

HVSP

Hybrid Value Spiral Fluted Taps for steels

HVSP LH / HVSP Long

HVSP 1.5P / HVSP STI / HVSP ZP

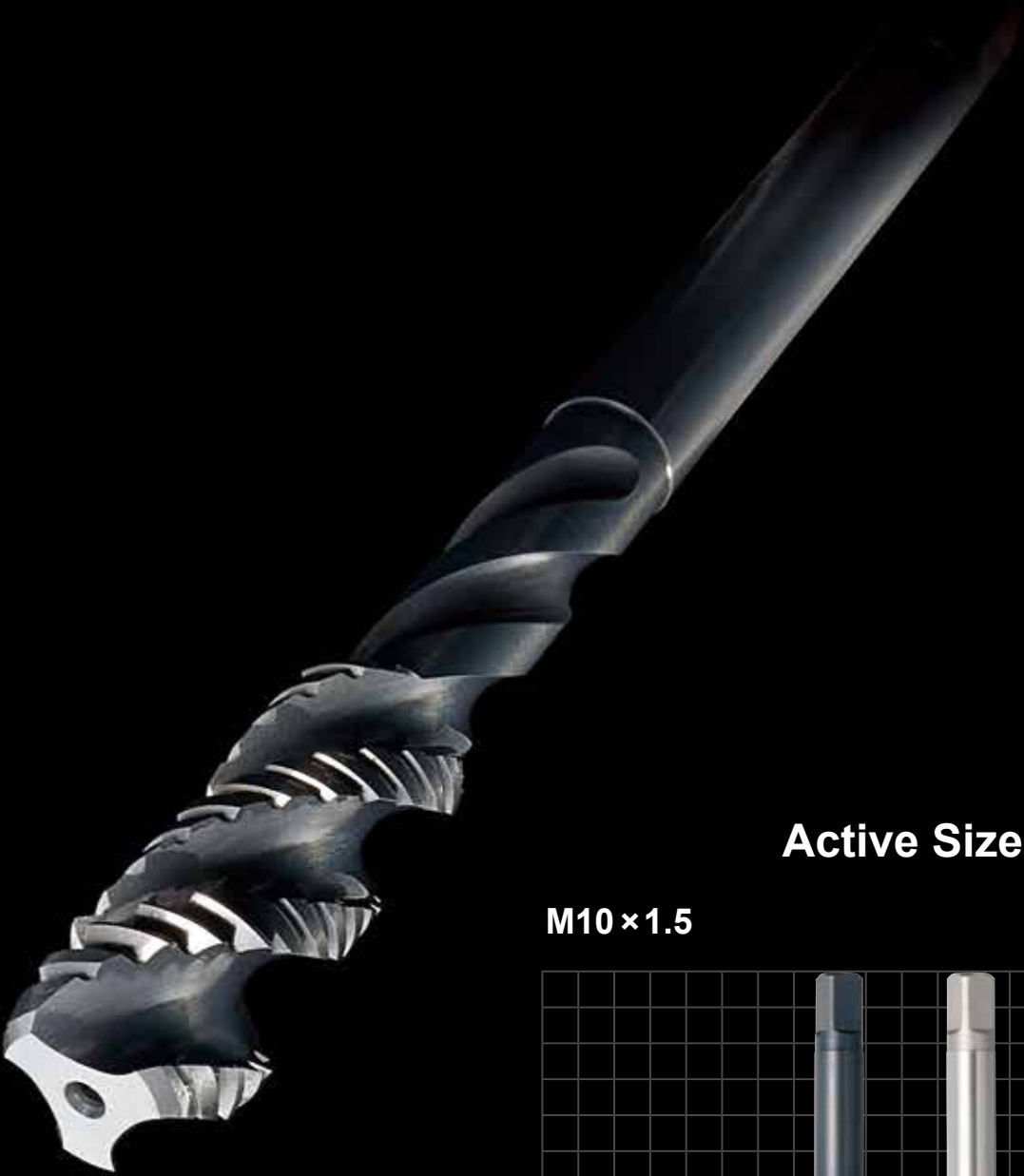
HVPO

Hybrid Value Spiral Pointed Taps for steels

HVPO Long / HVPO ZP

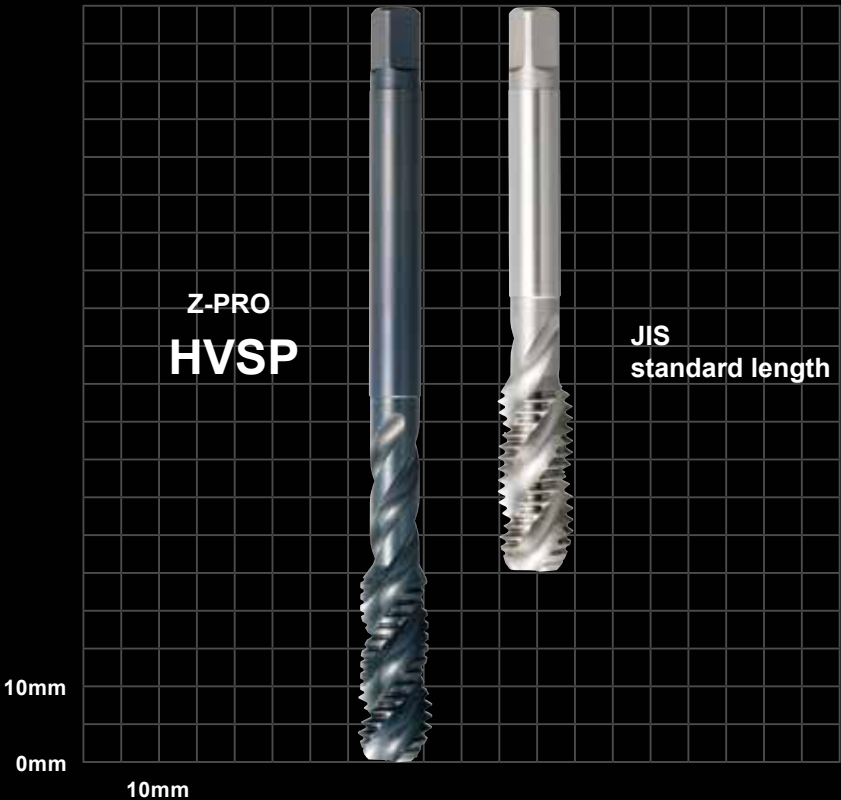


Ultimate Machining Taps



Active Size

M10 × 1.5



Z-PRO

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

HVSP

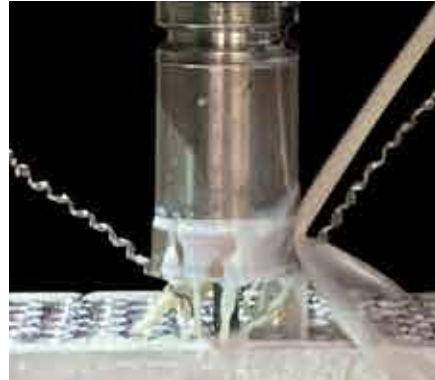


HVPO



JIS Standard Length

Spiral Fluted Taps



Spiral Pointed Taps



Z-PRO HVSP

Specifications



Hybrid Value Spiral Fluted Taps for steels



Product Features



Adopting a semi-long shape

Because a gap is maintained between the holder and the workpiece, chips are less likely to interfere with the holder, thus suppressing chip-related problems such as chipping and breakage on the full thread part. Furthermore, it enables a stable supply of tapping fluid.



Significant reduction in chipping issues on the cutting edge due to an unique flute geometry.

To precisely cut chips deep within the threads and eliminate chip residue, the heel-cutting performance has been improved. Because there is no chip residue, the problem of chipping at the cutting edge, which is common during reverse rotation, is significantly reduced.



BLF (special shape) applied to the thread part

The thread part employs a special shape where a few full threads remain, while the remaining threads are half-removed. This enhances the chipping prevention effect on the full thread part.

Differences in tapping speed depending on workpiece material and dimensions

HVSP

Workpiece Materials		Recommended tapping speed (m/min)				
		M1.4~M1.8 No.0~No.1	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	1~5	1~7	3~9	3~12	3~8
Medium Carbon Steels	S25C~S45C	1~3	1~7	3~9	3~12	3~8
High Carbon Steels	S45C~	1~3	1~7	3~9	3~12	3~8
Alloy Steels	SCM/SCr	1~3	1~7	3~9	3~12	3~8
Heat Treated Steels	25~35HRC	—	—	—	~5	~5
Steels	SC	1~3	1~7	3~9	3~12	3~8
Stainless Steels	SUS303/SUS304	—	~5	~5	~5	~5

HVSP Long

Workpiece Materials		Recommended tapping speed (m/min)		
		M3~M5	M6~M16	M18~M48
Low Carbon Steels	~S20C/SS400	3~8	3~8	3~6
Medium Carbon Steels	S25C~S45C	3~8	3~8	3~6
High Carbon Steels	S45C~	3~8	3~8	3~6
Alloy Steels	SCM/SCr	3~8	3~8	3~6
Heat Treated Steels	25~35HRC	—	~4	~4
Steels	SC	3~8	3~8	3~6
Stainless Steels	SUS303/SUS304	~5	~4	~4



View other Z-PRO Products' tapping speeds.

Machining Data

HVSP M10×1.5	
Conditions	
Workpiece Material	S45C
Tapping Speed	12m/min
Tapping Length	17mm
Machine	Horizontal MC
Tapping Fluid	Water Soluble



! Excellent chip ejection



! No chipping on the cutting edge even after tapping 1,184 holes.

HVSP M36×4	
Conditions	
Workpiece Material	SS400
Tapping Speed	3m/min
Tapping Length	50mm
Machine	Radial drilling machine
Tapping Fluid	Water Soluble

© Full thread part



Chipping



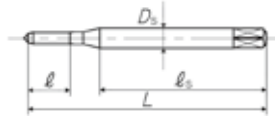
! 250-hole continuous tapping, no chipping on the cutting edge.



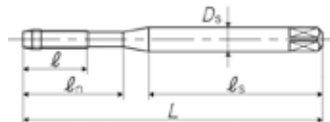
We provide a wide range of other market processing data. View the details here.

Shape and Dimensions

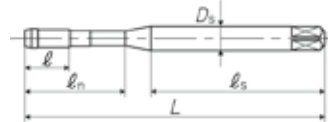
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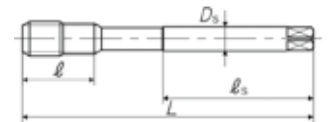
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View HV series tap class

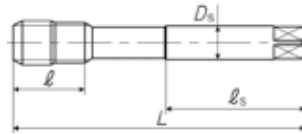
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of flutes	TYPE
For Metric threads										
M1.4×0.3	P1	SY1.4CPEEXJ	C(2.5P)	40	7	—	27	3	2	1
M1.6×0.35	P2	SY1.6DQEEXJ	C(2.5P)	40	8	—	27	3	2	1
M1.7×0.35	P2	SY1.7DQEEXJ	C(2.5P)	40	8	—	27	3	2	1
M1.8×0.35	P2	SY1.8DQEEXJ	C(2.5P)	40	8	—	27	3	2	1
M2×0.4	P2	SY2.0EQEEXJ	C(2.5P)	45	8	15	27	3	2	2
M2.2×0.45	P2	SY2.2FQEEXJ	C(2.5P)	45	9	15	27	3	2	2
M2.3×0.4	P2	SY2.3EQEEXJ	C(2.5P)	45	9	15	27	3	2	2
M2.5×0.45	P2	SY2.5FQEEXJ	C(2.5P)	50	8	15	32	3	2	2
M2.6×0.45	P2	SY2.6FQEEXJ	C(2.5P)	50	8	15	32	3	2	2
M3×0.5	P3	SY3.0GREEXJ	C(2.5P)	56	9	18	32	4	3	2
3M0.6	P2	SY3.0HQEEXJ	C(2.5P)	56	5	18	32	4	3	2
M3×0.35	P3	SY3.0DREEXJ	C(2.5P)	56	6.5	18	32	4	3	3
M3.5×0.6	P3	SY3.5HREEXJ	C(2.5P)	63	13	20	36	5	3	2
M4×0.7	P4	SY4.0ISEEXJ	C(2.5P)	63	13	21	36	5	3	2
4M0.75	P3	SY4.0JREEXJ	C(2.5P)	63	7	21	36	5	3	2
M4×0.5	P4	SY4.0GSEEXJ	C(2.5P)	63	9	21	36	5	3	3
M4.5×0.75	P3	SY4.5JREEXJ	C(2.5P)	70	14	24	40	5.5	3	2
M4.5×0.5	P4	SY4.5GSEEXJ	C(2.5P)	70	9	24	40	5.5	3	3
M5×0.8	P4	SY5.0KSEEXJ	C(2.5P)	70	14	25	40	5.5	3	2
5M0.9	P3	SY5.0LREEXJ	C(2.5P)	70	9	25	40	5.5	3	2
M5×0.5	P4	SY5.0GSEEXJ	C(2.5P)	70	9	25	40	5.5	3	3
M6×1	P4	SY6.0MSEEXJ	C(2.5P)	80	15	30	45	6	3	2
M6×0.75	P4	SY6.0JSEEXJ	C(2.5P)	80	15	30	45	6	3	2
M6×0.5	P4	SY6.0GSEEXJ	C(2.5P)	80	9	30	45	6	3	3
M7×1	P4	SY7.0MSEEXJ	C(2.5P)	90	15	—	46	6.2	3	4
M7×0.75	P3	SY7.0JREEXJ	C(2.5P)	90	15	—	46	6.2	3	4
M7×0.5	P3	SY7.0GREEXJ	C(2.5P)	90	10	—	46	6.2	3	5
M8×1.25	P4	SY8.0NSEEXJ	C(2.5P)	90	19	—	46	6.2	3	4
M8×1	P4	SY8.0MSEEXJ	C(2.5P)	90	19	—	46	6.2	3	4
M8×0.75	P3	SY8.0JREEXJ	C(2.5P)	90	19	—	46	6.2	3	4
M8×0.5	P3	SY8.0GREEXJ	C(2.5P)	90	10	—	46	6.2	3	5
M10×1.5	P4	SY010OSEEXJ	C(2.5P)	100	23	—	51	7	3	4
M10×1.25	P4	SY010NSEEXJ	C(2.5P)	100	23	—	51	7	3	4
M10×1	P4	SY010MSEEXJ	C(2.5P)	100	23	—	51	7	3	4
M11×1.25	P4	SY011NSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
M11×1	P4	SY011MSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
M12×1.75	P4	SY012PSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
M12×1.5	P4	SY012OSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
M12×1.25	P4	SY012NSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
M12×1	P4	SY012MSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
M14×2	P4	SY014QSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4
M14×1.5	P4	SY014OSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4
M14×1.25	P4	SY014NSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4
M14×1	P4	SY014MSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4

Shape and Dimensions

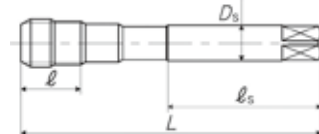
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TYPE:6



TYPE:7



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M15×1.5	P4	SY0150SEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
M16×2	P4	SY016QSEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
M16×1.5	P4	SY0160SEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
M16×1.25	P4	SY016NSEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
M16×1	P4	SY016MSEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
M18×2.5	P5	SY018RTEEXJ	C(2.5P)	125	33	—	64	14	4	4
M18×2	P5	SY018QTEEXJ	C(2.5P)	125	33	—	64	14	4	4
M18×1.5	P5	SY018OTEEXJ	C(2.5P)	125	33	—	64	14	4	4
M18×1.25	P4	SY018NSEEXJ	C(2.5P)	125	33	—	64	14	4	4
M18×1	P4	SY018MSEEXJ	C(2.5P)	125	18	—	64	14	4	5
M19×1.5	P5	SY019OTEEXJ	C(2.5P)	140	33	—	71	15	4	6
M20×2.5	P5	SY020RTEEXJ	C(2.5P)	140	33	—	71	15	4	6
M20×2	P5	SY020QTEEXJ	C(2.5P)	140	33	—	71	15	4	6
M20×1.5	P5	SY020OTEEXJ	C(2.5P)	140	33	—	71	15	4	6
M20×1	P4	SY020MSEEXJ	C(2.5P)	140	18	—	71	15	4	7
M22×2.5	P5	SY022RTEEXJ	C(2.5P)	140	33	—	71	17	4	6
M22×2	P5	SY022QTEEXJ	C(2.5P)	140	33	—	71	17	4	6
M22×1.5	P5	SY022OTEEXJ	C(2.5P)	140	33	—	71	17	4	6
M22×1	P4	SY022MSEEXJ	C(2.5P)	140	19	—	71	17	4	7
M24×3	P5	SY024STEEXJ	C(2.5P)	160	37	—	82	19	4	6
M24×2	P5	SY024QTEEXJ	C(2.5P)	160	37	—	82	19	4	6
M24×1.5	P5	SY024OTEEXJ	C(2.5P)	160	37	—	82	19	4	6
M24×1	P4	SY024MSEEXJ	C(2.5P)	160	19	—	82	19	4	7
M25×2	P5	SY025QTEEXJ	C(2.5P)	160	37	—	82	19	4	6
M25×1.5	P5	SY025OTEEXJ	C(2.5P)	160	37	—	82	19	4	6
M25×1	P4	SY025MSEEXJ	C(2.5P)	160	20	—	82	19	4	7
M26×3	P5	SY026STEEXJ	C(2.5P)	160	37	—	82	20	4	6
M26×1.5	P5	SY026OTEEXJ	C(2.5P)	160	37	—	82	20	4	6
M26×1	P4	SY026MSEEXJ	C(2.5P)	160	20	—	82	20	4	7
M27×3	P5	SY027STEEXJ	C(2.5P)	160	37	—	82	20	4	6
M27×2	P5	SY027QTEEXJ	C(2.5P)	160	37	—	82	20	4	6
M27×1.5	P5	SY027OTEEXJ	C(2.5P)	160	37	—	82	20	4	6
M28×1.5	P5	SY028OTEEXJ	C(2.5P)	180	44	—	92	23	4	6
M28×1	P4	SY028MSEEXJ	C(2.5P)	180	20	—	92	23	4	7
M30×3.5	P6	SY030TUEEXJ	C(2.5P)	180	44	—	92	23	4	6
M30×3	P6	SY030SUEEXJ	C(2.5P)	180	44	—	92	23	4	6
M30×2	P5	SY030QTEEXJ	C(2.5P)	180	44	—	92	23	4	6
M30×1.5	P6	SY030OUEEXJ	C(2.5P)	180	44	—	92	23	4	6
M30×1	P4	SY030MSEEXJ	C(2.5P)	180	21	—	92	23	4	7
M32×2	P5	SY032QTEEXJ	C(2.5P)	180	44	—	92	24	4	6
M32×1.5	P5	SY032OTEEXJ	C(2.5P)	180	44	—	92	24	4	6
M33×3.5	P6	SY033TUEEXJ	C(2.5P)	180	46	—	92	25	4	6
M33×3	P6	SY033SUEEXJ	C(2.5P)	180	46	—	92	25	4	6
M33×2	P5	SY033QTEEXJ	C(2.5P)	180	46	—	92	25	4	6

Shape and Dimensions

Size	Class	Product Code	Chamfer	L (mm)	ℓ (mm)	ℓ _n (mm)	ℓ _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M33×1.5	P5	SY033OTEEXJ	C(2.5P)	180	46	—	92	25	4	6
M35×2	P5	SY035QTEEXJ	C(2.5P)	200	52	—	102	28	4	6
M35×1.5	P5	SY035OTEEXJ	C(2.5P)	200	26	—	102	28	4	7
M36×4	P6	SY036UUEEXJ	C(2.5P)	200	52	—	102	28	4	6
M36×3	P6	SY036SUEEXJ	C(2.5P)	200	52	—	102	28	4	6
M36×2	P5	SY036QTEEXJ	C(2.5P)	200	52	—	102	28	4	6
M36×1.5	P5	SY036OTEEXJ	C(2.5P)	200	26	—	102	28	4	7
M39×4	P6	SY039UUEEXJ	C(2.5P)	200	52	—	102	30	4	6
M39×3	P6	SY039SUEEXJ	C(2.5P)	200	52	—	102	30	4	6
M42×4.5	P6	SY042VUEEXJ	C(2.5P)	200	59	—	102	32	4	6
M42×3	P6	SY042SUEEXJ	C(2.5P)	200	59	—	102	32	4	6
M42×1.5	P5	SY042OTEEXJ	C(2.5P)	200	27	—	102	32	4	7
M45×4.5	P6	SY045VUEEXJ	C(2.5P)	220	59	—	112	35	4	6
M45×3	P6	SY045SUEEXJ	C(2.5P)	220	59	—	112	35	4	6
M48×5	P6	SY048WUEEXJ	C(2.5P)	250	65	—	128	38	4	6
M48×3	P6	SY048SUEEXJ	C(2.5P)	250	65	—	128	38	4	6
For Unified threads										
No.0-80UNF	P1	SYUN0BPEEXJ	C(2.5P)	40	8	—	27	3	2	1
No.1-64UNC	P1	SYUN1DPEEXJ	C(2.5P)	45	8	—	27	3	2	1
No.1-72UNF	P1	SYUN1CPEEXJ	C(2.5P)	45	6	—	27	3	2	1
No.2-56UNC	P2	SYUN2EQEEXJ	C(2.5P)	45	4	15	27	3	2	2
No.2-64UNF	P2	SYUN2DQEEXJ	C(2.5P)	45	4	15	27	3	2	2
No.3-48UNC	P2	SYUN3FQEEXJ	C(2.5P)	50	4	15	32	3	2	2
No.3-56UNF	P2	SYUN3EQEEXJ	C(2.5P)	50	4	15	32	3	2	2
No.4-40UNC	P2	SYUN4HQEEXJ	C(2.5P)	56	5	17	32	4	2	2
No.4-48UNF	P2	SYUN4FQEEXJ	C(2.5P)	56	5	17	32	4	2	2
No.5-40UNC	P2	SYUN5HQEEXJ	C(2.5P)	63	5	19	36	5	3	2
No.5-44UNF	P2	SYUN5GQEEXJ	C(2.5P)	63	5	19	36	5	3	2
No.6-32UNC	P3	SYUN6JREEXJ	C(2.5P)	63	7	19	36	5	3	2
No.6-40UNF	P3	SYUN6HREEXJ	C(2.5P)	63	7	19	36	5	3	2
No.8-32UNC	P3	SYUN8JREEXJ	C(2.5P)	70	7	23	40	5.5	3	2
No.8-36UNF	P3	SYUN8IREEXJ	C(2.5P)	70	7	23	40	5.5	3	2
No.10-24UNC	P3	SYUNAMREEXJ	C(2.5P)	70	9	24	40	5.5	3	2
No.10-32UNF	P3	SYUNAJREEXJ	C(2.5P)	70	9	24	40	5.5	3	2
No.12-24UNC	P3	SYUNCMREEXJ	C(2.5P)	80	9	28	45	6	3	2
No.12-28UNF	P3	SYUNCKREEXJ	C(2.5P)	80	9	28	45	6	3	2
1/4-20UNC	P3	SYU04NREEXJ	C(2.5P)	80	11	30	45	6	3	2
1/4-28UNF	P3	SYU04KREEXJ	C(2.5P)	80	11	30	45	6	3	2
5/16-18UNC	P4	SYU05OSEEXJ	C(2.5P)	90	19	—	46	6.2	3	4
5/16-24UNF	P4	SYU05MSEEXJ	C(2.5P)	90	19	—	46	6.2	3	4
3/8-16UNC	P4	SYU06PSEEXJ	C(2.5P)	100	23	—	51	7	3	4
3/8-24UNF	P4	SYU06MSEEXJ	C(2.5P)	100	23	—	51	7	3	4
7/16-14UNC	P4	SYU07QSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
7/16-20UNF	P4	SYU07NSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4

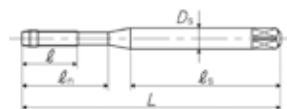
■ Shape and Dimensions

Size	Class	Product Code	Chamfer	L (mm)	ℓ (mm)	ℓ _n (mm)	ℓ _s (mm)	D _s (mm)	Number of flutes	TYPE
For Unified threads										
1/2-13UNC	P4	SYU08RSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4
1/2-20UNF	P4	SYU08NSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4
9/16-12UNC	P4	SYU09SSEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
9/16-18UNF	P4	SYU09OSEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
5/8-11UNC	P4	SYU10USEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
5/8-18UNF	P4	SYU10OSEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
3/4-10UNC	P5	SYU12VTEEXJ	C(2.5P)	140	33	—	71	15	4	6
3/4-16UNF	P4	SYU12PSEEXJ	C(2.5P)	140	33	—	71	15	4	6
7/8-9UNC	P5	SYU14WTEEXJ	C(2.5P)	140	33	—	71	17	4	6
7/8-14UNF	P4	SYU14QSEEXJ	C(2.5P)	140	33	—	71	17	4	6
1 -8UNC	P5	SYU16XTEEXJ	C(2.5P)	160	37	—	82	19	4	6
1 -12UNF	P4	SYU16SSEEXJ	C(2.5P)	160	37	—	82	19	4	6
1 1/8-7UNC	P6	SYU18YUEEXJ	C(2.5P)	180	44	—	92	23	4	6
1 1/8-8UN	P5	SYU18XTEEXJ	C(2.5P)	180	44	—	92	23	4	6
1 1/8-12UNF	P4	SYU18SSEEXJ	C(2.5P)	180	44	—	92	23	4	6
1 1/4-7UNC	P6	SYU20YUEEXJ	C(2.5P)	180	44	—	92	24	4	6
1 1/4-8UN	P5	SYU20XTEEXJ	C(2.5P)	180	44	—	92	24	4	6
1 1/4-12UNF	P4	SYU20SSEEXJ	C(2.5P)	180	44	—	92	24	4	6
1 3/8-6UNC	P6	SYU22ZUEEXJ	C(2.5P)	200	52	—	102	28	4	6
1 3/8-8UN	P5	SYU22XTEEXJ	C(2.5P)	200	52	—	102	28	4	6
1 3/8-12UNF	P4	SYU22SSEEXJ	C(2.5P)	200	52	—	102	28	4	6
1 1/2-6UNC	P6	SYU24ZUEEXJ	C(2.5P)	200	52	—	102	30	4	6
1 1/2-8UN	P5	SYU24XTEEXJ	C(2.5P)	200	52	—	102	30	4	6
1 1/2-12UNF	P4	SYU24SSEEXJ	C(2.5P)	200	52	—	102	30	4	6
1 3/4-5UNC	P6	SYU280UEEXJ	C(2.5P)	220	59	—	112	35	4	6
1 3/4-8UN	P5	SYU28XTEEXJ	C(2.5P)	220	59	—	112	35	4	6
1 3/4-12UN	P4	SYU28SSEEXJ	C(2.5P)	220	59	—	112	35	4	6
2 -4 1/2UNC	P7	SYU329VEEXJ	C(2.5P)	250	70	—	128	40	4	6
2 -8UN	P6	SYU32XUEEXJ	C(2.5P)	250	70	—	128	40	4	6
For Whitworth threads										
1/8W40	P2	SYW02HQEEXJ	C(2.5P)	63	5	19	36	5	3	2
5/32W32	P3	SYW2HJREEXJ	C(2.5P)	63	7	20	36	5	3	2
3/16W24	P3	SYW03MREEXJ	C(2.5P)	70	9	23	40	5.5	3	2
1/4W20	P3	SYW04NREEXJ	C(2.5P)	80	11	30	45	6	3	2
5/16W18	P3	SYW05OREEXJ	C(2.5P)	90	19	—	46	6.2	3	4
3/8W16	P3	SYW06PREEXJ	C(2.5P)	100	23	—	51	7	3	4
7/16W14	P4	SYW07QSEEXJ	C(2.5P)	110	26	—	56	8.5	3	4
1/2W12	P4	SYW08SSEEXJ	C(2.5P)	110	26	—	56	10.5	3	4
5/8W11	P4	SYW10USEEXJ	C(2.5P)	110	26	—	56	12.5	3	4
3/4W10	P4	SYW12VSEEXJ	C(2.5P)	140	33	—	71	15	4	6
7/8W9	P4	SYW14WSEEXJ	C(2.5P)	140	33	—	71	17	4	6
1 W8	P4	SYW16XSEEXJ	C(2.5P)	160	37	—	82	19	4	6
1 1/4W7	P5	SYW20YTEEXJ	C(2.5P)	180	44	—	92	24	4	6
1 1/2W6	P5	SYW24ZTEEXJ	C(2.5P)	200	52	—	102	30	4	6

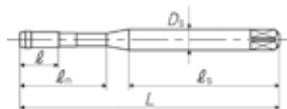
HVSP LH

Shape and Dimensions

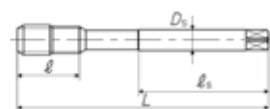
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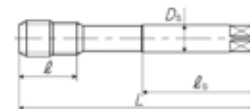
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TYPE:4

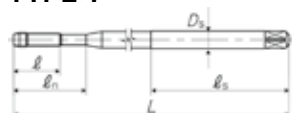


Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M2×0.4	P2	1116102021	C(2.5P)	45	8	15	27	3	2	1
M2.3×0.4	P2	1116102026	C(2.5P)	45	9	15	27	3	2	1
M2.5×0.45	P2	1116102029	C(2.5P)	50	8	15	32	3	2	1
M2.6×0.45	P2	1116102032	C(2.5P)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

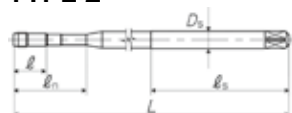
HVSP Long

Shape and Dimensions

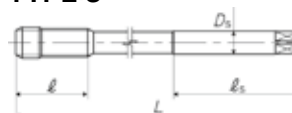
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TYPE:2



TYPE:3



TYPE:4



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M3×0.5	P3	SY3.0GREEXEJ	C(2.5P)	100	9	18	32	4	3	1
M3×0.35	P3	SY3.0DREEXEJ	C(2.5P)	100	6.5	18	32	4	3	2
M4×0.7	P4	SY4.0ISEEXEJ	C(2.5P)	100	11	21	36	5	3	1
M4×0.5	P4	SY4.0GSEEXEJ	C(2.5P)	100	9	21	36	5	3	2
M5×0.8	P4	SY5.0KSEEXEJ	C(2.5P)	100	13	25	40	5.5	3	1
M5×0.5	P4	SY5.0GSEEXEJ	C(2.5P)	100	9	25	40	5.5	3	2
M6×1	P4	SY6.0MSEEXEJ	C(2.5P)	100	15	30	45	6	3	1
M6×1	P4	SY6.0MSEEXGJ	C(2.5P)	150	15	30	45	6	3	1
M6×0.75	P4	SY6.0JSEEXEJ	C(2.5P)	100	15	30	45	6	3	1
M6×0.5	P4	SY6.0GSEEXEJ	C(2.5P)	100	9	30	45	6	3	2
M8×1.25	P4	SY8.0NSEEXGJ	C(2.5P)	150	19	—	46	6.2	3	3
M8×1	P4	SY8.0MSEEXGJ	C(2.5P)	150	19	—	46	6.2	3	3
M10×1.5	P4	SY010OSEEXGJ	C(2.5P)	150	23	—	51	7	3	3
M10×1.25	P4	SY010NSEEXGJ	C(2.5P)	150	23	—	51	7	3	3
M10×1	P4	SY010MSEEXGJ	C(2.5P)	150	23	—	51	7	3	3
M12×1.75	P4	SY012PSEEXGJ	C(2.5P)	150	26	—	56	8.5	3	3
M12×1.5	P4	SY012OSEEXGJ	C(2.5P)	150	26	—	56	8.5	3	3
M12×1.25	P4	SY012NSEEXGJ	C(2.5P)	150	26	—	56	8.5	3	3
M14×2	P4	SY014QSEEXGJ	C(2.5P)	150	26	—	56	10.5	3	3
M14×1.5	P4	SY014OSEEXGJ	C(2.5P)	150	26	—	56	10.5	3	3
M16×2	P4	SY016QSEEXGJ	C(2.5P)	150	26	—	56	12.5	3	3
M16×1.5	P4	SY016OSEEXGJ	C(2.5P)	150	26	—	56	12.5	3	3
M18×2.5	P5	SY018RTEEXKJ	C(2.5P)	200	33	—	64	14	4	3
M18×2	P5	SY018QTEEXKJ	C(2.5P)	200	33	—	64	14	4	3
M18×1.5	P5	SY018OTEEXKJ	C(2.5P)	200	33	—	64	14	4	3
M18×1	P4	SY018MSEEXKJ	C(2.5P)	200	18	—	64	14	4	3
M20×2.5	P5	SY020RTEEXKJ	C(2.5P)	200	33	—	71	15	4	4
M20×2	P5	SY020QTEEXKJ	C(2.5P)	200	33	—	71	15	4	4
M20×1.5	P5	SY020OTEEXKJ	C(2.5P)	200	33	—	71	15	4	4
M22×2.5	P5	SY022RTEEXKJ	C(2.5P)	200	33	—	71	17	4	4
M22×1.5	P5	SY022OTEEXKJ	C(2.5P)	200	33	—	71	17	4	4
M24×3	P5	SY024STEEXNJ	C(2.5P)	250	37	—	82	19	4	4
M24×1.5	P5	SY024OTEEXNJ	C(2.5P)	250	37	—	82	19	4	4
M27×3	P5	SY027STEEXNJ	C(2.5P)	250	37	—	82	20	4	4
M27×1.5	P5	SY027OTEEXNJ	C(2.5P)	250	37	—	82	20	4	4
M30×3.5	P6	SY030TUEEXNJ	C(2.5P)	250	44	—	92	23	4	4
M30×3	P6	SY030SUEEXNJ	C(2.5P)	250	44	—	92	23	4	4
M30×1.5	P6	SY030OUEEXNJ	C(2.5P)	250	44	—	92	23	4	4
M33×3.5	P6	SY033TUEEXNJ	C(2.5P)	250	46	—	92	25	4	4
M33×3	P6	SY033SUEEXNJ	C(2.5P)	250	46	—	92	25	4	4
M36×4	P6	SY036UUEEXQJ	C(2.5P)	300	52	—	102	28	4	4
M36×3	P6	SY036SUEEXQJ	C(2.5P)	300	52	—	102	28	4	4
M39×4	P6	SY039UUEEXQJ	C(2.5P)	300	52	—	102	30	4	4
M39×3	P6	SY039SUEEXQJ	C(2.5P)	300	52	—	102	30	4	4
M42×4.5	P6	SY042VUEEXQJ	C(2.5P)	300	59	—	102	32	4	4
M42×3	P6	SY042SUEEXQJ	C(2.5P)	300	59	—	102	32	4	4
M48×5	P6	SY048WUEEXQJ	C(2.5P)	300	65	—	128	38	4	4
M48×3	P6	SY048SUEEXQJ	C(2.5P)	300	65	—	128	38	4	4

HVSP 1.5P

Specifications

HSS

OX

1.5

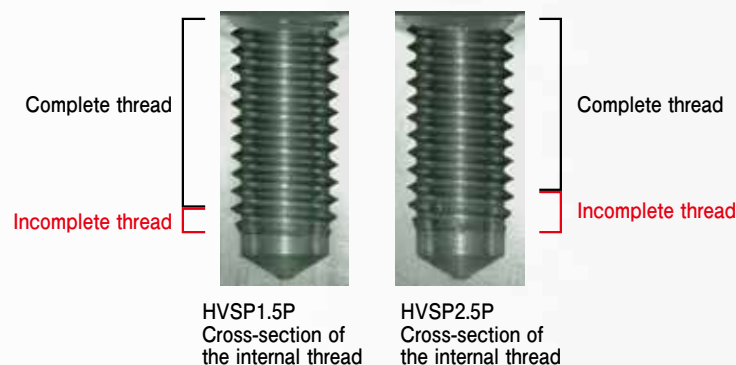


<2D

Hybrid Value Spiral Fluted Taps 1.5P for steels



Product Features



ⓘ With a cutting length of 1.5P and a flat tip, it is ideal for blind hole machining where there is little margin for pre-tapped hole depth and effective thread length.

Differences in tapping speed depending on workpiece material and dimensions

Workpiece Materials		Recommended tapping speed (m/min)		
		M3~M6	M8~M16	M18~M24
Low Carbon Steels	~S20C/SS400	3~8	3~8	3~6
Medium Carbon Steels	S25C~S45C	3~8	3~8	3~6
High Carbon Steels	S45C~	3~8	3~8	3~6
Alloy Steels	SCM/SCr	3~8	3~8	3~6
Heat Treated Steels	25~35HRC	—	~4	~4
Steels	SC	3~8	3~8	3~6
Stainless Steels	SUS303/SUS304	~3	~4	~4



◀ View other Z-PRO Products' tapping speeds.

Machining Data

HVSP 1.5P M6×1	
Conditions	
Workpiece Marerial	S50C
Tapping Speed	7m/min
Tapping Length	12mm
Machine	Vertical MC
Tapping Fluid	Water Soluble



! No chipping on the cutting edge even after tapping 50 holes.

HVSP 1.5P M12×1.75	
Conditions	
Workpiece Marerial	S50C
Tapping Speed	7m/min
Tapping Length	24mm
Machine	Vertical MC
Tapping Fluid	Water Soluble



! No chipping on the cutting edge even after tapping 102 holes.

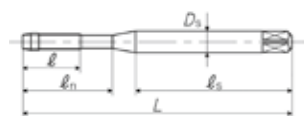


! Excellent internal threads

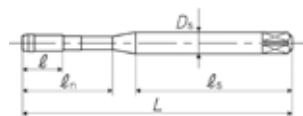
HVSP 1.5P

Shape and Dimensions

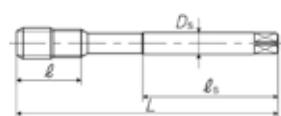
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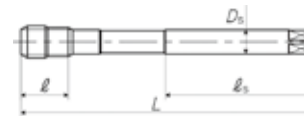
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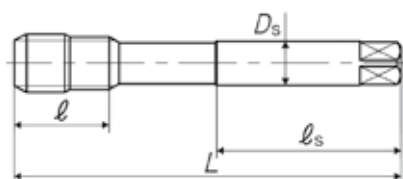


View HV series tap class

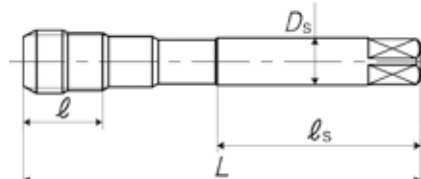
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of flutes	TYPE
For Metric threads										
M3×0.5	P3	1124101035	1.5P	56	9	18	32	4	3	1
M3×0.35	P3	1124101036	1.5P	56	6.5	18	32	4	3	2
M4×0.7	P4	1124101042	1.5P	63	13	21	36	5	3	1
M4×0.5	P4	1124101043	1.5P	63	9	21	36	5	3	2
M5×0.8	P4	1124101049	1.5P	70	14	25	40	5.5	3	1
M5×0.5	P4	1124101051	1.5P	70	9	25	40	5.5	3	2
M6×1	P4	1124101055	1.5P	80	15	30	45	6	3	1
M6×0.75	P4	1124101056	1.5P	80	15	30	45	6	3	1
M6×0.5	P4	1124101057	1.5P	80	9	30	45	6	3	2
M7×1	P4	1124101060	1.5P	90	15	—	46	6.2	3	3
M7×0.75	P3	1124101061	1.5P	90	15	—	46	6.2	3	3
M7×0.5	P3	1124101062	1.5P	90	10	—	46	6.2	3	4
M8×1.25	P4	1124101064	1.5P	90	19	—	46	6.2	3	3
M8×1	P4	1124101065	1.5P	90	19	—	46	6.2	3	3
M8×0.75	P3	1124101066	1.5P	90	19	—	46	6.2	3	3
M8×0.5	P3	1124101067	1.5P	90	10	—	46	6.2	3	4
M10×1.5	P4	1124101078	1.5P	100	23	—	51	7	3	3
M10×1.25	P4	1124101079	1.5P	100	23	—	51	7	3	3
M10×1	P4	1124101080	1.5P	100	23	—	51	7	3	3
M11×1.25	P4	1124101084	1.5P	110	26	—	56	8.5	3	3
M11×1	P4	1124101085	1.5P	110	26	—	56	8.5	3	3
M12×1.75	P4	1124101088	1.5P	110	26	—	56	8.5	3	3
M12×1.5	P4	1124101089	1.5P	110	26	—	56	8.5	3	3
M12×1.25	P4	1124101090	1.5P	110	26	—	56	8.5	3	3
M12×1	P4	1124101091	1.5P	110	26	—	56	8.5	3	3
M14×2	P4	1124101100	1.5P	110	26	—	56	10.5	3	3
M14×1.5	P4	1124101102	1.5P	110	26	—	56	10.5	3	3
M14×1.25	P4	1124101103	1.5P	110	26	—	56	10.5	3	3
M14×1	P4	1124101104	1.5P	110	26	—	56	10.5	3	3
M15×1.5	P4	1124101109	1.5P	110	26	—	56	12.5	3	3
M16×2	P4	1124101114	1.5P	110	26	—	56	12.5	3	3
M16×1.5	P4	1124101116	1.5P	110	26	—	56	12.5	3	3
M16×1.25	P4	1124101117	1.5P	110	26	—	56	12.5	3	3
M16×1	P4	1124101118	1.5P	110	26	—	56	12.5	3	3
M18×2.5	P5	1124101128	1.5P	125	33	—	64	14	4	3
M18×2	P5	1124101129	1.5P	125	33	—	64	14	4	3
M18×1.5	P5	1124101130	1.5P	125	33	—	64	14	4	3
M18×1.25	P4	1124101131	1.5P	125	33	—	64	14	4	3
M18×1	P4	1124101132	1.5P	125	18	—	64	14	4	4

Shape and Dimensions

TYPE:5



TYPE:6



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of flutes	TYPE
For Metric threads										
M19×1.5	P5	1124101137	1.5P	140	33	—	71	15	4	5
M20×2.5	P5	1124101141	1.5P	140	33	—	71	15	4	5
M20×2	P5	1124101142	1.5P	140	33	—	71	15	4	5
M20×1.5	P5	1124101144	1.5P	140	33	—	71	15	4	5
M20×1	P4	1124101146	1.5P	140	18	—	71	15	4	6
M22×2.5	P5	1124101156	1.5P	140	33	—	71	17	4	5
M22×2	P5	1124101157	1.5P	140	33	—	71	17	4	5
M22×1.5	P5	1124101158	1.5P	140	33	—	71	17	4	5
M22×1	P4	1124101160	1.5P	140	19	—	71	17	4	6
M24×3	P5	1124101167	1.5P	160	37	—	82	19	4	5
M24×2	P5	1124101169	1.5P	160	37	—	82	19	4	5
M24×1.5	P5	1124101170	1.5P	160	37	—	82	19	4	5
M24×1	P4	1124101172	1.5P	160	19	—	82	19	4	6



Hybrid Value Spiral Fluted Taps for steels for Helical Coil Threading



Product Features

- ❗ For steel components machining to create internal threads for inserting coils for the purpose of reinforcing the internal threads and increasing durability.
- ❗ Since the thread diameter is larger than that of the mating external thread by an amount corresponding to the coil thickness, the thread diameter of the tap for insert coils is also larger than its nominal diameter.
- ❗ Oversize tap class (1b + 20 μ m, 30 μ m) are adopted to account for the tendency of internal threads to shrink.

Differences in tapping speed depending on workpiece material and dimensions

Workpiece Materials		Recommended tapping speed (m/min)		
		M3~M4 No.0.4~No.8	M5~M14 No.10~U1/2	M16~M24 U5/8~U3/4
Low Carbon Steels	~S20C/SS400	3~9	3~12	3~8
Medium Carbon Steels	S25C~S45C	3~9	3~12	3~8
High Carbon Steels	S45C~	3~9	3~12	3~8
Alloy Steels	SCM/SCr	3~9	3~12	3~8
Heat Treated Steels	25~35HRC	—	~5	~5
Steels	SC	3~9	3~12	3~8
Stainless Steels	SUS303/SUS304	~5	~5	~5



◀ View other Z-PRO Products' tapping speeds.

■ Pre-tapped hole diameter

When using insert coils, the pre-tapped hole diameter will be larger; please ensure you use the appropriate pre-tapped hole size.

STI for Metric Threads Unit: mm

Size	Oversized pre-tapped hole dia		Pre-tapped hole dia (for reference)
	Max.	Min.	
STI M3×0.5	3.221	3.109	3.19
STI M4×0.7	4.291	4.151	4.26
STI M5×0.8	5.333	5.173	5.29
STI M6×1	6.406	6.216	6.36
STI M8×1.25	8.483	8.271	8.43
STI M10×1.5	10.561	10.325	10.50
STI M10×1.25	10.483	10.271	10.43
STI M10×1	10.406	10.216	10.36
STI M12×1.75	12.644	12.379	12.60
STI M12×1.5	12.561	12.325	12.50
STI M12×1.25	12.483	12.271	12.43
STI M14×2	14.733	14.433	14.70
STI M14×1.5	14.561	14.325	14.50
STI M14×1.25	14.483	14.271	14.43
STI M16×2	16.733	16.433	16.70
STI M16×1.5	16.561	16.325	16.50
STI M18×2.5	18.897	18.542	18.80
STI M18×1.5	18.561	18.325	18.50
STI M20×2.5	20.897	20.542	20.80
STI M20×1.5	20.561	20.325	20.50
STI M22×2.5	22.897	22.542	22.80
STI M22×1.5	22.561	22.325	22.50
STI M24×3	25.049	24.649	24.90
STI M24×1.5	24.561	24.325	24.50

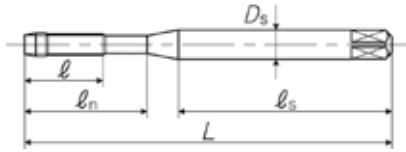
STI for Unified Threads Unit: mm

Size	Oversized pre-tapped hole dia		Pre-tapped hole dia (for reference)
	Max.	Min.	
STI No4-40UNC	3.180	2.985	3.13
STI No4-48UNF	3.121	2.962	3.08
STI No5-40UNC	3.487	3.315	3.44
STI No6-32UNC	3.878	3.678	3.83
STI No6-40UNF	3.817	3.645	3.77
STI No8-32UNC	4.523	4.339	4.48
STI No8-36UNF	4.498	4.321	4.45
STI No10-24UNC	5.283	5.055	5.23
STI No10-32UNF	5.184	4.999	5.14
STI No12-24UNC	5.943	5.715	5.89
STI 1/4-20UNC	6.868	6.625	6.81
STI 1/4-28UNF	6.720	6.546	6.68
STI 5/16-18UNC	8.488	8.243	8.43
STI 5/16-24UNF	8.351	8.167	8.31
STI 3/8-16UNC	10.126	9.868	10.06
STI 3/8-24UNF	9.931	9.754	9.89
STI 7/16-14UNC	11.783	11.507	11.71
STI 7/16-20UNF	11.584	11.387	11.53
STI 1/2-13UNC	13.393	13.122	13.33
STI 1/2-20UNF	13.172	12.975	13.12
STI 5/8-11UNC	16.672	16.376	16.60
STI 5/8-18UNF	16.385	16.180	16.33
STI 3/4-16UNF	19.608	19.393	19.55

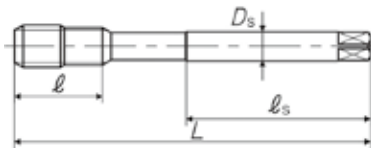
HVSP STI

Shape and Dimensions

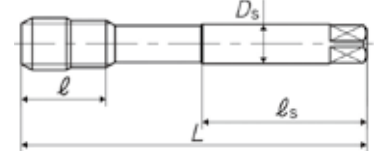
TYPE:1



TYPE:2



TYPE:3



Size	Class	Product Code	Chamfer	Basic major dia (mm)	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	Number of flutes	TYPE
For Metric threads											
M3×0.5	Ib+20	1123201035	C(2.5P)	3.650	63	7.5	21	36	5	3	1
M4×0.7	Ib+30	1123201042	C(2.5P)	4.909	70	13	25	40	5.5	3	1
M5×0.8	Ib+30	1123201049	C(2.5P)	6.039	80	15	30	45	6	3	1
M6×1	Ib+30	1123201055	C(2.5P)	7.299	90	19	—	46	6.2	3	2
M6×0.75	Ib+30	1123201056	C(2.5P)	6.974	90	15	—	46	6.2	3	2
M8×1.25	Ib+30	1123201064	C(2.5P)	9.624	100	23	—	51	7	3	2
M8×1	Ib+30	1123201065	C(2.5P)	9.299	100	23	—	51	7	3	2
M10×1.5	Ib+30	1123201078	C(2.5P)	11.948	110	26	—	56	8.5	3	2
M10×1.25	Ib+30	1123201079	C(2.5P)	11.624	110	26	—	56	8.5	3	2
M12×1.75	Ib+30	1123201088	C(2.5P)	14.273	110	26	—	56	12.5	3	2
M12×1.5	Ib+30	1123201089	C(2.5P)	13.948	110	26	—	56	10.5	3	2
M12×1.25	Ib+30	1123201090	C(2.5P)	13.624	110	26	—	56	10.5	3	2
M14×2	Ib+30	1123201100	C(2.5P)	16.598	125	33	—	64	14	3	2
M14×1.5	Ib+30	1123201102	C(2.5P)	15.948	110	26	—	56	12.5	3	2
M16×2	Ib+30	1123201114	C(2.5P)	18.598	140	33	—	71	15	4	3
M16×1.5	Ib+30	1123201116	C(2.5P)	17.948	125	33	—	64	14	4	2
M18×2.5	Ib+30	1123201128	C(2.5P)	21.248	140	33	—	71	17	4	3
M18×1.5	Ib+30	1123201130	C(2.5P)	19.948	140	33	—	71	15	4	3
M20×2.5	Ib+30	1123201141	C(2.5P)	23.248	160	37	—	82	19	4	3
M20×1.5	Ib+30	1123201144	C(2.5P)	21.948	140	33	—	71	17	4	3
M22×2.5	Ib+30	1123201156	C(2.5P)	25.248	160	37	—	82	19	4	3
M22×1.5	Ib+30	1123201158	C(2.5P)	23.948	160	37	—	82	19	4	3
M24×3	Ib+30	1123201167	C(2.5P)	27.897	180	44	—	92	23	4	3
M24×1.5	Ib+30	1123201170	C(2.5P)	25.948	160	37	—	82	20	4	3
For Unified threads											
No.4-40UNC	Ib+20	1123203015	C(2.5P)	3.670	63	11	21	36	5	3	1
No.4-48UNF	Ib+20	1123203016	C(2.5P)	3.532	63	11	21	36	5	3	1
No.5-40UNC	Ib+20	1123203021	C(2.5P)	4.000	63	11	21	36	5	3	1
No.6-32UNC	Ib+20	1123203023	C(2.5P)	4.536	70	13	25	40	5.5	3	1
No.6-40UNF	Ib+20	1123203024	C(2.5P)	4.330	70	13	25	40	5.5	3	1
No.8-32UNC	Ib+20	1123203029	C(2.5P)	5.197	80	15	30	45	6	3	1
No.8-36UNF	Ib+20	1123203030	C(2.5P)	5.083	80	9.5	30	45	6	3	1
No.10-24UNC	Ib+30	1123203039	C(2.5P)	6.201	80	15	30	45	6	3	1
No.10-32UNF	Ib+20	1123203041	C(2.5P)	5.857	80	15	30	45	6	3	1
No.12-24UNC	Ib+30	1123203047	C(2.5P)	6.861	90	15	—	46	6.2	3	2
1/4-20UNC	Ib+30	1123203058	C(2.5P)	8.000	90	19	—	46	6.2	3	2
1/4-28UNF	Ib+30	1123203062	C(2.5P)	7.528	90	19	—	46	6.2	3	2

■ Shape and Dimensions

Size	Class	Product Code	Chamfer	Basic major dia (mm)	L (mm)	ℓ (mm)	ℓn (mm)	ℓs (mm)	Ds (mm)	Number of flutes	TYPE
For Unified threads											
5/16-18UNC	Ib+30	1123203071	C(2.5P)	9.771	100	23	—	51	7	3	2
5/16-24UNF	Ib+30	1123203074	C(2.5P)	9.313	100	23	—	51	7	3	2
3/8-16UNC	Ib+30	1123203082	C(2.5P)	11.587	110	26	—	56	8.5	3	2
3/8-24UNF	Ib+30	1123203085	C(2.5P)	10.900	110	26	—	56	8.5	3	2
7/16-14UNC	Ib+30	1123203098	C(2.5P)	13.469	110	26	—	56	10.5	3	2
7/16-20UNF	Ib+30	1123203101	C(2.5P)	12.762	110	26	—	56	10.5	3	2
1/2-13UNC	Ib+30	1123203111	C(2.5P)	15.238	110	26	—	56	12.5	3	2
1/2-20UNF	Ib+30	1123203115	C(2.5P)	14.350	110	26	—	56	12.5	3	2
5/8-11UNC	Ib+30	1123203138	C(2.5P)	18.875	140	33	—	71	15	4	3
5/8-18UNF	Ib+30	1123203142	C(2.5P)	17.708	125	33	—	64	14	4	2
3/4-10UNC	Ib+30	1123203161	C(2.5P)	22.349	140	33	—	71	17	4	3
3/4-16UNF	Ib+30	1123203164	C(2.5P)	21.112	140	33	—	71	17	4	3

Z-PRO HVPO

Specifications

HSS

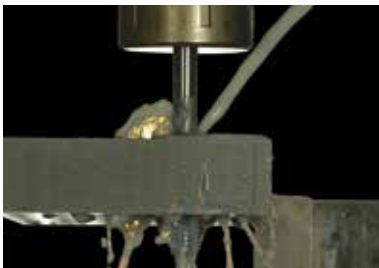
OX



Hybrid Value Spiral Pointed Taps for steels



Product Features



Adopting a semi-long shape

The optimal overall length improves chip evacuation. Furthermore, it enables a stable supply of tapping fluid.



Supports a wide range of machining environments

Excellent internal thread accuracy is achieved in both synchronous and asynchronous tapping environments. Additionally, a unique cutting edge geometry reduces cutting resistance and ensures stable tool life.

Differences in tapping speed depending on workpiece material and dimensions

HVPO

Workpiece Materials		Recommended tapping speed (m/min)						
		M1.4~M3	M4	M5	M6~M48	No.0~No.5 W1/8	No.6~No.12 W5/32~W3/16	U1/4~U2-4 1/2 W1/4~11/2
Low Carbon Steels	~S20C/SS400	1~5	2~7	2.5~10	3~12	3~5	5~10	5~10
Medium Carbon Steels	S25C~S45C	1~5	2~7	2.5~10	3~12	3~5	5~10	5~10
High Carbon Steels	S45C~	1~5	2~7	2.5~10	3~12	3~5	5~10	5~10
Alloy Steels	SCM/SCr	1~5	2~7	2.5~10	3~12	3~5	3~10	3~10
Heat Treated Steels	25~35HRC	—	—	—	3~10	—	—	3~10
Steels	SC	1~5	2~7	2.5~10	3~12	3~5	5~10	5~10
Stainless Steels	SUS303/SUS304	~5	~5	~5	~5	~5	~5	~5

HVPO Long

Workpiece Materials		Recommended tapping speed (m/min)			
		M3	M4	M5	M6~M48
Low Carbon Steels	~S20C/SS400	1~4	2~6	2.5~8	3~10
Medium Carbon Steels	S25C~S45C	1~4	2~6	2.5~8	3~10
High Carbon Steels	S45C~	1~4	2~6	2.5~8	3~10
Alloy Steels	SCM/SCr	1~4	2~6	2.5~8	3~10
Heat Treated Steels	25~35HRC	—	—	—	3~8
Steels	SC	1~4	2~6	2.5~8	3~10
Stainless Steels	SUS303/SUS304	~5	~5	~5	~5



View other Z-PRO Products' tapping speeds.

Machining Data

HVPO M12×1.75	
Conditions	
Workpiece Material	SS400
Tapping Speed	10m/min
Tapping Length	24mm
Machine	Vertical MC
Tapping Fluid	Water Soluble



! The unique flute geometry and semi-long overall length ensure an effective supply of tapping fluid.



! Excellent chip evacuation enables trouble-free, stable tapping.



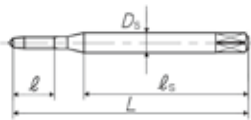
! When tapping SS400, a high-quality internal thread finish is achieved even when using water-soluble tapping fluids.



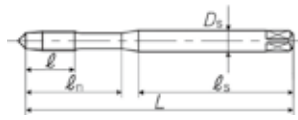
We provide a wide range of other market processing data. View the details here.

Shape and Dimensions

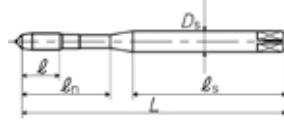
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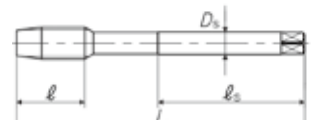
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TYPE:3



TYPE:4



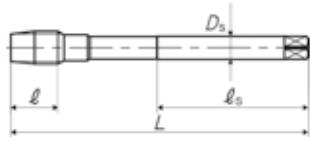
View HV series tap class

Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M1.4×0.3	P1	1113101007	5P	40	7	—	27	3	2	1
M1.6×0.35	P2	1113101010	5P	40	8	—	27	3	2	1
M1.7×0.35	P2	1113101014	5P	40	8	—	27	3	2	1
M1.8×0.35	P2	1113101017	5P	40	8	—	27	3	2	1
M2×0.4	P2	1113101021	5P	45	8	15	27	3	2	2
M2.2×0.45	P2	1113101024	5P	45	9	15	27	3	2	2
M2.3×0.4	P2	1113101026	5P	45	9	15	27	3	2	2
M2.5×0.45	P2	1113101029	5P	50	8	15	32	3	2	2
M2.6×0.45	P2	1113101032	5P	50	8	15	32	3	2	2
M3×0.5	P3	1113101035	5P	56	9	18	32	4	3	2
M3×0.5	P4	1113201035	5P	56	9	18	32	4	3	2
3M0.6	P3	1113101034	5P	56	9	18	32	4	3	2
M3×0.35	P2	1113101036	5P	56	6.5	18	32	4	3	3
M3.5×0.6	P2	1113101038	5P	63	13	20	36	5	3	2
M3.5×0.6	P3	1113201038	5P	63	13	20	36	5	3	2
M4×0.7	P3	1113101042	5P	63	13	21	36	5	3	2
M4×0.7	P4	1113201042	5P	63	13	21	36	5	3	2
4M0.75	P3	1113101041	5P	63	13	21	36	5	3	2
M4×0.5	P3	1113101043	5P	63	9	21	36	5	3	3
M4.5×0.5	P3	1113101046	5P	70	9	24	40	5.5	3	3
M5×0.8	P3	1113101049	5P	70	14	25	40	5.5	3	2
M5×0.8	P4	1113201049	5P	70	14	25	40	5.5	3	2
5M0.9	P3	1113101048	5P	70	14	25	40	5.5	3	2
M5×0.5	P3	1113101051	5P	70	9	25	40	5.5	3	3
M6×1	P3	1113101055	5P	80	15	30	45	6	3	2
M6×1	P4	1113201055	5P	80	15	30	45	6	3	2
M6×0.75	P3	1113101056	5P	80	15	30	45	6	3	2
M6×0.5	P3	1113101057	5P	80	9	30	45	6	3	3
M7×1	P3	1113101060	5P	90	15	—	46	6.2	3	4
M7×1	P4	1113201060	5P	90	15	—	46	6.2	3	4
M7×0.75	P3	1113101061	5P	90	15	—	46	6.2	3	4
M7×0.5	P3	1113101062	5P	90	10	—	46	6.2	3	5
M8×1.25	P3	1113101064	5P	90	19	—	46	6.2	3	4
M8×1.25	P4	1113201064	5P	90	19	—	46	6.2	3	4
M8×1	P3	1113101065	5P	90	19	—	46	6.2	3	4
M8×1	P4	1113201065	5P	90	19	—	46	6.2	3	4
M8×0.75	P3	1113101066	5P	90	19	—	46	6.2	3	4
M8×0.75	P4	1113201066	5P	90	19	—	46	6.2	3	4
M8×0.5	P3	1113101067	5P	90	10	—	46	6.2	3	5
M8×0.5	P4	1113201067	5P	90	10	—	46	6.2	3	5
M9×1	P3	1113101072	5P	100	23	—	51	7	3	4
M9×1	P4	1113201072	5P	100	23	—	51	7	3	4
M10×1.5	P4	1113101078	5P	100	23	—	51	7	3	4

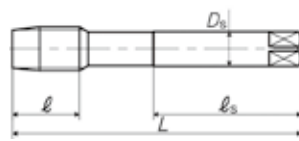
Oversized

Shape and Dimensions

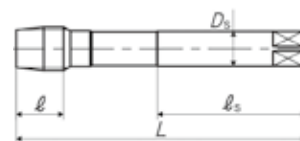
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TYPE:6



TYPE:7



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M10×1.5	P5	1113201078	5P	100	23	—	51	7	3	4
M10×1.25	P3	1113101079	5P	100	23	—	51	7	3	4
M10×1.25	P4	1113201079	5P	100	23	—	51	7	3	4
M10×1	P3	1113101080	5P	100	23	—	51	7	3	4
M10×1	P4	1113201080	5P	100	23	—	51	7	3	4
M12×1.75	P4	1113101088	5P	110	26	—	56	8.5	3	4
M12×1.75	P5	1113201088	5P	110	26	—	56	8.5	3	4
M12×1.5	P4	1113101089	5P	110	26	—	56	8.5	3	4
M12×1.5	P5	1113201089	5P	110	26	—	56	8.5	3	4
M12×1.25	P4	1113101090	5P	110	26	—	56	8.5	3	4
M12×1.25	P5	1113201090	5P	110	26	—	56	8.5	3	4
M12×1	P4	1113101091	5P	110	26	—	56	8.5	3	4
M12×1	P5	1113201091	5P	110	26	—	56	8.5	3	4
M14×2	P4	1113101100	5P	110	26	—	56	10.5	3	4
M14×2	P5	1113201100	5P	110	26	—	56	10.5	3	4
M14×1.5	P4	1113101102	5P	110	26	—	56	10.5	3	4
M14×1.5	P5	1113201102	5P	110	26	—	56	10.5	3	4
M14×1.25	P4	1113101103	5P	110	26	—	56	10.5	3	4
M14×1.25	P5	1113201103	5P	110	26	—	56	10.5	3	4
M14×1	P4	1113101104	5P	110	26	—	56	10.5	3	4
M14×1	P5	1113201104	5P	110	26	—	56	10.5	3	4
M16×2	P4	1113101114	5P	110	26	—	56	12.5	3	4
M16×2	P5	1113201114	5P	110	26	—	56	12.5	3	4
M16×1.5	P4	1113101116	5P	110	26	—	56	12.5	3	4
M16×1.5	P5	1113201116	5P	110	26	—	56	12.5	3	4
M16×1.25	P4	1113101117	5P	110	26	—	56	12.5	3	4
M16×1.25	P5	1113201117	5P	110	26	—	56	12.5	3	4
M16×1	P4	1113101118	5P	110	26	—	56	12.5	3	4
M16×1	P5	1113201118	5P	110	26	—	56	12.5	3	4
M18×2.5	P5	1113101128	5P	125	33	—	64	14	3	4
M18×2.5	P6	1113201128	5P	125	33	—	64	14	3	4
M18×2	P5	1113101129	5P	125	33	—	64	14	3	4
M18×2	P6	1113201129	5P	125	33	—	64	14	3	4
M18×1.5	P4	1113101130	5P	125	33	—	64	14	3	4
M18×1.5	P5	1113201130	5P	125	33	—	64	14	3	4
M18×1	P4	1113101132	5P	125	18	—	64	14	3	5
M18×1	P5	1113201132	5P	125	18	—	64	14	3	5
M20×2.5	P5	1113101141	5P	140	33	—	71	15	3	6
M20×2.5	P6	1113201141	5P	140	33	—	71	15	3	6
M20×2	P5	1113101142	5P	140	33	—	71	15	3	6
M20×2	P6	1113201142	5P	140	33	—	71	15	3	6
M20×1.5	P4	1113101144	5P	140	33	—	71	15	3	6
M20×1.5	P5	1113201144	5P	140	33	—	71	15	3	6

Oversized

Shape and Dimensions

Size	Class	Product Code	Chamfer	L (mm)	ℓ (mm)	ℓ _n (mm)	ℓ _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M20×1	P4	1113101146	5P	140	18	—	71	15	3	7
M20×1	P5	1113201146	5P	140	18	—	71	15	3	7
M22×2.5	P5	1113101156	5P	140	33	—	71	17	3	6
M22×2.5	P6	1113201156	5P	140	33	—	71	17	3	6
M22×2	P5	1113101157	5P	140	33	—	71	17	3	6
M22×2	P6	1113201157	5P	140	33	—	71	17	3	6
M22×1.5	P4	1113101158	5P	140	33	—	71	17	3	6
M22×1.5	P5	1113201158	5P	140	33	—	71	17	3	6
M24×3	P5	1113101167	5P	160	37	—	82	19	3	6
M24×3	P6	1113201167	5P	160	37	—	82	19	3	6
M24×2	P5	1113101169	5P	160	37	—	82	19	3	6
M24×2	P6	1113201169	5P	160	37	—	82	19	3	6
M24×1.5	P4	1113101170	5P	160	37	—	82	19	3	6
M24×1.5	P5	1113201170	5P	160	37	—	82	19	3	6
M25×1.5	P4	1113101177	5P	160	37	—	82	19	3	6
M25×1.5	P5	1113201177	5P	160	37	—	82	19	3	6
M26×3	P5	1113101181	5P	160	37	—	82	20	4	6
M27×3	P5	1113101186	5P	160	37	—	82	20	4	6
M27×2	P5	1113101187	5P	160	37	—	82	20	4	6
M27×1.5	P4	1113101188	5P	160	37	—	82	20	4	6
M28×1.5	P4	1113101194	5P	180	44	—	92	23	4	6
M30×3.5	P5	1113101199	5P	180	44	—	92	23	4	6
M30×3	P6	1113101200	5P	180	44	—	92	23	4	6
M30×2	P5	1113101201	5P	180	44	—	92	23	4	6
M30×1.5	P4	1113101202	5P	180	44	—	92	23	4	6
M32×2	P5	1113101207	5P	180	44	—	92	24	4	6
M32×1.5	P4	1113101208	5P	180	44	—	92	24	4	6
M33×3.5	P5	1113101211	5P	180	46	—	92	25	4	6
M33×3	P6	1113101212	5P	180	46	—	92	25	4	6
M33×2	P5	1113101213	5P	180	46	—	92	25	4	6
M33×1.5	P4	1113101214	5P	180	46	—	92	25	4	6
M35×2	P5	1113101221	5P	200	52	—	102	28	4	6
M35×1.5	P4	1113101222	5P	200	26	—	102	28	4	7
M36×4	P6	1113101225	5P	200	52	—	102	28	4	6
M36×3	P6	1113101226	5P	200	52	—	102	28	4	6
M36×2	P5	1113101227	5P	200	52	—	102	28	4	6
M36×1.5	P4	1113101228	5P	200	26	—	102	28	4	7
M39×4	P6	1113101240	5P	200	52	—	102	30	4	6
M39×3	P6	1113101241	5P	200	52	—	102	30	4	6
M42×4.5	P6	1113101250	5P	200	59	—	102	32	4	6
M42×3	P6	1113101252	5P	200	59	—	102	32	4	6
M45×4.5	P6	1113101261	5P	220	59	—	112	35	4	6
M48×5	P6	1113101271	5P	250	65	—	128	38	4	6
M48×3	P6	1113101274	5P	250	65	—	128	38	4	6
For Unified threads										
No.0-80UNF	P1	1113103001	5P	40	8	—	27	3	2	1
No.1-64UNC	P1	1113103004	5P	45	8	—	27	3	2	1
No.1-72UNF	P1	1113103005	5P	45	6	—	27	3	2	1
No.2-56UNC	P1	1113103007	5P	45	9	15	27	3	2	2

Oversized

■ Shape and Dimensions

Size	Class	Product Code	Chamfer	L (mm)	ℓ (mm)	ℓ _n (mm)	ℓ _s (mm)	D _s (mm)	Number of flutes	TYPE
For Unified threads										
No.2-64UNF	P1	1113103008	5P	45	7	15	27	3	2	2
No.3-48UNC	P1	1113103012	5P	50	8	15	32	3	2	2
No.3-56UNF	P1	1113103013	5P	50	8	15	32	3	2	2
No.4-40UNC	P2	1113103015	5P	56	9	17	32	4	2	2
No.4-48UNF	P2	1113103016	5P	56	9	17	32	4	2	2
No.5-40UNC	P2	1113103021	5P	63	13	19	36	5	2	2
No.5-44UNF	P2	1113103022	5P	63	13	19	36	5	2	2
No.6-32UNC	P2	1113103023	5P	63	13	19	36	5	2	2
No.6-32UNC	P3	1113203023	5P	63	13	19	36	5	2	2
No.6-40UNF	P2	1113103024	5P	63	13	19	36	5	2	2
No.6-40UNF	P3	1113203024	5P	63	13	19	36	5	2	2
No.8-32UNC	P2	1113103029	5P	70	14	23	40	5.5	2	2
No.8-32UNC	P3	1113203029	5P	70	14	23	40	5.5	2	2
No.8-36UNF	P2	1113103030	5P	70	14	23	40	5.5	2	2
No.8-36UNF	P3	1113203030	5P	70	14	23	40	5.5	2	2
No.10-24UNC	P2	1113103039	5P	70	14	24	40	5.5	2	2
No.10-24UNC	P3	1113203039	5P	70	14	24	40	5.5	2	2
No.10-32UNF	P2	1113103041	5P	70	14	24	40	5.5	2	2
No.10-32UNF	P3	1113203041	5P	70	14	24	40	5.5	2	2
No.12-24UNC	P2	1113103047	5P	80	15	28	45	6	2	2
No.12-24UNC	P3	1113203047	5P	80	15	28	45	6	2	2
No.12-28UNF	P2	1113103048	5P	80	15	28	45	6	2	2
No.12-28UNF	P3	1113203048	5P	80	15	28	45	6	2	2
1/4-20UNC	P2	1113103058	5P	80	15	30	45	6	3	2
1/4-20UNC	P3	1113203058	5P	80	15	30	45	6	3	2
1/4-28UNF	P2	1113103062	5P	80	15	30	45	6	3	2
1/4-28UNF	P3	1113203062	5P	80	15	30	45	6	3	2
5/16-18UNC	P3	1113103071	5P	90	19	—	46	6.2	3	4
5/16-18UNC	P4	1113203071	5P	90	19	—	46	6.2	3	4
5/16-24UNF	P3	1113103074	5P	90	19	—	46	6.2	3	4
3/8-16UNC	P3	1113103082	5P	100	23	—	51	7	3	4
3/8-16UNC	P4	1113203082	5P	100	23	—	51	7	3	4
3/8-24UNF	P3	1113103085	5P	100	23	—	51	7	3	4
7/16-14UNC	P3	1113103098	5P	110	26	—	56	8.5	3	4
7/16-14UNC	P4	1113203098	5P	110	26	—	56	8.5	3	4
7/16-20UNF	P3	1113103101	5P	110	26	—	56	8.5	3	4
1/2-13UNC	P3	1113103111	5P	110	26	—	56	10.5	3	4
1/2-13UNC	P4	1113203111	5P	110	26	—	56	10.5	3	4
1/2-20UNF	P4	1113103115	5P	110	26	—	56	10.5	3	4
9/16-12UNC	P3	1113103126	5P	110	26	—	56	12.5	3	4
9/16-12UNC	P4	1113203126	5P	110	26	—	56	12.5	3	4
9/16-18UNF	P4	1113103129	5P	110	26	—	56	12.5	3	4
5/8-11UNC	P4	1113103138	5P	110	26	—	56	12.5	3	4
5/8-11UNC	P5	1113203138	5P	110	26	—	56	12.5	3	4
5/8-18UNF	P4	1113103142	5P	110	26	—	56	12.5	3	6
3/4-10UNC	P4	1113103161	5P	140	33	—	71	15	3	6
3/4-10UNC	P5	1113203161	5P	140	33	—	71	15	3	6
3/4-16UNF	P4	1113103164	5P	140	33	—	71	15	3	6
7/8-9UNC	P5	1113103181	5P	140	33	—	71	17	3	6

■ Oversized

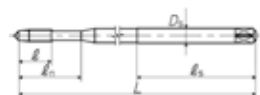
■ Shape and Dimensions

Size	Class	Product Code	Chamfer	L (mm)	ℓ (mm)	ℓ _n (mm)	ℓ _s (mm)	D _s (mm)	Number of flutes	TYPE
For Unified threads										
7/8-14UNF	P4	1113103184	5P	140	33	—	71	17	3	6
1 -8UNC	P5	1113103202	5P	160	37	—	82	19	3	6
1 -12UNF	P4	1113103204	5P	160	37	—	82	19	3	6
1 1/8-7UNC	P6	1113103225	5P	180	44	—	92	23	4	6
1 1/8-8UN	P5	1113103226	5P	180	44	—	92	23	4	6
1 1/8-12UNF	P4	1113103229	5P	180	44	—	92	23	4	6
1 1/4-7UNC	P6	1113103246	5P	180	44	—	92	24	4	6
1 1/4-8UN	P5	1113103247	5P	180	44	—	92	24	4	6
1 1/4-12UNF	P4	1113103250	5P	180	44	—	92	24	4	6
1 3/8-6UNC	P6	1113103266	5P	200	52	—	102	28	4	6
1 3/8-8UN	P5	1113103267	5P	200	52	—	102	28	4	6
1 3/8-12UNF	P4	1113103269	5P	200	52	—	102	28	4	6
1 1/2-6UNC	P6	1113103289	5P	200	52	—	102	30	4	6
1 1/2-8UN	P5	1113103290	5P	200	52	—	102	30	4	6
1 1/2-12UNF	P4	1113103292	5P	200	52	—	102	30	4	6
1 3/4-5UNC	P6	1113103325	5P	220	59	—	112	35	4	6
1 3/4-8UN	P5	1113103327	5P	220	59	—	112	35	4	6
1 3/4-12UN	P4	1113103329	5P	220	59	—	112	35	4	6
2 -4 1/2UNC	P7	1113103357	5P	250	70	—	128	40	4	6
2 -8UN	P6	1113103359	5P	250	70	—	128	40	4	6
For Whitworth threads										
1/8W40	P2	1113105018	5P	63	13	19	36	5	2	2
5/32W32	P2	1113105028	5P	63	13	20	36	5	2	2
3/16W24	P3	1113105034	5P	70	14	23	40	5.5	2	2
1/4W20	P3	1113105058	5P	80	15	30	45	6	3	2
5/16W18	P3	1113105071	5P	90	19	—	46	6.2	3	4
3/8W16	P4	1113105082	5P	100	23	—	51	7	3	4
7/16W14	P4	1113105098	5P	110	26	—	56	8.5	3	4
1/2W12	P4	1113105110	5P	110	26	—	56	10.5	3	4
5/8W11	P4	1113105138	5P	110	26	—	56	12.5	3	4
3/4W10	P4	1113105161	5P	140	33	—	71	15	3	6
7/8W9	P5	1113105181	5P	140	33	—	71	17	3	6
1 W8	P4	1113105202	5P	160	37	—	82	19	3	6
1 1/4W7	P5	1113105246	5P	180	44	—	92	24	4	6
1 1/2W6	P5	1113105289	5P	200	52	—	102	30	4	6

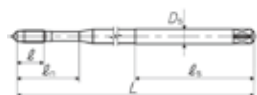
HVPO Long

Shape and Dimensions

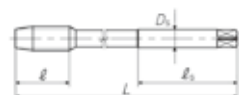
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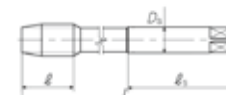
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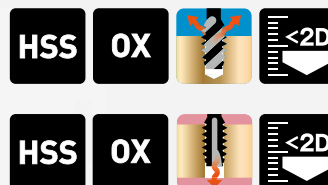


Size	Class	Product Code	Chamfer	L (mm)	ℓ (mm)	ℓ _n (mm)	ℓ _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads										
M3×0.5	P3	2113101035	5P	100	9	18	32	4	3	1
M3×0.35	P2	2113101036	5P	100	6.5	18	32	4	3	2
M4×0.7	P3	2113101042	5P	100	11	21	36	5	3	1
M4×0.5	P3	2113101043	5P	100	9	21	36	5	3	2
M5×0.8	P3	2113101049	5P	100	13	25	40	5.5	3	1
M5×0.5	P3	2113101051	5P	100	9	25	40	5.5	3	2
M6×1	P3	2113101055	5P	100	15	30	45	6	3	1
M6×1	P3	2313101055	5P	150	15	30	45	6	3	1
M6×0.75	P3	2113101056	5P	100	15	30	45	6	3	1
M6×0.5	P3	2113101057	5P	100	9	30	45	6	3	2
M8×1.25	P3	2113101064	5P	150	19	—	46	6.2	3	3
M8×1	P3	2113101065	5P	150	19	—	46	6.2	3	3
M10×1.5	P4	2113101078	5P	150	23	—	51	7	3	3
M10×1.25	P3	2113101079	5P	150	23	—	51	7	3	3
M10×1	P3	2113101080	5P	150	23	—	51	7	3	3
M12×1.75	P4	2113101088	5P	150	26	—	56	8.5	3	3
M12×1.5	P4	2113101089	5P	150	26	—	56	8.5	3	3
M12×1.25	P4	2113101090	5P	150	26	—	56	8.5	3	3
M14×2	P4	2113101100	5P	150	26	—	56	10.5	3	3
M14×1.5	P4	2113101102	5P	150	26	—	56	10.5	3	3
M16×2	P4	2113101114	5P	150	26	—	56	12.5	3	3
M16×1.5	P4	2113101116	5P	150	26	—	56	12.5	3	3
M18×2.5	P5	2113101128	5P	200	33	—	64	14	3	3
M18×2	P5	2113101129	5P	200	33	—	64	14	3	3
M18×1.5	P4	2113101130	5P	200	33	—	64	14	3	3
M18×1	P4	2113101132	5P	200	18	—	64	14	3	4
M20×2.5	P5	2113101141	5P	200	33	—	71	15	3	5
M20×2	P5	2113101142	5P	200	33	—	71	15	3	5
M20×1.5	P4	2113101144	5P	200	33	—	71	15	3	5
M22×2.5	P5	2113101156	5P	200	33	—	71	17	3	5
M22×1.5	P4	2113101158	5P	200	33	—	71	17	3	5
M24×3	P5	2113101167	5P	250	37	—	82	19	3	5
M24×1.5	P4	2113101170	5P	250	37	—	82	19	3	5
M27×3	P5	2113101186	5P	250	37	—	82	20	4	5
M27×1.5	P4	2113101188	5P	250	37	—	82	20	4	5
M30×3.5	P5	2113101199	5P	250	44	—	92	23	4	5
M30×3	P6	2113101200	5P	250	44	—	92	23	4	5
M30×1.5	P4	2113101202	5P	250	44	—	92	23	4	5
M33×3.5	P5	2113101211	5P	250	46	—	92	25	4	5
M33×3	P6	2113101212	5P	250	46	—	92	25	4	5
M36×4	P6	2113101225	5P	300	52	—	102	28	4	5
M36×3	P6	2113101226	5P	300	52	—	102	28	4	5
M39×4	P6	2113101240	5P	300	52	—	102	30	4	5
M39×3	P6	2113101241	5P	300	52	—	102	30	4	5
M42×4.5	P6	2113101250	5P	300	59	—	102	32	4	5
M42×3	P6	2113101252	5P	300	59	—	102	32	4	5
M48×5	P6	2113101271	5P	300	65	—	128	38	4	5
M48×3	P6	2113101274	5P	300	65	—	128	38	4	5

HVSP ZP

Hybrid Value Spiral Fluted Taps for zinc plating

Specifications



HVPO ZP

Hybrid Value Spiral Pointed Taps for zinc plating



Product Features

- ⓘ A tap class optimized for internal threading prior to galvanizing has been added to the standard product lineup.
- ⓘ 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/HVPO, and can be used with various workpiece materials and machines.
- ⓘ Stable tapping without chipping is possible in both vertical and horizontal machining.

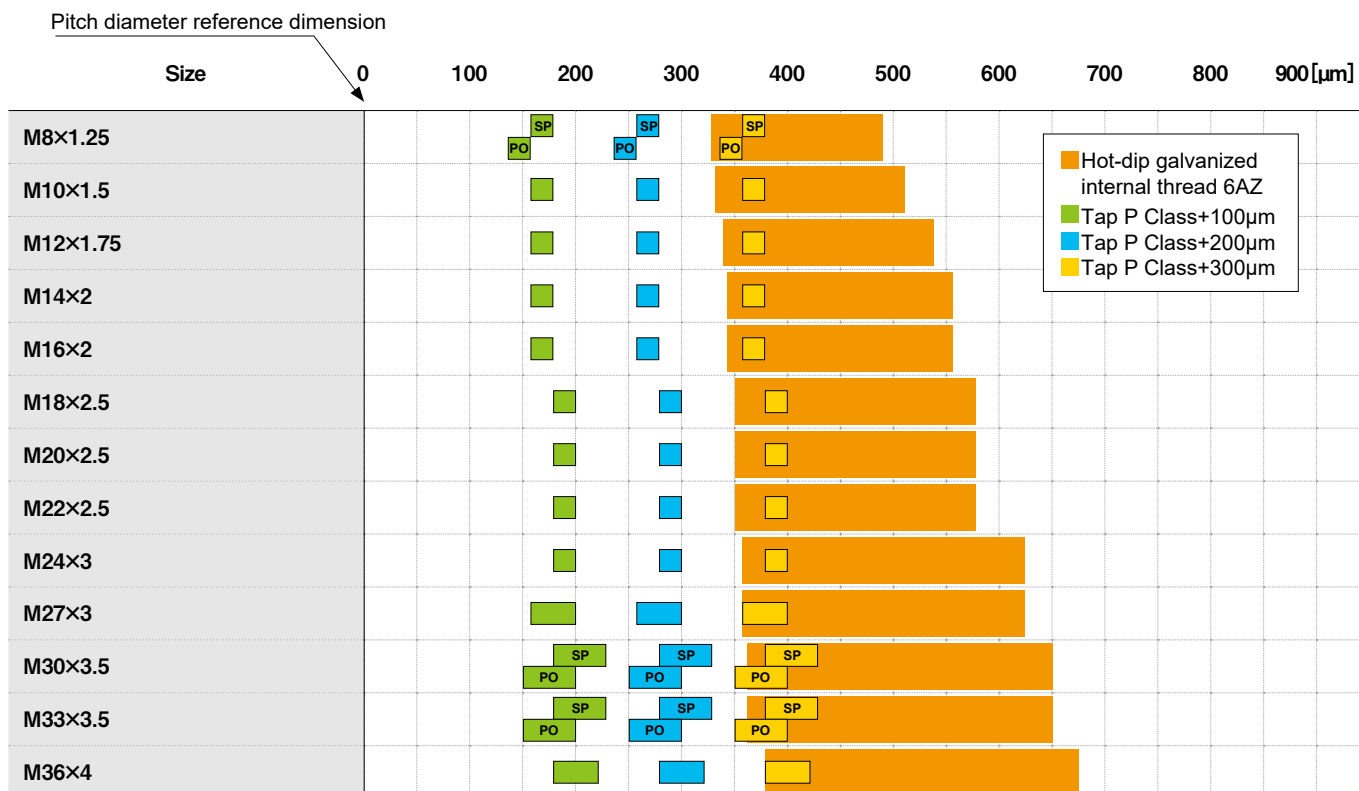
Differences in tapping speed depending on workpiece material and dimensions

Workpiece Materials		Recommended 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
Alloy Steels	SCM/SCr	3~12	3~8
Heat Treated Steels	25~35HRC	~5	~5
Steels	SC	3~12	3~8
Stainless Steels	SUS303/SUS304	~5	~5



◀ View other Z-PRO Products' tapping speeds.

Comparison table of pitch diameter tolerance ranges for tap classes and (hot-dip galvanized) internal thread classes.



Note: For M10 to M27 and M36, ""HVSP ZP"" and ""HVPO ZP"" share the same tolerance zone.

*The M8 x 1.25 is calculated using the dimensional tolerance formula that forms the basis of tolerance position 6AZ, as specified in JIS B 0209-5.

《Explanation》

- * The graph above is an excerpt from JIS B0209-5 ""Permissible Limit Dimensions of internal threads combined with Hot-Dip galvanized external threads having the maximum dimension of tolerance position h before plating and compares the pitch diameter of internal threads with tolerance zone class 6AZ and HVSP ZP/HVPO ZP classes.
- * For example, to satisfy tolerance zone class 6AZ with a nominal size of M10×1.5, it can be seen that P Class +300µm should be used.
- * Since the plating thickness varies depending on the type of plating and processing method, there are cases where the required internal thread diameter does not conform to the above standard. Therefore, YAMAWA has prepared P Class +100µm (+0.1mm), P Class +200µm (+0.2mm), and P Class +300µm (+0.3mm) as standard, as these are in high demand in the market."

Pre-tapped hole diameter

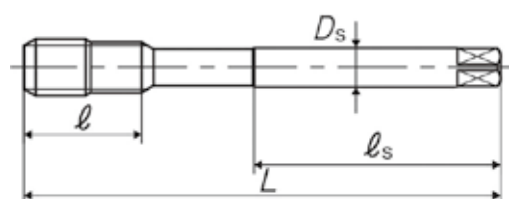
When creating the pre-tapped hole for the internal threads before zinc plating, we recommend using a larger diameter to account for the plating thickness. Please refer to the table below and confirm the final dimensions on your own.

Unit: mm

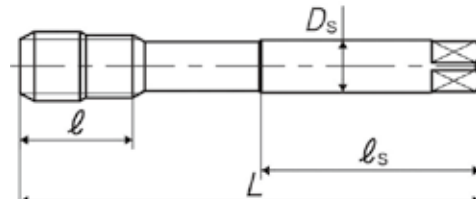
Size	Oversized pre-tapped hole dia(for reference)			Internal thread 6H class Minor diameter Min
	Oversize +0.1mm	Oversize +0.2mm	Oversize +0.3mm	
M8×1.25	6.95	7.05	7.15	6.647
M10×1.5	8.70	8.80	8.90	8.376
M12×1.75	10.5	10.6	10.7	10.106
M14×2	12.2	12.3	12.4	11.835
M16×2	14.2	14.3	14.4	13.835
M18×2.5	15.7	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

Shape and Dimensions

TYPE:1



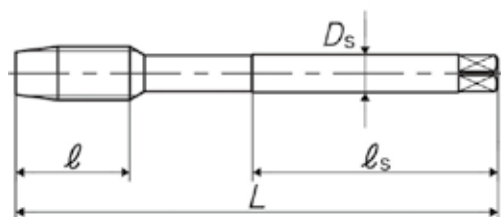
TYPE:2



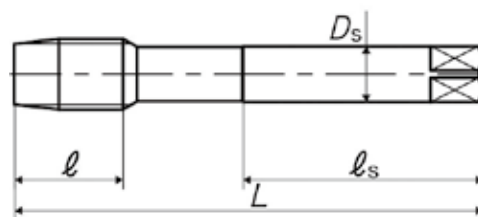
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _s (mm)	D _s (mm)	Number of flutes	TYPE
For Metric threads									
M8×1.25	P4+0.1	1112201064	C(2.5P)	90	19	46	6.2	3	1
M8×1.25	P4+0.2	1112301064	C(2.5P)	90	19	46	6.2	3	1
M8×1.25	P4+0.3	1112401064	C(2.5P)	90	19	46	6.2	3	1
M10×1.5	P4+0.1	1112201078	C(2.5P)	100	23	51	7	3	1
M10×1.5	P4+0.2	1112301078	C(2.5P)	100	23	51	7	3	1
M10×1.5	P4+0.3	1112401078	C(2.5P)	100	23	51	7	3	1
M12×1.75	P4+0.1	1112201088	C(2.5P)	110	26	56	8.5	3	1
M12×1.75	P4+0.2	1112301088	C(2.5P)	110	26	56	8.5	3	1
M12×1.75	P4+0.3	1112401088	C(2.5P)	110	26	56	8.5	3	1
M14×2	P4+0.1	1112201100	C(2.5P)	110	26	56	10.5	3	1
M14×2	P4+0.2	1112301100	C(2.5P)	110	26	56	10.5	3	1
M14×2	P4+0.3	1112401100	C(2.5P)	110	26	56	10.5	3	1
M16×2	P4+0.1	1112201114	C(2.5P)	110	26	56	12.5	3	1
M16×2	P4+0.2	1112301114	C(2.5P)	110	26	56	12.5	3	1
M16×2	P4+0.3	1112401114	C(2.5P)	110	26	56	12.5	3	1
M18×2.5	P5+0.1	1112201128	C(2.5P)	125	33	64	14	4	1
M18×2.5	P5+0.2	1112301128	C(2.5P)	125	33	64	14	4	1
M18×2.5	P5+0.3	1112401128	C(2.5P)	125	33	64	14	4	1
M20×2.5	P5+0.1	1112201141	C(2.5P)	140	33	71	15	4	2
M20×2.5	P5+0.2	1112301141	C(2.5P)	140	33	71	15	4	2
M20×2.5	P5+0.3	1112401141	C(2.5P)	140	33	71	15	4	2
M22×2.5	P5+0.1	1112201156	C(2.5P)	140	33	71	17	4	2
M22×2.5	P5+0.2	1112301156	C(2.5P)	140	33	71	17	4	2
M22×2.5	P5+0.3	1112401156	C(2.5P)	140	33	71	17	4	2
M24×3	P5+0.1	1112201167	C(2.5P)	160	37	82	19	4	2
M24×3	P5+0.2	1112301167	C(2.5P)	160	37	82	19	4	2
M24×3	P5+0.3	1112401167	C(2.5P)	160	37	82	19	4	2
M27×3	P5+0.1	1112201186	C(2.5P)	160	37	82	20	4	2
M27×3	P5+0.2	1112301186	C(2.5P)	160	37	82	20	4	2
M27×3	P5+0.3	1112401186	C(2.5P)	160	37	82	20	4	2
M30×3.5	P6+0.1	1112201199	C(2.5P)	180	44	92	23	4	2
M30×3.5	P6+0.2	1112301199	C(2.5P)	180	44	92	23	4	2
M30×3.5	P6+0.3	1112401199	C(2.5P)	180	44	92	23	4	2
M33×3.5	P6+0.1	1112201211	C(2.5P)	180	46	92	25	4	2
M33×3.5	P6+0.2	1112301211	C(2.5P)	180	46	92	25	4	2
M33×3.5	P6+0.3	1112401211	C(2.5P)	180	46	92	25	4	2
M36×4	P6+0.1	1112201225	C(2.5P)	200	52	102	28	4	2
M36×4	P6+0.2	1112301225	C(2.5P)	200	52	102	28	4	2
M36×4	P6+0.3	1112401225	C(2.5P)	200	52	102	28	4	2

Shape and Dimensions

TYPE:3



TYPE:4



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l_s (mm)	D_s (mm)	Number of flutes	TYPE
For Metric threads									
M8×1.25	P3+0.1	1122201064	5P	90	19	46	6.2	3	3
M8×1.25	P3+0.2	1122301064	5P	90	19	46	6.2	3	3
M8×1.25	P3+0.3	1122401064	5P	90	19	46	6.2	3	3
M10×1.5	P4+0.1	1122201078	5P	100	23	51	7	3	3
M10×1.5	P4+0.2	1122301078	5P	100	23	51	7	3	3
M10×1.5	P4+0.3	1122401078	5P	100	23	51	7	3	3
M12×1.75	P4+0.1	1122201088	5P	110	26	56	8.5	3	3
M12×1.75	P4+0.2	1122301088	5P	110	26	56	8.5	3	3
M12×1.75	P4+0.3	1122401088	5P	110	26	56	8.5	3	3
M14×2	P4+0.1	1122201100	5P	110	26	56	10.5	3	3
M14×2	P4+0.2	1122301100	5P	110	26	56	10.5	3	3
M14×2	P4+0.3	1122401100	5P	110	26	56	10.5	3	3
M16×2	P4+0.1	1122201114	5P	110	26	56	12.5	3	3
M16×2	P4+0.2	1122301114	5P	110	26	56	12.5	3	3
M16×2	P4+0.3	1122401114	5P	110	26	56	12.5	3	3
M18×2.5	P5+0.1	1122201128	5P	125	33	64	14	3	3
M18×2.5	P5+0.2	1122301128	5P	125	33	64	14	3	3
M18×2.5	P5+0.3	1122401128	5P	125	33	64	14	3	3
M20×2.5	P5+0.1	1122201141	5P	140	33	71	15	3	4
M20×2.5	P5+0.2	1122301141	5P	140	33	71	15	3	4
M20×2.5	P5+0.3	1122401141	5P	140	33	71	15	3	4
M22×2.5	P5+0.1	1122201156	5P	140	33	71	17	3	4
M22×2.5	P5+0.2	1122301156	5P	140	33	71	17	3	4
M22×2.5	P5+0.3	1122401156	5P	140	33	71	17	3	4
M24×3	P5+0.1	1122201167	5P	160	37	82	19	3	4
M24×3	P5+0.2	1122301167	5P	160	37	82	19	3	4
M24×3	P5+0.3	1122401167	5P	160	37	82	19	3	4
M27×3	P5+0.1	1122201186	5P	160	37	82	20	4	4
M27×3	P5+0.2	1122301186	5P	160	37	82	20	4	4
M27×3	P5+0.3	1122401186	5P	160	37	82	20	4	4
M30×3.5	P5+0.1	1122201199	5P	180	44	92	23	4	4
M30×3.5	P5+0.2	1122301199	5P	180	44	92	23	4	4
M30×3.5	P5+0.3	1122401199	5P	180	44	92	23	4	4
M33×3.5	P5+0.1	1122201211	5P	180	46	92	25	4	4
M33×3.5	P5+0.2	1122301211	5P	180	46	92	25	4	4
M33×3.5	P5+0.3	1122401211	5P	180	46	92	25	4	4
M36×4	P6+0.1	1122201225	5P	200	52	102	28	4	4
M36×4	P6+0.2	1122301225	5P	200	52	102	28	4	4
M36×4	P6+0.3	1122401225	5P	200	52	102	28	4	4



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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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