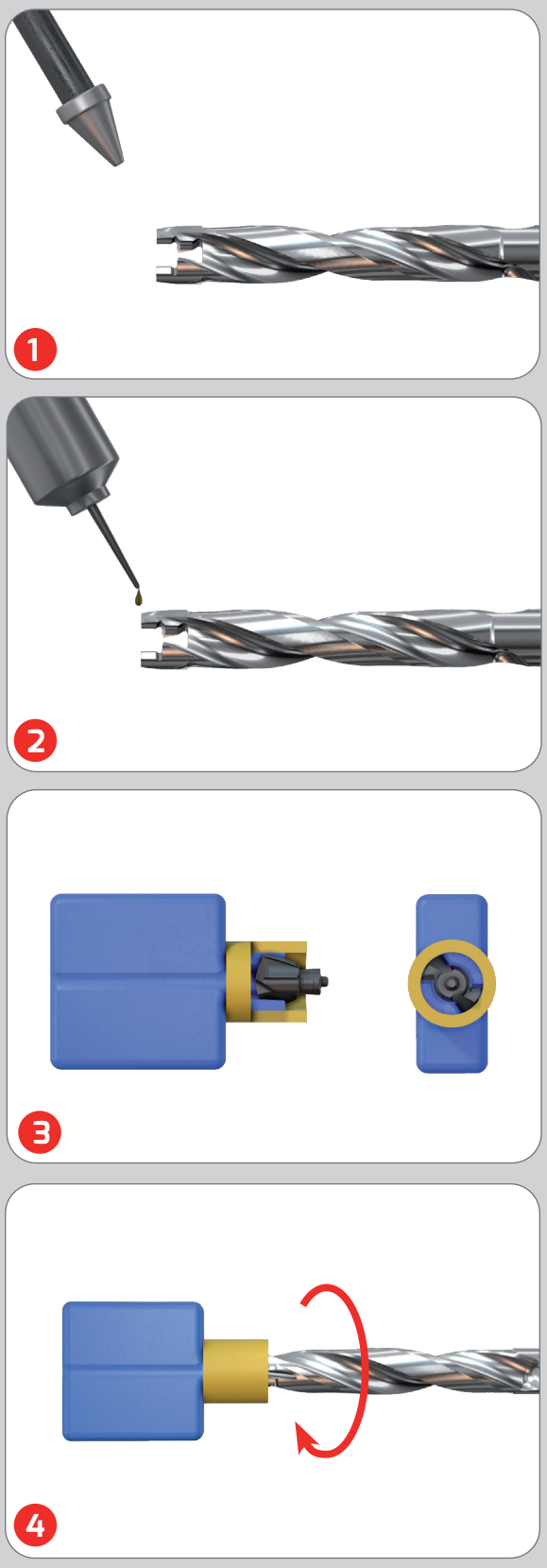
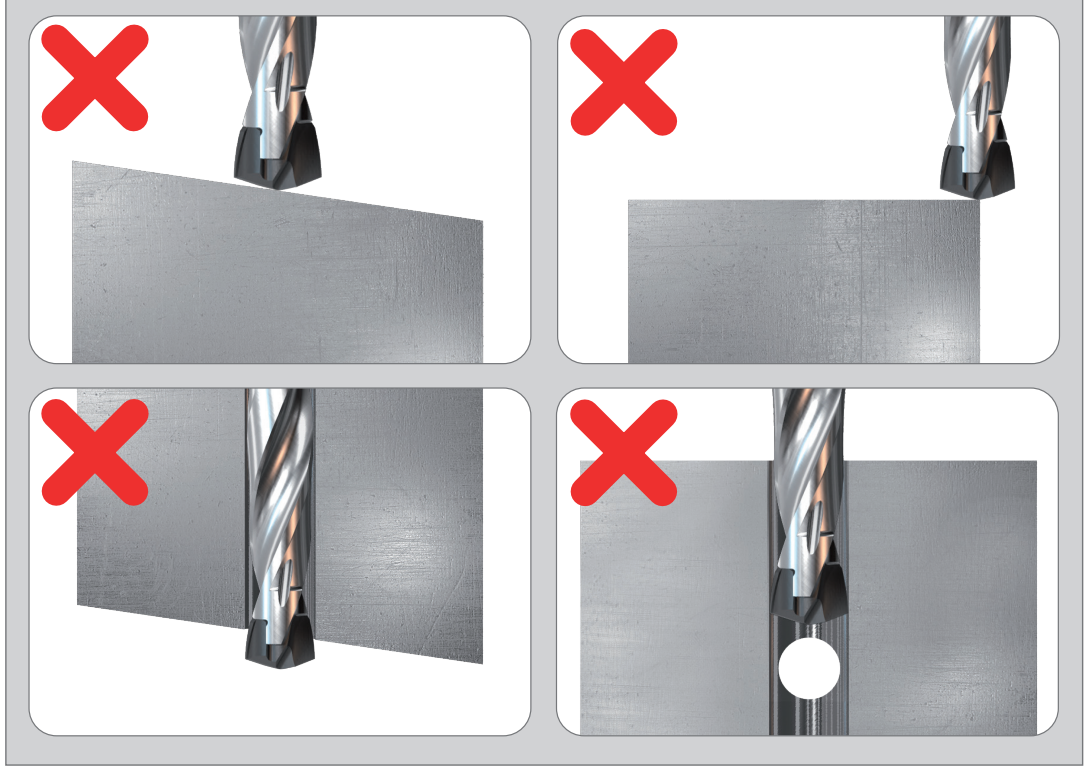
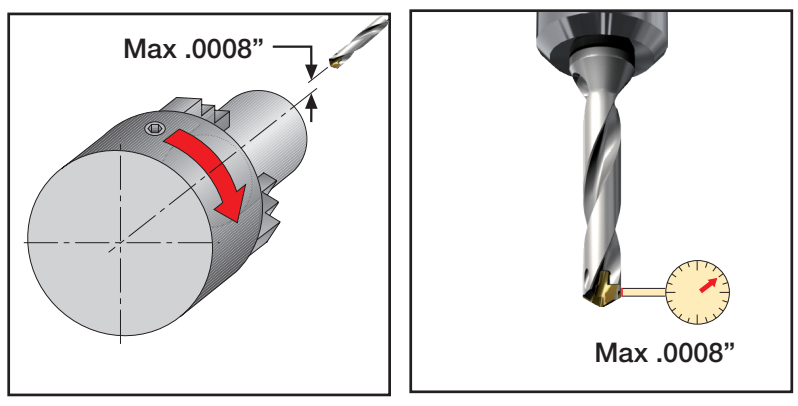
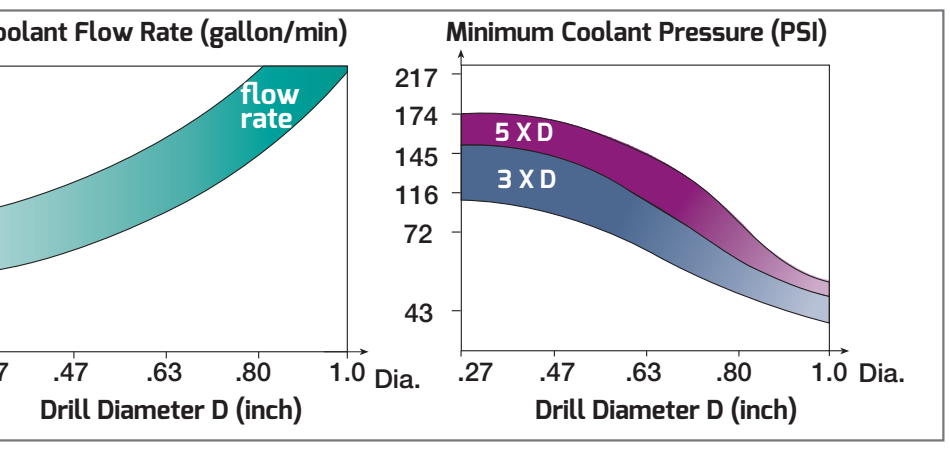
Drilling Head Mounting Procedure



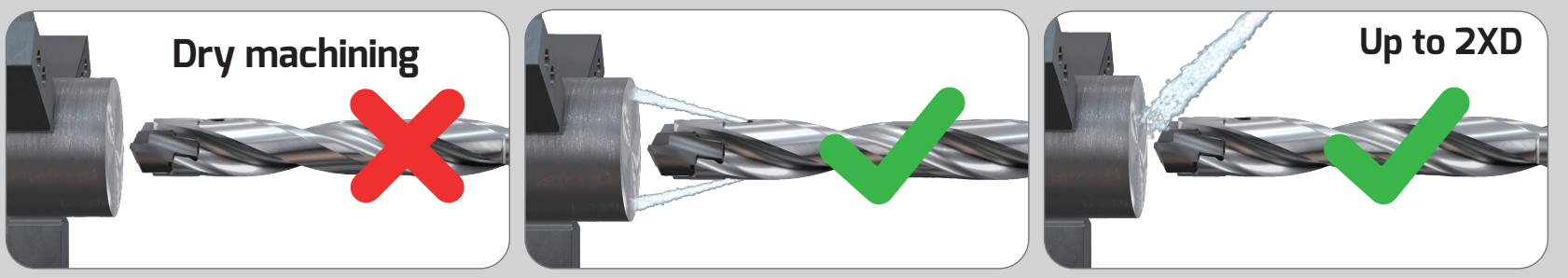
Drilling Limitations







Coolant Recommendations



Material Groups

Recommended Machining Conditions

ISO	Material		Condition	Tensile Strength Rm [Kpsi]	Hardness HB	VC SFM	Mtl. No.	SUMOCHAM Feed vs. Drill Diameter D= .157-.193 ipr	D=.197-.232 ipr	D=.236-.311 ipr	D=.315-.390 ipr
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	61	125	260-**360**-460	1	.0015 **.0023** .0031	.0028 **.0035** .0043	.0035 **.0043** .0051	.005 **.007** .009
		> = 0.25 %C	Annealed	94	190	260-**340**-430	2				
		< 0.55 %C	Quenched and tempered	123	250	260-**330**-390	3				
		> = 0.55 %C	Annealed	109	220	230-**300**-360	4				
			Quenched and tempered	145	300	160-**230**-300	5				
	Low alloy steel and cast steel (less than 5% alloying elements)		Annealed	87	200	230-**310**-390	6	.0015 **.0023** .0031	.0028 **.0039** .0051	.0035 **.0047** .0059	.005 **.007** .010
			Quenched and tempered	135	275	230-**300**-360	7				
				145	300	160-**230**-300	8				
				174	350	130-**180**-230	9				
	High alloy steel, cast steel and tool steel		Annealed	99	200	160-**230**-300	10	.0023 **.0027** .0031	.0028 **.0035** .0039	.0035 **.0041** .0047	.005 **.006** .008
			Quenched and tempered	160	325	130-**200**-260	11				
	Stainless steel and cast steel		Ferritic/martensitic	99	200	130-**180**-230	12	.0019 **.0023** .0027	.0024 **.0028** .0031	.0031 **.0035** .0039	.004 **.005** .006
			Martensitic	119	240	130-**180**-230	13				
M	Stainless steel		Austenitic	87	180	100-**160**-230	14	.0019 **.0023** .0027	.0024 **.0028** .0031	.0031 **.0035** .0039	.004 **.005** .006
K	Grey cast iron (GG)		Ferritic/pearlitic		180	300-**410**-520	15	.0015 **.0023** .0031	.0039 **.0051** .0059	.0047 **.0059** .0071	.006 **.009** .012
			Pearlitic		260	260-**360**-460	16				
	Cast iron nodular (GGG)		Ferritic		160	300-**440**-590	17				
			Pearlitic		250	260-**360**-460	18				
	Malleable cast iron		Ferritic		130	300-**410**-520	19				
			Pearlitic		230	260-**360**-460	20				
N	Aluminum-wrought alloy		Not cureable		60	300-**510**-720	21				.008 **.011** .014
			Cured		100		22				
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75		23				
			Cured		90		24				
		>12% Si	High temperature		130	260-**390**-520	25				
	Copper alloys	>1% Pb	Free cutting		110	300-**510**-720	26				
			Brass		90		27				
			Electrolitic copper		100		28				
S	High temp. alloys	Fe based	Annealed		200	100-**150**-200	31			.0020 **.0022** .0024	.002 **.003** .004
			Cured		280	70-**110**-160	32				
	Super alloys	Ni or Co based	Annealed		250		33				
			Cured		350		34				
			Cast		320		35				
	Titanium, Ti alloys			58		70-**110**-160	36			.0020 **.0024** .0028	.002 **.004** .005
			Alpha+beta alloys cured	152			37				
H	Hardened steel		Hardened		55 HRc	70-**110**-160	38			.0020 **.0024** .0028	.002 **.004** .005
			Hardened		60 HRc		39				

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