



List 1750 - HELIOS®:10D
List 1760 - HELIOS®:15D
List 1770 - HELIOS®:20D

General Drilling Operations

Work Material	Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Tool Steels Die Steels D2, H13, P20, S7		Stainless Steels 300, 400, 17-4 PH		
Drilling Speed	65-80 SFM		60-75 SFM		40-55 SFM		20-45 SFM		
Drill Dia.	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	
mm	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	
Inch									
2	-	3,510	0.001-0.002	3,270	0.001-0.002	2,300	0.001-0.002	1,570	0.001-0.002
-	3/32	2,950	0.001-0.002	2,750	0.001-0.002	1,930	0.001-0.002	1,320	0.001-0.002
3	-	2,340	0.001-0.003	2,180	0.001-0.003	1,530	0.001-0.003	1,050	0.001-0.003
-	1/8	2,210	0.001-0.003	2,060	0.001-0.003	1,450	0.001-0.003	990	0.001-0.003
4	-	1,750	0.002-0.004	1,630	0.002-0.004	1,150	0.002-0.004	790	0.002-0.004
-	3/16	1,470	0.002-0.005	1,370	0.002-0.005	970	0.002-0.005	660	0.002-0.005
5	-	1,400	0.002-0.005	1,310	0.002-0.005	920	0.002-0.005	630	0.002-0.005
-	7/32	1,260	0.002-0.005	1,180	0.002-0.005	830	0.002-0.005	570	0.002-0.005
6	-	1,170	0.002-0.006	1,090	0.002-0.006	770	0.002-0.006	520	0.002-0.006
-	1/4	1,100	0.003-0.006	1,030	0.003-0.006	720	0.003-0.006	500	0.003-0.006
8	-	880	0.003-0.008	820	0.003-0.008	580	0.003-0.008	400	0.003-0.007
-	3/8	740	0.004-0.009	690	0.004-0.009	480	0.004-0.009	330	0.004-0.009
10	-	700	0.004-0.010	650	0.004-0.010	460	0.004-0.010	315	0.004-0.009
-	7/16	630	0.004-0.011	590	0.004-0.011	410	0.004-0.011	280	0.004-0.010
12	-	580	0.005-0.012	550	0.005-0.012	380	0.005-0.012	260	0.005-0.011
-	1/2	550	0.005-0.012	520	0.005-0.012	360	0.005-0.012	250	0.005-0.011
14	-	500	0.005-0.014	470	0.005-0.014	330	0.005-0.014	225	0.005-0.012
-	9/16	490	0.006-0.014	460	0.006-0.014	320	0.006-0.014	220	0.006-0.012

For Stainless Steel and Aluminum Alloys, peck cycles may be necessary.

General Drilling Operations

Work Material	Ductile Cast Iron		Cast Iron		Aluminum Alloy, Cast Aluminum		Ti Alloy Ti-6Al-4V		
Drilling Speed	55-65 SFM		60-80 SFM		105-205 SFM		20-45 SFM		
Drill Dia.	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	
mm	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	
Inch									
2	-	2,910	0.001-0.002	3,390	0.001-0.002	7,510	0.002-0.003	1,570	0.0005-0.0015
-	3/32	2,440	0.001-0.002	2,850	0.002-0.003	6,310	0.003-0.004	1,320	0.0005-0.0015
3	-	1,940	0.001-0.003	2,260	0.002-0.004	5,010	0.004-0.005	1,050	0.0005-0.0015
-	1/8	1,830	0.001-0.003	2,140	0.002-0.004	4,730	0.004-0.005	990	0.0005-0.0015
4	-	1,450	0.001-0.004	1,700	0.003-0.005	3,760	0.005-0.006	790	0.0010-0.0020
-	3/16	1,220	0.001-0.005	1,420	0.004-0.006	3,150	0.006-0.007	660	0.0010-0.0025
5	-	1,160	0.001-0.005	1,350	0.004-0.006	3,000	0.006-0.008	630	0.0010-0.0025
-	7/32	1,050	0.001-0.005	1,225	0.004-0.007	2,700	0.007-0.009	570	0.0010-0.0025
6	-	970	0.001-0.006	1,130	0.005-0.008	2,500	0.007-0.009	520	0.0010-0.0030
-	1/4	920	0.002-0.006	1,070	0.005-0.008	2,360	0.008-0.010	500	0.0015-0.0030
8	-	730	0.002-0.008	850	0.006-0.010	1,880	0.009-0.013	400	0.0015-0.0035
-	3/8	610	0.002-0.009	710	0.008-0.012	1,580	0.011-0.015	330	0.0020-0.0040
10	-	580	0.002-0.010	680	0.008-0.013	1,500	0.012-0.016	315	0.0020-0.0045
-	7/16	525	0.003-0.011	610	0.009-0.014	1,350	0.013-0.018	280	0.0020-0.0050
12	-	485	0.003-0.012	570	0.009-0.015	1,250	0.014-0.019	260	0.0025-0.0050
-	1/2	460	0.003-0.012	535	0.010-0.016	1,180	0.015-0.020	250	0.0025-0.0050
14	-	415	0.003-0.014	485	0.011-0.018	1,070	0.016-0.022	225	0.0025-0.0060
-	9/16	405	0.003-0.014	475	0.011-0.018	1,050	0.017-0.022	220	0.0030-0.0060

For Stainless Steel and Aluminum Alloys, peck cycles may be necessary.
For deep hold drilling procedure please refer to page: 310-311.

