

High Performance  
Roll Taps  
HP + RZ / OL + RZ  
Roll Taps for Dry  
Tapping  
HP - RZ / OL - RZ

Ideal for high-speed thread forming in steels ( $\leq 35$  HRC) and light alloys.

■ High Performance Roll Taps ■

■ Roll Taps for Dry Tapping ■

HP + RZ  
HP - RZ

OL + RZ  
OL - RZ

JIS



## Product Features

# HP+RZ HP-RZ

Product Features



Workpiece material and tapping speed

Low carbon steels 15~30 (m/min)	Medium carbon steels 15~30 (m/min)	High carbon steels 15~25 (m/min)	Alloy steels 15~25 (m/min)	Thermal refined steels 15~25 (m/min)	Stainless steels 10~25 (m/min)	Aluminum alloy castings 15~30 (m/min)
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25-35HRC

### High Performance Roll Taps



•The product symbol varies depending on the nominal size.

HP+RZ	~M6
HP-RZ	M8~, All unified threads

### ■ Features

- Reduces tapping torque by 20%+ and significantly extends tool life.
- Can be used with water-soluble coolant.

# OL+RZ OL-RZ

Product Features



Workpiece material and tapping speed

Low carbon steels 15~30 (m/min)	Medium carbon steels 15~30 (m/min)	High carbon steels 15~25 (m/min)	Alloy steels 15~25 (m/min)	Thermal refined steels 15~25 (m/min)	Stainless steels 10~25 (m/min)	Aluminum alloy castings 15~30 (m/min)
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25-35HRC

### Roll Taps for Dry Tapping



•Product numbers are classified according to the nominal size.

OL+RZ	All metric threads
OL-RZ	All unified threads

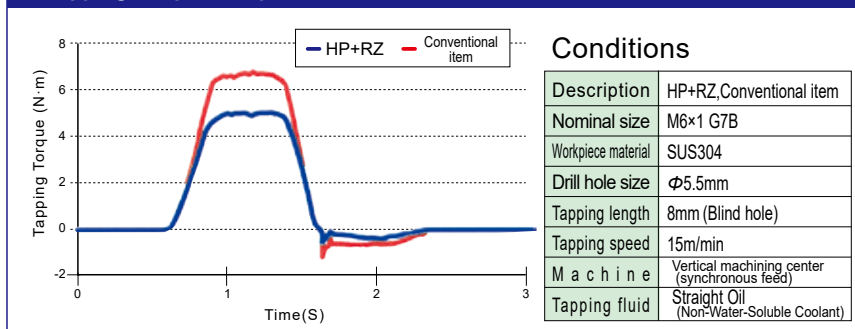
### ■ Features

- Performed high-speed, fully dry thread forming in sheet steel, including burring applications.
- Optimized chamfer section enables smooth material flow for thread forming.

## Tapping Torque in Difficult-to-Form Materials

Uses YAMAWA's proprietary forming-lobe geometry.

Tapping Torque Comparison: HP+RZ vs. Conventional



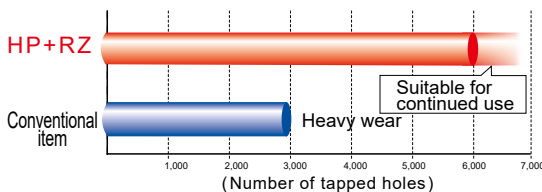
### Initial Scuff Mark Comparison

Optimized lead geometry starts forming from the first lead thread, reduces load on each thread, and delivers smooth, stable thread forming.

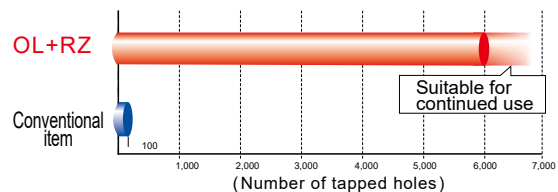
Effective from the first lead thread.



## Tool Life Comparison



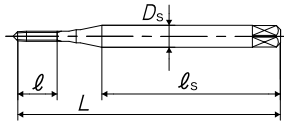
Conditions	
Description	HP+RZ, Conventional item
Nominal size	M2×0.4 G4 2P
Workpiece material	SS400
Drill hole size	1.83mm
Tapping length	3mm(Blind hole)
Tapping speed	50m/min
Machine used	Vertical machining center (synchronous feed)
Tapping fluid	Water soluble tapping fluid



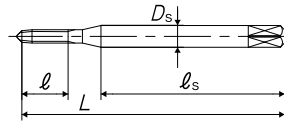
Conditions	
Description	OL+RZ, Conventional item
Nominal size	M6×1 G7 4P
Workpiece material	Cold-rolled steel sheet (SPCC)
Drill hole size	Φ5.55mm
Tapping length	4mm (Though hole)
Tapping speed	15m/min
Machine used	Tapping machine
Tapping fluid	Fully Dry (No Coolant)

## Shape and Dimensions

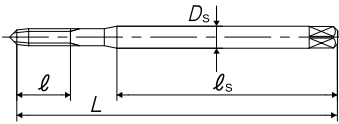
[M1~M1.4]



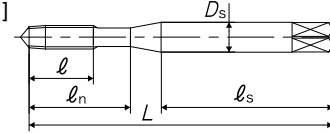
[M1.6~M1.7]



[M2~M2.3]



[M2.5~M6]

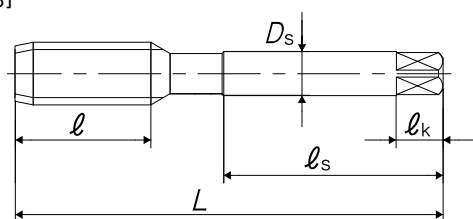


Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of lobes
M1×0.25	G4	HRZP41.0BB	2P	36	4.5	-	24	3	4
M1.2×0.25	G4	HRZP41.2BB	2P	36	4.5	-	24	3	4
M1.4×0.3	G4	HRZP41.4CB	2P	36	5.4	-	24	3	4
M1.6×0.35	G4	HRZP41.6DB	2P	36	6.3	-	24	3	4
M1.7×0.35	G4	HRZP41.7DB	2P	36	6.3	-	24	3	4
M2×0.4	G4	HRZP42.0EB	2P	42	7.2	-	27	3	4
	G5	HRZP52.0EB	2P	42	7.2	-	27	3	4
M2.3×0.4	G4	HRZP42.3EB	2P	42	7.2	-	27	3	4
	G5	HRZP52.3EB	2P	42	7.2	-	27	3	4
M2.5×0.45	G5	HRZP52.5FB	2P	46	8.1	14	29	3	4
	G6	HRZP62.5FB	2P	46	8.1	14	29	3	4
M2.6×0.45	G5	HRZP52.6FB	2P	46	8.1	14	29	3	4
	G6	HRZP62.6FB	2P	46	8.1	14	29	3	4
M3×0.5	G5	HRZP53.0GP	4P	46	9	14	26	4	4
	G5	HRZP53.0GB	2P	46	9	14	26	4	4
	G6	HRZP63.0GP	4P	46	9	14	26	4	4
	G6	HRZP63.0GB	2P	46	9	14	26	4	4
M3.5×0.6	G5	HRZP53.5HP	4P	52	11	16	29	5	4
	G5	HRZP53.5HB	2P	52	11	16	29	5	4
	G6	HRZP63.5HP	4P	52	11	16	29	5	4
	G6	HRZP63.5HB	2P	52	11	16	29	5	4
M4×0.7	G6	HRZP64.0IP	4P	52	11	17	29	5	4
	G6	HRZP64.0IB	2P	52	11	17	29	5	4
	G7	HRZP74.0IP	4P	52	11	17	29	5	4
	G7	HRZP74.0IB	2P	52	11	17	29	5	4
M5×0.8	G6	HRZP65.0KP	4P	60	13	22	33	5.5	4
	G6	HRZP65.0KB	2P	60	13	22	33	5.5	4
	G7	HRZP75.0KP	4P	60	13	22	33	5.5	4
	G7	HRZP75.0KB	2P	60	13	22	33	5.5	4
M6×1	G6	HRZP66.0MP	4P	62	15	26	33	5	4
	G6	HRZP66.0MB	2P	62	15	26	33	5	4
	G7	HRZP76.0MP	4P	62	15	26	33	5	4
	G7	HRZP76.0MB	2P	62	15	26	33	5	4

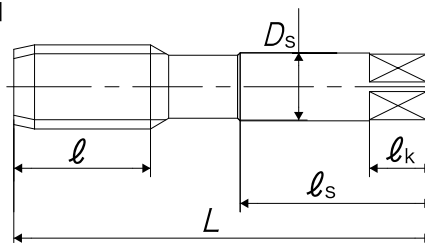
\*Number of oil grooves: Metric threads: M2.6 and under: No oil grooves, M3~M6=2, M8=3, M10 and up: 4 grooves  
 Unified threads: No. 4 and under: No oil grooves, 2 grooves for No.5 and above,  
 For No. 6 and under, the external center on the 2P chamfer is removed.

**Shape and Dimensions**

[M8~M18]



[M20]

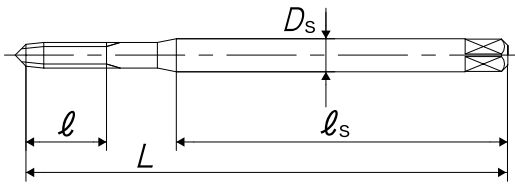


Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l <sub>n</sub> (mm)	l <sub>s</sub> (mm)	D <sub>s</sub> (mm)	Number of lobes
M8×1.25	G7	HRZM78.0NP	4P	70	19	-	36	6.2	6
	G7	HRZM78.0NB	2P	70	19	-	36	6.2	6
	G8	HRZM88.0NP	4P	70	19	-	36	6.2	6
	G8	HRZM88.0NB	2P	70	19	-	36	6.2	6
M10×1.5	G7	HRZM7010OP	4P	75	23	-	38	7	8
	G7	HRZM7010OB	2P	75	23	-	38	7	8
	G8	HRZM8010OP	4P	75	23	-	38	7	8
	G8	HRZM8010OB	2P	75	23	-	38	7	8
M10×1.25	G7	HRZM7010NP	4P	75	23	-	38	7	8
	G7	HRZM7010NB	2P	75	23	-	38	7	8
	G8	HRZM8010NP	4P	75	23	-	38	7	8
	G8	HRZM8010NB	2P	75	23	-	38	7	8
M12×1.75	G8	HRZM8012PP	4P	82	26	-	42	8.5	8
	G8	HRZM8012PB	2P	82	26	-	42	8.5	8
	G9	HRZM9012PP	4P	82	26	-	42	8.5	8
	G9	HRZM9012PB	2P	82	26	-	42	8.5	8
M12×1.5	G8	HRZM8012OP	4P	82	26	-	42	8.5	8
	G8	HRZM8012OB	2P	82	26	-	42	8.5	8
	G9	HRZM9012OP	4P	82	26	-	42	8.5	8
	G9	HRZM9012OB	2P	82	26	-	42	8.5	8
M12×1.25	G8	HRZM8012NP	4P	82	26	-	42	8.5	8
	G8	HRZM8012NB	2P	82	26	-	42	8.5	8
	G9	HRZM9012NP	4P	82	26	-	42	8.5	8
	G9	HRZM9012NB	2P	82	26	-	42	8.5	8
M14×1.5	G9	HRZM9014OP	4P	88	26	-	45	10.5	8
	G9	HRZM9014OB	2P	88	26	-	45	10.5	8
M16×1.5	G9	HRZM9016OP	4P	95	26	-	48	12.5	8
	G9	HRZM9016OB	2P	95	26	-	48	12.5	8
M18×1.5	G9	HRZM9018OP	4P	100	33	-	51	14	8
	G9	HRZM9018OB	2P	100	33	-	51	14	8
M20×1.5	G9	HRZM9020OP	4P	105	33	-	50	15	8
	G9	HRZM9020OB	2P	105	33	-	50	15	8

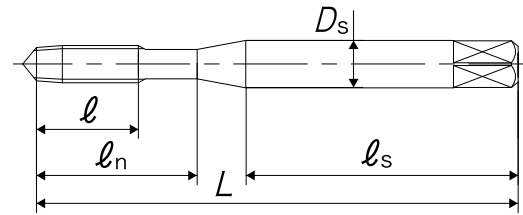
\*Number of oil grooves: Metric threads: M2.6 and under: No oil grooves, M3~M6=2, M8=3, M10 and up: 4 oil grooves  
 Unified threads: No. 4 and under: No oil grooves, 2 grooves for No.5 and above,  
 For No. 6 and under, the external center on the 2P chamfer is removed.

## Shape and Dimensions

[No.2]



[No.3~1/4]

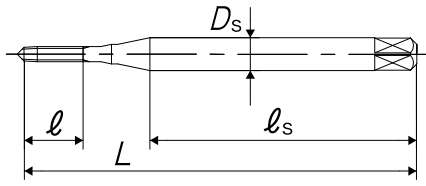


Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l <sub>n</sub> (mm)	l <sub>s</sub> (mm)	D <sub>s</sub> (mm)	Number of lobes
2-56UNC	G4	HRZM4UN2EB	2P	42	8.1	-	27	3	4
	G5	HRZM5UN2EB	2P	42	8.1	-	27	3	4
2-64UNF	G4	HRZM4UN2DB	2P	42	8.1	-	27	3	4
3-48UNC	G4	HRZM4UN3FB	2P	46	8.1	14	29	3	4
3-56UNF	G4	HRZM4UN3EB	2P	46	8.1	14	29	3	4
4-40UNC	G5	HRZM5UN4HB	2P	46	9	14	25	4	4
	G6	HRZM6UN4HB	2P	46	9	14	25	4	4
4-48UNF	G5	HRZM5UN4FB	2P	46	9	14	25	4	4
5-40UNC	G5	HRZM5UN5HP	4P	52	11	16	28	5	4
	G5	HRZM5UN5HB	2P	52	11	16	28	5	4
5-44UNF	G5	HRZM5UN5GP	4P	52	11	16	28	5	4
	G5	HRZM5UN5GB	2P	52	11	16	28	5	4
6-32UNC	G5	HRZM5UN6JP	4P	52	11	17	27	5	4
	G5	HRZM5UN6JB	2P	52	11	17	27	5	4
	G6	HRZM6UN6JP	4P	52	11	17	27	5	4
	G6	HRZM6UN6JB	2P	52	11	17	27	5	4
6-40UNF	G5	HRZM5UN6HP	4P	52	11	17	27	5	4
	G5	HRZM5UN6HB	2P	52	11	17	27	5	4
8-32UNC	G6	HRZM6UN8JB	2P	60	13	22	31	5.5	4
	G6	HRZM6UN8JP	4P	60	13	22	31	5.5	4
	G7	HRZM7UN8JB	2P	60	13	22	31	5.5	4
	G7	HRZM7UN8JP	4P	60	13	22	31	5.5	4
8-36UNF	G6	HRZM6UN8IP	4P	60	13	22	31	5.5	4
	G6	HRZM6UN8IB	2P	60	13	22	31	5.5	4
10-24UNC	G6	HRZM6UNAMP	4P	60	13	22	32	5.5	4
	G6	HRZM6UNAMB	2P	60	13	22	32	5.5	4
	G7	HRZM7UNAMP	4P	60	13	22	32	5.5	4
	G7	HRZM7UNAMB	2P	60	13	22	32	5.5	4
10-32UNF	G6	HRZM6UNAJP	4P	60	13	22	32	5.5	4
	G6	HRZM6UNAJB	2P	60	13	22	32	5.5	4
	G7	HRZM7UNAJP	4P	60	13	22	32	5.5	4
	G7	HRZM7UNAJB	2P	60	13	22	32	5.5	4
12-24UNC	G6	HRZM6UNCMP	4P	62	15	26	32	6	4
	G6	HRZM6UNCMB	2P	62	15	26	32	6	4
12-28UNF	G6	HRZM6UNCCKP	4P	62	15	26	32	6	4
	G6	HRZM6UNCCKB	2P	62	15	26	32	6	4
1/4-20UNC	G7	HRZM7U04NP	4P	62	15	26	33	6	4
	G7	HRZM7U04NB	2P	62	15	26	33	6	4
1/4-28UNF	G7	HRZM7U04KP	4P	62	15	26	33	6	4
	G7	HRZM7U04KB	2P	62	15	26	33	6	4

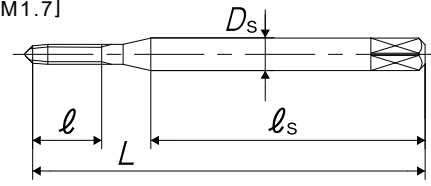
\*Number of oil grooves: Metric threads: M2.6 and under: No oil grooves, M3~M6=2, M8=3, M10 and up: 4 oil grooves  
 Unified threads: No. 4 and under: No oil grooves, 2 grooves for No.5 and above,  
 For No. 6 and under, the external center on the 2P chamfer is removed.

**Shape and Dimensions**

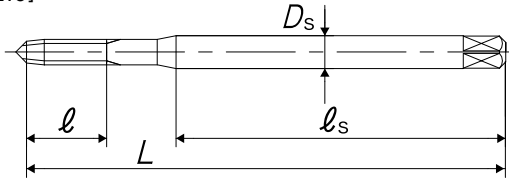
[M1~M1.4]



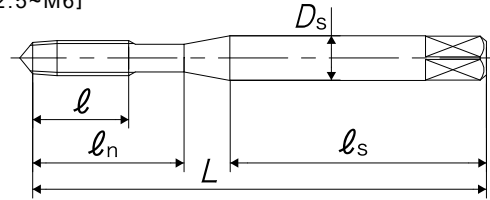
[M1.6~M1.7]



[M2~M2.3]



[M2.5~M6]



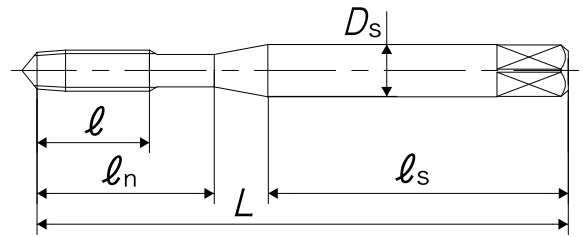
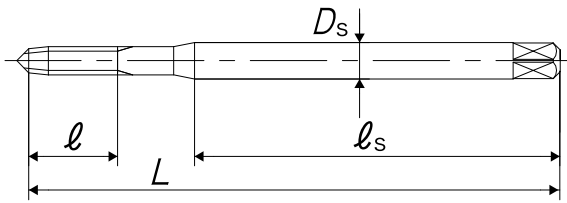
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of lobes
M1×0.25	G4	OLRZP41.0BP	4P	36	4.5	-	24	3	4
M1.2×0.25	G4	OLRZP41.2BP	4P	36	4.5	-	24	3	4
M1.4×0.3	G4	OLRZP41.4CP	4P	36	5.4	-	24	3	4
M1.6×0.35	G4	OLRZP41.6DP	4P	36	6.3	-	24	3	4
	G6	OLRZP61.6DP	4P	36	6.3	-	24	3	4
M1.7×0.35	G4	OLRZP41.7DP	4P	36	6.3	-	24	3	4
M2×0.4	G4	OLRZP42.0EP	4P	42	7.2	-	27	3	4
	G5	OLRZP52.0EP	4P	42	7.2	-	27	3	4
	G6	OLRZP62.0EP	4P	42	7.2	-	27	3	4
M2.3×0.4	G4	OLRZP42.3EP	4P	42	7.2	-	27	3	4
	G5	OLRZP52.3EP	4P	42	7.2	-	27	3	4
M2.5×0.45	G5	OLRZP52.5FP	4P	46	8.1	14	29	3	4
	G6	OLRZP62.5FP	4P	46	8.1	14	29	3	4
M2.6×0.45	G5	OLRZP52.6FP	4P	46	8.1	14	29	3	4
	G6	OLRZP62.6FP	4P	46	8.1	14	29	3	4
M3×0.5	G5	OLRZP53.0GP	4P	46	9	14	26	4	4
	G6	OLRZP63.0GP	4P	46	9	14	26	4	4
M3.5×0.6	G5	OLRZP53.5HP	4P	52	11	16	29	5	4
	G6	OLRZP63.5HP	4P	52	11	16	29	5	4
M4×0.7	G6	OLRZP64.0IP	4P	52	11	17	29	5	4
	G7	OLRZP74.0IP	4P	52	11	17	29	5	4
M5×0.8	G6	OLRZP65.0KP	4P	60	13	22	33	5.5	4
	G7	OLRZP75.0KP	4P	60	13	22	33	5.5	4
M6×1	G6	OLRZP66.0MP	4P	62	15	26	33	6	4
	G7	OLRZP76.0MP	4P	62	15	26	33	6	4

No oil grooves

## Shape and Dimensions

[No.2]

[No.3~1/4]



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of lobes
2-56UNC	G4	OLRZM4UN2EP	4P	42	8.1	-	27	3	4
	G5	OLRZM5UN2EP	4P	42	8.1	-	27	3	4
2-64UNF	G4	OLRZM4UN2DP	4P	42	8.1	-	27	3	4
3-48UNC	G4	OLRZM4UN3FP	4P	46	8.1	14	29	3	4
3-56UNF	G4	OLRZM4UN3EP	4P	46	8.1	14	29	3	4
4-40UNC	G5	OLRZM5UN4HP	4P	46	9	14	25	4	4
	G6	OLRZM6UN4HP	4P	46	9	14	25	4	4
4-48UNF	G5	OLRZM5UN4FP	4P	46	9	14	25	4	4
5-40UNC	G5	OLRZM5UN5HP	4P	52	11	16	28	5	4
5-44UNF	G5	OLRZM5UN5GP	4P	52	11	16	28	5	4
6-32UNC	G5	OLRZM5UN6JP	4P	52	11	17	27	5	4
	G6	OLRZM6UN6JP	4P	52	11	17	27	5	4
6-40UNF	G5	OLRZM5UN6HP	4P	52	11	17	27	5	4
8-32UNC	G6	OLRZM6UN8JP	4P	60	13	22	31	5.5	4
	G7	OLRZM7UN8JP	4P	60	13	22	31	5.5	4
8-36UNF	G6	OLRZM6UN8IP	4P	60	13	22	31	5.5	4
10-24UNC	G6	OLRZM6UNAMP	4P	60	13	22	32	5.5	4
	G7	OLRZM7UNAMP	4P	60	13	22	32	5.5	4
10-32UNF	G6	OLRZM6UNAJP	4P	60	13	22	32	5.5	4
	G7	OLRZM7UNAJP	4P	60	13	22	32	5.5	4
12-24UNC	G6	OLRZM6UNCMP	4P	62	15	26	32	6	4
12-28UNF	G6	OLRZM6UNCCKP	4P	62	15	26	32	6	4
1/4-20UNC	G7	OLRZM7U04NP	4P	62	15	26	33	6	4
1/4-28UNF	G7	OLRZM7U04KP	4P	62	15	26	33	6	4

No oil grooves