



Semi-Long Taps for the Next Generation

EHRZ

Extra-Hard Roll Taps

EHRZ CH

Extra-Hard Roll Taps Coolant Through Hole



Ultimate Machining Taps

Active Size

M10×1.5

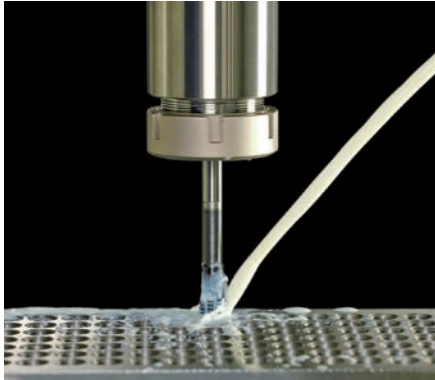




Z-PRO is a new product brand based on the concept of "the ultimate professional tool optimized for machines." The market has shifted towards manufacturing using machines, including multi-functional machining centers that can handle high-precision, high-quality, high-speed, and high-efficiency machining. Z-PRO taps adopt a "semi-long shape" to improve chip evacuation and tapping fluid supply performance in machining, and Z-PRO thread mills adopt a shape suitable for machining, achieving ease of use and stability in modern machining. Z-PRO will continue to evolve, leveraging YAMAWA's more than 100 years of knowledge and experience to provide "Reliable screw threads."

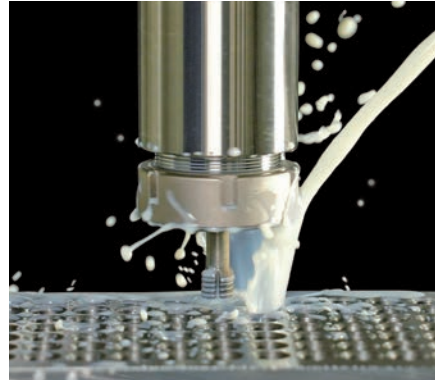
Z-PRO

EHRZ



JIS standard length

Roll Taps



Z-PRO EHRZ

Extra-Hard Roll Taps

Specifications



EHRZ CH

Extra-Hard Roll Taps
Coolant Trough Hole



Product Features



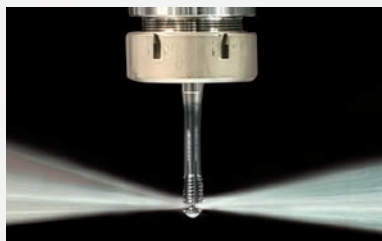
<Features common to EHRZ and EHRZ CH>

Torque reduction and suitability for medium-hardness materials

The combination of a unique thread relief and a coating that maximizes the benefits of surface treatments results in reduced torque and improved welding-resistance. By employing a special coating and a base material suitable for the workpiece, it is suitable for machining medium-hardness materials with a hardness of 40 HRC or less, as well as stainless steels.

Adopting a semi-long shape

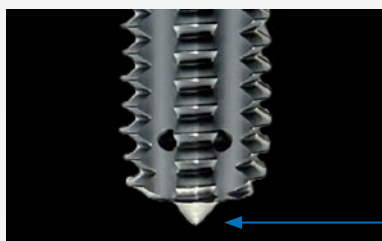
The appropriate tool projection ensures effective delivery of tapping fluid to the cutting area.



<Features of EHRZ CH>

Excellent cooling and lubrication with 90° coolant

By discharging coolant perpendicular to the axis, the coolant is expelled forward and backward within the pre-tapped hole. This allows for forced cooling and lubrication not only of the chamfer part but also of the full threads. It also helps effectively remove chips remaining on the workpiece material.



Reduced center is adopted for sizes from M8 and above

When discharging high-pressure coolant, there was a risk of the stopper being blown off with a tap that had a stopper. Adoption of a reduced center eliminates such problems.

M8 and above use a reduced center specification.
M6 and below use the conventional flat tip.

Differences in tapping speed depending on workpiece material

Workpiece Materials	Recommended tapping speed (m/min)	
	M3~M12 ※	M14~M16
Medium Carbon Steels S25C~S45C	10~30	10~20
High Carbon Steels S45C~	10~30	10~20
Alloy Steels SCM/SCr	10~30	10~20
Heat Treated Steels 25~40HRC	10~20	5~13
Stainless Steels SUS303/SUS304	5~15	3~8

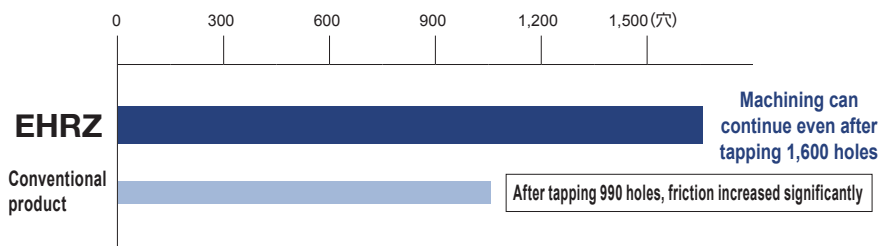
※EHRZ CH is available in sizes M5 to M12



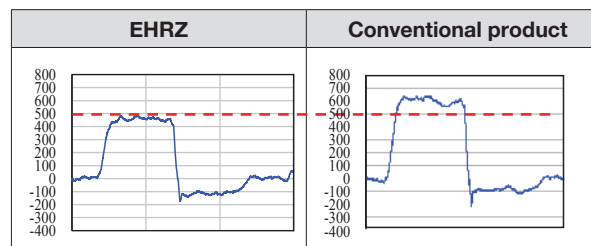
View other Z-PRO Products' tapping speeds

Machining Data

EHRZ G8 M6×1 B	
Conditions	
Workpiece Material	SCM440 (40HRC)
Pre-tapped hole diameter	Φ5.53mm
Tapping length	12mm
Machine	Vertical MC
Tapping speed	20m/min
Feed	Synchronous
Tapping fluid	Water soluble



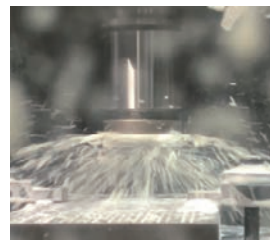
Torque diagram during initial tapping (N·cm)



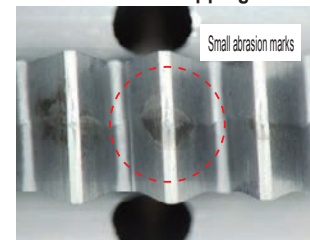
EHRZ reduces torque by approximately 20% compared with conventional products!

EHRZ CH G8 M8×1.25 B	
Conditions	
Workpiece Material	SCM440 (40HRC)
Pre-tapped hole diameter	Φ7.45mm
Tapping length	16mm
Machine	Vertical MC
Tapping speed	20m/min
Feed	Synchronous
Tapping fluid	Water soluble

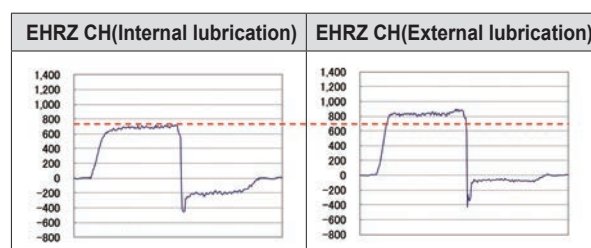
Threading condition with internal lubrication



Condition of the protruding part after continuous tapping



Torque diagram during 190-hole machining (N·cm)



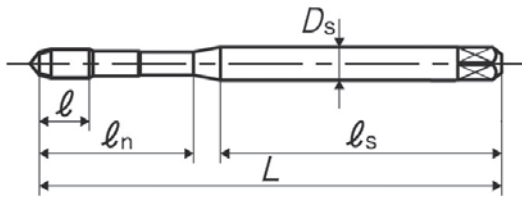
Torque reduced through internal lubrication



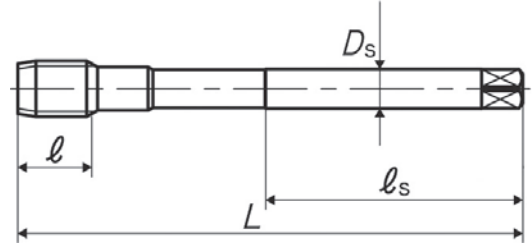
We provide a wide range of other market processing data. View the details here.

■ Shape and Dimensions

TYPE:1



TYPE:2



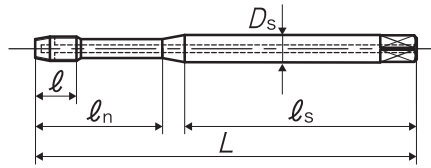
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	Ds (mm)	ls (mm)	TYPE
For Metric threads									
M3×0.5	G6	1120101035	4P	56	5	18	4	32	1
M3×0.5	G6	1121101035	2P	56	5	18	4	32	1
M4×0.7	G7	1120101042	4P	63	7	21	5	36	1
M4×0.7	G7	1121101042	2P	63	7	21	5	36	1
M5×0.8	G7	1120101049	4P	70	9	25	5.5	40	1
M5×0.8	G7	1121101049	2P	70	9	25	5.5	40	1
M6×1	G8	1120101055	4P	80	11	30	6	45	1
M6×1	G8	1121101055	2P	80	11	30	6	45	1
M8×1.25	G8	1120101064	4P	90	12	—	6.2	46	2
M8×1.25	G8	1121101064	2P	90	12	—	6.2	46	2
M8×1	G8	1120101065	4P	90	12	—	6.2	46	2
M8×1	G8	1121101065	2P	90	12	—	6.2	46	2
M10×1.5	G8	1120101078	4P	100	13	—	7	51	2
M10×1.5	G8	1121101078	2P	100	13	—	7	51	2
M10×1.25	G8	1120101079	4P	100	13	—	7	51	2
M10×1.25	G8	1121101079	2P	100	13	—	7	51	2
M10×1	G8	1120101080	4P	100	13	—	7	51	2
M10×1	G8	1121101080	2P	100	13	—	7	51	2
M12×1.75	G8	1120101088	4P	110	15	—	8.5	56	2
M12×1.75	G8	1121101088	2P	110	15	—	8.5	56	2
M12×1.5	G8	1120101089	4P	110	15	—	8.5	56	2
M12×1.5	G8	1121101089	2P	110	15	—	8.5	56	2
M12×1.25	G8	1120101090	4P	110	15	—	8.5	56	2
M12×1.25	G8	1121101090	2P	110	15	—	8.5	56	2
M12×1	G8	1120101091	4P	110	15	—	8.5	56	2
M12×1	G8	1121101091	2P	110	15	—	8.5	56	2
M14×2	G10	1120101100	4P	110	18	—	10.5	56	2
M14×2	G10	1121101100	2P	110	18	—	10.5	56	2
M14×1.5	G9	1120101102	4P	110	18	—	10.5	56	2
M14×1.5	G9	1121101102	2P	110	18	—	10.5	56	2
M14×1.25	G9	1120101103	4P	110	18	—	10.5	56	2
M14×1.25	G9	1121101103	2P	110	18	—	10.5	56	2
M16×2	G10	1120101114	4P	110	18	—	12.5	56	2
M16×2	G10	1121101114	2P	110	18	—	12.5	56	2
M16×1.5	G9	1120101116	4P	110	18	—	12.5	56	2
M16×1.5	G9	1121101116	2P	110	18	—	12.5	56	2

Number of lobes : 5 lobes(M3 to M6), 6 lobes(M8), 8 lobes(M10 and above)

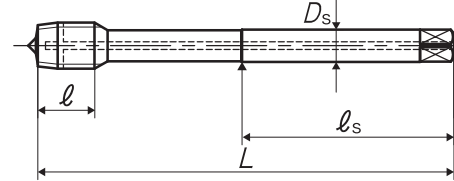
For M6 and smaller, convex centers of 2 thread chamfer taps are removed.

Shape and Dimensions

TYPE:1



TYPE:2



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	Ds (mm)	ls (mm)	TYPE
For Metric threads									
M5×0.8	G7	1221101049	2P	70	9	25	5.5	40	1
M6×1	G8	1221101055	2P	80	11	30	6	45	1
M8×1.25	G8	1221101064	2P	90	12	—	6.2	46	2
M8×1	G8	1221101065	2P	90	12	—	6.2	46	2
M10×1.5	G8	1221101078	2P	100	13	—	7	51	2
M10×1.25	G8	1221101079	2P	100	13	—	7	51	2
M10×1	G8	1221101080	2P	100	13	—	7	51	2
M12×1.75	G8	1221101088	2P	110	15	—	8.5	56	2
M12×1.5	G8	1221101089	2P	110	15	—	8.5	56	2
M12×1.25	G8	1221101090	2P	110	15	—	8.5	56	2
M12×1	G8	1221101091	2P	110	15	—	8.5	56	2
M14×2	G10	1221101100	2P	110	18	—	10.5	56	2
M14×1.5	G9	1221101102	2P	110	18	—	10.5	56	2
M14×1.25	G9	1221101103	2P	110	18	—	10.5	56	2
M16×2	G10	1221101114	2P	110	18	—	12.5	56	2
M16×1.5	G9	1221101116	2P	110	18	—	12.5	56	2

Pre-tapped hole diameter(for reference)

- The pre-tapped hole diameter is set assuming an internal threading process with percentage of engagement of 80-90%.
- The internal diameter of the internal thread after machining will vary depending on the properties of the workpiece materials and the machining conditions. Please perform a test machining and select the optimal pre-tapped hole diameter.
- Reference standard (D¹) represents the minor diameter of a JIS 6H (Class 2) internal thread.

Pre-tapped hole diameter(EHRZ)

Unit: mm

Size	Class	Pre-tapped hole dia	Expected minor dia of the internal thread	Reference standard minor dia of the internal thread (D ¹)	
				Max.	Min.
M3×0.5	G6	2.81	2.55	2.599	2.459
M4×0.7	G7	3.72	3.35	3.422	3.242
M5×0.8	G7	4.66	4.26	4.334	4.134
M6×1	G8	5.57	5.06	5.153	4.917
M8×1.25	G8	7.45	6.81	6.912	6.647
M8×1	G8	7.57	7.06	7.153	6.917
M10×1.5	G8	9.33	8.56	8.676	8.376
M10×1.25	G8	9.45	8.81	8.912	8.647
M10×1	G8	9.56	9.06	9.153	8.917
M12×1.75	G8	11.2	10.32	10.441	10.106
M12×1.5	G8	11.31	10.56	10.676	10.376
M12×1.25	G8	11.43	10.81	10.912	10.647
M12×1	G8	11.56	11.06	11.153	10.917
M14×2	G10	13.10	12.07	12.21	11.835
M14×1.5	G9	13.32	12.56	12.676	12.376
M14×1.25	G9	13.44	12.81	12.912	12.647
M16×2	G10	15.09	14.07	14.21	13.835
M16×1.5	G9	15.31	14.56	14.676	14.376



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(Webinar Videos/WEB Technology Center/Industry Solutions/Machining Data/PRAD System)

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Warning

- ◆Tools may shatter during use. Wear safety eye cover or eye glasses to avoid injury during tapping.
- ◆Use tools under the proper tapping condition.
- ◆Never wear gloves during turning operations as the gloves may get caught in the tools.
- ◆Wear safety shoes to avoid foot injury by the falling tools.
- ◆When attaching tools to the machine, fasten firmly to avoid chatter and run-out.
- ◆Fasten the workpiece firmly so it never moves during the tapping operation. Never use worn tools or damaged tools.
- ◆Take a special care to prevent fire during machining. High temperature during tapping can cause a fire.

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