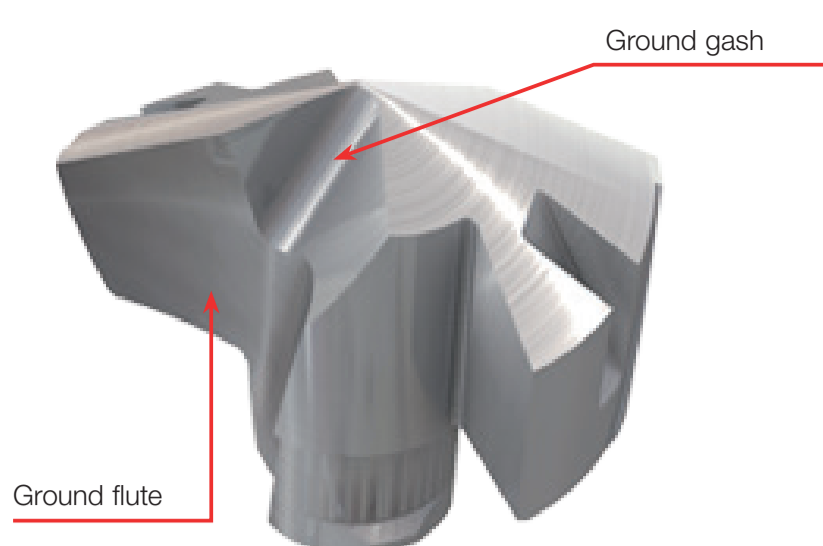
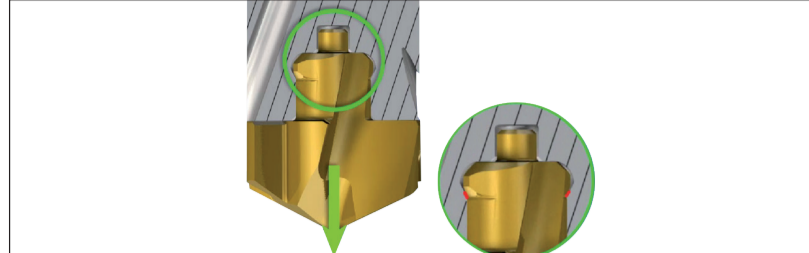


## Drilling Heads

- **SUMOCHAM** features four different standard drill head geometries, designed for optimal performance and high reliability when used on various materials.
- **ICP** for use on carbon and alloy steel (ISO P). The drill head has a honed cutting edge.
- **ICK** for use on cast iron (ISO K). The drill head is produced with a ground chamfer and a honed cutting edge.
- **ICM** for use on stainless and high temperature alloys (ISO M). The drill head features a T-land on the cutting edge.

- The ICP, ICK and ICM drilling heads are available in .004" drilling diameter increments.



The drill head has ground flutes for smooth, uninterrupted chip flow and a ground gash for improved penetration.

To prevent the insert from being pulled out during the drilling process, there is an axial stopper in the pocket. It is effective even after the clamping force has been lost (which may happen when the drill's pocket wears out).

## General Recommendations

- **SUMOCHAM** drills can be used in any type of adaptation. However, concentric adaptation such as spring collets and hydraulic chucks are advantageous for better runout. When machining high temperature alloys or applying very high machining loads, it is advisable to use strong gripping adapters such as endmill holders, power or hydraulic chucks.

- Dry drilling should not be performed under any circumstances.

- Semi-synthetic or emulsion lubricants are recommended in order to extend tool life.

- It is essential to use internal coolant in all **SUMOCHAM** applications. In the event of low coolant pressure or when used in a stationary application, adding an external coolant can improve tool life.

- When only external coolant can be applied, it is recommended to drill into maximum depth of 2xD hole depth to diameter ratio.

- When using M.Q.L. coolant, there is no need for special accessories. For smooth M.Q.L. coolant flow, there is a spherical cavity on the rear side of the drill shank.

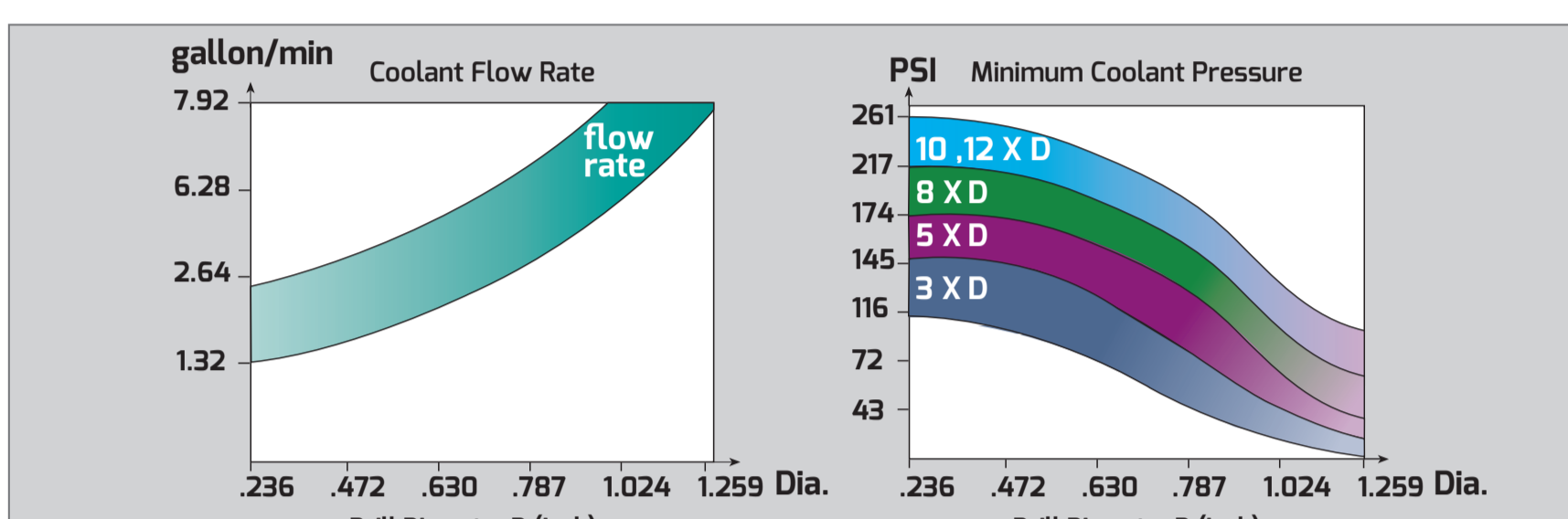
- There is a special plug with an internal thread for a coolant connection used on stationary machines that can be pressed into the cavity on the back end of the drill.



Shank Diameter	Plug	Internal Thread
.500	DL-0500	NPT 1/16"
.625	DL-0625	NPT 1/16"
.750	DL-0750	NPT 1/8"
1.000	DL-1000	NPT 1/8"
1.250	DL-1250	NPT 1/8"

- When drilling stainless steel or high temperature alloys using the ICM drilling head, it is highly recommended to apply high pressure oil or 7-10% mineral or vegetable based oil emulsion.

- Following is the recommended coolant flow rate and pressure.



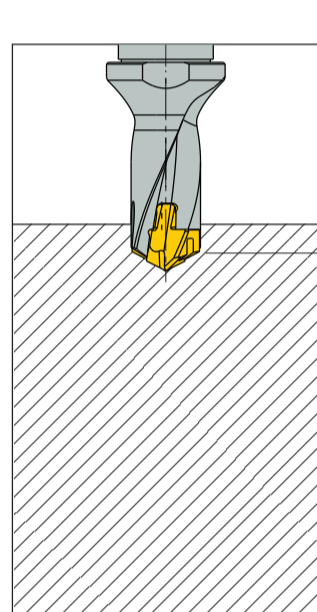
- For optimal performance, it is recommended to adjust runout of outer points or chisel with a maximum of .001". Large runout will influence drill performance tool life and hole quality.

- No setup time is needed after indexing the **SUMOCHAM** drill head.

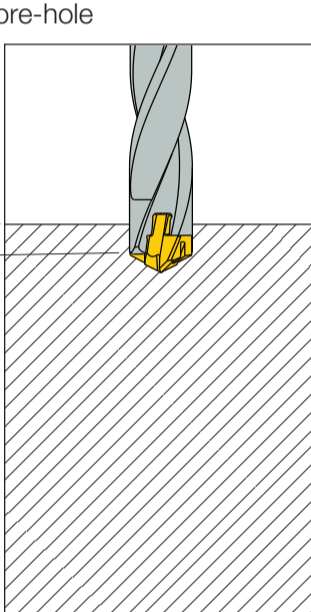
- **SUMOCHAM** drills can be used either on milling centers or lathe machines.

- When using **SUMOCHAM** drill in stationary (lathe) applications, we recommend using the **ISCAR FINEFIT** device or **ECCENTER SLEEVE** to reduce misalignment. Misalignment will cause poor performance of the **SUMOCHAM** drill or even tool breakage.

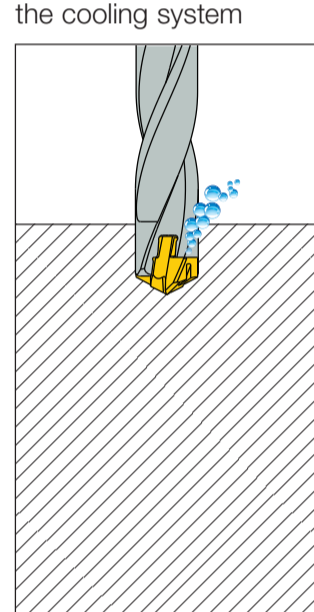
1 Pre-hole 0.5xD deep for centering



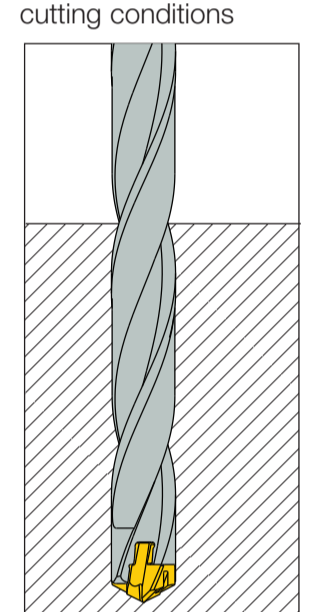
2 Slow rotation and feed while entering to the pre-hole



3 Maintain for 2-3 seconds and activate the cooling system



4 Continue drilling at recommended cutting conditions



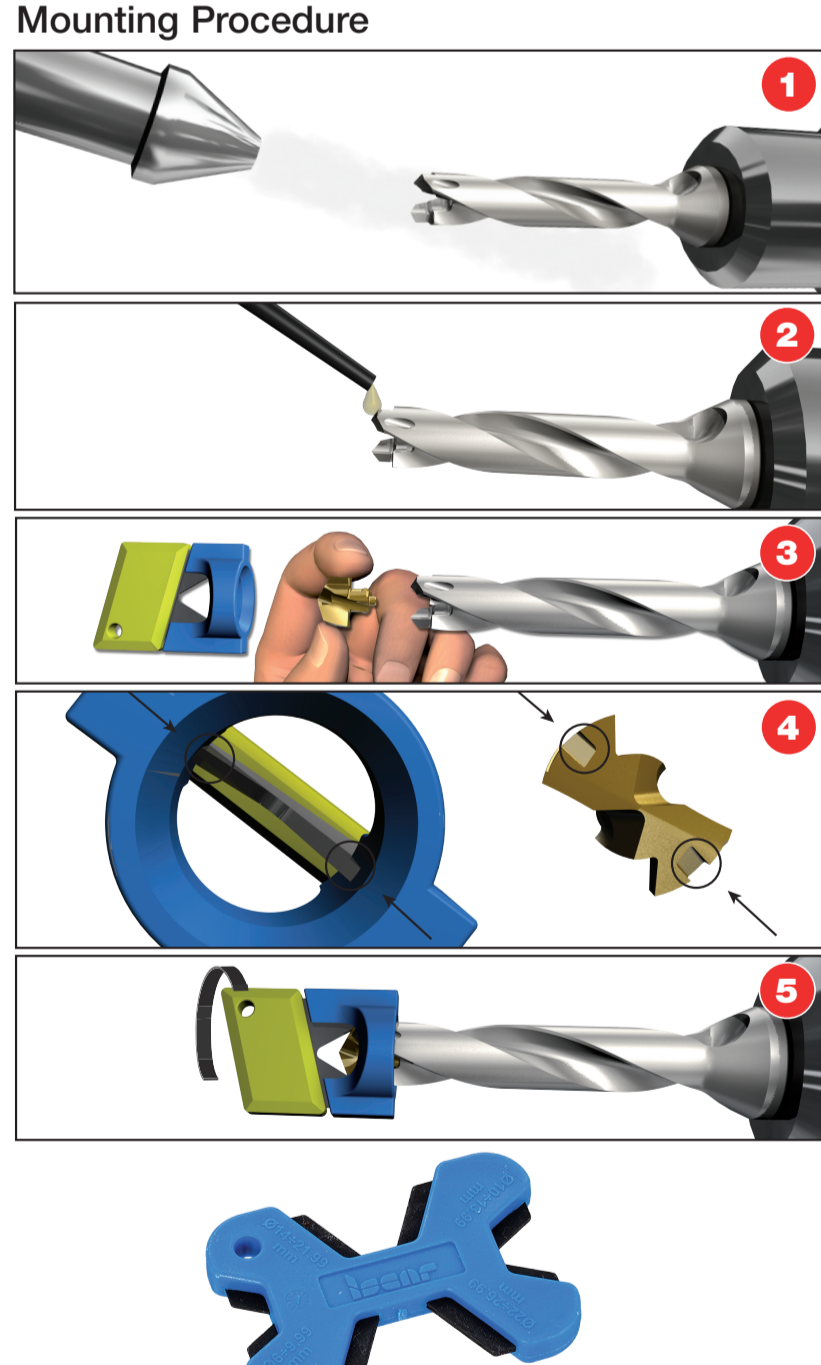
- Prior to using 8xD or 12xD drills, it is recommended to drill a 0.5xD pre-hole using a short or centering drill. Enter the pre-hole at slow speed and feed until .08-.20" from its bottom. Start the cooling system and increase rotation to recommended drilling speed. Hold for 2-3 seconds, then, continue at the recommended drilling feed.

## Pre-Hole Adjustment

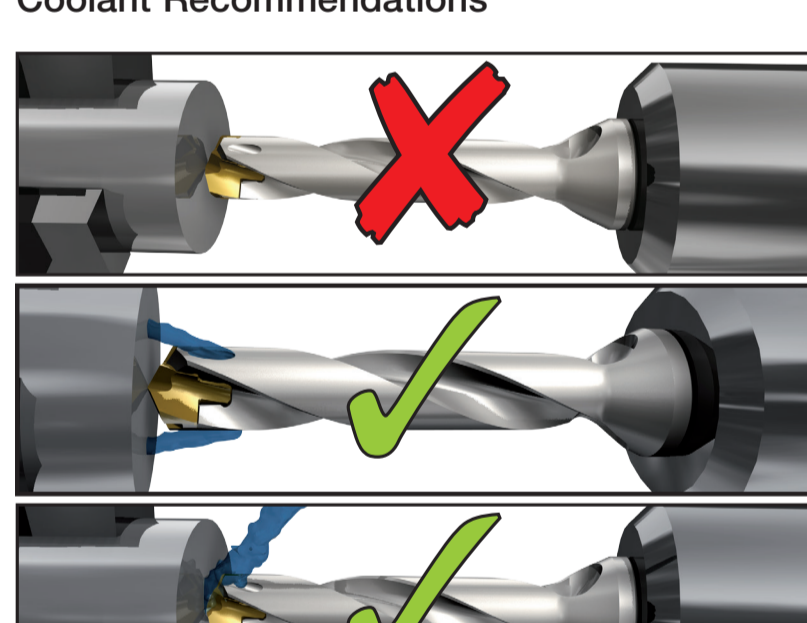
PreHole	ICP/ ICM/ ICN	ICK	HCP/HSP	FCP	QCP	ICG
ICP	✓	✗	✗	✗	✗	✗
ICK	✓	✓	✗	✗	✗	✗
HCP/HSP	✓	✗	✓	✓	✗	✗
FCP	✗	✗	✗	✓	✗	✗
QCP	✓	✗	✗	✓	✓	✗
ICG	✓	✓	✗	✗	✗	✓

\*For proper insert performance and centering, a bigger insert within a .039" range of the same diameter may be used

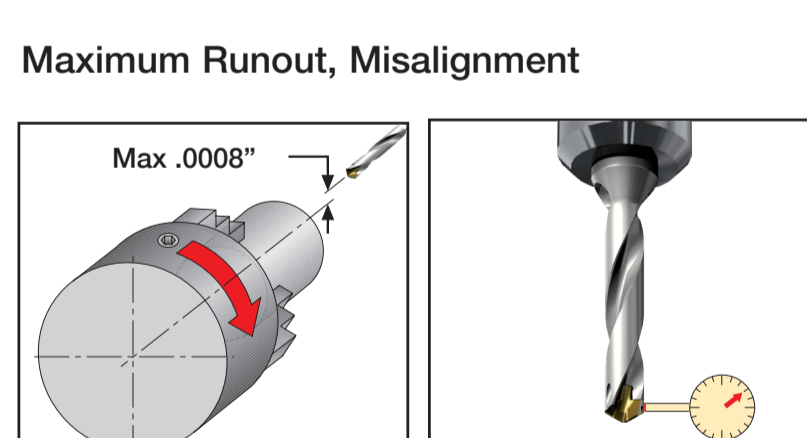
## Drilling Head Mounting Procedure



## Coolant Recommendations



## Maximum Runout, Misalignment

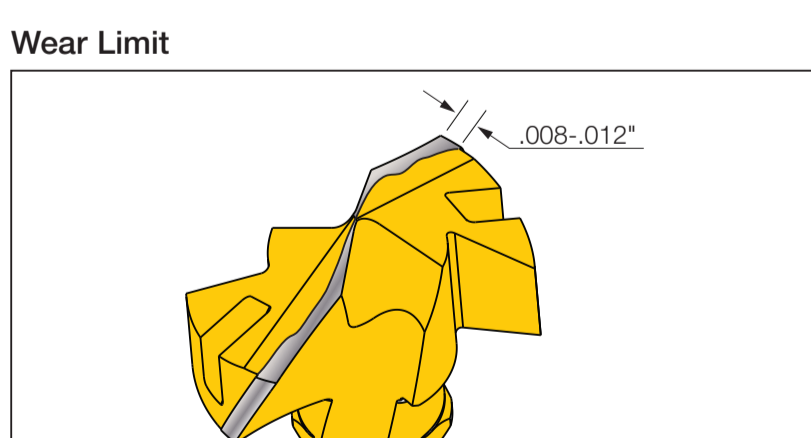


## K DCN MULTI

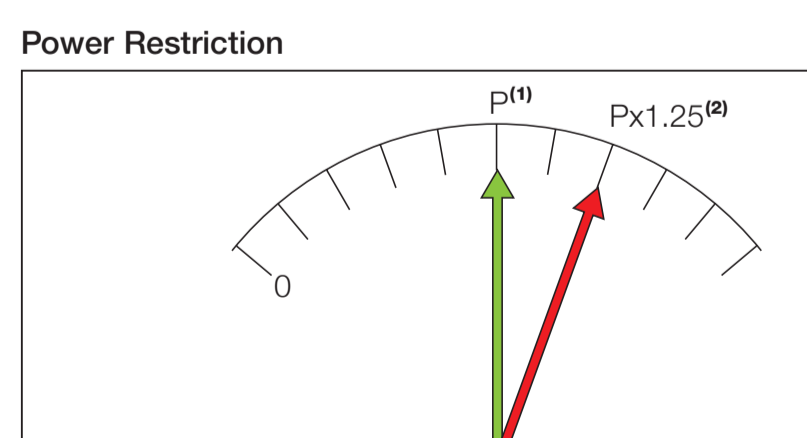
The optional **K DCN MULTI** key enables clamping all **SUMOCHAM** drilling heads geometry variety in a .236-1.062" diameter range.

## Indication of Drill Head Wear

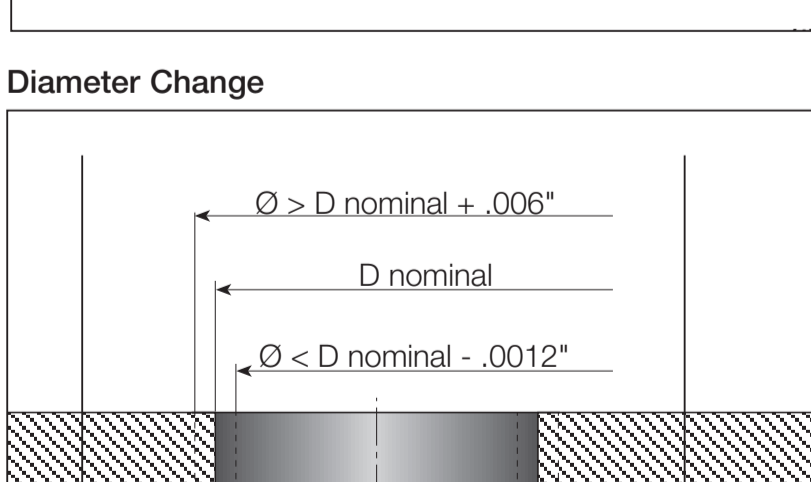
### Wear Limit



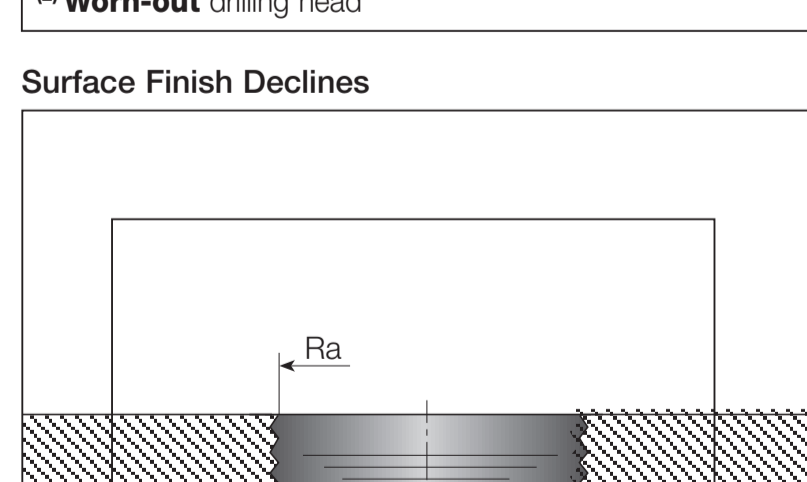
### Power Restriction



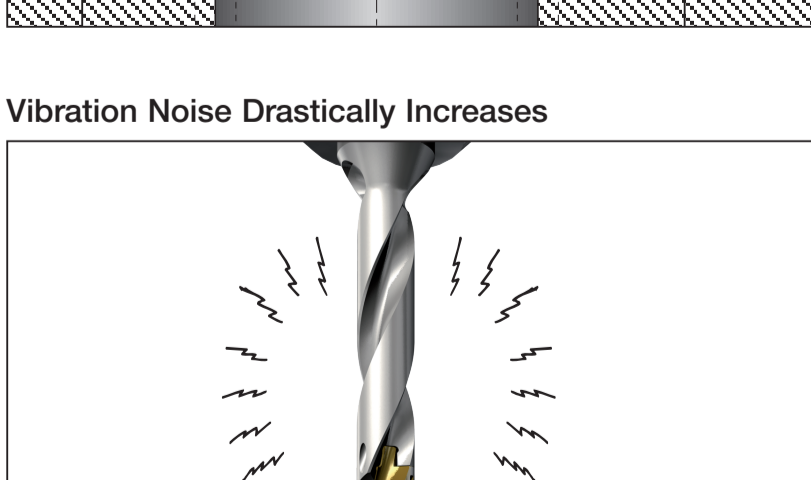
### Diameter Change



### Surface Finish Declines



### Vibration Noise Drastically Increases



### Drilling Limitations

