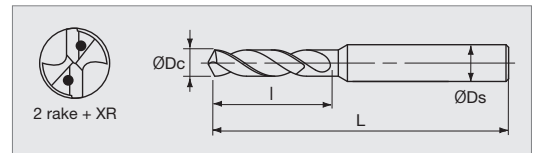


AQUA Drills EX Oil-Hole Pilot

- AQUA Drills EX Oil-Hole Pilot for guide hole drilling
- Improves concentricity and realizes stable deep hole drilling



LIST9622				Unit: mm
Dc	l	L	Ds	
1.015	3.3	54	3	
1.115	3.6	56	3	
1.215	3.9	56	3	
1.315	4.2	56	3	
1.415	4.6	56	3	
1.515	4.9	56	3	
1.615	5.2	60	3	
1.715	5.5	60	3	
1.815	5.8	60	3	
1.915	6.2	60	3	
2.015	9	60	3	
2.115	11	63	3	
2.215	11	63	3	
2.315	11	63	3	
2.415	12	63	3	
2.515	12	63	3	
2.615	12	68	3	
2.715	14	68	3	
2.815	14	68	3	
2.915	14	68	3	
3.03	14	68	3	
3.13	15	72	4	
3.23	15	72	4	
3.33	15	72	4	
3.43	16	72	4	
3.53	16	72	4	
3.63	16	72	4	
3.73	18	72	4	
3.83	18	72	4	
3.93	18	72	4	

LIST9622				Unit: mm
Dc	l	L	Ds	
4.03	18	72	4	
4.13	19	80	5	
4.23	19	80	5	
4.33	19	80	5	
4.43	21	80	5	
4.53	21	80	5	
4.63	21	80	5	
4.73	22	80	5	
4.83	22	80	5	
4.93	22	80	5	
5.03	23	80	5	
5.13	24	82	6	
5.23	24	82	6	
5.33	24	82	6	
5.43	25	82	6	
5.53	25	82	6	
5.63	25	82	6	
5.73	27	82	6	
5.83	27	82	6	
5.93	27	82	6	
6.03	27	82	6	
6.13	28	88	7	
6.23	28	88	7	
6.33	28	88	7	
6.43	30	88	7	
6.53	30	88	7	
6.63	30	88	7	
6.73	31	88	7	
6.83	31	88	7	
6.93	31	88	7	

LIST9622				Unit: mm
Dc	l	L	Ds	
7.03	32	88	7	
7.13	33	94	8	
7.23	33	94	8	
7.33	33	94	8	
7.43	34	94	8	
7.53	34	94	8	
7.63	34	94	8	
7.73	36	94	8	
7.83	36	94	8	
7.93	36	94	8	
8.03	36	94	8	
8.13	37	100	9	
8.23	37	100	9	
8.33	37	100	9	
8.43	39	100	9	
8.53	39	100	9	
8.63	39	100	9	
8.73	40	100	9	
8.83	40	100	9	
8.93	40	100	9	
9.03	41	100	9	
9.13	42	106	10	
9.23	42	106	10	
9.33	42	106	10	
9.43	43	106	10	
9.53	43	106	10	
9.63	43	106	10	
9.73	45	106	10	
9.83	45	106	10	
9.93	45	106	10	

LIST9622				Unit: mm
Dc	l	L	Ds	
10.03	45	106	10	
10.13	46	116	11	
10.23	46	116	11	
10.33	46	116	11	
10.43	48	116	11	
10.53	48	116	11	
10.63	48	116	11	
10.73	49	116	11	
10.83	49	116	11	
10.93	49	116	11	
11.03	49	116	11	
11.13	50	122	12	
11.23	51	122	12	
11.33	51	122	12	
11.43	52	122	12	
11.53	52	122	12	
11.63	52	122	12	
11.73	54	122	12	
11.83	54	122	12	
11.93	54	122	12	
12.03	54	122	12	

Standard drilling condition

Wet Condition

AQDEXOHPLT

Work material	SS400 S50C FC250 Structural steels Carbon steels		SCM440 NAK HPM Alloy steels		SKD61 NAK HPM Mold steels Hardened steels		Hardened Steels		FCD400 Ductile cast iron		SUS304 SUS316 Stainless steel		Nickel Alloys Titanium Alloys	
	~200HB		20~30HRC		30~40HRC								30~40HRC	
mm	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min
1.015	15700	400	14100	350	12550	250	9400	140	12550	320	9400	115	3150	30
1.515	10500	400	9450	350	8400	250	6300	140	8400	320	6300	115	2100	30
2.015	7900	400	7100	350	6300	250	4750	140	6300	320	4750	115	1550	30
2.515	7800	520	6950	470	6300	360	4400	200	6300	430	4400	165	1650	50
2.915	6850	520	6000	470	5450	360	3800	200	5450	430	3800	165	1400	50
3.03	10500	950	8400	760	6800	520	4200	270	8400	760	6800	550	2650	160
4.03	7900	950	6300	760	5100	520	3150	270	6300	760	5100	550	2000	160
5.03	6350	950	5050	760	4100	520	2550	270	5050	760	4100	550	1600	160
6.03	5300	900	4200	710	3400	480	2100	250	4200	710	3400	530	1300	150
7.03	4550	900	3600	710	2950	480	1800	250	3600	710	2950	530	1150	150
8.03	4000	900	3150	710	2600	480	1600	250	3150	710	2600	500	1000	150
9.03	3550	800	2800	640	2300	420	1400	230	2800	640	2300	500	900	145
10.03	3200	800	2550	640	2050	420	1250	230	2550	640	2050	450	800	145
11.03	2900	800	2300	640	1900	420	1150	230	2300	640	1900	450	720	145
12.03	2650	670	2100	530	1700	370	1050	200	2100	530	1700	410	650	130

Warnings on using the drilling condition tables

1. Adjust drilling condition according to the rigidity of machine or work clamp state.
2. Wet condition are for drilling with water soluble cutting fluid.
3. In non water soluble cutting fluid, reduce the rotation and feed by 20%.
4. Use on internal coolant.

MQL Condition






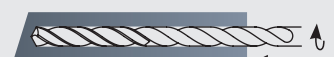

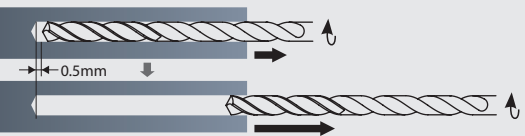
AQDEXOHPLT

Work material	SS400 S50C FC250 Structural steels Carbon steels		SCM440 NAK HPM Alloy steels		SKD61 NAK HPM Mold steels Hardened steels		Hardened Steels		FCD400 Ductile cast iron	
	~200HB		20~30HRC		30~40HRC					
mm	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min	min ⁻¹	mm/min
3.03	6800	550	5800	470	5250	360	2600	150	5800	500
4.03	5100	550	4350	470	3950	360	2000	150	4350	500
5.03	4100	550	3500	470	3150	360	1600	150	3500	500
6.03	3400	520	2900	440	2650	330	1300	140	2900	470
7.03	2950	520	2500	440	2250	330	1150	140	2500	470
8.03	2600	520	2200	440	2000	330	1000	140	2200	470
9.03	2300	460	1950	400	1750	290	900	130	1950	420
10.03	2050	460	1750	400	1600	290	800	130	1750	420
11.03	1900	460	1600	400	1450	290	700	120	1600	420
12.03	1700	390	1450	330	1300	250	650	110	1450	350

Warnings on using the drilling condition tables

1. Adjust drilling condition according to the rigidity of machine or work clamp state.
2. Use on internal coolant.

Recommended usage for Deep hole drill

<p>Guide hole drilling (AQDEXOHPLT)</p>  <p>AQDEXOHPLT</p> <p>For angled surface</p>  <p>AQDEXZ</p>  <p>AQDEXOHPLT</p>	<p>We recommend pre-drilling of guide holes. Depth is 2 to 3D. We recommend the AQDEXOHPLT for guide hole drilling. Select one with a diameter 0.03 mm larger than the deep hole drill when using AQDEXOHPLT. If the part is canted or misshapened, use the AQDEXZ to make a flat surface before use.</p>
<p>Deep hole drilling (Insert it in a guide hole)</p> 	<p>Penetrate into the guide hole at low speed until 2 to 3 mm from the bottom of the guide hole. (About, Rotation 500min⁻¹, Feed 1000 mm/min)</p>
<p>Deep hole drilling</p> 	<p>Start drilling at normal speed and feed</p>
<p>Deep hole drilling (Completion)</p> <p>Penetration on angled surface</p>  <p>Normal feed</p>  <p>Feed by 50%</p> 	<p>For through holes, drill at normal feed until penetration. Before penetrating through, lower the feed. To prevent drill from breaking.</p>
<p>Deep hole drilling (Back)</p>  <p>0.5mm</p>	<p>After drilling is completed and once the bit has passed through the bottom of the drill hole, decrease speed and pull the drill back through the hole. (About, Rotation 500min⁻¹, Feed 2000 mm/min)</p>