

Z-PRO

Ultimate Machine Tap Series

HVSP

Innovative Spiral Fluted
Taps enabling excellent chip
evacuation for blind holes

Excellent chip ejection, stable tapping and long life

09. 2024



HVSP



Spiral fluted taps for excellent chip evacuation

Parameters

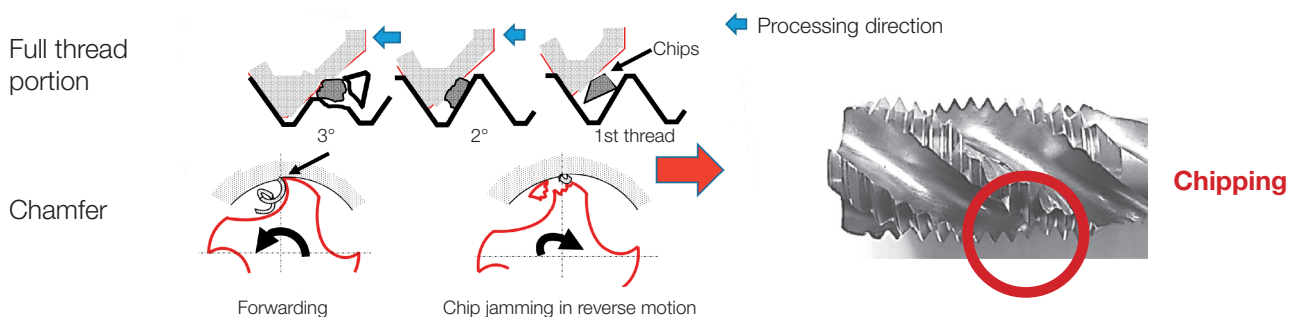
Recommended tapping conditions for the HVSP tap series.

Work-materials		Vc (m/min)
Stainless steel	SUS303 / SUS304	3~5
Alloy steel	SCM / SCr	3~12
High carbon steels	S45C~	3~12
Medium carbon steels	S25C~S45C	3~12
Low carbon steels	~S20C / SS400	3~12

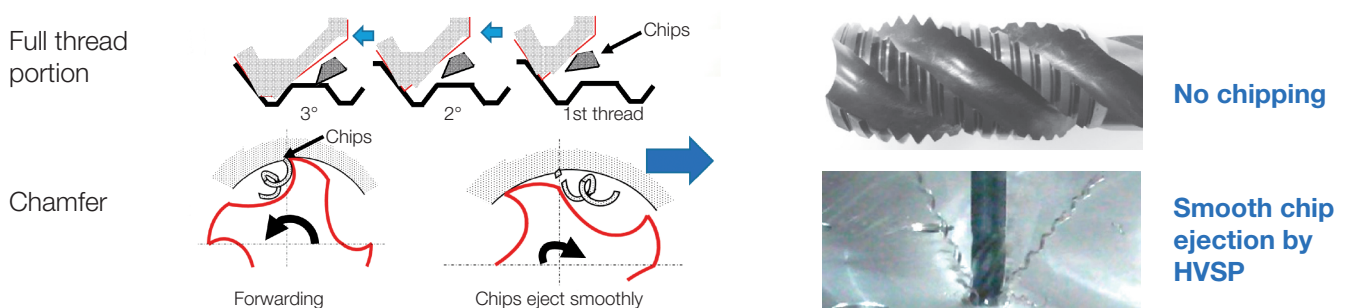
Product features

HVSP are designed to avoid chipping problems and provide smooth chip ejection, by combining the unique Yamawa BLF thread geometry, a special geometry of the cutting edge and a unique flute design

Tapping with standard SP - Chipping happens on thread portion



Tapping with HVSP - No chipping

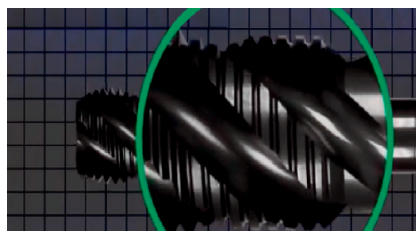


Designed to avoid chipping problems



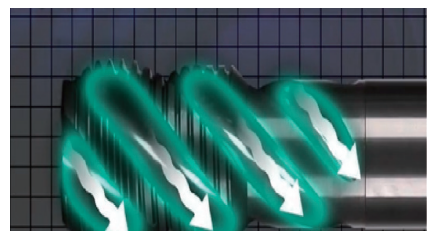
Advanced cutting edge

Specially designed geometry in cutting edge prevents chip incursion from the back side of chamfer thread portion during reverse motion



BLF shape on full thread portion

The BLF shape produces excellent cutting performances enabling the prevention of flute chipping problems



Unique flute design

Unique flute design for smooth chip ejection

Soft Structural steel such as St44-2 and low carbon steels are widely used in large size parts. Chips created by large size taps are thick and long becoming difficult to eject, resulting in high risk of chip tangling and cutting edge chipping.



Ejected chips by large size taps



Entangled chips



Chipping

Combination with straight oil

Large diameter taps are more effective with an oxidation treatment enabling flutes to retain more oil during tapping helping to avoid welding problems on the thread portion of the tap and galling on tapped thread surface.

Straight tapping oil +



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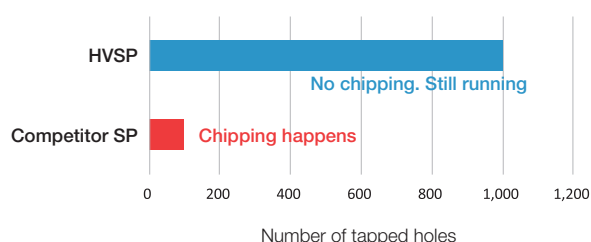


Excellent internal thread surface!

Process data

Case 1

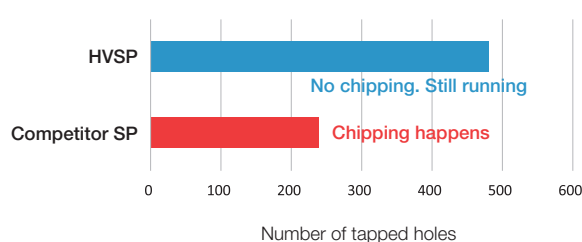
Comparison with other brand SP



Item	HVSP M16X2
	Other brand SP M16X2
Workpiece material	St44-2 / 1.0044 / Fe430B
Hole shape (depth)	Blind hole (42mm)
Direction	Horizontal
Bored hole dia. (mm)	14.20
Machine	Special machine (non rigid)
Cutting speed (m/min)	7.8
Lubrication	Straight oil

Case 2

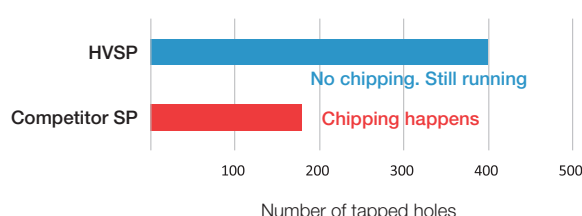
Comparison with standard SP



Item	HVSP M30
	Standard SP M30
Workpiece material	42CrMo4 / 1.7218
Hole shape (depth)	Blind hole (60mm)
Direction	Horizontal
Bored hole dia. (mm)	26.50
Machine	Machining center (non rigid)
Cutting speed (m/min)	4.7
Lubrication	Straight oil

Case 3

Comparison with standard SP



Item	HVSP M36
	Other brand SP M36
Workpiece material	Ck55 / 1.1203 / C55
Hole shape (depth)	Blind hole (42mm)
Direction	Vertical
Bored hole dia. (mm)	32.50
Machine	Drilling machine (non rigid)
Cutting speed (m/min)	5.0
Lubrication	Straight oil

WARNING

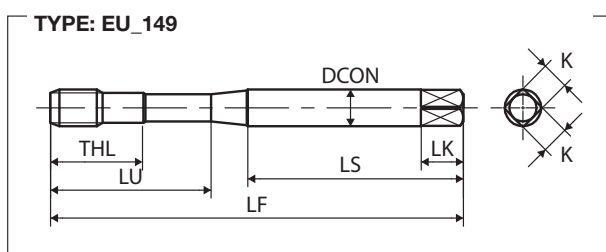
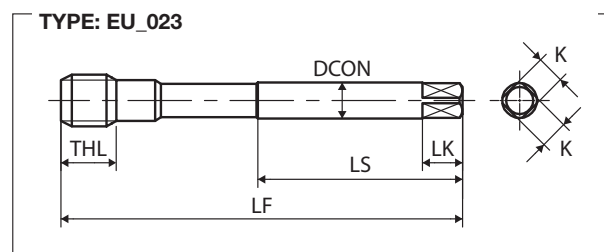
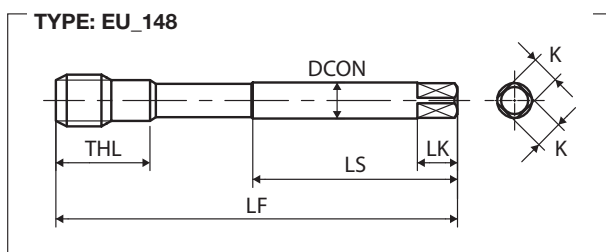
- Tools may shatter. Wear cover or eye glass to avoid injury during tapping.
- Tools may shatter. Use tools under the proper tapping condition.
- Never wear gloves during turning operations as the gloves may get caught with the tools.
- Wear safety shoes to avoid injuring yourself by the falling tools.
- On attaching tools to the machine, fasten firmly to avoid shattering and run-out.
- Fasten the workpieces firmly so that they never move during operation.
- Never use worn tools or damaged tools with chipping.
- Take a special care to fire trouble. High temperature during machining may cause fire.

HVSP



Spiral fluted taps for excellent chip evacuation

Dimensions and sizes



Size	TCTR (tolerance)	$\varnothing$ (mm)	Hole $\varnothing$ (mm)	Code	THCHT (chamfer)	LF (mm)	LT	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
M																
M3X0.5	ISO2X(6HX)	2.5	2.56	SD3.0GYEEXJ	2.5P	56	-	9	18	34	3.5	2.7	6	3	149	●
M4X0.7	ISO2X(6HX)	3.3	3.38	SD4.0IYEEXJ	2.5P	63	-	13	21	38	4.5	3.4	6	3	149	●
M5X0.8	ISO2X(6HX)	4.2	4.28	SD5.0KYEEXJ	2.5P	70	-	14	25	39	6	4.9	8	3	149	●
M6X1	ISO2X(6HX)	5	5.09	SD6.0MYEEXJ	2.5P	80	-	15	30	45	6	4.9	8	3	149	●
M8X1.25	ISO2X(6HX)	6.8	6.85	SD8.0NYEEXJ	2.5P	90	-	19	35	47	8	6.2	9	3	149	●
M10x1.5	ISO2X(6HX)	8.5	8.6	SD0100YEEXJ	2.5P	100	-	23	39	52.5	10	8	11	3	149	●
M12X1.75	ISO2X(6HX)	10.3	10.36	SG012PSEEXJ	2.5P	110	-	26	-	56	9	7	10	3	148	●
M14X2	ISO2X(6HX)	12	12.12	SG014QSEEXJ	2.5P	110	-	26	-	56	11	9	12	3	148	●
M16X2	ISO2X(6HX)	14	14.12	SG016QSEEXJ	2.5P	110	-	26	-	56	12	9	12	3	148	●
M18X2.5	ISO2X(6HX)	15.5	15.63	SG018RTEEXJ	2.5P	125	-	33	-	64	14	11	14	4	148	●
M20X2.5	ISO2X(6HX)	17.5	17.63	SG020RTEEXJ	2.5P	140	-	33	-	71	16	12	15	4	148	●
M22X2.5	ISO2X(6HX)	19.5	19.63	SG022RTEEXJ	2.5P	140	-	33	-	71	18	14.5	17	4	148	●
M24X3	ISO2X(6HX)	21	21.13	SG024STEEXJ	2.5P	160	-	37	-	82	18	14.5	17	4	023	●
M27X3	ISO2X(6HX)	24	24.13	SG027STEEXJ	2.5P	160	-	37	-	82	20	16	19	4	023	●
M30X3.5	ISO2X(6HX)	26.5	26.63	SG030TBEEEXJ	2.5P	180	-	44	-	92	22	18	21	4	023	●
M33X3.5	ISO2X(6HX)	29.5	29.63	SG033TBEEEXJ	2.5P	180	-	46	-	92	25	20	23	4	023	●
M36X4	ISO2X(6HX)	32	32.12	SG036UBEEXJ	2.5P	200	-	52	-	102	28	22	25	4	023	●
M39X4	ISO2X(6HX)	35	35.12	SG039UBEEXJ	2.5P	200	-	52	-	102	32	24	27	4	023	●
M42X4.5	ISO2X(6HX)	37.5	37.63	SG042VBEEXJ	2.5P	200	-	59	-	102	32	24	27	4	023	●
M48X5	ISO2X(6HX)	43	43.12	SG048WBEEXJ	2.5P	250	-	65	-	128	36	29	32	4	023	●
MF																
M3X0.35	ISO2X(6HX)	2.65	2.7	SD3.0DREEXJ	2.5P	56	-	9	18	34	3.5	2.7	6	3	149	●
M4X0.5	ISO2X(6HX)	3.5	3.56	SD4.0GSEEXJ	2.5P	63	-	9	21	38	4.5	3.4	6	3	149	●
M5X0.5	ISO2X(6HX)	4.5	4.56	SD5.0GSEEXJ	2.5P	40	-	9	25	39	6	4.9	8	3	149	●
M6X0.5	ISO2X(6HX)	5.5	5.56	SD6.0GSEEXJ	2.5P	80	-	9	30	45	6	4.9	8	3	149	●

Size	TCTR (tolerance)	 Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
MF																
M6X0.75	ISO2X(6HX)	5.25	5.33	SD6.0JSEEXJ	2.5P	80	-	15	30	45	6	4.9	8	3	149	●
M8X1	ISO2X(6HX)	7	7.09	SM8.0MSEEXJ	2.5P	90	-	19	-	46	6	4.9	8	3	148	●
M10X1	ISO2X(6HX)	9	9.09	SM010MSEEXJ	2.5P	90	-	19	-	46	7	5.5	8	3	148	●
M10X1.25	ISO2X(6HX)	8.8	8.85	SM010NSEEXJ	2.5P	100	-	23	-	51	7	5.5	8	3	148	●
M12X1.25	ISO2X(6HX)	10.8	10.85	SM012NSEEXJ	2.5P	100	-	21	-	51	9	7	10	3	148	●
M12X1.5	ISO2X(6HX)	10.5	10.6	SM0120SEEXJ	2.5P	100	-	21	-	51	9	7	10	3	148	●
M14X1.5	ISO2X(6HX)	12.5	12.6	SM0140SEEXJ	2.5P	100	-	21	-	51	11	9	12	3	148	●
M16X1.5	ISO2X(6HX)	14.5	14.6	SM0160SEEXJ	2.5P	100	-	21	-	51	12	9	12	3	148	●
M18X1.5	ISO2X(6HX)	16.5	16.6	SM0180TEEXJ	2.5P	110	-	24	-	56	14	11	14	4	148	●
M20X1.5	ISO2X(6HX)	18.5	18.6	SM0200TEEXJ	2.5P	125	-	24	-	64	16	12	15	2	148	●
M22X1.5	ISO2X(6HX)	20.5	20.6	SM0220TEEXJ	2.5P	125	-	24	-	64	18	14.5	17	4	148	●
M24X1.5	ISO2X(6HX)	22.5	22.6	SM0240TEEXJ	2.5P	140	-	27	-	71	18	14.5	17	4	023	●
M27X1.5	ISO2X(6HX)	25.5	25.6	SM0270TEEXJ	2.5P	140	-	27	-	71	20	16	19	4	023	●
M30X1.5	ISO2X(6HX)	28.5	28.6	SM0300UEEXJ	2.5P	150	-	27	-	77	22	18	21	4	023	●
M30X3	ISO2X(6HX)	27	27.13	SM030SUEEXJ	2.5P	180	-	44	-	92	22	18	21	4	023	●
M33X3	ISO2X(6HX)	30	30.13	SM033SUEEXJ	2.5P	180	-	46	-	92	25	20	23	4	023	●
M36X3	ISO2X(6HX)	33	33.13	SM036SUEEXJ	2.5P	200	-	52	-	102	28	22	25	4	023	●
M39X3	ISO2X(6HX)	36	36.13	SM039SUEEXJ	2.5P	200	-	52	-	102	32	24	27	4	023	●
M42X3	ISO2X(6HX)	39	39.13	SM042SUEEXJ	2.5P	200	-	59	-	102	32	24	27	4	023	●
M48X3	ISO2X(6HX)	45	45.13	SM048SUEEXJ	2.5P	225	-	49	-	115	36	29	32	4	023	●
Size	TCTR (tolerance)	 Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
UNC																
1 -8UNC	2BX	22.3	22.45	SGU16XYEEXJ	2.5P	160	-	37	-	82	18	14.5	17	4	-	●
1 1/8-7UNC	2BX	25	25.17	SGU18YYEEXJ	2.5P	180	-	44	-	92	22	18	21	4	-	●
1 1/4-7UNC	2BX	28.2	28.35	SGU20YYEEXJ	2.5P	180	-	49	-	92	22	18	21	4	-	●
1 3/8-6UNC	2BX	30.8	30.92	SGU22ZYEEXJ	2.5P	200	-	55	-	102	28	22	25	4	-	●
1 1/2-6UNC	2BX	34	34.1	SGU24ZYEEXJ	2.5P	200	-	59	-	102	32	24	27	4	-	●
1 3/4-5UNC	2BX	39.5	39.61	SGU280YEEXJ	2.5P	220	-	65	-	112	36	29	32	4	-	●
2 -4.5UNC	2BX	45.2	45.37	SGU329YEEXJ	2.5P	250	-	73	-	128	40	32	35	4	-	●
Size	TCTR (tolerance)	 Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
UNF																
1 -12UNF	2BX	23.3	23.46	SMU16SYEEXJ	2.5P	140	-	27	-	71	18	14.5	17	4	-	●
1 1/8-12UNF	2BX	26.5	26.63	SMU18SYEEXJ	2.5P	150	-	27	-	77	22	18	21	4	-	●
1 1/4-12UNF	2BX	29.6	29.81	SMU20SYEEXJ	2.5P	150	-	27	-	77	22	18	21	4	-	●
1 3/8-12UNF	2BX	32.8	32.98	SMU22SYEEXJ	2.5P	170	-	29	-	87	28	22	25	4	-	●
1 1/2-12UNF	2BX	36	36.16	SMU24SYEEXJ	2.5P	170	-	29	-	87	32	24	27	4	-	●
Size	TCTR (tolerance)	 Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
8UN																
1 1/8-8UN	2BX	25.5	25.62	SMU18XYEEXJ	2.5P	180	-	44	-	92	22	18	21	4	-	●
1 1/4-8UN	2BX	28.5	28.8	SMU20XYEEXJ	2.5P	180	-	49	-	92	22	18	21	4	-	●
1 3/8-8UN	2BX	31.8	31.97	SMU22XYEEXJ	2.5P	200	-	55	-	102	28	22	25	4	-	●
1 1/2-8UN	2BX	35	35.15	SMU24XYEEXJ	2.5P	200	-	59	-	102	32	24	27	4	-	●
1 3/4-8UN	2BX	41.3	41.5	SMU28XYEEXJ	2.5P	200	-	49	-	102	36	29	32	4	-	●
2 -8UN	2BX	47.8	47.85	SMU32XYEEXJ	2.5P	225	-	49	-	115	40	32	35	4	-	●
Size	TCTR (tolerance)	 Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
12UN																
1 3/4-12UN	2BX	42.3	42.51	SMU28SYEEXJ	2.5P	180	-	31	-	92	36	29	32	4	-	●

NOTES

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