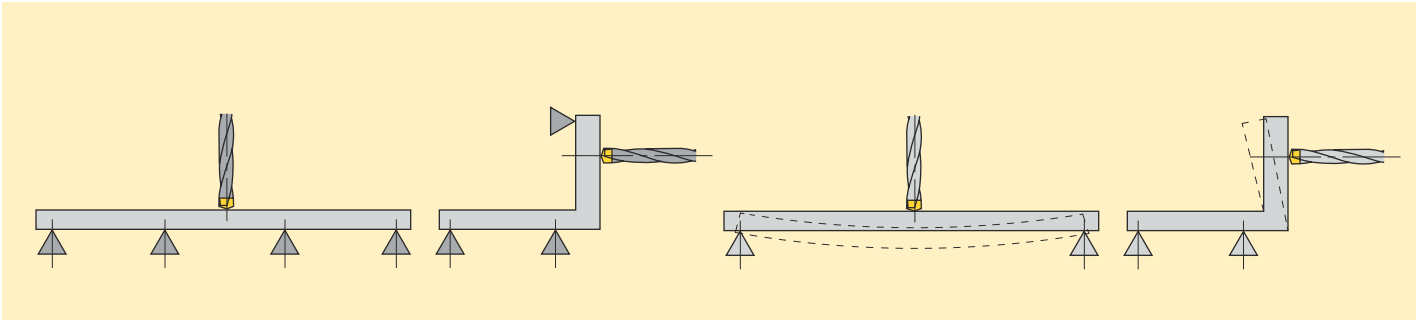
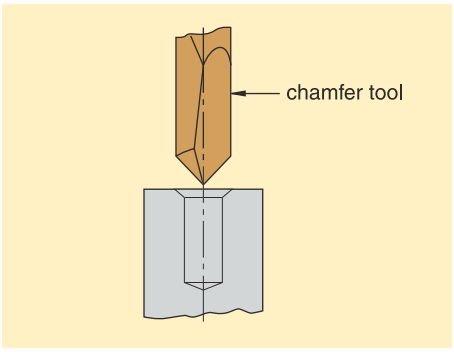
KSEM Modular Drills

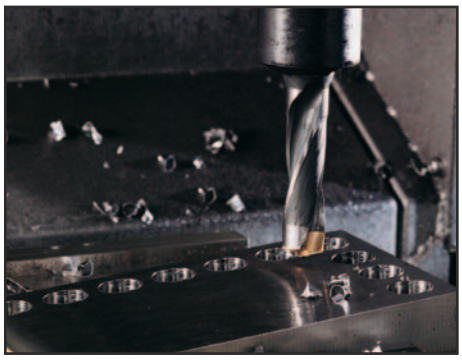
Workpiece Rigidity



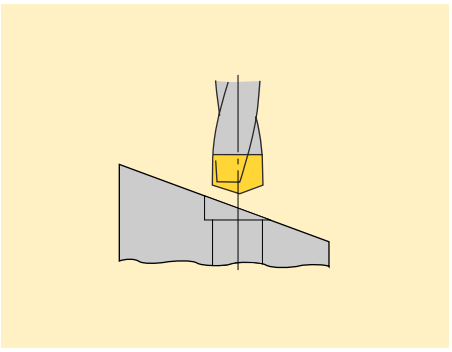
Because KSEM drills deliver much higher penetration rates, it is important that the workpiece receive adequate support.



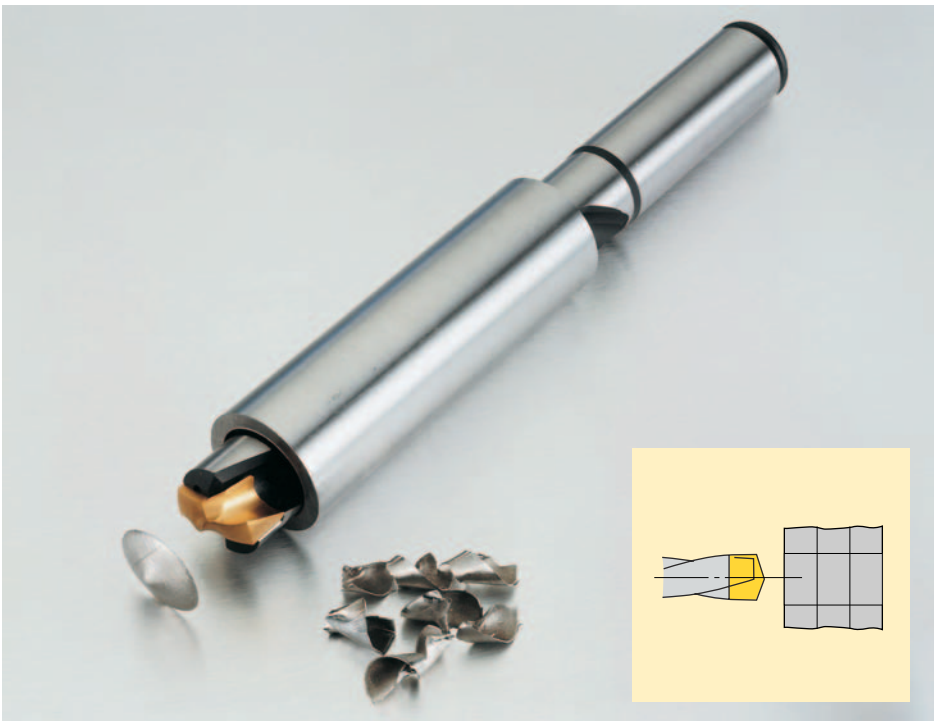
When drilling and chamfering, drill into the solid first, then chamfer.



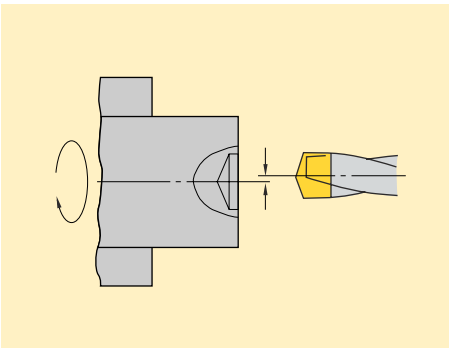
When drilling on inclined surfaces ≤ 5°, reduce feed by 50% until entire drill margin is in the cut, then resume full feed.



Before drilling on curved or inclined surfaces >5°, pre-machining (ø D + .004) is required.



When drilling stacked plates, care must be taken. The KSEM drill will push a slug.



When drilling on turning machines, positioning the drill on center is a must. See page H134.

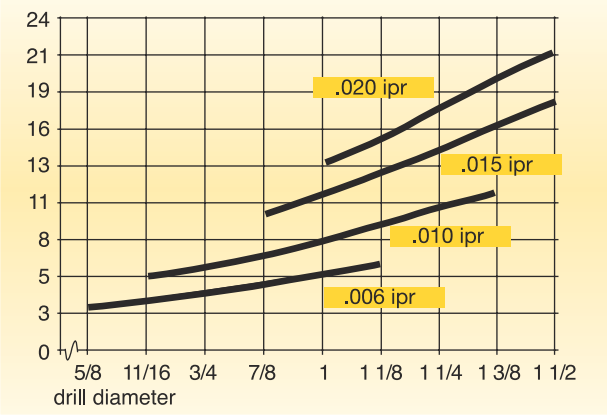
CAUTION

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect all bystanders.

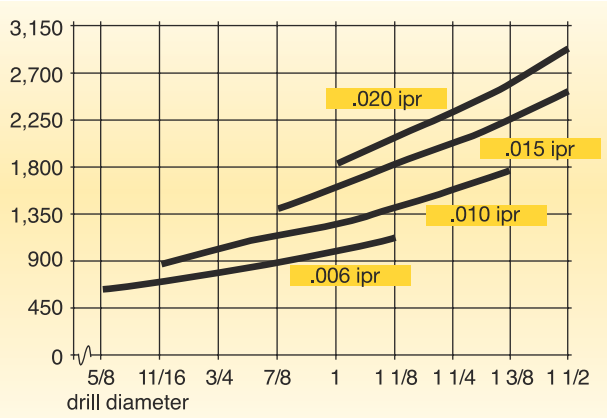
KSEM Modular Drills

Power, Torque, Feed Force, and Coolant Guidelines

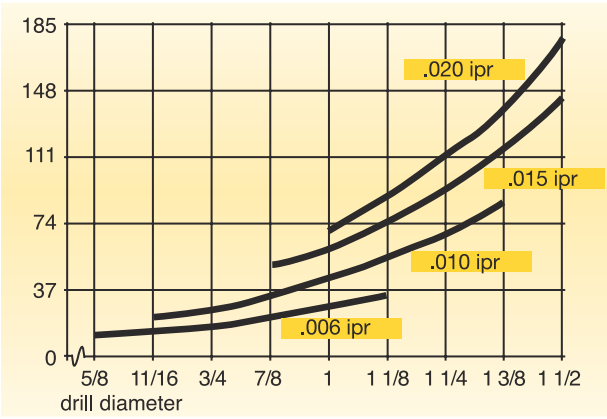
Power (hp)



Feed Force (lbs.)

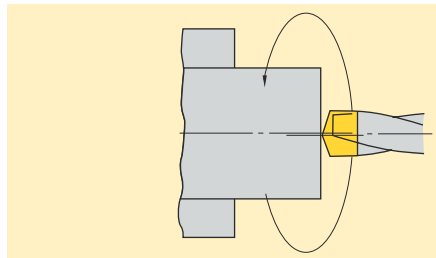


Torque (ft.-lbs.)

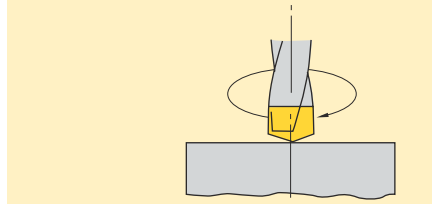


NOTE: These charts will help you calculate approximate power, feed force, and torque values for KSEM drills. Data found in these charts is based on the drilling of heat-treated alloy steel (20 HRC) at 250 sfm. Values may differ on your machine and application.

Recommended Minimum Coolant Supply



psi
90



145

NOTE: High-performance KSEM drills require the use of coolant at the recommended pressure and volume indicated here. With sufficient coolant flow, tool life and higher maximum cutting speeds can be achieved. If not properly cooled, the drill will heat up rapidly. This causes the drill to expand, which in turn may cause the drill to seize in the hole. The higher the coolant pressure, the better the drilling results. Drill life and hole quality improve with ample coolant volume. Coolant should always be filtered.

Useful Formulas

kW = hp ÷ 1.341022

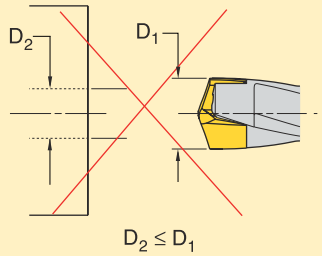
kN = lbs. ÷ 225

Nm = ft.-lbs. ÷ .7375621

.068948 bars = **1 psi**

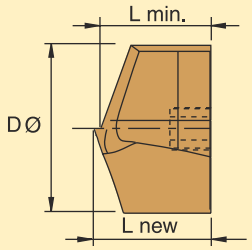
No Cored-Hole Drilling

Opening cored holes with KSEM drills is **not** recommended.



KSEM Modular Drills

Reconditioning Information



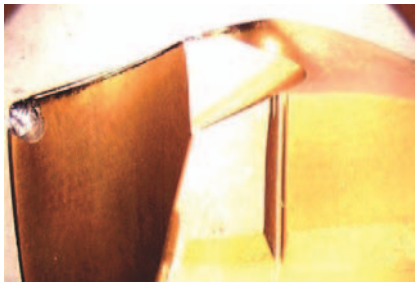
minimum insert length after reconditioning

inch			seat size	mm		
D diameter range	L min.	L new		diameter range	L min.	L new
.492 - .531	.335	.378	C	12,50 - 13,50	8,5	9,6
.532 - .570	.350	.398	B	13,51 - 14,50	8,9	10,1
.571 - .624	.370	.417	A	14,51 - 15,87	9,4	10,6
.625 - .709	.406	.457	1	15,88 - 18,00	10,3	11,6
.710 - .786	.441	.496	2	18,01 - 19,99	11,2	12,6
.787 - .866	.476	.535	3	20,00 - 22,00	12,1	13,6
.867 - .945	.512	.575	4	22,01 - 24,00	13,0	14,6
.946 - 1.024	.547	.614	5	24,01 - 26,00	13,9	15,6
1.025 - 1.102	.583	.654	6	26,01 - 28,00	14,8	16,6
1.103 - 1.181	.618	.693	7	28,01 - 30,00	15,7	17,6
1.182 - 1.260	.654	.732	8	30,01 - 32,00	16,6	18,6
1.261 - 1.417	.724	.811	9	32,01 - 36,00	18,4	20,6
1.418 - 1.575	.795	.890	10	36,01 - 40,00	20,2	22,6

For more information about drill reconditioning, see page H532.

Wear or Failure Mechanisms to Avoid When Applying KSEM Insert Blades

The blades shown below typically cannot be reconditioned, as the amount removed during the grinding process would place the cutting edge below the steel pocket of the KSEM body.



large fracture on corners

excessive margin wear

Assembling the Insert Blade

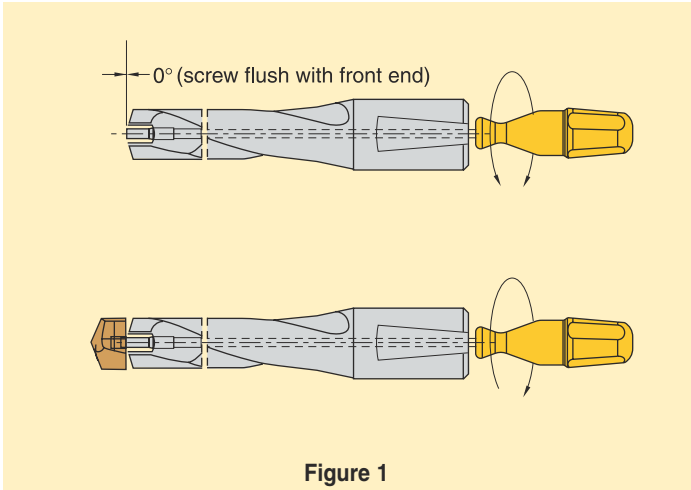


Figure 1

Insert Blade Assembly (Figure 1)

Use a hex driver to move the central lock screw flush with the front end of the drill. Turn the hex driver clockwise to tighten the screw until the insert blade bottoms in the drill pocket (hand tight).

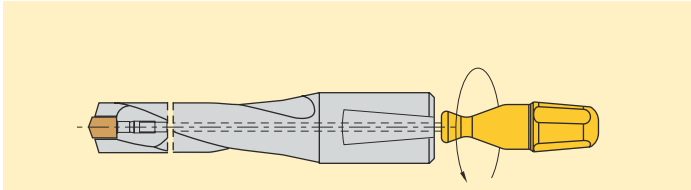


Figure 2

Insert Blade Disassembly (Figure 2)

Simply force the insert blade out of the pocket by turning the central lock screw counterclockwise with a hex driver.

Figure 3

Damaged Screw (Figure 3)

In the unlikely event that the central lock screw is damaged, drill into the existing hole in the chip flute to cut off the screw. Pull the insert from the drill pocket.