



List 6500 - A Brand ADO: 3D

List 6510 - A Brand ADO: 5D

List 6520 - A Brand ADO: 8D

General Drilling Operations

Work Material	Carbon Steels, Mild Steels 1010, 1050, 12L14	Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		High Heat Material							
						Ti-Alloy, Ti-6Al-4V		Fe-Base Material, A286		Ni-Base Material, Inconel			
Drilling Speed	260-395 SFM		260-395 SFM		130-230 SFM		100 - 180 SFM		80 - 130 SFM		65 - 110 SFM		
Drill Dia.	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	
													mm
2	-	15,870	0.002-0.004	15,870	0.002-0.004	8,740	0.002-0.004	6,790	0.002-0.003	5,080	0.001-0.002	4,250	0.001-0.002
3	-	10,580	0.002-0.005	10,580	0.002-0.005	5,820	0.002-0.005	4,530	0.002-0.003	3,390	0.002-0.002	2,840	0.001-0.002
-	1/8	10,000	0.003-0.005	10,000	0.003-0.005	5,500	0.003-0.005	4,280	0.002-0.004	3,200	0.002-0.003	2,680	0.002-0.002
4	-	7,940	0.003-0.006	7,940	0.003-0.006	4,370	0.003-0.006	3,400	0.002-0.004	2,540	0.002-0.003	2,130	0.002-0.002
-	3/16	6,670	0.004-0.007	6,670	0.004-0.007	3,670	0.004-0.007	2,850	0.003-0.005	2,130	0.003-0.004	1,790	0.002-0.003
6	-	5,290	0.005-0.009	5,290	0.005-0.009	2,910	0.005-0.009	2,269	0.004-0.005	1,690	0.004-0.005	1,420	0.002-0.004
-	1/4	5,000	0.006-0.009	5,000	0.006-0.009	2,750	0.006-0.009	2,140	0.004-0.006	1,600	0.004-0.006	1,340	0.002-0.004
8	-	3,970	0.006-0.011	3,970	0.006-0.011	2,180	0.006-0.011	1,700	0.005-0.007	1,270	0.005-0.006	1,060	0.003-0.005
-	3/8	3,330	0.008-0.012	3,330	0.008-0.012	1,830	0.008-0.012	1,430	0.005-0.008	1,070	0.005-0.007	890	0.004-0.005
10	-	3,170	0.008-0.012	3,170	0.008-0.012	1,750	0.008-0.012	1,360	0.006-0.009	1,020	0.006-0.008	850	0.004-0.006
-	7/16	2,860	0.008-0.012	2,860	0.008-0.012	1,570	0.008-0.012	1,220	0.007-0.010	910	0.007-0.009	770	0.004-0.007
12	-	2,650	0.008-0.012	2,650	0.008-0.012	1,460	0.008-0.012	1,130	0.007-0.011	850	0.007-0.009	710	0.005-0.007
-	1/2	2,500	0.008-0.012	2,500	0.008-0.012	1,380	0.008-0.012	1,070	0.008-0.012	800	0.008-0.010	670	0.005-0.008
14	-	2,270	0.009-0.014	2,270	0.009-0.014	1,250	0.009-0.014	970	0.008-0.013	730	0.008-0.011	610	0.005-0.008
-	5/8	2,000	0.010-0.014	2,000	0.010-0.014	1,100	0.010-0.014	860	0.009-0.013	640	0.006-0.009	540	0.005-0.008
16	-	2,000	0.010-0.014	2,000	0.010-0.014	1,100	0.010-0.014	860	0.009-0.013	640	0.006-0.009	540	0.005-0.008
18	-	1,760	0.011-0.015	1,760	0.011-0.015	1,090	0.011-0.015	750	0.010-0.014	560	0.008-0.011	470	0.005-0.008
-	3/4	1,670	0.012-0.015	1,670	0.012-0.015	920	0.012-0.015	710	0.011-0.015	530	0.008-0.011	450	0.005-0.008
20	-	1,590	0.012-0.016	1,590	0.012-0.016	870	0.012-0.016	680	0.012-0.016	510	0.008-0.012	420	0.005-0.008

General Drilling Operations

Work Material	Cast Iron	Ductile Cast Iron		Special Alloy Steels, Hardened Steels									
				26-30 HRC		30-34 HRC		34-43 HRC		43-48 HRC			
Drilling Speed	260-395 SFM		195-330 SFM		195-295 SFM		130-200 SFM		130-160 SFM		82-115 HRC		
Drill Dia.	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	
													mm
2	-	15,870	0.002-0.004	12,700	0.002-0.004	11,890	0.002-0.004	8,000	0.002-0.003	7,040	0.002-0.003	4,770	0.001-0.002
3	-	10,580	0.002-0.005	8,470	0.002-0.005	7,920	0.002-0.005	5,330	0.002-0.003	4,690	0.002-0.003	3,180	0.002-0.002
-	1/8	10,000	0.003-0.005	8,000	0.003-0.005	7,490	0.003-0.005	5,040	0.002-0.004	4,430	0.002-0.004	3,010	0.002-0.003
4	-	7,940	0.003-0.006	6,350	0.003-0.006	5,940	0.003-0.006	4,000	0.003-0.004	3,520	0.003-0.004	2,390	0.002-0.003
-	3/16	6,670	0.004-0.007	5,330	0.004-0.007	4,990	0.004-0.007	3,360	0.003-0.005	2,950	0.003-0.005	2,000	0.003-0.004
6	-	5,290	0.005-0.009	4,230	0.005-0.009	3,960	0.005-0.009	2,700	0.005-0.006	2,340	0.005-0.006	1,590	0.004-0.005
-	1/4	5,000	0.006-0.009	4,000	0.006-0.009	3,740	0.006-0.010	2,520	0.005-0.007	2,220	0.005-0.007	1,500	0.004-0.006
8	-	3,970	0.006-0.011	3,170	0.006-0.011	2,970	0.006-0.011	2,000	0.006-0.008	1,760	0.006-0.008	1,190	0.005-0.007
-	3/8	3,330	0.008-0.012	2,670	0.008-0.012	2,500	0.007-0.012	1,680	0.008-0.009	1,480	0.008-0.009	1,000	0.006-0.008
10	-	3,170	0.008-0.012	2,540	0.008-0.012	2,380	0.008-0.012	1,600	0.008-0.010	1,410	0.008-0.010	950	0.007-0.009
-	7/16	2,860	0.008-0.012	2,290	0.008-0.012	2,140	0.008-0.012	1,440	0.009-0.011	1,270	0.009-0.011	860	0.007-0.009
12	-	2,650	0.008-0.012	2,120	0.008-0.012	1,980	0.008-0.012	1,330	0.009-0.012	1,170	0.009-0.012	800	0.007-0.009
-	1/2	2,500	0.008-0.012	2,000	0.008-0.012	1,870	0.008-0.012	1,260	0.010-0.013	1,110	0.010-0.013	750	0.008-0.010
14	-	2,270	0.009-0.014	1,810	0.009-0.014	1,700	0.009-0.014	1,140	0.011-0.014	1,000	0.011-0.014	680	0.008-0.011
-	5/8	2,000	0.010-0.014	1,600	0.010-0.014	1,500	0.010-0.014	1,010	0.012-0.015	890	0.012-0.015	600	0.009-0.013
16	-	2,000	0.010-0.014	1,600	0.010-0.014	1,500	0.010-0.014	1,010	0.012-0.015	890	0.012-0.015	600	0.009-0.013
18	-	1,760	0.011-0.015	1,410	0.011-0.015	1,320	0.011-0.015	890	0.014-0.018	780	0.014-0.018	530	0.010-0.014
-	3/4	1,670	0.012-0.015	1,330	0.012-0.015	1,250	0.012-0.015	840	0.015-0.019	740	0.015-0.019	500	0.011-0.015
20	-	1,590	0.012-0.016	1,270	0.012-0.016	1,190	0.012-0.016	800	0.016-0.020	700	0.016-0.020	480	0.012-0.016

Note:

- The indicated speeds and feeds are for drilling with **water-soluble oil** or **MQL**.
- Suitable cutting fluid is water-soluble high density oil (less than 20 times dilution).
- When using non-water-soluble oil or water-soluble oil (over 20 times dilution), reduce cutting speed by 30%.
- These conditions are for drilling depth under 8 times the drill diameter.
- 1D-2D step feeding may be required for drilling high hardened steels and mid-range (8D) work.

