Think threads with YAMAWA

HV Series

Taps that achieve excellent chip evacuation!

▪ Hybrid Value Spiral Fluted Taps for Steels ▪

HVSP HVSP LH

HVSP ZP

▪ Hybrid Value Spiral Pointed Taps for Steels ▪

HVPO

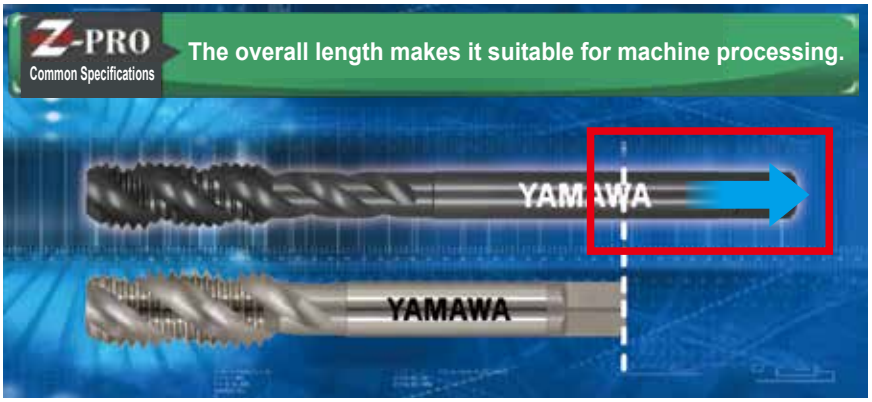
HVPO ZP

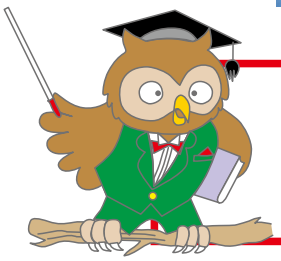
A new product line by YAMAWA

Z-PRO features

What are the most suitable tool specifications and shapes for machines?

Z-PRO is renowned for its "Tap Material" and "Surface Treatment", but its most significant feature is the "Semi-long Shape", which is suitable for machining.





Z-PRO improves chip evacuation for stable machining!
For trouble-free machining, the Z-PRO HV Series is recommended!

Conventional machining environment (Drilling machine, etc.)

General-purpose SP

Achieves stable machining in various machining environments from drilling machine to M/C!

Z-PRO HVSP

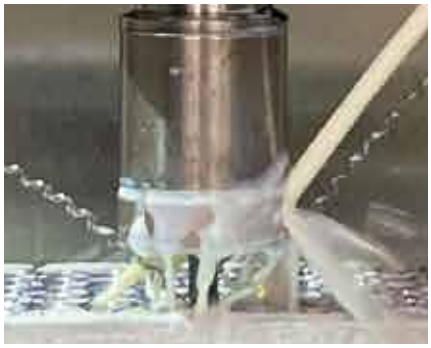
Advantages of using HVSP

By increasing the clearance between the holder and work-piece, chip interference is minimized. This prevents issues like chip jamming and breakage.

○Comparison photo of Z-PRO "HVSP" vs JIS standard "SP"

Z-PRO HVSP

SP (JIS standard length)



M12×1.75

Tapping length : 1.5D (effective thread)
Holding length : 31mm

Think threads with YAMAWA

Z-PRO Ultimate Machining Taps

Hybrid Value Spiral Fluted Taps for Steels HVSP

HSS OX 2.5

JIS

Introduction Movie

The uniquely designed flute shape+BLF(special relief on the full thread area) dramatically reduce chipping issues.

- Specially designed flute shape and relief on the full thread area improves chip ejection.
- Heel cut performance has been improved in order to accurately cut the chips deep inside the internal thread and eliminate the remaining chips.
- Due to improved chip ejection, chipping of the chamfer area is less likely to occur during the reversal of the tap.
- The threads on HVSP are specially designed with three full threads and subsequent threads ground down to the pitch diameter to prevent chipping.

Tapping conditions:HVSP M36×4

Workpiece Material	SS400
Tapping Speed	3m/min
Tapping Length	50mm
Machine Type	Radial drilling machine
Tapping Fluid	Non-water soluble cutting oil

○Full Thread Part

Conventional Product

Chipping

HVSP 250 Holes Ongoing Processing Without Chipping

Tapping conditions:HVSP M10×1.5

Workpiece Material	S45C
Tapping Speed	12m/min
Tapping Length	17mm
Machine Type	Horizontal MC
Tapping Fluid	Water soluble cutting fluid

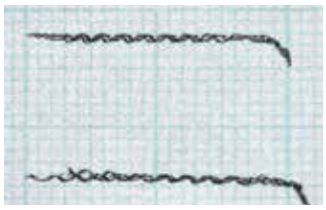
Smooth chip evacuation

1,184 Holes processed without chipping

Tapping conditions:HVSP M2×0.4

Workpiece Material	SS400
Tapping Speed	5m/min
Tapping Length	4mm
Machine Type	Vertical MC
Tapping Fluid	Water soluble cutting fluid

Smooth chip evacuation



100 Holes processed without chipping

Z-PRO Ultimate Machining Taps

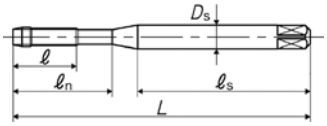
Hybrid Value Spiral Fluted Taps for Steels

HVSP

HSS OX 2.5

Dimensions and Sizes

TYPE:1



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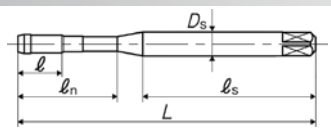

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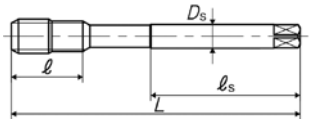

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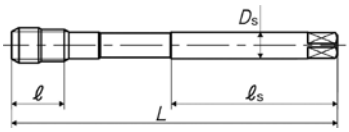

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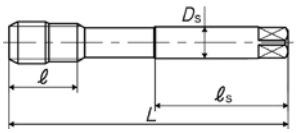

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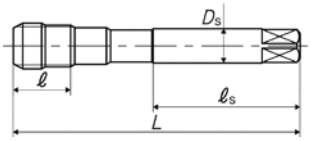


Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M2×0.4	P2	SY2.0EQEEXJ	C(2.5P)	45	8	15	27	3	2	1	2,660
M2.2×0.45	P2	SY2.2FQEEXJ	C(2.5P)	45	9	15	27	3	2	1	2,570
M2.3×0.4	P2	SY2.3EQEEXJ	C(2.5P)	45	9	15	27	3	2	1	2,570
M2.5×0.45	P2	SY2.5FQEEXJ	C(2.5P)	50	8	15	32	3	2	1	2,170
M2.6×0.45	P2	SY2.6FQEEXJ	C(2.5P)	50	8	15	32	3	2	1	2,170
M3×0.5	P3	SY3.0GREEXJ	C(2.5P)	56	9	18	32	4	3	1	1,400
3M0.6	P2	SY3.0HQEEXJ	C(2.5P)	56	5	18	32	4	3	1	1,450*
M3×0.35	P3	SY3.0DREEXJ	C(2.5P)	56	6.5	18	32	4	3	2	2,470
M3.5×0.6	P3	SY3.5HREEXJ	C(2.5P)	63	13	20	36	5	3	1	1,450
M4×0.7	P4	SY4.0ISEEXJ	C(2.5P)	63	13	21	36	5	3	1	1,400
4M0.75	P3	SY4.0JREEXJ	C(2.5P)	63	7	21	36	5	3	1	1,450
M4×0.5	P4	SY4.0GSEEXJ	C(2.5P)	63	9	21	36	5	3	2	2,120
M4.5×0.75	P3	SY4.5JREEXJ	C(2.5P)	70	14	24	40	5.5	3	1	1,460*
M4.5×0.5	P4	SY4.5GSEEXJ	C(2.5P)	70	9	24	40	5.5	3	2	2,120*
M5×0.8	P4	SY5.0KSEEXJ	C(2.5P)	70	14	25	40	5.5	3	1	1,410
5M0.9	P3	SY5.0LREEXJ	C(2.5P)	70	9	25	40	5.5	3	1	1,530*
M5×0.5	P4	SY5.0GSEEXJ	C(2.5P)	70	9	25	40	5.5	3	2	2,120
M6×1	P4	SY6.0MSEEXJ	C(2.5P)	80	15	30	45	6	3	1	1,610
M6×0.75	P4	SY6.0JSEEXJ	C(2.5P)	80	15	30	45	6	3	1	2,270
M6×0.5	P4	SY6.0GSEEXJ	C(2.5P)	80	9	30	45	6	3	2	2,270
M7×1	P4	SY7.0MSEEXJ	C(2.5P)	90	15	-	46	6.2	3	3	1,980
M7×0.75	P3	SY7.0JREEXJ	C(2.5P)	90	15	-	46	6.2	3	3	2,930*
M7×0.5	P3	SY7.0GREEXJ	C(2.5P)	90	10	-	46	6.2	3	4	3,650*
M8×1.25	P4	SY8.0NSEEXJ	C(2.5P)	90	19	-	46	6.2	3	3	2,270
M8×1	P4	SY8.0MSEEXJ	C(2.5P)	90	19	-	46	6.2	3	3	2,580
M8×0.75	P3	SY8.0JREEXJ	C(2.5P)	90	19	-	46	6.2	3	3	2,930*
M8×0.5	P3	SY8.0GREEXJ	C(2.5P)	90	10	-	46	6.2	3	4	3,650*
M10×1.5	P4	SY010OSEEXJ	C(2.5P)	100	23	-	51	7	3	3	2,970
M10×1.25	P4	SY010NSEEXJ	C(2.5P)	100	23	-	51	7	3	3	2,970
M10×1	P4	SY010MSEEXJ	C(2.5P)	100	23	-	51	7	3	3	3,520
M11×1.25	P4	SY011NSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	4,230*
M11×1	P4	SY011MSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	4,860
M12×1.75	P4	SY012PSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	4,000
M12×1.5	P4	SY012OSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	4,000
M12×1.25	P4	SY012NSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	4,000
M12×1	P4	SY012MSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	4,860
M14×2	P4	SY014QSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	5,640
M14×1.5	P4	SY014OSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	5,640
M14×1.25	P4	SY014NSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	6,560
M14×1	P4	SY014MSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	6,560
M15×1.5	P4	SY015OSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	7,690
M16×2	P4	SY016QSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	7,300
M16×1.5	P4	SY016OSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	7,300
M16×1.25	P4	SY016NSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	9,260
M16×1	P4	SY016MSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	9,260
M18×2.5	P5	SY018RTEEXJ	C(2.5P)	125	33	-	64	14	4	3	10,100
M18×2	P5	SY018QTEEXJ	C(2.5P)	125	33	-	64	14	4	3	10,100
M18×1.5	P5	SY018OTEEXJ	C(2.5P)	125	33	-	64	14	4	3	10,100
M18×1.25	P4	SY018NSEEXJ	C(2.5P)	125	33	-	64	14	4	3	13,100*
M18×1	P4	SY018MSEEXJ	C(2.5P)	125	18	-	64	14	4	4	13,100
M19×1.5	P5	SY019OTEEXJ	C(2.5P)	140	33	-	71	15	4	5	13,700*

*Specific distribution product (Made-to-Order item)

Think threads with YAMAWA

Dimensions and Sizes

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
M20×2.5	P5	SY020RTEEXJ	C(2.5P)	140	33	-	71	15	4	5	13,700
M20×2	P5	SY020QTEEXJ	C(2.5P)	140	33	-	71	15	4	5	13,700
M20×1.5	P5	SY020OTEEXJ	C(2.5P)	140	33	-	71	15	4	5	13,700
M20×1	P4	SY020MSEEXJ	C(2.5P)	140	18	-	71	15	4	6	17,400
M22×2.5	P5	SY022RTEEXJ	C(2.5P)	140	33	-	71	17	4	5	17,400
M22×2	P5	SY022QTEEXJ	C(2.5P)	140	33	-	71	17	4	5	17,400
M22×1.5	P5	SY022OTEEXJ	C(2.5P)	140	33	-	71	17	4	5	17,400
M22×1	P4	SY022MSEEXJ	C(2.5P)	140	19	-	71	17	4	6	23,300
M24×3	P5	SY024STEEXJ	C(2.5P)	160	37	-	82	19	4	5	21,700
M24×2	P5	SY024QTEEXJ	C(2.5P)	160	37	-	82	19	4	5	21,700
M24×1.5	P5	SY024OTEEXJ	C(2.5P)	160	37	-	82	19	4	5	21,700
M24×1	P4	SY024MSEEXJ	C(2.5P)	160	19	-	82	19	4	6	28,600*
M25×2	P5	SY025QTEEXJ	C(2.5P)	160	37	-	82	19	4	5	28,600*
M25×1.5	P5	SY025OTEEXJ	C(2.5P)	160	37	-	82	19	4	5	28,600
M25×1	P4	SY025MSEEXJ	C(2.5P)	160	20	-	82	19	4	6	34,600*
M26×3	P5	SY026STEEXJ	C(2.5P)	160	37	-	82	20	4	5	30,600*
M26×1.5	P5	SY026OTEEXJ	C(2.5P)	160	37	-	82	20	4	5	30,600
M26×1	P4	SY026MSEEXJ	C(2.5P)	160	20	-	82	20	4	6	38,700*
M27×3	P5	SY027STEEXJ	C(2.5P)	160	37	-	82	20	4	5	30,600
M27×2	P5	SY027QTEEXJ	C(2.5P)	160	37	-	82	20	4	5	30,600
M27×1.5	P5	SY027OTEEXJ	C(2.5P)	160	37	-	82	20	4	5	30,600
M28×1.5	P5	SY028OTEEXJ	C(2.5P)	180	44	-	92	23	4	5	38,900
M28×1	P4	SY028MSEEXJ	C(2.5P)	180	20	-	92	23	4	6	50,000*
M30×3.5	P6	SY030TUEEXJ	C(2.5P)	180	44	-	92	23	4	5	38,900
M30×3	P6	SY030SUEEXJ	C(2.5P)	180	44	-	92	23	4	5	38,900
M30×2	P5	SY030QTEEXJ	C(2.5P)	180	44	-	92	23	4	5	38,900
M30×1.5	P6	SY030OUEEXJ	C(2.5P)	180	44	-	92	23	4	5	38,900
M30×1	P4	SY030MSEEXJ	C(2.5P)	180	21	-	92	23	4	6	50,000*
M32×2	P5	SY032QTEEXJ	C(2.5P)	180	44	-	92	24	4	5	45,400
M32×1.5	P5	SY032OTEEXJ	C(2.5P)	180	44	-	92	24	4	5	45,400
M33×3.5	P6	SY033TUEEXJ	C(2.5P)	180	46	-	92	25	4	5	45,400
M33×3	P6	SY033SUEEXJ	C(2.5P)	180	46	-	92	25	4	5	45,400
M33×2	P5	SY033QTEEXJ	C(2.5P)	180	46	-	92	25	4	5	45,400
M33×1.5	P5	SY033OTEEXJ	C(2.5P)	180	46	-	92	25	4	5	45,400
M35×2	P5	SY035QTEEXJ	C(2.5P)	200	52	-	102	28	4	5	52,300
M35×1.5	P5	SY035OTEEXJ	C(2.5P)	200	26	-	102	28	4	6	52,300
M36×4	P6	SY036UUEEXJ	C(2.5P)	200	52	-	102	28	4	5	52,300
M36×3	P6	SY036SUEEXJ	C(2.5P)	200	52	-	102	28	4	5	52,300
M36×2	P5	SY036QTEEXJ	C(2.5P)	200	52	-	102	28	4	5	52,300
M36×1.5	P5	SY036OTEEXJ	C(2.5P)	200	26	-	102	28	4	6	52,300
M39×4	P6	SY039UUEEXJ	C(2.5P)	200	52	-	102	30	4	5	60,000
M39×3	P6	SY039SUEEXJ	C(2.5P)	200	52	-	102	30	4	5	60,000
M42×4.5	P6	SY042VUEEXJ	C(2.5P)	200	59	-	102	32	4	5	73,000
M42×3	P6	SY042SUEEXJ	C(2.5P)	200	59	-	102	32	4	5	73,000
M42×1.5	P5	SY042OTEEXJ	C(2.5P)	200	27	-	102	32	4	6	73,000*
M45×4.5	P6	SY045VUEEXJ	C(2.5P)	220	59	-	112	35	4	5	84,500
M45×3	P6	SY045SUEEXJ	C(2.5P)	220	59	-	112	35	4	5	84,500*
M48×5	P6	SY048WUEEXJ	C(2.5P)	250	65	-	128	38	4	5	107,000
M48×3	P6	SY048SUEEXJ	C(2.5P)	250	65	-	128	38	4	5	107,000

*Specific distribution product (Made-to-Order item)

Workpiece materials and tapping speeds

Workpiece Materials		Guideline for tapping speed (m/min)			
		M2~M2.6 No.2~No.4	M3~M5 No.5~No.12 W1/8~W7/32	M6~M16 U1/4~U5/8 W1/4~W5/8	M18~M48 U3/4~U2 W3/4~W1 1/2
Low Carbon Steels	~S20C/SS400	1~7	3~9	3~12	3~8
Medium Carbon Steels	S25C~S45C	1~7	3~9	3~12	3~8
High Carbon Steels	S45C~	1~7	3~9	3~12	3~8
Alloy Steels	SCM/SCr	1~7	3~9	3~12	3~8
Thermal Refined Steels	25~35HRC	–	–	~5	~5
Cast Steels	SC	1~7	3~9	3~12	3~8
Stainless Steels	SUS303/SUS304	~5	~5	~5	~5

Z-PRO Ultimate Machining Taps

Hybrid Value Spiral Fluted Taps for Steels HVSP

HSS OX 2.5

Dimensions and Sizes

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Unified Threads											
No.2-56UNC	P2	SYUN2EQEEXJ	C(2.5P)	45	4	15	27	3	2	1	3,030 *
No.2-64UNF	P2	SYUN2DQEEXJ	C(2.5P)	45	4	15	27	3	2	1	3,030 *
No.3-48UNC	P2	SYUN3FQEEXJ	C(2.5P)	50	4	15	32	3	2	1	2,570 *
No.3-56UNF	P2	SYUN3EQEEXJ	C(2.5P)	50	4	15	32	3	2	1	2,570 *
No.4-40UNC	P2	SYUN4HQEEXJ	C(2.5P)	56	5	17	32	4	2	1	1,960 *
No.4-48UNF	P2	SYUN4FQEEXJ	C(2.5P)	56	5	17	32	4	2	1	1,960 *
No.5-40UNC	P2	SYUN5HQEEXJ	C(2.5P)	63	5	19	36	5	3	1	1,820 *
No.5-44UNF	P2	SYUN5GQEEXJ	C(2.5P)	63	5	19	36	5	3	1	1,820 *
No.6-32UNC	P3	SYUN6JREEXJ	C(2.5P)	63	7	19	36	5	3	1	1,820 *
No.6-40UNF	P3	SYUN6HREEXJ	C(2.5P)	63	7	19	36	5	3	1	1,820 *
No.8-32UNC	P3	SYUN8JREEXJ	C(2.5P)	70	7	23	40	5.5	3	1	1,830 *
No.8-36UNF	P3	SYUN8IREEXJ	C(2.5P)	70	7	23	40	5.5	3	1	1,830 *
No.10-24UNC	P3	SYUNAMREEXJ	C(2.5P)	70	9	24	40	5.5	3	1	1,830 *
No.10-32UNF	P3	SYUNAJREEXJ	C(2.5P)	70	9	24	40	5.5	3	1	1,830 *
No.12-24UNC	P3	SYUNCMREEXJ	C(2.5P)	80	9	28	45	6	3	1	2,030 *
No.12-28UNF	P3	SYUNCKREEXJ	C(2.5P)	80	9	28	45	6	3	1	2,030 *
1/4-20UNC	P3	SYU04NREEXJ	C(2.5P)	80	11	30	45	6	3	1	2,030 *
1/4-28UNF	P3	SYU04KREEXJ	C(2.5P)	80	11	30	45	6	3	1	2,030 *
5/16-18UNC	P4	SYU05OSEEXJ	C(2.5P)	90	19	-	46	6.2	3	3	2,960 *
5/16-24UNF	P4	SYU05MSEEXJ	C(2.5P)	90	19	-	46	6.2	3	3	2,960 *
3/8-16UNC	P4	SYU06PSEEXJ	C(2.5P)	100	23	-	51	7	3	3	3,790 *
3/8-24UNF	P4	SYU06MSEEXJ	C(2.5P)	100	23	-	51	7	3	3	3,790 *
7/16-14UNC	P4	SYU07QSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	5,330 *
7/16-20UNF	P4	SYU07NSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	5,330 *
1/2-13UNC	P4	SYU08RSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	5,650 *
1/2-20UNF	P4	SYU08NSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	5,650 *
9/16-12UNC	P4	SYU09SSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	8,790 *
9/16-18UNF	P4	SYU09OSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	8,790 *
5/8-11UNC	P4	SYU10USEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	8,790 *
5/8-18UNF	P4	SYU10OSEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	8,790 *
3/4-10UNC	P5	SYU12VTEEXJ	C(2.5P)	140	33	-	71	15	4	5	16,100 *
3/4-16UNF	P4	SYU12PSEEXJ	C(2.5P)	140	33	-	71	15	4	5	16,100 *
7/8-9UNC	P5	SYU14WTEEXJ	C(2.5P)	140	33	-	71	17	4	5	23,500 *
7/8-14UNF	P4	SYU14QSEEXJ	C(2.5P)	140	33	-	71	17	4	5	23,500 *
1-8UNC	P5	SYU16XTEEXJ	C(2.5P)	160	37	-	82	19	4	5	35,900
1-12UNF	P4	SYU16SSEEXJ	C(2.5P)	160	37	-	82	19	4	5	35,900
1 1/8-7UNC	P6	SYU18YUEEXJ	C(2.5P)	180	44	-	92	23	4	5	46,200 *
1 1/8-8UN	P5	SYU18XTEEXJ	C(2.5P)	180	44	-	92	23	4	5	46,200 *
1 1/8-12UNF	P4	SYU18SSEEXJ	C(2.5P)	180	44	-	92	23	4	5	46,200 *
1 1/4-7UNC	P6	SYU20YUEEXJ	C(2.5P)	180	44	-	92	24	4	5	54,000 *
1 1/4-8UN	P5	SYU20XTEEXJ	C(2.5P)	180	44	-	92	24	4	5	54,000 *
1 1/4-12UNF	P4	SYU20SSEEXJ	C(2.5P)	180	44	-	92	24	4	5	54,000 *
1 3/8-6UNC	P6	SYU22ZUEEXJ	C(2.5P)	200	52	-	102	28	4	5	66,000 *
1 3/8-8UN	P5	SYU22XTEEXJ	C(2.5P)	200	52	-	102	28	4	5	66,000 *
1 3/8-12UNF	P4	SYU22SSEEXJ	C(2.5P)	200	52	-	102	28	4	5	66,000 *
1 1/2-6UNC	P6	SYU24ZUEEXJ	C(2.5P)	200	52	-	102	30	4	5	73,600 *
1 1/2-8UN	P5	SYU24XTEEXJ	C(2.5P)	200	52	-	102	30	4	5	73,600 *
1 1/2-12UNF	P4	SYU24SSEEXJ	C(2.5P)	200	52	-	102	30	4	5	73,600 *
1 3/4-5UNC	P6	SYU280UEEXJ	C(2.5P)	220	59	-	112	35	4	5	97,100 *
1 3/4-8UN	P5	SYU28XTEEXJ	C(2.5P)	220	59	-	112	35	4	5	97,100 *
1 3/4-12UN	P4	SYU28SSEEXJ	C(2.5P)	220	59	-	112	35	4	5	97,100 *
2-4 1/2UNC	P7	SYU329VEEXJ	C(2.5P)	250	73	-	128	40	4	5	141,000 *
2-8UN	P6	SYU32XUEEXJ	C(2.5P)	250	73	-	128	40	4	5	141,000 *
For Whitworth Threads											
1/8W40	P2	SYW02HQEEXJ	C(2.5P)	63	5	19	36	5	3	1	2,260 *
5/32W32	P3	SYW2HJREEXJ	C(2.5P)	63	7	20	36	5	3	1	1,820 *
3/16W24	P3	SYW03MREEXJ	C(2.5P)	70	9	23	40	5.5	3	1	1,830 *
1/4W20	P3	SYW04NREEXJ	C(2.5P)	80	11	30	45	6	3	1	2,030 *
5/16W18	P3	SYW05OREEXJ	C(2.5P)	90	19	-	46	6.2	3	3	2,960 *
3/8W16	P3	SYW06PREEXJ	C(2.5P)	100	23	-	51	7	3	3	3,790 *
7/16W14	P4	SYW07QSEEXJ	C(2.5P)	110	26	-	56	8.5	3	3	5,330 *
1/2W12	P4	SYW08SSEEXJ	C(2.5P)	110	26	-	56	10.5	3	3	5,650 *
5/8W11	P4	SYW10USEEXJ	C(2.5P)	110	26	-	56	12.5	3	3	8,790 *
3/4W10	P4	SYW12VSEEXJ	C(2.5P)	140	33	-	71	15	4	5	16,100 *
7/8W9	P4	SYW14WSEEXJ	C(2.5P)	140	33	-	71	17	4	5	23,500 *
1 W8	P4	SYW16XSEEXJ	C(2.5P)	160	37	-	82	19	4	5	35,900 *
1 1/4W7	P5	SYW20YTEEXJ	C(2.5P)	180	44	-	92	24	4	5	54,000 *
1 1/2W6	P5	SYW24ZTEEXJ	C(2.5P)	200	52	-	102	30	4	5	73,600 *

*Specific distribution product (Made-to-Order item)

Hybrid Value Spiral Fluted Taps for Steels for Left Hand Threads

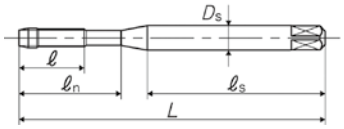
HVSP LH

HSS OX 2.5 LH Left hand

JIS

Dimensions and Sizes

TYPE:1



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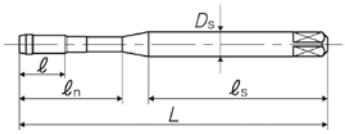

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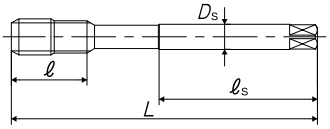

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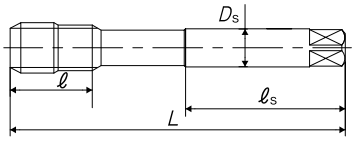


Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M2×0.4	P2	1116102021	C(2.5P)	45	8	15	27	3	2	1	3,730 *
M2.3×0.4	P2	1116102026	C(2.5P)	45	9	15	27	3	2	1	3,600 *
M2.5×0.45	P2	1116102029	C(2.5P)	50	8	15	32	3	2	1	3,040 *
M2.6×0.45	P2	1116102032	C(2.5P)	50	8	15	32	3	2	1	3,040 *
M3×0.5	P3	1116102035	C(2.5P)	56	9	18	32	4	3	1	2,010
M3×0.35	P3	1116102036	C(2.5P)	56	6.5	18	32	4	3	2	3,430 *
M4×0.7	P4	1116102042	C(2.5P)	63	13	21	36	5	3	1	2,010
M4×0.5	P4	1116102043	C(2.5P)	63	9	21	36	5	3	2	2,940 *
M5×0.8	P4	1116102049	C(2.5P)	70	14	25	40	5.5	3	1	2,030
M5×0.5	P4	1116102051	C(2.5P)	70	9	25	40	5.5	3	2	2,940 *
M6×1	P4	1116102055	C(2.5P)	80	15	30	45	6	3	1	2,310
M6×0.75	P4	1116102056	C(2.5P)	80	15	30	45	6	3	1	3,260 *
M6×0.5	P4	1116102057	C(2.5P)	80	9	30	45	6	3	2	3,260 *
M8×1.25	P4	1116102064	C(2.5P)	90	19	-	46	6.2	3	3	3,180
M8×1	P4	1116102065	C(2.5P)	90	19	-	46	6.2	3	3	3,620 *
M10×1.5	P4	1116102078	C(2.5P)	100	23	-	51	7	3	3	4,160
M10×1.25	P4	1116102079	C(2.5P)	100	23	-	51	7	3	3	4,160
M10×1	P4	1116102080	C(2.5P)	100	23	-	51	7	3	3	4,930 *
M12×1.75	P4	1116102088	C(2.5P)	110	26	-	56	8.5	3	3	5,600
M12×1.5	P4	1116102089	C(2.5P)	110	26	-	56	8.5	3	3	5,600 *
M12×1.25	P4	1116102090	C(2.5P)	110	26	-	56	8.5	3	3	5,600 *
M14×2	P4	1116102100	C(2.5P)	110	26	-	56	10.5	3	3	7,900 *
M14×1.5	P4	1116102102	C(2.5P)	110	26	-	56	10.5	3	3	7,900 *
M16×2	P4	1116102114	C(2.5P)	110	26	-	56	12.5	3	3	10,300
M16×1.5	P4	1116102116	C(2.5P)	110	26	-	56	12.5	3	3	10,300 *
M18×2.5	P5	1116102128	C(2.5P)	125	33	-	64	14	4	3	14,200 *
M18×1.5	P5	1116102130	C(2.5P)	125	33	-	64	14	4	3	14,200 *
M20×2.5	P5	1116102141	C(2.5P)	140	33	-	71	15	4	4	19,200
M20×1.5	P5	1116102144	C(2.5P)	140	33	-	71	15	4	4	19,200 *
M22×2.5	P5	1116102156	C(2.5P)	140	33	-	71	17	4	4	24,400 *
M22×1.5	P5	1116102158	C(2.5P)	140	33	-	71	17	4	4	24,400 *
M24×3	P5	1116102167	C(2.5P)	160	37	-	82	19	4	4	30,400
M24×1.5	P5	1116102170	C(2.5P)	160	37	-	82	19	4	4	30,400 *
For Unified Threads											
No.5-40UNC	P2	1116104021	C(2.5P)	63	5	19	36	5	3	1	2,370 *
No.5-44UNF	P2	1116104022	C(2.5P)	63	5	19	36	5	3	1	2,370 *
No.6-32UNC	P3	1116104023	C(2.5P)	63	7	19	36	5	3	1	2,370 *
No.6-40UNF	P3	1116104024	C(2.5P)	63	7	19	36	5	3	1	2,370 *
No.8-32UNC	P3	1116104029	C(2.5P)	70	7	23	40	5.5	3	1	2,380 *
No.8-36UNF	P3	1116104030	C(2.5P)	70	7	23	40	5.5	3	1	2,380 *
No.10-24UNC	P3	1116104039	C(2.5P)	70	9	24	40	5.5	3	1	2,380 *
No.10-32UNF	P3	1116104041	C(2.5P)	70	9	24	40	5.5	3	1	2,380 *
1/4-20UNC	P3	1116104058	C(2.5P)	80	11	30	45	6	3	1	2,640 *
1/4-28UNF	P3	1116104062	C(2.5P)	80	11	30	45	6	3	1	2,640 *

*Specific distribution product (Made-to-Order item)

Z-PRO Ultimate Machining Taps

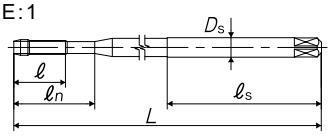
Hybrid Value Spiral Fluted Taps for Steels

HVSP Long Shank

HSS OX 2.5

Dimensions and Sizes

TYPE:1



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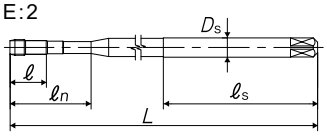

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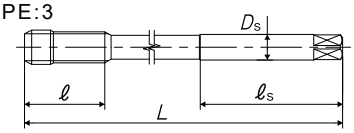

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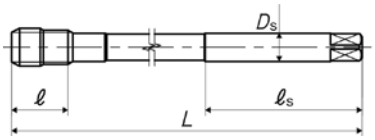
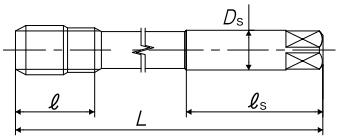


TYPE:5



Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M3×0.5	P3	SY3.0GREEXEJ	C(2.5P)	100	9	18	32	4	3	1	4,340
M3×0.35	P3	SY3.0DREEXEJ	C(2.5P)	100	6.5	18	32	4	3	2	7,660 *
M4×0.7	P4	SY4.0ISEEXEJ	C(2.5P)	100	11	21	36	5	3	1	3,920
M4×0.5	P4	SY4.0GSEEXEJ	C(2.5P)	100	9	21	36	5	3	2	5,940 *
M5×0.8	P4	SY5.0KSEEXEJ	C(2.5P)	100	13	25	40	5.5	3	1	3,250
M5×0.5	P4	SY5.0GSEEXEJ	C(2.5P)	100	9	25	40	5.5	3	2	4,880 *
M6×1	P4	SY6.0MSEEXEJ	C(2.5P)	100	15	30	45	6	3	1	2,900
M6×1	P4	SY6.0MSEEXGJ	C(2.5P)	150	15	30	45	6	3	1	5,320
M6×0.75	P4	SY6.0JSEEXEJ	C(2.5P)	100	15	30	45	6	3	1	4,090 *
M6×0.5	P4	SY6.0GSEEXEJ	C(2.5P)	100	9	30	45	6	3	2	4,090 *
M8×1.25	P4	SY8.0NSEEXGJ	C(2.5P)	150	19	-	46	6.2	3	3	6,810
M8×1	P4	SY8.0MSEEXGJ	C(2.5P)	150	19	-	46	6.2	3	3	7,740 *
M10×1.5	P4	SY010OSEEXGJ	C(2.5P)	150	23	-	51	7	3	3	8,020
M10×1.25	P4	SY010NSEEXGJ	C(2.5P)	150	23	-	51	7	3	3	8,020
M10×1	P4	SY010MSEEXGJ	C(2.5P)	150	23	-	51	7	3	3	9,510 *
M12×1.75	P4	SY012PSEEXGJ	C(2.5P)	150	26	-	56	8.5	3	3	9,600
M12×1.5	P4	SY012OSEEXGJ	C(2.5P)	150	26	-	56	8.5	3	3	9,600 *
M12×1.25	P4	SY012NSEEXGJ	C(2.5P)	150	26	-	56	8.5	3	3	9,600
M14×2	P4	SY014QSEEXGJ	C(2.5P)	150	26	-	56	10.5	3	3	11,900
M14×1.5	P4	SY014OSEEXGJ	C(2.5P)	150	26	-	56	10.5	3	3	11,900
M16×2	P4	SY016QSEEXGJ	C(2.5P)	150	26	-	56	12.5	3	3	13,200
M16×1.5	P4	SY016OSEEXGJ	C(2.5P)	150	26	-	56	12.5	3	3	13,200
M18×2.5	P5	SY018RTEEXKJ	C(2.5P)	200	33	-	64	14	4	3	22,300 *
M18×2	P5	SY018QTEEXKJ	C(2.5P)	200	33	-	64	14	4	3	22,300 *
M18×1.5	P5	SY018OTEEXKJ	C(2.5P)	200	33	-	64	14	4	3	22,300 *
M18×1	P4	SY018MSEEXKJ	C(2.5P)	200	18	-	64	14	4	4	28,900 *
M20×2.5	P5	SY020RTEEXKJ	C(2.5P)	200	33	-	71	15	4	5	30,200
M20×2	P5	SY020QTEEXKJ	C(2.5P)	200	33	-	71	15	4	5	30,200 *
M20×1.5	P5	SY020OTEEXKJ	C(2.5P)	200	33	-	71	15	4	5	30,200 *
M22×2.5	P5	SY022RTEEXKJ	C(2.5P)	200	33	-	71	17	4	5	31,400 *
M22×1.5	P5	SY022OTEEXKJ	C(2.5P)	200	33	-	71	17	4	5	31,400 *
M24×3	P5	SY024STEEXNJ	C(2.5P)	250	37	-	82	19	4	5	43,400 *
M24×1.5	P5	SY024OTEEXNJ	C(2.5P)	250	37	-	82	19	4	5	43,400 *
M27×3	P5	SY027STEEXNJ	C(2.5P)	250	37	-	82	20	4	5	52,100 *
M27×1.5	P5	SY027OTEEXNJ	C(2.5P)	250	37	-	82	20	4	5	52,100 *
M30×3.5	P6	SY030TUEEXNJ	C(2.5P)	250	44	-	92	23	4	5	66,200 *
M30×3	P6	SY030SUEEXNJ	C(2.5P)	250	44	-	92	23	4	5	66,200 *
M30×1.5	P6	SY030OUEEXNJ	C(2.5P)	250	44	-	92	23	4	5	66,200 *
M33×3.5	P6	SY033TUEEXNJ	C(2.5P)	250	46	-	92	25	4	5	77,200 *
M33×3	P6	SY033SUEEXNJ	C(2.5P)	250	46	-	92	25	4	5	77,200 *
M36×4	P6	SY036UUEEXQJ	C(2.5P)	300	52	-	102	28	4	5	89,000 *
M36×3	P6	SY036SUEEXQJ	C(2.5P)	300	52	-	102	28	4	5	89,000 *
M39×4	P6	SY039UUEEXQJ	C(2.5P)	300	52	-	102	30	4	5	102,000 *
M39×3	P6	SY039SUEEXQJ	C(2.5P)	300	52	-	102	30	4	5	102,000 *
M42×4.5	P6	SY042VUEEXQJ	C(2.5P)	300	59	-	102	32	4	5	125,000 *
M42×3	P6	SY042SUEEXQJ	C(2.5P)	300	59	-	102	32	4	5	125,000 *
M48×5	P6	SY048WUEEXQJ	C(2.5P)	300	65	-	128	38	4	5	182,000 *
M48×3	P6	SY048SUEEXQJ	C(2.5P)	300	65	-	128	38	4	5	182,000 *

*Specific distribution product (Made-to-Order item)

Z-PRO Ultimate Machining Taps

Hybrid Value Spiral Fluted Taps for Zinc Plating HVSP ZP

HSS OX 2.5

JIS

Product Features

- The standard line includes tap classes that are optimal for tapping internal threads before zinc plating.
- We developed 3 types of oversized taps in +0.1mm, +0.2mm, +0.3mm, which are in high market demand in certain applications.
- The specifications are based on HVSP (Hybrid Value Spiral Fluted Tap) and can be used with various workpiece materials and machines.
- Stable tapping without chipping is possible in both vertical and horizontal machining.

Applications

It is mainly used for tapping internal threads before plating to prevent rust and corrosion in applications such as road development, bridges, large structures, etc.

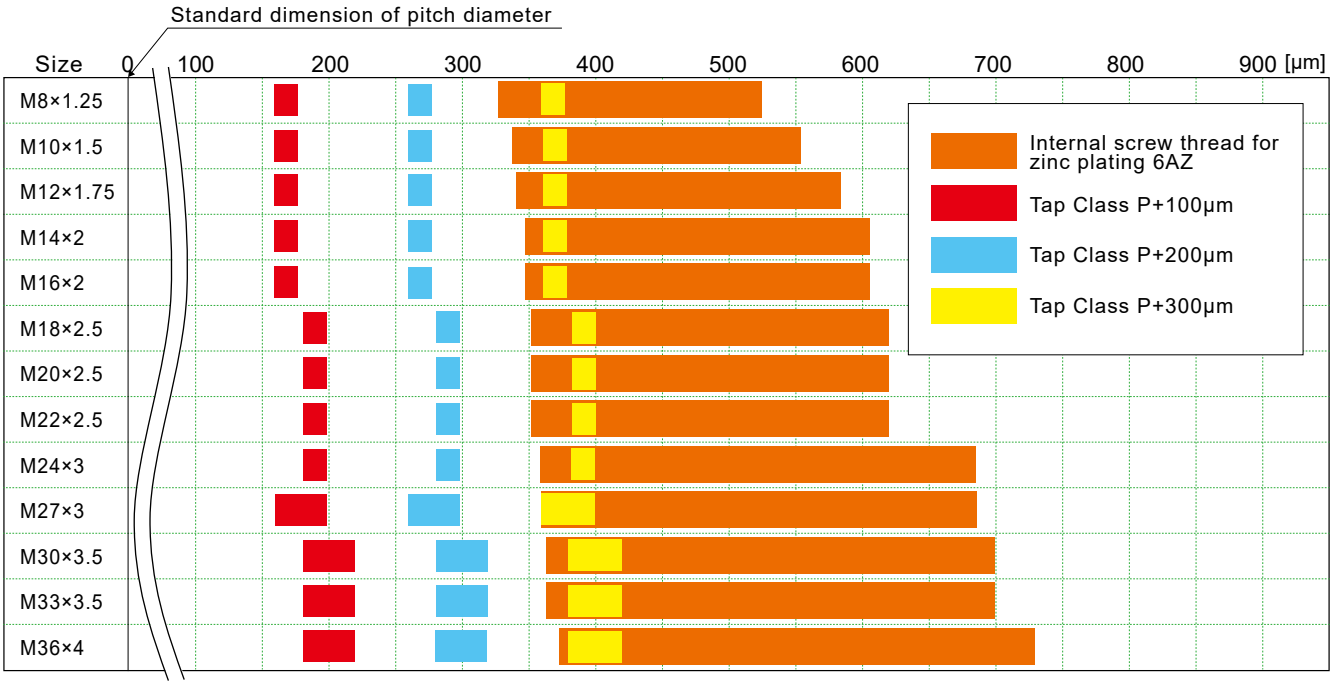


Workpiece materials and tapping speeds

Workpiece materials		Guideline for tapping speed(m/min)	
		M8~M16	M18~M36
Low Carbon Steels	~S20C/SS400	3~12	3~8
Medium Carbon Steels	S25C~S45C	3~12	3~8
High Carbon Steels	S45C~	3~12	3~8

Workpiece materials		Guideline for tapping speed(m/min)	
		M8~M16	M18~M36
Alloy Steels	SCM/SCr	3~12	3~8
Thermal Refined Steels	25~35HRC	3~10	3~8
Cast Steels	SC	3~12	3~8
Stainless Steels	SUS303/SUS304/SUS316	~5	~5

Pitch diameter tolerance range comparison table for tap and internal screw thread classes (for zinc plating)



*M8x1.25 was calculated using the dimensional tolerance formula, which is the basis for tolerance positions 6AZ specified in JIS B0209-5.

Explanation

- The graph above is a comparison between the allowable dimensional limits of the internal screw thread of tolerance class 6AZ per JIS B 0209-5". The allowable dimensional limits of internal threads to be mated with zinc plating external thread with a tolerance position of h before plating" and the class and pitch diameter of HVSP ZP tap.
- For example, if the nominal size is M10x1.5 and the tolerance class is 6AZ, you can use P4+300μm(P4+0.3mm).
- Because the plating thickness varies depending on the plating type and processing method, there are cases where the required internal thread diameter does not conform to the above standards. Therefore, HVSP ZP has P class +100 μm (+0.1 mm), P class +200 μm (+0.2 mm), P class +300 μm (+0.3 mm), which are highly requested by the market as standard.

Z-PRO Ultimate Machining Taps

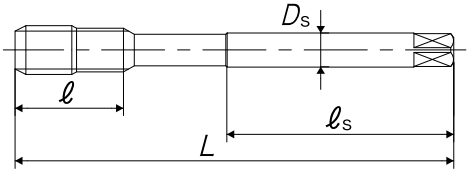
Hybrid Value Spiral Fluted Taps for Zinc Plating

HVSP ZP

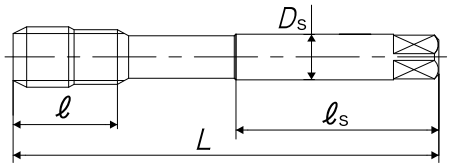
HSS OX 2.5

Dimensions and Sizes

TYPE:1

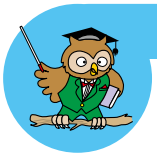


TYPE:2



In addition to our Hybrid Value Spiral Fluted Taps for steels, we have added oversized taps that are ideal for threading before zinc plating. They can be used pre-plating for the internal threads of building materials such as those used in roads, railroads, public transportation facilities, and bridges.

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M8×1.25	P4+0.1	1112201064	C(2.5P)	90	19	-	46	6.2	3	1	3,110
	P4+0.2	1112301064	C(2.5P)	90	19	-	46	6.2	3	1	3,110
	P4+0.3	1112401064	C(2.5P)	90	19	-	46	6.2	3	1	3,110
M10×1.5	P4+0.1	1112201078	C(2.5P)	100	23	-	51	7	3	1	4,070
	P4+0.2	1112301078	C(2.5P)	100	23	-	51	7	3	1	4,070
	P4+0.3	1112401078	C(2.5P)	100	23	-	51	7	3	1	4,070
M12×1.75	P4+0.1	1112201088	C(2.5P)	110	26	-	56	8.5	3	1	5,460
	P4+0.2	1112301088	C(2.5P)	110	26	-	56	8.5	3	1	5,460
	P4+0.3	1112401088	C(2.5P)	110	26	-	56	8.5	3	1	5,460
M14×2	P4+0.1	1112201100	C(2.5P)	110	26	-	56	10.5	3	1	7,480
	P4+0.2	1112301100	C(2.5P)	110	26	-	56	10.5	3	1	7,480
	P4+0.3	1112401100	C(2.5P)	110	26	-	56	10.5	3	1	7,480
M16×2	P4+0.1	1112201114	C(2.5P)	110	26	-	56	12.5	3	1	9,970
	P4+0.2	1112301114	C(2.5P)	110	26	-	56	12.5	3	1	9,970
	P4+0.3	1112401114	C(2.5P)	110	26	-	56	12.5	3	1	9,970
M18×2.5	P5+0.1	1112201128	C(2.5P)	125	33	-	64	14	4	1	13,400
	P5+0.2	1112301128	C(2.5P)	125	33	-	64	14	4	1	13,400
	P5+0.3	1112401128	C(2.5P)	125	33	-	64	14	4	1	13,400
M20×2.5	P5+0.1	1112201141	C(2.5P)	140	33	-	71	15	4	2	18,200
	P5+0.2	1112301141	C(2.5P)	140	33	-	71	15	4	2	18,200
	P5+0.3	1112401141	C(2.5P)	140	33	-	71	15	4	2	18,200
M22×2.5	P5+0.1	1112201156	C(2.5P)	140	33	-	71	17	4	2	23,000
	P5+0.2	1112301156	C(2.5P)	140	33	-	71	17	4	2	23,000
	P5+0.3	1112401156	C(2.5P)	140	33	-	71	17	4	2	23,000
M24×3	P5+0.1	1112201167	C(2.5P)	160	37	-	82	19	4	2	28,700
	P5+0.2	1112301167	C(2.5P)	160	37	-	82	19	4	2	28,700
	P5+0.3	1112401167	C(2.5P)	160	37	-	82	19	4	2	28,700
M27×3	P5+0.1	1112201186	C(2.5P)	160	37	-	82	20	4	2	40,700
	P5+0.2	1112301186	C(2.5P)	160	37	-	82	20	4	2	40,700
	P5+0.3	1112401186	C(2.5P)	160	37	-	82	20	4	2	40,700
M30×3.5	P6+0.1	1112201199	C(2.5P)	180	44	-	92	23	4	2	51,600
	P6+0.2	1112301199	C(2.5P)	180	44	-	92	23	4	2	51,600
	P6+0.3	1112401199	C(2.5P)	180	44	-	92	23	4	2	51,600
M33×3.5	P6+0.1	1112201211	C(2.5P)	180	46	-	92	25	4	2	60,100
	P6+0.2	1112301211	C(2.5P)	180	46	-	92	25	4	2	60,100
	P6+0.3	1112401211	C(2.5P)	180	46	-	92	25	4	2	60,100
M36×4	P6+0.1	1112201225	C(2.5P)	200	52	-	102	28	4	2	69,300
	P6+0.2	1112301225	C(2.5P)	200	52	-	102	28	4	2	69,300
	P6+0.3	1112401225	C(2.5P)	200	52	-	102	28	4	2	69,300



Advice: "Guideline for bored hole size"

[Bored Hole Size Guideline]

When threading before zinc plating, it is recommended to use a bored hole with a larger diameter by the plating thickness. Please refer to the attached materials and confirm final dimensions.

Unit: mm

Size	Oversized bored hole size for reference			Internal threads 6H Class minimum minor diameter
	Oversize + 0.1mm	Oversize + 0.2mm	Oversize + 0.3mm	
M8×1.25	6.95	7.05	7.15	6.647
M10×1.5	8.70	8.80	8.90	8.376
M12×1.75	10.5	10.6	10.7	10.106
M14×2	12.2	12.3	12.4	11.835
M16×2	14.2	14.3	14.4	13.835
M18×2.5	15.7	15.8	15.9	15.294
M20×2.5	17.7	17.8	17.9	17.294
M22×2.5	19.7	19.8	19.9	19.294
M24×3	21.2	21.3	21.4	20.752
M27×3	24.2	24.3	24.4	23.752
M30×3.5	26.7	26.8	26.9	26.211
M33×3.5	29.7	29.8	29.9	29.211
M36×4	32.2	32.3	32.4	31.670

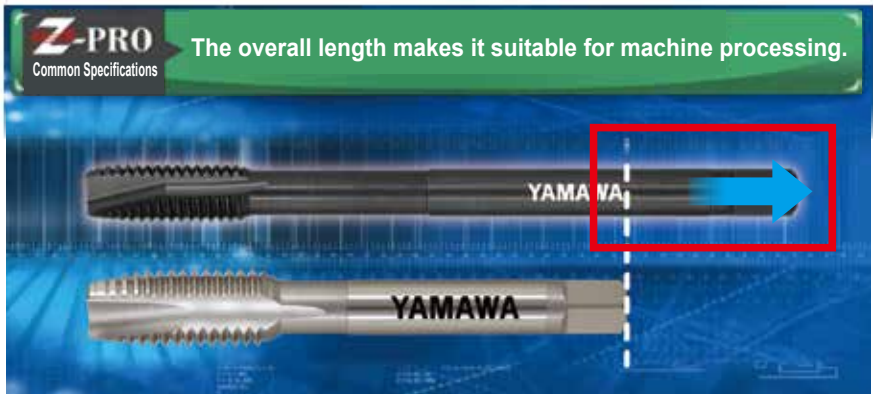
*The drill hole diameter before normal plating is twice(2t) the plating thickness (t).

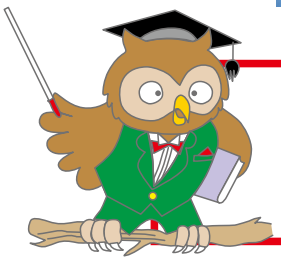
A new product line by YAMAWA

Z-PRO features

What are the most suitable tool specifications and shapes for machines?

Z-PRO is renowned for its "Tap Material" and "Surface Treatment", but its most significant feature is the "Semi-long Shape", which is suitable for machining.





Z-PRO improves chip evacuation for stable machining!
For trouble-free machining, the Z-PRO HV Series is recommended!

Conventional machining environment (Drilling machine, etc.)

General-purpose PO

Achieves stable machining in various machining environments from drilling machine to M/C!

Z-PRO HVPO

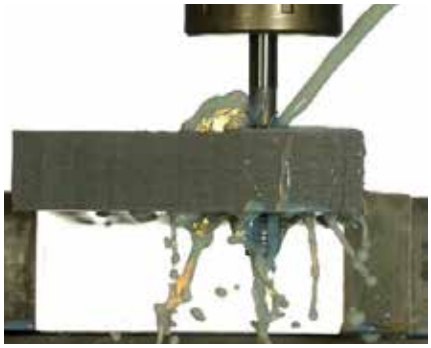
Advantages of using HVPO

A sufficient amount of cutting oil can be supplied thanks to the increased clearance between the holder and workpiece.

Extending life of tap+ reducing heat from tapping.

○Comparison photo of Z-PRO "HVPO" vs JIS standard "PO"

Z-PRO HVPO



PO (JIS standard length)

M12×1.75

Tapping length : 1.5D (effective thread)
Holding length : 31mm

Z-PRO Ultimate Machining Taps

Hybrid Value Spiral Pointed Taps for Steels HVPO

HSS OX <2D 5

Introduction Movie

JIS

▪Product Features

▪The unique flute shapes achieve excellent internal threads and longer tool life by improving chip evacuation and cutting resistance!

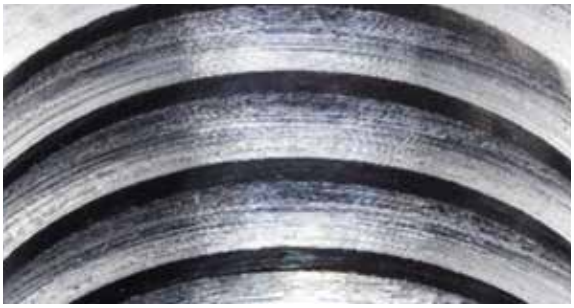
▪The longer overall length increases the clearance between the holder and workpiece, ensuring sufficient supply of cutting oil.

Tapping data

Tapping conditions: HVPO M12x1.75

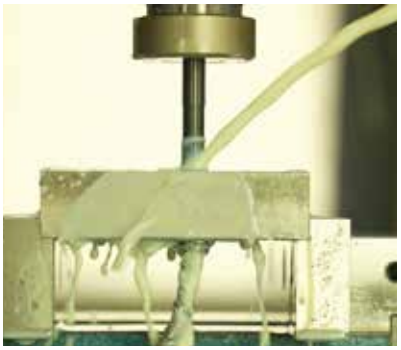
Workpiece material	SS400
Tapping Speed	10m/min
Tapping Length	24mm
Machine Type	Vertical MC
Tapping Fluid	Water soluble cutting fluid

Excellent internal threads



In SS400 tapping, an excellent internal thread surface can be obtained even using water-soluble cutting fluid.

Excellent machining conditions



Thanks to the unique flute shape and semi-long overall length of the tap, water-soluble cutting fluid is sufficiently supplied.

Excellent ejected chips

Workpiece materials and tapping speeds

Workpiece materials		Guideline for tapping speed (m/min)			
		M1.4~M2.6	M3~M5 No.6~No.12 W5/32~W7/32	M6~M16 U1/4~U5/8 W1/4~W5/8	M18~M36 U3/4~U7/8 W3/4~W7/8
Low Carbon Steels	~S20C/SS400	1~7	3~9	3~12	3~8
Medium Carbon Steels	S25C~S45C	1~7	3~9	3~12	3~8
High Carbon Steels	S45C~	1~7	3~9	3~12	3~8
Alloy Steels	SCM/SCr	1~7	3~9	3~12	3~8
Thermal Refined Steels	25~35HRC	–	–	3~10	3~8
Cast Steels	SC	1~7	3~9	3~12	3~8
Stainless Steels	SUS303/SUS304	~3	~5	~5	~5

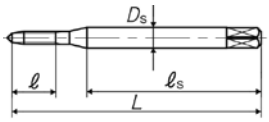
Z-PRO Ultimate Machining Taps

Hybrid Value Spiral Pointed Taps for Steels HVPO

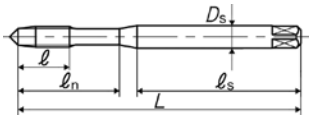
HSS OX <2D 5

Dimensions and Sizes

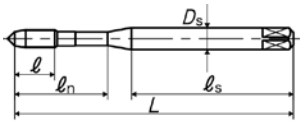
TYPE:1



TYPE:2



TYPE:3



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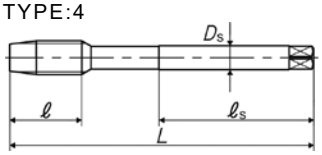
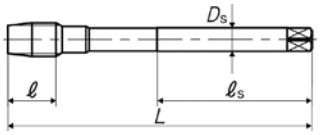
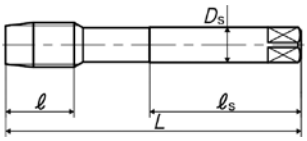


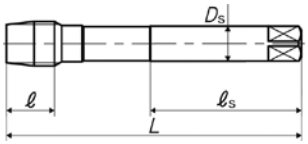
TYPE:5



TYPE:6



TYPE:7



Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M1.4×0.3	P1	1113101007	5P	40	7	-	27	3	2	1	4,050
M1.6×0.35	P2	1113101010	5P	40	8	-	27	3	2	1	3,870
M1.7×0.35	P2	1113101014	5P	40	8	-	27	3	2	1	3,870
M1.8×0.35	P2	1113101017	5P	40	8	-	27	3	2	1	3,870 *
M2×0.4	P2	1113101021	5P	45	8	15	27	3	2	2	2,660
M2.2×0.45	P2	1113101024	5P	45	9	15	27	3	2	2	2,570
M2.3×0.4	P2	1113101026	5P	45	9	15	27	3	2	2	2,570
M2.5×0.45	P2	1113101029	5P	50	8	15	32	3	2	2	2,170
M2.6×0.45	P2	1113101032	5P	50	8	15	32	3	2	2	2,170
M3×0.5	P3	1113101035	5P	56	9	18	32	4	3	2	1,400
M3×0.5	P4	1113201035	5P	56	9	18	32	4	3	2	1,400
3M0.6	P3	1113101034	5P	56	9	18	32	4	3	2	1,450 *
M3×0.35	P2	1113101036	5P	56	6.5	18	32	4	3	3	2,470
M3.5×0.6	P2	1113101038	5P	63	13	20	36	5	3	2	1,450
M3.5×0.6	P3	1113201038	5P	63	13	20	36	5	3	2	1,450 *
M4×0.7	P3	1113101042	5P	63	13	21	36	5	3	2	1,400
M4×0.7	P4	1113201042	5P	63	13	21	36	5	3	2	1,400
4M0.75	P3	1113101041	5P	63	13	21	36	5	3	2	1,450
M4×0.5	P3	1113101043	5P	63	9	21	36	5	3	3	2,120
M4.5×0.5	P3	1113101046	5P	70	9	24	40	5.5	3	3	2,120 *
M5×0.8	P3	1113101049	5P	70	14	25	40	5.5	3	2	1,410
M5×0.8	P4	1113201049	5P	70	14	25	40	5.5	3	2	1,410
5M0.9	P3	1113101048	5P	70	14	25	40	5.5	3	2	1,530 *
M5×0.5	P3	1113101051	5P	70	9	25	40	5.5	3	3	2,120
M6×1	P3	1113101055	5P	80	15	30	45	6	3	2	1,610
M6×1	P4	1113201055	5P	80	15	30	45	6	3	2	1,610
M6×0.75	P3	1113101056	5P	80	15	30	45	6	3	2	2,270
M6×0.5	P3	1113101057	5P	80	9	30	45	6	3	3	2,270
M7×1	P3	1113101060	5P	90	15	-	46	6.2	3	4	1,980
M7×1	P4	1113201060	5P	90	15	-	46	6.2	3	4	1,980 *
M7×0.75	P3	1113101061	5P	90	15	-	46	6.2	3	4	2,930 *
M7×0.5	P3	1113101062	5P	90	10	-	46	6.2	3	5	3,650 *
M8×1.25	P3	1113101064	5P	90	19	-	46	6.2	3	4	2,270
M8×1.25	P4	1113201064	5P	90	19	-	46	6.2	3	4	2,270
M8×1	P3	1113101065	5P	90	19	-	46	6.2	3	4	2,580
M8×1	P4	1113201065	5P	90	19	-	46	6.2	3	4	2,580 *
M8×0.75	P3	1113101066	5P	90	19	-	46	6.2	3	4	2,930 *
M8×0.75	P4	1113201066	5P	90	19	-	46	6.2	3	4	2,930 *

Oversize

*Specific distribution product (Made-to-Order item)

Dimensions and Sizes

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M8×0.5	P3	1113101067	5P	90	10	-	46	6.2	3	5	3,650 *
M8×0.5	P4	1113201067	5P	90	10	-	46	6.2	3	5	3,650 *
M9×1	P3	1113101072	5P	100	23	-	51	7	3	4	3,520 *
M9×1	P4	1113201072	5P	100	23	-	51	7	3	4	3,520 *
M10×1.5	P4	1113101078	5P	100	23	-	51	7	3	4	2,970
M10×1.5	P5	1113201078	5P	100	23	-	51	7	3	4	2,970
M10×1.25	P3	1113101079	5P	100	23	-	51	7	3	4	2,970
M10×1.25	P4	1113201079	5P	100	23	-	51	7	3	4	2,970 *
M10×1	P3	1113101080	5P	100	23	-	51	7	3	4	3,520
M10×1	P4	1113201080	5P	100	23	-	51	7	3	4	3,520 *
M12×1.75	P4	1113101088	5P	110	26	-	56	8.5	3	4	4,000
M12×1.75	P5	1113201088	5P	110	26	-	56	8.5	3	4	4,000
M12×1.5	P4	1113101089	5P	110	26	-	56	8.5	3	4	4,000
M12×1.5	P5	1113201089	5P	110	26	-	56	8.5	3	4	4,000 *
M12×1.25	P4	1113101090	5P	110	26	-	56	8.5	3	4	4,000
M12×1.25	P5	1113201090	5P	110	26	-	56	8.5	3	4	4,000 *
M12×1	P4	1113101091	5P	110	26	-	56	8.5	3	4	4,860
M12×1	P5	1113201091	5P	110	26	-	56	8.5	3	4	4,860 *
M14×2	P4	1113101100	5P	110	26	-	56	10.5	3	4	5,640
M14×2	P5	1113201100	5P	110	26	-	56	10.5	3	4	5,640 *
M14×1.5	P4	1113101102	5P	110	26	-	56	10.5	3	4	5,640
M14×1.5	P5	1113201102	5P	110	26	-	56	10.5	3	4	5,640
M14×1.25	P4	1113101103	5P	110	26	-	56	10.5	3	4	6,560
M14×1.25	P5	1113201103	5P	110	26	-	56	10.5	3	4	6,560 *
M14×1	P4	1113101104	5P	110	26	-	56	10.5	3	4	6,560
M14×1	P5	1113201104	5P	110	26	-	56	10.5	3	4	6,560 *
M16×2	P4	1113101114	5P	110	26	-	56	12.5	3	4	7,300
M16×2	P5	1113201114	5P	110	26	-	56	12.5	3	4	7,300
M16×1.5	P4	1113101116	5P	110	26	-	56	12.5	3	4	7,300
M16×1.5	P5	1113201116	5P	110	26	-	56	12.5	3	4	7,300 *
M16×1.25	P4	1113101117	5P	110	26	-	56	12.5	3	4	9,260
M16×1.25	P5	1113201117	5P	110	26	-	56	12.5	3	4	9,260 *
M16×1	P4	1113101118	5P	110	26	-	56	12.5	3	4	9,260
M16×1	P5	1113201118	5P	110	26	-	56	12.5	3	4	9,260 *
M18×2.5	P5	1113101128	5P	125	33	-	64	14	3	4	10,100
M18×2.5	P6	1113201128	5P	125	33	-	64	14	3	4	10,100 *
M18×2	P5	1113101129	5P	125	33	-	64	14	3	4	10,100
M18×2	P6	1113201129	5P	125	33	-	64	14	3	4	10,100 *
M18×1.5	P4	1113101130	5P	125	33	-	64	14	3	4	10,100
M18×1.5	P5	1113201130	5P	125	33	-	64	14	3	4	10,100 *
M18×1	P4	1113101132	5P	125	18	-	64	14	3	5	13,100
M18×1	P5	1113201132	5P	125	18	-	64	14	3	5	13,100 *
M20×2.5	P5	1113101141	5P	140	33	-	71	15	3	6	13,700
M20×2.5	P6	1113201141	5P	140	33	-	71	15	3	6	13,700 *
M20×2	P5	1113101142	5P	140	33	-	71	15	3	6	13,700
M20×2	P6	1113201142	5P	140	33	-	71	15	3	6	13,700 *

Oversize

*Specific distribution product (Made-to-Order item)

Z-PRO Ultimate Machining Taps

Hybrid Value Spiral Pointed Taps for Steels HVPO

HSS OX <2D 5

Dimensions and Sizes

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M20×1.5	P4	1113101144	5P	140	33	-	71	15	3	6	13,700
M20×1.5	P5	1113201144	5P	140	33	-	71	15	3	6	13,700 *
M20×1	P4	1113101146	5P	140	18	-	71	15	3	7	17,400
M20×1	P5	1113201146	5P	140	18	-	71	15	3	7	17,400 *
M22×2.5	P5	1113101156	5P	140	33	-	71	17	3	6	17,400
M22×2.5	P6	1113201156	5P	140	33	-	71	17	3	6	17,400 *
M22×2	P5	1113101157	5P	140	33	-	71	17	3	6	17,400
M22×2	P6	1113201157	5P	140	33	-	71	17	3	6	17,400 *
M22×1.5	P4	1113101158	5P	140	33	-	71	17	3	6	17,400
M22×1.5	P5	1113201158	5P	140	33	-	71	17	3	6	17,400 *
M24×3	P5	1113101167	5P	160	37	-	82	19	3	6	21,700
M24×3	P6	1113201167	5P	160	37	-	82	19	3	6	21,700 *
M24×2	P5	1113101169	5P	160	37	-	82	19	3	6	21,700
M24×2	P6	1113201169	5P	160	37	-	82	19	3	6	21,700 *
M24×1.5	P4	1113101170	5P	160	37	-	82	19	3	6	21,700
M24×1.5	P5	1113201170	5P	160	37	-	82	19	3	6	21,700 *
M25×1.5	P4	1113101177	5P	160	37	-	82	19	3	6	28,600
M25×1.5	P5	1113201177	5P	160	37	-	82	19	3	6	28,600 *
M26×3	P5	1113101181	5P	160	37	-	82	20	4	6	30,600 *
M27×3	P5	1113101186	5P	160	37	-	82	20	4	6	30,600
M27×2	P5	1113101187	5P	160	37	-	82	20	4	6	30,600
M27×1.5	P4	1113101188	5P	160	37	-	82	20	4	6	30,600
M28×1.5	P4	1113101194	5P	180	44	-	92	23	4	6	38,900
M30×3.5	P5	1113101199	5P	180	44	-	92	23	4	6	38,900
M30×3	P6	1113101200	5P	180	44	-	92	23	4	6	38,900
M30×2	P5	1113101201	5P	180	44	-	92	23	4	6	38,900
M30×1.5	P4	1113101202	5P	180	44	-	92	23	4	6	38,900
M32×2	P5	1113101207	5P	180	44	-	92	24	4	6	45,400
M32×1.5	P4	1113101208	5P	180	44	-	92	24	4	6	45,400
M33×3.5	P5	1113101211	5P	180	46	-	92	25	4	6	45,400
M33×3	P6	1113101212	5P	180	46	-	92	25	4	6	45,400
M33×2	P5	1113101213	5P	180	46	-	92	25	4	6	45,400
M33×1.5	P4	1113101214	5P	180	46	-	92	25	4	6	45,400
M35×2	P5	1113101221	5P	200	52	-	102	28	4	6	52,300
M35×1.5	P4	1113101222	5P	200	26	-	102	28	4	7	52,300
M36×4	P6	1113101225	5P	200	52	-	102	28	4	6	52,300
M36×3	P6	1113101226	5P	200	52	-	102	28	4	6	52,300
M36×2	P5	1113101227	5P	200	52	-	102	28	4	6	52,300
M36×1.5	P4	1113101228	5P	200	26	-	102	28	4	7	52,300
M39×4	P6	1113101240	5P	200	52	-	102	30	4	6	60,000
M39×3	P6	1113101241	5P	200	52	-	102	30	4	6	60,000
M42×4.5	P6	1113101250	5P	200	59	-	102	32	4	6	73,000
M42×3	P6	1113101252	5P	200	59	-	102	32	4	6	73,000
M45×4.5	P6	1113101261	5P	220	59	-	112	35	4	6	84,500
M48×5	P6	1113101271	5P	250	65	-	128	38	4	6	107,000
M48×3	P6	1113101274	5P	250	65	-	128	38	4	6	107,000

Oversize

*Specific distribution product (Made-to-Order item)

Hybrid Value Spiral Pointed Taps for Steels HVPO

HSS OX <2D 5

JIS

Dimensions and Sizes

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Unified Threads											
No.6-32UNC	P2	1113103023	5P	63	13	19	36	5	2	2	1,820 *
No.6-32UNC	P3	1113203023	5P	63	13	19	36	5	2	2	1,820 *
No.6-40UNF	P2	1113103024	5P	63	13	19	36	5	2	2	1,820 *
No.6-40UNF	P3	1113203024	5P	63	13	19	36	5	2	2	1,820 *
No.8-32UNC	P2	1113103029	5P	70	14	23	40	5.5	2	2	1,830 *
No.8-32UNC	P3	1113203029	5P	70	14	23	40	5.5	2	2	1,830 *
No.8-36UNF	P2	1113103030	5P	70	14	23	40	5.5	2	2	1,830 *
No.8-36UNF	P3	1113203030	5P	70	14	23	40	5.5	2	2	1,830 *
No.10-24UNC	P2	1113103039	5P	70	14	24	40	5.5	2	2	1,830 *
No.10-24UNC	P3	1113203039	5P	70	14	24	40	5.5	2	2	1,830 *
No.10-32UNF	P2	1113103041	5P	70	14	24	40	5.5	2	2	1,830 *
No.10-32UNF	P3	1113203041	5P	70	14	24	40	5.5	2	2	1,830 *
No.12-24UNC	P2	1113103047	5P	80	15	28	45	6	2	2	2,030 *
No.12-24UNC	P3	1113203047	5P	80	15	28	45	6	2	2	2,030 *
No.12-28UNF	P2	1113103048	5P	80	15	28	45	6	2	2	2,030 *
No.12-28UNF	P3	1113203048	5P	80	15	28	45	6	2	2	2,030 *
1/4-20UNC	P2	1113103058	5P	80	15	30	45	6	3	2	2,030 *
1/4-20UNC	P3	1113203058	5P	80	15	30	45	6	3	2	2,030 *
1/4-28UNF	P2	1113103062	5P	80	15	30	45	6	3	2	2,030 *
1/4-28UNF	P3	1113203062	5P	80	15	30	45	6	3	2	2,030 *
5/16-18UNC	P3	1113103071	5P	90	19	-	46	6.2	3	4	2,960 *
5/16-18UNC	P4	1113203071	5P	90	19	-	46	6.2	3	4	2,960 *
5/16-24UNF	P3	1113103074	5P	90	19	-	46	6.2	3	4	2,960 *
3/8-16UNC	P3	1113103082	5P	100	23	-	51	7	3	4	3,790 *
3/8-16UNC	P4	1113203082	5P	100	23	-	51	7	3	4	3,790 *
3/8-24UNF	P3	1113103085	5P	100	23	-	51	7	3	4	3,790 *
7/16-14UNC	P3	1113103098	5P	110	26	-	56	8.5	3	4	5,330 *
7/16-14UNC	P4	1113203098	5P	110	26	-	56	8.5	3	4	5,330 *
7/16-20UNF	P3	1113103101	5P	110	26	-	56	8.5	3	4	5,330 *
1/2-13UNC	P3	1113103111	5P	110	26	-	56	10.5	3	4	5,650 *
1/2-13UNC	P4	1113203111	5P	110	26	-	56	10.5	3	4	5,650 *
1/2-20UNF	P4	1113103115	5P	110	26	-	56	10.5	3	4	5,650 *
9/16-12UNC	P3	1113103126	5P	110	26	-	56	12.5	3	4	8,790 *
9/16-12UNC	P4	1113203126	5P	110	26	-	56	12.5	3	4	8,790 *
9/16-18UNF	P4	1113103129	5P	110	26	-	56	12.5	3	4	8,790 *
5/8-11UNC	P4	1113103138	5P	110	26	-	56	12.5	3	4	8,790 *
5/8-11UNC	P5	1113203138	5P	110	26	-	56	12.5	3	4	8,790 *
5/8-18UNF	P4	1113103142	5P	110	26	-	56	12.5	3	4	8,790 *
3/4-10UNC	P4	1113103161	5P	140	33	-	71	15	3	6	16,100 *
3/4-10UNC	P5	1113203161	5P	140	33	-	71	15	3	6	16,100 *
3/4-16UNF	P4	1113103164	5P	140	33	-	71	15	3	6	16,100 *
7/8-9UNC	P5	1113103181	5P	140	33	-	71	17	3	6	23,500 *
7/8-14UNF	P4	1113103184	5P	140	33	-	71	17	3	6	23,500 *
For Whitworth Threads											
5/32W32	P2	1113105028	5P	63	13	20	36	5	2	2	1,820 *
3/16W24	P3	1113105034	5P	70	14	23	40	5.5	2	2	1,830 *
1/4W20	P3	1113105058	5P	80	15	30	45	6	3	2	2,030 *
5/16W18	P3	1113105071	5P	90	19	-	46	6.2	3	4	2,960 *
3/8W16	P4	1113105082	5P	100	23	-	51	7	3	4	3,790 *
7/16W14	P4	1113105098	5P	110	26	-	56	8.5	3	4	5,330 *
1/2W12	P4	1113105110	5P	110	26	-	56	10.5	3	4	5,650 *
5/8W11	P4	1113105138	5P	110	26	-	56	12.5	3	4	8,790 *
3/4W10	P4	1113105161	5P	140	33	-	71	15	3	6	16,100 *
7/8W9	P5	1113105181	5P	140	33	-	71	17	3	6	23,500 *

Oversize

*Specific distribution product (Made-to-Order item)

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Z-PRO Ultimate Machining Taps

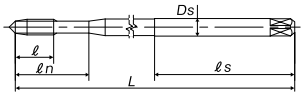
Hybrid Value Spiral Pointed Taps for Steels

HVPO Long Shank

HSS OX <2D 5

Dimensions and Sizes

TYPE:1



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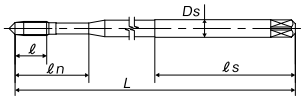

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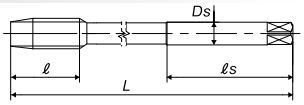

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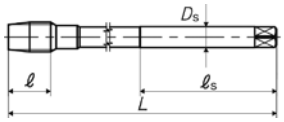

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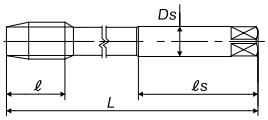


Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M3×0.5	P3	2113101035	5P	100	9	18	32	4	3	1	4,340
M3×0.35	P2	2113101036	5P	100	6.5	18	32	4	3	2	7,660 *
M4×0.7	P3	2113101042	5P	100	11	21	36	5	3	1	3,920
M4×0.5	P3	2113101043	5P	100	9	21	36	5	3	2	5,940 *
M5×0.8	P3	2113101049	5P	100	13	25	40	5.5	3	1	3,250
M5×0.5	P3	2113101051	5P	100	9	25	40	5.5	3	2	4,880 *
M6×1	P3	2113101055	5P	100	15	30	45	6	3	1	2,900
M6×1	P3	2313101055	5P	150	15	30	45	6	3	1	5,320
M6×0.75	P3	2113101056	5P	100	15	30	45	6	3	1	4,090 *
M6×0.5	P3	2113101057	5P	100	9	30	45	6	3	2	4,090 *
M8×1.25	P3	2113101064	5P	150	19	-	46	6.2	3	3	6,810
M8×1	P3	2113101065	5P	150	19	-	46	6.2	3	3	7,740 *
M10×1.5	P4	2113101078	5P	150	23	-	51	7	3	3	8,020
M10×1.25	P3	2113101079	5P	150	23	-	51	7	3	3	8,020
M10×1	P3	2113101080	5P	150	23	-	51	7	3	3	9,510 *
M12×1.75	P4	2113101088	5P	150	26	-	56	8.5	3	3	9,600
M12×1.5	P4	2113101089	5P	150	26	-	56	8.5	3	3	9,600 *
M12×1.25	P4	2113101090	5P	150	26	-	56	8.5	3	3	9,600
M14×2	P4	2113101100	5P	150	26	-	56	10.5	3	3	11,900
M14×1.5	P4	2113101102	5P	150	26	-	56	10.5	3	3	11,900
M16×2	P4	2113101114	5P	150	26	-	56	12.5	3	3	13,200
M16×1.5	P4	2113101116	5P	150	26	-	56	12.5	3	3	13,200
M18×2.5	P5	2113101128	5P	200	33	-	64	14	3	3	22,300 *
M18×2	P5	2113101129	5P	200	33	-	64	14	3	3	22,300 *
M18×1.5	P4	2113101130	5P	200	33	-	64	14	3	3	22,300 *
M18×1	P4	2113101132	5P	200	18	-	64	14	3	4	28,900 *
M20×2.5	P5	2113101141	5P	200	33	-	71	15	3	5	30,200
M20×2	P5	2113101142	5P	200	33	-	71	15	3	5	30,200 *
M20×1.5	P4	2113101144	5P	200	33	-	71	15	3	5	30,200 *
M22×2.5	P5	2113101156	5P	200	33	-	71	17	3	5	31,400 *
M22×1.5	P4	2113101158	5P	200	33	-	71	17	3	5	31,400 *
M24×3	P5	2113101167	5P	250	37	-	82	19	3	5	43,400 *
M24×1.5	P4	2113101170	5P	250	37	-	82	19	3	5	43,400 *
M27×3	P5	2113101186	5P	250	37	-	82	20	4	5	52,100 *
M27×1.5	P4	2113101188	5P	250	37	-	82	20	4	5	52,100 *
M30×3.5	P5	2113101199	5P	250	44	-	92	23	4	5	66,200 *
M30×3	P6	2113101200	5P	250	44	-	92	23	4	5	66,200 *
M30×1.5	P4	2113101202	5P	250	44	-	92	23	4	5	66,200 *
M33×3.5	P5	2113101211	5P	250	46	-	92	25	4	5	77,200 *
M33×3	P6	2113101212	5P	250	46	-	92	25	4	5	77,200 *
M36×4	P6	2113101225	5P	300	52	-	102	28	4	5	89,000 *
M36×3	P6	2113101226	5P	300	52	-	102	28	4	5	89,000 *
M39×4	P6	2113101240	5P	300	52	-	102	30	4	5	102,000 *
M39×3	P6	2113101241	5P	300	52	-	102	30	4	5	102,000 *
M42×4.5	P6	2113101250	5P	300	59	-	102	32	4	5	125,000 *
M42×3	P6	2113101252	5P	300	59	-	102	32	4	5	125,000 *
M48×5	P6	2113101271	5P	300	65	-	128	38	4	5	182,000 *
M48×3	P6	2113101274	5P	300	65	-	128	38	4	5	182,000 *

*Specific distribution product (Made-to-Order item)

Hybrid Value Spiral Pointed Taps for Zinc Plating HVPO ZP

HSS OX <2D 5

JIS

Product Features

- The standard line includes tap classes that are optimal for tapping internal screw threads before zinc plating.
- We developed 3 types of oversized taps in +0.1mm, +0.2mm, +0.3mm, which are in high market demand in certain applications.
- The specifications are based on HVPO (Hybrid Value Spiral Pointed Tap) and can be used with various workpiece materials and machines.
- Stable tapping without chipping is possible in both vertical and horizontal machining.

Applications

It is mainly used for tapping internal screw threads before plating to prevent rust and corrosion in applications such as road development, bridges, large structures, etc.
For internal screw thread tapping with a large plating thickness in zinc plating.

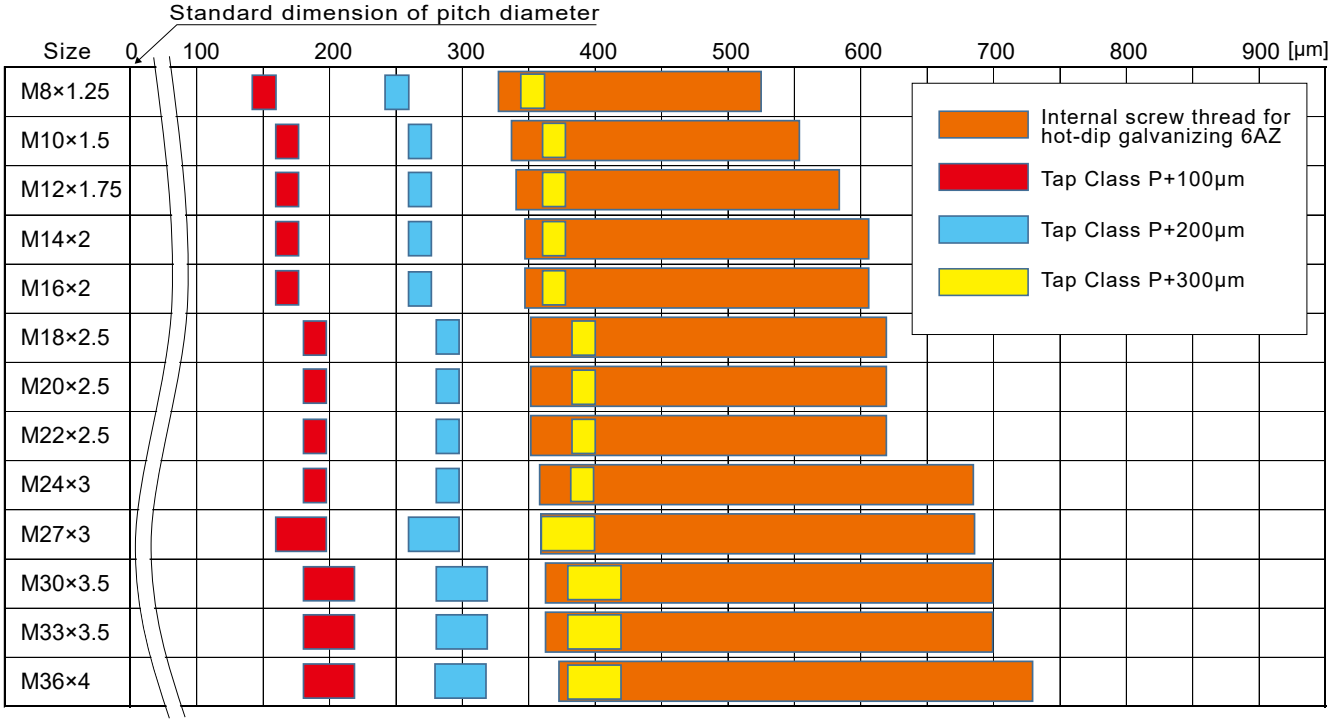


Workpiece materials and tapping speeds

Workpiece materials		Guideline for tapping speed(m/min)	
		M8~M16	M18~M36
Low Carbon Steels	~S20C/SS400	3~12	3~8
Medium Carbon Steels	S25C~S45C	3~12	3~8
High Carbon Steels	S45C~	3~12	3~8

Workpiece materials		Guideline for tapping speed(m/min)	
		M8~M16	M18~M36
Alloy Steels	SCM/SCr	3~12	3~8
Thermal Refined Steels	25~35HRC	3~10	3~8
Cast Steels	SC	3~12	3~8
Stainless Steels	SUS303/SUS304/SUS316	~5	~5

Pitch diameter tolerance range comparison table for tap and internal screw thread classes (for hot-dip galvanizing)



*M8x1.25 was calculated using the dimensional tolerance formula, which is the basis for tolerance positions 6AZ and 6AX specified in JIS B0209-5.

"Explanation"

- The graph above is a comparison between the allowable dimensional limits of the internal screw thread of tolerance class 6AZ per JIS B 0209-5.""The allowable dimensional limits of internal screw threads to be mated with hot-dip galvanized external screw thread with a tolerance position of h before plating"" and the class and pitch diameter of HVPO ZP tap.
- For example, if the nominal size is M10x1.5 and the tolerance class is 6AZ, you can use P4+300μm (P4+0.3mm).
- Because the plating thickness varies depending on the plating type and processing method, there are cases where the required internal screw thread diameter does not conform to the above standards. Therefore, HVPO ZP has P class +100μm (+0.1 mm), P class +200 μm (+0.2 mm), P class +300 μm (+0.3 mm), which are highly requested by the market, as standard.

Z-PRO Ultimate Machining Taps

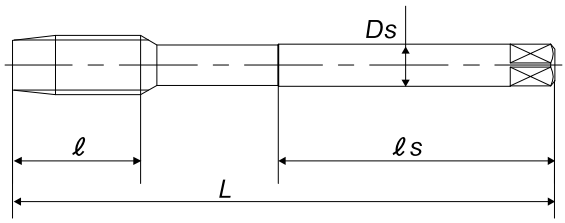
Hybrid Value Spiral Pointed Taps for Zinc Plating

HVPO ZP

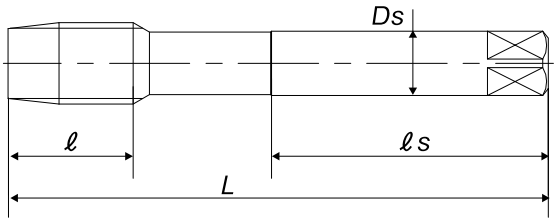
HSS OX <2D 5

Dimensions and Sizes

TYPE:1

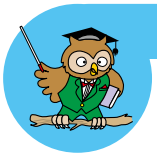


TYPE:2



In addition to our Hybrid Value Spiral Pointed Taps for steels, we have added oversized taps that are ideal for threading before zinc plating. They can be used pre-plating for the internal screw threads of building materials such as those used in roads, railroads, public transportation facilities, and bridges.

Size	Class	Code	Chamfer	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	No. of flutes	TYPE	MSRP(JPY)
For Metric Threads											
M8×1.25	P3+0.1	1122201064	5P	90	19	-	46	6.2	3	1	3,110
M8×1.25	P3+0.2	1122301064	5P	90	19	-	46	6.2	3	1	3,110
M8×1.25	P3+0.3	1122401064	5P	90	19	-	46	6.2	3	1	3,110
M10×1.5	P4+0.1	1122201078	5P	100	23	-	51	7	3	1	4,070
M10×1.5	P4+0.2	1122301078	5P	100	23	-	51	7	3	1	4,070
M10×1.5	P4+0.3	1122401078	5P	100	23	-	51	7	3	1	4,070
M12×1.75	P4+0.1	1122201088	5P	110	26	-	56	8.5	3	1	5,460
M12×1.75	P4+0.2	1122301088	5P	110	26	-	56	8.5	3	1	5,460
M12×1.75	P4+0.3	1122401088	5P	110	26	-	56	8.5	3	1	5,460
M14×2	P4+0.1	1122201100	5P	110	26	-	56	10.5	3	1	7,480
M14×2	P4+0.2	1122301100	5P	110	26	-	56	10.5	3	1	7,480
M14×2	P4+0.3	1122401100	5P	110	26	-	56	10.5	3	1	7,480
M16×2	P4+0.1	1122201114	5P	110	26	-	56	12.5	3	1	9,970
M16×2	P4+0.2	1122301114	5P	110	26	-	56	12.5	3	1	9,970
M16×2	P4+0.3	1122401114	5P	110	26	-	56	12.5	3	1	9,970
M18×2.5	P5+0.1	1122201128	5P	125	33	-	64	14	3	1	13,400
M18×2.5	P5+0.2	1122301128	5P	125	33	-	64	14	3	1	13,400
M18×2.5	P5+0.3	1122401128	5P	125	33	-	64	14	3	1	13,400
M20×2.5	P5+0.1	1122201141	5P	140	33	-	71	15	3	2	18,200
M20×2.5	P5+0.2	1122301141	5P	140	33	-	71	15	3	2	18,200
M20×2.5	P5+0.3	1122401141	5P	140	33	-	71	15	3	2	18,200
M22×2.5	P5+0.1	1122201156	5P	140	33	-	71	17	3	2	23,000
M22×2.5	P5+0.2	1122301156	5P	140	33	-	71	17	3	2	23,000
M22×2.5	P5+0.3	1122401156	5P	140	33	-	71	17	3	2	23,000
M24×3	P5+0.1	1122201167	5P	160	37	-	82	19	3	2	28,700
M24×3	P5+0.2	1122301167	5P	160	37	-	82	19	3	2	28,700
M24×3	P5+0.3	1122401167	5P	160	37	-	82	19	3	2	28,700
M27×3	P5+0.1	1122201186	5P	160	37	-	82	20	4	2	40,700
M27×3	P5+0.2	1122301186	5P	160	37	-	82	20	4	2	40,700
M27×3	P5+0.3	1122401186	5P	160	37	-	82	20	4	2	40,700
M30×3.5	P5+0.1	1122201199	5P	180	44	-	92	23	4	2	51,600
M30×3.5	P5+0.2	1122301199	5P	180	44	-	92	23	4	2	51,600
M30×3.5	P5+0.3	1122401199	5P	180	44	-	92	23	4	2	51,600
M33×3.5	P5+0.1	1122201211	5P	180	46	-	92	25	4	2	60,100
M33×3.5	P5+0.2	1122301211	5P	180	46	-	92	25	4	2	60,100
M33×3.5	P5+0.3	1122401211	5P	180	46	-	92	25	4	2	60,100
M36×4	P6+0.1	1122201225	5P	200	52	-	102	28	4	2	69,300
M36×4	P6+0.2	1122301225	5P	200	52	-	102	28	4	2	69,300
M36×4	P6+0.3	1122401225	5P	200	52	-	102	28	4	2	69,300



Advice: "Guideline for bored hole size and workpiece materials"

[Bored Hole Size Guideline]

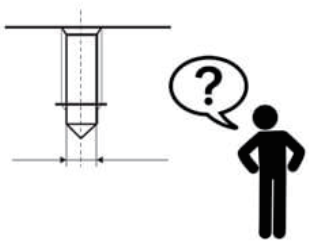
When threading before galvanizing, it is recommended to use a bored hole with a larger diameter by the plating thickness. Please refer to the attached materials and confirm final dimensions.

Unit: mm

Size	Oversized bored hole size for reference			Internal screw threads 6H Class minor diameter (min)
	Oversize + 0.1mm	Oversize + 0.2mm	Oversize + 0.3mm	
M8×1.25	6.95	7.05	7.15	6.647
M10×1.5	8.70	8.80	8.90	8.376
M12×1.75	10.5	10.6	10.7	10.106
M14×2	12.2	12.3	12.4	11.835
M16×2	14.2	14.3	14.4	13.835
M18×2.5	15.7	15.8	15.9	15.294
M20×2.5	17.7	17.8	17.9	17.294
M22×2.5	19.7	19.8	19.9	19.294
M24×3	21.2	21.3	21.4	20.752
M27×3	24.2	24.3	24.4	23.752
M30×3.5	26.7	26.8	26.9	26.211
M33×3.5	29.7	29.8	29.9	29.211
M36×4	32.2	32.3	32.4	31.670

YAMAWA's website contains a lot of valuable information!

Understanding by Manga!
YAMAWA's Tools



Bored Hole size / Bar diameter

NC Program

Safety Data Sheet (SDS)

Catalog · Flyer

YAMAWA Online EXPO NEJITEN

A convenient app that allows you to search anywhere on your smartphone! You can search for products, calculate speeds, and even check recommended drill hole diameters! Please download and use it.

Android

iPhone

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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YAMAWA group for Overseas

YAMAWA International Co., Ltd.

ISO 9001
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