

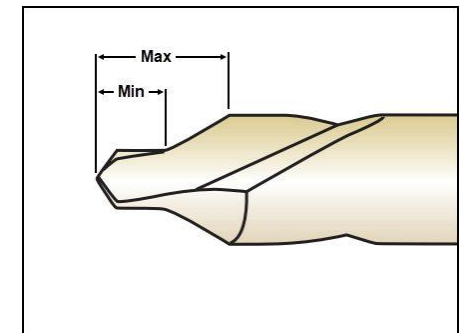
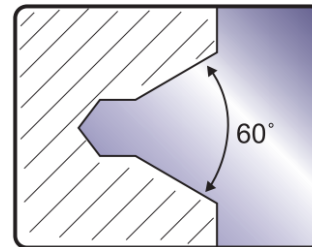
Speeds and Feeds



SFM : ft./min.
FEED(IPR) : Inch/rev.

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	SF	SFM	Center Drill Diameter							
								#1 ~ #6	Center Drill #	#1 Center Drill	#2 Center Drill	#3 Center Drill	#4 Center Drill	#5 Center Drill	#6 Center Drill	
								3/64 ~ 7/32	Pilot Ø - FRACTION	3/64"	1/16"	3/32"	1/8"	3/16"	7/32"	
								0.0469 ~ 0.2188	Pilot Ø - DECIMAL	0.0469	0.0625	0.0938	0.125	0.1875	0.2188	
P	1	Non-alloy steel	About 0.15% C	Annealed	125	●	132	Speed	10,750	8,070	5,380	4,030	2,690	2,300		
								Feed	0.0010	0.0019	0.0010	0.0019	0.0014	0.0029	0.0017	0.0033
	2	Non-alloy steel	About 0.45% C	Annealed	190	●	99	Speed	8,060	6,050	4,030	3,030	2,020	1,730		
								Feed	0.0010	0.0019	0.0010	0.0019	0.0014	0.0029	0.0017	0.0033
	3	Non-alloy steel	About 0.45% C	Quenched & tempered	250	25	○	82	Speed	6,680	5,010	3,340	2,510	1,670	1,430	
									Feed	0.0005	0.0014	0.0003	0.0011	0.0005	0.0017	0.0004
	6	Low alloy steel		Annealed	180	10	●	99	Speed	8,060	6,050	4,030	3,030	2,020	1,730	
Feed									0.0010	0.0019	0.0010	0.0019	0.0014	0.0029	0.0017	0.0033
7	Low alloy steel		Quenched & tempered	275	29	○	66	Speed	5,380	4,030	2,690	2,020	1,340	1,150		
								Feed	0.0005	0.0014	0.0003	0.0011	0.0005	0.0017	0.0004	0.0021
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	33	Speed	2,690	2,020	1,340	1,010	670	580	
									Feed	0.0005	0.0014	0.0003	0.0011	0.0005	0.0017	0.0004
K	15	Grey cast iron	Pearlitic / ferritic		180	10	●	132	Speed	10,750	8,070	5,380	4,030	2,690	2,300	
									Feed	0.0010	0.0019	0.0010	0.0019	0.0014	0.0029	0.0017
	16	Grey cast iron	Pearlitic (Martensitic)		260	26	○	99	Speed	8,060	6,050	4,030	3,030	2,020	1,730	
									Feed	0.0005	0.0014	0.0003	0.0011	0.0005	0.0017	0.0004
	17	Nodular cast iron	Ferritic		160	3	○	132	Speed	10,750	8,070	5,380	4,030	2,690	2,300	
									Feed	0.0010	0.0019	0.0010	0.0019	0.0014	0.0029	0.0017
	19	Malleable cast iron	Ferritic		130		○	82	Speed	6,680	5,010	3,340	2,510	1,670	1,430	
									Feed	0.0010	0.0019	0.0010	0.0019	0.0014	0.0029	0.0017
N							200	Speed	16,290	12,220	8,140	6,110	4,070	3,490		
								Feed	0.0010	0.0014	0.0013	0.0019	0.0019	0.0029	0.0025	0.0037

RPM	SMM
$RPM = \frac{SMM \times 1,000}{\pi \times [\varnothing DC_{(millimeter)}]}$	$SMM = \frac{RPM \times \pi \times [\varnothing DC_{(millimeter)}]}{1,000}$

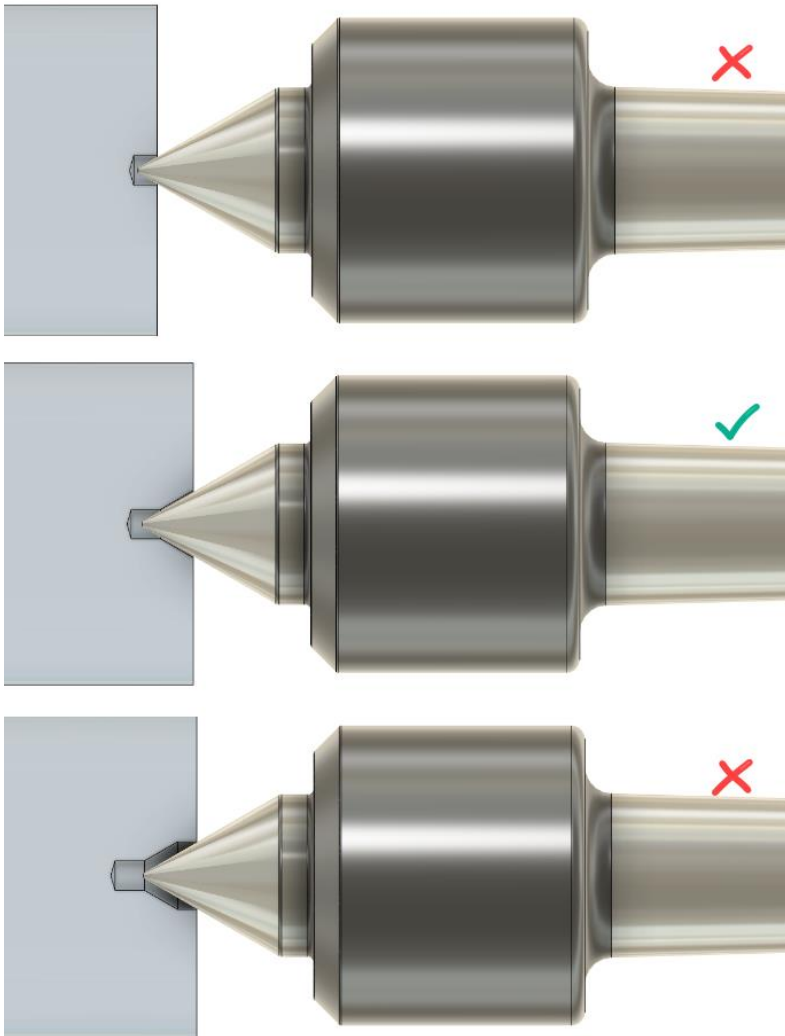


●	Primary
○	Secondary

Technical Details

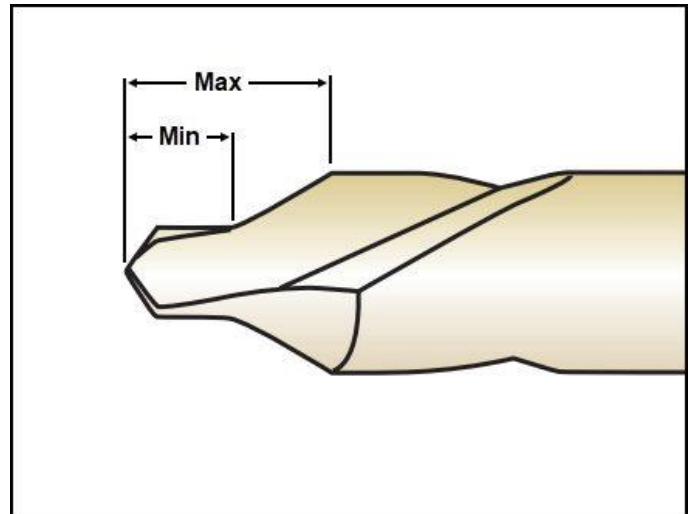


CENTER DRILL DEPTH



Incorrect drill depths being too shallow or too deep will lead to improper work holding. Which may cause imbalance in the work piece, incorrect dimensions or poor finishes.

Use the table below to find the recommended depth range of your center drill.



Haas Part #	Center Drill Size	[D2] Shank Diameter	[D1] Drill Diameter	Maximum Drill Depth	Minimum Drill Depth
03-0420	#1	1/8" \ 0.125 in	3/64" \ 0.0469 in	0.115 in	0.083 in
03-0421	#2	3/16" \ 0.1875 in	1/16" \ 0.0625 in	0.171 in	0.098 in
03-0422	#3	1/4" \ 0.25 in	3/32" \ 0.0938 in	0.245 in	0.145 in
03-0423	#4	5/16" \ 0.3125 in	1/8" \ 0.125 in	0.303 in	0.176 in
03-0424	#5	7/16" \ 0.4375 in	3/16" \ 0.1875 in	0.451 in	0.270 in
03-0425	#6	1/2" \ 0.5 in	7/32" \ 0.2188 in	0.510 in	0.301 in