



List 6503 - A Brand ADO-MICRO: 12D

List 6504 - A Brand ADO-MICRO: 20D

List 6505 - A Brand ADO-MICRO: 30D

General Drilling Operations

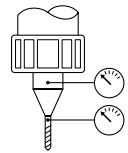
Work Material	Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		300 Series Austenitic Stainless Steels		400 Series Ferritic Stainless Steels Martensitic Stainless Steels		High Heat Material			
	65-195 SFM		65-195 SFM		65-195 SFM		80-145 SFM		Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed	65-195 SFM		65-195 SFM		65-195 SFM		80-145 SFM		130-195 SFM		15-50 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
1	12,700	0.0004-0.0012	12,700	0.0008-0.0016	9,500	0.0004-0.0012	11,100	0.0004-0.0012	15,900	0.0006-0.001	3,200	0.0002-0.0008
1.5	8,500	0.0006-0.0018	8,500	0.0012-0.0024	6,400	0.0006-0.0018	7,400	0.0006-0.0018	10,600	0.001-0.0015	2,100	0.0003-0.0012
2	6,400	0.0008-0.0024	6,400	0.0016-0.0031	4,800	0.0008-0.0024	5,600	0.0008-0.0024	8,000	0.0012-0.002	1,600	0.0004-0.0016

General Drilling Operations

Work Material	Cast Iron		Ductile Cast Iron		Aluminum Alloy 5025,7075		Cast Aluminum		Special Alloy Steels, Hardened Steels			
	130-195 SFM		100-165 SFM		65-195 SFM		100-230 SFM		26-30 HRC		30-34 HRC	
Drilling Speed	130-195 SFM		100-165 SFM		65-195 SFM		100-230 SFM		100-130 SFM		65-100 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
1	15,900	0.0008-0.0016	12,700	0.0008-0.0016	12,700	0.0004-0.0012	15,900	0.0008-0.0024	11,100	0.0008-0.0016	8,000	0.0008-0.0016
1.5	10,600	0.0012-0.0024	8,500	0.0012-0.0024	8,500	0.0006-0.0018	10,600	0.0012-0.0035	7,400	0.0012-0.0024	5,300	0.0012-0.0024
2	8,000	0.0016-0.0031	6,400	0.0016-0.0031	6,400	0.0008-0.0024	8,000	0.0016-0.0047	5,600	0.0016-0.0031	4,000	0.0016-0.0031

Note:

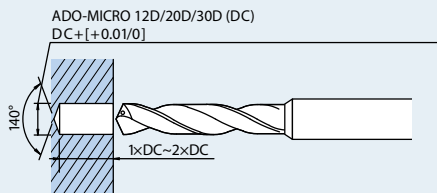
- This cutting condition chart is based on the usage of **water-soluble coolant and internal supply**.
- Please use **quality water-soluble coolant** with a dilution factor of approximately 20 times, e.g. 5% concentration.
- Please use a **precision filter** (rating of 3µm to 5µm) to prevent the oil holes from clogging.
- Although the recommended coolant pressure is 3 MPa or more, please adjust accordingly if the level of flow volume is unsatisfactory due to the type and concentration of cutting fluid used.
- For accurate mounting, acceptable deflection of the body cylindrical part at the shank end should be **less than 0.002µm**, as shown in the illustrated figure.
- For work materials with poor chip evacuation, please perform step drilling as required.
- For holes deeper than 12D, please use a 2D type drill to prepare a pilot hole prior to processing.
- Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.



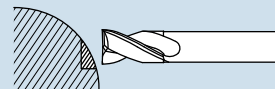
Deep Hold Drilling Procedures ADO-MICRO 12D/20D/30D

1. Make a Pilot Hole with the ADO-MICRO 2D.

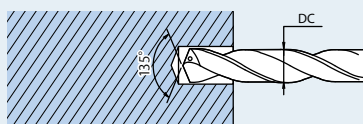
The ADO-MICRO 2D (140° point angle) is the recommended pilot hole drills of the ADO-MICRO 12D/20D/30D



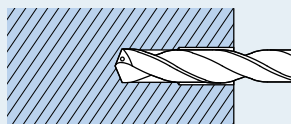
When working on a curved surface, use the ADF (carbide flat drill) to counterbore a flat surface before drilling a pilot hole.



2. Insert the long drill into a pilot hole with a low revolution of 500 to 1,000 RPM.



3. Increase the revolution to the designated speed and start drilling.



4. After drilling, move the drill away from the bottom of the hole; then reduce its speed to 500 to 1,000 RPM while continuing to retract.

