Standard Drilling Conditions

LIST 9818, 9819 - AQDEXZR

Work Material / Speed (SFM)		Cast Irons / Carbon Steels		Alloy Steels (20-30 HRC)		Mold Steels/ Hardened Steels (30-35 HRC)		Ductile Cast Irons		Aluminum Alloys		Aluminum Casting	
Drill Diameter		325-328 SFM		290-295 SFM		220-225 SFM		290-295 SFM		515-525 SFM		260-400 SFM	
Metric mm	Decimal	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)
3	0.118	10600	0.002	9500	0.002	7400	0.002	9500	0.002	17000	0.002	12700	0.002
4	0.157	7900	0.003	7100	0.002	5550	0.002	7100	0.002	12500	0.002	9500	0.003
5	0.197	6300	0.004	5700	0.003	4450	0.003	5700	0.003	10000	0.003	7600	0.004
6	0.236	5300	0.005	4750	0.004	3700	0.004	4750	0.004	8500	0.003	6400	0.005
8	0.315	3950	0.006	3550	0.005	2790	0.005	3550	0.005	6350	0.005	4780	0.006
10	0.394	3150	0.008	2860	0.006	2230	0.006	2860	0.006	5100	0.006	3800	0.008
12	0.472	2650	0.009	2390	0.007	1860	0.007	2390	0.007	4250	0.007	3180	0.009
16	0.630	1990	0.012	1790	0.009	1390	0.009	1790	0.009	3200	0.009	2390	0.013
20	0.787	1590	0.016	1430	0.012	1110	0.012	1430	0.012	2550	0.012	1910	0.016

LIST 9816, 9817 - AQDEXZLS

Work Material / Speed (SFM)		Cast Irons / Carbon Steels		Alloy Steels (20-30 HRC)		Mold Steels/ Hardened Steels (30-35 HRC)		Ductile Cast Irons		Aluminum Alloys		Aluminum Casting	
Drill Diameter		325-328 SFM		290-295 SFM		220-225 SFM		290-295 SFM		515-525 SFM		260-400 SFM	
Metric mm	Decimal	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)
3	0.118	10600	0.003	9500	0.002	7400	0.002	9500	0.002	17000	0.002	12700	0.002
4	0.157	7900	0.004	7100	0.003	5550	0.002	7100	0.003	12500	0.002	9500	0.003
5	0.197	6300	0.005	5700	0.004	4450	0.003	5700	0.004	10000	0.003	7600	0.004
6	0.236	5300	0.006	4750	0.005	3700	0.004	4750	0.005	8500	0.003	6400	0.005
8	0.315	3950	0.008	3550	0.006	2790	0.005	3550	0.006	6350	0.005	4780	0.006
10	0.394	3150	0.010	2860	0.008	2230	0.006	2860	0.008	5100	0.006	3800	0.008
12	0.472	2650	0.012	2390	0.009	1860	0.007	2390	0.009	4250	0.007	3180	0.009
16	0.630	1990	0.016	1790	0.013	1390	0.009	1790	0.013	3200	0.009	2390	0.013
20	0.787	1590	0.020	1430	0.016	1110	0.012	1430	0.016	2550	0.012	1910	0.016

Note : 1) Adjust drilling conditions according to the rigidity of machine or work clamp state.
2) Use the table values for drilling depths upto 2xD. Adjust cutting conditions per table based on "degree angle to be drilled."
3) Above table values are for drilling water soluble cutting fluid. For non-water soluble cutting fluid reduce the RPM and feed rates by 20%
4) Not recommended for drilling in Stainless Steel. We recommend using List9814 AQUA EX Flat OH3Dor OH5D for Stainless Steel & Hi-temp alloys.
5) Center Drill or Guide hole required. (1: Use AG Starting drill or Aqua Ex Flat drill)

Formulas : RPM $= \frac{\text{SFM} \times 3.82}{\text{Drill dia.}}$ Feed Rate (in/min) : RPM×IPR

Drilling Conditions for Angled Surfaces					
Reduction % to above table values					
Degree Angle		Reduction %		Reduction % (Multiplier)	
		RPM	Feed	RPM	Feed
0°	5°	100%	100%	Table Value	Table Value
6°	20°	50%	50%	(Table Value)x0.5	(Table Value)x0.5
21°	35°	70%	40%	(Table Value)x0.3	(Table Value)x0.6
36°	60°	70%	40%	(Table Value)x0.3	(Table Value)x0.6
61°		70%	30%	(Table Value)x0.3	(Table Value)x0.7