

## MPS1 DRILL SERIES – NOW WITH 8 X D FLUTE LENGTH

MPS1 drills have been designed with the aim of double performance - use the very highest cutting parameters or obtain extra long tool life. This has been achieved by combining the best of proven existing features together with the very latest state of the art technology. This technology has now been expanded into the latest addition to the series, an 8 x D flute length type, now available as standard.

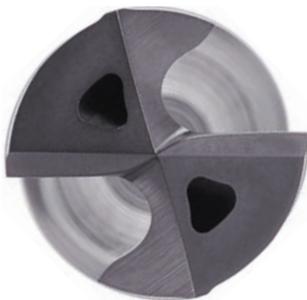
### Cutting Edge

MPS1 drills also use a newly designed straighter cutting edge that was found to offer a smoother cutting action for improved penetration at the highest feeds and speeds. The edge also works effectively in tandem with the new Miracle Sigma based coating to provide excellent tool life.

### Proven Features

The reworked double margin flute is part of the proven existing technology that provides the highest hole accuracy, efficient chip evacuation and smooth surface finishes. Mitsubishi's innovative Tri-Coolant holes are optimised for MQL and have also shown to greatly improve coolant flow where it matters most, at the cutting point of the drill. Extensive flow dynamics research revealed not just the benefits of extra volume, but also the way in which the coolant flowed more efficiently from the hole. It was found that by optimising the shape, more than double the amount of coolant is discharged

#### Tri-Coolant holes



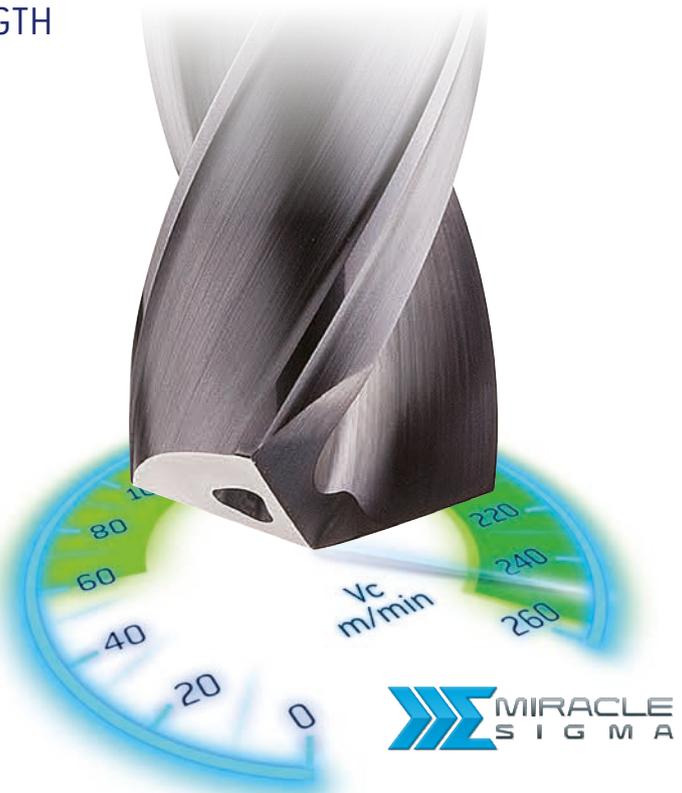
Increased coolant volume

Optimised flow at the margin

Faster chip evacuation



DIN 6535 shank and through holes optimised for MQL use



and at greater speeds than with conventional round type through coolant holes. It is this combination of extra flow and improved delivery to the cutting point that is critical for effectively removing chips. The efficient removal of chips enables continuous high performance across a wide range of work materials and applications.

### MIRACLE SIGMA Coating

The new MIRACLE SIGMA based PVD accumulated Al-Ti-Cr-N coating provides the protection needed to ensure longer tool life, especially at the higher cutting speeds and feeds that are demanded by today's modern production environment. Additionally the polished Zero- $\mu$  surface of the coating provides several important assets such as excellent resistance to welding and a very low coefficient of friction for a sharper but reliable cutting action. The smooth surface also helps greatly towards efficient chip evacuation, an important aspect of overall performance considering the extra material generated by higher feeds and speeds. Typical cutting speeds when drilling carbon steel of around 160m/min can be increased to 220m/min and feed rates upped from 0.25 mm/rev to 0.35mm /rev that gives a huge overall linear feed increase from 1600mm/min to 3080 mm/min. The all important carbide substrate provides the toughness and hardness required to compliment the performance of the new coating.

Available from  $\varnothing$ 3.0 –  $\varnothing$ 20 l/d x 3 and 5 plus the new l/d x 8.