## **Hydro**pulsion <sup>4</sup>



**T** DOWNHOLE TOOLS

# Milling Tools

The Hydropulsion wide range of Mills are designed for milling several types of obstructions and loose debris contained within the wellbore

All our Mills are manufactured from AISI 4145H Modified Steel and are available in a variety of standard sizes. Hydropulsion Mills can be customised to suit your size, connection type and hardfacing requirements.

The Hydropulsion wide range of Mills are designed for milling several types of obstructions and loose debris contained within the wellbore.

The aggressive cutting inserts our Mills are dressed with ensure high material removal rates resulting in reduced milling times.

Our Hydro-Mill is especially efficient in the removal of Scale & Cement, The design of these incorporates a small contact area that reduces the torque on the motor, reducing stalling.



### **Asymmetric Mill**

- Hardfaced with Supacutt to ensure outstanding milling performance
- Optional hardfacing with Starcutt or Sharkstooth



#### **Flat Bottom Mill**

- Hardfaced with a greater amount of Supacutt for longer milling life
- Optional hardfacing with Starcutt or Sharkstooth



#### **Concave Mill**

- Concave shape is ideal for milling bit cones and other objects by keeping them centred under the mill
- Hardfaced with Supacutt for superior milling life
- Optional hardfacing with Starcutt or Sharkstooth



#### **TCI Mill**

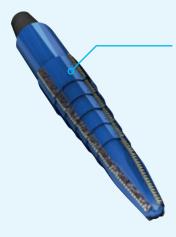
- Hardfaced with
   Tungsten Carbide
   Inserts considerably
   improve ROP and
   tool life
- Backed up with
   Supacutt to provide
   greater resistance
   downhole
- Allows for a variety of insert configurations to suit all milling requirements

## **Hydro**pulsion <sup>9</sup>



#### **Washover Shoe**

- Hardfaced with Supacutt on the ID, OD and end face, as required
- Available in a wave or castellation form



#### **Step Mill**

- Hardfaced with Supacutt and Brand X or Swordfish inserts
- Customised to suit your step number and dimension requirements



#### **Bladed Mill**

- Increased blade length to provide extended milling operation
- Hardfaced with
   Tungsten Carbide
   Inserts which can
   be backed up with
   Supacutt to provide
   greater resistance
   downhole
- Optional hardfacing with Starcutt or Sharkstooth



### **Taper Mill**

- Available with straight or spiral blades
- Available as a long or short version
- Customised

   hardfacing combining

   Supacutt with

   specialised Tungsten

   Carbide Inserts



#### **String Mill**

- Optional spiral or straight blades
- Customised

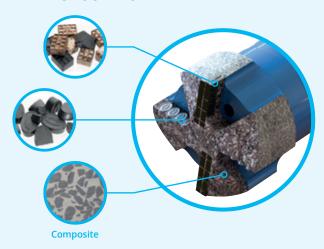
   hardfacing combining
   Supacutt and metal
   cutting inserts when
   appropriate



#### **Hydro Mill**

- Tungsten Carbide Inserts ensure high material removal rates
- Design allows for a reduced contact area resulting in a lower torque consumption reducing stalling

#### **MILLING TOOL FACE**



#### **COMPOSITE ROD**



#### **Supacutt Rod**

A range of sizes, (the largest fragment size denotes the mesh size of the rod), are then blended to optimize packing density when laid and laying characteristics when combined with high strength nickel bronze brazing alloy (100,000 PSI).



#### **Starcutt Rod**

Our "high performance" cutting composite rod. The tungsten carbide has 12 sharp cutting points and is equivalent to 1/4 (6.4mm) mesh size. Composition 55% Starcutt insert, 45% matrix.



### **Sharkstooth Rod**

The tungsten carbide is a tetrahedral shape giving sharp aggressive cutting edges with high strength and is available in one size equivalent to 5/16 (8mm) mesh size.

#### **MILLING INSERTS**



Made from premium CW6 cutting grade tungsten carbide, our Oval Inserts are optimised for use with our QuickTip process with feet placed on the bottom of the inserts for ease of application.



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optimised for use with our QuickTip process with 3 feet placed on the bottom of the inserts for ease of application.