK Quick Descent				
2	61518	Inner-tube, BQTK 1.5 M / 5.0 FT				
	61518CP	Inner-tube, BQTK 1.5 M / 5.0 FT Chrome Plated				
	53197	Inner-tube, BQTK 3 M / 10.0 FT				
	53197CP	Inner-tube, BQTK 3 M / 10 FT Chrome Plated				
3	53198	Stop Ring, BQTK	✓	✓	✓	✓
4	61536	Core Lifter, BQTK Slotted				
	3545885	Core Lifter, BQTK, Diamond Coated				
5	53199	Case, BQTK Core Lifter	✓	✓	✓	✓
6	5007900	Locking Coupling, BQTK Full-hole				
	50077908	BQTK Stabilized Locking Coupling				
7	53202	Landing Ring BQTK	✓		✓	
8	61517	Outer-tube, BQTK 1.5 M / 5.0 FT				
	61517CP	Outer-tube, BQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545388	Outer-tube, BQTK 1.5 M / 5.0 FT, Full-hole				
	53193	Outer-tube, BQTK 3.0 M / 10.0 FT				
	53193CP	Outer-tube, BQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545389	Outer-tube, BQTK 3.0 M / 10.0 FT, Full-hole				
9	53201	Stabilizer, BQTK Inner-tube	✓		✓	
10	61664	Protector, BQTK Outer-tube Thread	✓		✓	
	3542827	Drift Tool, Link Latch B	✓	✓	✓	✓
	61663	Loading Sleeve, BRQTK	✓	✓	✓	✓
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – BQ™ TK

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	61520	Inner-tube Coupling
2	62775	Inner-tube Extenda, 1.5 M / 5.0 FT

Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.



Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

BQ™ TK CORE BARREL SPARE PARTS KIT 5008229

ID #	PART #	DESCRIPTION	QTY
	5008229	BQTK Core Barrel Spare Parts Kit	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5004409	Latch Spring, BQ / BQTK	1
3	5007954	Coiled Pin, 7/16" x 1-5/8"	2
4	5009029	Body, BQ/BQTK Valve Piston	1
5	5008917	Lock Washer, 5/16"	1
6	5009031	Head, Valve Piston	1
7	5005593	Coiled Pin, 3/8" x 1-3/4"	2
8	5006049	Roller Latch, BQTK	5
9	62380	Indicator Bushing, 22 mm	4
10	306437	Landing Shoulder	2
11	24943	Ball 3/4"	1
12	3548183	Nord-Lock Washer 7/8"	1
13	44601	Hex Nut 7/8"	1
14	64354	Shut-off Valve, Hard	4
15	24335	Valve Adjusting Washer	2
16	24030	Thrust Bearing	3
17	5007924	Spindle Bushing	1
18	17447	Hydraulic Grease Fitting	2
19	5008633	Lock Nut, 5/8" UNC	1
20	5007925	Inner-Tube Cap Bushing, BQ	1
21	53198	Stop Ring	2
22	61536	Core Lifter Slotted	20
23	53199	Core Lifter Case	4
24	53202	Landing Ring	2
25	53201	Inner-tube Stabilizer	2

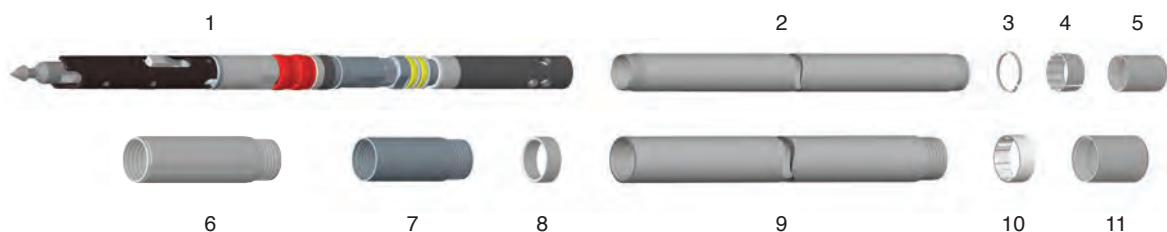


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

BQ™ TKU CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION	3544019	3544031	3544025	3544037
	3544019	Core Barrel Kit, BQTKU 1.5 M / 5.0 FT	3544019			
	3544031	Inner-tube Group, BQTKU 1.5 M / 5.0 FT	↓	3544031		
	3544025	Core Barrel Kit, BQTKU 3.0 M / 10.0 FT		↓	3544025	
	3544037	Inner-tube Group, BQTKU 3.0 M / 10.0 FT	↓	↓	↓	3544037
1	3544014MKII	Head Assembly, BQTKU	✓	✓	✓	✓
2	61518	Inner-tube, BQTK 1.5 M / 5.0 FT				
	61518CP	Inner-tube, BQTK 1.5 M / 5.0 FT Chrome Plated				
	53197	Inner-tube, BQTK 3.0 M / 10.0 FT				
	53197CP	Inner-tube, BQTK 3.0 M / 10.0 FT Chrome Plated				
3	53198	Stop Ring, BQ	✓	✓	✓	✓
4	61536	Core Lifter, BQTK Slotted				
	3545885	Core Lifter, BQTK, Diamond Coated				
5	53199	Case, BQTK Core Lifter	✓	✓	✓	✓
6	3545402	Locking Coupling, BRQTK Full-hole	✓		✓	
	5002420	Locking Coupling, BRQTK Full-hole with Tang				
7	3546705	Coupling, BQTK Adapter	✓		✓	
8	53202	Landing Ring BQTK	✓		✓	
9	61517	Outer-tube, BQTK 1.5 M / 5.0 FT				
	61517CP	Outer-tube, BQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545388	Outer-tube, BQTK 1.5 M / 5.0 FT, Full-hole				
	53193	Outer-tube, BQTK 3.0 M / 10.0 FT				
	53193CP	Outer-tube, BQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545389	Outer-tube, BQTK 3.0 M / 10.0 FT, Full-hole				
10	53201	Stabilizer, BQTK Inner-tube	✓		✓	
11	61664	Protector, BQTK Outer-tube Thread	✓		✓	
	3542827	Drift Tool, Link Latch B	✓	✓	✓	✓
	61663	Loading sleeve, BRQTK	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – BQ™ TKU

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	61520	Inner-tube Coupling
2	62775	Inner-tube Extenda, 1.5 M / 5.0 FT



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

BQ™ TKU CORE BARREL SPARE PARTS KIT 3544048

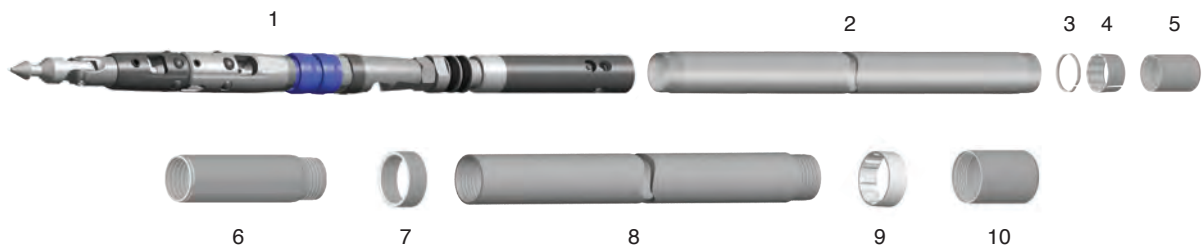
ID #	PART #	DESCRIPTION	QTY
	3544048	Core Barrel Spare Parts Kit, BQTKU	
1	5008323	MKII Spearhead Assembly, BQTKU	1
2	3541932	Nylok Bolt 3/8" -16 x 3/4"	2
3	3541836	Compression Spring	1
4	306435	Latch	4
5	306418	Link	4
6	23944	Spring Pin 3/8" x 1-1/4"	1
7	3547672	Piston Ball Valve	1
8	23946	Coiled Pin, 1/4" x 1-5/8"	1
9	3543904	Indicator Bushing, 22 mm	4
10	64683	Pump-in Seal Lip	2
11	306437	Landing Shoulder	2
12	64354	Shut-off Valve, Hard	4
13	24030	Thrust Bearing	2
14	24336	Spindle Bushing	1
15	5008633	Lock Nut, 5/8" UNC	1
16	17447	Grease Fitting	2
17	53198	Stop Ring	2
18	61536	Core Lifter Slotted	20
19	53199	Core Lifter Case	4
20	53202	Landing Ring	2
21	53201	Inner-tube Stabilizer	2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

BQ™ TKU QUICK PUMP-IN™ ROLLER LATCH™ CORE BARREL KIT SELECTION

ID #	PART #	DESCRIPTION				
	5007687	Roller Latch Core Barrel Kit, BQTKU 1.5 M / 5.0 FT	5007687			
	5007689	Roller Latch Inner-tube Group, BQTKU 1.5 M / 5.0 FT	↓	5007689		
	5007688	Roller Latch Core Barrel Kit, BQTKU 3.0 M / 10.0 FT	↓	↓	5007688	
	5007690	Roller Latch Inner-tube Group, BQTKU 3.0 M / 10 FT	↓	↓	↓	5007690
1	5008845	Head Assembly, BQTKU, Roller Latch, Quick Pump-In	✓	✓	✓	✓
2	61518	Inner-tube, BQTK 1.5 M / 5.0 FT				
	61518CP	Inner-tube, BQTK 1.5 M / 5.0 FT Chrome Plated				
	53197	Inner-tube, BQTK 3.0 M / 10.0 FT				
	53197CP	Inner-tube, BQTK 3.0 M / 10.0 FT Chrome Plated				
3	53198	Stop Ring, BQTK	✓	✓	✓	✓
4	61536	Core Lifter, BQTK Slotted				
	3545885	Core Lifter, BQTK, Diamond Coated				
5	53199	Case, BQTK Core Lifter	✓	✓	✓	✓
6	5006001	Locking Coupling, BRQTK Full-hole				
	5007719	Locking Coupling, BRQTK Stabilized				
7	53202	Landing Ring, BQTK	✓	✓		
8	61517	Outer-tube, BQTK 1.5 M / 5.0 FT				
	61517CP	Outer-tube, BQTK 1.5 M / 5.0 FT, Chrome Plated				
	3545388	Outer-tube, BQTK 1.5 M / 5.0 FT, Full-hole				
	53193	Outer-tube, BQTK 3.0 M / 10.0 FT				
	53193CP	Outer-tube, BQTK 3.0 M / 10.0 FT, Chrome Plated				
	3545389	Outer-tube, BQTK 3.0 M / 10.0 FT, Full-hole				
9	53201	Stabilizer, BQTK Inner-tube	✓	✓		
10	61664	Protector, BQTK Outer-tube Thread	✓	✓		
	5007708	Assembly Tool, Roller Latch B / N / H	✓	✓	✓	✓
	61663	Loading Sleeve, BRQTK	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓	✓		
	306390	Core Barrel Assembly Safety Poster	✓	✓		



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

BQ™ TKU QUICK PUMP-IN™ ROLLER LATCH™ SPARE PARTS KIT 5007691

ID #	PART #	DESCRIPTION	QTY
	5007691	Roller Latch Core Barrel Spare Parts Kit, BQTKU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008402	Wedge Brake, Roller Latch BQTKU	1
3	5009029	Body, BQ/BQTK Valve Piston	1
4	5008917	L/Washer, 5/16"	
5	5009031	Head, Valve Piston	
6	5004369	Jam Nut Roller Latch, BQU / BQTKU	1
7	5004409	Wave Spring, Roller Latch, BQU / BQTKU	1
8	5005593	Coiled Pin, 3/8" x 1-3/4"	2
9	5006047	Roller, BQ / BQU	5
10	5006049	Roller, BQTK / BQTKU	5
11	62380	Indicator Bushing, 22 mm	4
12	64683	Lip Seal, Roller Latch, BQTKU Pump-in	4
13	306437	Shoulder, BQTK Landing	2
14	64354	Shut-off Valve, BQTK, Hard	4
15	24336	Spindle Bushing, BQ	1
16	24030	Thrust Bearing	2
17	5008633	Lock Nut, 5/8" UNC	1
18	17447	Hydraulic Grease Fitting	2
19	53198	Stop Ring, BQTK	2
20	61536	Core Lifter, BQTK, Slotted	20
21	53199	Core Lifter Case, BQTK	4
22	53202	Landing Ring, BQTK	2
23	53201	Stabilizer, Inner-tube, BQTK	2



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

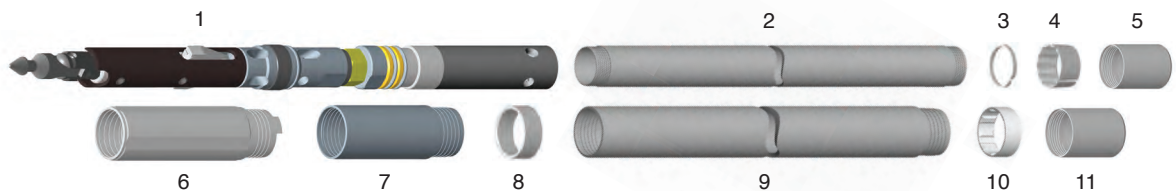
Warning: While it improves safety, the hold-back brake feature is not intended as a fail-safe device. Keep hands and body clear of open rods at all times. When in use, always apply fluid pressure to compensate for any wireline retraction resistance from the core barrel. Failure to do so may result in product failure or injury.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

NQ™ CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION	306001	3542920	306002	3542921
	306001	Core Barrel Kit, NQ 1.5M / 5.0 FT	306001			
	3542920	Inner-tube Group, NQ 1.5 M / 5.0 FT	↓	3542920		
	306002	Core Barrel Kit, NQ 3.0 M / 10.0 FT		↓	306002	
	3542921	Inner-tube Group, NQ 3.0 M / 10.0 FT	↓	↓	↓	3542921
1	3542751MKII	Head Assembly, NQ				
2	24909	Inner-tube, NQ 1.5 M / 5.0 FT				
	24909CP	Inner-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	24891	Inner-tube, NQ 3.0 M / 10.0 FT				
	24891CP	Inner-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
3	24893	Stop Ring NQ	✓	✓	✓	✓
4	30488	Core Lifter, NQ Slotted				
	24894	Core Lifter, NQ Fluted				
	3546911	Core Lifter, NQ Slotted, Diamond Coated				
	3548554	Core Lifter, NQ Fluted, Diamond Coated				
5	24892	Case, NQ Core Lifter	✓	✓	✓	✓
6	3545405	Locking Coupling, NQ Full-hole with Tang				
	3546190	Locking Coupling, NQ Full-hole				
	5007787	NQ Stabilized Locking Coupling with Tang				
	5007785	NQ Stabilized Locking Coupling				
	3545403	Locking Coupling, NRQ Full-hole with Tang				
	3545404	Locking Coupling, NRQ Full-hole				
	5007786	NRQ Stabilized Locking Coupling				
	5007788	NRQ Stabilized Locking Coupling with Tang				
7	24896	Adapter Coupling, NQ	✓		✓	
8	24897	Landing Ring NQ	✓		✓	
9	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
10	44407	Stabilizer, NQ Inner-tube	✓		✓	
11	24900	Protector, NQ Outer-tube Thread	✓		✓	
	3542637	Loading sleeve, NQ/NRQ	✓	✓	✓	✓
	3542987	Drift Tool, Link Latch N/H/P	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – NQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31403	Inner-tube Coupling
2	5006703	Inner-tube Extenda, 1.5 M / 5 FT



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

NQ™ CORE BARREL SPARE PARTS KIT 3542579

ID #	PART #	DESCRIPTION	QTY
	3542579	NQ Core Barrel Spare Parts Kit	
1	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543812	Latch Compression Spring, NQ	1
4	104816	Latch, NQ / NQU	4
5	306454	Link, NQ	4
6	24548	Coiled Pin, 1/2" x 1-1/2"	2
7	62374	Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	306009	Landing Shoulder, NQ	1
10	24885	Hex Nut, 1-1/8" UNC	1
11	44209	Shut-off Valve, NQ, Hard	4
12	24312	Thrust Bearing	1
13	24889	Spindle Bushing, NQ	1
14	18298	Thrust Bearing	1
15	5008697	Lock Nut, 3/4" UNC	1
16	17447	Hydraulic Grease Fitting	2
17	24893	Stop Ring, NQ	2
18	30488	Slotted Core Lifter, NQ	20
19	24892	Core Lifter Case, NQ	4
20	24897	Landing Ring, NQ	2
21	44407	Inner-tube Stabilizer, NQ	2

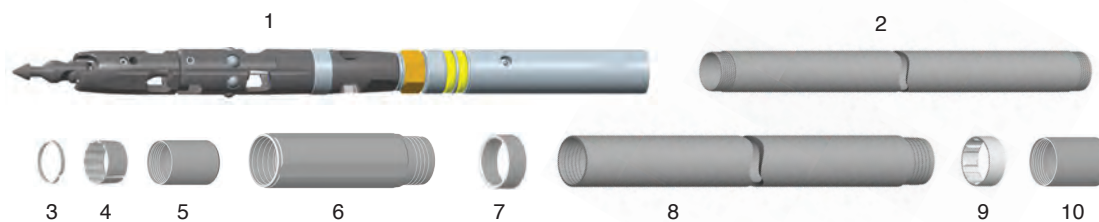
* NQTK also known as NQ2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

NQ™ QUICK DESCENT™ ROLLER LATCH™ CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION	5008230	5008232	5008233	5008231
	5008230	Core Barrel Kit, NQ 1.5M / 5.0 FT	5008230			
	5008232	Inner-tube Group, NQ 1.5 M / 5.0 FT	↓	5008232		
	5008233	Core Barrel Kit, NQ 3.0 M / 10.0 FT		↓	5008233	
	5008231	Inner-tube Group, NQ 3.0 M / 10.0 FT	↓	↓	↓	5008231
1	5007750	Head Assembly, NQ Quick Descent				
2	24909	Inner-tube, NQ 1.5 M / 5.0 FT				
	24909CP	Inner-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	24891	Inner-tube, NQ 3.0 M / 10.0 FT				
	24891CP	Inner-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
3	24893	Stop Ring NQ	✓	✓	✓	✓
4	30488	Core Lifter, NQ Slotted				
	24894	Core Lifter, NQ Fluted				
	3546911	Core Lifter, NQ Slotted, Diamond Coated				
	3548554	Core Lifter, NQ Fluted, Diamond Coated				
5	24892	Case, NQ Core Lifter	✓	✓	✓	✓
6	5007897	Locking Coupling, NQ Full-hole				
	5007905	Locking Coupling, NQ Stabilized				
	5007896	Locking Coupling, NRQ Full-hole				
	5007904	Locking Coupling, NRQ Stabilized				
7	24897	Landing Ring NQ	✓		✓	
8	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
9	44407	Stabilizer, NQ Inner-tube	✓		✓	
10	24900	Protector, NQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – NQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31403	Inner-tube Coupling
2	5006703	Inner-tube Extenda, 1.5 M / 5 FT



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

NQ™ CORE BARREL SPARE PARTS KIT 5008234

ID #	PART #	DESCRIPTION	QTY
	5008234	NQ Core Barrel Spare Parts Kit	
1	5008323	MKII Spearhead Assembly, BQ/BQTK	1
2	5005381	Compression Spring, NQ	1
3	5006015	Coiled Pin, 1/4" x 1-1/4"	2
4	5005380	Coiled Pin, 7/16" x 2-1/4"	2
5	5005382	Valve Piston	1
6	5008003	Coiled Pin, 7/16"x 2"	2
7	5005218	Roller Latch	6
8	5008297	Indicator Bushing, 35 mm	4
9	306009	Landing Shoulder, NQ	2
10	62374	Ball, 22 mm	1
11	3548105	Nord-Lock Washer 1-1/4"	1
12	44574	Hex Nut, 1-1/4" UNC	1
13	44209	Shut-off Valve, NQ, Hard	2
14	24888	Valve Adjusting Washer	2
15	24312	Thrust Bearing	2
16	5007863	Spindle Bushing, NQ / NQTK*	1
17	17447	Hydraulic Grease Fitting	2
18	3546429	Thrust Bearing	1
19	5008634	Lock Nut, 1" UNC	1
20	5007865	Inner-Tube Cap Bushing, NQ / NQTK*	1
21	24893	Stop Ring, NQ	2
22	30488	Core Lifter Slotted	20
23	24892	Core Lifter Case	4
24	24897	Landing Ring, NQ	2
25	44407	Inner-Tube Stabilizer, NQ	2

* NQTK also known as NQ2

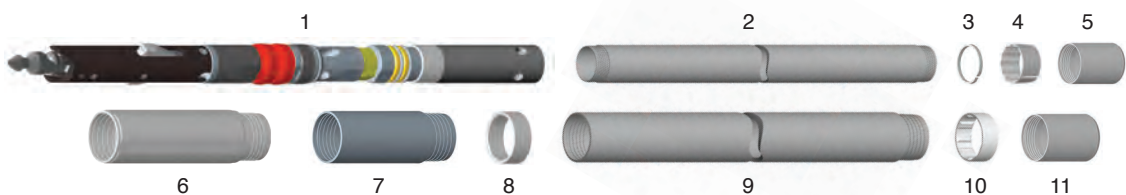


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

NQ™ U CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION	3544020	3544032	3544026	3544038
	3544020	Core Barrel Kit, NQU 1.5 M / 5.0 FT	3544020			
	3544032	Inner-tube Group, NQU 1.5 M / 5.0 FT	↓	3544032		
	3544026	Core Barrel Kit, NQU 3.0 M / 10.0 FT		↓	3544026	
	3544038	Inner-tube Group, NQU 3.0 M / 10.0 FT	↓		↓	3544038
1	3548625MKII	Head Assembly, NQU Quick Pump-In	✓	✓	✓	✓
2	24909	Inner-tube, NQ 1.5 M / 5.0 FT				
	24909CP	Inner-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	24891	Inner-tube, NQ 3.0 M / 10.0 FT				
	24891CP	Inner-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
3	24893	Stop Ring NQ	✓	✓	✓	✓
4	30488	Core Lifter, NQ Slotted				
	24894	Core Lifter, NQ Fluted				
	3546911	Core Lifter, NQ Slotted, Diamond Coated				
	3548554	Core Lifter, NQ Fluted, Diamond Coated				
5	24892	Case, NQ Core Lifter	✓	✓	✓	✓
6	3546190	Locking Coupling, NQ Full-hole				
	5007785	NQ Stabilized Locking Coupling				
	3545404	Locking Coupling, NRQ Full-hole				
	5007786	NRQ Stabilized Locking Coupling				
7	3546706	Coupling, NQ Adapter	✓		✓	
8	24897	Landing Ring NQ	✓		✓	
9	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
10	44407	Stabilizer, NQ Inner-tube	✓		✓	
11	24900	Protector, NQ Outer-tube Thread	✓		✓	
	3542827	Loading sleeve, NQ / NRQ	✓	✓	✓	✓
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – NQ™ U

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31403	Inner-tube Coupling
2	5006703	Inner-tube Extenda, 1.5 M / 5 FT



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

NQ™ U CORE BARREL SPARE PARTS KIT 5001296

ID #	PART #	DESCRIPTION	QTY
	5001296	NQU Core Barrel Spare Parts Kit	
1	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
2	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	2
3	3543136	Compression Spring, NQU	1
4	104816	Latch, NQ / NQU	4
5	104817	Link, NQ	4
6	24548	Coiled Pin, 1/2" x 1-1/2"	1
7	3547672	Piston Ball Valve, BQ / NQ	1
8	24307	Coiled Pin, 1/4" x 2"	1
9	3543904	Indicator Bushing, 22 mm	4
10	64302	Lip Seal, NQ, Pump-in	4
11	306009	Landing Shoulder, NQ	2
12	44209	Shut-off Valve, NQ, Hard	4
13	24312	Thrust Bearing	1
14	24889	Spindle Bushing, NQ	1
15	18298	Thrust Bearing	1
16	5008697	Lock Nut, 3/4" UNC	1
17	17447	Hydraulic Grease Fitting	2
18	24893	Stop Ring, NQ	2
19	30488	Core Lifter, NQ, Slotted	20
20	24892	Core Lifter Case	4
21	24897	Landing Ring, NQ	2
22	44407	Inner-tube Stabilizer, NQ	2

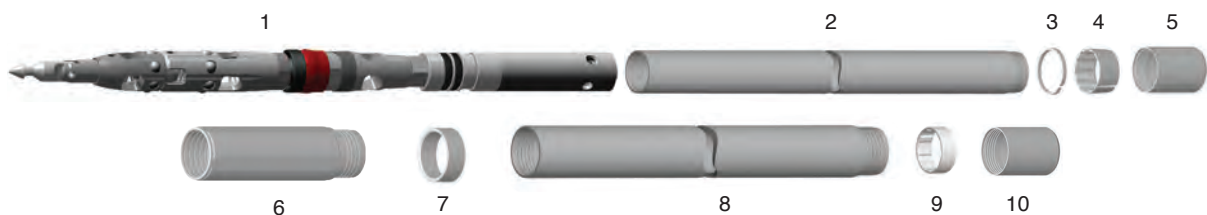
* NQTK also known as NQ2



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

NQ™ U QUICK PUMP-IN™ ROLLER LATCH™ CORE BARREL KIT SELECTION

ID #	PART #	DESCRIPTION	5007692	5007694	5007693	5007695
	5007692	Roller Latch Core Barrel Kit, NQU 1.5 M / 5.0 FT	5007692			
	5007694	Roller Latch Inner-tube Group, NQU 1.5 M / 5.0 FT	↓	5007694		
	5007693	Roller Latch Core Barrel Kit, NQU 3.0 M / 10.0 FT		↓	5007693	
	5007695	Roller Latch Inner-tube Group, NQU 3.0 M, 10.0 FT	↓	↓	↓	5007695
1	5008850	Head Assembly, NQU Roller Latch, Quick Pump-In	✓	✓	✓	✓
2	24909	Inner-tube, NQ 1.5 M / 5.0 FT				
	24909CP	Inner-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	24891	Inner-tube, NQ 3.0 M / 10.0 FT				
	24891CP	Inner-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
3	24893	Stop Ring, NQ	✓	✓	✓	✓
4	30488	Core Lifter, NQ Slotted				
	24894	Core Lifter, NQ Fluted				
	3546911	Core Lifter, NQ Slotted, Diamond Coated				
	3548554	Core Lifter, NQ Fluted, Diamond Coated				
5	24892	Core Lifter Case, NQ / NQU	✓	✓	✓	✓
6	5008913	Locking Coupling, NQ Full-hole				
	5007722	Locking Coupling, NQ Stabilized				
	5006002	Locking Coupling, NRQ Full-hole				
	5007723	Locking Coupling NRQ Stabilized				
7	24897	Landing Ring, NQ	✓	✓		
8	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
9	44407	Stabilizer, NQ Inner-tube	✓	✓		
10	24900	Protector, NQ Outer-tube Thread	✓	✓		
	5007708	Assembly Tool, B / N / H Roller Latch	✓	✓	✓	✓
	3542637	Sleeve, NQ / NRQ Loading	✓	✓	✓	✓
	3541994	In-Hole Tools Product Safety Manual	✓	✓		
	306390	Core Barrel Safety Poster	✓	✓		



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

NQ™ U QUICK PUMP-IN™ ROLLER LATCH™ SPARE PARTS KIT 5007696

ID #	PART #	DESCRIPTION	QTY
	5007696	Roller Latch Core Barrel Spare Parts Kit, NQU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008316	Wedge Brake, Roller Latch NQU	1
3	5005382	Piston Valve, Roller Latch NQU	1
4	5004342	Coiled Pin, 7/16" x 1-3/4"	2
5	5005357	Jam Nut, Roller Latch NQU	1
6	5005381	Compression Spring, Roller Latch NQU	1
7	5005380	Coiled Pin, 7/16" x 2-1/4"	2
8	5005218	Roller, NQ / NQU	12
9	5006015	Coiled Pin, 1/4" x 1-1/4"	2
10	5005385	Indicator Bushing, 35 mm	4
11	5003432	Lip Seal, NQU, V-Wall	2
12	306009	Landing Shoulder, NQ	2
13	44209	Shut-off Valve, NQ, Hard	4
14	18298	Thrust Bearing	1
15	24889	Spindle Bushing, NQ	1
16	24312	Thrust Bearing	1
17	5008697	Lock Nut, 3/4" UNC	1
18	17447	Hydraulic Grease Fitting	2
19	24893	Stop Ring, NQ	2
20	30488	Core Lifter, NQ Slotted	20
21	24892	Core Lifter Case, NQ / NQU	4
22	24897	Landing Ring, NQ	2
23	44407	Stabilizer, NQ Inner-tube	2



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

Warning: While it improves safety, the hold-back brake feature is not intended as a fail-safe device. Keep hands and body clear of open rods at all times. When in use, always apply fluid pressure to compensate for any wireline retraction resistance from the core barrel. Failure to do so may result in product failure or injury.

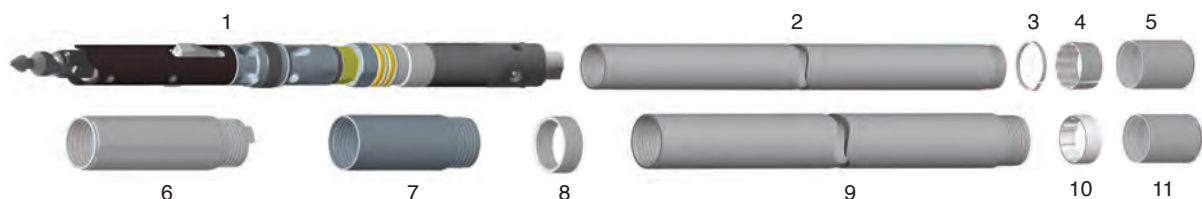
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

NQ™ TK* CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	306012	NQTK* Core Barrel Kit, 1.5 M / 5.0 FT	306012			
	3542922	NQTK* Inner-tube Group, 1.5 M / 5.0 FT		3542922		
	306013	NQTK* Core Barrel Kit, 3.0 M / 10.0 FT			306013	
	3542923	NQTK* Inner-tube Group, 3.0 M / 10.0 FT				3542923
1	3542752MKII	Head Assembly, NQTK*				
2	44366	Inner-tube, NQTK* 1.5 M / 5.0 FT				
	44366CP	Inner-tube, NQTK* 1.5 M / 5.0 FT, Chrome Plated				
	43601	Inner-tube, NQTK* 3.0 M / 10.0 FT				
	43601CP	Inner-tube, NQTK* 3.0 M / 10.0 FT, Chrome Plated				
3	29210	Stop Ring NQTK*	✓	✓	✓	✓
4	61416	Core Lifter, NQTK* Slotted				
	5001510	Core Lifter, NQTK* Slotted, Diamond Coated				
	29211	Core Lifter, NQTK* Fluted				
	3547571	Core Lifter, NQTK* Fluted, Diamond Coated				
5	29209	Case, NQTK* Core Lifter	✓	✓	✓	✓
6	3545405	Locking Coupling, NQ Full-hole with Tang				
	3546190	Locking Coupling, NQ Full-hole				
	5007787	NQ Stabilized Locking Coupling with Tang				
	5007785	NQ Stabilized Locking Coupling				
	3545403	Locking Coupling, NRQ Full-hole with Tang				
	3545404	Locking Coupling, NRQ Full-hole				
	5007786	NRQ Stabilized Locking Coupling				
	5007788	NRQ Stabilized Locking Coupling with Tang				
7	24896	Coupling, NQ Adapter	✓		✓	
8	29214	Landing Ring NQTK*	✓		✓	
9	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
10	43812	Stabilizer, NQTK* Inner-tube	✓		✓	
11	24900	Protector, NQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3542637	Loading sleeve, BQ / BRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	

* NQTK also known as NQ2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – NQ™ TK*

1	101999	Inner-tube Coupling, NQTK*
2	63033	Lower Inner-tube, 3.0 M / 10.0 FT, NQTK*
3	104884	Inner-tube Extenda, 1.5 M / 5.0 FT, NQTK*
	102023	Inner-tube Extenda, 3.0 M / 10.0 FT, NQTK*

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.



Example A: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 lower inner-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example B: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

Example C: To extend in 3.0 M / 10.0 FT lengths:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 3.0 M / 10.0 FT



* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

NQ™ TK* CORE BARREL SPARE PARTS KIT 3542583

ID #	PART #	DESCRIPTION	QTY
	3542583	Core Barrel Spare Parts Kit, NQTK*	
1	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543812	Latch Compression Spring, NQ	1
4	104816	Latch, NQ / NQU	4
5	306454	Link, NQ	4
6	24548	Coiled Pin, 1/2" x 1-1/2"	2
7	62374	Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	306026	Landing Shoulder, NQTK *	1
10	24885	Hex Nut, 1-1/8" UNC	1
11	44209	Shut-off Valve, Hard, NQ	4
12	24312	Thrust Bearing	1
13	24889	Spindle Bushing, NQ	1
14	18298	Thrust Bearing	1
15	5008697	Lock Nut, 3/4" UNC	1
16	17447	Hydraulic Grease Fitting	2
17	29210	Stop Ring, NQTK*	2
18	61416	Core Lifter, NQTK*, Slotted	20
19	29209	Core Lifter Case, NQTK*	4
20	29214	Landing Ring, NQTK*	2
21	43812	Inner-tube Stabilizer, NQTK*	2

* NQTK also known as NQ2



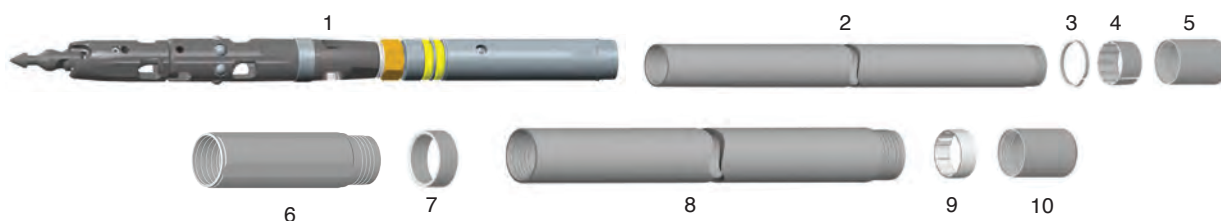
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

NQ™ TK* QUICK DESCENT™ ROLLER LATCH™

CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008240	NQTK* Core Barrel Kit, 1.5 M / 5.0 FT	5008240			
	5008242	NQTK* Inner-tube Group, 1.5 M / 5.0 FT	↓	5008242		
	5008241	NQTK* Core Barrel Kit, 3.0 M / 10.0 FT	↓	↓	5008241	
	5008243	NQTK* Inner-tube Group, 3.0 M / 10.0 FT	↓	↓	↓	5008243
1	5007755	Head Assembly, NQTK* Quick Descent				
2	44366	Inner-tube, NQTK* 1.5 M / 5.0 FT				
	44366CP	Inner-tube, NQTK* 1.5 M / 5.0 FT, Chrome Plated				
	43601	Inner-tube, NQTK* 3.0 M / 10.0 FT				
	43601CP	Inner-tube, NQTK* 3.0 M / 10.0 FT, Chrome Plated				
3	29210	Stop Ring NQTK*	✓	✓	✓	✓
4	61416	Core Lifter, NQTK* Slotted				
	5001510	Core Lifter, NQTK* Slotted, Diamond Coated				
	29211	Core Lifter, NQTK* Fluted				
	3547571	Core Lifter, NQTK* Fluted, Diamond Coated				
5	29209	Case, NQTK* Core Lifter	✓	✓	✓	✓
6	5007897	Locking Coupling, NQ Full-hole				
	5007905	Locking Coupling, NQ Stabilized				
	5007896	Locking Coupling, NRQ Full-hole				
	5007904	Locking Coupling, NRQ Stabilized				
7	29214	Landing Ring NQTK*	✓		✓	
8	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
9	43812	Stabilizer, NQTK* Inner-tube	✓		✓	
10	24900	Protector, NQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	

* NQTK also known as NQ2



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – NQ™ TK*

1	101999	Inner-tube Coupling, NQTK*
2	63033	Lower Inner-tube, 3.0 M / 10.0 FT, NQTK*
3	104884	Inner-tube Extenda, 1.5 M / 5.0 FT, NQTK*
	102023	Inner-tube Extenda, 3.0 M / 10.0 FT, NQTK*

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.



Example A: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 lower inner-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube coupling

Inner-tube extendas can also be used to extend core barrels.

Example B: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

Example C: To extend in 3.0 M / 10.0 FT lengths:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 3.0 M / 10.0 FT



* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

NQ™ TK* CORE BARREL SPARE PARTS KIT 5008244

ID #	PART #	DESCRIPTION	QTY
	5008244	Core Barrel Spare Parts Kit, NQTK*	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5005381	Latch Spring, NQ	1
3	5005380	Coiled Pin, 7/16" x 2-1/4"	2
4	5006015	Coiled Pin, 1/4" x 1-1/4"	2
5	5005382	Piston Valve, NQ	1
6	5008003	Coiled Pin, 7/16" x 2"	2
7	5005218	Roller Latch, NQ	6
8	5008297	Indicator Bushing, 35 mm	4
9	306026	Landing Shoulder, NQTK*	2
10	62374	Ball, 22 mm	1
11	3548105	Nord-Lock Washer, 1-1/4"	1
12	44574	Hex Nut, 1-1/4" UNC	1
13	44209	Shut-off Valve, Hard, NQ	2
14	24888	Valve Adjusting Washer, NQ	2
15	24312	Thrust Bearing	2
16	5007863	Spindle Bushing, NQ	1
17	17447	Hydraulic Grease Fitting	2
18	3546429	Thrust Bearing	1
19	5008634	Lock Nut, 1" UNC	1
20	5007865	Inner-Tube Cap Bushing, NQ / NQTK*	1
21	29210	Stop Ring	2
22	61416	Core Lifter, Slotted	20
23	29209	Core Lifter Case	4
24	29214	Landing Ring	2
25	44407	Inner-Tube Stabilizer	2

* NQTK also known as NQ2



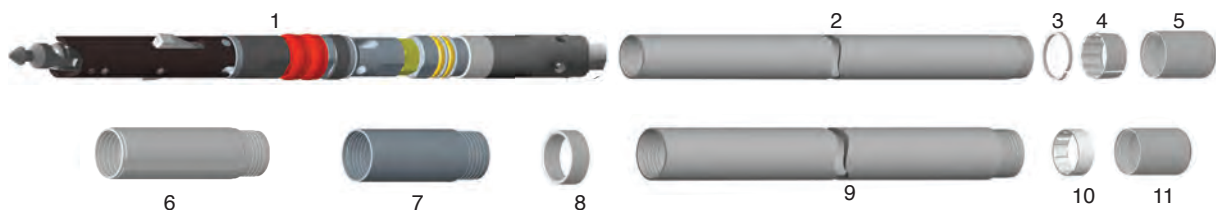
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

NQ™ TKU CORE* BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3544021	Core Barrel Kit, NQTKU* 1.5 M / 5.0 FT	3544021			
	3544033	Inner-tube Group, NQTKU* 1.5 M / 5.0 FT	↓	3544033		
	3544027	Core Barrel Kit, NQTKU* 3.0 M / 10.0 FT		↓	3544027	
	3544039	Inner-tube Group, NQTKU* 3.0 M / 10.0 FT	↓	↓	↓	3544039
1	3549598MKII	Head Assembly, NQTKU* Quick Pump-In	✓	✓	✓	✓
2	44366	Inner-tube, NQTKU* 1.5 M / 5.0 FT				
	44366CP	Inner-tube, NQTKU* 1.5 M / 5.0 FT, Chrome Plated				
	43601	Inner-tube, NQTKU* 3.0 M / 10.0 FT				
	43601CP	Inner-tube, NQTKU* 3.0 M / 10.0 FT, Chrome Plated				
3	29210	Stop Ring NQTK*	✓	✓	✓	✓
4	61416	Core Lifter, NQTK* Slotted				
	5001510	Core Lifter, NQTK* Slotted, Diamond Coated				
	29211	Core Lifter, NQTK* Fluted				
	3547571	Core Lifter, NQTK* Fluted, Diamond Coated				
5	29209	Case, NQTK* Core Lifter	✓	✓	✓	✓
6	3546190	Locking Coupling, NQ Full-hole				
	3545404	Locking Coupling, NRQ Full-hole				
	5007786	NRQ Stabilized Locking Coupling				
	5007785	NQ Stabilized Locking Coupling				
7	3546706	Coupling, NQU Quick Pump-In Adapter	✓		✓	
8	29214	Landing Ring NQTK*	✓		✓	
9	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
10	43812	Stabilizer, NQTK* Inner-tube	✓		✓	
11	24900	Protector, NQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3542637	Loading Sleeve, NQ / NRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	

* NQTK also known as NQ2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – NQ™ TKU*

1	101999	Inner-tube Coupling, NQTK*
2	63033	Lower Inner-tube, 3.0 M / 10.0 FT, NQTK*
3	104884	Inner-tube Extenda, 1.5 M / 5.0 FT, NQTK*
	102023	Inner-tube Extenda, 3.0 M / 10.0 FT, NQTK*

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

Example A: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 lower inner-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube coupling



Inner-tube extendas can also be used to extend core barrels.

Example B: To extend in 1.5 M / 5.0 FT lengths:

- 1 outer-tube 1.5 M / 5.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 1.5 M / 5.0 FT

Example C: To extend in 3.0 M / 10.0 FT lengths:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube extenda 3.0 M / 10.0 FT



* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

NQ™ TKU* CORE BARREL SPARE PARTS KIT 3544050

ID #	PART #	DESCRIPTION	QTY
	3544050	Core Barrel Spare Parts Kit, NQTKU*	
1	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543136	Compression Spring, NQU	1
4	104816	Latch, NQ / NQU	4
5	104817	Link, NQ / NQU	4
6	24548	Coiled Pin, 1/2" x 1-1/2"	1
7	24307	Coiled Pin, 1/4" x 2"	1
8	3547672	Valve, BQ / NQ Piston	1
9	3543904	Indicator Bushing, 22 mm	4
10	64302	Pump-in Seal, Lip, NQ	4
11	306026	Landing Shoulder, NQTK*	2
12	44209	Shut-off Valve, NQ, Hard	4
13	24312	Thrust Bearing	1
14	24889	Spindle Bushing	1
15	18298	Thrust Bearing	1
16	5008697	Lock Nut, 3/4" UNC	1
17	17447	Hydraulic Grease Fitting	2
18	29210	Stop Ring, NQTK*	2
19	61416	Core Lifter, NQTK*, Slotted	20
20	29209	Core Lifter Case, NQTK*	4
21	29214	Landing Ring, NQTK*	2
22	43812	Inner-tube Stabilizer, NQTK*	2

* NQTK also known as NQ2

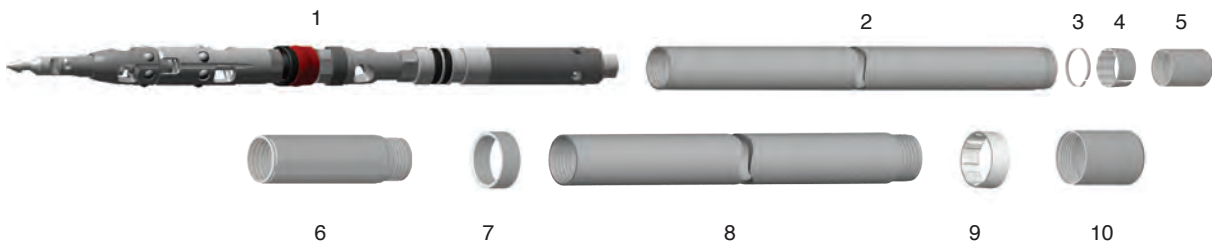


LEGEND: Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

NQ™ TKU* QUICK PUMP-IN™ ROLLER LATCH™ CORE BARREL KIT SELECTION

ID #	PART #	DESCRIPTION				
	5007697	Roller Latch Core Barrel Kit, NQTKU* 1.5 M / 5.0 FT	5007692			
	5007699	Roller Latch Inner-tube Group, NQTKU* 1.5 M / 10.0 FT	↓	5007699		
	5007698	Roller Latch Core Barrel Kit, NQTKU* 3.0 M / 10.0 FT		↓	5007698	
	5007700	Roller Latch Inner-tube Group, NQTKU* 3.0 M / 10.0 FT		↓		5007700
1	5008855	Head Assembly, NQTKU*, Roller Latch, Quick Pump-In	✓	✓	✓	✓
2	44366	Inner-tube, NQTKU* 1.5 M / 5.0 FT				
	44366CP	Inner-tube, NQTKU* 1.5 M / 5.0 FT, Chrome Plated				
	43601	Inner-tube, NQTKU* 3.0 M / 10.0 FT				
	43601CP	Inner-tube, NQTKU* 3.0 M / 10.0 FT, Chrome Plated				
3	29210	Stop Ring, NQTK*	✓	✓	✓	✓
4	61416	Core Lifter, NQTK* Slotted				
	5001510	Core Lifter, NQTK* Slotted, Diamond Coated				
	29211	Core Lifter, NQTK* Fluted				
	3547571	Core Lifter, NQTK* Fluted, Diamond Coated				
5	29209	Case, NQTK* Core Lifter	✓	✓	✓	✓
6	5008913	Locking Coupling, NQ Full-hole				
	5007722	Locking Coupling, NQ Stabilized				
	5006002	Locking Coupling, NRQ Full-hole				
	5007723	Locking Coupling, NRQ Stabilized				
7	29214	Landing Ring, NQTK*	✓	✓		
8	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10.0 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10.0 FT, Full-hole				
9	43812	Stabilizer, NQTK* Inner-tube	✓	✓		
10	24900	Protector, NQ Outer-tube Thread	✓	✓		
	5007708	Assembly Tool, Roller Latch B / N / H	✓	✓	✓	✓
	3542637	Sleeve, NQ / NRQ Loading	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓	✓		
	306390	Core Barrel Assembly Safety Poster	✓	✓		

* NQTK also known as NQ2



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

NQ™ TKU* QUICK PUMP-IN™ ROLLER LATCH™ SPARE PARTS KIT 5007701

ID #	PART #	DESCRIPTION	QTY
	5007701	Roller Latch Core Barrel Spare Parts Kit, NQTKU*	
1	5008323	MKII Spearhead Assembly, BQ/BQTK	1
2	5008316	Brake Wedge, Roller Latch NQU	1
3	5005382	Piston Valve, Roller Latch NQU	1
4	5004342	Coiled Pin, 7/16" x 1-3/4"	2
5	5005357	Jam Nut, Roller Latch NQU	1
6	5005381	Compression Spring, Roller Latch NQU	1
7	5005380	Coiled Pin, 7/16" x 2-1/4"	2
8	5005218	Roller, NQ	12
9	5006015	Coiled Pin, 1/4" x 1-1/4"	2
10	5005385	Indicator Bushing, 35 mm	4
11	5003432	Lip Seal, NQU V-Wall	2
12	306026	Landing Shoulder, NQTK*	2
13	44209	Shut-off Valve, NQ, Hard	4
14	24312	Thrust Bearing	1
15	24889	Spindle Bushing, NQ	1
16	5008697	Lock Nut, 3/4" UNC	1
17	17447	Hydraulic Grease Fitting	2
18	29210	Stop Ring, NQTK*	2
19	18298	Thrust Bearing	1
20	61416	Core Lifter, NQTK*, Slotted	20
21	29209	Core Lifter Case, NQTK*	4
22	29214	Landing Ring, NQTK*	2
23	43812	Inner-tube Stabilizer, NQTK*	2

* NQTK also known as NQ2



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

Warning: While it improves safety, the hold-back brake feature is not intended as a fail-safe device. Keep hands and body clear of open rods at all times. When in use, always apply fluid pressure to compensate for any wireline retraction resistance from the core barrel. Failure to do so may result in product failure or injury.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item



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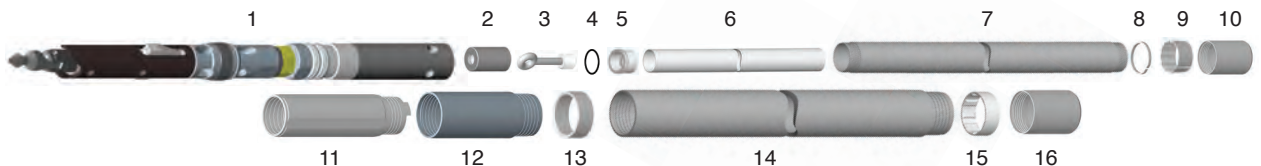
LM™90 Coring Drill with Rod Handler, Location: Australia



NQ™ 3 CORE BARREL KIT SELECTION

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

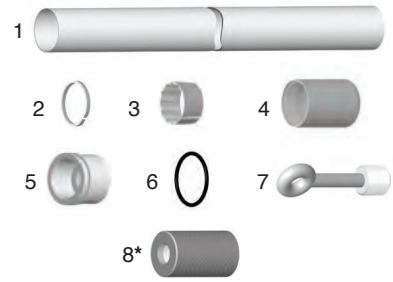
ID #	PART #	DESCRIPTION				
	3540572	Core Barrel Kit, NQ3 1.5 M / 5.0 FT	3540572			
	3542924	Inner-tube Group, NQ3 1.5 M / 5.0 FT	↓	3542924		
	3540573	Core Barrel Kit, NQ3 3.0 M / 10.0 FT		↓	3540573	
	3542925	Inner-tube Group, NQ3 3.0 M / 10.0 FT	↓	↓	↓	3542925
1	3542751MKII	Head Assembly, NQ	✓	✓	✓	✓
2	26532	Adapter, NQ3 Pump-out	✓	✓	✓	✓
3	26662	Plug, Piston	✓	✓	✓	✓
4	26134	O-ring	✓	✓	✓	✓
5	26526	Piston, NQ3 Core Ejection	✓	✓	✓	✓
6	26527	Split Tube, NQ3 1.5 M / 5.0 FT	✓	✓		
	26528	Split Tube, NQ3 3.0 M / 10.0 FT			✓	✓
7	24909	Inner-tube, NQ 1.5 M / 5.0 FT	✓	✓		
	24891	Inner-tube, NQ 3.0 M / 10.0 FT			✓	✓
8	26530	Stop Ring NQ3	✓	✓	✓	✓
9	26531	Core Lifter, NQ3 Fluted				
	3547181	Core Lifter, NQ3 Fluted, Diamond Coated				
10	26529	Case, NQ3 Core Lifter	✓	✓	✓	✓
11	3545405	Locking Coupling, NQ Full-hole with Tang				
	3546190	Locking Coupling, NQ Full-hole				
	5007787	NQ Stabilized Locking Coupling with Tang				
	5007785	NQ Stabilized Locking Coupling				
	3545403	Locking Coupling, NRQ Full-hole with Tang				
	3545404	Locking Coupling, NRQ Full-hole				
	5007786	NRQ Stabilized Locking Coupling				
5007788	NRQ Stabilized Locking Coupling with Tang					
12	24896	Coupling, NQ Adapter	✓		✓	
13	24897	Landing Ring NQ	✓		✓	
14	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10 FT, Chrome Plated				
15	44407	Stabilizer, NQ Inner-tube	✓		✓	
16	24900	Protector, NQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3542637	Loading sleeve, NQ / NRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	
	5006293	Split Tube Loader Tool	✓	✓	✓	✓



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

CORE BARREL CONVERSION KITS – NQ™3

Q - Q3 Core Barrel			
1 - 8	40941	NQ to NQ3 Conversion Kit, 1.5 M / 5.0 FT	
1 - 8	40940	NQ to NQ3 Conversion Kit, 3.0 M / 10.0 FT	
Parts		Qty	
1	26527	Split Tube, 1.5 M / 5.0 FT	1
1	26528	Split Tube, 3.0 M / 10.0 FT	1
2	26530	Stop Ring, NQ3	1
3	26531	Core Lifter, NQ3, Fluted	1
4	26529	Core Lifter Case, NQ3	1
5	26526	Core Ejection Piston, NQ3	1
6	26134	O-ring	1
7	26662	Piston Plug	1
8	26532	Pump-out Adapter, NQ3	1



* Fluid pressure supplied with optional hand pump group or pump-out group.

NQ™3 CORE BARREL SPARE PARTS KIT 3540584

ID #	PART #	DESCRIPTION	QTY
	3540584	Core Barrel Spare Parts Kit, NQ3	
1	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543812	Latch Compression Spring, NQ	1
4	104816	Latch, NQ / NQU	4
5	306454	Link, NQ	4
6	24548	Coiled Pin, 1/2" x 1-1/2"	2
7	62374	Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	306009	Landing Shoulder, NQ	1
10	24885	Hex Nut, 1-1/8" UNC	1
11	44209	Shut-off Valve, NQ, Hard	4
12	24312	Thrust Bearing	1
13	24889	Spindle Bushing, NQ	1
14	18298	Thrust Bearing	1
15	5008697	Lock Nut, 3/4" UNC	1
16	17447	Hydraulic Grease Fitting	2
17	26530	Stop Ring, NQ3	2
18	26531	Core Lifter, NQ3, Fluted	20
19	26529	Core Lifter Case, NQ3	4
20	26134	O-ring	5
21	24897	Landing Ring, NQ	2
22	44407	Inner-tube Stabilizer, NQ	2

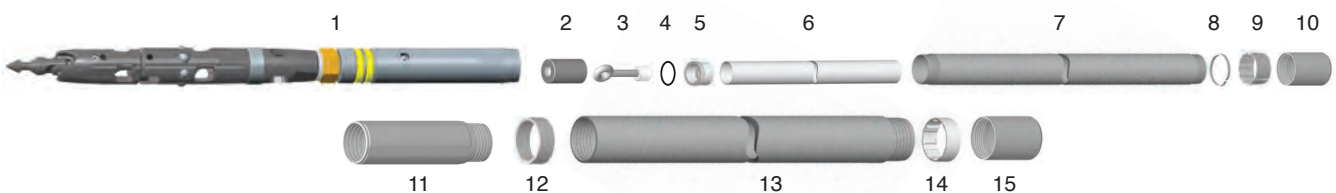
* NQTK also known as NQ2



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

NQ™ 3 QUICK DESCENT™ ROLLER LATCH™ CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008235	Core Barrel Kit, NQ3 1.5 M / 5.0 FT	5008235			
	5008237	Inner-tube Group, NQ3 1.5 M / 5.0 FT	↓	5008237		
	5008236	Core Barrel Kit, NQ3 3.0 M / 10.0 FT		↓	5008236	
	5008238	Inner-tube Group, NQ3 3.0 M / 10.0 FT	↓		↓	5008238
1	5007750	Head Assembly, NQ	✓	✓	✓	✓
2	26532	Adapter, NQ3 Pump-out	✓	✓	✓	✓
3	26662	Plug, Piston	✓	✓	✓	✓
4	26134	O-ring	✓	✓	✓	✓
5	26526	Piston, NQ3 Core Ejection	✓	✓	✓	✓
6	26527	Split Tube, NQ3 1.5 M / 5.0 FT	✓	✓		
	26528	Split Tube, NQ3 3.0 M / 10.0 FT			✓	✓
7	24909	Inner-tube, NQ 1.5 M / 5.0 FT	✓	✓		
	24891	Inner-tube, NQ 3.0 M / 10.0 FT			✓	✓
8	26530	Stop Ring NQ3	✓	✓	✓	✓
9	26531	Core Lifter, NQ3 Fluted				
	3547181	Core Lifter, NQ3 Fluted, Diamond Coated				
10	26529	Case, NQ3 Core Lifter	✓	✓	✓	✓
11	5007897	Locking Coupling, NQ Full-hole				
	5007905	Locking Coupling, NQ Stabilized				
	5007896	Locking Coupling, NRQ Full-hole				
	5007904	Locking Coupling, NRQ Stabilized				
12	24897	Landing Ring NQ	✓		✓	
13	24910	Outer-tube, NQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, NQ 1.5 M / 5.0 FT, Chrome Plated				
	3545390	Outer-tube, NQ 1.5 M / 5.0 FT, Full-hole				
	24898	Outer-tube, NQ 3.0 M / 10.0 FT				
	24898CP	Outer-tube, NQ 3.0 M / 10 FT, Chrome Plated				
	3545391	Outer-tube, NQ 3.0 M / 10 FT, Full-hole				
14	44407	Stabilizer, NQ Inner-tube	✓		✓	
15	24900	Protector, NQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	
	5006293	Split Tube Loader Tool	✓	✓	✓	✓

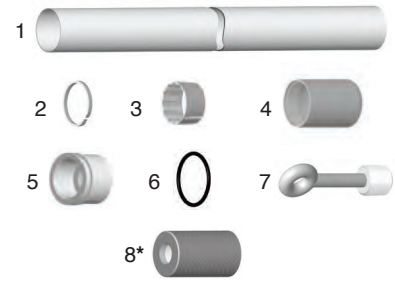


Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

CORE BARREL CONVERSION KITS – NQ™ 3

Q - Q3 Core Barrel			
1 - 8	40941	NQ to NQ3 Conversion Kit, 1.5 M / 5.0 FT	
1 - 8	40940	NQ to NQ3 Conversion Kit, 3.0 M / 10.0 FT	
Parts		Qty	
1	26527	Split Tube, 1.5 M / 5.0 FT	1
1	26528	Split Tube, 3.0 M / 10.0 FT	1
2	26530	Stop Ring, NQ3	1
3	26531	Core Lifter, NQ3, Fluted	1
4	26529	Core Lifter Case, NQ3	1
5	26526	Core Ejection Piston, NQ3	1
6	26134	O-ring	1
7	26662	Piston Plug	1
8	26532	Pump-out Adapter, NQ3	1



* Fluid pressure supplied with optional hand pump group or pump-out group.

NQ™ 3 CORE BARREL SPARE PARTS KIT 5008239

ID #	PART #	DESCRIPTION	QTY
	5008239	Roller Latch Core Barrel Spare Parts Kit, NQ3	
1	5008323	MKII Spearhead Assembly, BQ/BQTK	1
2	5005381	Latch Spring, NQ	1
3	5006015	Coiled Pin, 1/4" x 1-1/4"	2
4	5008003	Coiled Pin, 7/16" x 2"	2
5	5005382	Piston Valve, NQ	1
6	5005380	Coiled Pin, 7/16" x 2-1/4"	2
7	5005218	Roller Latch, NQ	6
8	5008297	Indicator Bushing, 35 mm	4
9	306009	Landing Shoulder, NQ	1
10	62374	Ball, 22 mm	1
11	3548105	Nord-Lock Washer, 1-1/4"	1
12	44574	Hex Nut, 1-1/4" UNC	1
13	44209	Shut-off Valve, Hard, NQ	2
14	24888	Valve Adjusting Washer, NQ	2
15	24312	Thrust Bearing	2
16	5007863	Spindle Bushing, NQ	1
17	17447	Hydraulic Grease Fitting	2
18	3546429	Thrust Bearing	1
19	5008634	Lock Nut, 1"UNC	1
20	5007865	Inner-Tube Cap Bushing, NQ / NQTK*	1
21	26530	Stop Ring	2
22	26531	Core Lifter, Slotted	20
23	26529	Core Lifter Case	4
24	26134	O-ring	4
25	24897	Landing Ring	2
26	44407	Inner-Tube Stabilizer	2

* NQTK also known as NQ2

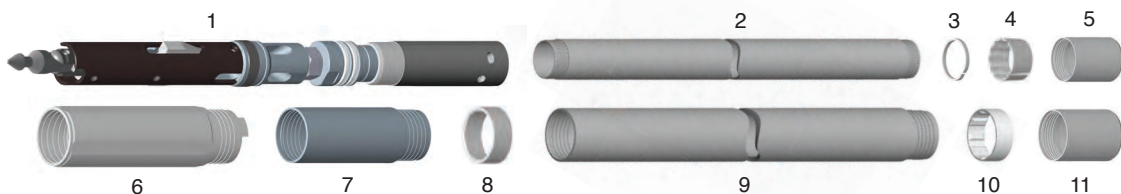


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

HQ™ CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3542946	Core Barrel Kit, HQ 1.5 M / 5.0 FT	3542946			
	3542942	Inner-tube Group, HQ 1.5 M / 5.0 FT	↓	3542942		
	3542947	Core Barrel Kit, HQ 3.0 M / 10.0 FT		↓	3542947	
	3542943	Inner-tube Group, HQ 3.0 M / 10.0 FT	↓		↓	3542943
1	5001440MKII	Head Assembly, HQ				
2	25258	Inner-tube, HQ 1.5 M / 5.0 FT				
	25258CP	Inner-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	25236	Inner-tube, HQ 3.0 M / 10.0 FT				
	25236CP	Inner-tube, HQ 3.0 M / 10 FT, Chrome Plated				
3	25238	Stop Ring, HQ	✓	✓	✓	✓
4	30489	Core Lifter, HQ Slotted				
	3546912	Core Lifter, HQ Slotted, Diamond Coated				
	25239	Core Lifter, HQ Fluted				
	3548555	Core Lifter, HQ Fluted, Diamond Coated				
5	25237	Case, HQ Core Lifter	✓	✓	✓	✓
6	3545409	Locking Coupling, HQ Full-hole with Tang				
	3545410	Locking Coupling, HQ Full-hole				
	5007791	HQ Stabilized Locking Coupling with Tang				
	5007789	HQ Stabilized Locking Coupling				
	5007790	HRQ Stabilized Locking Coupling				
	5007792	HRQ Stabilized Locking Coupling with Tang				
	3545408	Locking Coupling, HRQ Full-hole				
	3545407	Locking Coupling, HRQ Full-hole with Tang				
7	25241	Coupling, HQ Adapter	✓		✓	
8	25242	Landing Ring, HQ	✓		✓	
9	25259	Outer-tube, HQ 1.5 M / 5.0 FT				
	25259CP	Outer-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	3545392	Outer-tube, HQ 1.5 M / 5.0 FT, Full-hole				
	25243	Outer-tube, HQ 3.0 M / 10.0 FT				
	25243CP	Outer-tube, HQ 3.0 M / 10.0 FT, Chrome Plated				
	3545393	Outer-tube, HQ 3.0 M / 10.0 FT, Full-hole				
10	44408	Stabilizer, HQ Inner-tube	✓		✓	
11	25245	Protector, HQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3542638	Loading sleeve, HQ / HRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – HQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31404	Inner-tube Coupling
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Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

HQ™ CORE BARREL SPARE PARTS KIT 3542580

ID #	PART #	DESCRIPTION	QTY
	3542580	Core Barrel Spare Parts Kit, HQ	
1	5008325	MKII Spearhead Assembly, HQ / PQ	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543619	Compression Spring, HQ / PQ	1
4	104818	Latch, HQ	4
5	306216	Link, HQ	4
6	24305	Coiled Pin, 1/2" x 2"	2
7	62374	Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	104958	Landing Shoulder, HQ	1
10	44574	Hex Nut, 1-1/4" UNC	1
11	43513	Shut-off Valve, HQ, Hard	4
12	24528	Thrust Bearing	2
13	25234	Spindle Bushing, HQ	1
14	24312	Thrust Bearing	1
15	5008634	Lock Nut, 1" UNC	1
16	17447	Hydraulic Grease Fitting	2
17	25238	Stop Ring, HQ	2
18	30489	Slotted Core Lifter, HQ	20
19	25237	Core Lifter Case, HQ	4
20	25242	Landing Ring, HQ	2
21	44408	Inner-tube Stabilizer, HQ	2

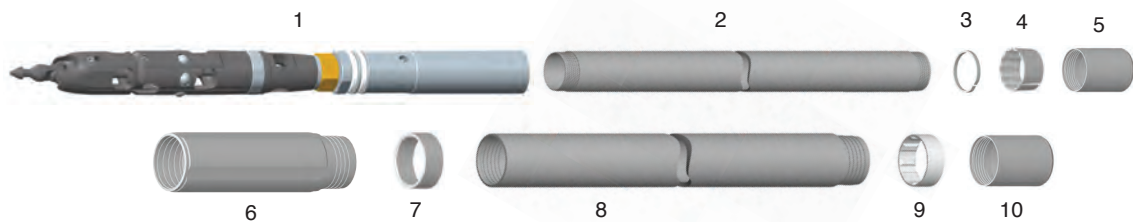


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

HQ™ QUICK DESCENT™ ROLLER LATCH™

CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008245	Core Barrel Kit, HQ 1.5 M / 5.0 FT	5008245			
	5008247	Inner-tube Group, HQ 1.5 M / 5.0 FT	↓	5008247		
	5008246	Core Barrel Kit, HQ 3.0 M / 10.0 FT		↓	5008246	
	5008248	Inner-tube Group, HQ 3.0 M / 10.0 FT			↓	5008248
1	5007760	Head Assembly, HQ Quick Descent				
2	25258	Inner-tube, HQ 1.5 M / 5.0 FT				
	25258CP	Inner-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	25236	Inner-tube, HQ 3.0 M / 10.0 FT				
	25236CP	Inner-tube, HQ 3.0 M / 10 FT, Chrome Plated				
3	25238	Stop Ring, HQ	✓	✓	✓	✓
4	30489	Core Lifter, HQ Slotted				
	3546912	Core Lifter, HQ Slotted, Diamond Coated				
	25239	Core Lifter, HQ Fluted				
	3548555	Core Lifter, HQ Fluted, Diamond Coated				
5	25237	Case, HQ Core Lifter	✓	✓	✓	✓
6	5007899	Locking Coupling, HQ Full-hole				
	5007907	Locking Coupling, HQ Stabilized				
	5007906	Locking Coupling, HRQ Stabilized				
	5007898	Locking Coupling, HRQ Full-hole				
7	25242	Landing Ring, HQ	✓		✓	
8	25259	Outer-tube, HQ 1.5 M / 5.0 FT				
	25259CP	Outer-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	3545392	Outer-tube, HQ 1.5 M / 5.0 FT, Full-hole				
	25243	Outer-tube, HQ 3.0 M / 10.0 FT				
	25243CP	Outer-tube, HQ 3.0 M / 10.0 FT, Chrome Plated				
	3545393	Outer-tube, HQ 3.0 M / 10.0 FT, Full-hole				
9	44408	Stabilizer, HQ Inner-tube	✓		✓	
10	25245	Protector, HQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – HQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31404	Inner-tube Coupling
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Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

HQ™ CORE BARREL SPARE PARTS KIT 5008249

ID #	PART #	DESCRIPTION	QTY
	5008249	Roller Latch Core Barrel Spare Parts Kit, HQ	
1	5008324	MKII Spearhead Assembly, NQ/NQTK*	1
2	5005509	Latch Spring, NQ	1
3	5008909	Coiled Pin, 1/2" x 2-3/4"	2
4	5008004	Coiled Pin, 1/4" x 1-3/4"	2
5	5005285	Piston Valve, HQ/PQ	1
6	5006057	Roller Latch, HQ/PQ	6
7	5008297	Indicator Bushing, 35 mm	4
8	3546056	Landing Shoulder, HQ	1
9	62374	Ball, 22 mm	1
10	3545206	Nord-Lock Washer, 1-1/4"	1
11	37475	Hex Nut, 1-1/2" UNC	1
12	43513	Shut-off Valve, Hard, HQ	4
13	25233	Valve Adjusting Washer, HQ	2
14	24528	Thrust Bearing	3
15	3540794	Spindle Bushing, HQ	1
16	17447	Hydraulic Grease Fitting	2
17	3544324	Narrow Washer 1-1/4"	1
18	5008635	Lock Nut, 1-1/4" UNC	1
19	5007849	Inner-Tube Cap Bushing, HQ/PQ	1
20	25238	Stop Ring	2
21	30489	Core Lifter, Slotted	20
22	25237	Core Lifter Case	4
23	25242	Landing Ring	2
24	44408	Inner-Tube Stabilizer	2

* NQTK also known as NQ2

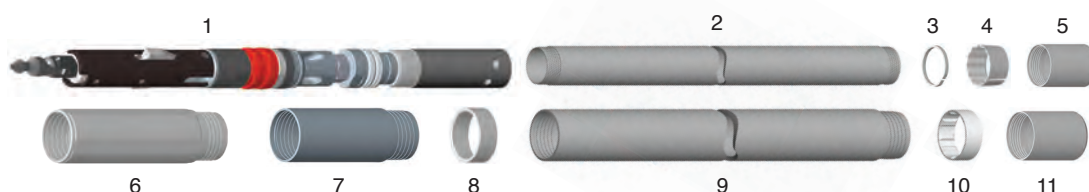


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

HQ™ U CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3544022	Core Barrel Kit, HQU 1.5 M / 5.0 FT	3544022			
	3544034	Inner-tube Group, HQU 1.5 M / 5.0 FT	↓	3544034		
	3544028	Core Barrel Kit, HQU 3.0 M / 10.0 FT	↓	↓	3544028	
	3544040	Inner-tube Group, HQU 3.0 M / 10.0 FT	↓	↓	↓	3544040
1	3548750MKII	Head Assembly, HQU Quick Pump-In	✓	✓	✓	✓
2	25258	Inner-tube, HQ 1.5 M / 5.0 FT				
	25258CP	Inner-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	25236	Inner-tube, HQ 3.0 M / 10.0 FT				
	25236CP	Inner-tube, HQ 3.0 M / 10.0 FT, Chrome Plated				
3	25238	Stop Ring, HQ	✓	✓	✓	✓
4	30489	Core Lifter, HQ Slotted				
	3546912	Core Lifter, HQ Slotted, Diamond Coated				
	25239	Core Lifter, HQ Fluted				
	3548555	Core Lifter, HQ Fluted, Diamond Coated				
5	25237	Case, HQ Core Lifter	✓	✓	✓	✓
6	3545410	Locking Coupling, HQ Full-hole				
	3545408	Locking Coupling, HRQ Full-hole				
	5007790	HRQ Stabilized Locking Coupling				
	5007789	HQ Stabilized Locking Coupling				
7	3546707	Adapter Coupling, HQU, Quick Pump-In	✓		✓	
8	25242	Landing Ring, HQ	✓		✓	
9	25259	Outer-tube, HQ, 1.5 M / 5.0 FT				
	25259CP	Outer-tube, HQ, 1.5 M / 5.0 FT, Chrome Plated				
	3545392	Outer-tube, HQ, 1.5 M / 5.0 FT, Full-hole				
	25243	Outer-tube, HQ, 3.0 M / 10.0 FT				
	25243CP	Outer-tube, HQ, 3.0 M / 10.0 FT, Chrome Plated				
	3545393	Outer-tube, HQ, 3.0 M / 10.0 FT, Full-hole				
10	44408	Stabilizer, HQ Inner-tube	✓		✓	
11	25245	Protector, HQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3542638	Loading sleeve, HQ / HRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – HQ™ U

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	31404	Inner-tube Coupling
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Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 outer-tube 3.0 M / 10.0 FT
- 1 inner-tube stabilizer
- 1 inner-tube 3.0 M / 10.0 FT
- 1 inner-tube coupling

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

HQ™ U CORE BARREL SPARE PARTS KIT 5001367

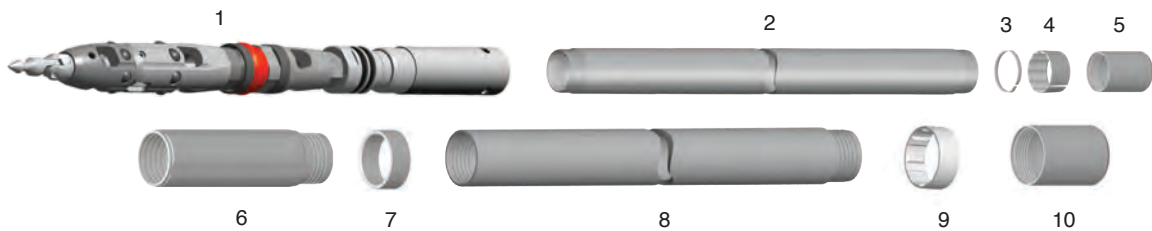
ID #	PART #	DESCRIPTION	QTY
	5001367	Core Barrel Spare Parts Kit, HQU	
1	5003195	MKII Spearhead Assembly, HQ / PQ	1
2	3541932	Nylok Bolt 3/8" -16 UNC x 3/4"	2
3	3543047	Compression Spring, HQU	1
4	104818	Latch, HQ	4
5	3543999	Link, HQ	4
6	24305	Coiled Pin, 1/2" x 2"	1
7	3548544	Piston Ball Valve, HQ / PQ	1
8	3548718	Coiled Pin, 1/4" x 2-3/4"	4
9	3543904	Indicator Bushing, 22 mm	4
10	100696	Pump-in Seal Lip, HQ	4
11	104958	Landing Shoulder, HQ	2
12	43513	Shut-off Valve, HQ, Hard	4
13	24528	Thrust Bearing	2
14	25234	Spindle Bushing, HQ	1
15	24312	Thrust Bearing	1
16	5008634	Lock Nut, 1" UNC	1
17	17447	Hydraulic Grease Fitting	1
18	25238	Stop Ring, HQ	2
19	30489	Slotted Core Lifter	20
20	25237	Core Lifter Case	4
21	25242	Landing Ring, HQ	2
22	44408	Inner-tube Stabilizer, HQ	2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

HQ™ U QUICK PUMP-IN™ ROLLER LATCH™ CORE BARREL KIT SELECTION

ID #	PART #	DESCRIPTION				
	5007702	Roller Latch Core Barrel Kit, HQU 1.5 M / 5.0 FT	5007702			
	5007704	Roller Latch Inner-tube Group, HQU 1.5 M / 5.0 FT	↓	5007704		
	5007703	Roller Latch Core Barrel Kit, HQU 3.0 M / 10.0 FT		↓	5007703	
	5007705	Roller Latch Inner-tube Group, HQU 3.0 M / 10.0 FT			↓	5007705
1	5008860	Head Assembly, HQU, Roller Latch, Quick Pump-In	✓	✓	✓	✓
2	25258	Inner-tube, HQ 1.5 M / 5.0 FT				
	25258CP	Inner-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	25236	Inner-tube, HQ 3.0 M / 10.0 FT				
	25236CP	Inner-tube, HQ 3.0 M / 10.0 FT, Chrome Plated				
3	25238	Stop Ring, HQ	✓	✓	✓	✓
4	30489	Core Lifter, HQ Slotted				
	3546912	Core Lifter, HQ Slotted, Diamond Coated				
	25239	Core Lifter, HQ Fluted				
	3548555	Core Lifter, HQ Fluted, Diamond Coated				
5	25237	Case, HQ Core Lifter	✓	✓	✓	✓
6	5008914	Locking Coupling, HQ Full-hole				
	5007720	Locking Coupling, HQ Stabilized				
	5006004	Locking Coupling, HRQ Full-hole				
	5007721	Locking Coupling, HRQ Stabilized				
7	25242	Landing Ring, HQ	✓	✓		
8	25259	Outer-tube, HQ, 1.5 M / 5.0 FT				
	25259CP	Outer-tube, HQ, 1.5 M / 5.0 FT, Chrome Plated				
	3545392	Outer-tube, HQ, 1.5 M / 5.0 FT, Full-hole				
	25243	Outer-tube, HQ, 3.0 M / 10.0 FT				
	25243CP	Outer-tube, HQ, 3.0 M / 10.0 FT, Chrome Plated				
	3545393	Outer-tube, HQ, 3.0 M / 10.0 FT, Full-hole				
9	44408	Stabilizer, HQ Inner-tube	✓	✓		
10	25245	Protector, HQ Outer-tube Thread	✓	✓		
	5007708	Assembly Tool, Roller Latch B / N / H	✓	✓	✓	✓
	3542638	Sleeve, HQ / HRQ Loading	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓	✓		
	306390	Core Barrel Assembly Safety Poster	✓	✓		



Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

HQ™ U QUICK PUMP-IN™ ROLLER LATCH™ SPARE PARTS KIT 5007706

ID #	PART #	DESCRIPTION	QTY
	5007706	Roller Latch Core Barrel Spare Parts Kit, HQU	
1	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
2	5008403	Brake Wedge, Roller Latch, HQU	1
3	5005285	Valve Piston, Roller Latch, HQU	1
4	5005342	Coiled Pin, 1/2" x 2-1/2"	2
5	5005042	Jam Nut, Roller Latch, HQU	1
6	5005509	Compression Spring, Roller Latch, HQU	1
7	5008909	Coiled Pin, 1/2" x 2-3/4"	1
8	5006057	Roller, HQ / HQU	12
9	5008910	Coiled Pin, 1/4" x 1-1/2"	2
10	5005385	Indicator Bushing, 35 mm	4
11	5006212	Lip Seal, HQU, V-Wall	2
12	104958	Landing Shoulder, HQ	2
13	43513	Shut-off Valve, HQ, Hard	4
14	24528	Thrust Bearing	2
15	25234	Spindle Bushing, HQ	1
16	24312	Thrust Bearing	1
17	5008634	Lock Nut, 1" UNC	1
18	17447	Hydraulic Grease Fitting	1
19	25238	Stop Ring, HQ	2
20	30489	Core Lifter, HQ, Slotted	20
21	25237	Core Lifter Case, HQ	4
22	25242	Landing Ring, HQ	2
23	44408	Inner-tube Stabilizer, HQ	2

* NQTK also known as NQ2



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

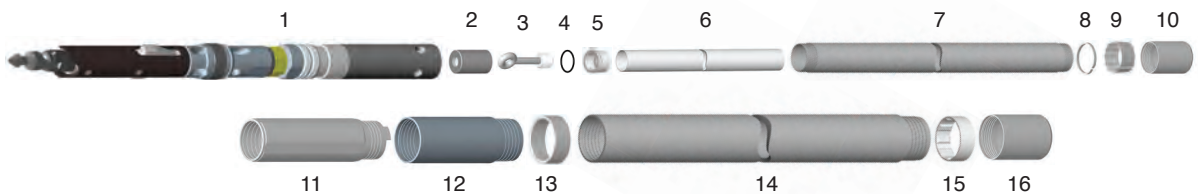
Warning: While it improves safety, the hold-back brake feature is not intended as a fail-safe device. Keep hands and body clear of open rods at all times. When in use, always apply fluid pressure to compensate for any wireline retraction resistance from the core barrel. Failure to do so may result in product failure or injury.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

HQ™ 3 CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION				
	3542948	Core Barrel Kit, HQ3 1.5 M / 5.0 FT	3542948			
	3542944	Inner-tube Group, HQ3 1.5 M / 5.0 FT	↓	3542944		
	3542949	Core Barrel Kit, HQ3 3.0 M / 10.0 FT	↓	↓	3542949	
	3542945	Inner-tube Group, HQ3 3.0 M / 10.0 FT	↓	↓	↓	3542945
1	5001440MKII	Head Assembly, HQ	✓	✓	✓	✓
2	26517	Adapter, HQ3 Pump-out	✓	✓	✓	✓
3	26662	Plug, Piston	✓	✓	✓	✓
4	20651	O-ring, #229	✓	✓	✓	✓
5	26510	Piston, HQ3 Core Ejection	✓	✓	✓	✓
6	26512	Split Tube, HQ3 1.5 M / 5.0 FT	✓	✓		
	26513	Split Tube, HQ3 3.0 M / 10.0 FT			✓	✓
7	25258	Inner-tube, HQ 1.5 M / 5.0 FT	✓	✓		
	25236	Inner-tube, HQ 3.0 M / 10.0 FT			✓	✓
8	26515	Stop Ring, HQ3	✓	✓	✓	✓
9	26516	Core Lifter, HQ3 Fluted				
	3547137	Core Lifter, HQ3 Fluted, Diamond Coated				
10	26514	Case, HQ3 Core Lifter	✓	✓	✓	✓
11	5007789	HQ Stabilized Locking Coupling				
	5007791	HQ Stabilized Locking Coupling with Tang				
	5007790	HRQ Stabilized Locking Coupling				
	5007792	HRQ Stabilized Locking Coupling with Tang				
	3545410	Locking Coupling, HQ Full-hole				
	3545408	Locking Coupling, HRQ Full-hole				
	3545409	Locking Coupling, HQ Full-hole with Tang				
3545407	Locking Coupling, HRQ Full-hole with Tang					
12	25241	Coupling, HQ Adapter	✓		✓	
13	25242	Landing Ring, HQ	✓		✓	
14	25259	Outer-tube, HQ 1.5 M / 5.0 FT				
	24910CP	Outer-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	25243	Outer-tube, HQ 3.0 M / 10.0 FT				
	25243CP	Outer-tube, HQ 3.0 M / 10.0 FT, Chrome Plated				
15	44408	Stabilizer, HQ Inner-tube	✓		✓	
16	25245	Protector, HQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3542638	Loading sleeve, HQ / HRQ	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	
	5006293	Split Tube Loader Tool	✓	✓	✓	✓

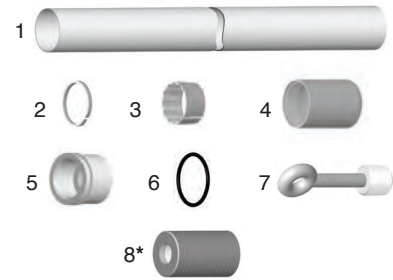


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

CORE BARREL CONVERSION KITS – HQ™ 3

Q - Q3 Core Barrel		
1 - 8	3542988	HQ to HQ3 Conversion Kit, 1.5 M / 5.0 FT
1 - 8	3542989	HQ to HQ3 Conversion Kit, 3.0 M / 10.0 FT

Parts			
	Parts		Qty
1	26512	Split Tube, 1.5 M / 5.0 FT, HQ3	1
1	26513	Split Tube, 3.0 M / 10.0 FT, HQ3	1
2	26515	Stop Ring, HQ3	1
3	26516	Core Lifter, Fluted, HQ3	1
4	26514	Core Lifter Case, HQ3	1
5	26510	Core Ejection Piston, HQ3	1
6	20651	O-ring	1
7	26662	Piston Plug	1
8	26517	Pump-out Adapter, HQ3	1



* Fluid pressure supplied with optional hand pump group or pump-out group.

HQ™ 3 CORE BARREL SPARE PARTS KIT 3540592

ID #	PART #	DESCRIPTION	QTY
	3540592	Core Barrel Spare Parts Kit, HQ3	
1	5008325	MKII Spearhead Assembly, HQ / PQ	1
2	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	2
3	3543619	Compression Spring, HQ / PQ	1
4	104818	Latch, HQ	4
5	306216	Link, HQ	4
6	24305	Coiled Pin, 1/2" x 2"	2
7	62374	Ball, 22 mm	1
8	62380	Indicator Bushing, 22 mm	2
9	104958	Landing Shoulder, HQ	1
10	44574	Hex Nut, 1-1/4" UNC	1
11	43513	Shut-off Valve, HQ, Hard	4
12	24528	Thrust Bearing	2
13	25234	Spindle Bushing, HQ	1
14	24312	Thrust Bearing	1
15	5008634	Lock Nut, 1" UNC	1
16	17447	Hydraulic Grease Fitting	2
17	26515	Stop Ring, HQ3	2
18	26516	Core Lifter, HQ3, Fluted	20
19	26514	Core Lifter Case, HQ3	4
20	20651	O-ring	5
21	25242	Landing Ring, HQ	2
22	44408	Inner-tube Stabilizer, HQ	2

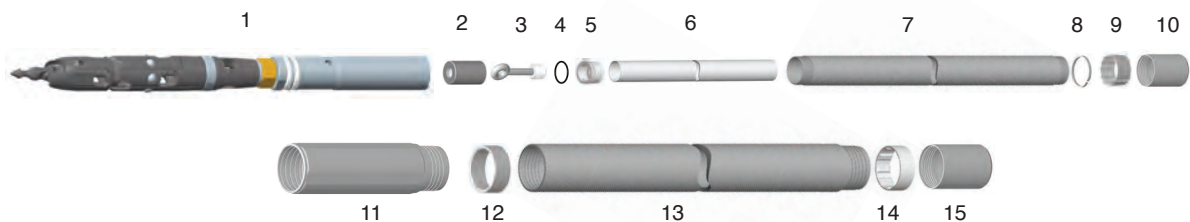


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

HQ™ 3 QUICK DESCENT™ ROLLER LATCH™

CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008250	Core Barrel Kit, HQ3 1.5 M / 5.0 FT	5008250			
	5008252	Inner-tube Group, HQ3 1.5 M / 5.0 FT	↓	5008252		
	5008251	Core Barrel Kit, HQ3 3.0 M / 10.0 FT		↓	5008251	
	5008253	Inner-tube Group, HQ3 3.0 M / 10.0 FT	↓		↓	5008253
1	5007760	Head Assembly, HQ	✓	✓	✓	✓
2	26517	Adapter, HQ3 Pump-out	✓	✓	✓	✓
3	26662	Plug, Piston	✓	✓	✓	✓
4	20651	O-ring, #229	✓	✓	✓	✓
5	26510	Piston, HQ3 Core Ejection	✓	✓	✓	✓
6	26512	Split Tube, HQ3 1.5 M / 5.0 FT	✓	✓		
	26513	Split Tube, HQ3 3.0 M / 10.0 FT			✓	✓
7	25258	Inner-tube, HQ 1.5 M / 5.0 FT	✓	✓		
	25236	Inner-tube, HQ 3.0 M / 10.0 FT			✓	✓
8	26515	Stop Ring, HQ3	✓	✓	✓	✓
9	26516	Core Lifter, HQ3 Fluted				
	3547137	Core Lifter, HQ3 Fluted, Diamond Coated				
10	26514	Case, HQ3 Core Lifter	✓	✓	✓	✓
11	5007907	Locking Coupling, HQ Stabilized				
	5007906	Locking Coupling, HRQ Stabilized				
	5007899	Locking Coupling, HQ Full-hole				
	5007898	Locking Coupling, HRQ Full-hole				
12	25242	Landing Ring, HQ	✓		✓	
13	25259	Outer-tube, HQ 1.5 M / 5.0 FT				
	25259CP	Outer-tube, HQ 1.5 M / 5.0 FT, Chrome Plated				
	3545392	Outer-tube, HQ 1.5 M / 5.0 FT, Full-hole				
	25243	Outer-tube, HQ 3.0 M / 10.0 FT				
	25243CP	Outer-tube, HQ 3.0 M / 10.0 FT, Chrome Plated				
	3545393	Outer-tube, HQ 3.0 M / 10.0 FT, Full-hole				
14	44408	Stabilizer, HQ Inner-tube	✓		✓	
15	25245	Protector, HQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	



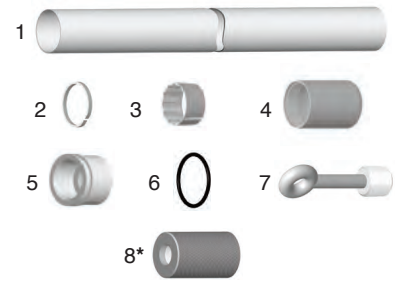
Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

CORE BARREL CONVERSION KITS – HQ™ 3

Q - Q3 Core Barrel		
1 - 8	3542988	HQ to HQ3 Conversion Kit, 1.5 M / 5.0 FT
1 - 8	3542989	HQ to HQ3 Conversion Kit, 3.0 M / 10.0 FT

Parts	Qty
1 26512 Split Tube, 1.5 M / 5.0 FT, HQ3	1
1 26513 Split Tube, 3.0 M / 10.0 FT, HQ3	1
2 26515 Stop Ring, HQ3	1
3 26516 Core Lifter, Fluted, HQ3	1
4 26514 Core Lifter Case, HQ3	1
5 26510 Core Ejection Piston, HQ3	1
6 20651 O-ring	1
7 26662 Piston Plug	1
8 26517 Pump-out Adapter, HQ3	1

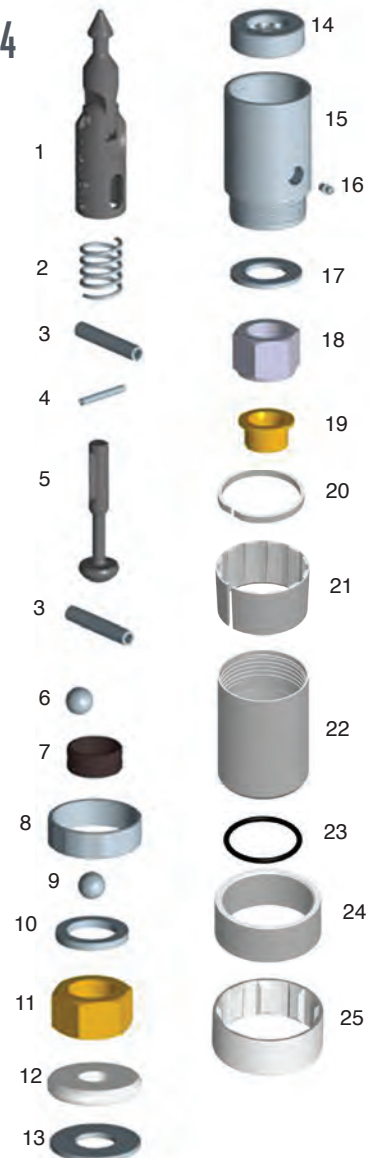


* Fluid pressure supplied with optional hand pump group or pump-out group.

HQ™ 3 CORE BARREL SPARE PARTS KIT 5008254

ID #	PART #	DESCRIPTION	QTY
	5008254	Roller Latch Core Barrel Spare Parts Kit, HQ3	
1	5008324	MKII Spearhead Assembly, NQ/NQTK*	1
2	5005509	Latch Spring, NQ	1
3	5008909	Coiled Pin, 1/2" x 2-3/4"	2
4	5008004	Coiled Pin, 1/4" x 1-3/4"	2
5	5005285	Piston Valve, HQ/PQ	1
6	5006057	Roller, HQ/PQ Latch	6
7	5008297	Indicator Bushing, 35 mm	1
8	3546056	Landing Shoulder, HQ	2
9	62374	Ball, 22 mm	1
10	3545206	Nord-Lock Washer, 1-1/4"	1
11	37475	Hex Nut, 1-1/2" UNC	1
12	43513	Shut-off Valve, Hard, HQ	4
13	25233	Valve Adjusting Washer, HQ	2
14	24528	Thrust Bearing	3
15	3540794	Spindle Bushing, HQ	1
16	17447	Hydraulic Grease Fitting	2
17	3544324	Narrow Washer, 1-1/4"	1
18	5008635	Lock Nut, 1-1/4" UNC	1
19	5007849	Inner-Tube Cap Bushing, HQ	1
20	26515	Stop Ring	2
21	26516	Core Lifter, Fluted	20
22	26514	Core Lifter Case	4
23	20651	O-Ring	4
24	25242	Landing Ring	2
25	44408	Inner-Tube Stabilizer	2

* NQTK also known as NQ2



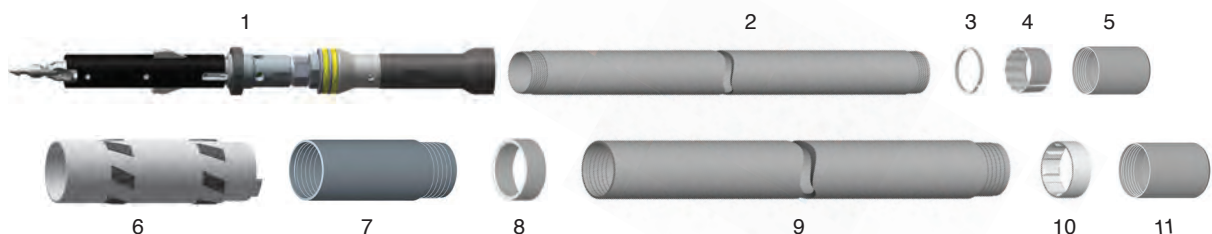
LEGEND: ■ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

PQ™ CORE BARREL KIT SELECTION

1.5 M / 5 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	3543865	Core Barrel Kit, PQ 1.5 M / 5.0 FT	3543865			
	3543863	Inner-tube Group, PQ 1.5 M / 5.0 FT	↓	3543863		
	3543866	Core Barrel Kit, PQ 3.0 M / 10.0 FT		↓	3543866	
	3543864	Inner-tube Group, PQ 3.0 M / 10.0 FT	↓	↓	↓	3543864
1	5001444MKII	Head Assembly, PQ				
2	26159	Inner-tube, PQ 1.5 M / 5.0 FT				
	26159CP	Inner-tube, PQ 1.5 M / 5.0 FT, Chrome Plated				
	26534	Inner-tube, PQ 3.0 M / 10.0 FT				
	26534CP	Inner-tube, PQ 3.0 M / 10.0 FT, Chrome Plated				
3	26161	Stop Ring, PQ	✓	✓	✓	✓
4	26162	Core Lifter, PQ Fluted				
	3548626	Core Lifter, PQ Fluted, Diamond Coated				
5	52172	Case, PQ Core Lifter	✓	✓	✓	✓
6	5007949	PHD Stabilized Locking Coupling with Tang				
	5007948	PHD Stabilized Locking Coupling				
7	3543808	Adapter Coupling, PHD				
8	3543814	Landing Ring, PQ	✓		✓	
9	3543802	Outer-tube, PHD / PQ 1.5 M / 5.0 FT				
	3543802CP	Outer-tube, PHD / PQ 1.5 M / 5.0 FT, Chrome Plated				
	3543801	Outer-tube, PHD / PQ 3.0 M / 10.0 FT				
	3543801CP	Outer-tube, PHD / PQ 3.0 M / 10.0 FT, Chrome Plated				
10	44923*	Stabilizer, PQ Inner-tube	✓		✓	
11	26168	Protector, PQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	

*The inner tube stabilizer is installed in the bit (sold separately) in the PQ system only.

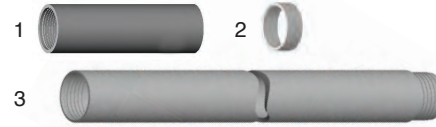


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – PQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	5000854	Extenda, PQ Inner-tube 3.0 M / 10.0 FT
2	5000617	Stabilizer, PQ Extended
3	5000855	Extenda, PQ Outer-tube, 3.0 M / 10.0 FT



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 Extenda outer-tube 3.0 M / 10.0 FT
- 1 Inner-tube stabilizer
- 1 Extenda inner-tube 3.0M / 10.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

PQ™ CORE BARREL SPARE PARTS KIT 3543862

ID #	PART #	DESCRIPTION	QTY
	3543862	Core Barrel Spare Parts Kit, PQ	
1	5008325	MKII Spearhead Assembly, PQ / HQ	1
2	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	2
3	3543619	Compression Spring, HQ / PQ	1
4	3543796	Latch, PQ	4
5	306216	Link, HQ	4
6	3548544	Valve Piston, HQ / PQ	1
7	306131	Fluid Retention Bushing	1
8	104966	Fluid Retention Spring, Light	1
9	3548718	Coiled Pin, 1/4" x 2-3/4"	2
10	3543797	Landing Shoulder, PQ	1
11	44574	Hex Nut, 1-1/4" UNC	1
12	3540308	Shut-off Valve, PQ, Hard	4
13	24528	Thrust Bearing	2
14	3540794	Spindle Bushing, HQ / PQ	1
15	17447	Hydraulic Grease Fitting	2
16	5008635	Lock Nut, 1-1/4" UNC	1
17	26161	Stop Ring, PQ	2
18	26162	Core Lifter, PQ, Fluted	20
19	52172	Core Lifter Case, PQ	4
20	3543814	Landing Ring, PQ	2
21	44923	Inner-tube Stabilizer, PQ	2

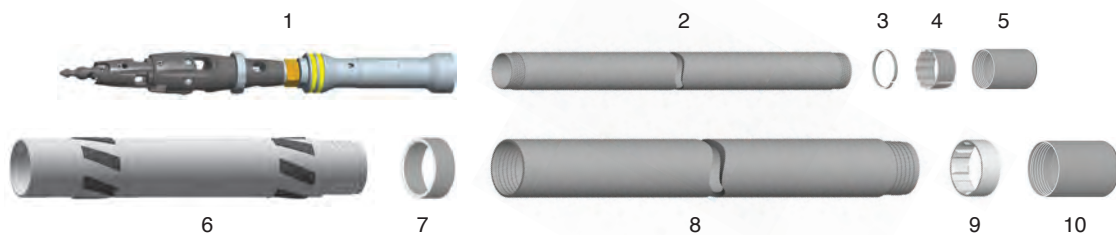


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

PQ™ QUICK DESCENT™ ROLLER LATCH™ CORE BARREL KIT SELECTION 1.5 M/5 FT AND 3.0 M/10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008255	Core Barrel Kit, PQ 1.5 M / 5.0 FT	5008255			
	5008257	Inner-tube Group, PQ 1.5 M / 5.0 FT	↓	5008257		
	5008256	Core Barrel Kit, PQ 3.0 M / 10.0 FT		↓	5008256	
	5008258	Inner-tube Group, PQ 3.0 M / 10.0 FT	↓	↓	↓	5008258
1	5007770	Head Assembly, PQ Quick Descent				
2	26159	Inner-tube, PQ 1.5 M / 5.0 FT				
	26159CP	Inner-tube, PQ 1.5 M / 5.0 FT, Chrome Plated				
	26534	Inner-tube, PQ 3.0 M / 10.0 FT				
	26534CP	Inner-tube, PQ 3.0 M / 10.0 FT, Chrome Plated				
3	26161	Stop Ring, PQ	✓	✓	✓	✓
4	26162	Core Lifter, PQ Fluted				
	3548626	Core Lifter, PQ Fluted, Diamond Coated				
5	52172	Case, PQ Core Lifter	✓	✓	✓	✓
6	5007799	Locking Coupling, PHD Stabilized				
7	3543814	Landing Ring, PQ	✓		✓	
8	3543802	Outer-tube, PHD/PQ 1.5 M / 5.0 FT				
	3543802CP	Outer-tube, PHD/PQ 1.5 M / 5.0 FT, Chrome Plated				
	3543801	Outer-tube, PHD/PQ 3.0 M / 10.0 FT				
	3543801CP	Outer-tube, PHD/PQ 3.0 M / 10.0 FT, Chrome Plated				
9	44923*	Stabilizer, PQ Inner-tube	✓		✓	
10	26168	Protector, PQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	

*The inner tube stabilizer is installed in the bit (sold separately) in the PQ system only.



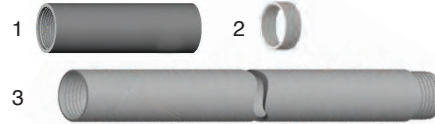
Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

EXTENDED CORE BARRELS – PQ™

The inner-tube coupling and lower inner-tube can be used to extend core barrels from 1.5 M / 5.0 FT to 4.5 M / 15.0 FT, or 3.0 M / 10.0 FT to 6.0 M / 20.0 FT lengths in consolidated ground conditions.

1	5000854	Extenda, PQ Inner-tube 3.0 M / 10.0 FT
2	5000617	Stabilizer, PQ Extended
3	5000855	Extenda, PQ Outer-tube, 3.0 M / 10.0 FT



Example: To assemble a 6.0 M / 20.0 FT core barrel, use a 3.0 M / 10.0 FT core barrel plus the following:

- 1 Extenda outer-tube 3.0 M / 10.0 FT
- 1 Inner-tube stabilizer
- 1 Extenda inner-tube 3.0M / 10.0 FT

* Inner-tube extensions for use when utilizing extended reaming shells can be found on page 169.

PQ™ CORE BARREL SPARE PARTS KIT 5008259

ID #	PART #	DESCRIPTION	QTY
	5008254	Roller Latch Core Barrel Spare kit, PQ	
1	5008324	MKII Spearhead Assembly, NQ/NQTK*	1
2	5005509	Latch Spring, HQ / PQ	1
3	5005342	Coiled Pin, 1/2" x 2-1/2"	2
4	5008015	Coiled Pin, 1/4" x 2-1/4"	2
5	5005285	Piston Valve, HQ/PQ	1
6	5007835	Coiled Pin, 1/2" x 3-3/4"	2
7	5006057	Roller Latch, NQ	6
8	5007867	Indicator Bushing	1
9	104966	Fluid Retention Spring	1
10	3543797	Landing Shoulder, PQ	2
11	62374	Ball, 22 mm	1
12	3545206	Nord-Lock Washer, 1-1/2"	1
13	37475	Hex Nut, 1-1/2" UNC	1
14	3540308	Shut-off Valve, Hard, PQ	4
15	3540300	Valve Shut-off Washer	2
16	24528	Thrust Bearing	3
17	3540794	Spindle Bushing, HQ / PQ	1
18	17447	Hydraulic Grease Fitting	2
19	3544324	Narrow Washer 1-1/4"	1
20	5008635	Lock Nut, 1-1/4" UNC	1
21	5007849	Inner-Tube Cap Bushing, HQ / PQ	1
22	26161	Stop Ring	2
23	26162	Core Lifter, Fluted	20
24	52172	Core Lifter Case	4
25	3543814	Landing Ring	2
26	44923	Inner-Tube Stabilizer	2



* NQTK also known as NQ2

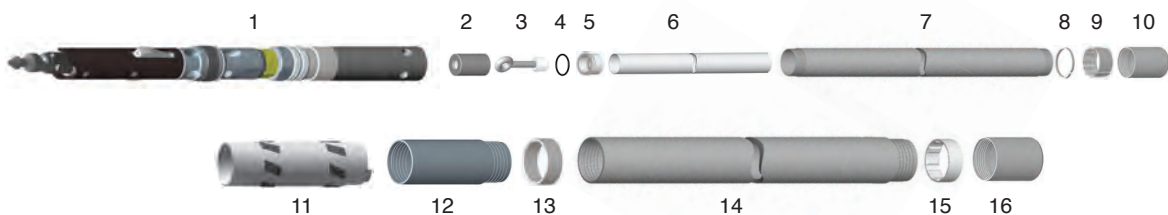
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

PQ™ 3 CORE BARREL KIT SELECTION

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

ID #	PART #	DESCRIPTION	3543869	3543867	3543870	3543868
	3543869	Core Barrel Kit, PQ3 1.5 M / 5.0 FT	3543869			
	3543867	Inner-tube Group, PQ3 1.5 M / 5.0 FT	↓	3543867		
	3543870	Core Barrel Kit, PQ3 3.0 M / 10.0 FT		↓	3543870	
	3543868	Inner-tube Group, PQ3 3.0 M / 10.0 FT			↓	3543868
1	5001444MKII	Head Assembly, PQ	✓	✓	✓	✓
2	26182	Adapter, PQ3 Pump-out	✓	✓	✓	✓
3	26662	Plug, Piston	✓	✓	✓	✓
4	26178	O-ring, #236	✓	✓	✓	✓
5	26179	Piston, PQ Core Ejection	✓	✓	✓	✓
6	26180	Split Tube, PQ3, 1.5 M / 5.0 FT	✓	✓		
	26710	Split Tube, PQ3, 3.0 M / 10.0 FT			✓	✓
7	26159	Inner-tube, PQ, 1.5 M / 5 FT	✓	✓		
	26534	Inner-tube, PQ, 3.0 M / 10 FT			✓	✓
8	26176	Stop Ring, PQ3	✓	✓	✓	✓
9	26177	Core Lifter, PQ3 Fluted				
	5001511	Core Lifter, PQ3 Fluted, Diamond Coated				
10	26160	PQ3 / PQTT Core Lifter Case	✓	✓	✓	✓
11	5007949	PHD Stabilized Locking Coupling with Tang				
	5007948	PHD Stabilized Locking Coupling				
12	3543808	Adapter Coupling, PHD				
13	3543814	Landing Ring, PQ	✓		✓	
14	3543802	Outer-tube, PQ 1.5 M / 5.0 FT				
	3543802CP	Outer-tube, PQ 1.5 M / 5.0 FT, Chrome Plated				
	3543801	Outer-tube, PQ 3.0 M / 10.0 FT				
	3543801CP	Outer-tube, PQ 3.0 M / 10.0 FT, Chrome Plated				
15	44923*	Stabilizer, PQ Inner-tube	✓		✓	
16	26168	Protector, PQ Outer-tube Thread	✓		✓	
	3542987	Drift Tool, Link Latch N / H / P	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	
	5006293	Split Tube Loader Tool	✓	✓	✓	✓

*The inner tube stabilizer is installed in the bit (sold separately) in the PQ system only.

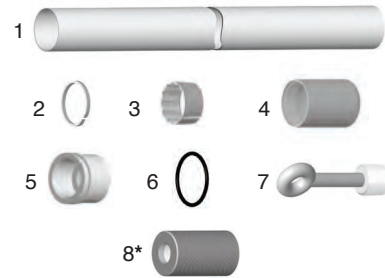


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

CORE BARREL CONVERSION KITS – PQ™ 3

Q - Q3 Core Barrel		
1 - 8	26558	PQ to PQ3 Conversion Kit, 1.5 M / 5.0 FT
1 - 8	26724	PQ to PQ3 Conversion Kit, 3.0 M / 10.0 FT

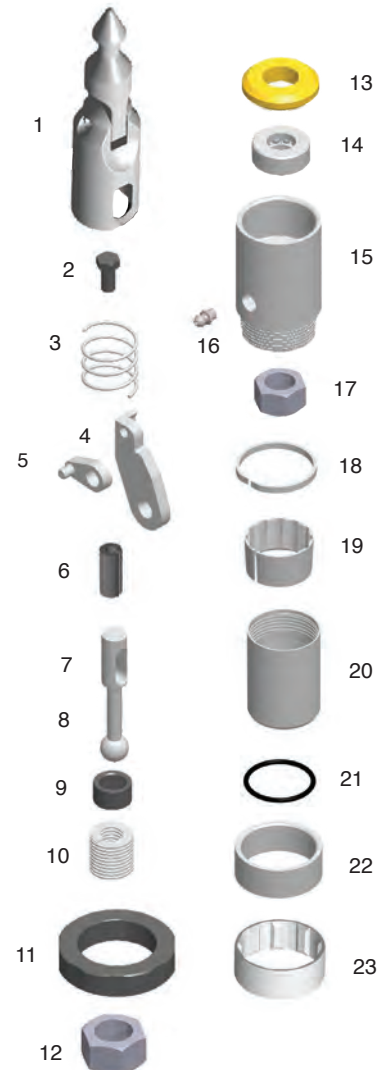
Parts		Qty	
1	26180	Split Tube, PQ3, 1.5 M / 5.0 FT	1
1	26710	Split Tube, PQ3, 3.0 M / 10.0 FT	1
2	26176	Stop Ring, PQ3	1
3	26177	Core Lifter, PQ3, Fluted	1
4	26160	PQ3 / PQTT Core Lifter Case	1
5	26179	Core Ejection Piston, PQ	1
6	26178	O-ring	1
7	26662	Piston Plug	1
8	26182	Pump-out Adapter, PQ3	1



* Fluid pressure supplied with optional hand pump group or pump-out group.

PQ™ 3 CORE BARREL SPARE PARTS KIT 3543971

ID #	PART #	DESCRIPTION	QTY
	3543971	Core Barrel Spare Parts Kit, PQ3	
1	5008325	MKII Spearhead Assembly, PQ / HQ	1
2	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	2
3	3543619	Compression Spring, HQ / PQ	1
4	3543796	Latch, PQ	4
5	306216	Link, HQ	4
6	24305	Coiled Pin, 1/2" x 2"	1
7	3548544	Valve, HQ / PQ Q / P Piston	2
8	306131	Fluid Retention Bushing	1
9	104966	Fluid Retention Spring, Light	1
10	3548718	Coiled Pin, 1/4" x 2-3/4"	1
11	3543797	Landing Shoulder, PQ	1
12	37475	Hex Nut, 1-1/2" UNC	1
13	3540308	Shut-off Valve, PQ, Hard	4
14	24528	Thrust Bearing	2
15	3540794	Spindle Bushing, HQ / PQ	1
16	17447	Hydraulic Grease Fitting	2
17	5008635	Lock Nut, 1-1/4" UNC	1
18	26176	Stop Ring, PQ3	2
19	26177	Core Lifter, PQ3, Fluted	20
20	26160	PQ3 / PQTT Core Lifter Case	4
21	26178	O-ring	1
22	3543814	Landing Ring, PQ	1
23	44923	Inner-tube Stabilizer, PQ	1



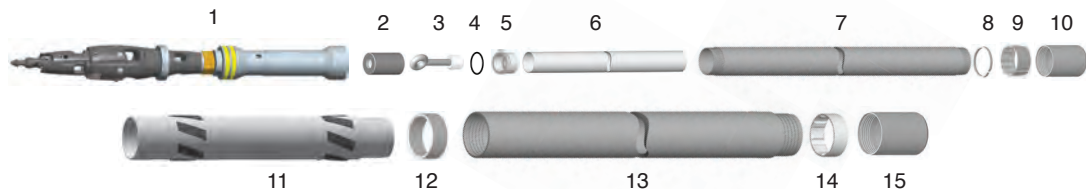
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

PQ™ 3 QUICK DESCENT™ ROLLER LATCH™

CORE BARREL KIT SELECTION 1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION				
	5008260	Core Barrel Kit, PQ3 1.5 M / 5.0 FT	5008260			
	5008262	Inner-tube Group, PQ3 1.5 M / 5.0 FT	↓	5008262		
	5008261	Core Barrel Kit, PQ3 3.0 M / 10.0 FT	↓	↓	5008261	
	5008263	Inner-tube Group, PQ3 3.0 M / 10.0 FT	↓	↓	↓	5008263
1	5007770	Head Assembly, PQ	✓	✓	✓	✓
2	26182	Adapter, PQ3 Pump-out	✓	✓	✓	✓
3	26662	Plug, Piston	✓	✓	✓	✓
4	26178	O-ring, #236	✓	✓	✓	✓
5	26179	Piston, PQ Core Ejection	✓	✓	✓	✓
6	26180	Split Tube, PQ3, 1.5 M / 5.0 FT	✓	✓		
	26710	Split Tube, PQ3, 3.0 M / 10.0 FT			✓	✓
7	26159	Inner-tube, PQ, 1.5 M / 5 FT	✓	✓		
	26534	Inner-tube, PQ, 3.0 M / 10 FT			✓	✓
8	26176	Stop Ring, PQ3	✓	✓	✓	✓
9	26177	Core Lifter, PQ3 Fluted				
	5001511	Core Lifter, PQ3 Fluted, Diamond Coated				
10	26160	PQ3/PQTT Core Lifter Case	✓	✓	✓	✓
11	5007799	Locking Coupling, PHD Stabilized				
12	3543814	Landing Ring, PQ	✓		✓	
13	3543802	Outer-tube, PQ 1.5 M / 5.0 FT				
	3543802CP	Outer-tube, PQ 1.5 M / 5.0 FT, Chrome Plated				
	3543801	Outer-tube, PQ 3.0 M / 10.0 FT				
	3543801CP	Outer-tube, PQ 3.0 M / 10.0 FT, Chrome Plated				
14	44923*	Stabilizer, PQ Inner-tube	✓		✓	
15	26168	Protector, PQ Outer-tube Thread	✓		✓	
	5007708	Assembly Tool	✓	✓	✓	✓
	3541994	In-Hole Tools Product Manual	✓		✓	
	306390	Core Barrel Safety Poster	✓		✓	

*The inner tube stabilizer is installed in the bit (sold separately) in the PQ system only.



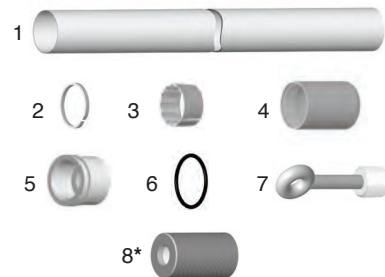
Roller Latch Warning: Roller Latch locking couplings are required to use Roller Latch head assemblies. Adapter couplings are **not** compatible with Roller Latch head assemblies. Roller Latch locking couplings are **not** compatible with Link Latch™ head assemblies.

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component Not a Kit Item

CORE BARREL CONVERSION KITS – PQ™ 3

Q - Q3 Core Barrel		
1 - 8	26558	PQ to PQ3 Conversion Kit, 1.5 M / 5.0 FT
1 - 8	26724	PQ to PQ3 Conversion Kit, 3.0 M / 10.0 FT

Parts			Qty
1	26180	Split Tube, PQ3, 1.5 M / 5.0 FT	1
1	26710	Split Tube, PQ3, 3.0 M / 10.0 FT	1
2	26176	Stop Ring, PQ3	1
3	26177	Core Lifter, PQ3, Fluted	1
4	26160	PQ3/PQTT Core Lifter Case	1
5	26179	Core Ejection Piston, PQ	1
6	26178	O-ring	1
7	26662	Piston Plug	1
8	26182	Pump-out Adapter, PQ3	1



* Fluid pressure supplied with optional hand pump group or pump-out group.

PQ™ 3 CORE BARREL SPARE PARTS KIT 5008264

ID #	PART #	DESCRIPTION	QTY
	5008264	Roller Latch Core Barrel Spares Kit, PQ3	
1	5008324	MKII Spearhead Assembly, NQ/NQTK*	1
2	5005509	Latch Spring, NQ	1
3	5005342	Coiled Pin, 1/2" x 2-1/2"	2
4	5008015	Coiled Pin, 1/4" x 2-1/4"	2
5	5005285	Piston Valve, HQ / PQ	1
6	5007835	Coiled Pin, 1/2" x 3-3/4"	2
7	5006057	Roller Latch, HQ/PQ	6
8	5007867	Indicator Bushing	1
9	104966	Fluid Retention Spring	1
10	3543797	Landing Shoulder, PQ	2
11	62374	Ball, 22 mm	1
12	3545206	Nord-Lock Washer, 1-1/2"	1
13	37475	Hex Nut, 1-1/2" UNC	1
14	3540308	Shut-off Valve, Hard, PQ	4
15	3540300	Valve Shut-off Washer	2
16	24528	Thrust Bearing	3
17	3540794	Spindle Bushing, PQ	1
18	17447	Hydraulic Grease Fitting	2
19	3544324	Narrow Washer, 1-1/4"	1
20	5008635	Lock Nut, 1-1/4" UNC	1
21	5007849	Inner-Tube Cap Bushing, PQ	1
22	26176	Stop Ring	2
23	26177	Core Lifter, Fluted	20
24	26160	Core Lifter Case	4
25	26178	O-ring	4
26	3543814	Landing Ring	2
27	44923	Inner-Tube Stabilizer	2



* NQTK also known as NQ2

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component ■ Not a Kit Item

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Quick Pump-In™ Roller Latch™ Head Assembly

HEAD ASSEMBLIES

Roller Latch™ Technology	93
Quick Descent™ and Quick Pump-In™	100
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HQ	128
PQ	132



QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY

The revolutionary new Quick Descent™ Roller Latch™ Head Assembly combines the improved reliability of Roller Latch technology with the increased productivity of Quick Descent technology along with additional new features.

Roller Latch™ Technology

Ultra-reliable Roller technology eliminates the low strength, play, and jamming associated with traditional 'swing-out' latch mechanisms. Roller latches detent into retracted position to eliminate latch drag for increased tripping speed, particularly in V-Wall™ Rods. Roller latches overcome the detent upon landing, or alternatively can be positively driven to deployed position with fluid pressure, or with drill rotation centrifugal force. Under drilling rotation, roller latches self-lock into the locking coupling integrated latch seat to drive the head assembly, eliminating adapter couplings and locking coupling tangs.

Latch Indication

A redesigned fluid control valve provides a positive latch indication signal, and also provides patented 'Dry Hole Valve' functionality for lost circulation conditions in deep holes, when used with optional 'Fluid Retention' valve springs and bushings.

Quick Descent Technology

The patented design includes a tapered profile with axial grooving, a hollow spindle, and a latch body integrated check valve, optimized for fluid flow directly from the inner tube through the head assembly, offering dramatically reduced fluid drag for increased tripping speed and productivity. Up to 50% faster tripping when combined with enlarged V-Wall rod midbodies.

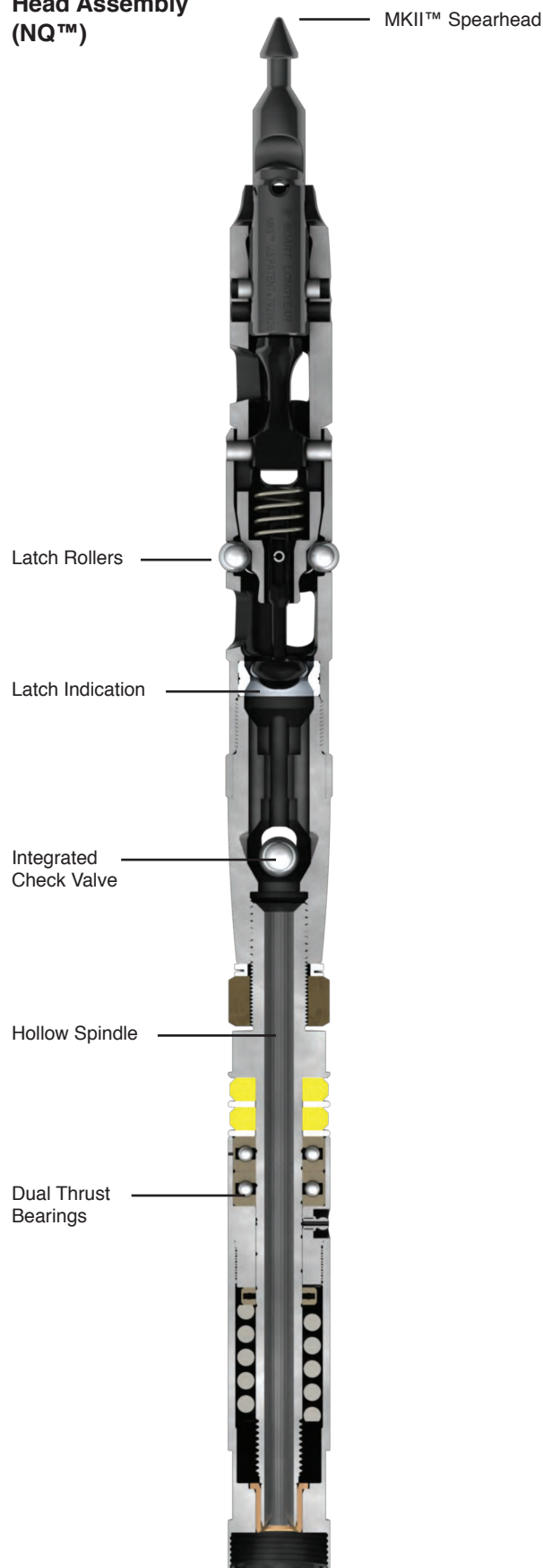
Double Thrust Bearings

A new spindle bushing provides direct lubrication and full enclosure of double thrust bearings, for increased load capacity and maximum bearing life at high rpm, ensuring reliable performance when pushing through difficult drilling conditions.

Safer Operations

The MKII™ Spearhead assembly provides increased safety, featuring 170% strength, a self-lubricating nylon plunger to reduce wear, a self-centering spearpoint with multiple detent positions, and an innovative design to eliminate pinch points. A new heavy duty spring provides a 30% increase in detent positioning strength and is treated for consistent, extended performance.

Quick Descent™ Roller Latch™ Head Assembly (NQ™)





QUICK PUMP-IN™ ROLLER LATCH™ HEAD ASSEMBLY

The revolutionary new patented Roller Latch™ Head Assembly features rolling latches as a replacement for the traditional link latch mechanism. It offers greater pump-in speed, improved safety and increased productivity.

Safer Operations

The Roller Latch head assembly offers the first hold-back braking system employed in any core retrieval system. The unique design utilizes large rollers that are continually engaged, halting any expulsion of the assembly. Only when the wireline is taut during retrieval operations will the Roller Latch's rollers retract, allowing for a controlled descent. During the event of a blow-back or free-fall situation, the rollers automatically engage and immediately stop the head assembly, thus protecting your drillers from a hazardous falling inner-tube. This head assembly also incorporates Boart Longyear's new MKII™ Spearhead for added strength and safety during retrieval.

Quicker Pump-in

The Roller Latch underground head assembly is optimized for fluid flow and utilizes corrosion and wear resistant components to ensure smooth and reliable functionality. The new Roller Latch locking coupling connects the drill string directly to the outer-tube and the latch rollers lock the head assembly with the rotating rod string. These features eliminate the need for any adapter couplings, drive key, or tang.

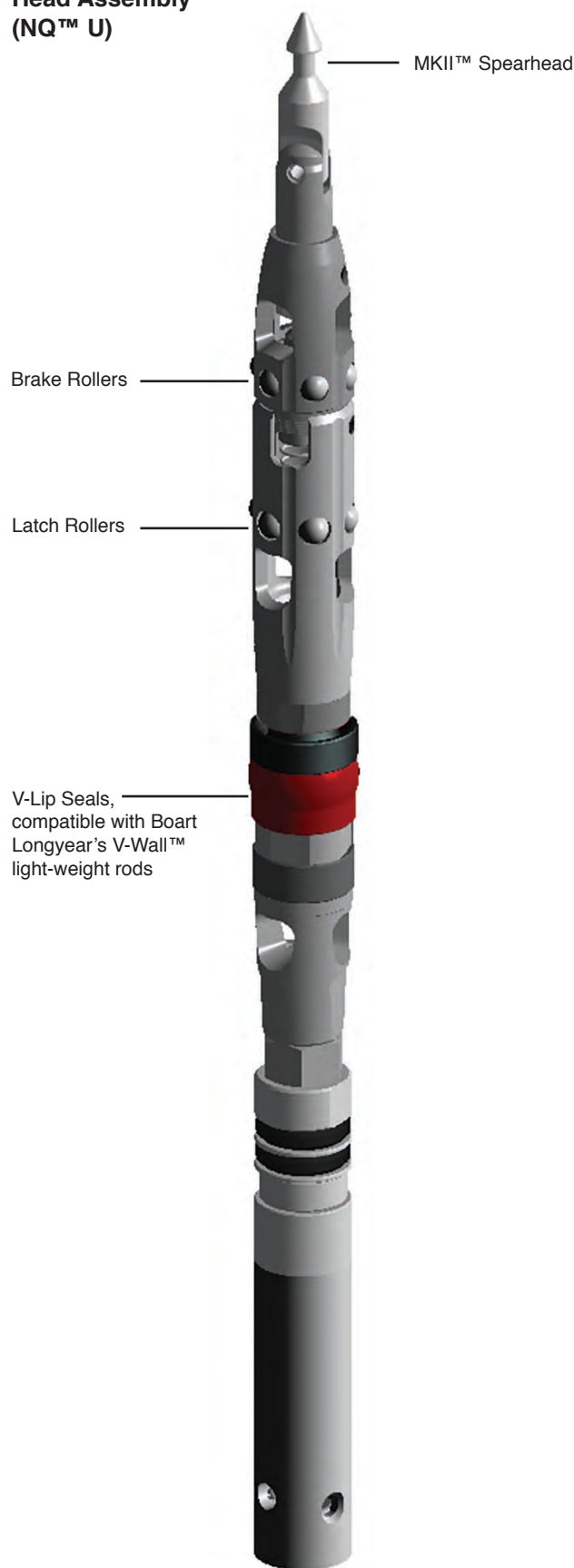
Drill Deeper with V-Wall™ Capability

The new Roller Latch Underground head assembly is equipped with variable lip pump-in seals which are compatible with Boart Longyear's advanced V-Wall™ coring rods. For the first time, underground drillers are able to take advantage of significantly lighter V-Wall rods, leading to deeper drilling capacity and reduced driller fatigue during rod handling.

Increased Productivity

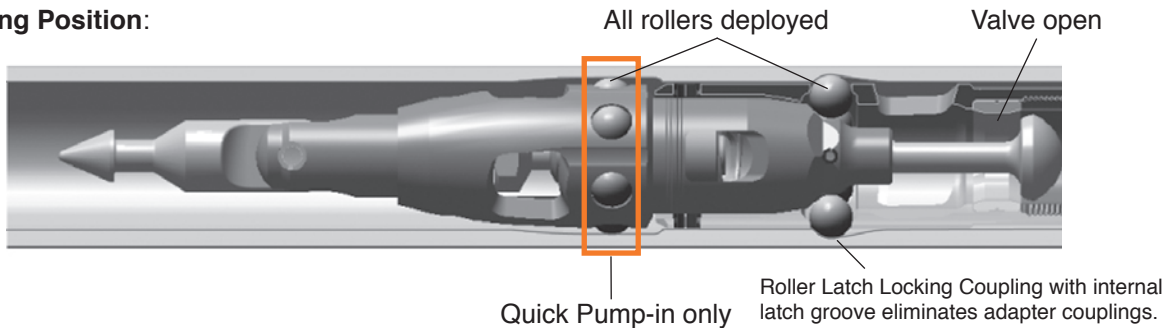
The wear-life of the latch rollers is superior to conventional latches because the rolling action eliminates drag. The Roller Latch deploys and retracts radially, without swinging out like conventional pivoting latch mechanisms. Excessive wear due to a loose-fit or slippage is eliminated as the rollers simply drop back into position upon wireline retraction.

Quick Pump-In™ Roller Latch™ Head Assembly (NQ™ U)

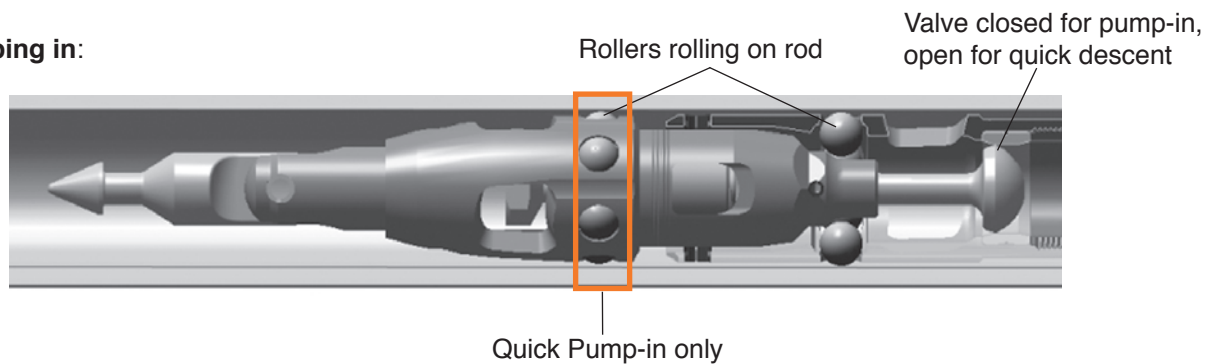


ROLLER LATCH™ LATCH POSITIONS

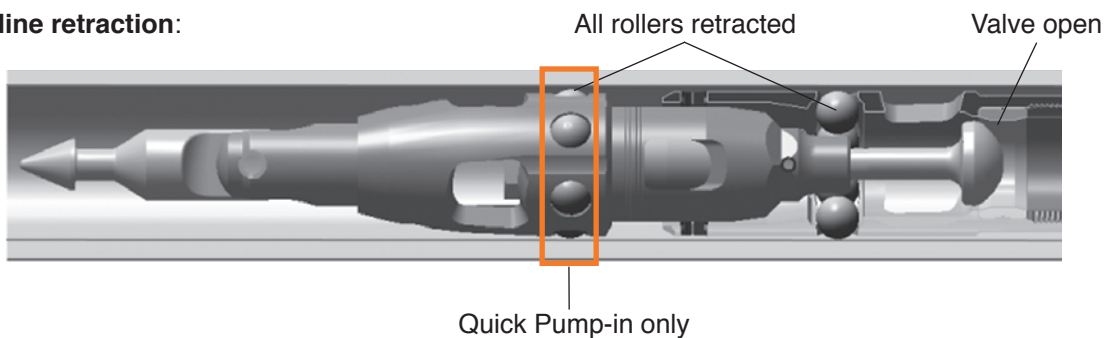
Drilling Position:



Tripping in:



Wireline retraction:



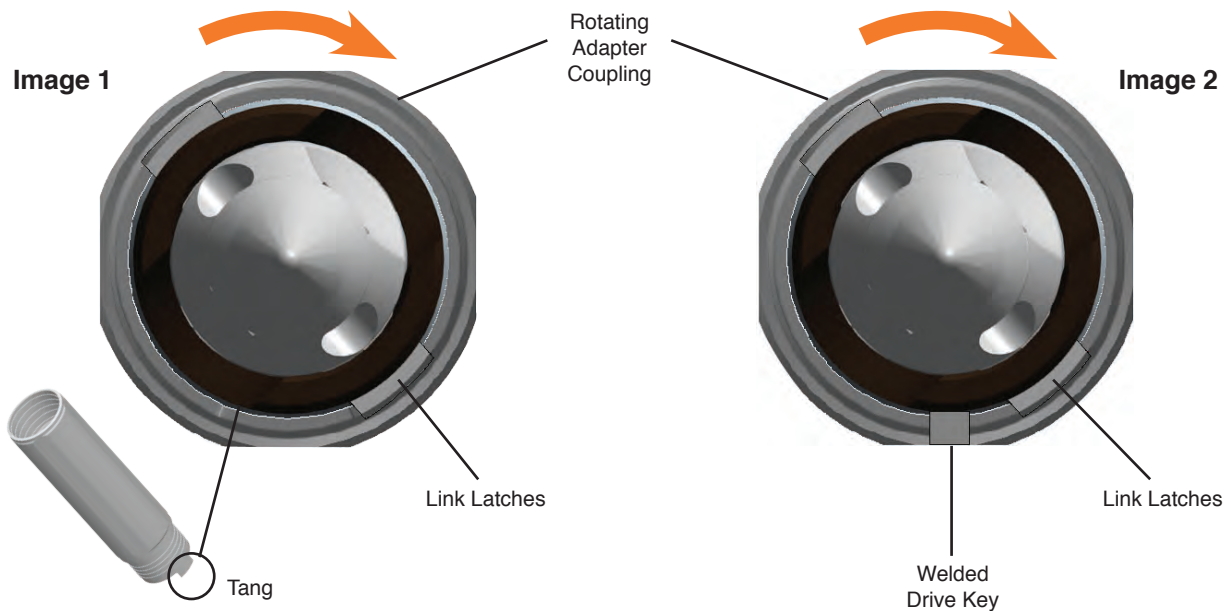
Roller Latch™ technology employs rollers that directly retract or deploy without requiring axial clearance or movement of the head. This eliminates jamming as experienced in traditional link latch mechanisms when the core barrel is over-filled. In traditional pivoting latch systems, axial clearance and axial movement is required of the head during wireline retraction. This is no longer required with the Roller Latch system.

WARNING: Inclined, up-hole drilling always presents a risk that wireline tools or other in-hole components may fall back towards the operator at high speed, under gravity or in-hole fluid or gas pressure. Operators must always be sure to stand clear of rod string openings to prevent serious injury or death. The hold-back brake feature is designed to improve the safety of up-hole drilling operations. However, it is not designed nor intended to be used as a fail-safe device. Failure of the hold-back brake can potentially occur due to factors such as improper maintenance or wireline overload.

LINK LATCH™ LOCKING MECHANISM

Before Roller Latch™ technology, mechanical elements commonly known as ‘tang’ (image 1) or ‘drive keys’ (Image 2) were employed to drive the head assembly with the rod string.

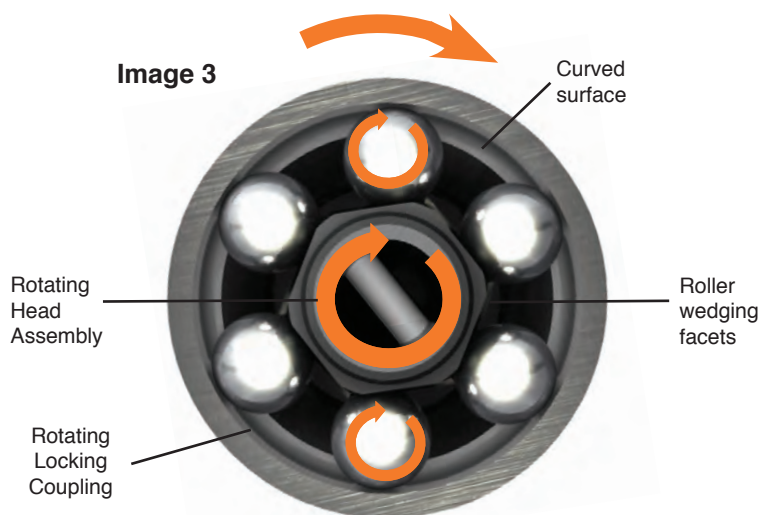
These elements eliminated the movement and wear between the latches and the locking coupling; and between the landing shoulder and outer tube landing ring.



ROLLER LATCH™ LOCKING MECHANISM

Roller Latch technology (image 3) includes a self-locking feature wherein the latches are driven rotationally by the rod string. This ensures the head assembly rotates with the rod string minimizing wear of rollers, landing shoulders, and outer-tube landing rings.

Given rotational movement in either direction, each latch roller is pinched as it wedges in between the faceted retracting case and curved inner surface of the locking coupling. The wedged rollers drive the head assembly in rotation with the drill string, eliminating locking coupling drive keys and tangs.



QUICK PUMP-IN™ ROLLER LATCH™ HOLD-BACK BRAKE

As a safety feature, the Roller Latch™ hold-back brake is always engaged by default. As the head moves outward by gravity, or in-hole pressure, the spring driven retracting case deploys the braking rollers which become wedged as they roll with the passing rod wall. This braking action prevents outward movement of the inner-tube.

When unlatching from the drilling position in inclined up-holes (image 1), apply fluid pressure to allow wireline retraction (image 2) of the hold-back brake. Similarly, when retracting in inclined holes where the inner-tube falls faster than wireline retraction, apply fluid pressure to maintain wireline tension and prevent brake application. Upon successful retrieval, grip the overshoot and apply a quick manual push-and-pull action to simultaneously remove weight, retract the brake, and unload the inner tube.

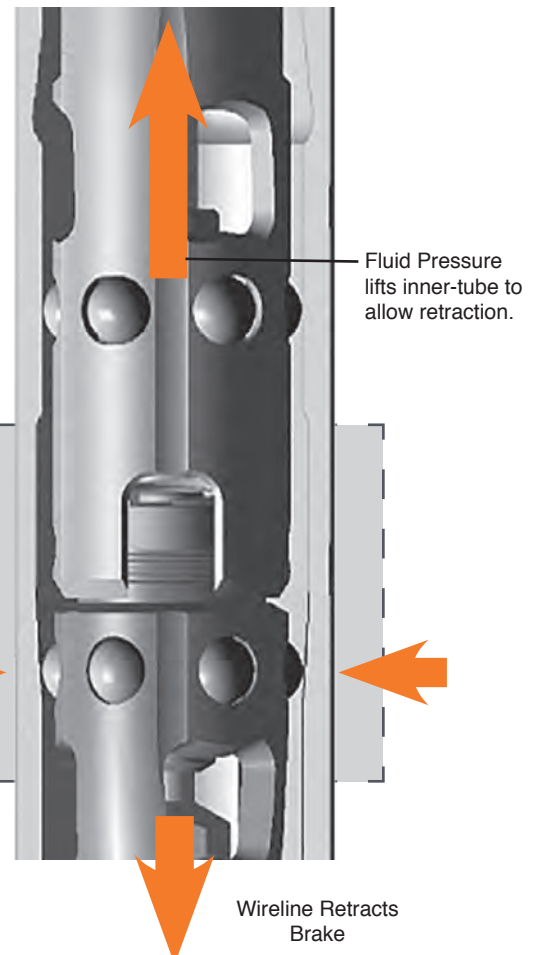
Warning: Excessive wireline retraction force without simultaneous fluid pressure may cause hold-back brake engagement resulting in overload or fatigue failure.

If water pressure is not available to unload the brake in inclined holes (e.g. when starting a hole without wireline, or if the head assembly is beyond reach), then retract the rod string until a joint can be broken above the brake. The rod or coupling housing the head assembly can then be used as a handle to manage the inner tube. The brake will remain engaged until the inner tube is held at a declined angle and weight unloads the brake, allowing manual retrieval by pulling on the spearhead.

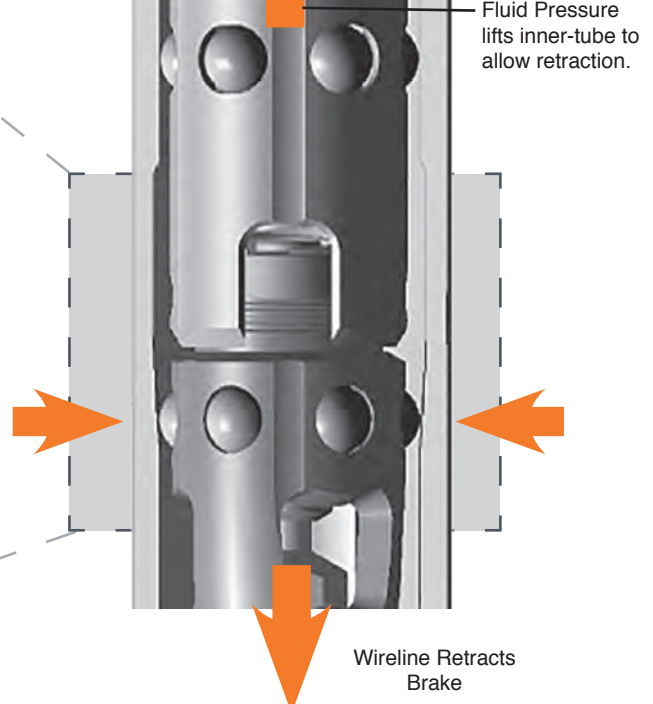
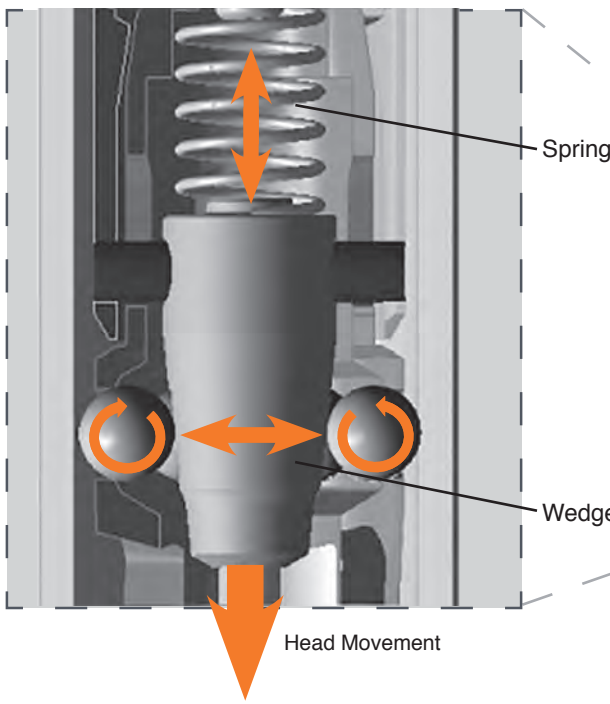
Image 1- Drilling Position



Image 2- Wireline Retraction



Braking Action

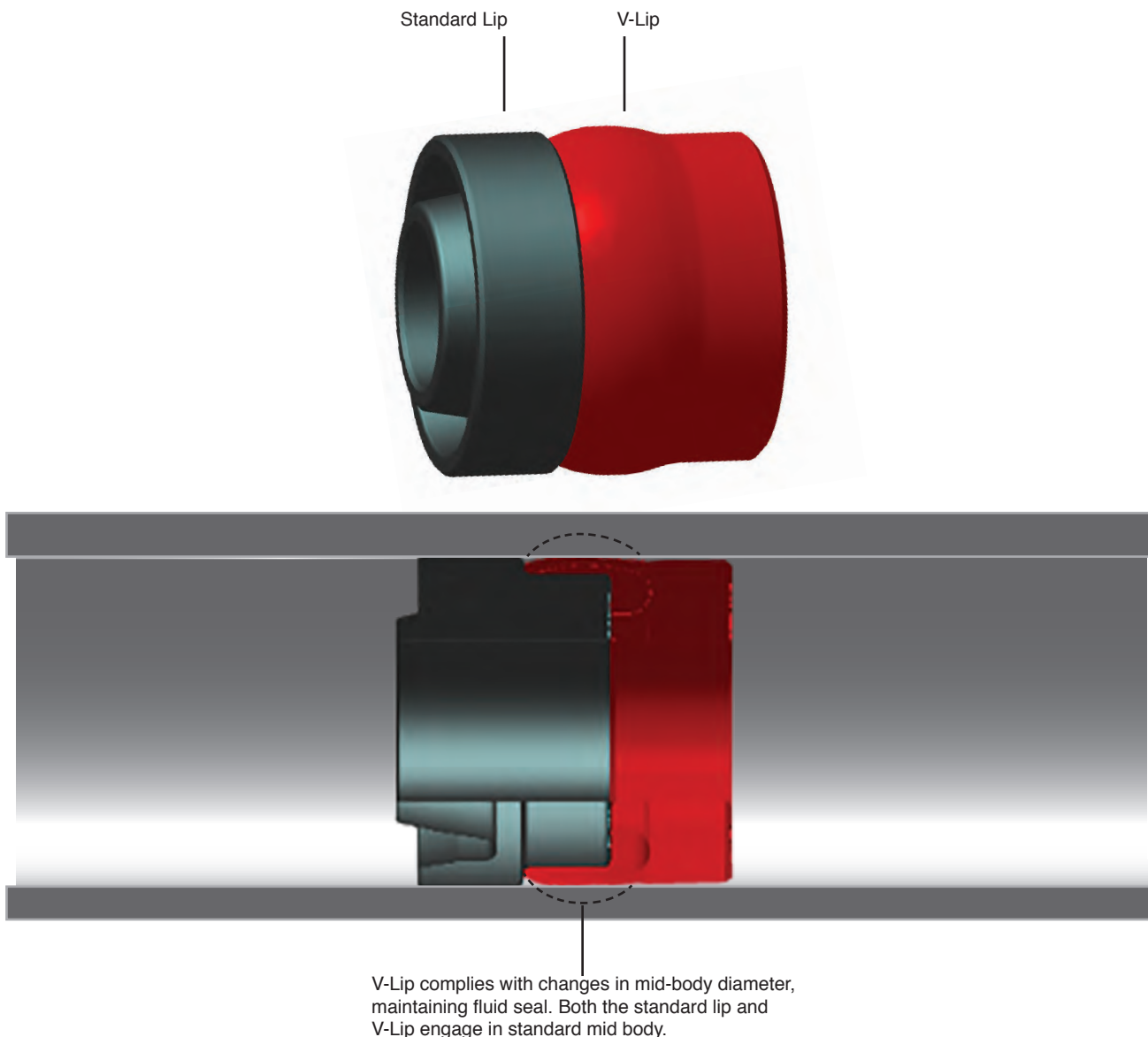


QUICK PUMP-IN™ ROLLER LATCH™ V-LIP PUMP-IN SEAL ASSEMBLY

The NQ™ and HQ™ sized Roller Latch™ assemblies are equipped with new variable lip pump-in seals compatible with Boart Longyear's advanced V-Wall™ coring rods. The new V-Lip Pump-in Seal Assembly is designed to provide a fast and reliable pump-in fluid seal whether tripping through V-Wall or standard wall rods. This assembly is interchangeable with two standard pump-in lip seals.

The advanced design of the V-Lip seal elastically complies to the interior of the drill rod. Energized or driven by the standard lip, the V-Lip maintains a reliable fluid seal and can quickly change its size and shape to accommodate the changes in V-Wall drill rod midbody diameters.

Warning: Link Latch™ head assemblies will not pass through V-Wall drill rods. Only Roller Latch Quick Pump-In heads with V-Lip seals are compatible with V-Wall drill rods.



QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY

The Quick Descent™ Roller Latch™ Head Assembly draws on four distinct design enhancements:

Detented Roller Latch™ (All Sizes)

Boart Longyear's patented detented Link Latch™ design enables smooth inner-tube travel and eliminates drag against the rod string inner-wall during descent. When retracted, the latches are completely hidden inside the latch case – allowing the core barrel to travel freely through the rod string.

Latch Indication (All Sizes)

The redesigned fluid control valve provides a positive latch indication signal. This design improvement goes far beyond existing systems that only give landing feedback – drill operators will now see a drilling fluid pressure spike when a positive latch has occurred.

Hollow Spindle (Now in all sizes B-P)

Our unique hollow spindle allows fluid to pass easily through the core barrel – significantly increasing drop speed. The HQ™ hollow spindle passes 2.0 L / s (31 gpm) at 100 kPa (15 psi) compared to the standard core barrel 1.2 L / s (19 gpm) which relies on the inner-tube's outer annulus for all fluid transmission.

Dual Spearhead Positions

The spearhead is pinned to a default upper position to allow operations with overshot release sleeves for low water tables or dry hole lowering. An optional lower position pin location is used to transfer spearhead weight to the latch body extension for quick descent tripping.

Release Position



Quick Descent Position



Tripping Mode



Drilling Mode



RETRACTING CASE

Position maintained by latch rollers

LATCHES

Retracted in quick-descent mode, deployed in drilling mode

VALVE

Open for tripping and drilling, provides latch indication signal

HOLLOW SPINDLE

Provides fluid bypass porting from inner tube increasing descent speed

CHECK VALVE

Accepts fluid from inner tube when tripping, seals off when drilling

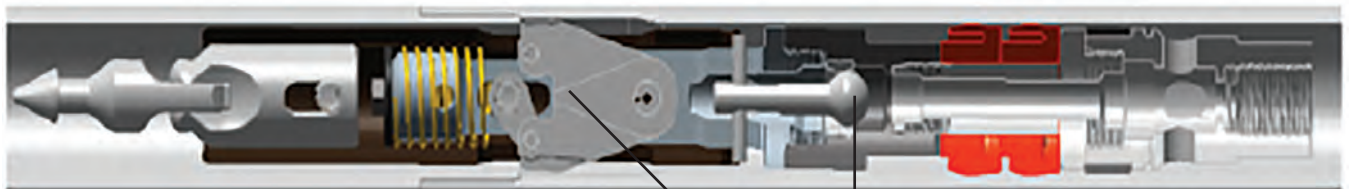
QUICK PUMP-IN™ ROLLER LATCH™ HEAD ASSEMBLY

The Quick Pump-In™ head features all the benefits of the Q™ system plus a range of innovations focused on productivity underground:

- Positive latch indication and latched position locking with valve and bushing interaction.
- Improved pump-in velocity with dual pump-in lip seals and pump-in valve (O-rings eliminated).
- Latching mechanism isolated from adverse in-ground fluid or gas pressure with pump-in seals relocated below the latch retracting case.
WARNING: To avoid sudden inner-tube expulsion from the hole, do not use obsolete style head assemblies with pump-in seals attached to the latch retracting case.
- Easy loading of inner-tube with inter-connected retracting case and latch mechanism eliminating loading sleeves.

- Easier unloading of inner-tube in confined spaces with MKII™ knuckle-head spearpoint.
- Larger fluid porting, pistons and indicator bushings in NQ™, NQ™TK (NQ2) and HQ™ sizes (Roller Latch only).
- MKII Spearheads Standard; Roller Latch heads (NQ & HQ) utilize smaller spearhead bodies to reduce weight and fluid drag.
- Holdback Break Wear Life Indicator Grooves (Roller Latch only).
- Only Roller Latch head assemblies are compatible with V-Wall™ drill rod strings.

Link Latch Drilling Mode



Roller Latch Drilling Mode



HOLD-BACK BRAKE

Retains inner-tube in inclined holes

LOCKING COUPLING

Features integral latch groove to eliminate adapter couplings (Roller Latch only)

LATCHES

Roller Latch technology eliminates drive keys and tangs

VALVE

Increased fluid porting, valve piston and indicator bushing size

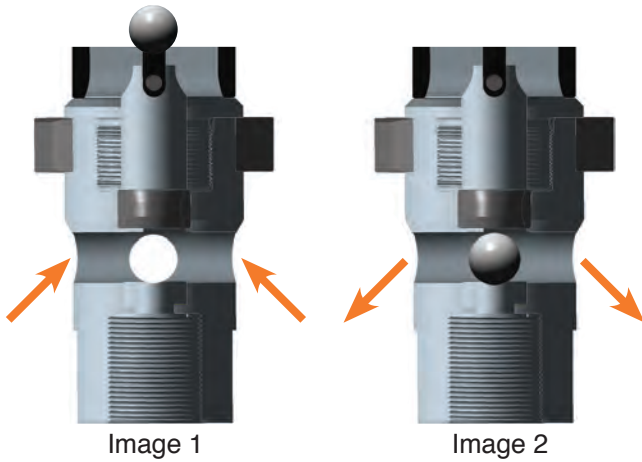
V-WALL™

New V-Wall rod capable variable-lip pump-in seal assembly (Roller Latch only)

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INDICATION AND FLUID CONTROL

The Landing Indicator Valve Ball and Nylon Bushing

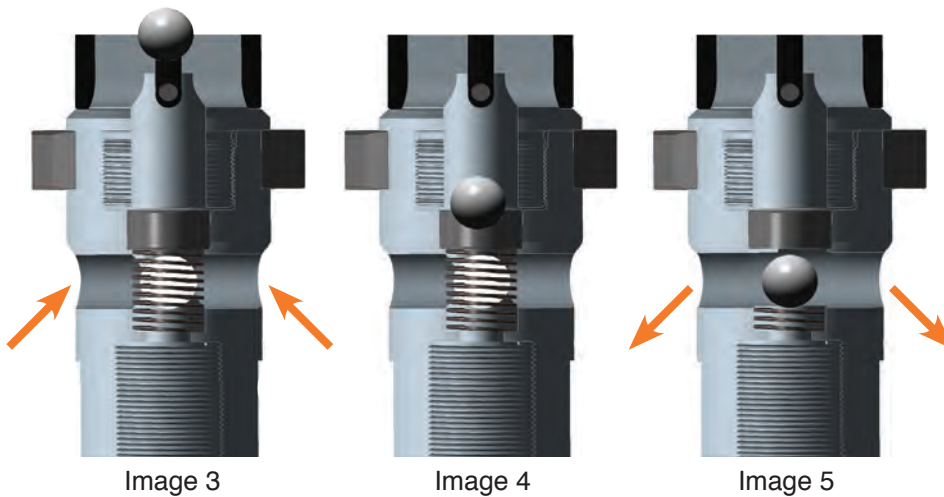


During descent (image 1):
The ball floats above the nylon bushing which has an interference fit.

Upon landing (image 2):
The ball creates a pressure spike indication as it is forced through the indicator bushing. Manual resetting is required for each trip.



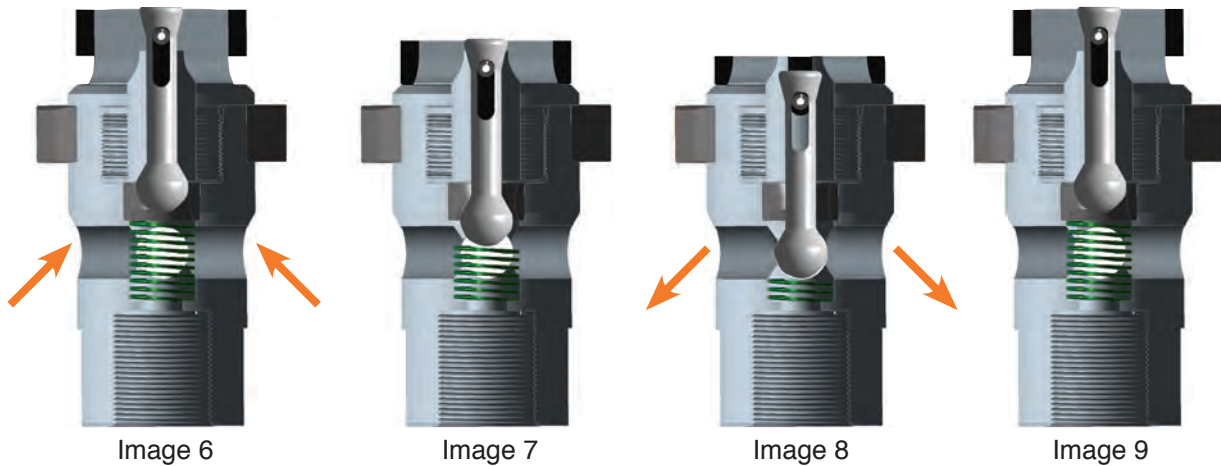
Fluid Retention Valve Ball, Spring and Steel Bushing



During descent (Image 3):
The ball floats above, or seats in the steel bushing, which has a very slight clearance.

Upon landing (Images 4-5):
Fluid pressure increases as the ball compresses the spring to pass thru the bushing. This does not require manual resetting. The maintained pressure and column of fluid above the head, depends on the grade of spring (light, medium or heavy). The entire weight of the column of fluid must be lifted in order to retrieve the inner-tube.

Dry Hole Fluid Retention Valve Piston, Spring and Steel Bushing*



During descent (image 1):
The valve floats above, or sits in the steel bushing, which has a very slight clearance.

Upon latch deployment (images 7-8):
The valve can only proceed through the bushing after the latches have deployed, allowing the retracting case to drop. Fluid pressure then increases as the valve compresses the spring to pass through the bushing, providing latch indication. Does not require manual resetting. Maintained pressure depends on the grade of spring (light, medium or heavy).

Upon latch retraction (image 9):
The valve is pulled back through the bushing, draining the column of fluid above and allowing the inner-tube to be easily retrieved without lifting the column of fluid.

INDICATOR BUSHINGS AND SPRINGS

22 mm	35 mm	Description	Nominal Pressure
Nylon Indicator Bushings			
Quick Pump-In™			
3543904	N/A	Light	1 MPa (150 psi)
5008628	N/A	Light Up-Hole	1 MPa (150 psi)
62380	5005385	Standard Hole	2 MPa (300 psi)
5008018	5007966	Up-Hole	2 MPa (300 psi)
3542834	5007953	Deep Hole	4 MPa (600 psi)
5008218	5008166	Deep Up-Hole	4 MPa (600 psi)
Standard & Quick Descent™			
3543904	N/A	Light	1 MPa (150 psi)
62380	5008297	Standard Hole	2 MPa (300 psi)
3542834	5008307	Deep Hole	4 MPa (600 psi)
Fluid Retention Steel Bushings			
306131	5007867	Standard	(See Valve Springs)
3543378	5007868	Heavy Mud	(See Valve Springs)
Fluid Retention Valve Springs			
104966		Light (Green)	1 MPa (150 psi)
104971		Medium (Blue)	2 MPa (300 psi)
104972		Heavy (Red)	5 MPa (800 psi)
103116		X-Heavy (Yellow)	7 MPa (1000 psi)



*Valves are standard in all Roller Latch™ and PQ™ Link-Latch™ Head Assemblies. Available in HQ™ Link-Latch™ Head Assemblies by ordering 5001333 KIT, DRY HOLE VALVE

MKII™ SPEARHEAD ASSEMBLY

Spearhead Redesign

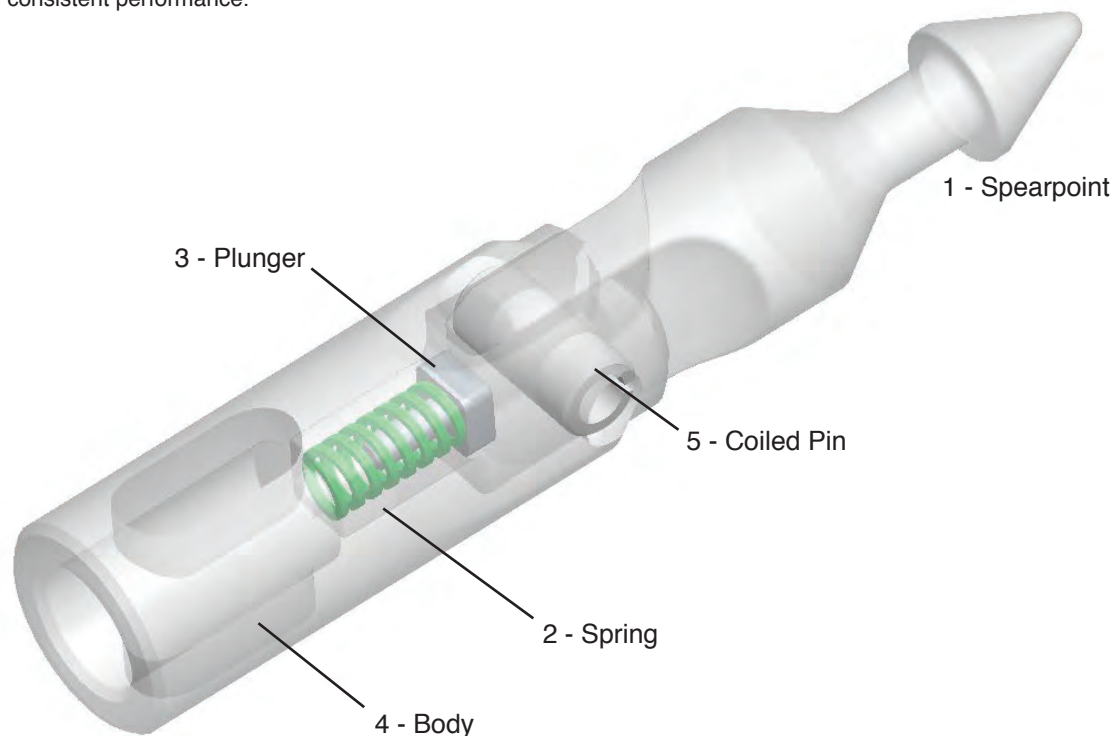
Boart Longyear's spearhead assembly has been redesigned for safer and more efficient inner-tube assembly handling, resulting in increased productivity and precise compatibility with all Q™ wireline head assemblies. Building on the proven technology of the pivoting spearhead design, the patented MKII™ Spearhead is 70% stronger and provides the safest inner-tube handling for drillers.

Strong Platform

The new MKII Spearhead Assembly consists of a redesigned spearpoint and spearhead body for added strength and safety. It also features self-lubricating nylon to reduce wear, self-centering spearpoint with multiple detent positions, and an innovative design to eliminate pinch points.

	Description	AQTK L/L & R/L	BQ/BQTK L/L & R/L NQ/NQTK R/L	NQ/NQTK L/L HQ/PQ R/L	HQ/PQ L/L
	Machined MKII Spearhead Assembly	5008322	5008323	5008324	5008325
1	Spearpoint	5008164	5008165	5008165	5008165
2	Spring, MKII Heavy Duty*	5007947	5007947	5007947	5007947
3	Plunger	3547002	3547002	3547002	3547002
4	Spearhead Body	5008167	5008168	5008169	5008170
5	Coiled Pin	5003199	5003192	5003192	5003192

*This new, heavy duty spring provides a 30% increase in detent positioning strength and is treated for consistent performance.





SELF-LUBRICATED NYLON PLUNGER

Significantly reduces wear and corrosion, improving ease of maintenance.

INNOVATIVE DESIGN

Unique design maintains Q™ wireline compatibility while eliminating pivot pinch point.

BALANCED MATERIAL DESIGN

Optimized design is 70% stronger in pull, and 50% stronger in bending, preventing deformation from overload or “off-pivot loading.”

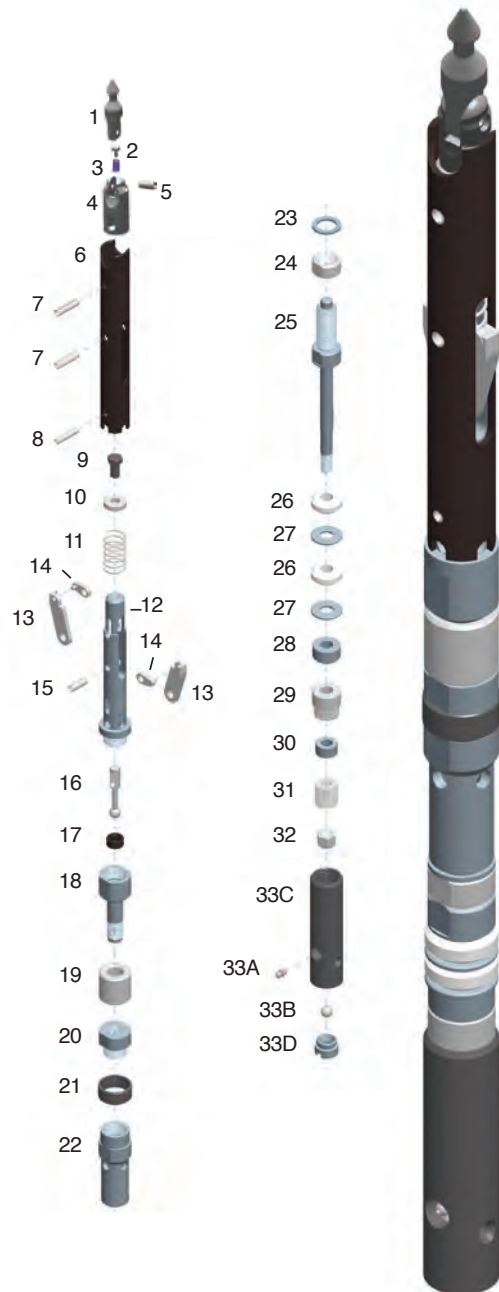
SELF-CENTERING SPEARPOINT

Multiple ‘self-centering’ pivot detent positions. Now with 30% stronger detent spring.

AQ™ TK LINK LATCH™ HEAD ASSEMBLY 3545920MKII

ID#	PART #	DESCRIPTION	QTY
	3545920MKII	Head Assembly, AQTK	
1-5	5008322	MKII Spearhead Assembly, AQTK	1
6	3543883	Latch Retracting Case, AQTK	1
7	24224	Coiled Pin, 5/16" x 1-1/4"	2
8	23942	Coiled Pin, 1/4" x 1-1/4"	1
9	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	1
10	104870	Washer, AQTK	1
11	3543077	Compression Spring, AQTK	1
12	3543884	Upper Latch Body, AQTK	1
13	104873	Latch, AQTK / AQTKU	2
14	104874	Link, AQTK / AQTKU	2
15	3540466	Coiled Pin, 5/16" x 7/8"	1
16	3543885	Valve Piston, AQTK	1
17	3543921	Latch Indicator Bushing, AQTK	1
18	3543886	Seal Seat, AQTKU	1
19	3545919	Spacer, Seal Seat AQTK	1
20	3543887	Latch Body Adapter, AQTK	1
21	3543888	Landing Shoulder, AQTK	1
22	3543889	Lower Latch Body, AQTK	1
23	3548183	Washer, Nord-Lock 7/8"	1
24	24721	Locking Nut, AQ / AQTK	1
25	101684	Spindle AQTK	1
26	100387	Shut-off Valve, AQTK, Hard	2
27	61597	Valve Adjusting Washer, AQTK	2
28	24220	Thrust Bearing	1
29	101683	Spindle Bushing, AQTK	1
30	25986	Thrust Bearing	1
31	24222	Compression Spring, AQTK	1
32	5008636	Lock Nut, 1/2" UNC	1
	52999	Inner-tube Cap Assembly (33A, B, C, D)	
33A	17447	Hydraulic Grease Fitting	1
33B	25853	Ball, 1/2"	1
33C	52582	Inner-tube Cap, AQTK	1
33D	40647	Check Valve Body, AQTK	1

AQTK HEAD OPTIONS			
26	52592	Shut-off Valve, AQTK, Soft	2

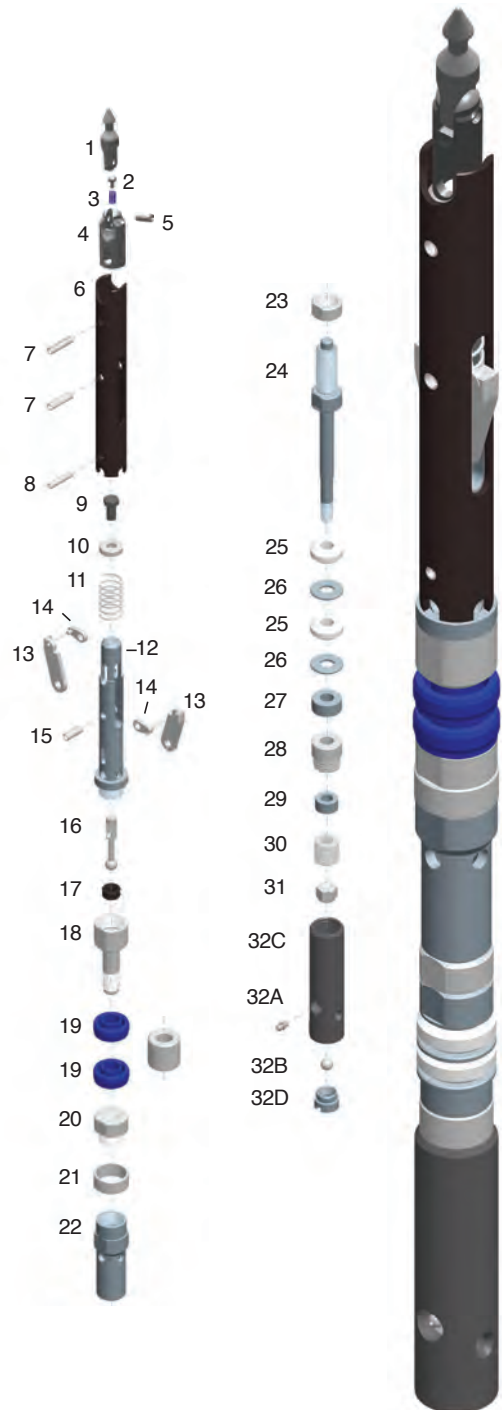


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

AQ™ TKU QUICK PUMP-IN™ LINK LATCH™ HEAD ASSEMBLY 3544011MKII

ID#	PART #	DESCRIPTION	QTY
	3544011MKII	Head Assembly, AQTKU	
1-5	5008322	MKII Spearhead Assembly, AQTK	1
6	3543883	Latch Retracting Case, AQTK	1
7	24224	Coiled Pin, 5/16" x 1-1/4"	2
8	23942	Coiled Pin, 1/4" x 1-1/4"	1
9	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	1
10	104870	Washer, AQTK	1
11	3543077	Compression Spring	1
12	3543884	Upper Latch Body, AQTK	1
13	104873	Latch, AQTK / AQTKU	2
14	104874	Link, AQTK / AQTKU	2
15	3540466	Coiled Pin, 5/16" x 7/8"	1
16	3543885	Valve Piston, AQTK	1
17	3543921	Latch Indicator Bushing, AQTK	1
18	3543886	Seal Seat, AQTKU	1
19	100695	Pump-in Lip Seal, AQTK	2
20	3543887	Latch Body Adapter, AQTK	1
21	3543888	Landing Shoulder, AQTK	1
22	3543889	Lower Latch Body, AQTK	1
23	24721	Locking Nut, AQ / AQTK	1
24	101684	Spindle, AQTK	1
25	100387	Shut-off Valve, AQTK, Hard	2
26	61597	Valve Adjusting Washer, AQTK	2
27	24220	Thrust Bearing	1
28	101683	Spindle Bushing, AQTK	1
29	25986	Thrust Bearing	1
30	24222	Compression Spring, AQTK	1
31	5008636	Lock Nut, 1/2" UNC	1
	52999	Inner-tube Cap Assembly (32 A, B, C, D)	
32A	17447	Hydraulic Grease Fitting	1
32B	25853	Stainless Steel Ball, 1/2"	1
32C	52582	Inner-tube Cap, AQTK	1
32D	40647	Check Valve Body, AQTK	1

AQTK HEAD OPTIONS			
25	52592	Shut-off Valve, AQTK, Soft	2
19	3545919	Spacer, Seal Seat AQTK	1



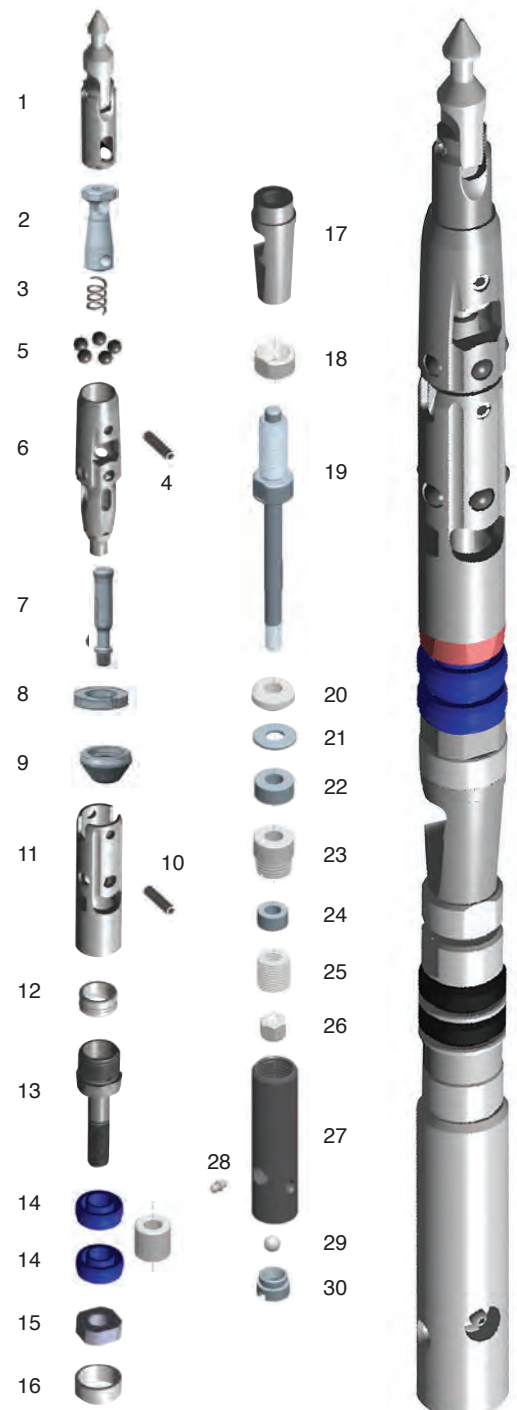
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

AQ™ TKU QUICK PUMP-IN™ ROLLER LATCH™ HEAD ASSEMBLY 5006464

ID #	PART #	DESCRIPTION	QTY
	5006464	Quick Pump-In Roller Latch Head Assembly, AQTKU	
1	5008322	MKII Spearhead Assembly, AQTK	1
2	5008349	Brake, AQTKU Wedge	1
3	5005393	Spring, AQTKU Wave	1
4	5005422	Coiled Pin, 5/16" x 1-1/4"	1
5	5008907	Roller, AQTK / AQTKU	10
6	5005022	Case, AQTKU Retracting	1
7	5008318	Body, AQTKU Valve Piston	1
8	5008917	Lock Washer, 5/16"	1
9	5009031	Head, Valve Piston	1
10	5005421	Coiled Pin, 5/16" x 1-3/8"	1
11	5005023	Latch Body, AQTKU Upper	1
12	62380	Indicator Bushing, 22 mm*	1
	5008657	Up-Hole Indicator Bushing	1
13	5005024	Seal, Roller Latch AQTKU Seat	1
14	100695	Seal, AQTKU Pump-in Lip	2
15	5005065	Nut, AQTKU Jam	1
16	3543888	Landing Shoulder	1
17	5005025	Latch Body, AQTKU Lower	1
18	24721	Nut, AQTK / AQ Locking	1
19	101684	Spindle, AQTK	1
20	100387	Shut-off Valve, AQTK Hard	2
21	61597	Washer, AQTK Valve Adjusting	2
22	24220	Thrust Bearing	1
23	101683	Spindle Bushing	1
24	25986	Thrust Bearing	1
25	24222	Compression Spring	1
26	5008636	Lock Nut, 1/2" UNC	1
27	52582	Cap, AQTK Inner-tube	1
28	17447	Hydraulic Grease Fitting	1
29	25853	Stainless steel ball, 1/2"	1
30	40647	Valve, AQTK Check Body	1

AQTK HEAD OPTIONS			
20	52592	Shut-off Valve, AQTK, Soft	2
14	3545919	Spacer, Seal Seat AQTK	1

* Loose option



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

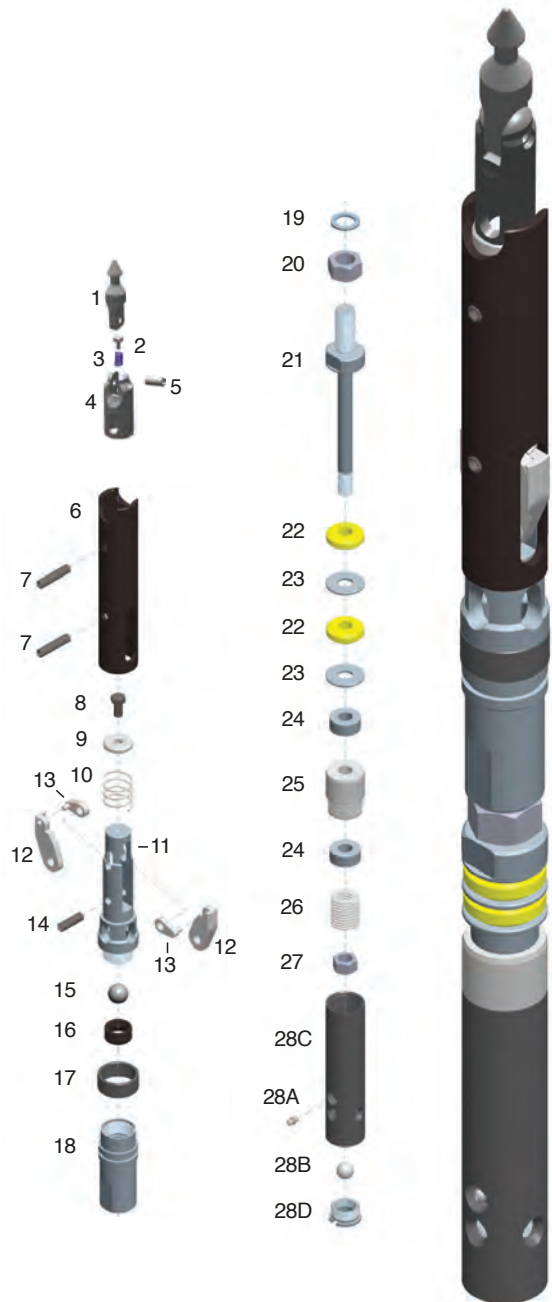


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BQ™ LINK LATCH™ HEAD ASSEMBLY 3542292MKII

ID#	PART #	DESCRIPTION	QTY
	3542292MKII	Head Assembly, BQ	
1-5	5008323	MKII Spearhead Assembly, BQ / BQTK	1
6	3541647	Latch Retracting Case, BQ / BQTK	1
7	23941	Coiled Pin, 3/8" x 1-3/4"	2
8	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	1
9	306427	Washer	1
10	3543180	Compression Spring, BQ / BQTK	1
11	3541621	Upper Latch Body, BQ / BQTK	1
12	306417	Latch, BQ	2
13	306418	Link, BQ	2
14	23944	Coiled Pin, 3/8" x 1-1/4"	1
15	62374	Ball, 22 mm	1
16	62380	Indicator Bushing, 22 mm	1
17	306421	Landing Shoulder, BQ	1
18	306578	Lower Latch Body, BQ	1
19	3548183	Washer, 7/8", Nord-Lock	1
20	44601	Hex Nut, 7/8" UNC	1
21	24331	Spindle, BQ	1
22	44208	Shut-off Valve, BQ, Hard	2
23	24335	Valve Adjusting Washer, BQ	2
24	24030	Thrust / Bearing	2
25	24336	Spindle Bushing, BQ	1
26	24031	Compression Spring, BQ / BQTK	1
27	5008633	Lock Nut, 5/8" UNC	1
	40655	Inner-tube Cap Assembly (28 A, B, C, D)	
28A	17447	Hydraulic Grease Fitting	1
28B	24943	Ball, 3/4"	1
28C	40676	Inner-tube Cap, BQ	1
28D	40656	Check Valve Body, BQ	1

BQ HEAD OPTIONS			
22	24334	Shut-off Valve, BQ, Soft	2

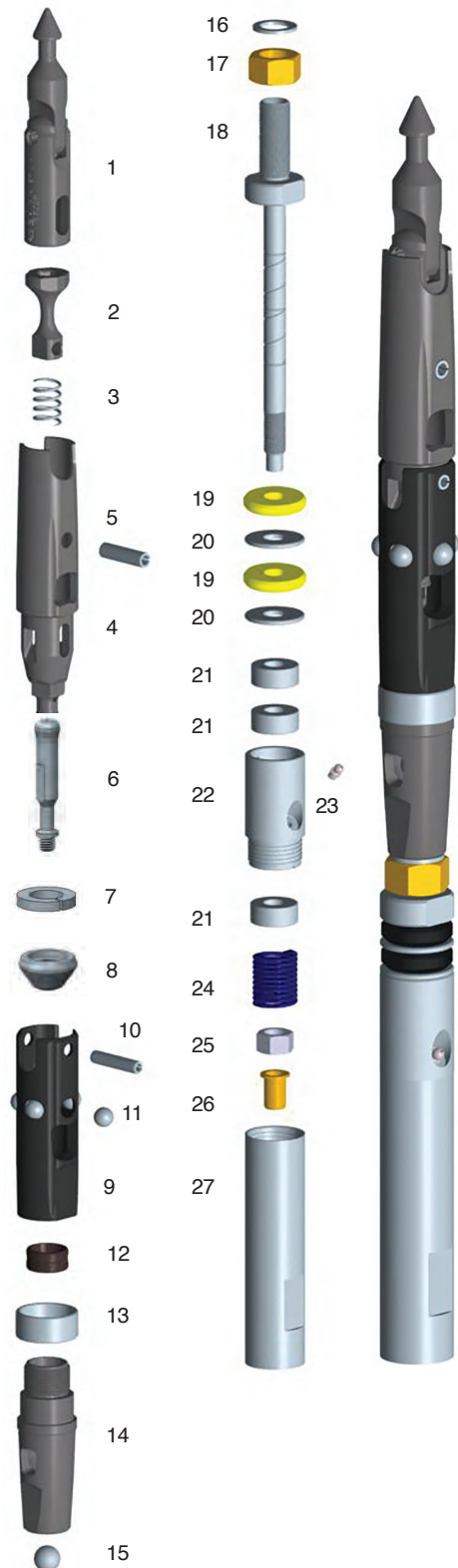


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

BQ™ QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY 5007740

ID#	PART #	DESCRIPTION	QTY
	5007740	Quick Descent Head Assembly, BQ	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5007747	Upper Latch Body Extension, BQ / BQTK	1
3	5004409	Latch Spring, BQ / BQTK	1
4	5007741	Retracting Case, BQ	1
5	5007954	Coiled Pin, 7/16" x 1-5/8"	1
6	5009029	Body, BQ/BQTK Valve Piston	1
7	5008917	Lock Washer, 5/16"	1
8	5009031	Head, Valve Piston	1
9	5009050	Upper Latch Body, BQ	1
10	5005593	Coiled Pin, 3/8" x 1-3/4"	1
11	5006047	Roller, BQ Latch	5
12	62380	Indicator Bushing, 22 mm	1
13	306421	Landing Shoulder, BQ	1
14	5007742	Lower Latch Body, BQ / BQTK	1
15	24943	Ball, 3/4"	1
16	3548183	Washer, 7/8" Nord-Lock	1
17	44601	Hex Nut, 7/8" UNC	1
18	5007922	Spindle, BQ	1
19	44208	Shut-off Valve, BQ, Hard	2
20	24335	Valve Adjusting Washer, BQ	2
21	24030	Thrust Bearing	3
22	5007924	Spindle Bushing, BQ	1
23	17447	Hydraulic Grease Fitting	1
24	24031	Compression Spring, BQ / BQTK	1
25	5008633	Lock Nut, 5/8" UNC	1
26	5007925	Inner-tube Cap, BQ, Bushing	1
27	5007923	Inner-tube Cap, BQ	1

BQ HEAD OPTIONS			
18	24334	Shut-off Valve, BQ, Soft	2

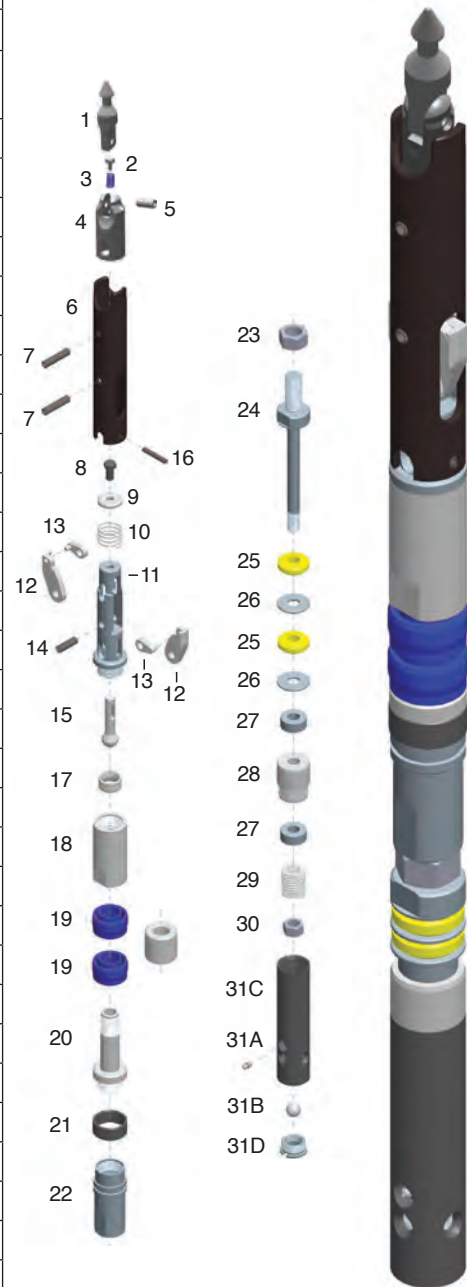


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

BQ™ U QUICK PUMP-IN™ LINK LATCH™ HEAD ASSEMBLY 3544012MKII

ID#	PART #	DESCRIPTION	QTY
	3544012MKII	Head Assembly, BQU	
1-5	5008323	MKII Spearhead Assembly, BQ / BQTK	1
6	3547671	Latch Retracting Case, BQU	1
7	23941	Coiled Pin, 3/8" x 1-3/4", BQ	2
8	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	1
9	306427	Washer, BQU	1
10	3541836	Compression Spring, BQ / BQTK	1
11	3547725	Upper Latch Body BQ / BQTK	1
12	306417	Latch, BQ	2
13	306418	Link, BQ	2
14	23944	Coiled Pin, 3/8" x 1 1/4"	1
15	3547672	Valve Piston, BQ / NQ	1
16	23946	Coiled Pin, 1/4" x 1-5/8"	1
17	3543904	Indicator Bushing, 22 mm	1
18	3543905	Adapter, BQU / BQTKU	1
19	100690	Pump-In Lip Seal, BQ	2
20	3543906	Seal Set, BQU / BQTKU	1
21	306421	Landing Shoulder, BQ	1
22	306578	Lower Latch Body, BQ	1
23	44601	Hex Nut, 7/8" UNC	1
24	24331	Spindle, BQ	1
25	44208	Shut-Off Valve, BQ, Hard	2
26	24335	Valve Adjusting Washer, BQ	2
27	24030	Thrust Bearing	2
28	24336	Spindle Bushing, BQ	1
29	24031	Compression Spring, BQ / BQTK	1
30	5008633	Lock Nut, 5/8" UNC	1
	40655	Inner-tube Cap Assembly (31A, B, C, D)	
31A	17447	Hydraulic Grease Fitting	1
31B	24943	Ball, 3/4"	1
31C	40676	Inner-tube Cap, BQ	1
31D	40656	Check Valve Body, BQ	1

BQ HEAD OPTIONS			
25	53211	Shut-off Valve, BQTK, Soft	2
19	5008774	Spacer, Seal Seat BQU/BQTKU	1



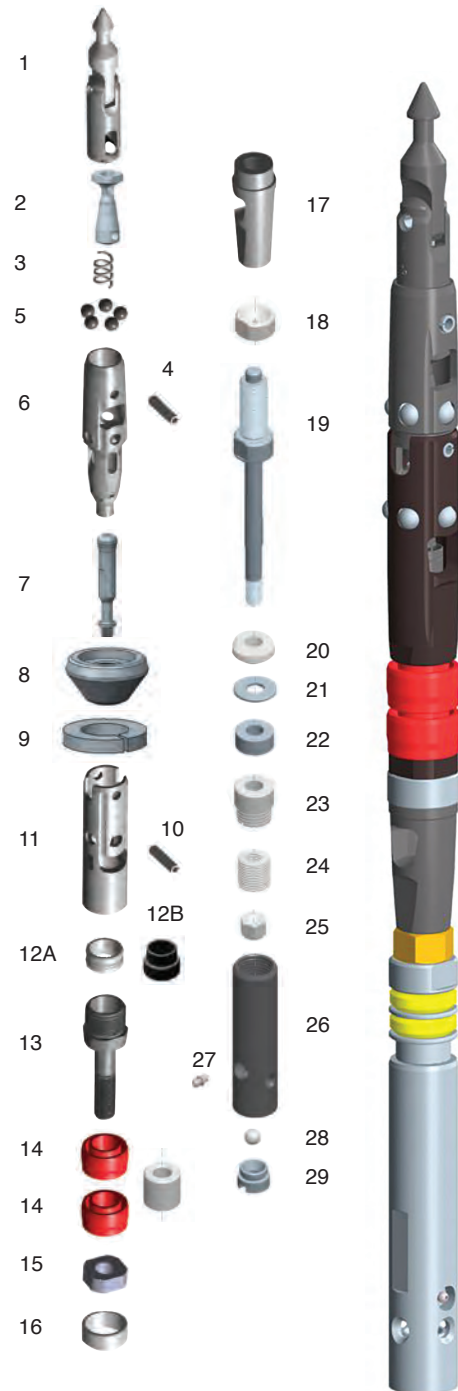
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

BQ™ U QUICK PUMP-IN™ ROLLER LATCH™ HEAD ASSEMBLY 5008840

ID #	PART #	DESCRIPTION	QTY
	5008840	Quick Pump-In Roller Latch Head Assembly, BQU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008401	Brake, BQU Wedge	1
3	5004409	Spring, BQU / BQTKU, Compression	1
4	5004342	Coiled Pin, 7/16" X 1-3/4"	1
5	5006047	Roller, BQ / BQU, Latch	10
6	5004035	Case, BQU, Retracting	1
7	5009029	Body, BQ/BQTK Valve Piston	1
8	5009031	Head, Valve Piston	
9	5008917	Lock Washer, 5/16"	
10	5005593	Coiled Pin, 3/8" x 1-3/4"	1
11	5004036	Latch Body, BQU, Upper	1
12A	62380	Indicator Bushing, 22 mm*	1
12B	5008018	Up-Hole Indicator Bushing	1
13	5004278	Seal, BQU / BQTKU, Seat	1
14	100690	Lip Seal, BQ Pump-in	2
15	5004369	Nut, BQU / BQTKU Jam	1
16	306421	Landing Shoulder, BQ	1
17	5004290	Body, BQU / BQTKU, Lower Latch	1
18	44601	Hex Nut, 7/8" UNC	1
19	24331	Spindle, BQ Core Barrel	1
20	44208	Shut-off Valve, BQ, Hard	2
21	24335	Washer, BQ, Valve Adjusting	2
22	24030	Thrust Bearing	2
23	24336	Spindle Bushing, BQ	1
24	24031	Compression Spring, BQ / BQTK	1
25	5008633	Lock Nut, 5/8" UNC	1
26	40676	Cap, Inner-tube BQ	1
27	24943	Ball, 3/4"	1
28	40656	Valve, BQ Check Body	1
29	17447	Hydraulic Grease Fitting	1

* Loose option

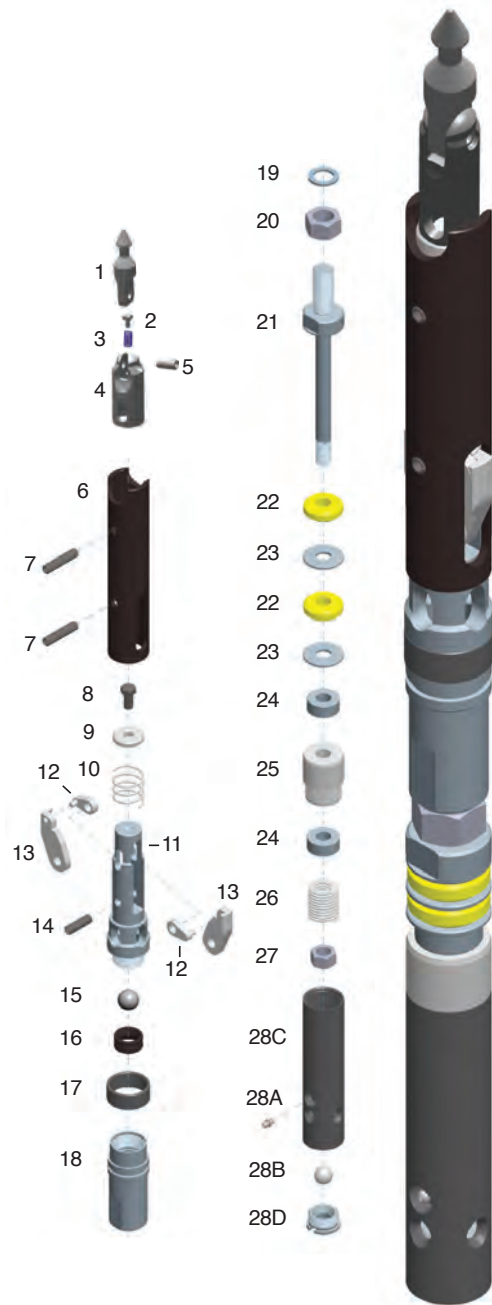
BQ HEAD OPTIONS			
20	53211	Shut-off Valve, BQTK, Soft	2
14	5008774	Spacer, Seal Seat BQU/BQTKU	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

BQ™ TK LINK LATCH™ HEAD ASSEMBLY 306434MKII

ID#	PART #	DESCRIPTION	QTY
	306434MKII	Head Assembly, BQTK	
1-5	5008323	MKII Spearhead Assembly, BQ / BQTK	1
6	3541647	Latch Retracting Case, BQ / BQTK	1
7	23941	Coiled Pin, 3/8" x 1-3/4", BQ	2
8	3541932	Nylok Bolt, 3/8" - 16UNC x 3/4"	1
9	306427	Washer, BQU	1
10	3543180	Compression Spring, BQ / BQTKU	1
11	3541621	Upper Latch Body, BQ / BQTK	2
12	306435	Latch, BQTK / BQTKU	2
13	306418	Link, BQ	1
14	23944	Coiled Pin, 3/8" x 1-1/4"	1
15	62374	Ball, 22 mm	1
16	62380	Indicator Bushing, 22 mm	1
17	306437	Landing Shoulder, BQTK	1
18	306578	Lower Latch Body, BQ	1
19	3548183	Washer, 7/8" Nord-Lock	1
20	44601	Hex Nut, 7/8" UNC	1
21	24331	Spindle, BQ	1
22	64354	Shut-off Valve, BQTK, Hard	2
23	24335	Valve Adjusting Washer, BQ	2
24	24030	Thrust Bearing	2
25	24336	Spindle Bushing, BQ	1
26	24031	Compression Spring, BQ / BQTK	1
27	5008633	Lock Nut, 5/8" UNC	1
	53212	Inner-tube Cap Assembly (28A, B, C, D)	
28A	17447	Hydraulic Grease Fitting	1
28B	24943	Ball, 3/4"	1
28C	53196	Inner-tube Cap, BQTK	1
28D	40656	Check Valve Body, BQ	1



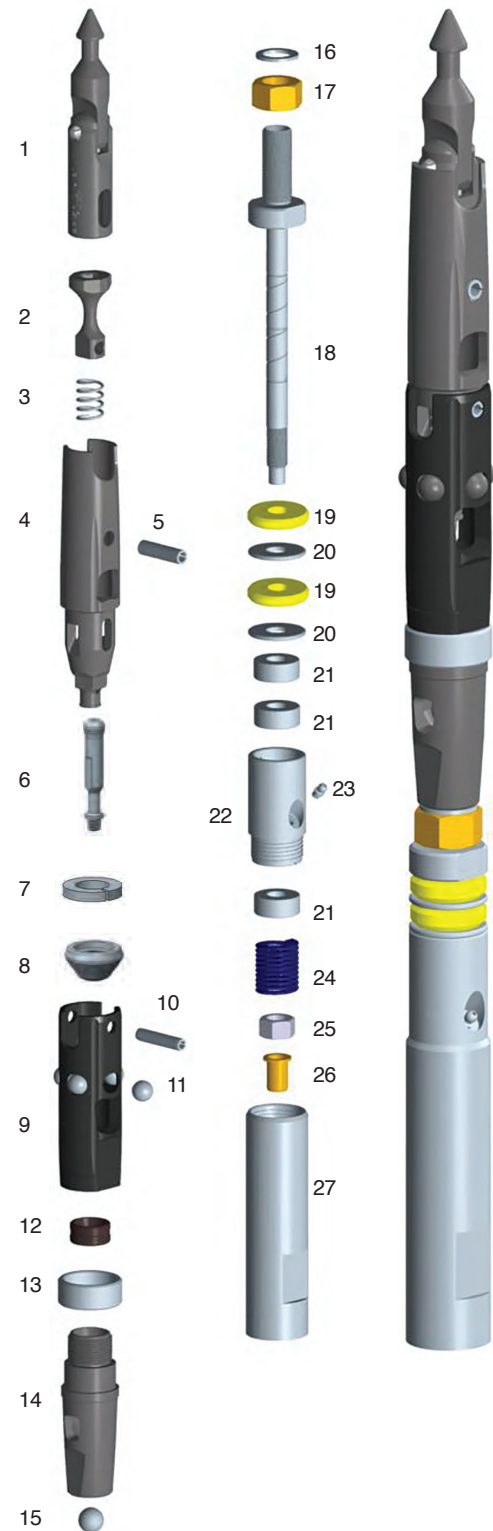
BQ HEAD OPTIONS			
22	53211	Shut-off Valve, BQTK, Soft	2

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

BQ™ TK QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY 5007745

ID#	PART #	DESCRIPTION	QTY
	5007745	Quick Descent Head Assembly, BQTK	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5007747	Latch Body Extension, BQ / BQTK	1
3	5004409	Latch Spring, BQ / BQTK	1
4	5007741	BQ Retracting Case	1
5	5007954	Coiled Pin, 7/16" X 1-5/8"	1
6	5009029	Body, BQ/BQTK Valve Piston	1
7	5008917	L/Washer, 5/16"	
8	5009031	Head, Valve Piston	
9	5009055	Upper Latch, BQTK Body	1
10	5005593	Coiled Pin, 3/8" x 1-3/4"	1
11	5006049	Roller, BQTK Latch	5
12	62380	Indicator Bushing, 22 mm	1
13	306437	Landing Shoulder, BQTK	1
14	5007742	Lower Latch Body, BQ / BQTK	1
15	24943	Ball, 3/4"	1
16	3548183	Nord-Lock Washer, 7/8"	1
17	44601	Hex Nut, 7/8"	1
18	5007922	Hollow Spindle, BQ	1
19	44208	Shut-Off Valve, BQ, Hard	2
20	24335	Valve Adjusting Washer, BQ	2
21	24030	Thrust Bearing	3
22	5007924	Spindle Bushing, BQ	1
23	17447	Hydraulic Grease Fitting	1
24	24031	Compression Spring, BQ / BQTK	1
25	5008633	Lock Nut, 5/8" UNC	1
26	5007925	Inner-tube Cap, BQ, Bushing	1
27	5007933	Inner-tube Cap, BQTK	1

BQTK HEAD OPTIONS			
18	53211	Shut-off Valve, BQTK, Soft	2

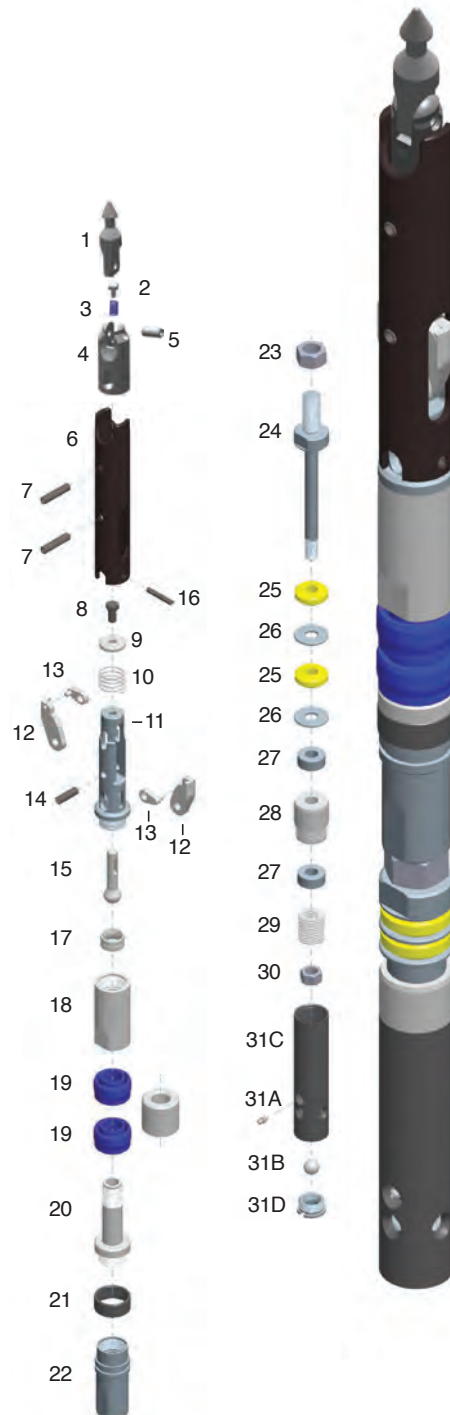


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

BQ™ TKU QUICK PUMP-IN™ LINK LATCH™ HEAD ASSEMBLY 3544014MKII

ID#	PART #	DESCRIPTION	QTY
	3544014MKII	BQTKU Quick Pump-In Head Assembly	
1-5	5008323	MKII Spearhead Assembly, BQ / BQTK	1
6	3547671	Latch Retracting Case, BQU	1
7	23941	Coiled Pin, 3/8" x 1-3/4", BQ	2
8	3541932	Nylok Bolt, 3/8" -16 x 3/4"	1
9	306427	Washer, BQU	1
10	3541836	Compression Spring, BQ / BQTK	1
11	3547725	Upper Latch Body, BQ / BQTK	1
12	306435	Latch, BQTK / BQTKU	2
13	306418	Link, BQ	2
14	23944	Coiled Pin, 3/8" x 1 1/4"	1
15	3547672	Valve Piston, BQ / NQ	1
16	23946	Coiled Pin, 1/4" x 1-5/8"	1
17	3543904	Indicator Bushing, 22 mm	1
18	3543905	Adapter, BQU / BQTKU	1
19	64683	Pump-In Seal	2
20	3543906	Seal Set, BQU / BQTKU	1
21	306437	Landing Shoulder, BQTK	1
22	306578	Lower Latch Body, BQ	1
23	44601	Hex Nut, 7/8" UNC	1
24	24331	Spindle, BQ	1
25	64354	Shut-Off Valve, BQTK, Hard	2
26	24335	Valve Adjusting Washer, BQ	2
27	24030	Thrust Bearing	2
28	24336	Spindle Bushing, BQ	1
29	24031	Compression Spring, BQ / BQTK	1
30	5008633	Lock Nut, 5/8" UNC	1
	53212	Inner-tube Cap Assembly (31A, B, C, D)	
31A	17447	Hydraulic Grease Fitting	1
31B	24943	Ball, 3/4"	1
31C	53196	Inner-tube Cap, BQTK	1
31D	40656	Check Valve Body, BQ	1

BQ HEAD OPTIONS			
25	53211	Shut-off Valve, BQTK, Soft	2
19	5008774	Spacer, Seal Seat BQU/BQTKU	1



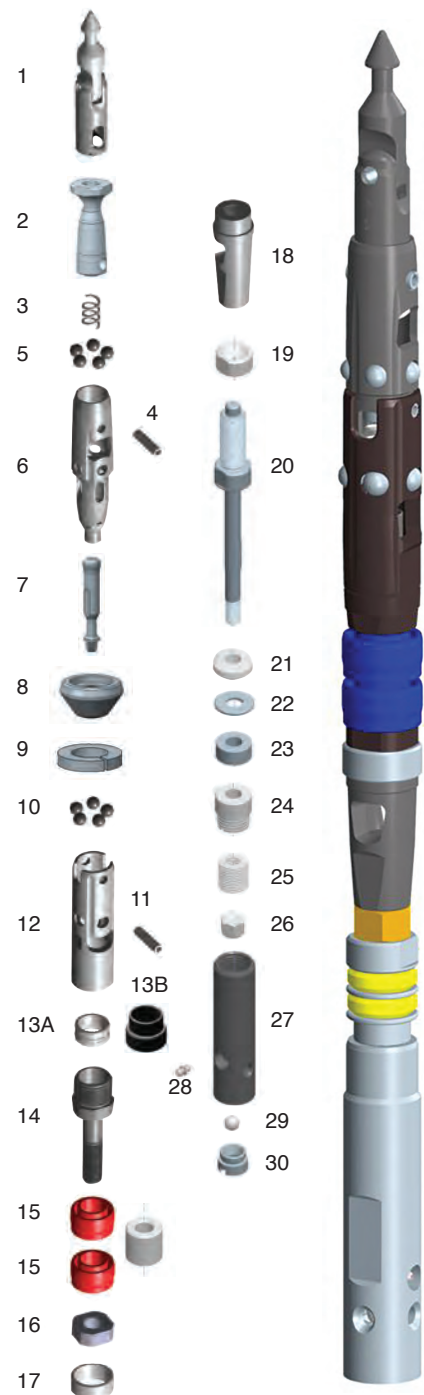
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

BQ™ TKU QUICK PUMP-IN™ ROLLER LATCH™ HEAD ASSEMBLY 5008845

ID #	PART #	DESCRIPTION	QTY
	5008845	Quick Pump-In Roller Latch Head Assembly, BQTKU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008402	Brake, BQTKU, Wedge	1
3	5004409	Spring, BQU / BQTKU, Wave	1
4	5007954	Coiled Pin, 7/16" x 1-5/8"	1
5	5006047	Roller, BQ	5
6	5004035	Case, BQU, Retracting	1
7	5009029	Piston, BQU / BQTKU, Valve	1
8	5009031	Head, Valve Piston	
9	5008917	Lock Washer, 5/16"	
10	5006049	Roller, BQTK, Latch	5
11	5005593	Coiled Pin, 3/8" x 1-3/4"	1
12	5005588	Latch Body, BQTKU, Upper	1
13A	62380	Indicator Bushing, 22 mm*	1
13B	5008018	Indicator Bushing, Up-Hole, 22 mm	1
14	5004278	Seal Seat, BQU / BQTKU	1
15	64683	Lip Seal, BQTK Pump-in	2
16	5004369	Nut, BQU / BQTKU, Jam	1
17	306437	Landing Shoulder, BQTK	1
18	5004290	Latch Body, BQU / BQTKU, Lower	1
19	44601	Hex Nut, 7/8" UNC	1
20	24331	Spindle, BQ Core Barrel	1
21	44208	Shut-off Valve, BQ, Hard	2
22	24335	Washer, BQ Valve Adjusting	2
23	24030	Thrust Bearing	2
24	24336	Spindle Bushing, BQ	1
25	24031	Compression Spring, BQ / BQTK	1
26	5008633	Lock Nut, 5/8" UNC	1
27	53196	Cap, Inner-tube BQTK	1
28	17447	Hydraulic Grease Fitting	1
29	24943	Ball, 3/4"	1
30	40656	BQ Check Valve Body	1

* Loose option

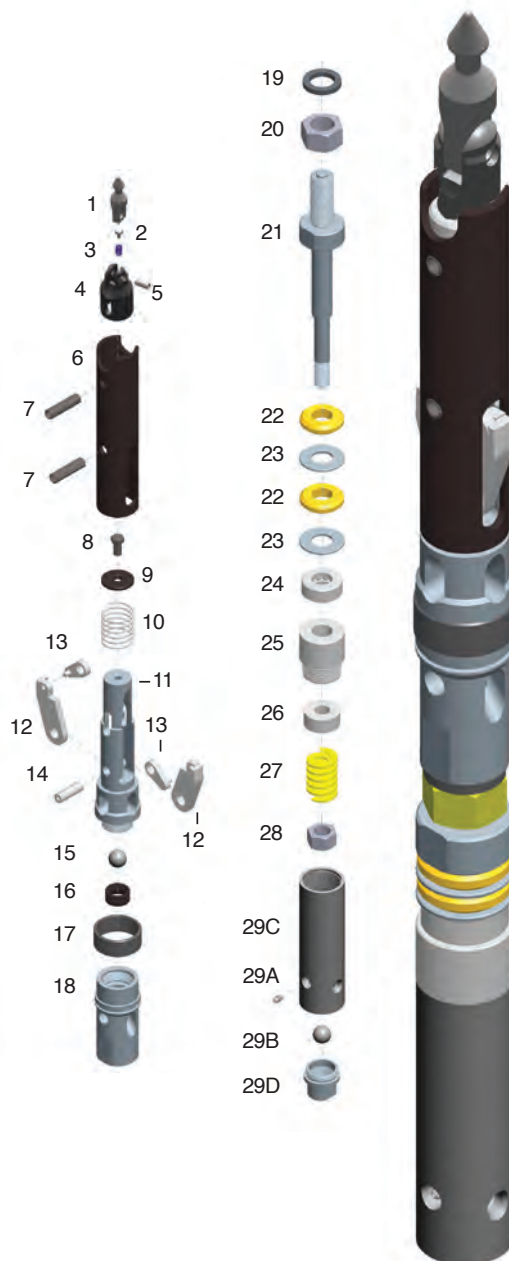
BQ HEAD OPTIONS			
21	53211	Shut-off Valve, BQTK, Soft	2
15	5008774	Spacer, Seal Seat BQU/BQTKU	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

NQ™ LINK LATCH™ HEAD ASSEMBLY 3542751MKII

ID#	PART #	DESCRIPTION	QTY
	3542751MKII	Head Assembly, NQ	
1-5	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
6	306455	Latch Retracting Case, NQ	1
7	24305	Coiled Pin, 1/2" x 2"	2
8	3541932	Nylok Bolt, 3/8" -16 UNC x 3/4"	1
9	306022	Washer, NQ / NQU, Latch Spring	1
10	3543812	Latch Compression Spring, NQ	1
11	3541778	Upper Latch Body, NQ	1
12	104816	Latch, NQ / NQU	2
13	306454	Link, NQ	2
14	24548	Coiled Pin, 1/2" x 1-1/2"	1
15	62374	Ball, 22 mm	1
16	62380	Indicator Bushing, 22 mm	1
17	306009	Landing Shoulder, NQ	1
18	306008	Lower Latch Body, NQ / NQU	1
19	3548161	Washer, Nord-Lock	1
20	24885	Hex Nut, 1-1/8" UNC	1
21	24886	Spindle, NQ	1
22	44209	Shut-off Valve, NQ, Hard	2
23	24888	Valve Adjusting Washer, NQ	2
24	24312	Thrust Bearing	1
25	24889	Spindle Bushing, NQ	1
26	18298	Thrust Bearing	1
27	24313	Compression Spring, NQ	1
28	5008697	Lock Nut, 3/4" UNC	1
	40664	Inner-tube Cap Assembly (29A, B, C, D)	
29A	17447	Hydraulic Grease Fitting	1
29B	62374	Ball, 22 mm	1
29C	40677	Inner-tube Cap, NQ	1
29D	37382	Check Valve Body	1



NQ HEAD OPTIONS			
22	24887	Shut-Off Valve, NQ, Soft	2

* NQTK also known as NQ2

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

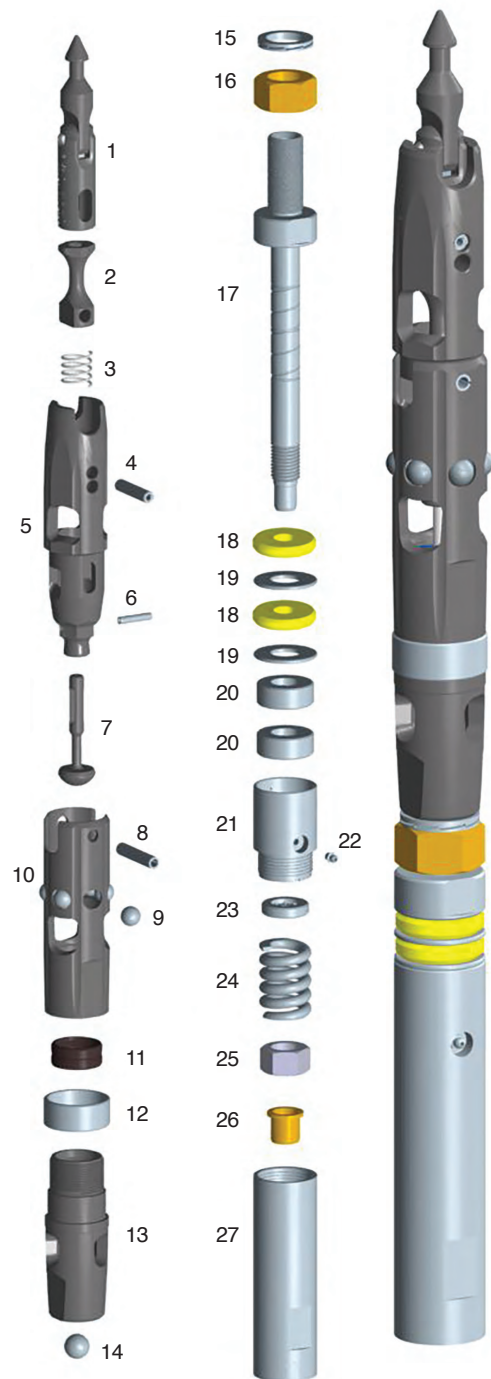
NQ™ QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY 5007750

ID#	PART #	DESCRIPTION	QTY
	5007750	Quick Descent Head Assembly, NQ	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5007757	Latch Body Extension, NQ	1
3	5005381	Latch Spring, NQU	1
4	5008003	Coiled Pin, 7/16" x 2"	1
5	5007751	Latch Retracting Case, NQ	1
6	5006015	Coiled Pin, 1/4" x 1-1/4"	1
7	5005382	Piston Valve, NQ	1
8	5005380	Coiled Pin, 7/16" x 2-1/4"	1
9	5005218	Roller Latch, NQ	6
10	5005377	Upper Latch Body, NQ	1
11	5008297	Indicator Bushing, 35 mm	1
12	306009	Landing Shoulder, NQ	1
13	5007752	Lower Latch Body, NQ	1
14	62374	Ball, 22 mm	1
15	3548105	Washer, 1-1/4" Nord-Lock	1
16	44574	Hex Nut, 1-1/4" UNC	1
17	3546427	Spindle, NQ	1
18	44209	Shut-Off Valve, NQ, Hard	2
19	24888	Valve Adjusting Washer, NQ	2
20	24312	Thrust Bearing	2
21	5007863	Spindle Bushing, NQ / NQTK*	1
22	17447	Hydraulic Grease Fitting	1
23	3546429	Thrust Bearing	1
24	3546431	Core Breaking Spring, NQ	1
25	5008634	Lock Nut, 1" UNC	1
26	5007865	Inner-tube Cap Bushing, NQ / NQTK*	1
27	5007864	Inner-tube Cap, NQ	1

Note: NQU/NQTKU Roller Latch head assemblies use BQ size Spearhead assemblies.

* NQTK also known as NQ2

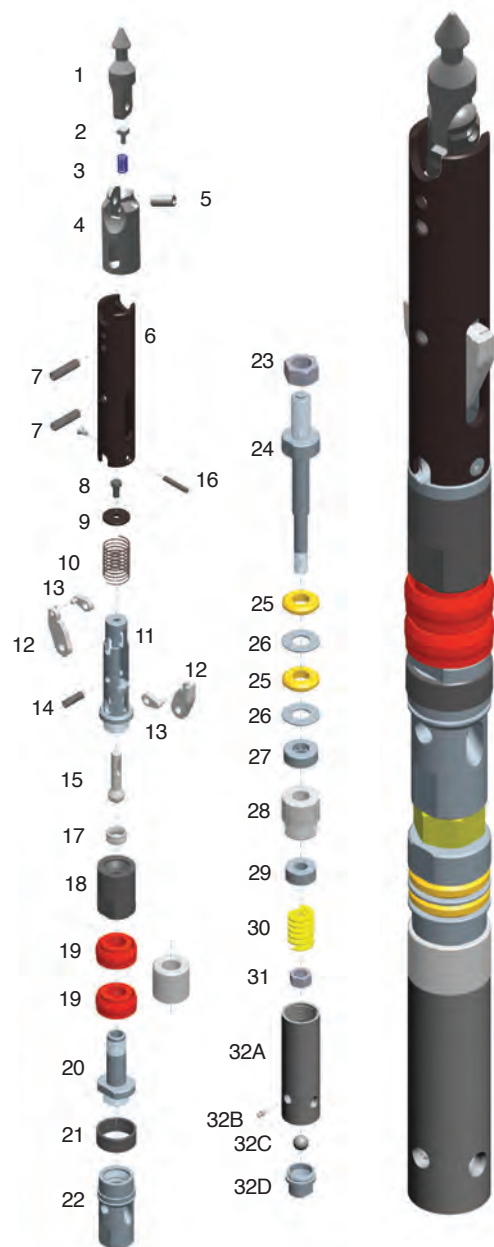
NQ HEAD OPTIONS			
18	24887	Shut-off Valve, NQ, Soft	2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

NQ™ U QUICK PUMP-IN™ LINK LATCH™ HEAD ASSEMBLY 3548625MKII

ID#	PART #	DESCRIPTION	QTY
	3548625MKII	Quick Pump-In Head Assembly, NQU	
1-5	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
6	3548623	Latch Retracting Case, NQU	1
7	24305	Coiled Pin, 1/2" x 2"	2
8	3541932	C / SCR, HH 3/8-16 3/4" Nylok	1
9	306022	Latch Spring Washer, NQ / NQU	1
10	3543136	Compression Spring, NQU	1
11	3548336	Upper Latch Body, NQ	1
12	104816	Latch, NQ / NQU	2
13	104817	Link, NQ	2
14	24548	Coiled Pin, 1/2" x 1-1/2"	1
15	3547672	Valve Piston, BQ / NQ	1
16	24307	Coiled Pin, 1/4" x 2"	1
17	3543904	Indicator Bushing, 22 mm	1
18	3543948	Adapter, NQU	1
19	64302	Pump-In Lip Seal, NQ	2
20	3543949	Seal Seat, NQU	1
21	306009	Landing Shoulder, NQ	1
22	306008	Lower Latch Body, NQ / NQU	1
23	24885	Hex Nut, 1-1/8" UNC	1
24	24886	Spindle, NQ	1
25	44209	Shut-Off Valve, NQ, Hard	2
26	24888	Valve Adjusting Washer, NQ	2
27	24312	Thrust Bearing	1
28	24889	Spindle Bushing, NQ	1
29	18298	Thrust Bearing	1
30	24313	Compression Spring, NQ	1
31	5008697	Lock Nut, 3/4" UNC	1
	40664	Inner-tube Cap Assembly (32A, B, C, D)	
32A	40677	Inner-tube Cap, NQ	1
32B	17447	Hydraulic Grease Fitting	1
32C	62374	Ball, 22 mm	1
32D	37382	Check Valve Body	1



NQ HEAD OPTIONS			
25	24887	Shut-off Valve, NQ, Soft	2
19	5008775	Spacer, Seal Seat NQU/NQTKU	1

* NQTK also known as NQ2

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

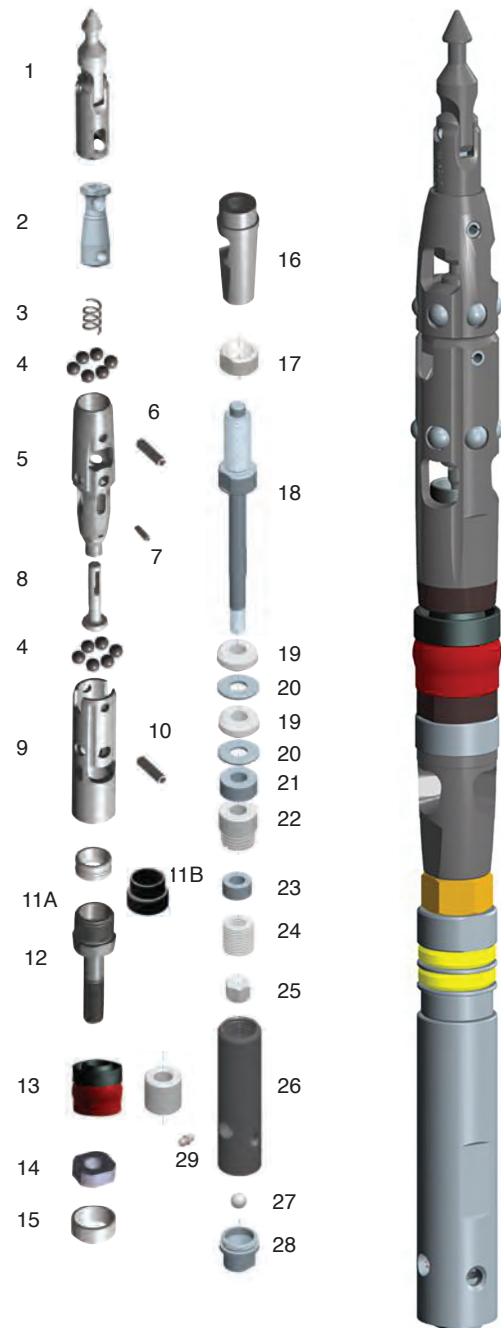
NQ™ U QUICK PUMP-IN™ ROLLER LATCH™ HEAD ASSEMBLY 5008850

ID #	PART #	DESCRIPTION	QTY
	5008850	Quick Pump-In Roller Latch Head Assembly, NQU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008316	Brake, NQU, Wedge	1
3	5005381	Compression Spring, NQU	1
4	5005218	Roller, NQ / NQU, Latch	12
5	5005378	Case, NQU, Retracting	1
6	5004342	Coiled Pin, 7/16" x 1-3/4"	1
7	5006015	Coiled Pin, 1/4" x 1-1/4"	1
8	5005382	Piston Valve, NQU	1
9	5005377	Latch Body, NQU, Upper	1
10	5005380	Coiled Pin, 7/16" x 2-1/4"	1
11A	5005385	Indicator Bushing, 35 mm*	1
11B	5007966	Indicator Bushing, Up-Hole, 35 mm	1
12	5005267	Seal, Roller Latch NQU, Seat	1
13	5003432	Seal Assembly, NQU V-Wall Lip	1
14	5005357	Jam Nut, NQU	1
15	306009	Landing Shoulder, NQ	1
16	5005334	Lower Latch, NQU, Body	1
17	24885	Hex Nut, 1-1/8" UNC	1
18	24886	Core Barrel Spindle, NQ	1
19	44209	Valve Shut-off, NQ, Hard	2
20	24888	Washer, NQ Valve Adjusting	2
21	24312	Thrust Bearing	1
22	24889	Spindle Bushing, NQ	1
23	18298	Thrust Bearing	1
24	24313	Spring, NQ Compression	1
25	5008697	Lock Nut, 3/4" UNC	1
26	40677	Inner-tube Cap, NQ	1
27	62374	Ball, 22 mm	1
28	37382	Check Valve Body	1
29	17447	Hydraulic Grease Fitting	1

Note: NQU/NQTKU Roller Latch head assemblies use BQ size Spearhead assemblies

NQ HEAD OPTIONS			
20	24887	Shut-off Valve, NQ, Soft	2
13	5008775	Spacer, Seal Seat NQU/NQTKU	1

* Loose option



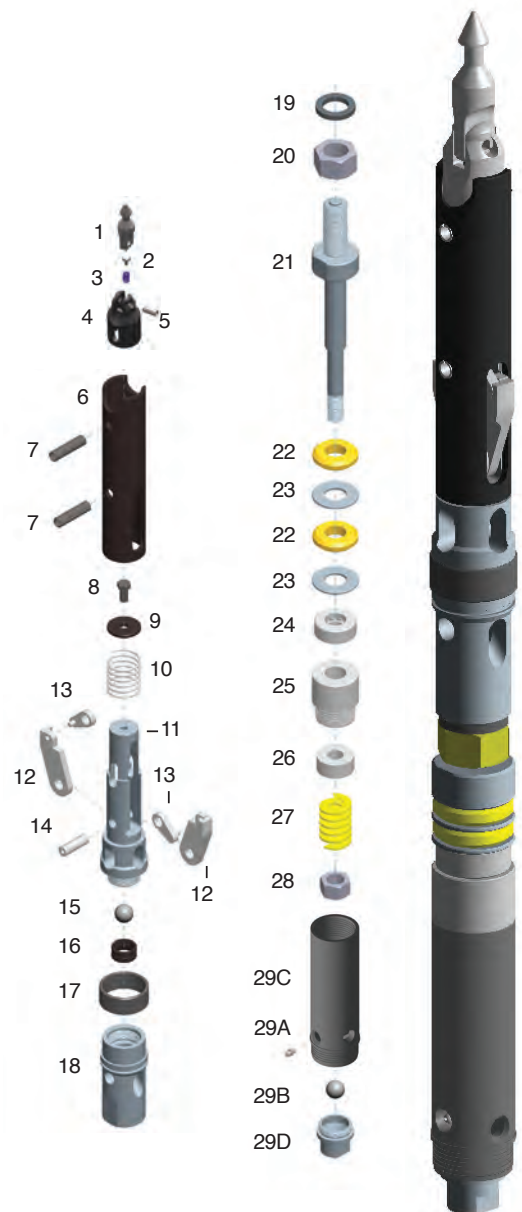
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

NQ™ TK* LINK LATCH™ HEAD ASSEMBLY 3542752MKII

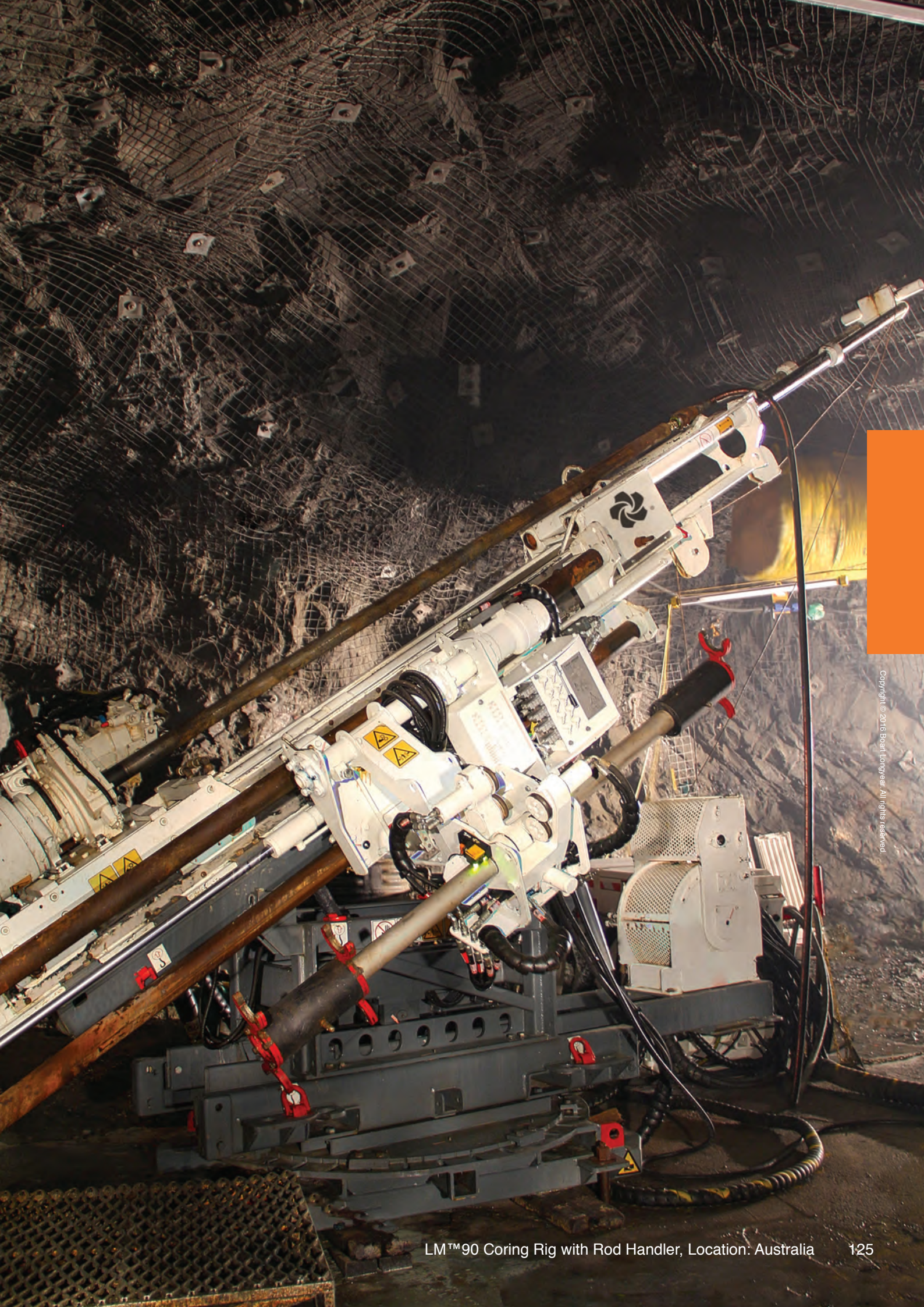
ID#	PART #	DESCRIPTION	QTY
	3542752MKII	Head Assembly, NQTK*	
1-5	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
6	306455	Latch Retracting Case, NQ	1
7	24305	Coiled Pin, 1/2" x 2"	2
8	3541932	Nylok Bolt, 3/8" -16UNC x 3/4"	1
9	306022	Washer, NQ / NQU, Latch Spring	1
10	3543812	Compression Spring, NQ	1
11	3541778	Upper Latch Body, NQ	1
12	104816	Latch, NQ / NQU	2
13	306454	Link, NQ	2
14	24548	Coiled Pin, 1/2" x 1-1/2"	1
15	62374	Ball, 22 mm	1
16	62380	Indicator Bushing, 22 mm	1
17	306026	Landing Shoulder, NQTK*	1
18	306008	Lower Latch Body, NQ / NQU	1
19	3548161	Washer, Nord-Lock 1-1/8"	1
20	24885	Hex Nut, 1-1/4" UNC	1
21	24886	Spindle, NQ	1
22	44209	Shut-Off Valve, NQ, Hard	2
23	24888	Valve Adjusting Washer, NQ	2
24	24312	Thrust Bearing	1
25	24889	Spindle Bushing, NQ	1
26	18298	Thrust Bearing	1
27	24313	Compression Spring, NQ	1
28	5008697	Lock Nut, 3/4" UNC	1
	43604	Inner-tube Cap Assembly (29A, B, C, D)	
29A	17447	Hydraulic Grease Fitting	1
29B	62374	Ball, 22 mm	1
29C	43602	Inner-tube Cap, NQTK*	1
29D	37382	Check Valve Body	1

NQ HEAD OPTIONS			
22	24887	Shut-Off Valve, NQ, Soft	2

* NQTK also known as NQ2



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component



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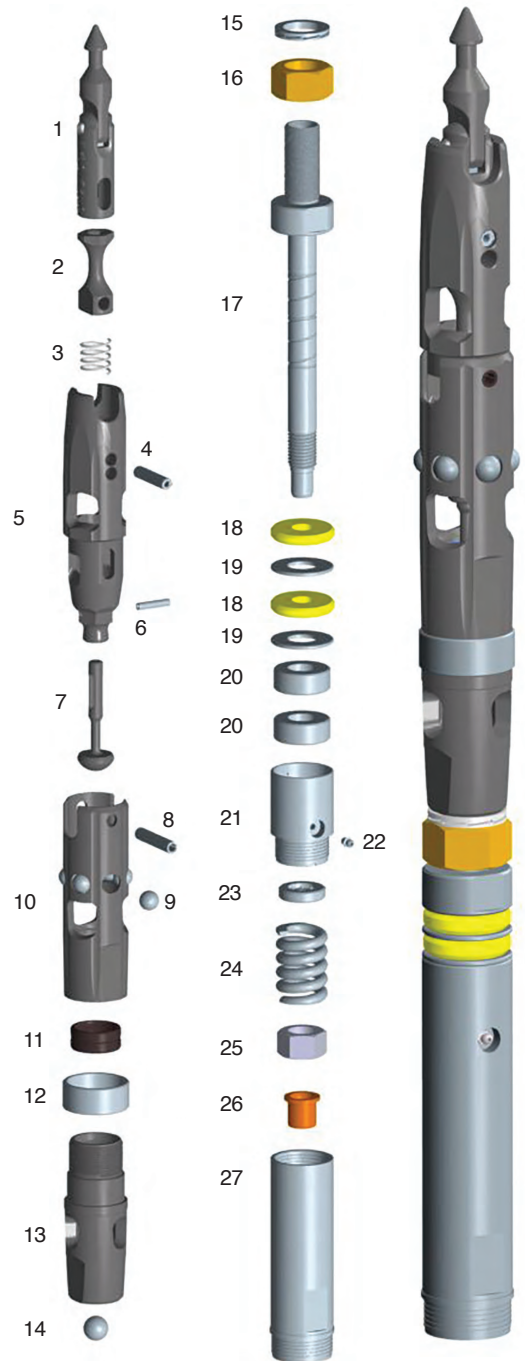
NQ™ TK* QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY 5007755

ID#	PART #	DESCRIPTION	QTY
	5007755	Quick Descent Head Assembly, NQTK*	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5007757	Latch Body Extension, NQ	1
3	5005381	Latch Spring, NQ	1
4	5008003	Coiled Pin, 7/16" x 2"	1
5	5007751	Retracting Case, NQ	1
6	5006015	Coiled Pin, 1/4" x 1-1/4"	1
7	5005382	Valve Piston, NQ	1
8	5005380	Coiled Pin, 7/16" x 2-1/4"	1
9	5005218	Roller Latch, NQ / NQTK*	6
10	5005377	Upper Latch Body, NQ	1
11	5008297	Indicator Bushing, 35 mm	1
12	306026	Landing Shoulder, NQTK*	1
13	5007752	Lower Latch Body, NQ	1
14	62374	Ball, 22 mm	1
15	3548105	Washer, Nord-Lock, 1-1/4"	1
16	44574	Hex Nut, 1-1/4" UNC	1
17	3546427	Spindle, NQ / NQTK*	1
18	44209	Shut-Off Valve, NQ, Hard	2
19	24888	Valve Adjusting Washer, NQ	2
20	24312	Thrust Bearing	2
21	5007863	Spindle Bushing, NQ / NQTK*	1
22	17447	Hydraulic Grease Fitting	1
23	3546429	Thrust Bearing	1
24	3546431	Compression Spring	1
25	5008634	Lock Nut, 1" UNC	1
26	5007865	Inner-tube Bushing, NQ / NQTK*	1
27	5007866	Inner-tube Cap, NQTK*	1

NQ HEAD OPTIONS			
18	24887	Shut-off Valve, NQ, Soft	2

Note: NQU/NQTKU Roller Latch head assemblies use BQ size Spearhead assemblies.

* NQTK also known as NQ2



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

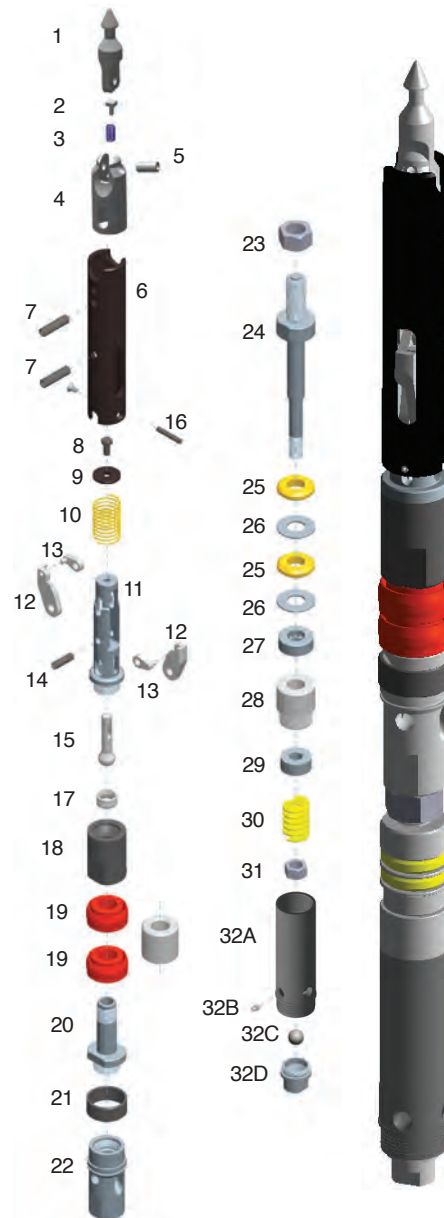
NQ™ TKU* QUICK PUMP-IN™ LINK LATCH™ HEAD ASSEMBLY 3549598MKII

ID#	PART #	DESCRIPTION	QTY
	3549598MKII	Head Assembly, NQTK	
1-5	5008324	MKII Spearhead Assembly, NQ / NQTK*	1
6	3548623	Latch Retracting Case, NQU	1
7	24305	Coiled Pin, 1/2" x 2"	2
8	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	1
9	306022	Latch Spring Washer, NQ / NQU	1
10	3543812	Compression Spring Latch, NQ	1
11	3548336	Upper Latch Body, NQ	1
12	104816	Latch, NQ / NQU	2
13	104817	Link, NQ	2
14	24548	Coiled Pin, 1/2" x 1-1/2"	1
15	3547672	Valve Piston Ball, BQ/NQ	1
16	24307	Coiled Pin, 1/4" x 2"	1
17	3543904	Indicator Bushing, 22 mm	2
18	3543948	Adapter, NQU	1
19	64302	Pump-In Lip Seal, NQ	2
20	3543949	Seal Seat, NQU	1
21	306026	Landing Shoulder, NQTK*	1
22	306008	Lower Latch Body, NQ / NQU	1
23	24885	Hex Nut, 1-1/8" UNC	1
24	24886	Spindle, NQ	1
25	44209	Shut-Off Valve, NQ, Hard	2
26	24888	Valve Adjusting Washer, NQ	2
27	24312	Thrust Bearing	1
28	24889	Spindle Bushing, NQ	1
29	18298	Thrust Bearing	1
30	24313	Compression Spring, NQ	1
31	5008697	Lock Nut, 3/4" UNC	1
	43604	Inner-tube Cap Assembly (32A, B, C, D)	
32A	43602	Cap, Inner-tube NQTK*	1
32B	17447	Hydraulic Grease Fitting	1
32C	62374	Ball, 22 mm	1
32D	37382	Check Valve Body	1

NQTK HEAD OPTIONS

25	24887	Shut-Off Valve, NQ, Soft	1
19	5008775	Spacer, Seal Seat NQU/NQTKU	1

* NQTK also known as NQ2



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component



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V-WALL™ RODS: DRILL DEEPER

Global Drilling Products

Offering all the benefits of Boart Longyear's straight-wall coring rods, but weighing up to 30% less - Boart Longyear's advanced V-Wall™ coring rods maximize drilling depths, reduce tripping cycle times and increase work site safety.

And, with Boart Longyear's patented RQ™ thread technology, V-Wall rods offer easier make-and-break connectivity and enhanced rod string strength.

Now available for underground applications when used with Roller Latch™ technology.

To learn more about V-Wall™ Rods, visit:
www.BoartLongyear.com/vwall

US Patent No. 5,788,401; AU Patent Nos. 722,567; BR PI 9706279-0; ZA 1997/9048; IN 208096;
CA Patent No. 2,216,459; Patents Pending

 **BOART LONGYEAR™**

NQ™ TKU* QUICK PUMP-IN™ ROLLER LATCH™

HEAD ASSEMBLY 5008855

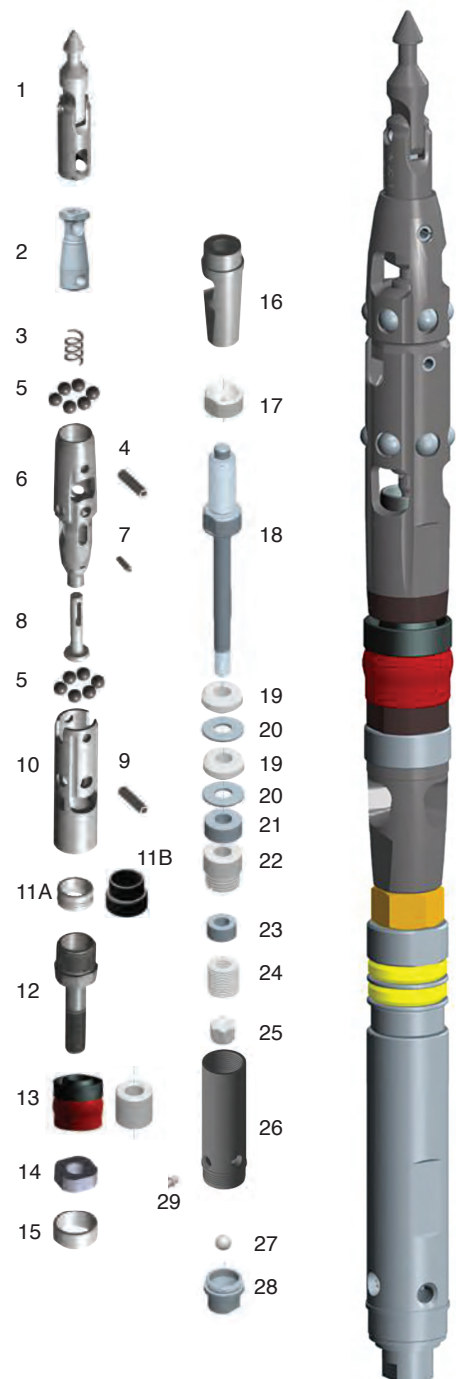
1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION	QTY
	5008855	Quick Pump-In Roller Latch Head Assembly, NQTKU	
1	5008323	MKII Spearhead Assembly, BQ / BQTK	1
2	5008316	Brake, NQU, Wedge	1
3	5005381	Spring, NQU, Compression	1
4	5004342	Coiled Pin, 7/16" x 1-3/4"	1
5	5005218	Roller, NQ / NQU	12
6	5005378	Case, NQU, Retracting	1
7	5006015	Coiled Pin, 1/4" x 1-1/4"	1
8	5005382	Piston, NQU, Valve	1
9	5005380	Coiled Pin, 7/16" x 2-1/4"	1
10	5005377	Body, NQU, Upper Latch	1
11A	5005385	Indicator Bushing, 35 mm*	1
11B	5007966	Indicator Bushing, Up-Hole, 35 mm	1
12	5005267	Seal Seat, NQU	1
13	5003432	Seal Assembly, NQU, V-Wall Lip	1
14	5005357	Jam Nut, NQU	1
15	306026	Landing Shoulder, NQTK	1
16	5005334	Body, NQU, Lower Latch	1
17	24885	Hex Nut, 1-1/8" UNC	1
18	24886	Spindle, NQ Core Barrel	1
19	44209	Valve Shut-off, NQ, Hard	2
20	24888	Washer, NQ Valve Adjusting	2
21	24312	Thrust Bearing	1
22	24889	Spindle Bushing, NQ	1
23	18298	Thrust Bearing	1
24	24313	Spring, NQ Compression	1
25	5008697	Lock Nut, 3/4" UNC	1
26	43602	Cap, Inner-tube NQTK	1
27	62374	Ball, 22 mm	1
28	37382	Check Valve Body	1
29	17447	Hydraulic Grease Fitting	1

Note: NQU/NQTKU Roller Latch head assemblies use BQ size Spearhead assemblies.

NQTK HEAD OPTIONS			
20	24887	Shut-Off Valve, NQ, Soft	1
13	5008775	Spacer, Seal Seat NQU/NQTKU	1

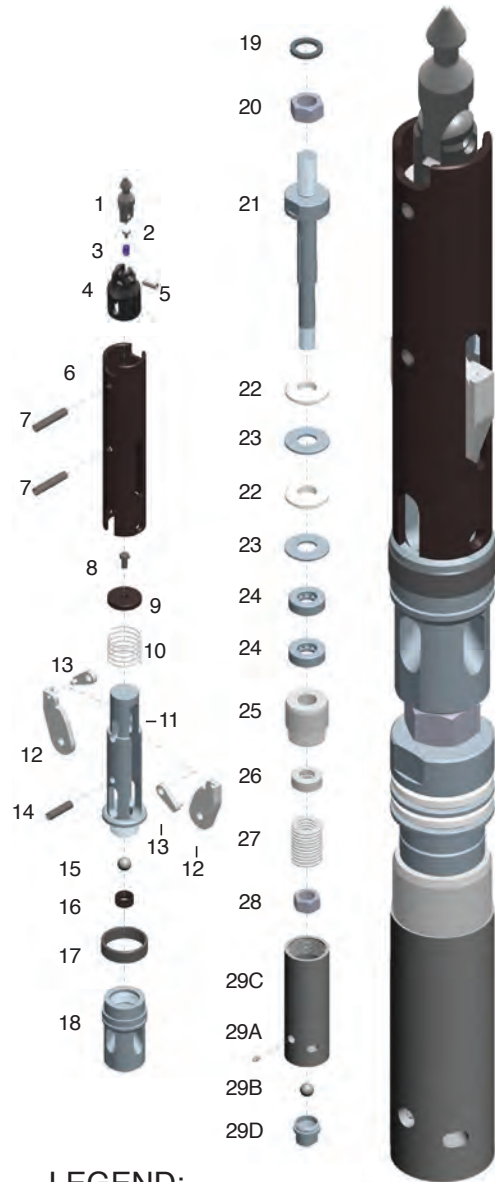
* Loose option



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

HQ™ LINK LATCH™ HEAD ASSEMBLY 5001440MKII / 40678

ID#	PART #	DESCRIPTION	QTY
	5001440MKII	Head Assembly, HQ	
1-5	5008325	MKII Spearhead Assembly, HQ / PQ	1
6	5001332	Latch Retracting Case, HQ	1
7	24524	Coiled Pin, 1/2" x 2-3/4"	2
8	3541932	Nylok Bolt 3/8" -16UNC x 3/4"	1
9	104953	Washer, HQ / PQ	1
10	3543619	Compression Spring, HQ / PQ	1
11	5001342	Upper Latch Body, HQ / PQ	1
12	104818	Latch, HQ	2
13	306216	Link, HQ	2
14	24305	Coiled Pin, 1/2" x 2"	1
15	62374	Ball, 22 mm	1
16	62380	Indicator Bushing, 22 mm	1
17	104958	Landing Shoulder, HQ / NQ	1
18	104957	Lower Latch Body, HQ	1
19	3548105	Washer, 1-1/4" Nord-Lock	1
20	44574	Hex Nut, 1-1/4" UNC	1
21	25231	Spindle, HQ	1
22	43513	Shut-off Valve, HQ, Hard	2
23	25233	Valve Adjusting Washer, HQ	2
24	24528	Thrust Bearing	2
25	25234	Spindle Bushing, HQ	1
26	24312	Thrust Bearing	1
27	24529	Compression Spring, HQ	1
28	5008634	Lock Nut, 1" UNC	1
	40678	Inner-tube Cap Assembly (29A, B, C, D)	
29A	17447	Hydraulic Grease Fitting	1
29B	62374	Ball, 22 mm	1
29C	40401	Inner-tube Cap, HQ	1
29D	37382	Check Valve Body	1



LEGEND:

- ✓ Standard Component
- Required - Choose One
- [OPT] Optional Component

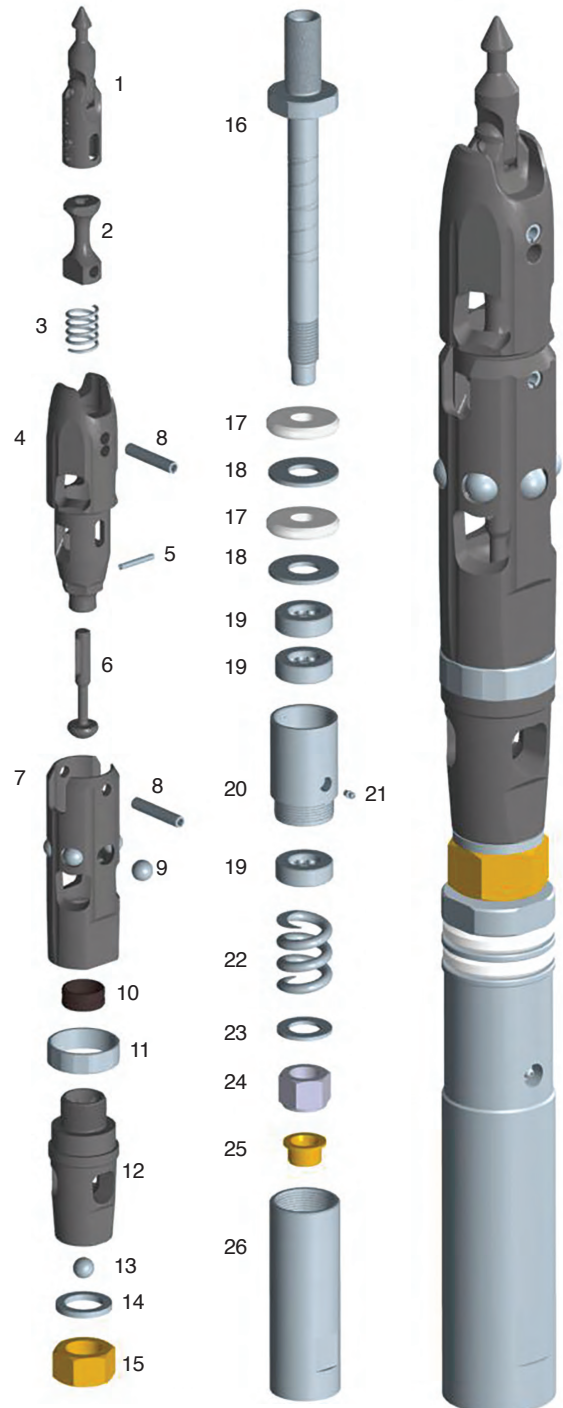
HQ HEAD OPTIONS			
22	25232	Shut-Off Valve, HQ, Soft	2
	5001333	Dry Hole Valve Kit, HQ	
	3548544	Valve Piston, HQ / PQ	1
	306131	Fluid Retention Bushing	1
	3543378	Fluid Retention Bushing, Heavy	1
	104966	Fluid Retention Spring, Light	1
	104971	Fluid Retention Spring, Medium	1
	104972	Fluid Retention Spring, Heavy	1
	3548718	Coiled Pin, 1/4" x 2-3/4"	1
	3542987	Link Latch Drift Tool	1
	3543407	Kit Bag, Dry Hole (Not Shown)	1

HQ™ QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY 5007760

ID#	PART #	DESCRIPTION	QTY
	5007760	Quick Descent Head Assembly, HQ	
1	5008324	MKII Spearhead Assembly, NQ / NQTK	1
2	5007766	Latch Body Extension, HQ / PQ	1
3	5005509	Latch Spring, HQ / PQ	1
4	5007761	Latch Retracting Case, HQ	1
5	5008004	Coiled Pin, 1/4" x 1-3/4"	1
6	5005285	Valve Piston, HQ / PQ	1
7	5005036	Upper Latch Body, HQ / PQ	1
8	5008909	Coiled Pin, 1/2" x 2-3/4"	2
9	5006057	Roller Latch, HQ / PQ	6
10	5008297	Indicator Bushing, 35 mm	1
11	3546056	Landing Shoulder, HQ	1
12	5007762	Lower Latch Body, HQ / PQ	1
13	62374	Ball, 22 mm	1
14	3545206	Washer, 1-1/2" Nord-Lock	1
15	37475	Hex Nut, 1-1/2" UNC	1
16	5007840	Hollow Spindle, HQ / PQ	1
17	43513	Shut-Off Valve, HQ, Hard	2
18	25233	Valve Adjusting Washer, HQ	2
19	24528	Thrust Bearing	3
20	3540794	Spindle Bushing, HQ / PQ	1
21	17447	Hydraulic Grease Fitting	1
22	3540755	Compression Spring	1
23	3544324	Flat Washer	1
24	5008635	Lock Nut, 1-1/4" UNC	1
25	5007849	Inner-tube Cap Bushing, HQ / PQ	1
26	5007850	Inner-tube Cap, HQ	1

Note: HQ/HQU Roller Latch head assemblies use NQ size Spearhead assemblies. NQTK also known as NQ2.

HQ HEAD OPTIONS			
17	25232	Shut-Off Valve, HQ, Soft	2

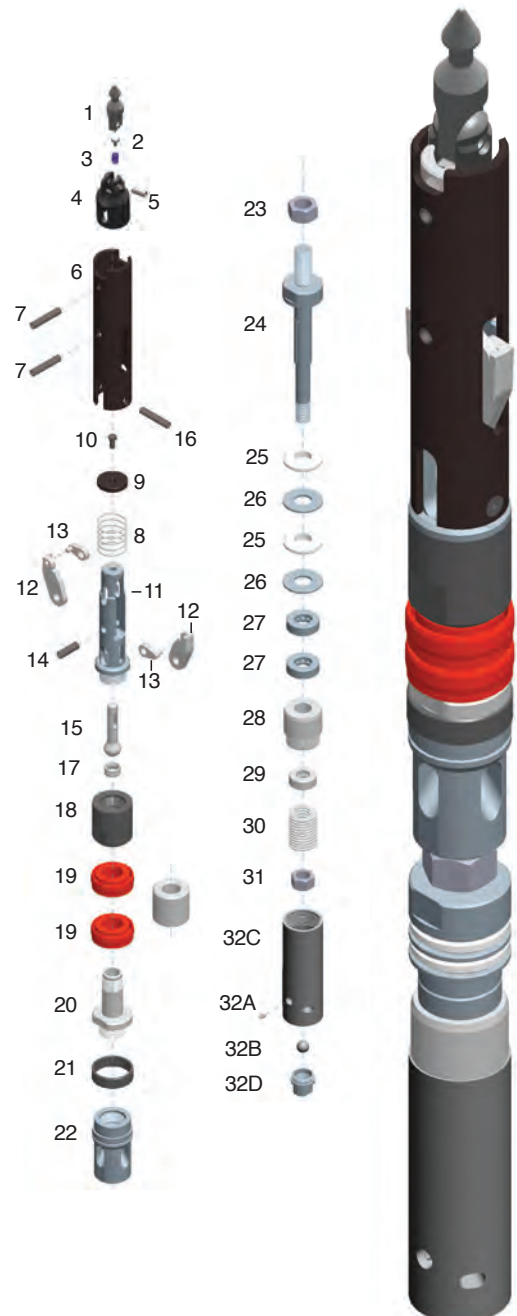


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

HQ™ U QUICK PUMP-IN™ LINK LATCH™ HEAD ASSEMBLY 3548750MKII

ID#	PART #	DESCRIPTION	QTY
	3548750MKII	Quick Pump-In Head Assembly, HQU	
1-5	5008325	MKII Spearhead Assembly, HQ / PQ	1
6	3548749	HQU Q / P Latch Retracting Case	1
7	24524	Coiled Pin, 1/2" x 2-3/4"	2
8	3548738	HQU Latch Compression Spring	1
9	104953	HQ Washer	1
10	3541932	HH 3/8-16 3/4" G8 / Nylok C / SCR	1
11	3548546	HQU Q / P Upper Latch Body	1
12	104818	HQ Latch	2
13	3543999	HQU Q / P Q / D Link	2
14	24305	Coiled Pin, 1/2" x 2"	1
15	3548544	HQ-PQ Q / P Valve Piston	1
16	3548718	Coiled, 1/4 x 2 3/4 LG Pin	1
17	3543904	Indicator Bushing, 22 mm	1
18	3543995	HQU Adapter	1
19	100696	HQ Pump-In Lip Seal	2
20	3543997	Seal HQU Seat	1
21	104958	HQ Landing Shoulder	1
22	104957	HQ Lower Latch Body	1
23	44574	HEX, 1-1/4" UNC G8 Nut	1
24	25231	Spindle, HQ	1
25	43513	HQ Hard Shut-Off Valve	2
26	25233	HQ Valve Adjusting Washer	2
27	24528	Thrust Bearing	2
28	25234	Spindle Bushing, HQ	1
29	24312	Thrust Bearing	1
30	24529	Compression Spring, HQ	1
31	5008634	Lock Nut, 1" UNC	1
	40678	Inner-tube Cap Assembly (32A, B, C, D)	
32A	17447	Hydraulic Grease Fitting	1
32B	62374	Ball, 22 mm	1
32C	40401	Inner-tube Cap, HQ	1
32D	37382	Check Valve Body	1

HQ HEAD OPTIONS			
25	25232	Shut-off Valve, HQ, Soft	2
19	5008776	Spacer, Seal Seat HQU	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

HQ™ U QUICK PUMP-IN™ ROLLER LATCH™

HEAD ASSEMBLY 5008860

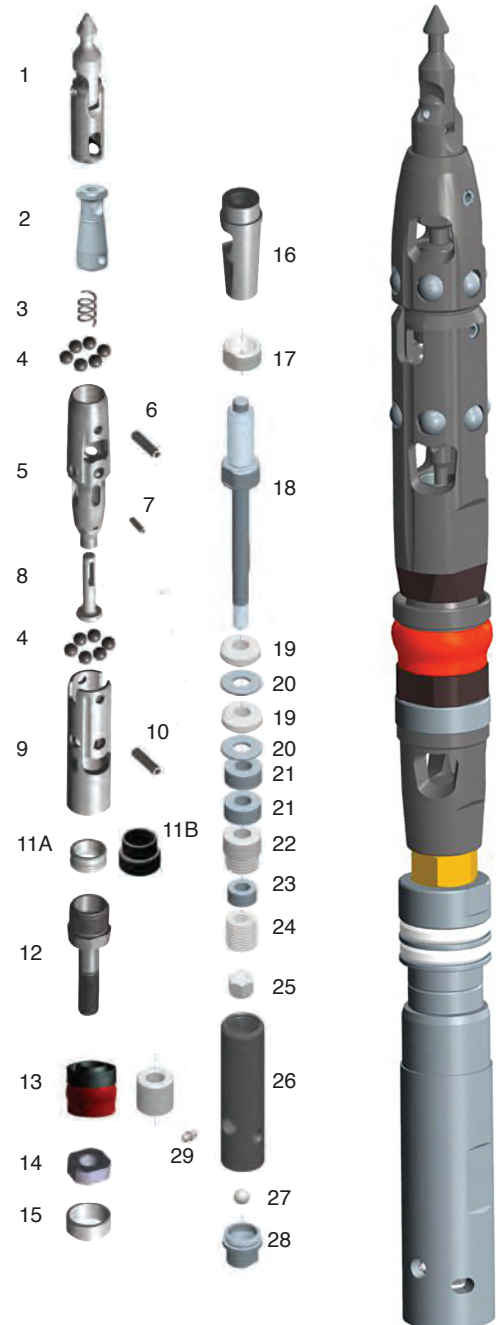
1.5 M / 5.0 FT AND 3.0 M / 10.0 FT CORE BARREL

ID #	PART #	DESCRIPTION	QTY
	5008860	Quick Pump-In Roller Latch Head Assembly, HQU	
1	5008324	MKII Spearhead Assembly, NQ / NQTK	1
2	5008403	Brake, HQU, Wedge	1
3	5005509	Spring, HQU, Compression	1
4	5006057	Roller, HQ / HQU, Latch	12
5	5005035	Case, HQU, Retracting	1
6	5005342	Coiled Pin, 1/2" x 2-1/2"	1
7	5008910	Coiled Pin, 1/4" x 1-1/2"	1
8	5005285	Piston, HQU, Valve	1
9	5005036	Latch Body, HQU, Upper	1
10	5008909	Coiled Pin, 1/2" x 2-3/4"	1
11A	5005385	Indicator Bushing, 35 mm*	1
1B	5007966	Indicator Bushing, Up-Hole, 35 mm	1
12	5005031	Seal Seat, HQU	1
13	5006212	Lip Seal Assembly, V-Wall HQU	1
14	5005042	Nut, HQU, Jam	1
15	104958	Landing Shoulder, HQ	1
16	5005290	Latch Body, HQU, Lower	1
17	44574	Hex Nut, 1-1/4" UNC	1
18	25231	Spindle, HQ	1
19	43513	Valve, HQ Hard Shut-off	2
20	25233	Washer, HQ Valve Adjusting	2
21	24528	Thrust Bearing	2
22	25234	Spindle Bushing, HQ	1
23	24312	Thrust Bearing	1
24	24529	Spring, HQ, Compression	1
25	5008634	Lock Nut, 1" UNC	1
26	40401	Inner-tube Cap, HQ / HQU	1
27	62374	Ball, 22 mm	1
28	37382	Check Valve Body	1
29	17447	Hydraulic Grease Fitting	1

Note: HQ Roller Latch head assemblies use NQ size Spearhead assemblies. NQTK also known as NQ2.

HQ HEAD OPTIONS			
20	25232	Shut-off Valve, HQ, Soft	2
13	5008776	Spacer, Seal Seat HQU	1

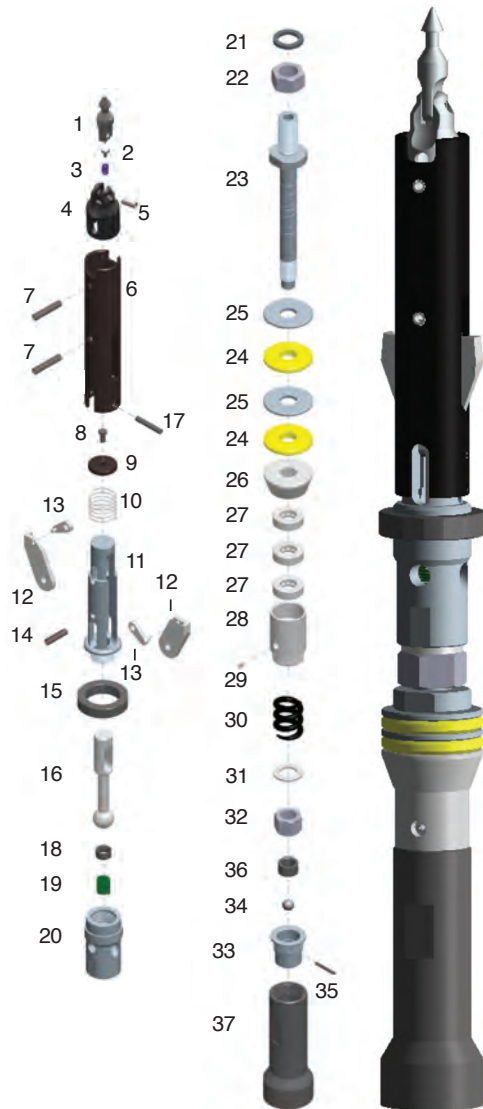
* Loose Option



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

PQ™ LINK LATCH™ HEAD ASSEMBLY 5001444MKII

ID#	PART #	DESCRIPTION	QTY
	5001444MKII	Link Latch Head Assembly, PQ	
1-5	5008325	MKII Spearhead Assembly, HQ / PQ	1
6	5001332	Latch Retracting Case, HQ	1
7	24524	Coiled Pin, 1/2" x 2-3/4"	2
8	3541932	Nylok Bolt, 3/8" - 16UNC x 3/4"	1
9	104953	Washer, HQ / PQ	1
10	3543619	Compression Spring, HQ / PQ	1
11	5001342	Upper Latch Body, HQ / PQ	1
12	3543796	Latch, PQ	2
13	306216	Link, HQ	2
14	24305	Coiled Pin, 1/2" x 2"	1
15	3543797	Landing Shoulder, PQ	1
16	3548544	Valve Piston, HQ / PQ	1
17	3548718	Coiled Pin, 1/4" x 2-3/4"	1
18	306131	Fluid Retention Bushing	1
19	104966	Fluid Retention Spring, Light	1
20	3548072	Lower Latch Body, HQ / PQ	1
21	3545206	Nord-Lock Washer, 1-1/2"	1
22	37475	Hex Nut, 1-1/2" UNC	1
23	3548073	Hollow Spindle, HQ / PQ	1
24	3540308	Shut-Off Valve, PQ, Hard	2
25	3540300	Shut-Off Valve Washer	2
26	3540299	Tapered Shut-Off Washer, PQ	1
27	24528	Thrust Bearing	3
28	3540794	Spindle Bushing, HQ / PQ	1
29	17447	Hydraulic Grease Fitting	1
30	3540755	Compression Spring	1
31	3544324	Flat Washer, 1-1/4"	1
32	5008635	Lock Nut, 1-1/4" UNC	1
33	3540745	Check Valve Body, HQ / PQ	1
34	62374	Ball, 22 mm	1
35	100865	Coiled Pin, 3/16" x 1-3/4"	1
36	3540737	Valve Bushing, HQ / PQ	1
37	3543804	Inner-tube Cap, PQ	1



PQ HEAD OPTIONS			
18	3543378	Fluid Retention Bushing, Heavy	1
19	104971	Fluid Retention Spring, Medium	1
19	104972	Fluid Retention Spring, Heavy	1
25	3540300	Washer Shut-Off Valve	4
24	5002347	Soft Shut-Off Valve	2

5001333 Dry Hole Valve Kit, HQ			
16	3548544	Valve Piston, HQ / PQ	1
18	306131	Fluid Retention Bushing	1
18	3543378	Fluid Retention Bushing, Heavy	1
19	104966	Fluid Retention Spring, Light	1
19	104971	Fluid Retention Spring, Medium	1
19	104972	Fluid Retention Spring, Heavy	1
17	3548718	Coiled Pin, 1/4" x 2-3/4"	1
	3542987	Link Latch Drift Tool	1
	3543407	Dry Hole Valve Kit Bag	1

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component



Link Latch™ Head Assembly, Location: Australia



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ULTRAMATRIX™ DIAMOND CORE BITS

Global Drilling Products

EXTREME PERFORMANCE

Boart Longyear Ultramatrix™ line of diamond coring bits is engineered to meet our customers' demand for extreme performance. UMX™ Bits offer enhanced penetration and bit life to optimize exploration productivity in any ground formation.

UMX Bits feature large diamonds, the strength of the patented Ultramatrix crown, advanced flushing options, and crown heights up to 25 mm with Stage™ waterway.

UMX Bits are an integrated part of the Genuine Q™ Wireline System.

To learn more about the UMX™ Bits, visit:

www.BoartLongyear.com/umx

US Patent Nos. 7,628,228; 7,695,542; 7,975,785; 7,909,119; 7,958,954; 7,874,384; 8,146,686; 8,191,445; D622,745; D630,656. AU Patent Nos. 2007333850; 2007342231; 332,218; 332,257. CA Patent Nos. 135,751; 136,438; 2,671,193. ZA Patent Nos. F2010/00750; 2010/01030; 2009/03801. CN Patent Nos. ZL 201030248719.X; ZL 201030188519.X. PE Patent Nos. 2690; 2662. Patents Pending

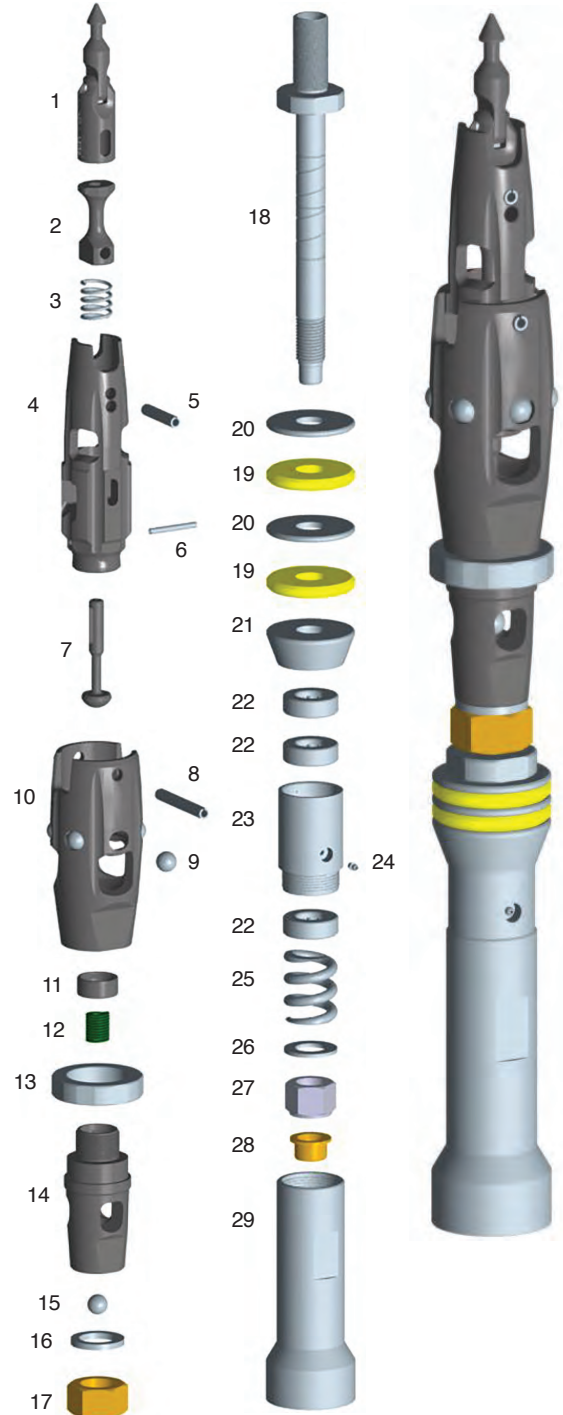
 **BOART LONGYEAR™**

PQ™ QUICK DESCENT™ ROLLER LATCH™ HEAD ASSEMBLY 5007770

ID#	PART #	DESCRIPTION	QTY
	5007770	Quick Descent Head Assembly, PQ	
1	5008324	MKII Spearhead Assembly, NQ / NQTK	1
2	5007766	Latch Body Extension, HQ / PQ	1
3	5005509	Latch Spring, HQ / PQ	1
4	5007759	PQ Latch Retracting Case	1
5	5005342	Coiled Pin, 1/2" x 2-1/2"	1
6	5008015	Coiled Pin, 1/4" x 2-1/4"	1
7	5005285	HQ-PQ Valve Piston	1
8	5007835	Coiled Pin, 1/2" x 3-3/4"	1
9	5006057	Roller Latch HQ / PQ	6
10	5007764	Upper Latch Body, PQ	1
11	5007867	Fluid Retention Bushing	1
12	104966	Fluid Retention Spring, Light	1
13	3543797	PQ Landing Shoulder	1
14	5007762	HQ / PQ Lower Latch Body	1
15	62374	22MM Ball	1
16	3545206	Nord-Lock, 1-1/2" Washer	1
17	37475	Hex, 1-1/2" UNC G8 Nut	1
18	5007840	HQ / PQ Q / D Hollow Spindle	1
19	3540308	Shut-Off Valve, PQ, Hard	2
20	3540300	Shut-Off Valve, Washer	2
21	3540299	Tapered Shut-Off Washer	1
22	24528	Thrust Bearing	3
23	3540794	HQ / PQ Q / D Spindle Bushing	1
24	17447	Hyd. Grease Fitting	1
25	3540755	Compression Spring	1
26	3544324	Washer, 1-1/4"	1
27	5008635	Lock Nut, 1-1/4" UNC	1
28	5007849	PQ Q / D Inner-tube Cap Bushing	1
29	5007887	PQ Q / D Inner-tube Cap	1

Note: PQ Roller Latch head assemblies use NQ size Spearhead assemblies. NQTK also known as NQ2.

PQ HEAD OPTIONS			
19	5002347	Shut-off Valve, PQ, Soft	2



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component



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Overshots

OVERSHOTS

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OVERSHOT OVERVIEW

Boart Longyear's overshots are an integral part of the Q™ Wireline system. Once the inner-tube is full of core, the overshoot is lowered (or pumped-in for an inclined-hole) to the bottom of the hole. Its heavy-duty lifting dogs grab a secure hold at the top of the inner-tube assembly.

As part of Boart Longyear's commitment to safety on the drill site, we offer the patented EZY-Lock™ overshoot for use with the Q Wireline system on surface applications.

EZY-LOCK™ OVERSHOT

The EZY-Lock™ overshoot is a favorite of drillers around the world. The safety and productivity features included in the design provide for highly reliable core barrel retrieval for all surface exploration applications.

The EZY-Lock is available for above-ground Q wireline systems in sizes B to P.

Standard Boart Longyear™ overshoot features:

- Heavy duty lifting dogs and two compression springs
- Threaded connection between jar staff and overshoot head
- High strength alloy steel jar staff with increased diameter and fail safe stop
- Locking sleeve prevents release of inner-tube
- Optional dry hole lowering kit
- New re-usable press-fit pivot-pin, eliminates peening in the field for easy lifting dog maintenance

EZY-Lock Sleeve

Provides a quick, one-handed rotation of the sleeve 90° to lock the overshoot lifting dogs to the spearpoint and protects against accidental release.

Quick-release Safety Pin

A detented quick-pin allows for a two-hand-applied lock of the overshoot head to the spearpoint. This guards against worn or overloaded lifting dogs.

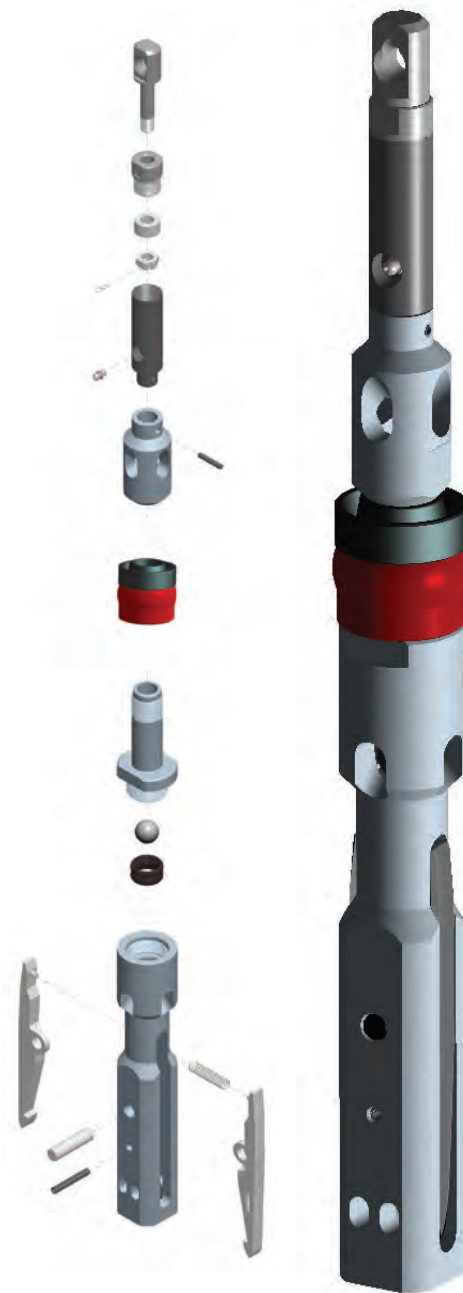


QUICK PUMP-IN™ OVERSHOT

For maximum productivity in underground or pump-in applications, Boart Longyear offers the new Quick Pump-In™ Overshot. This new overshot provides significantly improved pump-in rates with dual pump-in lip-seals; as well as new 'V-Lip' pump-in seals in NQ™ and HQ™ sizes. The variable profile of the 'V-Lip' seal provides improved performance and accommodates both standard wall and V-Wall™ drill rods when used with the new Roller Latch™ underground head assembly.

In addition, this overshot incorporates the proven Boart Longyear™ "Landing Indicator" ball and bushing. The ball and bushing provides a pump-in valve, a bypass valve, and a landing indicator pressure signal. These features function as follows:

- For rapid pump-in rates, the Landing Indicator ball and bushing provides a reliable pump-in seal with optional bushings for light, standard, or deep-hole pressure ratings.
- When the overshot has landed, the valve ball is driven through the valve bushing causing a spike in the fluid pressure. Once the ball is forced through the bushing, fluid can flow through the valve porting.
- When drilling flat or declined holes, the valve allows fluid to bypass the overshot when retrieving from the hole. This significantly improves retraction rates and eliminates the need to refill the hole with drilling fluid.
- When drilling inclined holes the valve allows fluid to bypass the overshot and lift the inner tube. This removes weight from the core barrel latch mechanism, allowing flawless wireline latch retraction and improved retraction rates while preventing latch or wireline cable overload failure or premature wear.
- When retrieving from inclined holes with the new Underground Roller Latch™ head assembly, the valve allows fluid to bypass the overshot and deactivate the hold-back brake allowing the inner-tube to exit the locking coupling and to significantly improve retraction rates while maintaining wireline cable tension during retrieval.
- Upon retrieval, re-seat the valve ball by inserting a tool through the fluid ports and manually forcing the ball back through the bushing.



Warning: Quick Pump-In overshots no longer include a second optional valve ball. Do not block fluid porting and do not disable the fluid bypass valve in inclined hole applications. Fluid pressure is required to ensure proper latch mechanism functionality, to deactivate the hold-back brake on the Roller Latch underground head assembly, and to avoid overload and premature wear.

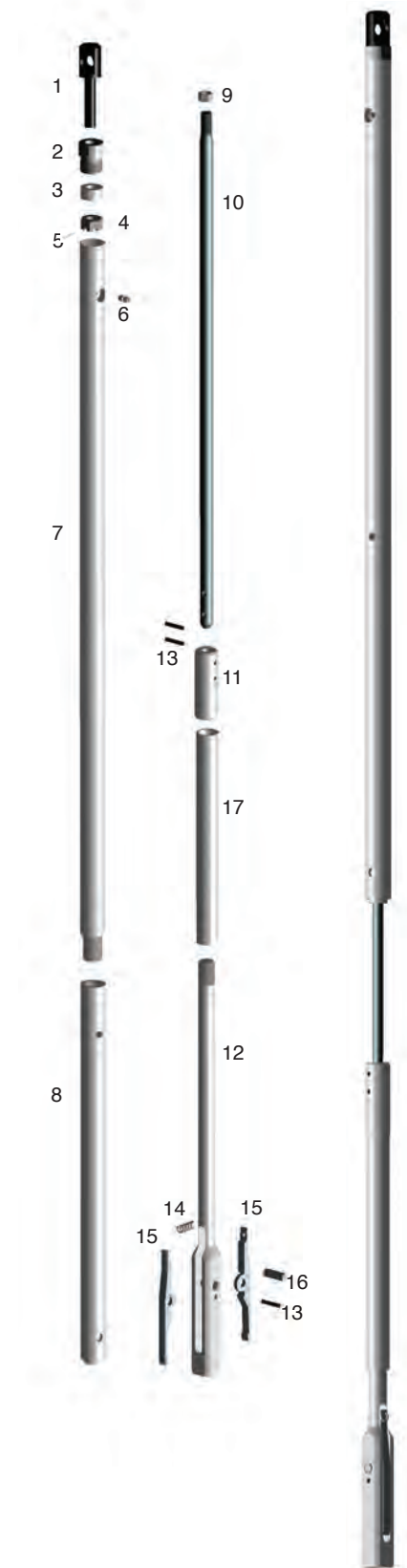
Note: The AQ™TKU overshot has been redesigned to use the same landing indicator balls and bushings as the other size overshots.

AQ™ TK OVERSHOT ASSEMBLY 61354

ID #	PART #	DESCRIPTION	QTY
1-17	61354	AQTK Overshot Assembly	
1-5	25984	AQTK Cable Swivel Eye	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNC	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	44427	Cable Swivel Body, AQTK	1
8	44428	Jar Tube, AQTK	1
9	22915	Lock Nut, 3/8" UNC	1
10	44431	Jar Staff, AQTK	1
11	44432	Jar Head Bottom, AQTK	1
12	61355	Overshot Head	1
13	45581	Coiled Pin, 3/16" x 1"	3
14	17886	Compression Spring	1
15	19128	Lifting Dog, AQTK	2
16	19125	Pivot Pin 3/8" x 1-1/8"	1
17	19126	Locking Sleeve, AQTK, Slotted	1

AQ™ TK OVERSHOT SPARES 3542586

ID#	PART #	DESCRIPTION	QTY
	3542586	AQTK Overshot Spare Parts Kit	
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNC	1
5	44615	Cotter Pin, 3/32" x 3/4"	2
6	17447	Hydraulic Grease Fitting	1
9	22915	Lock Nut, 3/8" UNC	1
13	45581	Coiled Pin, 3/16" x 1"	2
14	17886	Compression Spring	1
15	19128	Lifting Dog, AQTK	2
16	19125	Pivot Pin 3/8" x 1-1/8"	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

AQ™ TKU QUICK PUMP-IN™ OVERSHOT ASSEMBLY 5007830

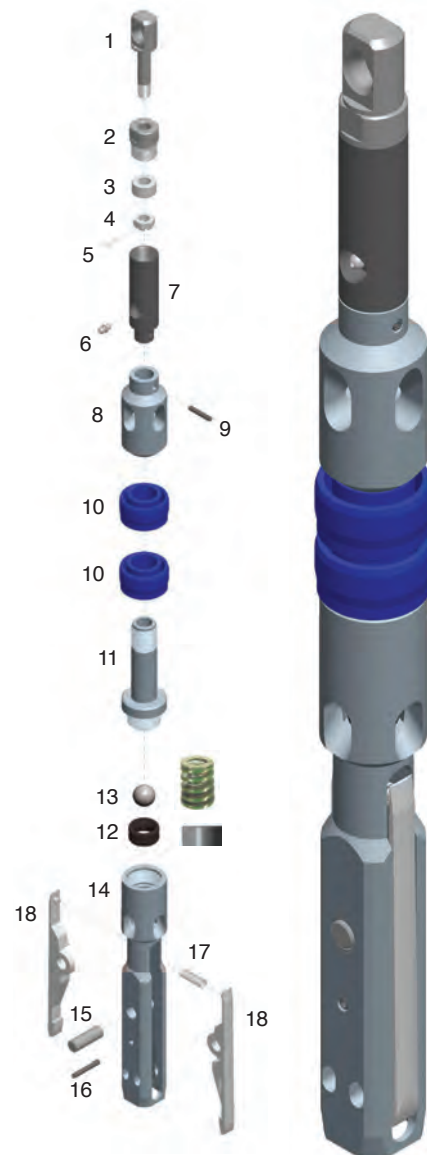
ID #	PART #	DESCRIPTION	QTY
	5007830	AQTK Overshot Assembly	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	30183	Over-Shot Cable Swivel Body	1
8	5007828	Over-Shot Upper Body	1
9	3545136	Coiled Shear Pin, 3/16" x 1-1/8"	1
10	100695	Pump-in Lip Seal, AQTK	2
11	5005024	Seal Seat, AQTKU	1
12	62380	Indicator Bushing, 22 mm	1
13	62374	Ball, 22 mm	2
14	5007829	Over-Shot Head	1
15	19125	Pivot Pin 3/8" x 1-1/8"	1
16	45581	Coiled Pin, 3/16" x 1"	1
17	17886	Compression Spring	1
18	19128	Lifting Dog, AQTK	2

AQTK HEAD OPTIONS

12	306131	Bushing, 22mm Fluid Retention	1
12	104966	Spring, Fluid Retention Light (Green)	1

AQ™ TKU OVERSHOT SPARES 5007832

ID#	PART #	DESCRIPTION	QTY
	5007832	AQTKU Overshot Spare Parts Kit	
3	25986	Thrust Bearing	1
4	25985	Castle Nut Hex, 1/2"	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
9	3545136	Coiled Shear Pin	2
13	62374	Ball, 22 mm	2
12	62380	Indicator Bushing, 22 mm	2
10	100695	Pump-In Lip Seal, AQTK	2
18	19128	Lifting Dog, AQTK	2
17	17886	Compression Spring	1
15	19125	Pivot Pin, 3/8" x 1-1/8"	1
16	45581	Coiled Pin, 3/16" x 1"	1



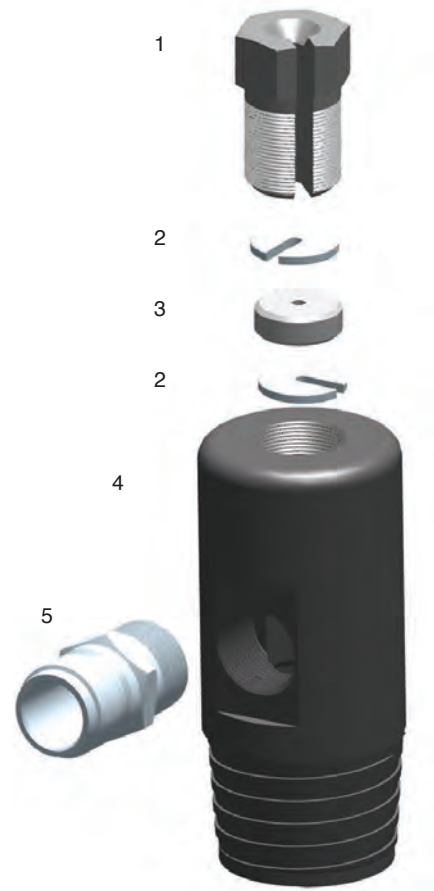
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

AQ™ TKU LOADING CHAMBER 3541814

Application:

- Underground applications with AQ™TKU core barrel and ARQTK rods.
- Used to pump the overshot into the rod string for retrieval of the inner-tube assembly.
- Identification groove supplied on ARQTK loading chamber body.
- Use 1' rod extension with Roller Latch head assemblies.

ID #	PART #	DESCRIPTION	QTY
Assembly			
1-5	3541814	Loading Chamber Assembly, ARQTK	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3541815	Loading Chamber Body, ARQTK	1
Options			
	100876	Female Quick Coupler Body	1
3	66332	Cable Packing, 1/4" / 6 mm	1
	3540972	ROD, ARQTK 2'	1



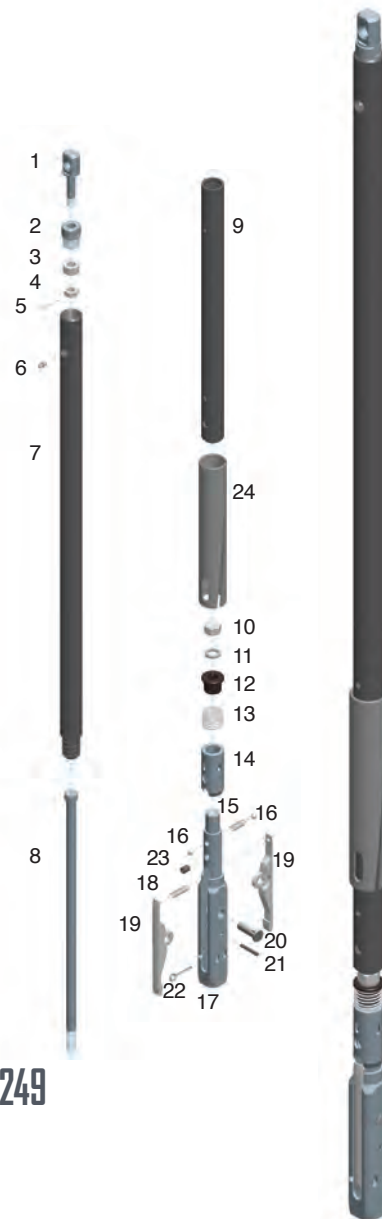
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component



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BQ™ / BQ™ TK EZY-LOCK™ OVERSHOT ASSEMBLY 3546822

ID #	PART #	DESCRIPTION	QTY
	3546822	BQ / BQTK EZY-Lock Overshot Assembly	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	44434	Cable Swivel Body, BQ	1
8	3546821	Jar Staff, BQ	1
9	44435	Jar Tube, BQ	1
10	62904	Hex Nut, 9/16" UNC	1
11	3548184	Nord-Lock Washer, 9/16"	1
12	3546823	Over-Shot Cap, BQ, EZY-Lock	1
13	3544104	Over-Shot Spring, BQ, EZY-Lock	1
14	3546883	Over-Shot Sleeve, BQ, EZY-Lock	1
15	3545053	Compression Spring	1
16	3543772	Ball, 11/32"	2
17	3546825	Over-Shot Head, BQ, EZY-Lock	1
18	6951	Compression Spring	1
19	6950	Lifting Dog, BQ	2
20	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
21	29073	Coiled Pin, 3/16" x 1-3/8"	1
22	3546747	Locking Pin	1
23	3545073	Nylok Set Screw, 3/8" x 3/4"	1
24	15575	Locking Sleeve, BQ	1



BQ™ / BQ™ TK OVERSHOT SPARES 3547249

ID#	PART #	DESCRIPTION	QTY
	3547249	BQ / BQTK Overshot Spare Parts Kit	
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	2
6	17447	Hydraulic Grease Fitting	1
10	62904	Hex Nut 9/16" UNC	1
16	3543772	Ball 11/32"	2
7	3545053	Compression Spring	1
18	6951	Compression Spring	1
19	6950	Lifting Dog, BQ	2
20	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
21	29073	Coiled Pin, 3/16" x 1-3/8"	1
22	3546747	Locking Pin	1
23	3545073	Nylok Set Screw	1

LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

BQ™ U QUICK PUMP-IN™ OVERSHOT ASSEMBLY 3547700

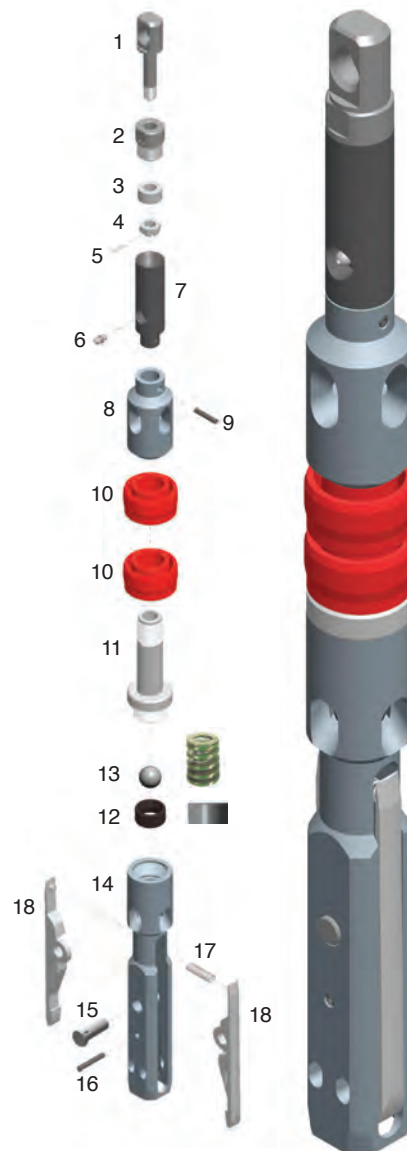
ID #	PART #	DESCRIPTION	QTY
	3547700	BQU Quick Pump-In Overshot	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	30183	Cable Swivel Body	1
8	3547807	Upper Over-Shot Body, BQU	1
9	3545136	Coiled Shear Pin, 3/16" x 1-18"	1
10	100690	Pump-In Lip-Seal, BQ	2
11	3543906	Seal Seat, BQU / BQTKU	1
12	62380	Indicator Bushing, 22 mm	1
13	62374	Ball, 22 mm	1
14	3547848	Over-Shot Head, BQU	1
15	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
16	29073	Coiled Pin, 3/16" x 1-3/8"	1
17	6951	Compression Spring	1
18	6950	Lifting Dog, BQ	2

BQU HEAD OPTIONS

12	306131	Bushing, 22mm Fluid Retention	1
12	104966	Spring, Fluid Retention Light (Green)	1

BQ™ U OVERSHOT SPARES 3548057

ID#	PART #	DESCRIPTION	QTY
	3548057	BQU Overshot Spare Parts Kit	
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
9	3545136	Coiled Shear Pin	2
13	62374	Ball, 22 mm	1
12	62380	Indicator Bushing, 22 mm	2
10	100690	Pump-In Lip Seal, BQ	2
18	6950	Lifting Dog, BQ	2
17	6951	Compression Spring	1
15	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
16	29073	Spring Pin, 3/16" x 1-3/8"	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

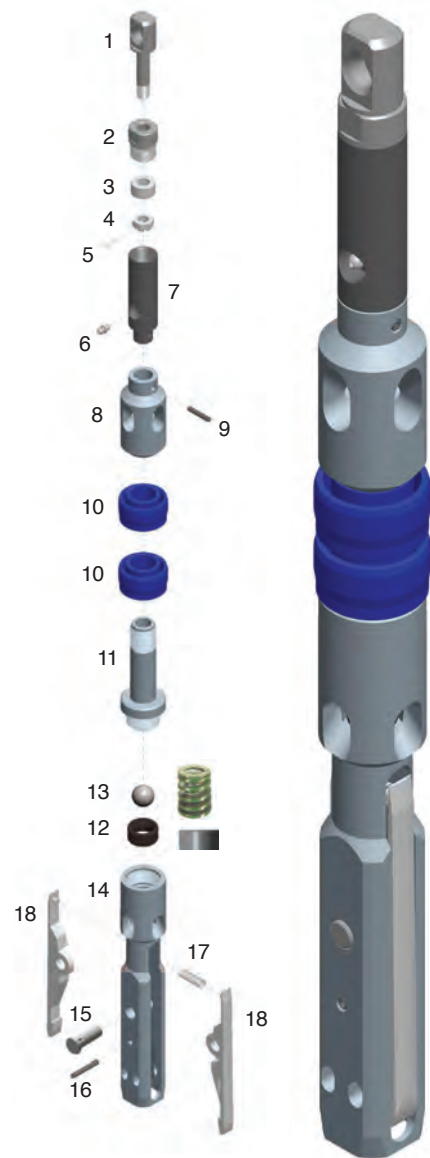
BQ™ TKU QUICK PUMP-IN™ OVERSHOT ASSEMBLY 3547870

ID #	PART #	DESCRIPTION	QTY
	3547870	BQTKU Quick Pump-In Overshot	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	30183	Over-Shot Cable Swivel Body	1
8	3547807	Over-Shot Upper Body, BQU	1
9	3545136	Coiled Shear Pin, 3/16" x 1-1/8"	1
10	64683	Pump-In Lip Seal, BQTK	2
11	3543906	Seal Seat, BQU / BQTKU	1
12	62380	Indicator Bushing, 22 mm	1
13	62374	Ball, 22 mm	1
14	3547848	Over-Shot Head, BQU	1
15	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
16	29073	Coiled Pin, 3/16" x 1-3/8"	1
17	6951	Compression Spring	1
18	6950	Lifting Dog, BQ	2

BQTKU HEAD OPTIONS			
12	306131	Bushing, 22mm Fluid Retention	1
12	104966	Spring, Fluid Retention Light (Green)	1

BQ™ TKU OVERSHOT SPARES 3548058

ID#	PART #	DESCRIPTION	QTY
	3548058	BQTKU Overshot Spare Parts Kit	
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
9	3545136	Coiled Shear Pin	2
13	62374	Ball, 22 mm	1
12	62380	Indicator Bushing, 22 mm	2
10	64683	Pump-In Lip Seal, BQTK	2
18	6950	Lifting Dog, BQ	2
17	6951	Compression Spring	1
15	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
16	29073	Coiled Pin, 3/16" x 1-3/8"	1



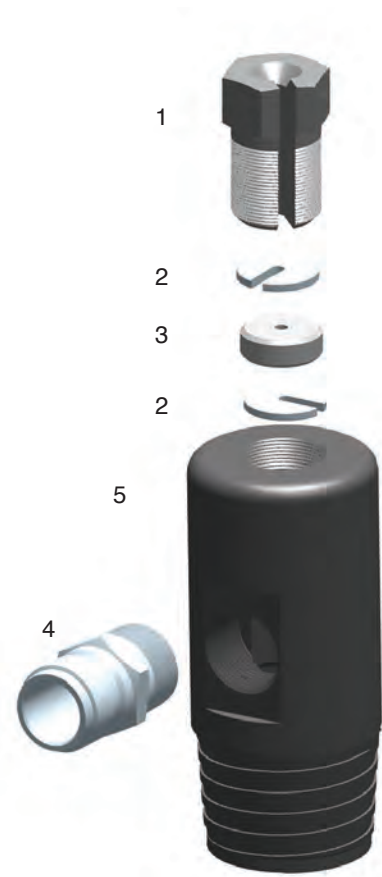
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

BQ™ U LOADING CHAMBER 3541911

Application:

- Underground applications with BQ™ U / BQTKU core barrels. Select assembly according to rod thread type - BRQ™ / BRQTK / BQ.
- Used to pump the overshot into the hole for retrieval of the inner-tube assembly.
- Identification groove supplied on BRQTK loading chamber body.
- Use 1' rod extension with Roller Latch head assemblies

ID #	PART #	DESCRIPTION	QTY
Assembly			
1-5	3541911	BRQ Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3541917	Loading Chamber Body, BRQ	1
Assembly			
1-5	3541821	BRQTK Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3541820	Loading Chamber Body, BRQTK	1
Assembly			
1-5	3542493	BQ Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3542495	Loading Chamber Body, BQ	1
Options			
	100876	Female Quick Coupler Body	1
3	66332	Cable Packing, 1/4" / 6 mm	1
	3541340	Rod, BRQ 2'	1
	3541343	Rod, BRQTK 2'	1
	51555	Rod, BQ 2'	1

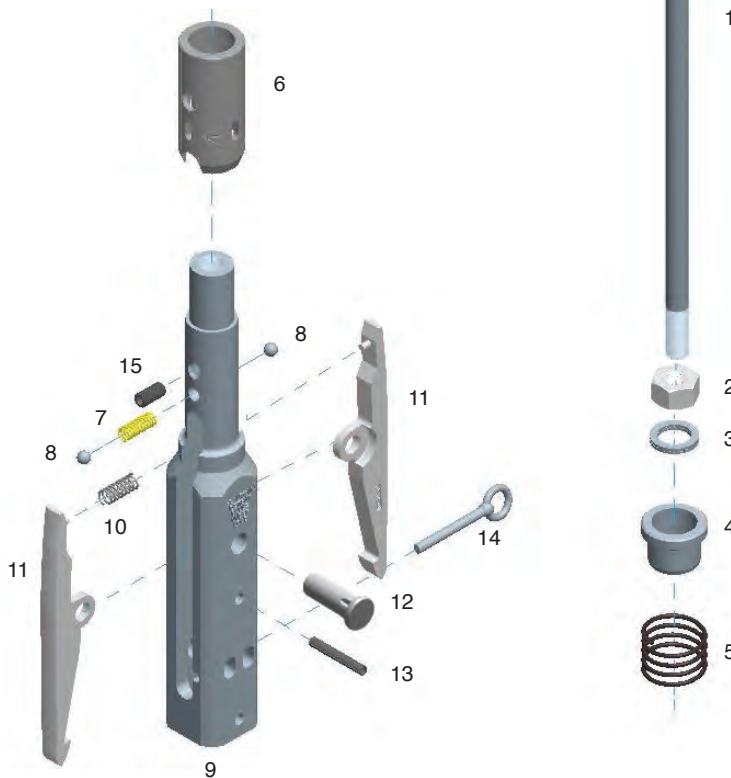


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component



BQ™ EZY-LOCK™ CONVERSION KIT 3546749

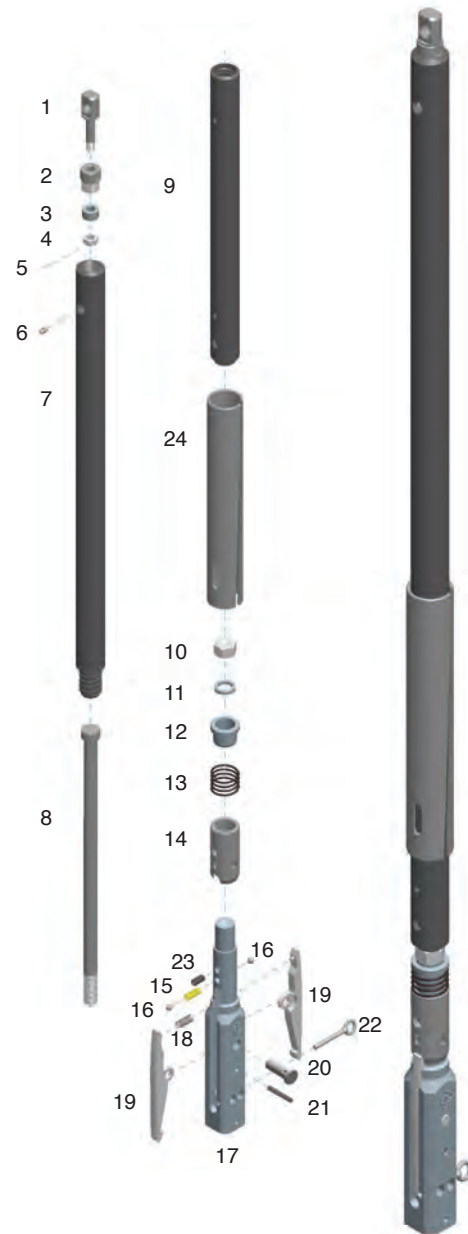
ID #	PART #	DESCRIPTION	QTY
Assembly			
1-15	3546749	EZY-Lock Overshot Conversion Kit	
Parts			
1	3546821	Jar Staff, BQ	1
2	62904	Hex Nut 9/16"	1
3	3548184	Washer, 9/16" Nord-Lock	1
4	3546823	Over-Shot Cap, BQ, EZY-Lock	1
5	3544104	Spring, BQ, EZY-Lock	1
6	3546883	Sleeve, BQ, EZY-Lock	1
7	3545053	Compression Spring	1
8	3543772	Ball, 11/32"	2
9	3546825	Over-Shot Head, BQ, EZY-Lock	1
10	6951	Compression Spring	1
11	6950	Lifting Dog, BQ	2
12	5008429	Press-fit Pin, 1/2" x 1-1/2"	1
13	29073	Spring Pin, 3/16" x 1-3/8"	1
14	3546747	Locking Pin	1
15	3545073	Nylok Set Screw, 3/8" UNF x 3/4"	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

NQ™ / NQ™TK / NQ™3 EZY-LOCK™ OVERSHOT ASSEMBLY 3546744

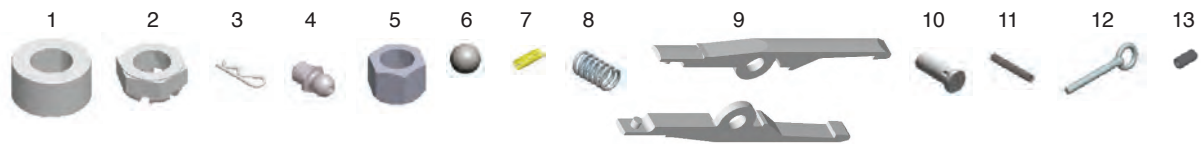
ID #	PART #	DESCRIPTION	QTY
	3546744	NQ / NQTK / NQ3 EZY-Lock Over-Shot Assembly	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	44444	Cable Swivel Body	1
8	3540516	Jar Staff	1
9	3540515	Jar Tube	1
10	44524	Hex Nut 3/4" UNC	1
11	3548178	Washer, 3/4" Nord-Lock	1
12	3544103	Over-Shot Cap, EZY-Lock	1
13	3544105	Over-Shot Spring, EZY-Lock	1
14	3546745	Over-Shot Sleeve, EZY-Lock	1
15	6951	Compression Spring	1
16	3543772	Ball, 11/32"	2
17	3546746	Over-Shot Head, NQ, EZY-Lock	1
18	3542027	Lifting Dog Spring	1
19	3540529	Lifting Dog	2
20	5007833	Press-fit Pin, 1/2" x 1-15/16"	1
21	37394	Spring Pin, 1/4" x 1-3/4"	1
22	3546747	Locking Pin	1
23	3545073	Nylok Set Screw, 3/8" UNF x 3/4"	1
24	15965	Slotted Locking Sleeve	1
	3544079	NQ / NQTK / NQ3 Dry Hole Lowering Kit	
25	3547647	Dry Hole Over-Shot Cap, NQ	1
26	306359	Spring Pin, 1/4" x 1/2"	2
27	3547648	Spacer, NQ, Dry Hole Lowering	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

NQ™ OVERSHOT SPARES 3542588

ID#	PART #	DESCRIPTION	QTY
	3542588	NQ Overshot Spare Parts Kit	
1	25986	Thrust Bearing	1
2	25985	Castle Hex Nut, 1/2" UNF	1
3	44615	Cotter Pin, 3/32" x 3/4"	2
4	17447	Grease Fitting	1
5	44524	Hex Nut, 3/4" UNC	1
6	3543772	Ball, 11/32"	2
7	6951	Compression Spring	1
8	3542027	Lifting Dog Spring	1
9	3540529	Lifting Dog	2
10	5007833	Press-fit Pin, 1/2" x 1-15/16"	1
11	5008004	Coiled Pin, 1/4" x 1-3/4"	1
12	3546747	Locking Pin	1
13	3545073	Set Screw	1



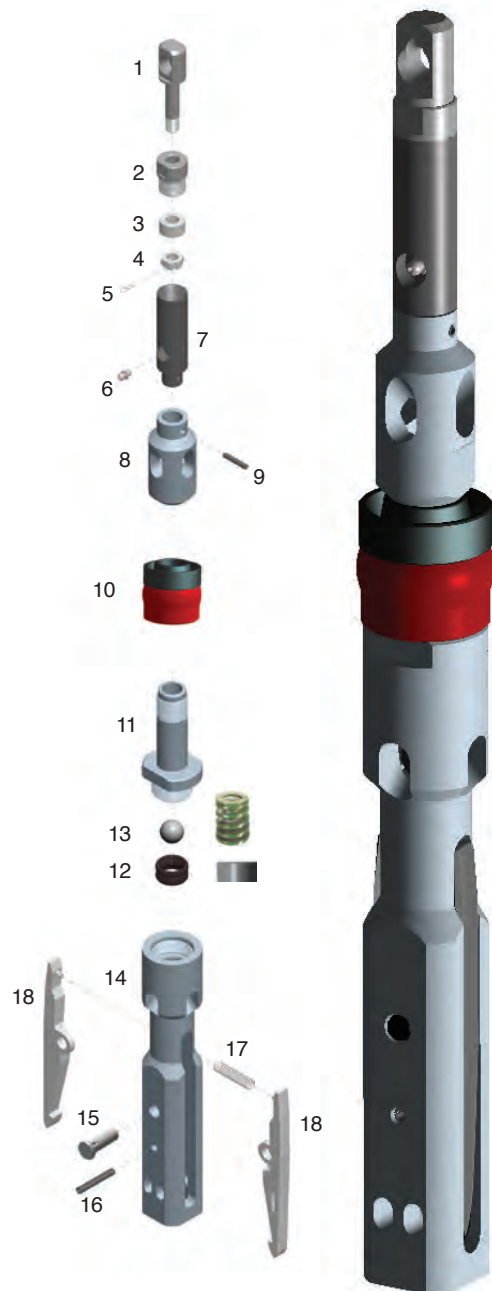
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

NQ™ U / NQ™ TKU QUICK PUMP-IN™ OVERSHOT ASSEMBLY 5007768

ID #	PART #	DESCRIPTION	QTY
	5007768	Quick Pump-In Overshot	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	30183	Over-Shot Cable Swivel Body	1
8	3547849	Over-Shot Upper Body, NQU	1
9	3545136	Coiled Shear Pin, 3/16" x 1-1/8"	1
10	5003432	Lip Seal, Pump-In, V-Wall	1
11	3543949	Seal Seat, NQU	1
12	62380	Indicator Bushing, 22 mm	1
13	62374	Ball, 22 mm	2
14	3547851	Over-Shot Head, NQU	1
15	5008430	Press-fit Pin, 1/2" x 15/16"	1
16	5008004	Coiled Pin, 1/4" x 1-3/4"	1
17	3542027	Lifting Dog Spring	1
18	3540529	Over-Shot Lifting Dog	2

NQ HEAD OPTIONS

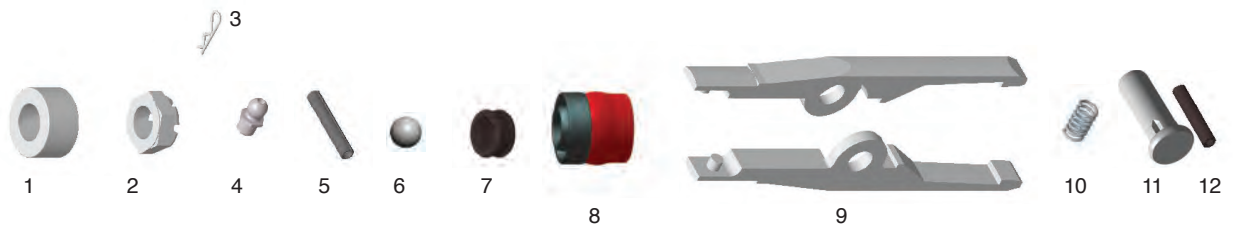
12	306131	Bushing, 22mm Fluid Retention	1
12	104966	Spring, Fluid Retention Light (Green)	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

NQ™ U / NQ™ TKU QUICK PUMP-IN™ OVERSHOT SPARES 3548059

ID#	PART #	DESCRIPTION	QTY
	3548059	NQU Over-Shot Spare Parts Kit	
1	25986	Thrust Bearing	1
2	25985	Castle Hex Nut, 1/2" UNF	1
3	44615	Cotter Pin, 3/32" x 3/4"	1
4	17447	Hydraulic Grease Fitting	1
5	3545136	Coiled Shear Pin	2
6	62374	Ball, 22 mm	1
7	62380	Indicator Bushing, 22 mm	2
8	5003432	Lip Seal, Pump-In V-Wall	1
9	3540529	Over-Shot Lifting Dog	2
10	3542027	Lifting Dog Spring	1
11	5008430	Press-fit Pin, 1/2" x 1-15/16"	1
12	5008004	Coiled Pin, 1/4" x 1-3/4"	1



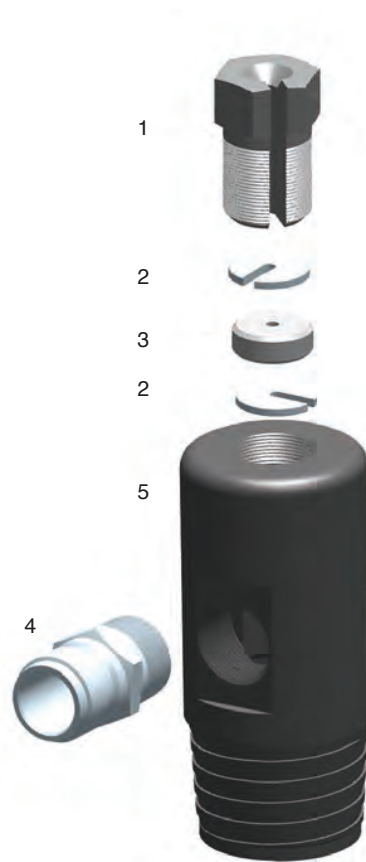
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

NQ™ U LOADING CHAMBER 3541912

Application:

- Underground applications with NQU / NQTKU core barrels. Select assembly according to rod thread type - NRQ™ / NQ.
- Used to pump the overshot into the rod string for retrieval of the inner-tube assembly
- Use 1' extension rod with Roller Latch head assemblies

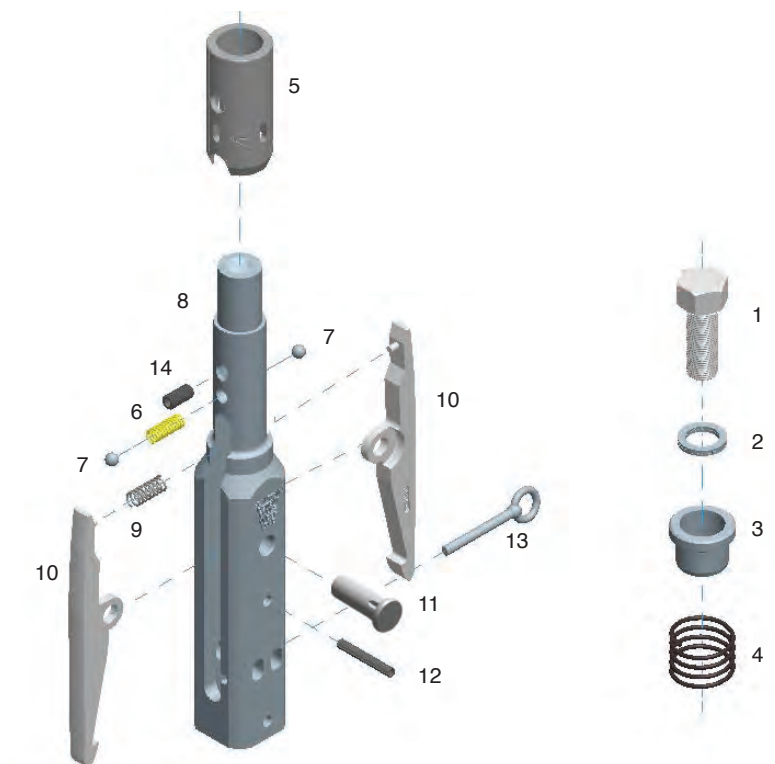
ID #	PART #	DESCRIPTION	QTY
Assembly			
1-5	3541912	NRQ Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3541918	Loading Chamber Body, NRQ	1
Assembly			
1-5	3542496	NQ Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3542497	Loading Chamber Body, NQ	1
Options			
	100876	Female Quick Coupler Body	1
3	66332	Cable Packing, 1/4" / 6 mm	1
	3541341	Rod, NRQ 2'	1
	51563	Rod NQ 2'	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

NQ™ EZY-LOCK™ CONVERSION KIT 3546878

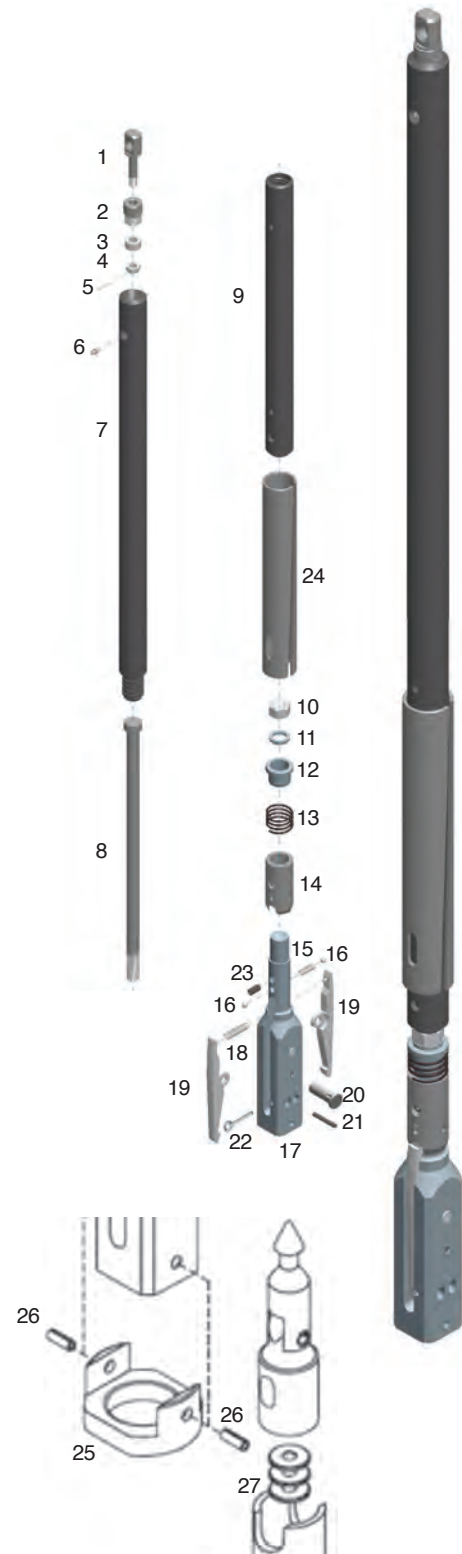
ID #	PART #	DESCRIPTION	QTY
Assembly			
1-14	3546878	EZY-Lock Overshot Conversion Kit, NQ	
Parts			
1	46098	Cap Screw, 3/4" x 1-1/2"	1
2	3548178	Washer, 3/4" Nord-Lock	1
3	3544103	Cap, EZY-Lock	1
4	3544105	Spring, EZY-Lock	1
5	3546745	Sleeve, EZY-Lock	1
6	3545053	Compression Spring	1
7	3543772	Ball, 11/32"	2
8	3546746	Head, NQ, EZY-Lock	1
9	3542027	Lifting Dog Compression Spring	1
10	3540529	Lifting Dog	2
11	5007833	Press-fit Pin 1/2" x 1-15/16"	1
12	37394	Coiled Pin, 1/4" x 1-3/4"	1
13	3546747	Locking Pin	1
14	3545073	Nylok Set Screw, 3/8" UNF x 3/4"	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

HQ™ EZY-LOCK™ OVERSHOT ASSEMBLY 3546750 / 3543855

ID #	PART #	DESCRIPTION	QTY
	3546750	HQ EZY-Lock Over-Shot Assembly	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	44444	Cable Swivel Body	1
8	3540516	Jar Staff	1
9	3540515	Jar Tube	1
10	44524	Hex Nut, 3/4" UNC	1
11	3548178	Washer, 3/4" Nord-Lock	1
12	3544103	Over-Shot Cap, EZY-Lock	1
13	3544105	Over-Shot Spring, EZY-Lock	1
14	3546745	Over-Shot Sleeve, EZY-Lock	1
15	6951	Compression Spring	1
16	3543772	Ball, 11/32"	2
17	3546748	Over-Shot Head, HQ, EZY-Lock	1
18	3542027	Lifting Dog Spring	1
19	3540529	Lifting Dog	2
20	5008431	Press-fit Pin, 1/2" x 2-1/8"	1
21	5000352	Coiled Pin, 1/4" x 2"	1
22	3546747	Locking Pin	1
23	3545073	Nylok Set Screw, 3/8" UNF x 3/4"	1
24	15965	Slotted Locking Sleeve	1
	3543855	HQ / PQ / PQ3 Dry Hole Lowering Kit	
25	3543854	Dry Hole Over-Shot Cap, HQ	1
26	35788	Spring Pin, 1/4" x 5/8"	2
27	19464	Flat Washer, 1" SAE	3



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

HQ™ OVERSHOT SPARES 3542589

ID#	PART #	DESCRIPTION	QTY
	3542589	HQ Overshot Spare Parts Kit	
1	25986	Thrust Bearing	1
2	25985	Castle Hex Nut, 1/2" UNF	1
3	44615	Cotter Pin, 3/32" x 3/4"	2
4	17447	Hydraulic Grease Fitting	1
5	44524	Hex Nut, 3/4" UNC	1
6	3543772	Ball, 22 mm	2
7	6951	Compression Spring	1
8	3542027	Lifting Dog Spring	1
9	3540529	Lifting Dog	2
10	5008431	Press-fit Pin, 1-1/2" x 2-1/8"	1
11	5000352	Coiled Pin, 1/4" x 2"	1
12	3546747	Locking Pin	1
13	3545073	Set Screw	1

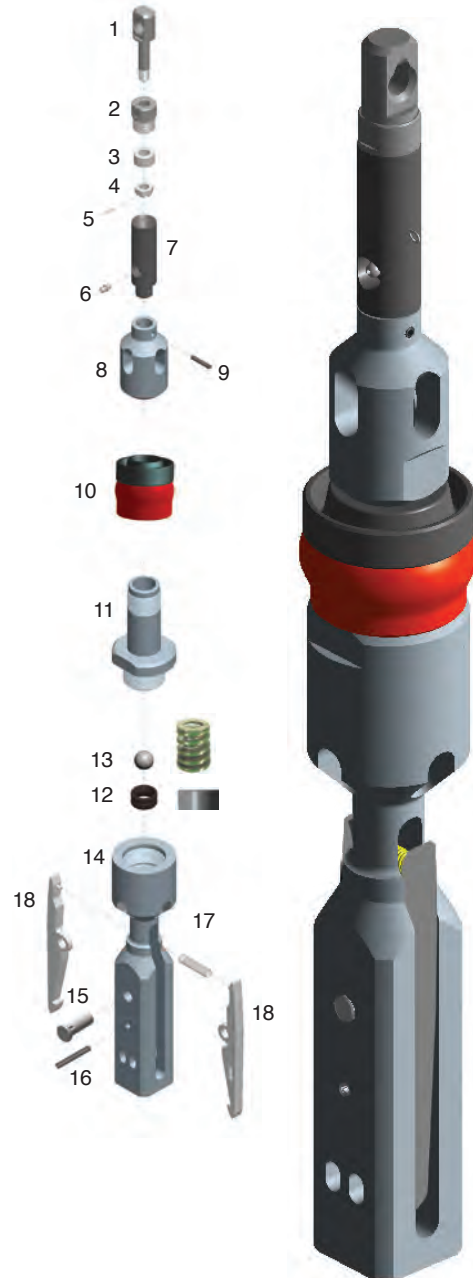


LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

HQ™ U QUICK PUMP-IN™ OVERSHOT ASSEMBLY 5007769

ID #	PART #	DESCRIPTION	QTY
	5007769	HQU Quick Pump-In Over Shot	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	30183	Over-Shot Cable Swivel Body	1
8	3547853	Upper Over-Shot Body, HQU	1
9	3545136	Coiled Shear Pin, 3/16" x 1-1/8"	1
10	5006212	Pump-In V-Lip Seal, HQU	1
11	3543997	Seal Seat, HQU / NQU	1
12	62380	Indicator Bushing, 22 mm	1
13	62374	Ball, 22 mm	1
14	3547854	Over-Shot Head, HQU	1
15	5008431	Press-fit Pin, 1/2" x 2-1/8"	1
16	5000352	Coiled Pin, 1/4" x 2"	1
17	3542027	Lifting Dog Spring	1
18	3540529	Over-Shot Lifting Dog	2

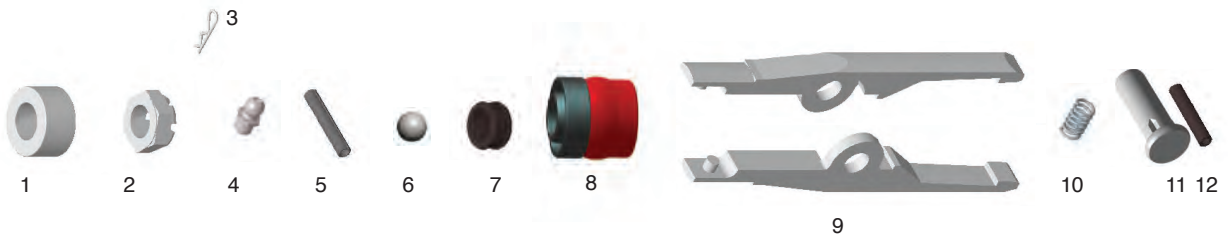
HQ HEAD OPTIONS			
12	306131	Bushing, 22mm Fluid Retention	1
12	104966	Spring, Fluid Retention Light (Green)	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

HQ™ U OVERSHOT SPARES 3548060

ID#	PART #	DESCRIPTION	QTY
	3548060	HQU Overshot Spare Parts Kit	
1	25986	Thrust Bearing	1
2	25985	Castle Hex Nut, 1/2" UNF	1
3	44615	Cotter Pin, 3/32" x 3/4"	2
4	17447	Hydraulic Grease Fitting	1
5	3545136	Coiled Shear Pin	2
6	62374	Ball, 22 mm	1
7	62380	Indicator Bushing, 22 mm	2
8	5006212	Pump-In Lip Seal, V-Wall	1
9	3540529	Over-Shot Lifting Dog	2
10	3542027	Lifting Dog Spring	1
11	5000352	Spring Pin, 1/4" x 2"	1
12	5008431	Press-fit Pin, 1/2" x 2-1/8"	1



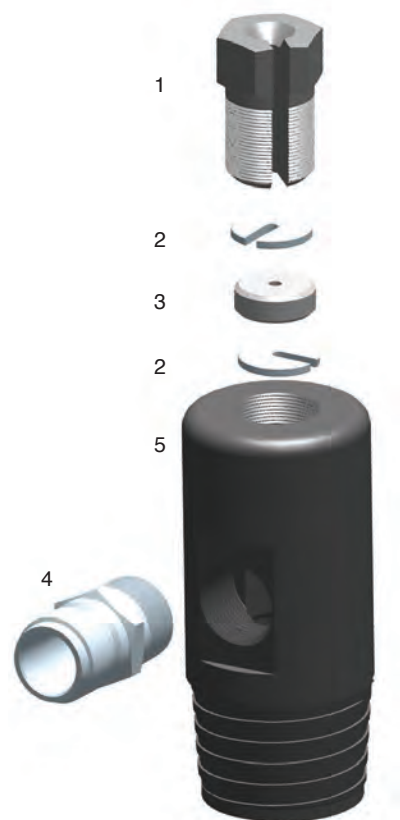
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

HQ™ U LOADING CHAMBER 3542138 / 3542498

Application:

- Underground applications with HQ™U core barrels. Select assembly according to rod thread type - HRQ™ / HQ. Rods require an adapter sub, see adapter sub section.
- Used to pump the overshot into the rod string for retrieval of the inner-tube assembly
- Use 1' rod extension with Roller Latch head assemblies

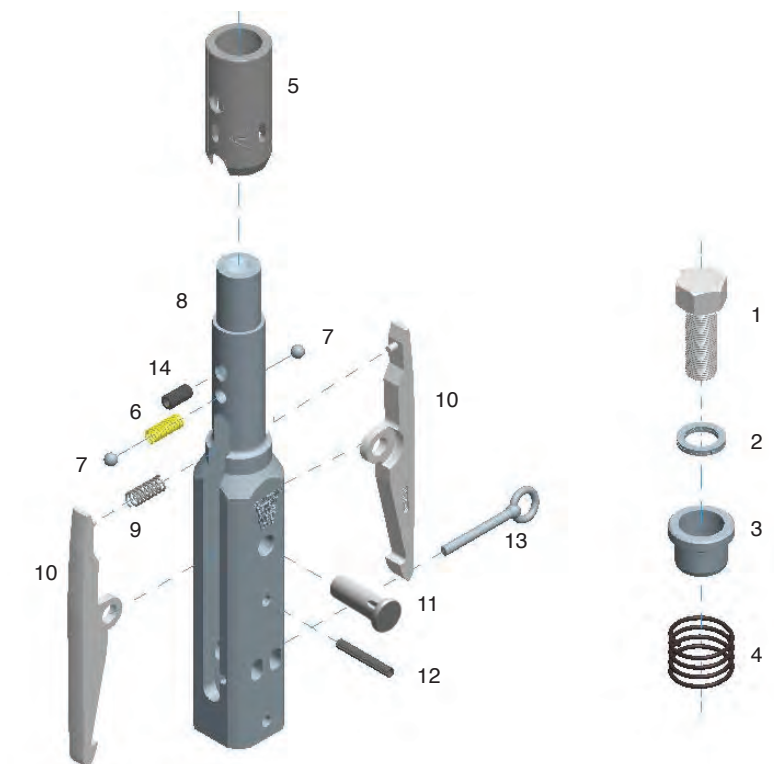
ID #	PART #	DESCRIPTION	QTY
Assembly			
1-5	3542138	HRQ Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3542137	Loading Chamber Body, HRQ	1
Assembly			
1-5	3542498	HQ Loading Chamber Assembly	
Parts			
1	3541817	Packing Plug	1
2	3541816	Cable Guide Washer, 3/16" / 5 mm	2
3	25546	Cable Packing, 3/16" / 5 mm	1
4	104597	Quick Coupler Tip #16 NPT	1
5	3542499	Loading Chamber Body, HQ	1
Options			
	100876	Female Quick Coupler Body	1
3	66332	Cable Packing, 1/4" / 6 mm	1
	3541342	Rod, HRQ 2'	1
	51569	Rod, HQ 2'	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

HQ™ EZY-LOCK™ CONVERSION KIT 3546879

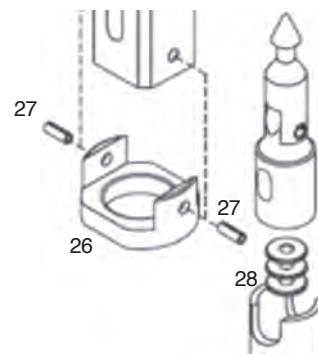
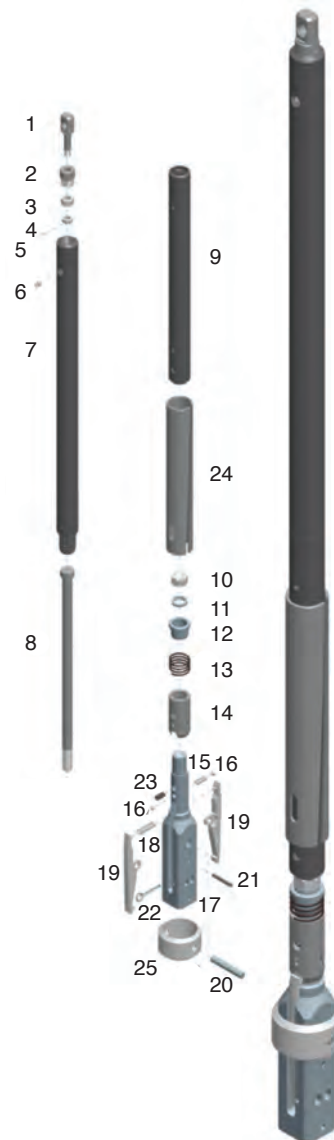
ID #	PART #	DESCRIPTION	QTY
Assembly			
1-14	3546879	EZY-Lock Over Shot Conversion Kit, HQ	
Parts			
1	46098	Cap Screw, 3/4" UNC x 1-1/2"	1
2	3548178	Washer, 3/4" Nord-Lock	1
3	3544103	Over-Shot Cap, EZY-Lock	1
4	3544105	Over-Shot Spring, EZY-Lock	1
5	3546745	Over-Shot Sleeve, EZY-Lock	1
6	6951	Compression Spring	1
7	3543772	Ball, 11/32"	2
8	3546748	Over-Shot Head, HQ, EZY-Lock	1
9	3542027	Lifting Dog Spring	1
10	3540529	Lifting Dog	2
11	5007834	Press-fit Pin, 1/2" x 2-1/8"	1
12	24307	Coiled Pin, 1/4" x 2"	1
13	3546747	Locking Pin	1
14	3545073	Nylok Set Screw, 3/8" UNF x 3/4"	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

PQ™ EZY-LOCK™ OVERSHOT ASSEMBLY 3546895 / 3543855

ID #	PART #	DESCRIPTION	QTY
	3546895	PQ EZY-Lock Over Shot Assembly	
1	25991	Bolt, Cable Swivel Eye	1
2	25990	Cable Swivel Collar	1
3	25986	Thrust Bearing	1
4	25985	Castle Hex Nut, 1/2" UNF	1
5	44615	Cotter Pin, 3/32" x 3/4"	1
6	17447	Hydraulic Grease Fitting	1
7	44444	Cable Swivel Body	1
8	3540516	Jar Staff	1
9	3540515	Jar Tube	1
10	44524	Hex Nut, 3/4" UNC	1
11	3548178	Washer, 3/4" Nord-Lock	1
12	3544103	Over-Shot Cap, EZY-Lock	1
13	3544105	Over-Shot Spring, EZY-Lock	1
14	3546745	Over-Shot Sleeve, EZY-Lock	1
15	6951	Compression Spring	1
16	3543772	Ball, 11/32"	2
17	3546748	Over-Shot Head, HQ, EZY-Lock	1
18	3542027	Lifting Dog Spring	1
19	3540529	Lifting Dog	2
20	3540213	Plain Pin, 1/2" x 3-1/4"	1
21	5000352	Coiled Pin, 1/4" x 2"	1
22	3546747	Locking Pin	1
23	3545073	Nylok Set Screw, 3/8" UNF x 3/4"	1
24	15965	Slotted Locking Sleeve	1
25	3541072	PQ Overshot Head Sleeve	1
	3543855	HQ/PQ/PQ3 Dry Hole Lowering Kit	
26	3543854	Dry Hole Over-Shot Cap, HQ	1
27	35788	Spring Pin 1/4" x 5/8"	2
28	19464	Flat Washer, 1" SAE	3



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

PQ™ EZY-LOCK™ OVERSHOT SPARES 5007839

ID#	PART #	DESCRIPTION	QTY
	5007839	PQ Overshot Spare Parts Kit	
1	25986	Thrust Bearing	1
2	25985	Castle Hex Nut, 1/2" UNF	1
3	44615	Cotter Pin, 3/32" x 3/4"	2
4	17447	Hydraulic Grease Fitting	1
5	44524	Hex Nut, 3/4" UNC	1
6	3543772	Ball, 11/32"	2
7	6951	Compression Spring	1
8	3542027	Lifting Dog Spring	1
9	3540529	Lifting Dog	2
10	3540213	Plain Pin, 1/2" x 3-1/4"	1
11	5000352	Spring Pin, 1/4" x 2"	1
12	3546747	Locking Pin	1
13	3545073	Nylok Set Screw	1



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component



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Core Lifters

COMPONENTS

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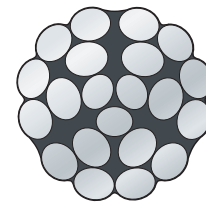
WIRELINER CABLE

WIRELINER CABLE		KGS / M
5001181	Galvanized, 3/16" (5 mm)	0.13
563675	Swaged, 3/16" (5 mm)	0.13
5001183	Galvanized, 1/4" (6 mm)	0.18
5001184	Galvanized, 3/8" (10 mm)	0.26

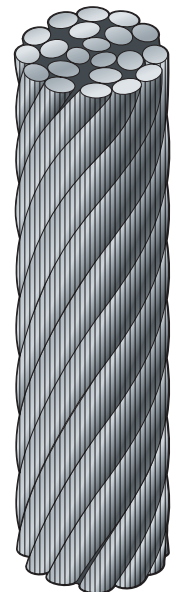
WIRELINER CABLE OVAL SLEEVE	KGS	LBS
30172	Galvanized, 3/16" (5 mm)	0.02 / 0.05
60382	Galvanized, 1/4" (6 mm)	0.02 / 0.05

Swaged Construction Wire Rope Features:


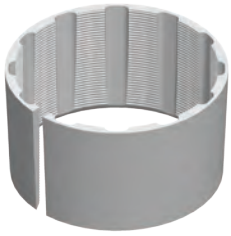

- Longer life
- Safer to handle
- 50 percent higher breaking strength than cable previously offered
- High resistance to unraveling, resists "bird nesting"
- Compatible with 3/16" / 5 mm Nicopress oval sleeve (p/n 30172)



Left-hand Lay Rotary Wire Rope



CORE LIFTERS

		
Slotted	Fluted	Spiral
<ul style="list-style-type: none"> • Ideal for use in competent ground conditions • Increased grip area with the core sample • Also known as the “Brown Style” core lifter 	<ul style="list-style-type: none"> • Ideal for use in broken ground • Increased flexibility; ideal for use when encountering irregular core • Also known as a “broached” core lifter 	<ul style="list-style-type: none"> • Ideal for use in ultra hard ground conditions • Only available in AQ™TK sizing

Standard Core Lifters Features

Boart Longyear™ core lifters are made of high-quality alloy steel and are heat treated to increase strength, toughness and wear life.

Diamond-Coated Core Lifters Features

Diamond-coated core lifters add a thin composite diamond-coating (CDC) of a hard metal alloy impregnated with synthetic micro-diamonds. The diamond coating process provides superior wear resistance. Based on field results, the diamond coated core lifter returns approximately 300% longer life as compared to a standard core lifter.

STANDARD CORE LIFTERS	
52877	AQTK Core Lifter - Spiral
24342	BQ Core Lifter - Fluted
30487	BQ Core Lifter - Slotted
61536	BQTK Core Lifter - Slotted
24894	NQ Core Lifter - Fluted
30488	NQ Core Lifter - Slotted
29211	NQTK* Core Lifter - Fluted
61416	NQTK Core Lifter - Slotted
26531	NQ3 Core Lifter - Fluted
25239	HQ Core Lifter - Fluted
30489	HQ Core Lifter - Slotted
26516	HQ3 Core Lifter - Fluted
26162	PQ Core Lifter - Fluted
26177	PQ3 Core Lifter - Fluted

DIAMOND-COATED CORE LIFTERS	
3545588	AQTK Core Lifter - Spiral
5001509	BQ Core Lifter - Fluted
3546910	BQ Core Lifter - Slotted
3545885	BQTK Core Lifter - Slotted
3548554	NQ Core Lifter - Fluted
3546911	NQ Core Lifter - Slotted
3547571	NQTK* Core Lifter - Fluted
5001510	NQTK Core Lifter - Slotted
3547181	NQ3 Core Lifter - Fluted
3548555	HQ Core Lifter - Fluted
3546912	HQ Core Lifter - Slotted
3547137	HQ3 Core Lifter - Fluted
3548626	PQ Core Lifter - Fluted
5001511	PQ3 Core Lifter - Fluted

* NQTK also known as NQ2

INNER-TUBES

STANDARD INNER-TUBES	
52911	AQTK Inner-tube 1.5 M / 5.0 FT
52585	AQTK Inner-tube 3.0 M / 10.0 FT
24356	BQ Inner-tube 1.5 M / 5.0 FT
61518	BQTK Inner-tube 1.5 M / 5.0 FT
24339	BQ Inner-tube 3.0 M / 10.0 FT
53197	BQTK Inner-tube 3.0 M / 10.0 FT
24909	NQ Inner-tube 1.5 M / 5.0 FT
44366	NQTK* Inner-tube 1.5 M / 5.0 FT
24891	NQ Inner-tube 3.0 M / 10.0 FT
43601	NQTK* Inner-tube 3.0 M / 10.0 FT
63033	NQTK* Lower Inner-tube 3.0 M / 10.0 FT
25258	HQ Inner-tube 1.5 M / 5.0 FT
25236	HQ Inner-tube 3.0 M / 10.0 FT
26159	PQ Inner-tube 1.5 M / 5.0 FT
26534	PQ Inner-tube 3.0 M / 10.0 FT

INNER-TUBE COUPLINGS AND EXTENDAS	
61129	AQTK Coupling
62200	AQTK Extenda 1.5 M / 5.0 FT
31402	BQ Coupling
64584	BQ Extenda 1.5 M / 5.0 FT
61520	BQTK Coupling
62775	BQTK Extenda 1.5 M / 5.0 FT
31403	NQ Coupling
5006703	NQ Extenda 1.5 M / 5.0 FT
101999	NQTK* Coupling
104884	NQTK* Extenda 1.5 M / 5.0 FT
31404	HQ Coupling
5000854	PQ Extenda 3.0M/10.0 FT

SPLIT TUBES (not available in chrome plated)	
26527	NQ3 Split tube 1.5 M / 5.0 FT
26528	NQ3 Split tube 3.0 M / 10.0 FT
26512	HQ3 Split tube 1.5 M / 5.0 FT
26513	HQ3 Split tube 3.0 M / 10.0 FT
26180	PQ3 Split tube 1.5 M / 5.0 FT
26710	PQ3 Split tube 3.0 M / 10.0 FT

* NQTK also known as NQ2

Inner-tube Features

Boart Longyear offers the option of **chrome plating** that provides a tough abrasion-resistant coating which increases product life and improves core recovery. Simply add a “CP” suffix to the inner-tube, coupling or Extenda item number when ordering.

AVAILABLE LENGTHS:

Inner-tube - 1.5 M / 5.0 FT

Inner-tube - 3.0 M / 10.0 FT



Core barrel inner-tubes can be extended by either adding a second inner-tube and coupling, or by using a one piece Extenda.

Note that couplings and extendas add significant length to make-up for the additional outer tube length that is added when extending a core barrel. Outer tubes have additional length because they accommodate the length of the head assembly.

The Boart Longyear **exclusive Q™3 System** is designed to be used in broken ground where core recovery is difficult. The split tube liner sits inside the standard inner-tube and keeps the sample intact.

INNER-TUBE EXTENSIONS

STABILIZED SHELLS	
34687	BQ Shell Extension
34688	NQ Shell Extension
104218	NQTK* Shell Extension
34860	HQ Shell Extension

DOUBLE SHELLS	
64750	BQ Double Shell Extension
3545112	BQTK Double Shell Extension
63877	NQ Double Shell Extension

Inner-tube Extensions Product Features

An inner-tube extension makes up for use of an extended length reaming shell, or double shells, in the outer-tube assembly.



STOP RINGS

STOP RINGS	
52588	AQTK Stop Ring
24831	BQ Stop Ring
53198	BQTK Stop Ring
24893	NQ Stop Ring
29210	NQTK* Stop Ring
26530	NQ3 Stop Ring
25238	HQ Stop Ring
26515	HQ3 Stop Ring
26161	PQ Stop Ring
26176	PQ3 Stop Ring

Stop Rings Features

Boart Longyear™ stop rings are made of high-quality alloy steel tubing that is specially heat-treated to increase strength, toughness and wear life.



CORE LIFTER CASE

CORE LIFTER CASE	
5001021	AQTK Core Lifter Case
24830	BQ Core Lifter Case
53199	BQTK Core Lifter Case
24892	NQ Core Lifter Case
29209	NQTK* Core Lifter Case
5008320	NQ-P Core Lifter Case
26529	NQ3 Core Lifter Case
65600	NQTT Core Lifter Case
25237	HQ Core Lifter Case
5007937	HQ-P Core Lifter Case
26514	HQ3 Core Lifter Case
65607	HQTT Core Lifter Case
52172	PQ Core Lifter Case
26160	PQ3 / PQTT Core Lifter Case

Core Lifter Features

Boart Longyear core lifter cases are made of a high-quality alloy steel that is specially heat-treated to increase strength, toughness and wear life. Available in Q, QTK, Q-P, Q3, and QTT models. The piloted Q-P and QTT core lifter cases work with Q-P and QTT bits to route fluid flow to the cutting face – further improving core recovery.



* NQTK also known as NQ2

LOCKING COUPLINGS - LINK LATCH™

STABILIZED LOCKING COUPLING	
5007771	ARQTK Stabilized Locking Coupling
5007781	BQ Stabilized Locking Coupling
5007782	BRQ Stabilized Locking Coupling
5007783	BQ Stabilized Locking Coupling with Tang
5007784	BRQ Stabilized Locking Coupling with Tang
5007772	BRQTK Stabilized Locking Coupling
5007773	BRQTK Stabilized Locking Coupling with Tang
5007785	NQ Stabilized Locking Coupling
5007786	NRQ Stabilized Locking Coupling
5007787	NQ Stabilized Locking Coupling with Tang
5007788	NRQ Stabilized Locking Coupling with Tang
5007789	HQ Stabilized Locking Coupling
5007790	HRQ Stabilized Locking Coupling
5007791	HQ Stabilized Locking Coupling with Tang
5007792	HRQ Stabilized Locking Coupling with Tang
5007948	PHD Stabilized Locking Coupling
5007949	PHD Stabilized Locking Coupling with Tang

FULL-HOLE LOCKING COUPLING	
3546397	ARQTK Full-hole Locking Coupling
3545401	BQ Full-hole Locking Coupling
3545399	BRQ Full-hole Locking Coupling
3545402	BRQTK Full-hole Locking Coupling
5002420	BRQTK Full-hole Locking Coupling with Tang
3545400	BQ Full-hole Locking Coupling with Tang
3545398	BRQ Full-hole Locking Coupling with Tang
3546190	NQ Full-hole Locking Coupling
3545405	NQ Full-hole Locking Coupling with Tang
3545403	NRQ Full-hole Locking Coupling with Tang
3545404	NRQ Full-hole Locking Coupling
3545410	HQ Full-hole Locking Coupling
3545408	HRQ Full-hole Locking Coupling
3545409	HQ Full-hole Locking Coupling with Tang
3545407	HRQ Full-hole Locking Coupling with Tang

Link Latch™ Couplings Product Features

Link Latch™ locking couplings are made out of quench and tempered alloy steel for improved wear life and strength. Their hardened shoulder face resists abrasive wear from mating latches for improved latching reliability.

Boart Longyear offers the option of a tang, which is the tab of steel located on the pin end of the locking coupling. The tang acts as a physical stop against the core barrel head latches, and ensures the core barrel head

STABILIZED Locking Coupling Features

- New spiral wear pads with high density tungsten for improved wear life.
- Can be used in all drilling conditions.



Full-hole Locking Coupling Features

- Oversized-pads for improved hole stabilization.
- Pads induction-hardened for increased wear resistance.
- For use in competent ground conditions.
- Hard-faced latch resting area for increased latching reliability.



rotates with the rod string. This eliminates latch wear against the locking coupling. These tangs are to be used for surface applications only. Please refer to the adapter coupling page for underground applications (page 171).

NOTE: Not compatible with Roller Latch™ head assemblies.

Roller Latch Locking Couplings are not compatible with Link Latch Adapter Couplings.

Do not use tanged couplings with QU systems.

ADAPTER COUPLINGS - LINK LATCH™

SURFACE ADAPTER COUPLING	
3547073	AQTK Adapter Coupling
24833	BQ Adapter Coupling
5001567	BQTK Adapter Coupling
24896	NQ Adapter Coupling
25241	HQ Adapter Coupling
3543808	PQ Adapter Coupling PQ OT/B

UNDER GROUND ADAPTER COUPLING	
3547073	AQTKU Adapter Coupling
3546704	BQU Adapter Coupling
3546705	BQTKU Adapter Coupling
3546706	NQU Adapter Coupling
3546707	HQU Adapter Coupling

Adapter Coupling- Link Latch™ Features
Boart Longyear™ adapter couplings are made of a high quality alloy steel for increased durability.

Note: Required for Link Latch™ head assemblies, however not compatible with Roller Latch™ head assemblies.



LANDING RINGS

LANDING RINGS	
52589	AQTK Landing Ring
24345	BQ Landing Ring
53202	BQTK Landing Ring
24897	NQ Landing Ring
29214	NQTK Landing Ring
25242	HQ Landing Ring
3543814	PQ Landing Ring

Landing Rings Product Features
Made of high quality alloy steel that is specially heat treated for improved impact toughness and durability.



INNER-TUBE STABILIZERS

INNER-TUBE STABILIZERS	
52635	AQTK Inner-tube Stabilizer
44406	BQ Inner-tube Stabilizer
53201	BQTK Inner-tube Stabilizer
44407	NQ Inner-tube Stabilizer
43812	NQTK Inner-tube Stabilizer
44408	HQ Inner-tube Stabilizer
44923	PQ Inner-tube Stabilizer
5000617	PQ Inner-tube Stabilizer, Outer-tube Extenda

Inner-tube Stabilizer Features
Boart Longyear inner-tube stabilizers are made of high quality bronze alloy.

The purpose of the inner-tube stabilizer is to stabilize the inner-tube at the bottom of the hole, directly above the bit or near the core lifter case.



LOCKING COUPLINGS - ROLLER LATCH™ QUICK DESCENT™

ROLLER LATCH QUICK DESCENT STABILIZED LOCKING COUPLING	
5007910	BQ Roller Latch Quick Descent Stabilized Locking Coupling
5007909	BRQ Roller Latch Quick Descent Stabilized Locking Coupling
5007908	BRQTK Roller Latch Quick Descent Stabilized Locking Coupling
5007905	NQ Roller Latch Quick Descent Stabilized Locking Coupling
5007904	NRQ Roller Latch Quick Descent Stabilized Locking Coupling
5007907	HQ Roller Latch Quick Descent Stabilized Locking Coupling
5007906	HRQ Roller Latch Quick Descent Stabilized Locking Coupling
5007799	PHD Roller Latch Quick Descent Stabilized Lock Coupling

Roller Latch™ Quick Descent™ Stabilized Locking Coupling Features

- New spiral wear pads with high-density tungsten for improved wear life.
- Can be used in all drilling conditions.
- Roller Latch does not require keys or tangs.
- Not compatible with Link Latch™ head assemblies.



Single internal latch groove for Quick Descent

ROLLER LATCH QUICK DESCENT FULL-HOLE LOCKING COUPLING	
5007902	BQ Roller Latch Full-hole Locking Coupling
5007901	BRQ Roller Latch Full-hole Locking Coupling
5007900	BRQTK Roller Latch Full-hole Locking Coupling
5007897	NQ Roller Latch Full-hole Locking Coupling
5007896	NRQ Roller Latch Full-hole Locking Coupling
5007899	HQ Roller Latch Full-hole Locking Coupling
5007898	HRQ Roller Latch Full-hole Locking Coupling

Roller Latch™ Quick Descent™ Full-hole Locking Coupling Features

- Oversized pads for improved hole stabilization.
- Pads induction-hardened for increased wear resistance.
- For use in competent ground conditions.
- Roller Latch does not require keys or tangs.
- Not compatible with Link Latch™ head assemblies.



Roller Latch™ Couplings Product Features

Roller Latch locking couplings are made out of quench and tempered alloy steel for improved wear life and strength. The rolling action of Roller Latches eliminates the abrasive wear associated with other latch technologies. For more information about Roller Latch technology see page 93.

LOCKING COUPLINGS - ROLLER LATCH™ QUICK PUMP-IN™

ROLLER LATCH QUICK PUMP-IN STABILIZED LOCKING COUPLING	
5007716	ARQTK Roller Latch Stabilized Locking Coupling
5007717	BQ Roller Latch Stabilized Locking Coupling
5007718	BRQ Roller Latch Stabilized Locking Coupling
5007719	BRQTK Roller Latch Stabilized Locking Coupling
5007722	NQ Roller Latch Stabilized Locking Coupling
5007723	NRQ Roller Latch Stabilized Locking Coupling
5007720	HQ Roller Latch Stabilized Locking Coupling
5007721	HRQ Roller Latch Stabilized Locking Coupling

ROLLER LATCH QUICK PUMP-IN FULL-HOLE LOCKING COUPLING	
5006000	ARQTK Roller Latch Full-hole Locking Coupling
5008912	BQ Roller Latch Full-hole Locking Coupling
5004361	BRQ Roller Latch Full-hole Locking Coupling
5006001	BRQTK Roller Latch Full-hole Locking Coupling
5008913	NQ Roller Latch Full-hole Locking Coupling
5006002	NRQ Roller Latch Full-hole Locking Coupling
5008914	HQ Roller Latch Full-hole Locking Coupling
5006004	HRQ Roller Latch Full-hole Locking Coupling

Roller Latch™ Quick Pump-In™ Stabilized Locking Coupling Features

- New spiral wear pads with high-density tungsten for improved wear life.
- Can be used in all drilling conditions.
- Roller Latch does not require keys or tangs.
- Not compatible with Link Latch™ head assemblies.



Dual internal latch grooves for Quick Pump-In

Roller Latch™ Quick Pump-In™ Full-hole Locking Coupling Features

- Oversized pads for improved hole stabilization.
- Pads induction-hardened for increased wear resistance.
- For use in competent ground conditions.
- Roller Latch does not require keys or tangs.
- Not compatible with Link Latch™ head assemblies.



OUTER-TUBES

STANDARD OUTER-TUBES	
52908	AQTK Outer-tube 1.5 M / 5.0 FT
52578	AQTK Outer-tube 3.0 M / 10.0 FT
24357	BQ Outer-tube 1.5 M / 5.0 FT
61517	BQTK Outer-tube 1.5 M / 5.0 FT
24346	BQ Outer-tube 3.0 M / 10.0 FT
53193	BQTK Outer-tube 3.0 M / 10.0 FT
24910	NQ Outer-tube 1.5 M / 5.0 FT
24898	NQ Outer-tube 3.0 M / 10.0 FT
25259	HQ Outer-tube 1.5 M / 5.0 FT
25243	HQ Outer-tube 3.0 M / 10.0 FT
3543802	PQ Outer-tube 1.5 M / 5.0 FT
3543801	PQ Outer-tube 3.0 M / 10.0 FT
5000855	PQ Outer-tube Extenda 3.0 M / 10.0 FT

Standard Outer-tubes Features

- For use in all drilling conditions.
- Available with chrome plated outer surface.



CHROME-PLATED OUTER-TUBES	
52908CP	AQTK Outer-tube 1.5 M / 5.0 FT
52578CP	AQTK Outer-tube 3.0 M / 10.0 FT
24357CP	BQ Outer-tube 1.5 M / 5.0 FT
61517CP	BQTK Outer-tube 1.5 M / 5.0 FT
24346CP	BQ Outer-tube 3.0 M / 10.0 FT
53193CP	BQTK Outer-tube 3.0 M / 10.0 FT
24910CP	NQ Outer-tube 1.5 M / 5.0 FT
24898CP	NQ Outer-tube 3.0 M / 10.0 FT
25259CP	HQ Outer-tube 1.5 M / 5.0 FT
25243CP	HQ Outer-tube 3.0 M / 10.0 FT
3543802CP	PQ Outer-tube 1.5 M / 5.0 FT
3543801CP	PQ Outer-tube 3.0 M / 10.0 FT
5000855CP	PQ Outer-tube Extenda 3.0 M / 10.0 FT

Chrome Plated Outer-tube Features

Boart Longyear offers the option of **chrome plating** which provides a tough, abrasion resistant coating that increases product life and durability.

General Product Features

- Boart Longyear™ outer-tubes are made of high-quality alloy steel for increased durability.
- The PQ outer tube Extenda is equivalent to the standard PQ outer tube but uses a standard outer tube box thread rather than the PHD rod box thread used on the outer tube and couplings.

OUTER-TUBES

FULL-HOLE OUTER-TUBES	
3545384	AQTK Outer-tube 1.5 M / 5.0 FT
3545385	AQTK Outer-tube 3.0 M / 10.0 FT
3545386	BQ Outer-tube 1.5 M / 5.0 FT
3545388	BQTK Outer-tube 1.5 M / 5.0 FT
3545387	BQ Outer-tube 3.0 M / 10.0 FT
3545389	BQTK Outer-tube 3.0 M / 10.0 FT
3545390	NQ Outer-tube 1.5 M / 5.0 FT
3545391	NQ Outer-tube 3.0 M / 10.0 FT
3545392	HQ Outer-tube 1.5 M / 5.0 FT
3545393	HQ Outer-tube 3.0 M / 10.0 FT

General Product Features

Full-hole Systems (locking coupling and Outer-tube) are suited for competent ground formations where hole accuracy is a top priority. The four-flat design keeps the core barrel system tight to the hole while allowing plenty of cutting flow. Note that while hole deviation is minimized with this system, higher drilling pressures will be experienced.

Full-hole Outer-tube Features

- Oversized pads for improved core barrel stabilization.
- Available with chrome plated outer surface.
- For use in competent ground conditions.
- Available in A-H sizes.



FLEXIBLE OUTER-TUBE KITS		
600132	O/TUBE, 3.0M BQ FLEXI (KIT)	
3001896	BOX END, BQ O/T 3.0M/10FT FLEXI	1
3548208	ROD, BQ 3.0M ENHANCED	1
600130	PIN END, BQ O/TUBE FLEXI	1
82589	O/TUBE, 3.0M NQ FLEXI (KIT)	
3001897	BOX END, NQ O/T 3.0M/10' FLEXI	1
3548212	ROD, NQ 3.0M ENHANCED	1
82587	PIN END, NQ O/TUBE FLEXI	1
3001301	O/TUBE, 3.0M HQ FLEXI (KIT)	
3001899	BOX END, O/TUBE HQ 10FT FLEXI	1
3548216	ROD, HQ 3.0M ENHANCED	1
3001298	O/TUBE, HQ PIN END FLEXI	1

General Product Features

- Boart Longyear™ flexible outer-tubes are made of high-quality alloy steel for increased durability.
- The increased flexibility produces enhanced steering under normal operating parameters

Flexible Outer-tube Features

- Flexible outer tube used to ease travel over wedges or to aggressively steer the hole on its own.
- For use in all drilling conditions.
- Available in B-H sizes

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Water Swivel

ROD STRING ACCESSORIES

Water Swivels	178
Hoist Plugs	186
Wedges	187
Mud Plugs	188
Adapter Subs	190

WATER SWIVELS

Overview

For continuous operation without downtime, Boart Longyear offers a full selection of Water Swivels with replaceable V-ring packing style seal gland for standard drilling applications.

Water Swivel Features:

- Available in underground, compact, standard duty, and heavy duty versions with accordingly sized spindle porting and an NPT side fluid supply connection
- Spring loaded, self-adjusting gland packings ensure reliable seal.
- Easily replaceable hardened packing wear sleeves protect the spindle from packing wear.
- Weep holes prevent any leakage past the packing from reaching the bearing, and also indicate packing condition to the operator.
- Protected grease fitting to allow easy lubrication of bearings. Lubrication path conducts contaminants away from the bearing and relieves excess lubrication pressure.
- Easily disassembled with pipe wrenches, a screw driver, spanner wrench, and soft mallet, for easy packing or wear sleeve replacement.



- Suitable for use with water or drilling mud only. Packings and mating wear sleeves are subject to wear and generally operate with a small degree of leakage depending on rpm and vibration levels.
- Adapter Subs are available to adapt to Q™, RQ™, and RQTK drill rods

WATER SWIVEL SELECTOR GUIDE - SURFACE

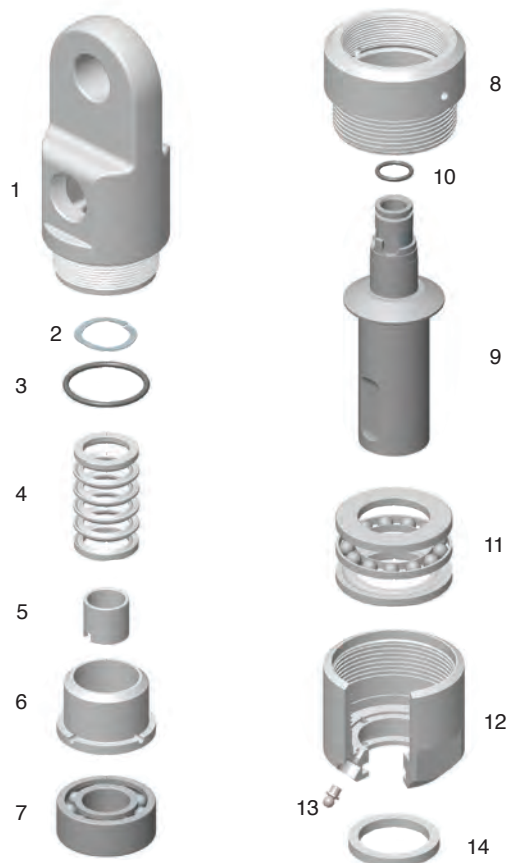
DYNAMIC LOAD RATING						
Load Rating		AQTK	BQ	NQ	HQ	PQ
4 540 KG	10,000 LB	3546952	3546952	3546952	3546952	3546952
5 000 KG	11,000 LB		67321	67321	67321	67321
5 400 KG	12,000 LB				39385	39385

COMPACT PLUS WATER SWIVEL 3546952

ID#	PART #	DESCRIPTION	QTY
	3546952	Compact Plus Water Swivel	
1	3546529	Swivel Cap	1
2	23863	Wavy Washer	1
3	19678	O-ring	1
4	23861	Swivel Packing	1
5	3546530	Slotted Wear Sleeve	1
6	23866	Packing Cage	1
7	20324	Thrust Bearing	1
8	3546531	Upper Swivel Body	1
9	3546907	Spindle	1
10	20169	O-ring	1
11	3546908	Thrust Bearing	1
12	3546909	Lower Swivel Body	1
13	17447	Hydraulic Grease Fitting	1
14	25612	Felt Seal	1

Compact Plus Water Swivel Features:

- #16 NPT hose connection
- AW rod box spindle connection
- 5/8" spindle fluid porting



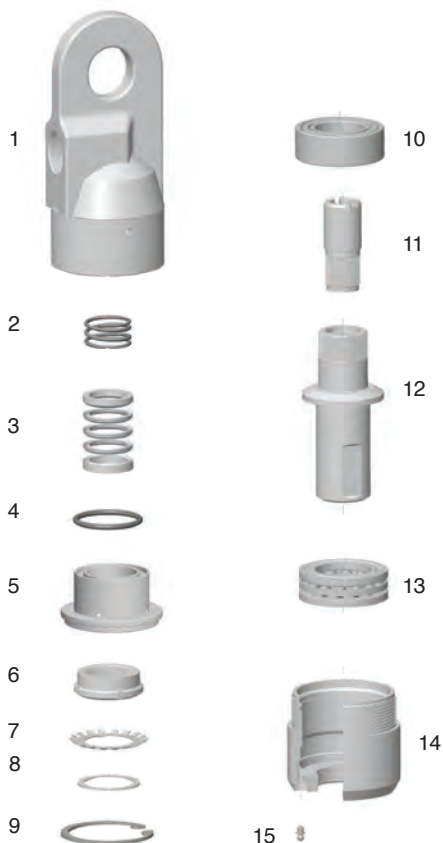
LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

STANDARD DUTY WATER SWIVEL 67321

ID#	PART #	DESCRIPTION	QTY
	67321	Standard Duty Water Swivel	
1	39169	Swivel Cap	1
2	39168	Compression Spring	1
3	39171	Swivel Packing	1
4	29737	O-ring	1
5	39172	Water Swivel Packing Housing	1
6	67325	Water Swivel Spindle Nut	1
7	67186	Water Swivel Washer	1
8	67322	Water Swivel Spacer	1
9	40965	Retaining Ring	1
10	19906	Angular Contact Ball Bearing	1
11	39170	Water Swivel Spindle Extender	1
12	67324	Water Swivel Spindle	1
13	67187	Thrust Bearing	1
14	67631	Water Swivel Body	1
15	17447	Hydraulic Grease Fitting	1
Alternate Option			
	88444	Optional Spindle Extension	1

Standard Duty Water Swivel Features:

- #20 NPT hose connection
- BW rod box spindle connection
- 1-1/4" spindle fluid porting



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

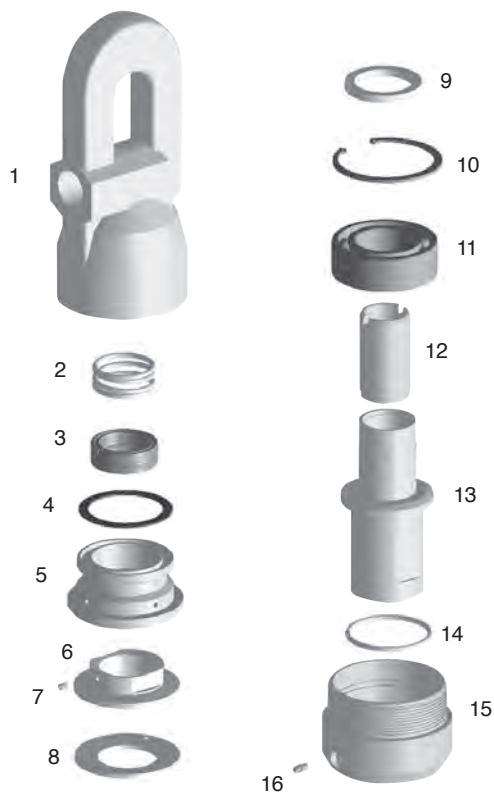
HEAVY DUTY WATER SWIVEL (40K) 39385

ID#	PART #	DESCRIPTION	QTY
	39385	Heavy Duty (40K) Water Swivel	
1	39389	Water Swivel Hoist Cap	1
2	39388	Compression Spring	1
3	39391	Packing	1
4	29738	O-ring	1
5	39392	Packing Housing	1
6	39393	Loading Nut	1
7	93916	Grub Screw	1
8	39394	Belleville Washer	1
9	39396	Thrust Washer	1
10	3001002	Internal Circlip	1
11	39386	Ball Bearing	1
12	88445	Extension Spindle	1
13	39397	Swivel Spindle	1
14	39395	Loading Washer	1
15	39398	Water Swivel Body	1
16	93363	Hydraulic Grease Fitting	1

Heavy Duty Water Swivel Features:

- #20 NPT hose connection
- NW rod box spindle connection
- 1-1/2" spindle fluid porting

Note: The Belleville washer [ID# 8] must be installed oriented pointing down, with the small end mated against the thrust washer.



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

HIGH-SPEED WATER SWIVEL

Overview

For continuous operation without downtime, Boart Longyear offers a full selection of High Speed Water Swivels with replaceable mechanical “end-face” seals suited for operation with high rpm drills.

High-speed Water Swivel Features:

- Available in sizes suited for wireline drill rods with accordingly sized spindle fluid porting and a #12 JIC rear fluid supply connection: ARQ™TK, BRQTK, BQ™, BRQ, NQ & NRQ.
- Spring loaded, self-adjusting and self-aligning end-face seals absorb vibration at high rpm (OEM rated to 600 psi at 1800 rpm).

- Weep holes prevent any leakage past the seal from reaching the bearing, and also indicate seal condition to the operator.
- Protected grease fitting to allow easy lubrication of bearings. Lubrication path conducts contaminants away from the bearing and relieves excess lubrication pressure.
- Easily disassembles with pipe wrenches, a screw driver, spanner wrench, and soft mallet, for easy seal or bearing replacement.
- Suitable for use with water or drilling mud.
- Mates directly to Q™, RQ™, and RQTK drill rods.

WARNING: Ensure the rough surface of the face seal is towards the bearing. Do not use hydrocarbon based liquids on the shaft bellows, and do not use grease (including silicon grease).

ID #	DESCRIPTION	QTY						
	Underground Hi-Speed Water Swivel ARQTK		3545445					
	Underground Hi-Speed Water Swivel BRQ R / P		3545446					
	Underground Hi-Speed Water Swivel BRQTK R / P		3545447					
	Underground Hi-Speed Water Swivel BQ R / P		3546544					
	Underground Hi-Speed Water Swivel NRQ R / P		3545448					
	Underground Hi-Speed Water Swivel NQ		3546545					
1	Swivel Cap	1	3546497	3546497	3546497	3546497	3546497	3546497
2	Seal Bearing	1	24243	24243	24243	24243	24243	24243
3	Swivel Stem	1	3546499	3546498	3546498	3546498	3546498	3546498
4	Ball Bearing	1	3546501	3546524	3546524	3546524	3546524	3546524
5	Swivel Body	1	3545452	3545453	3545454	3546542	3545455	3546543
6	Grease Fitting	1	17447	17447	17447	17447	17447	17447
7	Swivel Seal	1	3546522	3546525	3546525	3546525	3546525	3546525
8	Seal Retainer	1	3546523	3546477	3546477	3546477	3546477	3546477



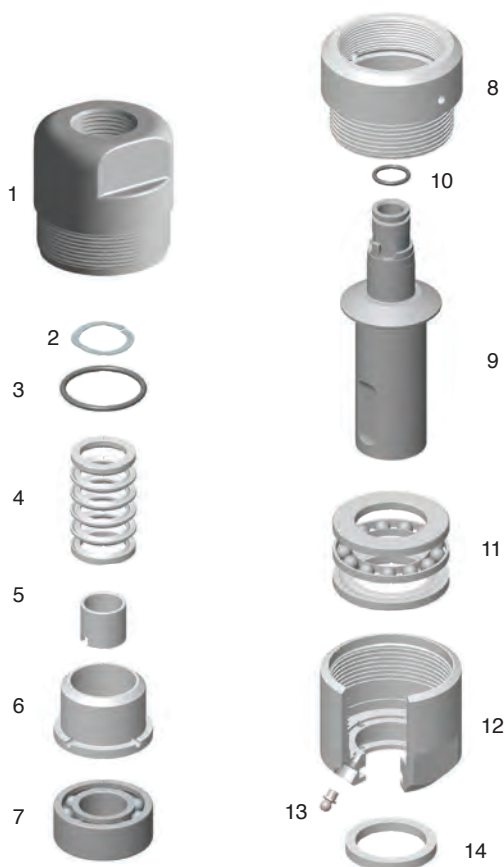
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

UNDERGROUND COMPACT WATER SWIVEL 3546953

ID #	PART #	DESCRIPTION	QTY
	3546953	Underground Compact Water Swivel	
1	3542931	Swivel Cap	1
2	23863	Wavy Washer	1
3	19678	O-ring	1
4	23861	Swivel Packing	1
5	3546530	Slotted Wear Sleeve	1
6	23866	Packing Cage	1
7	20324	Thrust Bearing	1
8	3546531	Upper Swivel Body	1
9	3546907	Spindle	1
10	20169	O-ring	1
11	3546908	Thrust Bearing	1
12	3546909	Lower Swivel Body	1
13	17447	Hydraulic Grease Fitting	1
14	25612	Felt Seal	1

Features:

- #16 NPT hose connection
- AW rod box spindle connection
- 5/8" spindle fluid porting

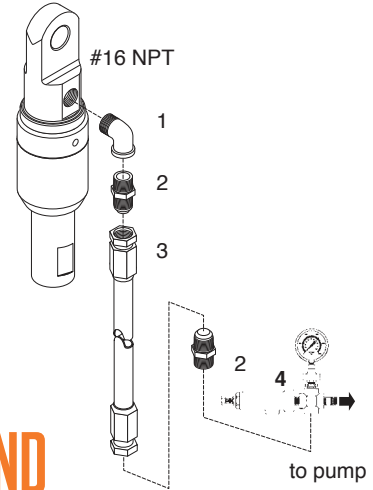


LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

HOSE AND CONNECTIONS - SURFACE

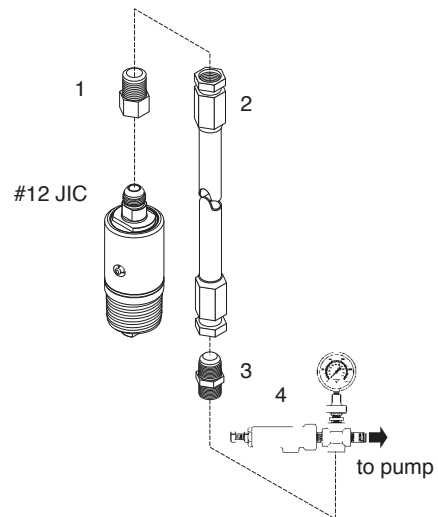
ID #	Part #	Description	Qty
Compact Plus Water Swivel to Pump			
1	17003	Street Elbow, #16 NPT 90°	1
2	19971	Hydraulic Adapter	2
3	3542419	Water Swivel Hose, 9 M / 30 FT	1
4	18040	Discharge Assembly, #16 NPT	1
Water Swivel to Pump			
1	18473	Street Elbow, #20 NPT 90°	1
2	35879	Hydraulic Adapter	2
3	3542419	Water Swivel Hose, 9 M / 30 FT	1
4	18185	Discharge Assembly, #20 NPT	1

Hose and Connection Features:
 • MSHA accepted synthetic rubber cover.



HOSE AND CONNECTIONS - UNDER GROUND

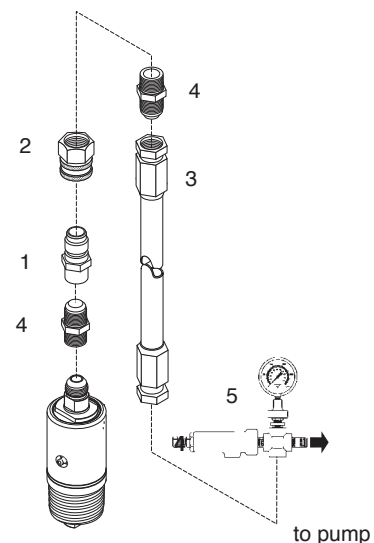
ID #	Part #	Description	Qty
Compact Plus Water Swivel to Pump			
1	3542419	Water Swivel Hose, 9 M / 30 FT	1
2	19971	Hydraulic Adapter	2
3	18040	Discharge Assembly, #16 NPT	1
Hi-Speed Water Swivel to Pump			
1	41361	Hydraulic Adapter	1
2	3542419	Water Swivel Hose, 9 M / 30 FT	1
3	19971	Hydraulic Adapter	1
4	18040	Discharge Assembly, #16 NPT	1



QUICK COUPLER CONNECTION

Using quick couplers is recommended when drilling with underground coring systems. They allow for rapid connecting / disconnecting from water swivel to loading chamber when alternating between drilling and overshot pump-in.

ID #	Part #	Description	Qty
Compact Plus Water Swivel to Pump			
1	104597	Quick Coupler Tip, Male, #16 NPT	1
2	100876	Quick coupler Tip, Female, #16 NPT	1
3	3542419	Water Swivel Hose, 9 M / 30 FT	1
4	19971	Hydraulic Adapter	2
5	18040	Discharge Assembly, #16 NPT	1
Hi-Speed Water Swivel to Pump			
1	3545899	Quick Coupler Tip, Male, #16 NPT	1
2	100876	Quick Coupler Tip, Female, #16 NPT	1
3	3542419	Water Swivel Hose, 9 M / 30 FT	1
4	19971	Hydraulic Adapter	2
5	18040	Discharge Assembly, #16 NPT	1



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

WATER SWIVEL SPARE PARTS

ID #	PART #	DESCRIPTION	QTY
1-8	3546955	Compact Plus Water Swivel Spares	
1	23863	Washer Spring	2
2	19678	O-ring	6
3	23861	Swivel Packing	3
4	3546530	Wear Sleeve	2
5	20324	Thrust Bearing	1
6	20169	O-ring	6
7	3546908	Thrust Bearing	1
8	25612	Felt Seal	2

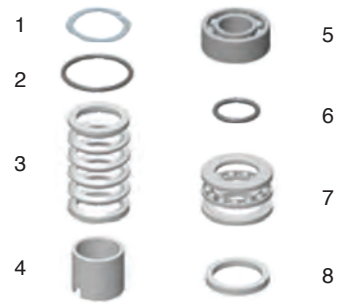
1-3	3546540	U / G High Speed Water Swivel Spares, AQTK	
1	24243	Seal Bearing	1
2	3546501	Ball Bearing	1
3	3546522	Seal Assembly	1

1-3	3546541	U / G Hi-Speed Water Swivel Spares, BQ / NQ / HQ	
1	24243	Seal Bearing	1
2	3546524	Ball Bearing	1
3	3546525	Seal Assembly	1

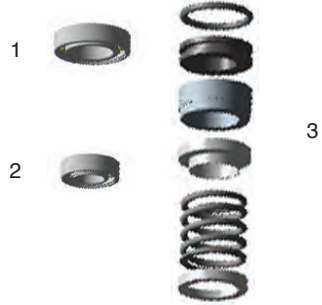
1-7	67628	Standard Water Swivel Spares	
1	39171	Swivel Packing	1
2	29737	O-ring	1
3	67186	Lock Washer	1
4	40965	Retaining Ring	1
5	19906	Ball Bearing	1
6	39170	Spindle Extension	1
	88444	Chrome Plated Spindle Extension	1
7	67187	Thrust Bearing	1

1-7	3001011	Heavy Duty Water Swivel Spares	
1	39386	Ball Bearing	1
2	3001002	Internal Circlip	1
3	29738	O-ring	1
4	39391	Water Swivel Packing	1
5	39396	Thrust Washer	1
6	39392	Packing Housing	1
7	88445	Swivel Extension	1

Compact Water Swivel Spares



U / G Hi-Speed Water Swivel Spares, AQTK



U / G Hi-Speed Water Swivel Spares, BQ / NQ / HQ



Standard Water Swivel Spares



Heavy Duty Water Swivel Spares



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

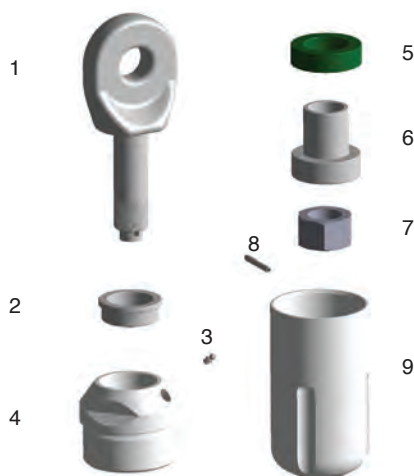
HOIST PLUGS

HOISTING PLUG SELECTOR GUIDE						
Load Rating	Safety Factor	AQTK	BQ	NQ	HQ	PQ
15,000 LB	5 to 1	3545380	3545380	3545380	3545380	
25,000 LB	3 to 1		3545380	3545380	3545380	
30,000 LB	5 to 1		5004353	5004353	5004353	5004353
50,000 LB	3 to 1		5004353	5004353	5004353	5004353

ID #	PART #	DESCRIPTION	D
	3545380	Hoist Plug, Standard	
1	3545376	Eye Bolt	1
2	37394	Spring Pin, 1/4" x 1-3/4"	1
3	3545377	Wear Sleeve	1
4	3545378	Bearing Housing	1
5	17447	Hydraulic Grease Fitting	1
6	3542992	Hoisting Plug Bearing	1
7	3545379	Shaft Sleeve	1
8	3543012	Lock Nut	1
9	3545381	Lower Housing	1
	5004353	Hoist Plug, Heavy Duty	
1	5003668	Eye Bolt	1
2	3542900	30K Hoist Plug Wear Sleeve	1
3	17447	Hydraulic Grease Fitting	1
4	5004355	Hoist Plug Bearing Housing	1
5	3542902	Thrust Bearing	1
6	3542903	Hoist Plug Shaft Sleeve	1
7	3542914	Lock Nut	1
8	3542936	Spring Pin, 1/4" x 2"	1
9	5004354	Hoist Plug Lower Housing	1

Hoist Plug Features:

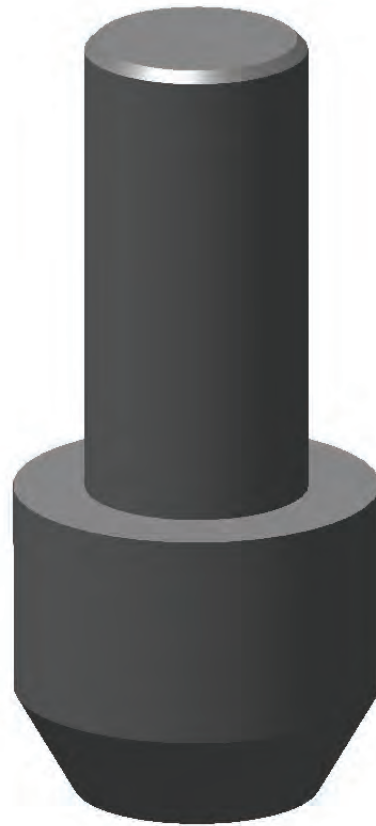
- Long-life thrust bearing provides pivot for ease of connecting, and reduces hoisting cable winding during hoisting and lowering.
- 12.5 mm (0.5 in) diameter down-angled vent is incorporated into the body to eliminate side spray from pressurized drilling fluid.
- Ventless bearing chamber allows for optional oil bath for cold weather operation.
- NW rod box housing connection.



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

MUD PLUGS

PART #	DESCRIPTION
4101948	BQ Carbon Plug Tapered
4101949	NQ Carbon Plug Tapered
4101952	NQ3 Carbon Plug Tapered
4101845	NQTK Carbon Plug Tapered
4101954	HQ3 Carbon Plug Tapered
4011438	HQ Carbon Plug Tapered





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LF™ 130F CORING DRILL

Global Drilling Products

MAXIMIZE PRODUCTIVITY

With a depth capacity of more than 1350 m NQ™, the flyable LF™ 130F core drill delivers excellent productivity and cutting-edge safety features.

Featuring our remote-controlled LM™ rod handler with laser-perimeter safety system, patented fail-safe Nitro-chuck™, interlocked rotation barrier and lift-to-shift control levers.

To learn more about the LF130F, visit:
www.BoartLongyear.com/LF130F

US Patent Nos. 6,634,443; 6,719,303. CA Patent NOs. 2,371,989; 2,378,372; AU Patent NOs. 2002301549; 764,456. BR Patent No. PI 0010106-1; ZA Patent Nos. 2002/8578; 2001/8288

 **BOART LONGYEAR™**

WATER SWIVEL ADAPTER SUBS

PART #	DESCRIPTION
Compact Water Swivel	
3540733	AW Rod Pin to ARQTK Rod Pin
3540877	AW Rod Pin to BRQ Rod Pin
3540883	AW Rod Pin to BRQTK Rod Pin
25615	AW Rod Pin to BQ Rod Pin
3540879	AW Rod Pin to NRQ Rod Pin
25617	AW Rod Pin to NQ Rod Pin
3541874	AW Rod Pin to HRQ Rod Pin
31093	AW Rod Pin to HQ Rod Pin
Standard Duty Water Swivel	
3541813	BW Rod Pin to BRQ Rod Pin
3542177	BW Rod Pin to BRQTK Rod Pin
30476	BW Rod Pin to BQ Rod Pin
27559	BW Rod Pin to NQ Rod Pin
306251	BW Rod Pin to HRQ Rod Pin
44464	BW Rod Pin to HQ Rod Pin
103008	BW Rod Pin to PHD Rod Pin

Heavy Duty Water Swivel	
3542883	NW Rod Pin to BRQ Rod Pin
3543017	NW Rod Pin to BRQTK Rod Pin
3542934	NW Rod Pin to BQ Rod Pin
3542884	NW Rod Pin to NRQ Rod Pin
3542932	NW Rod Pin to NQ Rod Pin
3542885	NW Rod Pin to HRQ Rod Pin
3542933	NW Rod Pin to HP Rod Pin
102912	NW Rod Pin to PHD Rod Pin

- Identification groove supplied on ARQ™TK and BRQTK subs.

Water Swivel Adapter Sub Features:

- The rod pin threads are electric induction hardened to ensure long life and minimize rod box thread galling, extending drill rod thread-life and joint performance.
- Identification groove supplied on ARQ™TK and BRQ™TK subs.



HOISTING PLUG ADAPTER SUBS

PART #	DESCRIPTION
Light Duty Plug to Rod	
3540733	AW Rod Pin to ARQTK Rod Pin
3540877	AW Rod Pin to BRQ Rod Pin
3540883	AW Rod Pin to BRQTK Rod Pin
25615	AW Rod Pin to BQ Rod Pin
3540879	AW Rod Pin to NRQ Rod Pin
25617	AW Rod Pin to NQ Rod Pin
Standard Duty / Heavy Duty Plug to Rod / Bullnose	
3542883	NW Rod Pin to BRQ Rod Pin
3543017	NW Rod Pin to BRQTK Rod Pin
3542934	NW Rod Pin to BQ Rod Pin
3542884	NW Rod Pin to NRQ Rod Pin
3542932	NW Rod Pin to NQ Rod Pin
3542885	NW Rod Pin to HRQ Rod Pin
3542933	NW Rod Pin to HP Rod Pin
102912	NW Rod Pin to PHD Rod Pin
Standard Duty / Heavy Duty / Plug to Rod	
102912	NW Rod Pin to PHD Rod Pin
3544177	NW Rod Pin to PWT Casing Pin

Hoisting Plug Adapter Features:

- The rod pin threads are electric induction case hardened to ensure long life and minimize rod box thread galling, extending drill rod thread life and joint performance.
- Identification groove supplied on ARQ™TK and BRQ™TK subs.

Bullnose Adapter Subs:

- Curved lead-in nose guides the sub into the rod box eliminating unwanted “stabbing” damage.
- Sub thread has minimum “stand-off” allowing it to be made-up fully by hand ensuring a full capacity connection.

Hoisting Plug Adapter



Bullnose Adapter Sub



CASING ADAPTER SUBS

PART #	DESCRIPTION
3540283	ARQTK Rod to AW Casing Pin
3540406	BRQ Rod Box to BW Casing Pin
3540885	BRQTK Rod Box to BW Casing Pin
30056	BQ Rod Box to BW Casing Pin
3541876	NRQ Rod Box to BW Casing Pin
30558	NQ Rod Box to BW Casing Pin
306452	NRQ Rod Box to NW Casing Pin
30040	NQ Rod Box to NW Casing Pin
3541877	NRQ Rod Box to NW Casing Pin
30101	NQ Rod Box to HW Casing Pin
306453	NRQ Rod Box to HWT Casing Pin
103654	NQ Rod Box to HWT Casing Pin
3541878	HRQ Rod Box to NW Casing Pin
30555	HQ Rod Box to NW Casing Pin
3541879	HRQ Rod Box to HW Casing Pin
27558	HQ Rod Box to HW Casing Pin
306255	HRQ Rod Box to HWT Casing Pin
101341	HQ Rod Box to HWT Casing Pin
3543992	PHD Rod Box to PWT Casing Pin
3541334	PW Casing Box to PWT Casing Pin
3541433	PWT Casing Box to PW Casing Pin

Casing Adapter Subs Features:

- The rod pin threads are electric induction case hardened to ensure long life and minimize rod box thread galling, extending drill rod thread-life and joint performance.
- Identification groove supplied on ARQ™TK and BRQ™TK subs.



RECOVERY TOOL ADAPTER SUBS

PART #	DESCRIPTION
3540307	ARQTK Rod Box to AW Rod Pin
3541880	BRQ Rod Box to AW Rod Pin
3542179	BRQTK Rod Box to AW Rod Pin
24929	BQ Rod Box to AW Rod Pin
3542379	BRQ Rod Box to BW Rod Pin
3543008	BRQTK Rod Box to BW Rod Pin
25485	BQ Rod Box to BW Rod Pin
3541881	NRQ Rod Box to BW Rod Pin
24928	NQ Rod Box to BW Rod Pin
3542825	NRQ Rod Box to NW Rod Pin
24931	NQ Rod Box to NW Rod Pin
3541882	HRQ Rod Box to NW Rod Pin
25262	HQ Rod Box to NW Rod Pin
3542319	PHD Rod Box to NW Rod Pin

Recovery Tool Adapter Subs Features:

- Identification groove supplied on ARQ™TK and BRQ™TK subs.



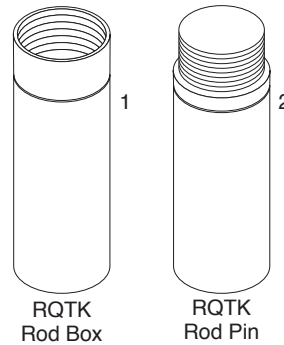
BLANK END ADAPTER SUBS

ID #	PART #	DESCRIPTION
1	3541907	ARQTK Rod Box to Solid Pin
2	306162	ARQTK Rod Pin to Solid Blank
3	3540910	ARQTK Rod Box to Tubing Blank
4	3540766	ARQTK Rod Pin to Tubing Blank
5	3540545	BRQ Rod Box to Solid Blank
5	3541901	BRQTK Rod Box to Solid Blank
5	40738	BQ Rod Box to Solid Blank
6	3540546	BRQ Rod Pin to Solid Blank
6	3541902	BRQTK Rod Pin to Solid Blank
6	40742	BQ Rod Pin to Solid Blank
7	3543033	BRQ Rod Box to Tubing Blank
7	3543031	BRQTK Rod Box to Tubing Blank
8	3543032	BRQ Rod Pin to Tubing Blank
8	3543030	BRQTK Rod Pin to Tubing Blank
5	306319	NRQ Rod Box to Solid Blank
5	40739	NQ Rod Box to Solid Blank
6	306318	NRQ Rod Pin to Solid Blank
6	40743	NQ Rod Pin to Solid Blank
7	3542997	NRQ Rod Box to Tubing Blank
8	3542996	NRQ Rod Pin to Tubing Blank
5	306321	HRQ Rod Box to Solid Blank
5	40740	HQ Rod Box to Solid Blank
6	306320	HRQ Rod Pin to Solid Blank
6	40744	HQ Rod Pin to Solid Blank
7	3543035	HRQ Rod Box to Tubing Blank
8	3543034	HRQ Rod Pin to Tubing Blank
5	103416	PHD Rod Box to Solid Blank
5	3545166	PWT Casing Pin to Solid Blank
6	103415	PHD Rod Pin to Solid Blank
6	3545167	PWT Casing Pin to Solid Blank
7	102924	PHD Rod Box to Tubing Blank
8	103054	PHD Rod Pin to Tubing Blank

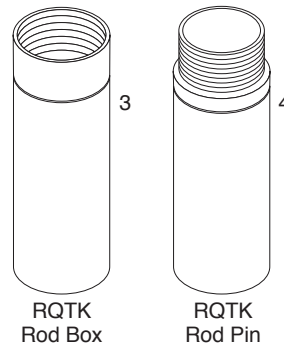
Application:

Blank end adapter subs enable you to create adapter subs according to your unique requirements. They are supplied as rod pin or rod box to either solid blank bar end or tubing blank end. Solid bar end subs are for use with hoist plugs and water swivels ONLY. They are NOT for use as cross over subs. Thread stand off is adjusted for hand tight makeup. Identification groove supplied on ARQ™ TK and BRQ™ TK accessories.

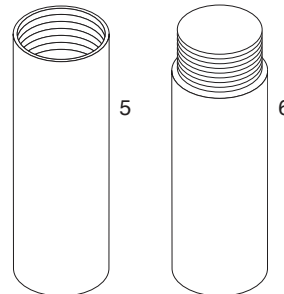
Solid Blank Bar End Sub



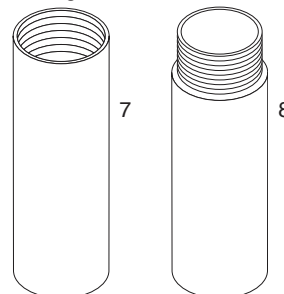
Tubing Blank End Sub



Solid Blank Bar End Sub



Tubing Blank End Sub



Warning:

Do not bore solid pin end subs greater than 25 mm (1 inch) to avoid shrinkage due to heat treat stresses.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

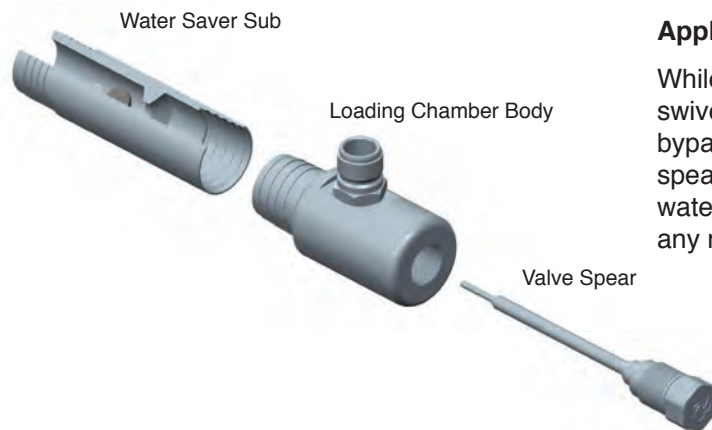
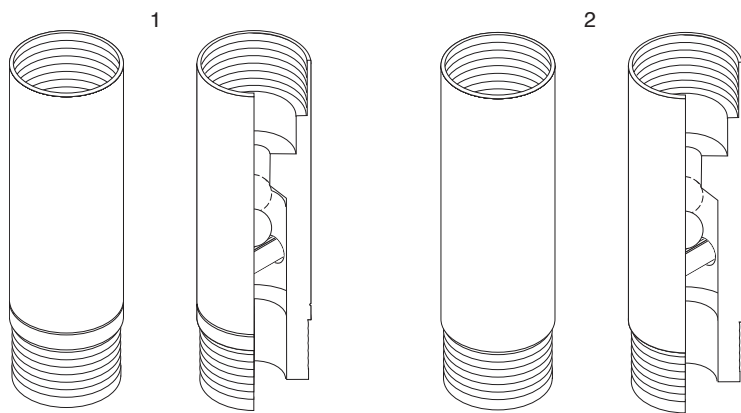
WATER SAVER SUBS

ID #	PART #	DESCRIPTION
1	3540170	ARQTK Water Saver Sub
2	3542641	BRQ Water Saver Sub
1	3541898	BRQTK Water Saver Sub
2	101606	BQ Water Saver Sub
2	3542642	NRQ Water Saver Sub
2	3542276	NQ Water Saver Sub
2	3542643	HRQ Water Saver Sub
2	3542919	HQ Water Saver Sub
3	5008514	Valve Spear, Loading Chamber

Application:

The Water Saver Sub includes a check valve feature that retains the column of drilling fluid in the rod string in up-angled or inclined holes. It can also be used to save time and increase production by eliminating the need to re-fill the rod string each time a rod is added when using extended core barrels.

Identification groove supplied on ARQ™TK and BRQ™TK accessories.



Application:

While fluid columns can be drained from swivels and loading chambers with appropriate bypass and drainage plumbing, the valve spear is required to lift the check valve ball in water saver subs and enable safe drainage of any retained fluid column.

LEGEND:

■ ✓ Standard Component

■ Required - Choose One

■ [OPT] Optional Component

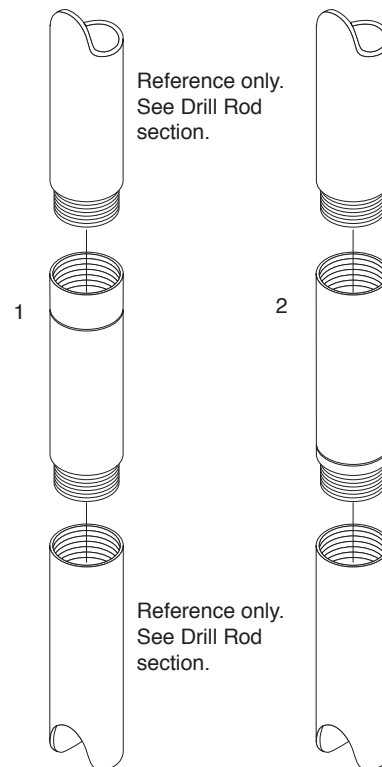
DRILL ROD ADAPTER SUBS

Drill Rod to Drill Rod / Locking Coupling.

ID #	PART #	DESCRIPTION
AQTK Adapter Subs		
1	3540717	ARQTK Rod Box to AQ Rod Pin
2	3540716	AQ Rod Box to ARQTK Rod Pin
BQ Adapter Subs		
1	306248	BRQ Rod Box to BQ Rod Pin
1	3542148	BRQ Rod Box to BRQTK Rod Pin
1	3542151	BRQTK Rod Box to BRQ Rod Pin
1	3540886	BRQTK Rod Box to BQ Rod Pin
1	306249	BQ Rod Box to BRQ Rod Pin
1	3540887	BQ Rod Box to BRQTK Rod Pin
NQ Adapter Subs		
1	104743	NRQ Rod Box to NQ Rod Pin
1	104744	NQ Rod Box to NRQ Rod Pin
HQ Adapter Subs		
1	306252	HRQ Rod Box to HQ Rod Pin
1	306253	HQ Rod Box to HRQ Rod Pin
PQ Adapter Subs		
1	101366	PHD Casing Box to PQ Rod Pin
1	101367	PQ Rod Box to PHD Pin

Note:

Identification groove supplied on ARQ™TK and BRQ™TK accessories.



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

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Genuine Longyear™ Tools

OTHER TOOLS

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CASING CUTTERS

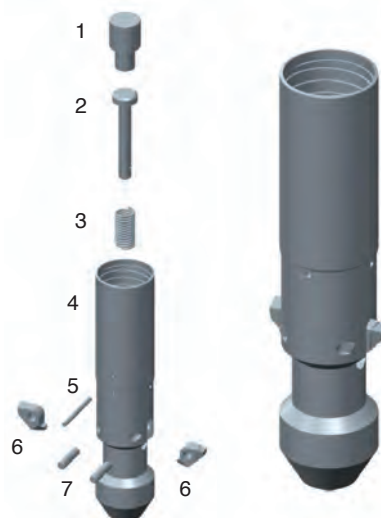
ID#	PART #	DESCRIPTION	QTY
1-7	3543026	AW Casing Cutter Assembly	
1	30816	Piston	1
2	60159	Plunger	1
3	26480	Compression Spring	1
4	3543027	Body	1
5	25969	Spring Pin, 1/8" x 1-3/4"	1
6	60158	Casing Cutter Lug	2
7	23175	Spring Pin, 1/4" x 1"	2

ID#	PART #	DESCRIPTION	QTY
1-12	52775	BW Casing Cutter Assembly	
1	61265	Retaining Ring	1
2	52776	Plunger Case	1
3	21837	Stainless Steel Ball, 15/16"	1
4	14520	Water Tube	1
5	14519	Plunger	1
6	29073	Coil Pin, 3/16" x 1-3/8" LG	1
7	14522	Spring	1
8	14521	Spring Rest	1
9	14517	Body	1
10	14523	Casing Cutter Lug	2
11	14587	Casing Cutter Pin	2
12	44663	Set Screw, 1/4" UNC x 3/8"	1

ID#	PART #	DESCRIPTION	QTY
1-12	52777	NW Casing Rod Cutter Assembly	
1	61460	Retaining Ring	1
2	52778	Plunger Case	1
3	26157	Stainless Steel Ball, 1-1/8"	1
4	14529	Water Tube	1
5	14528	Plunger	1
6	3549414	Coil Pin, 3/16" x 1-5/8" LG	1
7	14531	Spring	1
8	14530	Spring Rest	1
9	14526	Body	1
10	14532	Casing Cutter Lug	2
11	14588	Casing Cutter Pin	2
12	44663	Set Screw, 1/4" x 3/8" UNC	1

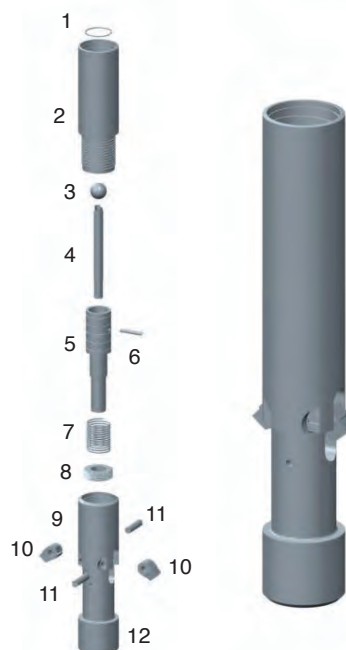
AW Casing Cutter Applications:

- Used for cutting AW casing or "B" rod at any point in a drill hole when the entire string cannot be retrieved.
- ARQ™TK rod box connection.



BW Casing Cutter Applications:

- Used for cutting BW casing or "N" rods at any point in a drill hole when the entire string cannot be retrieved.
- BQ™ rod box connection.



NW Casing Cutter Applications:

- Used for cutting NW casing or "H" rod at any point in a drill hole when the entire string cannot be retrieved.
- NQ™ rod box connection.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

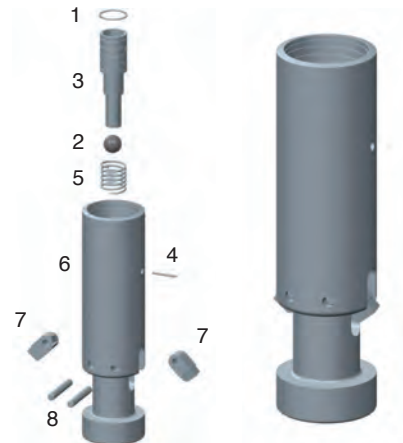
CASING CUTTERS

ID#	PART #	DESCRIPTION	QTY
1-8	60879	HW / HWT Casing Cutter Assembly	
1	61460	Retaining Ring	1
2	26157	Stainless Steel Ball, 1-1/8"	1
3	14528	Plunger	1
4	3549414	Coil Pin, 3/16" x 1-5/8" LG	1
5	14531	Spring	1
6	60880	Body	1
7	62830	Casing Cutter Lug	2
8	36216	Spring Pin, 7/16" x 3"	2

ID#	PART #	DESCRIPTION	QTY
1-9	5008175	PW / PWT Casing Cutter Assembly	
1	3547484	Sub, PHD / HWT R / B to HQ R / P	1
2	61460	Retaining Ring	1
3	26157	Stainless Steel Ball, 1-1/8"	1
4	14528	Plunger	1
5	3549414	Coil Pin, 3/16" x 1-5/8" LG	1
6	14531	Spring	1
7	60880	Body	1
8	5008174	Casing Cutter Lug	2
9	36216	Spring Pin, 7/16" x 3"	2

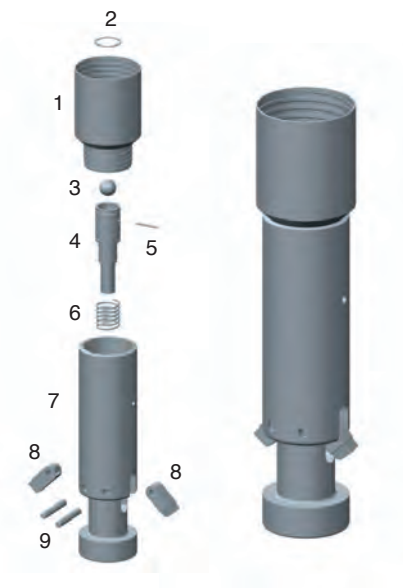
HW Casing Cutter Applications:

- Used for cutting HW / HWT casing or PHD rod at any point in a drill hole when the entire string cannot be retrieved.
- HQ™ rod box connection.



PW Casing Cutter Applications:

- Use for cutting PW / PWT casing at any point in a drill hole when the entire string cannot be retrieved.
- PHD rod box connection.



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

CASING ADVANCERS

ID #	DESCRIPTION	QTY								
1-15	BW Wireline Casing Advancer	1	59090							
1-14	BW Wireline Inner Assembly	1		82420						
1-15	NW Wireline Casing Advancer	1			59000					
1-14	NW Wireline Inner Assembly	1				82421				
1-15	HWT Wireline Casing Advancer	1					3000863			
1-14	HWT Wireline Inner Assembly	1						3000868		
1-15	PWT Wireline Casing Advancer	1							3543991	
1-14	PWT Wireline Inner Assembly	1								3543771
1	Spearhead	1	93391	93391	93415	93415	93415	93415	93415	93415
2	Disc Lock Washer	1	58041	58041	58040	58040	58040	58040	58040	58040
3	Release Shaft	1	58053	58053	58038	58038	58038	58038	58038	58038
4	Latch Body	1	59094	59094	58999	58999	59078	59078	59435	59435
5	Latch Shoe	2	93393	93393	93417	93417	93865	93865	59438	59438
6	Spring	2	93396	93396	93420	93420	93420	93420	93420	93420
7	Location Pin	2	58054	58054	58035	58035	58035	58035	58035	58035
8	Stop Latch Set	1	59092	59092	59001	59001	59076	59076	59436	59436
9	Stop Latch Pin	1	59093	59093	59087	59087	59077	59077	59437	59437
10	Split Cotter Pin	2	44861	44861	44861	44861	44861	44861	44861	44861
11	Stop Latch Spring	1	59082	59082	59082	59082	59082	59082	59082	59082
12	Spacer Set	1	93394	93394	93418	93418	93863	93863	59440	59440
13	Bit Sub	1	93392	93392	93416	93416	93864	93864	59441	59441
14	Loading Sleeve	1	59095	59095	59063	59063	3000869	3000869	59454	59454
15	Driver	1	80965		80963		3000864		3543990	
16	Two Cone Carbide Tungsten Button (for very hard formations)	1	97179							
	Tri-Cone Steel Tooth (for medium hard formations)	1			97100		97128		97132	
	Tri-Cone Carbide Tungsten Button (for very hard formations)	1			98058		98063		97152	

Features:

- Provides a positive latch for a one-step method of drilling through overburden and casing off to bedrock.



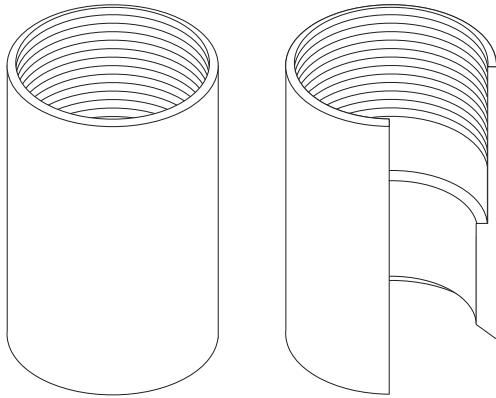
Note:

Bit sub rod thread connections are: 'A' rod box for BW, 'N' rod box for NW, 2-3/8" API REG pipe box for HWT, and 2-7/8" API REG pipe box for PWT.

LEGEND: ■ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

CASING DRIVE SHOES

PART #	DESCRIPTION
30152	BW Casing Drive Shoe
30108	NW Casing Drive Shoe
30109	HW Casing Drive Shoe
30690	PW Casing Drive Shoe
3543989	PWT Casing Drive Shoe



45° Leading
Edge Pilot

Casing Drive Shoe Features:

- Commonly used with drive hammers as a method of driving or advancing casing.
- Recommended for use with geotechnical soil sampling tools in clay, sand and other soft formations.
- Hardened surface with 45° leading edge pilot.

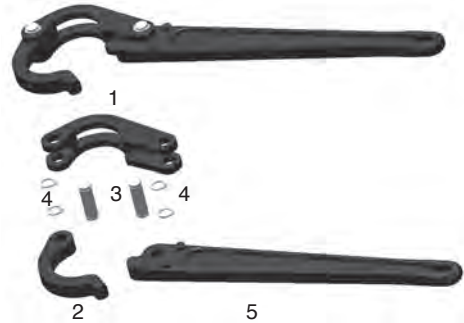
CORING WRENCHES - AQ™TK

ID #	PART #	DESCRIPTION	QTY
1-5	52604	Full Grip AQTK Inner-tube Wrench	
1	52605	Stationary Jaw	1
2	52606	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

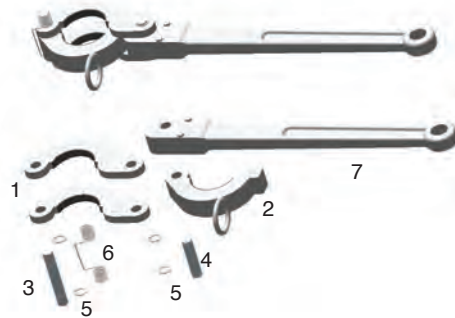
1-5	28247	Full Grip AQTK Outer-tube Wrench	
1	28248	Stationary Jaw	1
2	28249	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

1-7	45790	Full Grip A Rod Wrench	
1	45983	Stationary Jaw	2
2	45982	Swing Jaw	1
3	43484	Pin, 5/8" x 4"	1
4	43485	Pin, 5/8" x 2-3/4"	1
5	38583	Retaining Ring	4
6	43422	Spring	1
7	43483	Wrench Handle	1

INNER-TUBE / OUTER-TUBE WRENCH



ROD WRENCH



LEGEND: ■ ✓ Standard Component

■ Required - Choose One

■ [OPT] Optional Component

CORING WRENCHES - BQ™

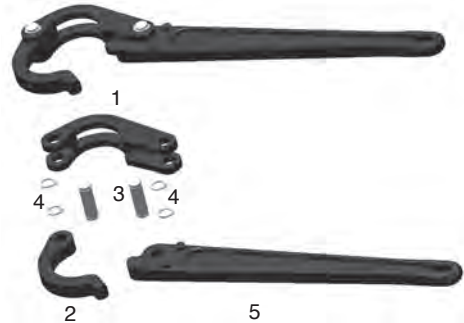
ID #	PART #	DESCRIPTION	QTY
1-5	28247	Full Grip BQTK Inner-tube Wrench	
1	28248	Stationary Jaw	1
2	28249	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

1-5	25318	Full Grip BQ Inner-tube Wrench	
1	48916	Stationary Jaw	1
2	29025	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

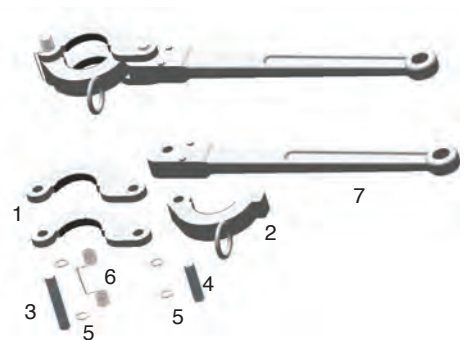
1-5	28252	Full Grip BQTK / BQ Outer-tube Wrench	
1	28253	Stationary Jaw	1
2	28254	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

1-7	43481	Full Grip B Rod Wrench	
1	43415	Stationary Jaw	2
2	43418	Swing Jaw	1
3	43484	Pin, 5/8" x 4"	1
4	43485	Pin, 5/8" x 2-3/4"	1
5	38583	Retaining Ring	4
6	43422	Spring	1
7	43483	Wrench Handle	1

INNER-TUBE / OUTER-TUBE WRENCH



ROD WRENCH



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

CORING WRENCHES - NQ™

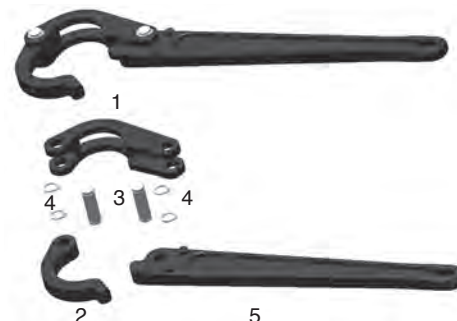
ID #	PART #	DESCRIPTION	QTY
1-5	25319	Full Grip NQ Inner-Tube Wrench	
1	48917	Stationary Jaw	1
2	29027	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

1-5	28252	Full Grip NQTK (NQ2") Inner-tube Wrench	
1	28253	Stationary Jaw	1
2	28254	Swing Jaw	1
3	38581	Pin	2
4	38582	Retaining Ring	4
5	28251	Wrench Handle	1

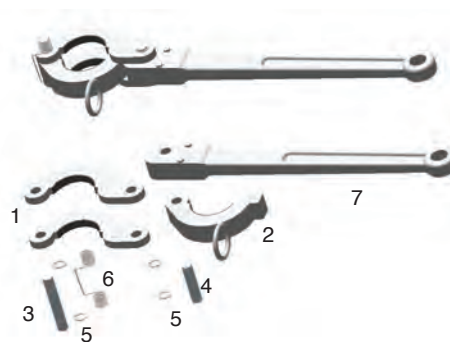
1-5	28255	Full Grip NQ / NQTK Outer-tube Wrench	
1	28256	Stationary Jaw	1
2	28257	Swing Jaw	1
3	38580	Pin	2
4	38583	Retaining Ring	4
5	28259	Wrench Handle	1

1-7	43480	Full Grip N Rod Wrench	
1	43414	Stationary Jaw	2
2	43417	Swing Jaw	1
3	43484	Pin, 5/8" x 4"	1
4	43485	Pin, 5/8" x 2-3/4"	1
5	38583	Retaining Ring	4
6	43422	Spring	1
7	43483	Wrench Handle	1

INNER-TUBE / OUTER-TUBE WRENCH



ROD WRENCH



LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

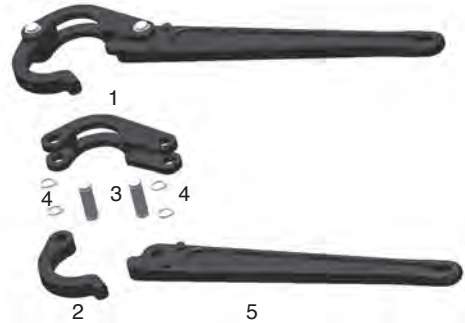
CORING WRENCHES - HQ™

ID #	PART #	DESCRIPTION	QTY
1-5	28255	Full Grip HQ Inner-Tube Wrench	
1	28256	Stationary Jaw	1
2	28257	Swing Jaw	1
3	38580	Pin	2
4	38583	Retaining Ring	4
5	28259	Wrench Handle	1

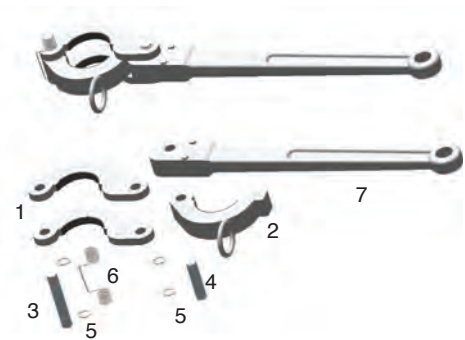
1-5	28260	Full Grip HQ Outer-tube Wrench	
1	28261	Stationary Jaw	1
2	28262	Swing Jaw	1
3	38580	Pin	2
4	38583	Retaining Ring	4
5	28259	Wrench Handle	1

1-7	43482	Full Grip H Rod Wrench	
1	43416	Stationary Jaw	2
2	43419	Swing Jaw	1
3	43484	Pin, 5/8" x 4"	1
4	43485	Pin, 5/8" x 2-3/4"	1
5	38583	Retaining Ring	4
6	43422	Spring	1
7	43483	Wrench Handle	1

INNER-TUBE / OUTER-TUBE WRENCH



ROD WRENCH



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

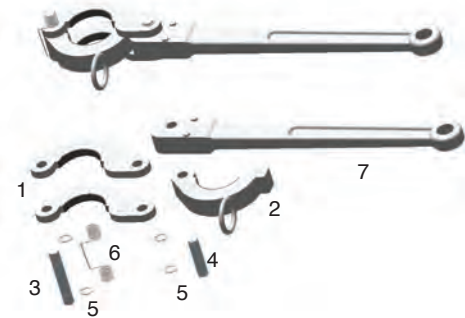
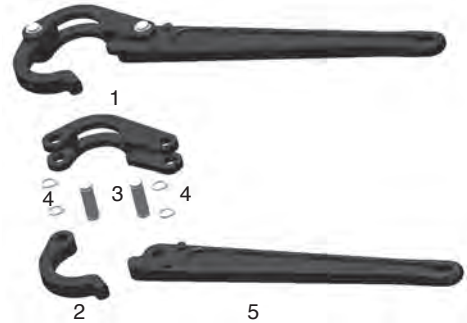
CORING WRENCHES - PQ™

ID #	PART #	DESCRIPTION	QTY
1-5	26171	Full Grip PQ Inner-Tube Wrench	
1	28972	Stationary Jaw	1
2	28973	Swing Jaw	1
3	38580	Pin	2
4	38583	Retaining Ring	4
5	28259	Wrench Handle	1

1-7	45804	Full Grip PQ Outer-tube Wrench	
1	45989	Stationary Jaw	2
2	45988	Swing Jaw	1
3	43484	Pin, 5/8" x 4"	1
4	43485	Pin, 5/8" x 2-3/4"	1
5	38583	Retaining Ring	4
6	43422	Spring	1
7	43483	Wrench Handle	1

1-7	45792	Full Grip P Rod Wrench	
1	45987	Stationary Jaw	2
2	45986	Swing Jaw	1
3	43484	Pin, 5/8" x 4"	1
4	43485	Pin, 5/8" x 2-3/4"	1
5	38583	Retaining Ring	4
6	43422	Spring	1
7	43483	Wrench Handle	1

INNER-TUBE / OUTER-TUBE WRENCH

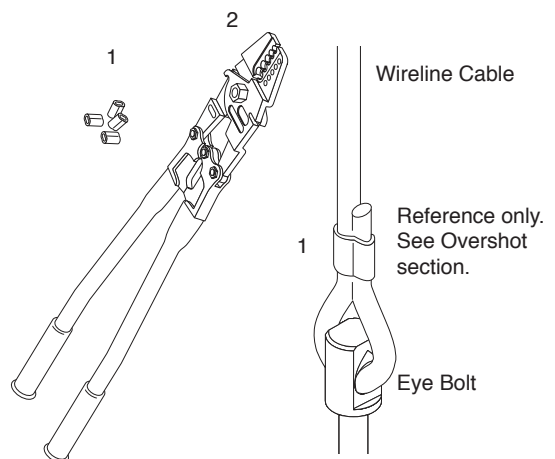


WIRELINE CABLE TOOLS

These items are used in conjunction with wireline cable.

ID #	PART #	DESCRIPTION
1	30172	Oval Sleeve, 3/16" or 5 mm
2	30171	Crimping Tool 3/16" or 5mm
1	60382	Oval Sleeve, 1/4"
2	34848	Crimping Tool, 1/4"

CAUTION: Sleeves elongate after compression. To assure maximum holding, allow the end of the cable to extend beyond the sleeve after it is compressed. All compressions must be gauged to assure maximum holding strength, and it is recommended that all assemblies should be proof-tested.



LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component



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HEAD ASSEMBLY TOOLS

The head assembly tool is used to drive in the spring pin when assembling links and latches or Roller Latch™ head assemblies.

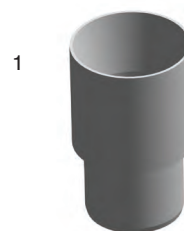
ID #	PART #	DESCRIPTION	QTY
1	3542826	A-size Head Assembly Drift Tool	1
1	3542827	B-size Head Assembly Drift Tool	1
1	3542987	N / H / P Link Latch Drift Tool	1
2	5007707	A-Sized Roller Latch Assembly Tool	1
2	5007708	B / N / H-Sized Roller Latch Assembly Tool	1



INNER-TUBE LOADING SLEEVE

The loading sleeve is recommended for loading the inner-tube assembly into the core barrel outer-tube assembly or rod string.

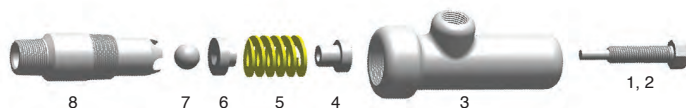
ID #	PART #	DESCRIPTION	QTY
1	61353	ARQTK Inner-tube Loading Sleeve	1
1	3542636	BQ / BRQ Inner-tube Loading Sleeve	1
1	61663	BQTK / BRQTK Inner-tube Loading Sleeve	1
1	3542637	NQ / NQR Inner-tube Loading Sleeve	1
1	3542638	HQ / HQR Inner-tube Loading Sleeve	1



RELIEF VALVE

This rugged pressure relief valve ensures protection of your pump during drilling operations. It automatically snaps to full open position when the predetermined pressure is exceeded. The pressure setting can be adjusted within the operating range by simply turning the adjusting screw on the top of the valve.

ID #	PART #	DESCRIPTION	QTY
1-8	3546492	Pressure Relief Valve	1
1	21841	Adjusting Screw	1
2	22179	Jam Brass Hex Nut, 5/8" UNC	1
3	3546493	Body	1
4	3546494	Valve Spring Guide	2
5	24313	NQ Compression Spring	2
6	3546495	Ball Holder	1
7	21837	Steel Ball, 15/16"	4
8	3546496	Seat	4



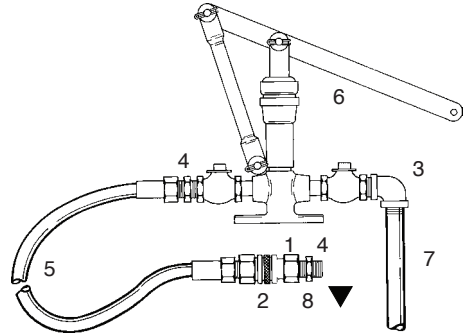
LEGEND: ✓ Standard Component Required - Choose One [OPT] Optional Component

TRIPLE-TUBE PUMP-OUT GROUPS

Fluid pressure supplied by optional hand pump group or pump-out group is required to pump the second inner-tube (split lengthwise) out of the standard inner-tube.

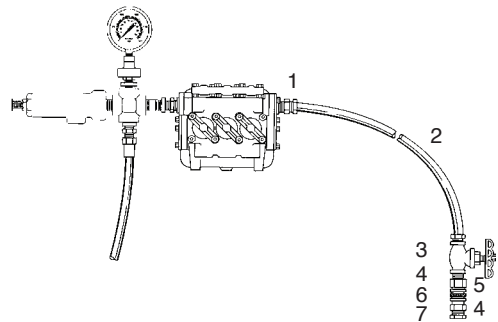
ID #	PART #	DESCRIPTION	QTY
1-8	26738	Hand Pump-out Group	1
1	29257	Quick Coupling, 1/2" NPT- Female	1
2	29258	Quick Coupling, 1/2" NPT- Male	1
3	20829	90° Street Elbow, 3/4" NPT	1
4	21413	Hex Bushing, 3/4" x 1/2"	2
5	26739	Hose Assembly, 8 FT x 1/2" NPR- Male	1
6	26740	Hand Pump	1
7	31746	Suction Pipe, 3/4" x 24" Length	1
8	17905	Close Nipple 1/2" NPT	1

HAND PUMP-OUT GROUP



ID #	PART #	DESCRIPTION	QTY
1-7	26742	Pump-out Group	1
1	18922	Hex Bushing, 1/1-4" x 1/2" NPT	1
2	26739	Hose Assembly, 8 FT x 1/2" NPT- Male	1
3	26741	Globe Valve, 1/2" NPT	1
4	17905	Close Nipple, 1/2" NPT	2
5	29257	Quick Coupling, 1/2" NPT- Female	1
6	29258	Quick Coupling, 1/2" NPT- Male	1
7	21413	Hex Bushing, 3/4" x 1/2"	1

PUMP-OUT GROUP



⚠ WARNING

Keep hands and body clear of open rods while operating. Failure to do so could result in serious injury or death.

Pressure build-up behind the Q™3 piston may cause sudden, explosive ejection of the core sample. Keep hands and body away from open end of pressurized inner-tubes.

LEGEND: ■ ✓ Standard Component ■ Required - Choose One ■ [OPT] Optional Component

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Core Sample, Location: Australia

CD 14894

14894

104

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RECOVERY TOOLS

Rod Recovery Taps	212
Casing Recovery Taps	213
Outer-tube Recovery Taps	213

ROD RECOVERY TAPS

PART #	DESCRIPTION	KG	LB
Rod Recovery Taps			
3542937	ARQTK Rod Recovery Tap	2.30	5.00
306076	BQ Rod Recovery Tap	2.60	5.70
306060	BRQTK Rod Recovery Tap	2.30	5.10
306034	NQ Rod Recovery Tap	3.90	8.50
306079	HQ / HRQ Rod Recovery Tap	5.50	12.10
3542968	HW / HWT Rod Recovery Tap	11.34	24.95
Rod Recovery Taps Pilot Bits			
4011685	N Pilot Bit	1.02	2.25
4011574	H Pilot Bit	2.00	4.50
4012097	B Pilot Bit	0.70	1.54
Rod Recovery Taps Adapter Subs			
3541880	BRQ Rod Box to AW Rod Pin	2.30	5.00
3542179	BRQTK Rod Box to AW Rod Pin	2.00	4.30
24929	BQ Rod Box to AW Rod Pin	2.30	5.00
3541881	NRQ Rod Box to BW Rod Pin	3.30	7.20
24928	NQ Rod Box to BW Rod Pin	3.30	7.20
3541882	HRQ Rod Box to NW Rod Pin	7.80	17.20
25262	HQ Rod Box to NW Rod Pin	7.80	17.20
3542319	PHD / HWT Rod Box to NW Rod Pin	3.92	8.64

Rod Recovery Taps Features:

- Boart Longyear offers rod recovery taps that have parallel walls, and self-tapping threads for full penetration, improved recovery connection and longer tap life
- Right hand thread
- Connection for optional pilot bit is supplied as standard



CASING RECOVERY TAPS

PART #	DESCRIPTION	KG	LB
Casing Recovery Taps			
306060	AW Casing Recovery Tap	2.30	5.10
306034	BW Casing Recovery Tap	3.90	8.50
306066	NW Casing Recovery Tap	5.40	12.00
3542968	HW / HWT Casing Recovery Tap	11.34	24.95
3543013	PWT Casing Recovery Tap	17.71	38.96
Casing Recovery Taps Adapter Subs			
3540307	ARQTK Rod Box to AW Rod Pin	1.30	2.80
3542379	BRQ Rod Box to BW Rod Pin	2.30	5.00
3543008	BRQTK Rod Box to BW Rod Pin	2.00	4.30
25485	BQ Rod Box to BW Rod Pin	2.30	5.00
3542825	NRQ Rod Box to NW Rod Pin	3.30	7.20
24931	NQ Rod Box to NW Rod Pin	3.30	7.20

Casing Recovery Taps Features:

- Boart Longyear offers casing recovery taps that have parallel walls, and self-tapping threads for full penetration, improved recovery connection and longer tap life
- Right hand thread



OUTER-TUBE RECOVERY TAPS

PART #	DESCRIPTION	KG	LB
Outer-tube Recovery Taps			
3544204	AQTK Outer-tube Recovery Tap	2.30	5.07

Outer-tube Recovery Taps Features:

- Parallel wall, self-tapping thread allows for full penetration, improved recovery connection and longer tap life.
- Right hand thread.
- Identification groove supplied on ARQ™TK rod recovery tap box end.



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Kalgoorlie Super Pit, Location: Australia

WARRANTY

Limited Warranty.

(a) Consumables. Boart Longyear warrants for a period of one (1) year after the date of shipment of the consumable products manufactured by it, or the performance of related services, under the Contract, that such consumable products are free from defects in materials and workmanship and such services are performed in a professional and workmanlike manner; provided, however, with respect to consumable products purchased through an authorized Boart Longyear distributor, the warranty period shall commence on the date of purchase by the end-user.

(b) Capital Equipment. Boart Longyear warrants that the capital equipment manufactured by it is free from defects in materials and workmanship for a period equal to the lesser of (i) one (1) year after the date of shipment, or (ii) the initial 1,000 operating hours. Boart Longyear warrants for a period of six (6) months after the performance of related services that such services are performed in a professional and workmanlike manner.

(c) General Terms. Boart Longyear further warrants that, to the extent applicable, as of the date of shipment or performance, all goods manufactured by it and services performed shall conform to the written specifications agreed between the parties. THIS IS BOART LONGYEAR'S ONLY WARRANTY. BOART LONGYEAR MAKES NO OTHER WARRANTY, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. As a condition to Boart Longyear's warranty obligations, Purchaser must: (i) contact Boart Longyear and request authorization to return any goods claimed to be defective promptly upon Purchaser's discovery of the alleged defect, (ii) upon receipt of an approved authorization code from Boart Longyear, return any goods claimed to be defective under the foregoing warranty, at Purchaser's expense, to the facility designated by Boart Longyear, and (iii) with respect to consumable products purchased through an authorized Boart

Longyear distributor, the party making the warranty claim must also deliver to Boart Longyear reasonable evidence of the date of purchase. Boart Longyear shall perform its examination of the goods so returned by Purchaser and shall report the results of its examination to Purchaser within thirty (30) days following its receipt of such goods from Purchaser, or, if longer time is required to complete such examination, within such time as would be required through the exercise of reasonable diligence. As a further condition to Boart Longyear's obligations hereunder for breach of warranty, Purchaser shall offer its reasonable cooperation and assist Boart Longyear in the course of Boart Longyear's review of any warranty claim. If requested by Purchaser, Boart Longyear will promptly repair or replace, at Boart Longyear's expense, goods that are confirmed to be non-conforming as a result of Boart Longyear's examination and according to Boart Longyear's warranty as set forth herein. All removal and installation of goods shall be at Purchaser's expense; provided, however, Boart Longyear will reimburse the Customer for an amount equal to the reasonable expenses incurred by the Customer and attributable to the removal and shipment of any defective goods. Boart Longyear reserves the right to reimburse Purchaser for an amount equal to the purchase price of any defective goods in lieu of providing repaired or replacement goods. Anything contained herein to the contrary notwithstanding, in no event shall Boart Longyear be liable for breach of warranty or otherwise in any manner whatsoever for: (i) normal wear and tear; (ii) corrosion, abrasion or erosion; (iii) any goods, components, parts, software or services which, following delivery or performance by Boart Longyear, has been subjected to accident, abuse, misapplication, modification, improper repair, alteration, improper installation or maintenance, neglect, or excessive operating conditions; (iv) defects resulting from Purchaser's specifications or designs or those of its contractors or subcontractors other than Boart Longyear; (v) defects associated with consumable parts or materials, the lifetime of which is shorter than the warranty period set forth in this Section; (vi) defects associated with

Purchaser's specifications or designs or those of its contractors or subcontractors other than Boart Longyear; (vii) defects resulting from the manufacture, distribution, promotion or sale of Purchaser's own products; or (viii) accessories of any kind used by the Purchaser which are not manufactured by or approved by Boart Longyear.

(d) Sourced Goods. If the defective parts or components are not manufactured by Boart Longyear, the guarantee of the manufacturer of those defective parts or components is accepted by the Purchaser and is the only guarantee given to the Purchaser in respect of the defective parts or components. Boart Longyear agrees to assign to the Purchaser on request made by the Purchaser the benefit of any warranty or entitlement to the defective parts or components that the manufacturer has granted to Boart Longyear under any contract or by implication or operation of law to the extent that the benefit of any warranty or entitlement is assignable.

(e) Limitation on Liability. Except as provided for herein, in no event will Boart Longyear be liable for any indirect, incidental, special, consequential, punitive or similar damages including, but not limited to, lost profits, loss of data or business interruption losses. In no event will the total, aggregate liability of Boart Longyear under the Contract exceed the value of the Contract under which liability is claimed. The liability limitations shall apply even if Boart Longyear has been notified of the possibility or likelihood of such damages occurring and regardless of the form of action, whether in contract, negligence, strict liability, tort, products liability or otherwise. The parties agree that these limits of liability shall survive and continue in full force and effect despite any termination or expiration of any Contract. Any action by Purchaser against Boart Longyear must be commenced within one year after the cause of action has accrued. No employee or agent of Boart Longyear is authorized to make any warranty other than that which is specifically set forth herein. The provisions in any specification, brochure or chart issued by Boart Longyear are descriptive only and are not warranties.

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