

# IMPREGNATED BIT OVERVIEW

## MATRIX DESIGN OVERVIEW

Boart Longyear offers the most accepted range of impregnated bit matrices. Long respected as the industry rule, our Series matrix selection provides an easy to select and dependable foundation for your drilling needs.

When available, Longyear® impregnated bits matrices can be ordered in Abrasive, Standard and Competent formulations.

**ABRASIVE** bits are for broken, abrasive drilling conditions or for harder rock with broken, abrasive conditions.

**COMPETENT** bits are free-cutting for fast penetration in very hard, competent rock or for use on lower-powered rigs and in geo-technical applications.



### SERIES 1 BIT

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



### SERIES 7 BIT

Series 7 is made to cut medium hard formations. Series 7 is a good choice for formations that have a mixture of medium hard and hard conditions.



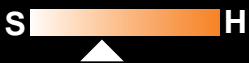
### SERIES 2 BIT

Series 2 is made to cut soft formations and large grain medium formations with excellent bit life. Is also a good choice for cutting concrete with reinforcing.



### SERIES 8 BIT

Series 8 is a general purpose bit for cutting hard formations. It is also a good choice to improve drilling production of medium hard formations.



### SERIES 4 BIT

Series 4 is a good choice for cutting soft to medium formations. Series 4 is also a good alternative to the Series 6 for high torque low rpm rigs.



### SERIES 9 BIT

Series 9 is a free cutting formula for cutting very hard and ultra hard formations. This is a good choice when drilling medium hard formations with a low torque drill rig.



### SERIES 6 BIT

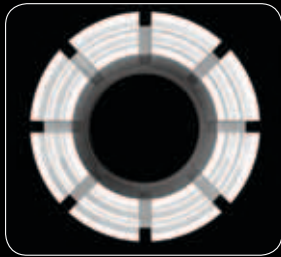
Series 6 is a general purpose formula for cutting formations in the medium hard range. Series 6 also works well in formations of variable hardness.



### SERIES 10 BIT

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

# IMPREGNATED BIT WATERWAY OPTIONS



## STANDARD WATERWAYS

Recommended for general purpose coring operations. Available with various numbers of waterways and waterway widths.

Also available in WIDE waterway configurations.



## TAPERED WATERWAYS (TW)

Recommended for soft and broken ground applications where blocking of regular waterways is possible. The jetting effect of the taper tends to keep the waterway free of cuttings and reducing pressure across the bit face.

Also available in WIDE waterway configurations.



## EXPRESS WATERWAYS (EX)

Provides greater penetration rates in competent formations. The hydraulic effect of the design improves the flushing efficiency and controls bit-rock contact. The allows for reduced torque and increased penetration rate. When drilling at depth and rig power is declining, the express design is recommended.

Also available in WIDE waterway configurations.



## DEEP ID WATERWAYS (DD)

Recommended in loss-of-circulation applications. Deep ID waterways prevent the vacuum effect which pulls the core lifter case into the bit causing a loss of water flow to the bit face. The extra clearance allows water to flow past the bit face and the additional ID waterway area reduces jetting and core washing.

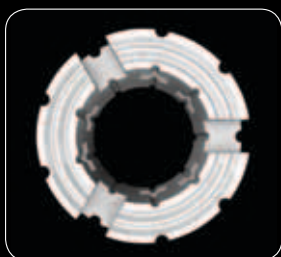
Also available in WIDE waterway configurations.



## FACE DISCHARGE WATERWAYS (FD)

Recommended for very soft and broken ground or swelling core applications with Q<sup>®</sup>3 barrels. The face discharge ports offer excellent flushing to prevent blockages in the waterway channels by reducing pressure to the ID and redirect fluid to the face of the bit.

Also available in WIDE waterway configurations.



## STAGE<sup>®</sup> WATERWAYS

The new patent-pending Stage<sup>®</sup> waterway design is recommended for all drilling applications. The design has proven to be highly efficient, allowing for superior flushing capability and highly productive penetration rates.

Bits utilizing the Stage<sup>®</sup> waterway are currently only available in a impreg height of 25.4mm.