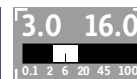
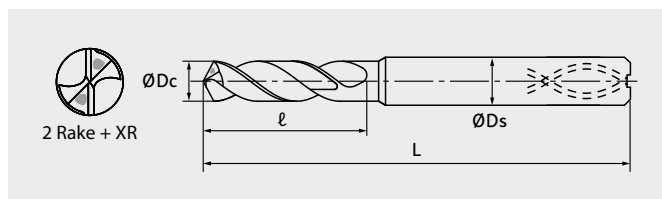


## AQRVDOH3D

### AquaREVO Drills

### Oil-Hole (3D)



TOOL MATERIAL

POINT ANGLE HELIX ANGLE

#### List: 9872

Article number	Dc	ℓ	L	Ds	Stock
9198720300	3.0	20	62	6	●
9198720310	3.1	20	62	6	●
9198720320	3.2	20	62	6	●
9198720330	3.3	20	62	6	●
9198720340	3.4	20	62	6	●
9198720350	3.5	20	62	6	●
9198720360	3.6	20	62	6	●
9198720370	3.7	20	62	6	●
9198720380	3.8	24	66	6	●
9198720390	3.9	24	66	6	●
9198720400	4.0	24	66	6	●
9198720410	4.1	24	66	6	●
9198720420	4.2	24	66	6	●
9198720430	4.3	24	66	6	●
9198720440	4.4	24	66	6	●
9198720450	4.5	24	66	6	●
9198720460	4.6	24	66	6	●
9198720470	4.7	24	66	6	●
9198720480	4.8	28	66	6	●
9198720490	4.9	28	66	6	●
9198720500	5.0	28	66	6	●
9198720510	5.1	28	66	6	●
9198720520	5.2	28	66	6	●
9198720530	5.3	28	66	6	●
9198720540	5.4	28	66	6	●
9198720550	5.5	28	66	6	●
9198720560	5.6	28	66	6	●
9198720570	5.7	28	66	6	●
9198720580	5.8	28	66	6	●
9198720590	5.9	28	66	6	●
9198720600	6.0	28	66	6	●
9198720610	6.1	34	79	8	●
9198720620	6.2	34	79	8	●

unit: mm

Article number	Dc	ℓ	L	Ds	Stock
9198720630	6.3	34	79	8	●
9198720640	6.4	34	79	8	●
9198720650	6.5	34	79	8	●
9198720660	6.6	34	79	8	●
9198720670	6.7	34	79	8	●
9198720680	6.8	34	79	8	●
9198720690	6.9	34	79	8	●
9198720700	7.0	34	79	8	●
9198720710	7.1	41	79	8	●
9198720720	7.2	41	79	8	●
9198720730	7.3	41	79	8	●
9198720740	7.4	41	79	8	●
9198720750	7.5	41	79	8	●
9198720760	7.6	41	79	8	●
9198720770	7.7	41	79	8	●
9198720780	7.8	41	79	8	●
9198720790	7.9	41	79	8	●
9198720800	8.0	41	79	8	●
9198720810	8.1	47	89	10	●
9198720820	8.2	47	89	10	●
9198720830	8.3	47	89	10	●
9198720840	8.4	47	89	10	●
9198720850	8.5	47	89	10	●
9198720860	8.6	47	89	10	●
9198720870	8.7	47	89	10	●
9198720880	8.8	47	89	10	●
9198720890	8.9	47	89	10	●
9198720900	9.0	47	89	10	●
9198720910	9.1	47	89	10	●
9198720920	9.2	47	89	10	●
9198720930	9.3	47	89	10	●
9198720940	9.4	47	89	10	●
9198720950	9.5	47	89	10	●

## List: 9872

Article number	Dc	ℓ	L	Ds	Stock
9198720960	9.6	47	89	10	●
9198720970	9.7	47	89	10	●
9198720980	9.8	47	89	10	●
9198720990	9.9	47	89	10	●
9198721000	10.0	47	89	10	●
9198721010	10.1	55	102	12	●
9198721020	10.2	55	102	12	●
9198721030	10.3	55	102	12	●
9198721040	10.4	55	102	12	●
9198721050	10.5	55	102	12	●
9198721060	10.6	55	102	12	●
9198721070	10.7	55	102	12	●
9198721080	10.8	55	102	12	●
9198721090	10.9	55	102	12	●
9198721100	11.0	55	102	12	●
9198721110	11.1	55	102	12	●
9198721120	11.2	55	102	12	●
9198721130	11.3	55	102	12	●
9198721140	11.4	55	102	12	●
9198721150	11.5	55	102	12	●
9198721160	11.6	55	102	12	●
9198721170	11.7	55	102	12	●
9198721180	11.8	55	102	12	●
9198721190	11.9	55	102	12	●
9198721200	12.0	55	102	12	●
9198721210	12.1	60	107	14	●
9198721220	12.2	60	107	14	●
9198721230	12.3	60	107	14	●
9198721240	12.4	60	107	14	●
9198721250	12.5	60	107	14	●
9198721260	12.6	60	107	14	●
9198721270	12.7	60	107	14	●
9198721280	12.8	60	107	14	●
9198721290	12.9	60	107	14	●
9198721300	13.0	60	107	14	●
9198721310	13.1	60	107	14	●
9198721320	13.2	60	107	14	●
9198721330	13.3	60	107	14	●
9198721340	13.4	60	107	14	●
9198721350	13.5	60	107	14	●

Article number	Dc	ℓ	L	Ds	Stock
9198721360	13.6	60	107	14	●
9198721370	13.7	60	107	14	●
9198721380	13.8	60	107	14	●
9198721390	13.9	60	107	14	●
9198721400	14.0	60	107	14	●
9198721410	14.1	65	115	16	●
9198721420	14.2	65	115	16	●
9198721430	14.3	65	115	16	●
9198721440	14.4	65	115	16	●
9198721450	14.5	65	115	16	●
9198721460	14.6	65	115	16	●
9198721470	14.7	65	115	16	●
9198721480	14.8	65	115	16	●
9198721490	14.9	65	115	16	●
9198721500	15.0	65	115	16	●
9198721510	15.1	65	115	16	●
9198721520	15.2	65	115	16	●
9198721530	15.3	65	115	16	●
9198721540	15.4	65	115	16	●
9198721550	15.5	65	115	16	●
9198721560	15.6	65	115	16	●
9198721570	15.7	65	115	16	●
9198721580	15.8	65	115	16	●
9198721590	15.9	65	115	16	●
9198721600	16.0	65	115	16	●

●: German Stock

## AQRVDOH3D/5D AquaREVO Drills Oil-Hole (3D/5D)

STANDARD CUTTING WET CONDITIONS																		
Work Material	Structural Steels, Carbon Steels, Cast Irons St37-2, C50E		Alloy Steels, Heat-treated Steels 42CrMo4		Mold Steels, Hardened Steels 1.2344		Hardened Steels		Ductile Cast Irons GG/GGG	Stainless Steels 1.4301 1.4000 1.4016		Stainless Steels 1.4542		Titanium Alloys TI-6Al-4V		Nickel Alloys Inconel 718		
	~200HB		20~30HRC		30~40HRC		40~50HRC			Rota-tion min <sup>-1</sup> Feed mm/min		Rota-tion min <sup>-1</sup> Feed mm/min		Rota-tion min <sup>-1</sup> Feed mm/min		Rota-tion min <sup>-1</sup> Feed mm/min		Rota-tion min <sup>-1</sup> Feed mm/min
Drill Dia. mm	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min
3.0	12700	1220	10600	1020	8500	760	4250	260	10600	950	8500	680	5300	400	4200	320	4200	190
4.0	9600	1220	8000	1020	6400	760	3200	260	8000	950	6400	680	4000	400	3200	320	3200	190
6.0	6400	1220	5300	1020	4200	710	2100	240	5300	950	4200	660	2600	400	2100	320	2100	190
8.0	4800	1220	4000	1020	3200	710	1600	240	4000	880	3200	640	2000	400	1600	320	1600	190
10.0	3800	1140	3200	960	2500	640	1300	230	3200	790	2500	590	1600	370	1300	300	1300	180
12.0	3200	1070	2700	920	2100	540	1050	220	2700	670	2100	560	1300	350	1050	280	1050	180
16.0	2400	960	2000	890	1600	480	800	210	2000	620	1600	510	1000	320	800	260	800	150

STANDARD MQL CONDITIONS										
Work Material	Structural Steels, Carbon Steels, Cast Irons St37-2, C50E		Alloy Steels, Heat-treated Steels 42CrMo4		Mold Steels, Hardened Steels 1.2344		Hardened Steels		Ductile Cast Irons GG/GGG	
	~200HB		20~30HRC		30~40HRC		40~50HRC		Rota-tion min <sup>-1</sup> Feed mm/min	
Drill Dia. mm	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min	Rota-tion min <sup>-1</sup>	Feed mm/min
3.0	8500	770	7400	570	6400	540	2550	140	7400	620
4.0	6400	770	5600	570	4800	540	1900	140	5600	620
6.0	4200	770	3700	570	3200	540	1300	130	3700	620
8.0	3200	770	2800	570	2400	500	1000	130	2800	580
10.0	2500	720	2200	540	1900	440	800	120	2200	500
12.0	2100	670	1900	500	1600	380	650	120	1900	460
16.0	1600	600	1400	500	1200	340	480	100	1400	400

### Attention on using the cutting condition tables

- Adjust cutting condition according to the rigidity of machine or work clamp state.
- If the machine you are using has restrictions on the number of rotation, reduce the rotation and feed rate by the same ratio.
- Wet Condition are for drilling with water soluble cutting fluid.
- In non-water soluble cutting fluid, reduce the rotation and feed rate by 20%.
- Please step feed regardless of the hole depth.
- Retraction of the step feed is to be returned to the top of the hole.
- Step feed is recommended to 0.2-0.5 x DC.
- Please use the fixture to control the amplitude of the drill bit below 0.005mm.
- Do not pour the cutting fluid directly to the drill, but pour it along the work material.

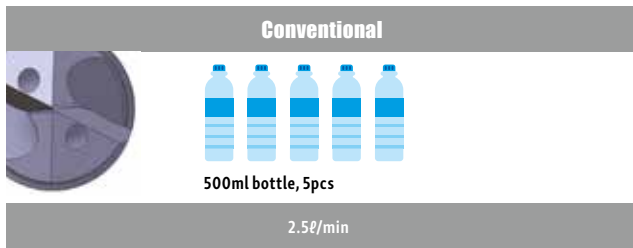
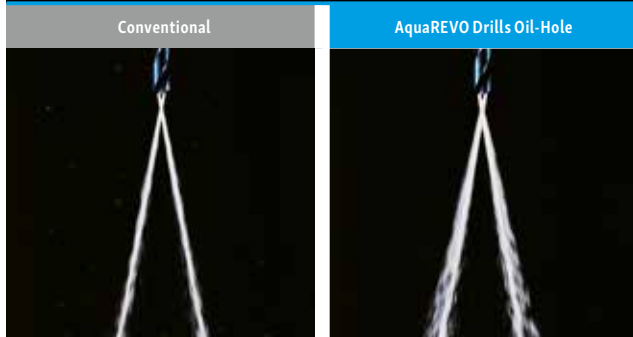
# AquaREVO Drills Oil-Hole

- ▶ The new Oil-Hole concept was born within the AquaREVO series, where material, design and coating have been completely renewed.
- ▶ In addition to REVO-D coat and super smooth surface treatment, the use of fluid analysis further improves cooling, lubrication and smooth chip evacuation.

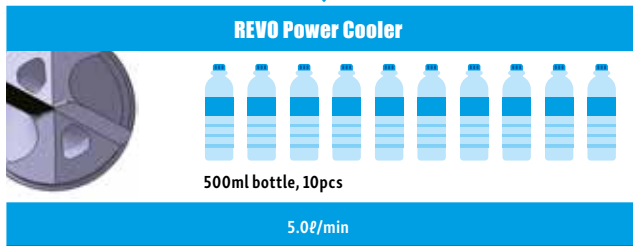
## REVO Power Cooler

New Oil-Hole design with overwhelming flow rate. Cross-sectional area and coolant amount of the oil hole are more than twice that of conventional.

### OVERWHELMING FLOW RATE

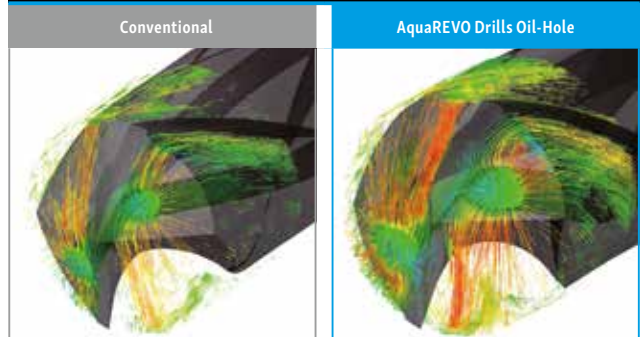


↓ **Double amount**



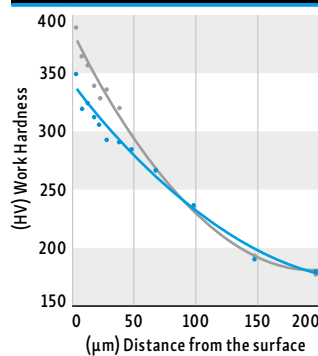
Amount per minute	Drill Equipment	Ø8mm 1.5MPa	Rotation	4800min <sup>-1</sup>
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### IMPROVED COOLING



Increased flow rate and flow velocity of corners and thinning.

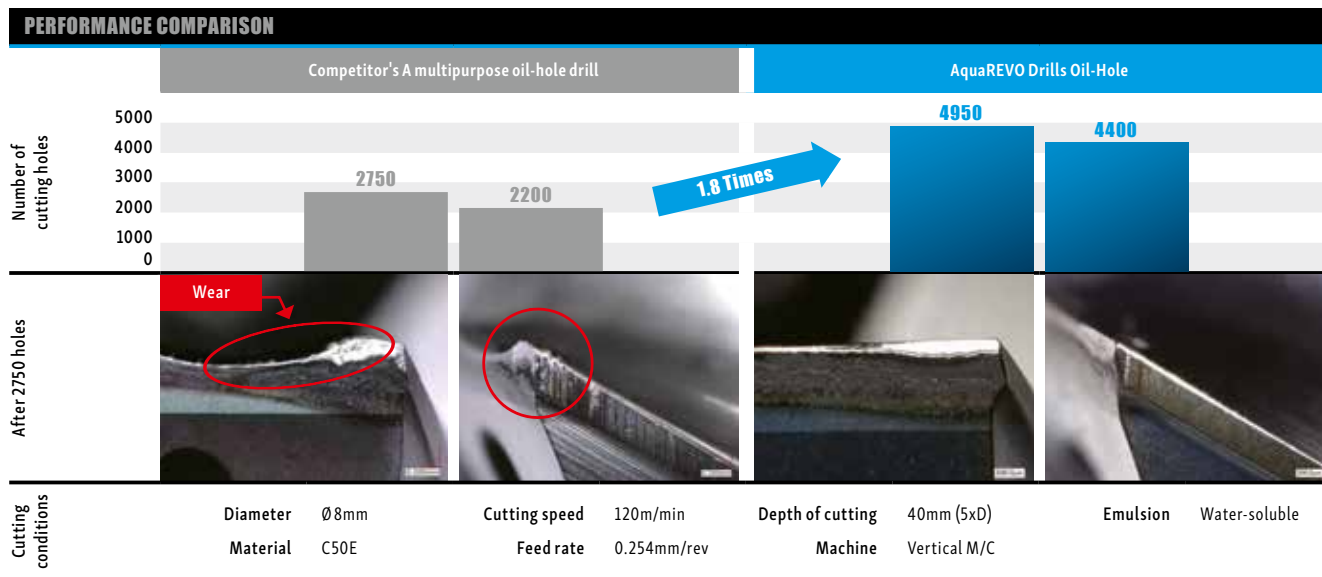
### SUPPRESSES WORK HARDENING



Tool life and accuracy will improve after drilling process. Comparison of work hardening and internal hardness. Work material: 1.4301

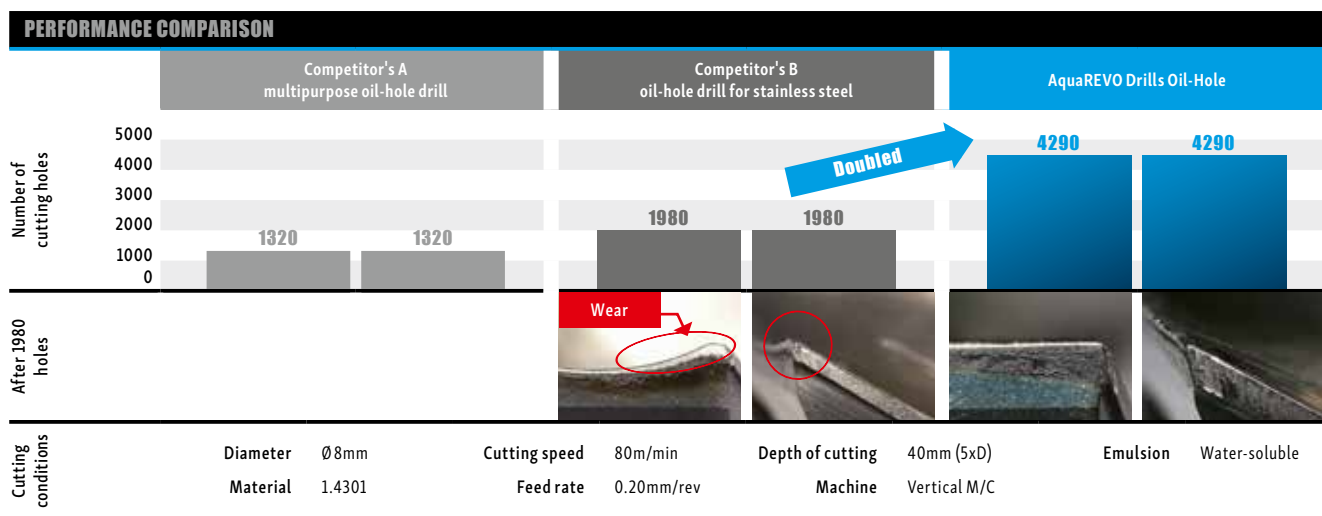
## Excellent service life due to wear suppression

Durability and stability surpass other drills.



## Incredible tool life even in stainless steel drilling

Although it is a multi-purpose drill, even compared to the drill for Stainless steel, more than twice as much drilling.



## Compatible with a wide range of materials

**APPLICABLE WORK MATERIALS**

Tool	Structural Steels	Carbon Steels	Alloy Steels, Heat-treated Steels	Mold Steels, Hardened Steels	Hardened Steels			Stainless Steels			Titanium Alloys	Nickel Alloys	Cast Irons	Aluminium Alloys
	St37-2	C45E/C50E	42CrMo4	30-40 HRC	40-50 HRC	50-57 HRC	58-65 HRC	1.4301/1.4401	1.4021	1.4542	Ti-6Al-4V		GG/GGG	AC/ADC
AquaREVO Drills Oil-Hole (3D)	●	●	●	●	●	○		●	●	●	○	○	●	○
AquaREVO Drills Oil-Hole (5D)	●	●	●	●	●	○		●	●	●	○	○	●	○
AquaREVO Drills Oil-Hole (8D)	●	●	●	●	●	○		●	●	●	○	○	●	○

● Excellent | ○ Good