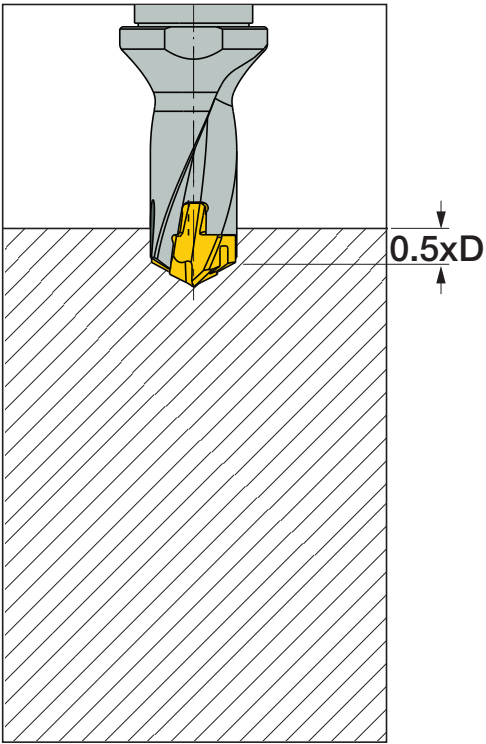


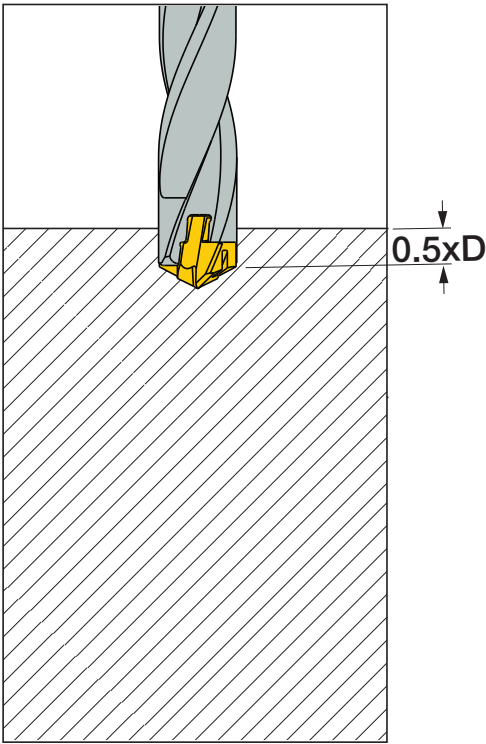
- When drilling stainless steel or high temperature alloys using the **ICM** drilling head, it is highly recommended to apply high pressure oil or 7-10% mineral or vegetable based oil emulsion.
- For optimal performance, it is recommended to adjust runout of outer points or chisel with a maximum of 0.02 mm.
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 GYRO** device or eccentric sleeve to reduce misalignment. Misalignment will cause poor performance of the **SUMOCHAM** drill or even tool breakage.

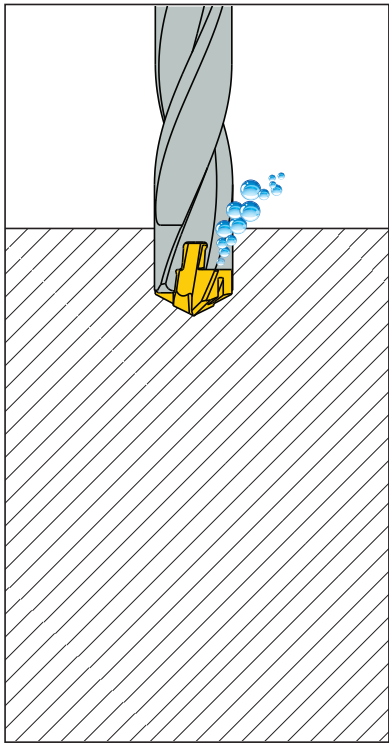
1 Pre-hole 0.5xD deep for centering



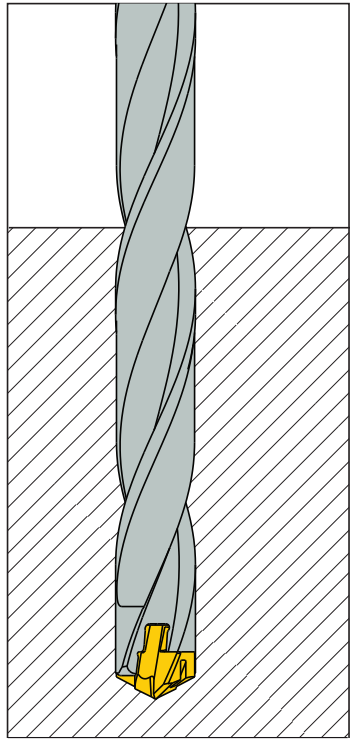
2 Slow rotation and feed while entering to the pre-hole



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



4 Continue drilling at recommended cutting conditions



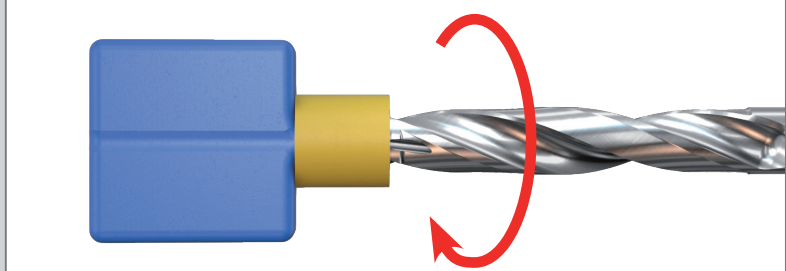
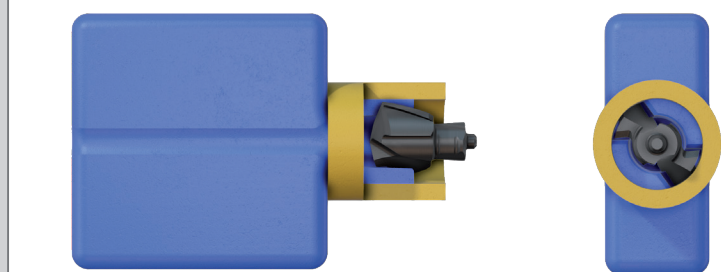
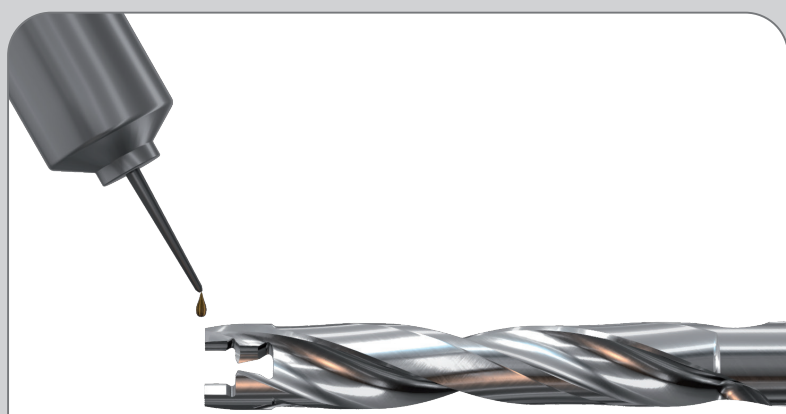
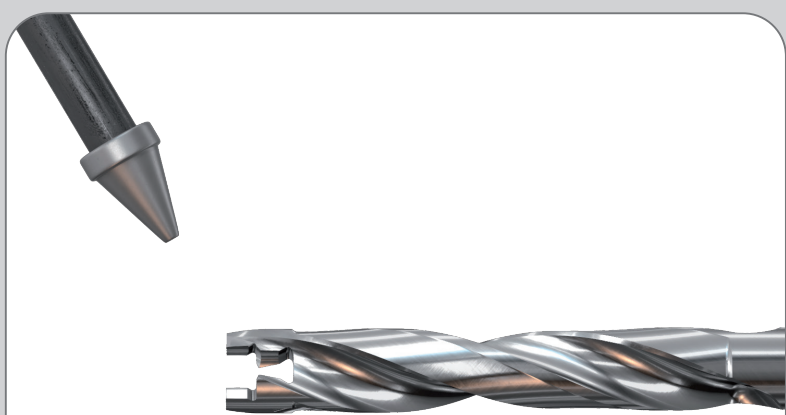
- Prior to using 8xD or 12xD drills, it is recommended to drill a 0.5xD pre-hole using a short or centering drill.
Enter the pre-hole at slow speed and feed until 2-5 mm from its bottom. Start the cooling system and increase rotation to recommended drilling speed. Hold for 2-3 seconds, then continue at the recommended drilling feed.

Pre-hole Adjustment

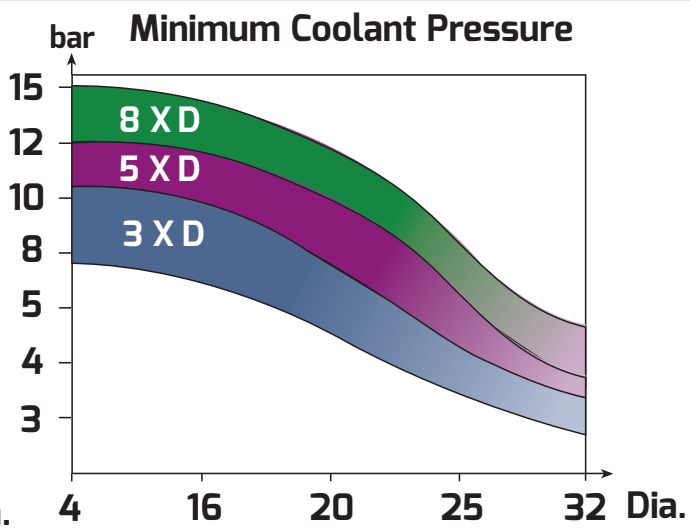
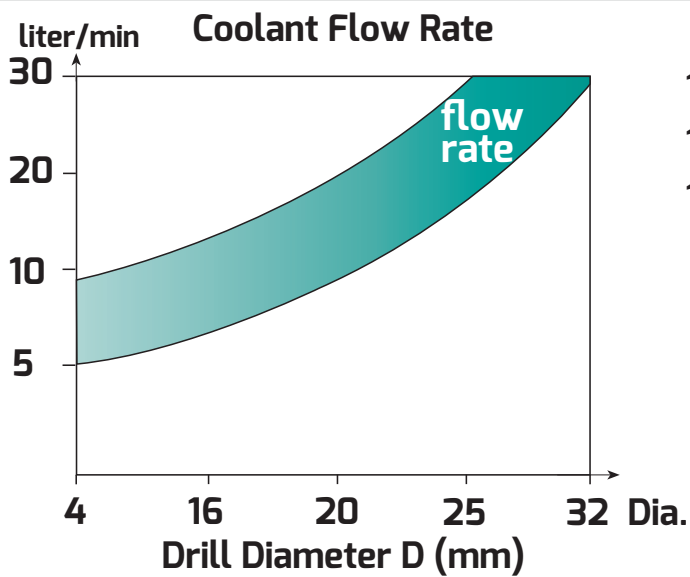
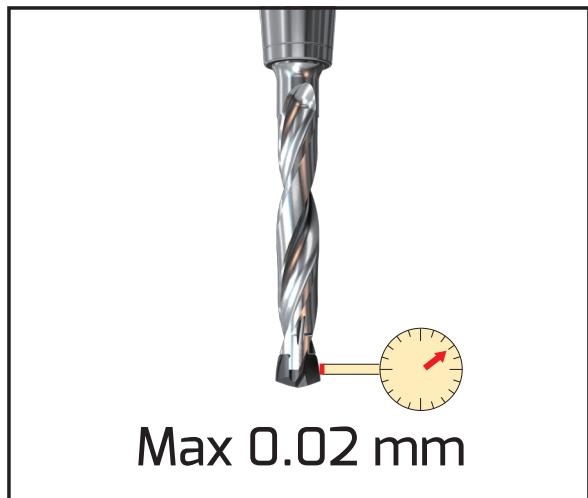
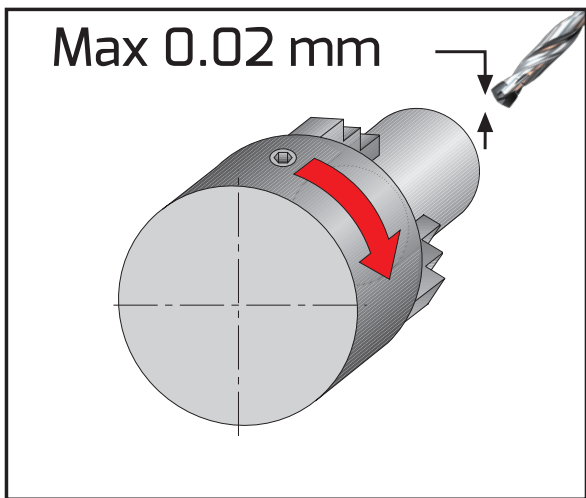
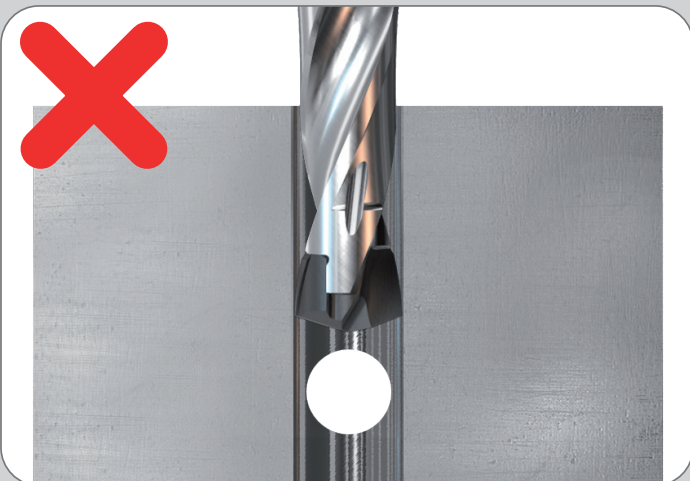
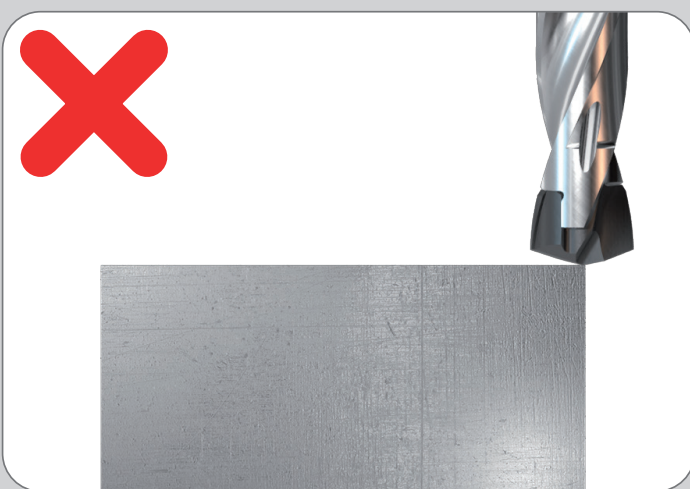
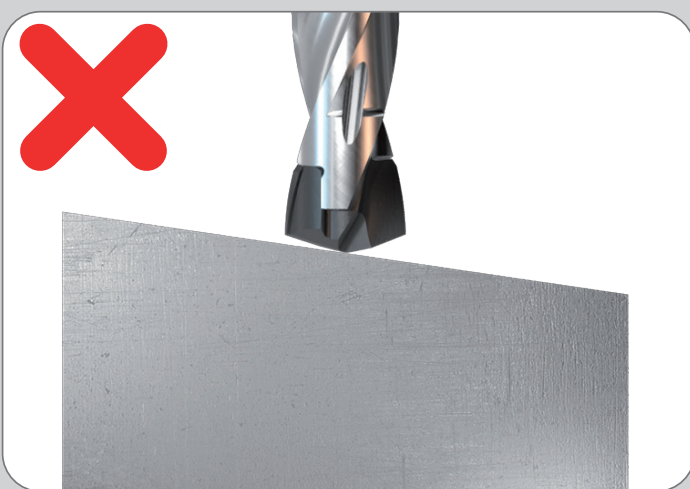
PreHole Hole	ICP/ ICM/ ICN	ICK	HCP/H3P	FCP	QCP	ICG
ICP ICM ICN	ICP/M/N Pre-hole 	ICK Pre-hole 	H#P Pre-hole 	FCP Pre-hole 	QCP Pre-hole 	ICG Pre-hole
ICK	ICP/M/N Pre-hole 	ICK Pre-hole 	H#P Pre-hole 	FCP Pre-hole 	QCP Pre-hole 	ICG Pre-hole
HCP H3P	ICP/M/N Pre-hole 	ICK Pre-hole 	H#P Pre-hole 	FCP Pre-hole 	QCP Pre-hole 	ICG Pre-hole
FCP	ICP/M/N Pre-hole 	ICK Pre-hole 	H#P Pre-hole 	FCP Pre-hole 	QCP Pre-hole 	ICG Pre-hole
QCP	ICP/M/N Pre-hole 	ICK Pre-hole 	H#P Pre-hole 	FCP Pre-hole 	QCP Pre-hole 	ICG Pre-hole
ICG	ICP/M/N Pre-hole 	ICK Pre-hole 	H#P Pre-hole 	FCP Pre-hole 	QCP Pre-hole 	ICG Pre-hole

*For proper insert performance and centering, a bigger insert within a 1.0 mm range of the same diameter may be used

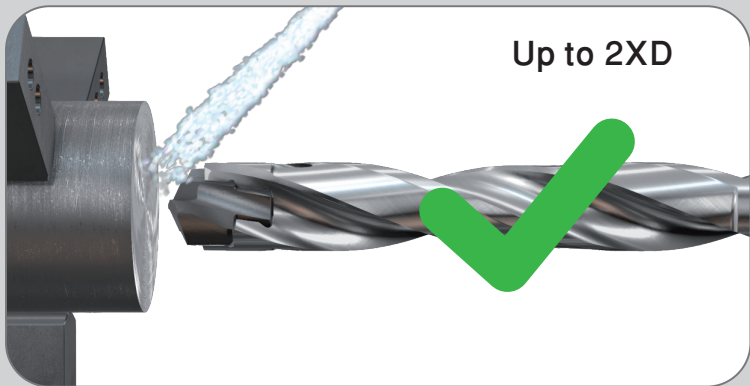
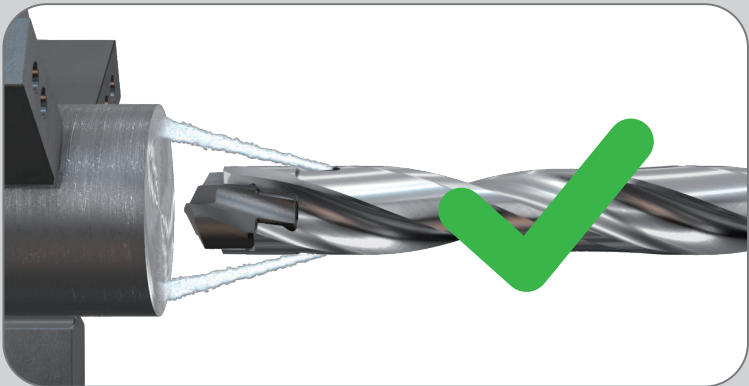
Drilling Head Mounting Procedure



Drilling Limitations



Coolant Recommendations



Material Groups						SUMOCHAM			
						Feed vs. Drill Diameter			
ISO	Material	Condition	Tensile Strength Rm [N/mm²]	Hardness HB	Material No.	V m/min	D=4-4.9	D=5-5.9	
							mm/rev		
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	80-110-140	0.04 0.06 0.08	0.07 0.09 0.11
		>= 0.25 %C	Annealed	650	190	2	80-105-130		
		< 0.55 %C	Quench and tempered	850	250	3	80-100-120		
		>= 0.55 %C	Annealed	750	220	4	70-90-110		
			Quench and tempered	1000	300	5	50-70-90		
	Low alloy steel and cast steel (less than 5% all element)		Annealed	600	200	6	70-95-120	0.04 0.06 0.08	0.07 0.10 0.13
				930	275	7	70-90-110		
			Quench and tempered	1000	300	8	50-70-90		
				1200	350	9	40-55-70		
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	50-70-90	0.06 0.07 0.08	0.07 0.09 0.10
			Quench and temper	1100	325	11	40-60-80		
	Stainless steel and cast steel		ferritic/martens.	680	200	12	40-55-70	0.05 0.06 0.07	0.06 0.07 0.08
			martensitic	820	240	13	40-55-70		
M	Stainless steel	austenitic	600	180	14	30-50-70	0.05 0.06 0.07	0.06 0.07 0.08	
K	Grey cast iron (GG)		ferritic/pearlitic		15	90-125-160	0.04 0.06 0.08	0.1 0.13 0.15	
			pearlitic		16	80-110-140			
	Cast iron nodular (GGG)		ferritic		17	90-135-180			
			pearlitic		18	80-110-140			
	Malleable cast iron		ferritic		19	90-125-160			
			pearlitic		20	80-110-140			

Use external coolant during penetration when machining ISO M materials

- Recommended cutting data
- Machining Stainless Steel is not recommended with QCP & HCP geometry