KSEM

KSEM-HP

new

Even higher KSEM drilling productivity is now possible with Kennametal's new HP geometry. A unique combination of carbide grade and proven coating technology, coupled with a new positive cutting (patent pending) "SE" point design, will dramatically help you increase your tool life over competitive holemaking products when drilling low carbon, alloyed, and austenitic stainless steel workpiece materials.

Carbide Grade and Coating

Our new KSEM-HP geometry is offered in two new carbide grades specifically developed for high productivity drilling applications. Grade KC7235 combines a tough substrate with a TiAlN coating while grade KC7315 offers exceptional toughness thanks to its advanced TiAlN coating, ideal for higher tensile strength steels. Toughness helps our HP geometry resist chipping, a common failure in many drilling operations. Our TiAlN coating resists wear and withstands heat, making it the ideal choice for drilling. By adding the appropriate edge preparation to the grade and coating, Kennametal brings you the right combination for successful, productive drilling.

New Positive Cutting "S" Point Design

Most drilling tools do not cut at center or at the chisel edge. Kennametal's new HP geometry begins cutting material as soon as it contacts the work surface. This feature allows our HP geometry to find center more accurately, and reduce thrust requirements.

Lower Cutting Forces

Compared to the KSEM-GD geometry, KSEM-HP requires 20% less thrust in most applications. This feature allows aggressive drilling rates on machine tools with limited spindle thrust or where fixturing is less than ideal.

Eliminate Spot Drilling

KSEM-HP can eliminate the added operation of spotting the workpiece when applying KSEM 5xD bodies. Longer length-to-diameter ratio KSEM bodies normally require spotting regardless of insert blade geometry.

Insert Blade Selection

To meet your drilling requirements, KSEM-HP insert blades are offered in diameter sizes from .492 through 1.575 (12,4 through 40 mm). Additional tap drill, half-millimeter, and TEMA sizes are available as standards.

KSEM Application

workpiece material group	hardness/ type	geometry	grade	sfm	starting recommendation for feed (ipr) by drill diameter						
					.500 12,5	.625 16,0	.750 19,0	.850 21,0	1.000 25,0	1.250 32,0	1.500 38,0
low-carbon steel (<.25% C)	(<220 HB)	KSEM-HP	KC7235	250 **320** 425	.0070 **.0110** .0150	.0080 **.0120** .0150	.0080 **.0130** .0160	.0080 **.0140** .0160	.0080 **.0140** .0160	.0090 **.0150** .0180	.0090 **.0150** .0180
free-machining steel	(<275 HB)	KSEM-HP	KC7235	220 **290** 325	.0060 **.0100** .0120	.0070 **.0110** .0150	.0080 **.0120** .0150	.0080 **.0140** .0160	.0080 **.0140** .0160	.0080 **.0140** .0160	.0090 **.0160** .0180
medium and high plain-carbon, alloy, and tool steels	(≤330 HB)	KSEM-HP	KC7315	160 **230** 290	.0050 **.0080** .0120	.0060 **.0100** .0130	.0070 **.0110** .0140	.0080 **.0130** .0150	.0090 **.0140** .0180	.0110 **.0160** .0200	.0130 **.0170** .0240
medium and high plain-carbon, alloy, and tool steels	(340-450 HB)	KSEM-HP	KC7315	130 **145** 200	.0050 **.0080** .0120	.0060 **.0100** .0130	.0070 **.0110** .0140	.0080 **.0130** .0150	.0090 **.0140** .0180	.0110 **.0160** .0200	.0110 **.0160** .0200
ferritic, martensitic, and PH stainless steels	(<375 HB)	KSEM-HP	KC7315	150 **175** 210	.0050 **.0080** .0120	.0060 **.0100** .0130	.0070 **.0110** .0140	.0080 **.0130** .0150	.0090 **.0140** .0180	.0110 **.0160** .0200	.0110 **.0160** .0200
austenitic stainless steel	(135-275 HB)	KSEM-HP	KC7235	110 **180** 240	.0040 **.006** .0080	.0060 **.0080** .0090	.0070 **.0090** .0110	.0080 **.0100** .0120	.0090 **.0110** .0140	.0100 **.0120** .0150	.0110 **.0140** .0170
ductile (nodular) and malleable cast irons	(120-320 HB)	KSEM-LD	KC7215	180 **325** 450	.0060 **.0080** .0090	.0060 **.0100** .0130	.0090 **.0110** .0140	.0080 **.0130** .0150	.0110 **.0140** .0170	.0110 **.0160** .0200	.0110 **.0160** .0200
gray cast irons	(120-320 HB)	KSEM-LD	KC7215	200 **400** 500	.0060 **.0100** .0130	.0090 **.0110** .0140	.0080 **.0130** .0150	.0100 **.0150** .0170	.0110 **.0160** .0200	.0120 **.0180** .0230	.0140 **.0200** .0240
free-machining and low-silicon aluminum alloys	hypoeutectic (<12.2% Si)	KSEM-LD	KC7215	400 **600** 800	.0070 **.0090** .0140	.0090 **.0110** .0160	.0120 **.0140** .0200	.0140 **.0160** .0240	.0160 **.0180** .0270	.0200 **.0220** .0300	.0220 **.0240** .0320
miscellaneous non-ferrous workpiece materials	—	KSEM-LD	KC7215	400 **600** 800	.0070 **.0090** .0140	.0090 **.0110** .0160	.0120 **.0140** .0200	.0140 **.0160** .0240	.0160 **.0180** .0270	.0200 **.0220** .0300	.0220 **.0240** .0320

NOTES: These are starting condition guidelines only.
The machine tool, fixturing, toolholding, part configuration, and coolant capability may significantly influence specific applications.
*The **bold font** represents recommended starting parameters. The regular font represents the range of cutting parameters.*
Use proper and safe machining practices. Make the setup as rigid as possible.
Decrease sfm as material hardness increases.
Typically, larger diameter drills require lower sfm than the recommended starting speed.
Calculate sfm from the cutting diameter of the drill.