





**Asahi Diamond Industrial Australia Pty. Ltd.**

## **Triple Tube Conventional Core Barrel**



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## Triple Tube Conventional Core Barrels

Asahi Triple Tube Core Barrels are designed to maximize core recovery in site investigation and core exploratory drilling programs.

With these Core Barrels it is possible to obtain near 100% volumetric core recovery in the most undisturbed condition possible using rotary core drilling equipment. They have been used for exploration of dam, bridge and building sites as well as the development of mineral resources.

Triple Tube Core Barrels are normally supplied with stainless steel split inner tubes. Clear plastic tubing is available in NMLC size.

The plastic tubing is used when retaining the core exactly as it is recovered from the hole is desired. The core is left in the tube and the ends are sealed.

Visual examination is possible through the tubing on site or at the laboratory. The outer tubes are hard faced at each end to reduce wear and act as a stabilizer.

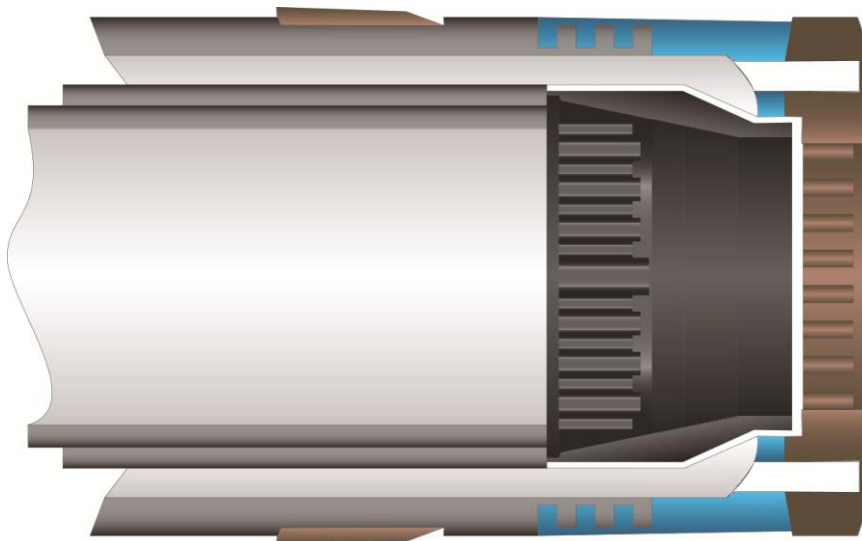
| Size | Hole Diameter | Core Diameter | Length | Stock Code |
|------|---------------|---------------|--------|------------|
| NMLC | 75.69mm       | 51.94mm       | 1.0m   | 327911MTR  |
| NMLC | 75.69mm       | 51.94mm       | 1.5m   | 3279I      |
| NMLC | 75.69mm       | 51.94mm       | 3.0m   | 3285I      |
| HMLC | 99.21mm       | 63.50mm       | 1.5m   | 3280I      |
| HMLC | 99.21mm       | 63.50mm       | 3.0m   | 3286I      |



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## Set Up Instructions

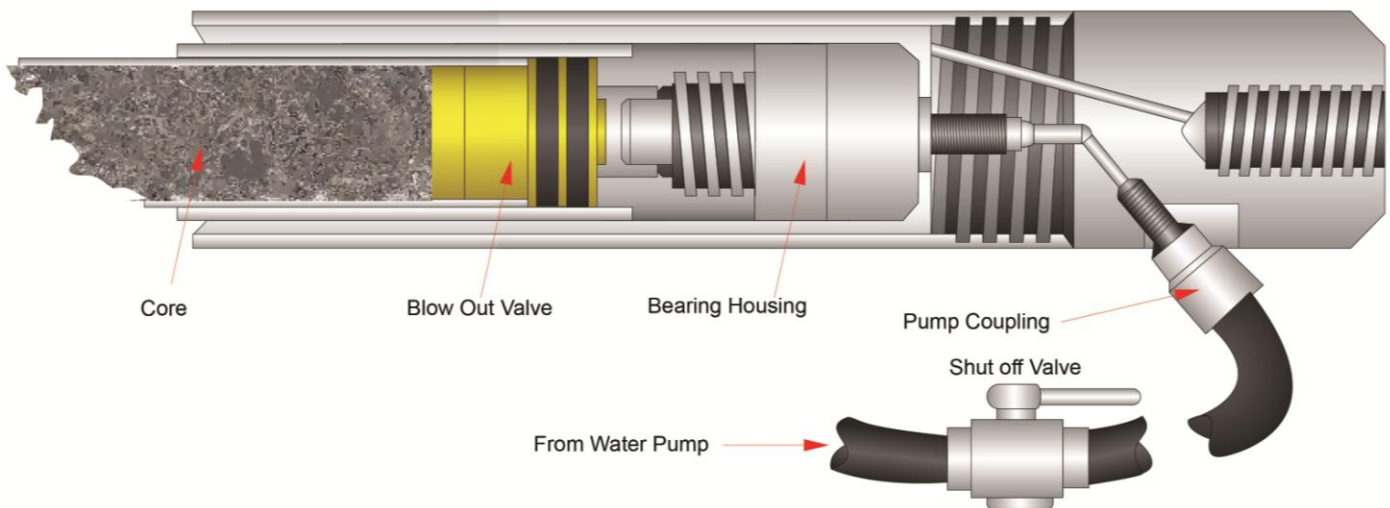
- Unscrew the water end from the outer tube.
- Withdraw the water end and the holding tube assembly from outer tube.
- Remove the set screw from the bearing housing and insert the grease nipple.
- Apply grease.
- Remove grease nipple and replace the set screw.
- Dismantle the rest of the barrel and reassemble ensuring that all the threads are tight.
- Loose threads can result in water leaking through the inner tube and washing the core.
- It is generally not necessary to disassemble the bearing housing unless the barrel has been stored for some time, in which case the bearings should be checked to ensure that they are fully greased.
- Check the distance between the core lifter adaptor case and the inner shoulder of the Bit.
- For medium to hard formations this clearance should be about 1.5m.
- For soft and friable formations this distance should be reduced to about 1.0m to prevent water from washing the core away.
- There should always be some clearance to prevent the core lifter adaptor case from rubbing on the Bit and allow cuttings to be washed from the inside gauge of the Bit.
- This clearance is adjusted with the spacer washers that are located between the bearing housing and the holding tube.





## Core Removal

- Remove Bit and reamer from outer tube.
- Remove the core lifter case, core lifter and locating washer from the holding tube using two C spanners.
- Remove the plug from the water end and insert the pump coupling; connect coupling to closed water pump shut off valve.
- Slowly open valve. Pressure will be applied to the top of the blow out valve, causing the valve and the split tube to be ejected from the holding tube.
- Clean barrel by tilting it with water end upward and rotate the holding tube, allowing water to wash through the barrel.
- Remove pump coupling from water end and replace the plug.





## Inner Tube Replacement

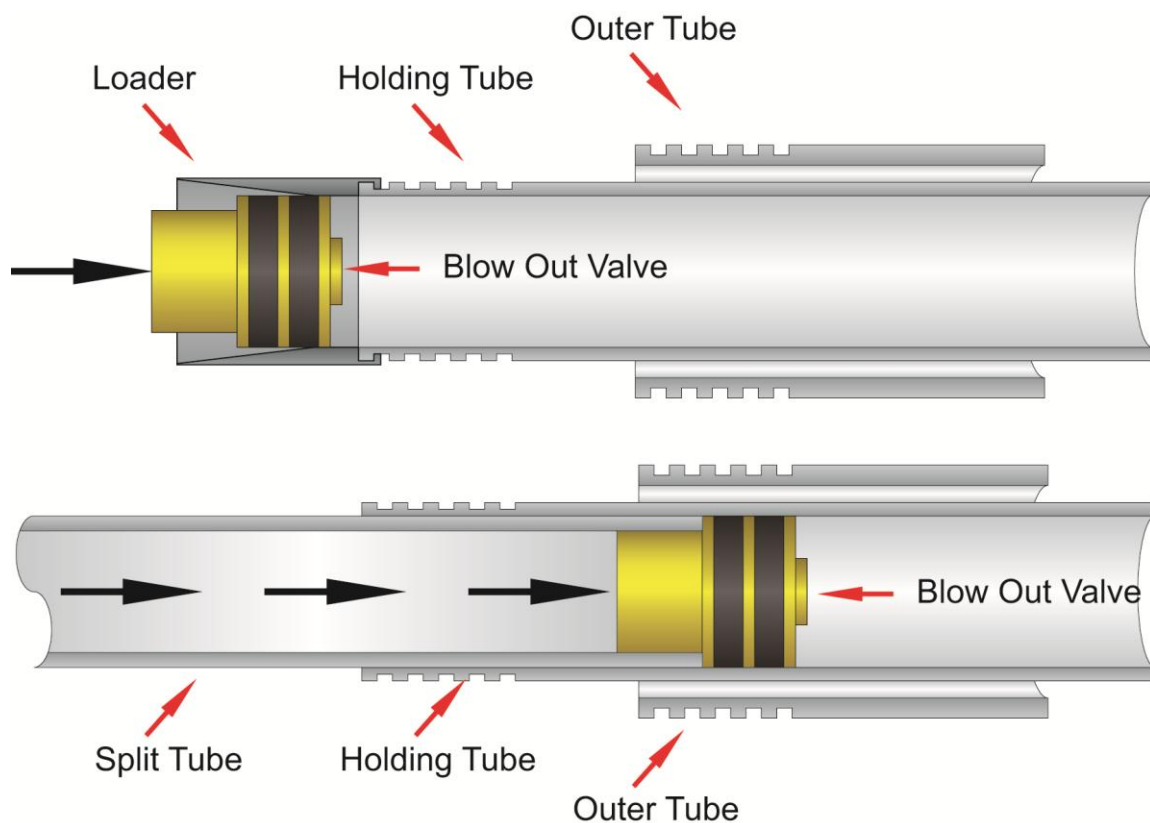
Place blow out valve loader over the holding tube and insert the blow out valve. Push the valve through the loader into the holding tube.

- Clean splits before inserting into holding tube.
- Remove loader and place the split tube over the end of the valve.
- Push the whole assembly into the holding tube until valve stops on its seating in the holding tube assembly.
- At this point the split inner tube should be flush with the end of the holding tube.
- When the inner tube is seated correctly replace the locating washer, core lifter adaptor case, core lifter, reamer and Bit.
- The core barrel is ready for another run.

### Note:

The hole in the water end is designed to let air escape from the holding tube as the core enters the barrel. If it becomes blocked a core blockage will be indicated after drilling only a short distance and if drilling continues the pressure will prevent the core from entering the barrel.

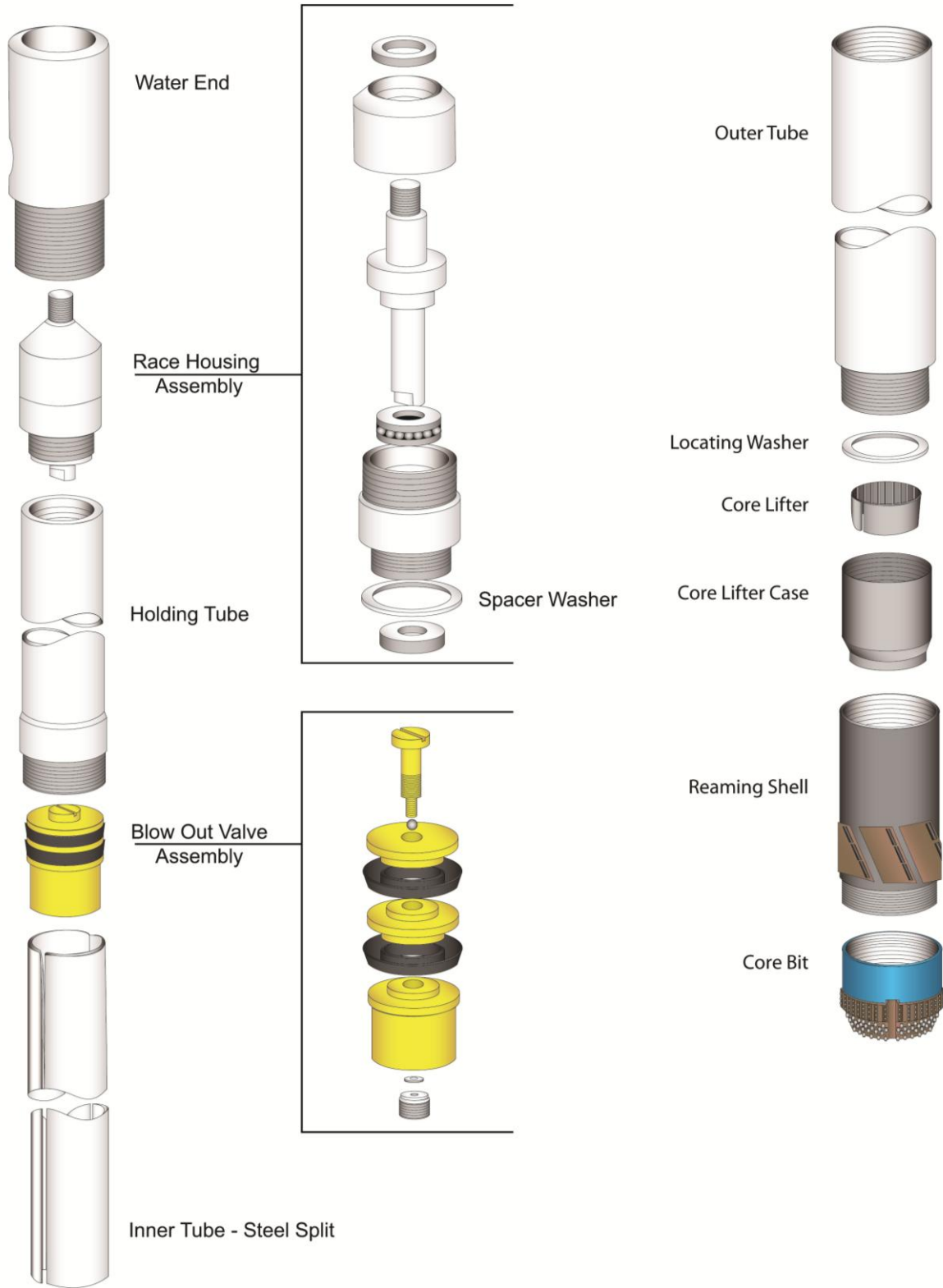
In softer formations the core may wash away and there will be no apparent reason for lost core. Water will not leak through the hole if the seals are in good condition and the threads are tight.





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## Conventional Core Barrel Breakdown





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## Servicing Conventional Core Barrel

Visual inspection and any necessary repairs should be done at the drill site at least every 100 meters drilled, or every week. The Barrel should be taken to the workshop for servicing as often as possible.

The following procedure can be followed:

### General

- Dismantle the Barrel completely.
- Clean all parts (except seals) with diesel or another non-acidic cleaning fluid.
- Inspect all parts for damage.

### Water End

- Clean all waterways in the water end body.
- Check that the vent hole in the plug is clear.
- Screw it into the body.

### Race Housing Assembly

- Clean the spindle ensuring that the centre hole is not blocked.
- Check the oil seals and the bearings for wear.
- Reassemble, tightening all threads firmly.
- Apply the tools over the thick shoulder of the race clamp and the main part of the body.
- Clean the grease nipple then grease the bearings.
- Remove the grease nipple and insert the set screw.

### Blow Out Valve Assembly

- Check the U packing's, spring, ball valve and sieve for wear.
- Ensure that the ball seat is clean and none of the holes are blocked.
- Reassemble, taking care not to damage the packing's.
- Tighten all threads firmly.

### Tubes

- If the holding or inner tubes are dented they will be difficult to assemble and cause core jamming before the barrel is full.
- Check that the split inner tube halves are circular when held together and that they will fit over the blow out valve body.
- When the blow out valve and inner tube are fitted together they should pass easily through the holding tube.
- The packing's should cause some resistance.
- If the packing's are removed the assembly should slide freely through the holding tube.



## Assembly

- Fit the holding tube to the bearing housing with the required spacer washers (as per the setting up instructions).
- Fit the spindle thread of the bearing housing to the water end.
- Grease the threads before assembly to assist in future disassembly.
- Insert the blow out valve and split inner tube into the holding tube.
- Test the blow out valve and bearing seals by removing the plug and coupling to a pump or compressor.
- Blow out the inner tube.
- The inner tube and splits should slowly slide out.
- If water (or air) blows out the end of the holding tube then the U packing's are worn or incorrectly fitted.
- If there is leakage through the bearing assembly then the oil seals must be replaced.
- Reload the blow out valve and inner tube.
- Slide the holding tube/water end assembly into the female threaded end of the outer tube and screw the water end into the outer tube.
- Insert the core lifter and locating washer into the core lifter adaptor case and screw to the holding tube.
- Screw a Bit and Reamer to the outer tube.
- Check the clearance between the Bit and core lifter adaptor case.
- Adjust the spacer washers if necessary.
- Fully tighten the water end, outer tube, Reamer and Bit and re-check the clearance.