

HV Series

Excellent chip ejection, stable tapping and long life

1.2025

HVSP blind hole - HVPO through hole



HERSBACH TOOLS
specialist in verspanen

Z-PRO
Ultimate Machine Tap Series





HSS-E

OX



2.5P
THCHT

Spiral fluted taps for excellent chip evacuation

Parameters

Recommended tapping conditions for the HVSP tap series.

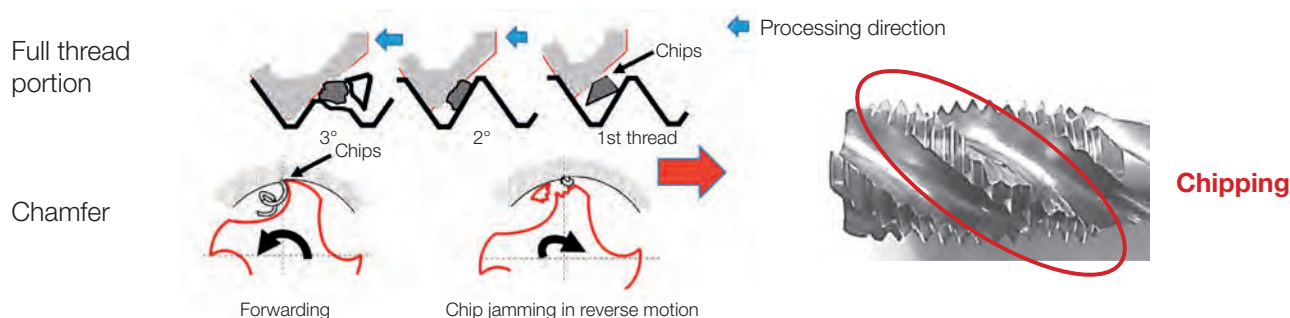
Workpiece materials	Vc (m/min)
P1 Low carbon steel	3 ÷ 12
P2 Medium carbon steel	3 ÷ 12
P3 High carbon and medium alloy steel	3 ÷ 12

Workpiece materials	Vc (m/min)
P4 Alloy steel	3 ÷ 12
M1 Stainless steel	<5

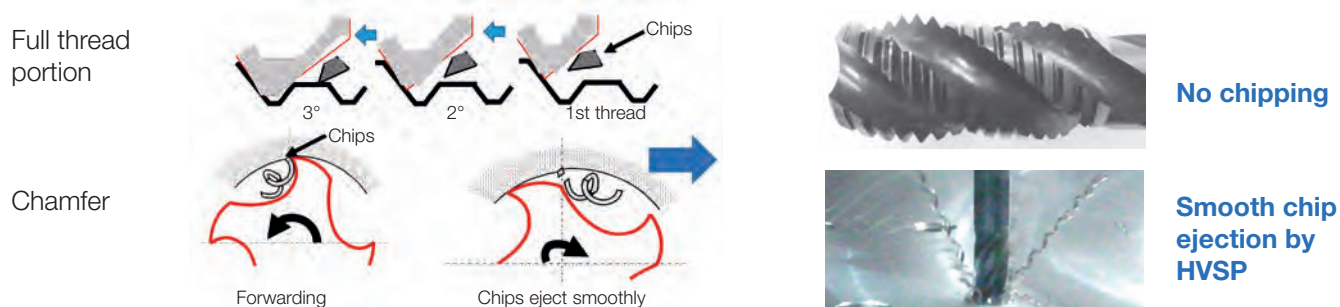
Product features

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

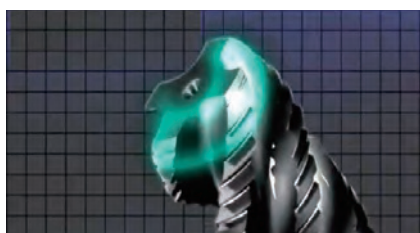
Tapping with standard SP - Chipping happens on thread portion



Tapping with HVSP - No chipping

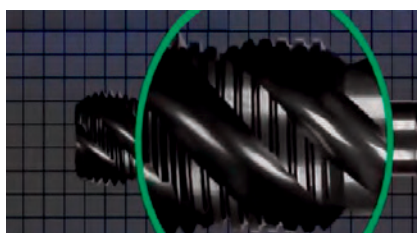


Designed to avoid chipping problems



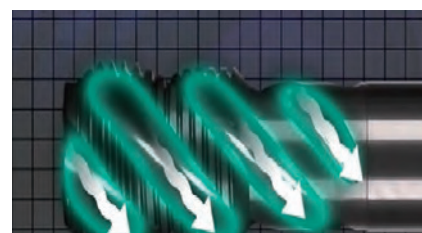
Advanced cutting edge

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



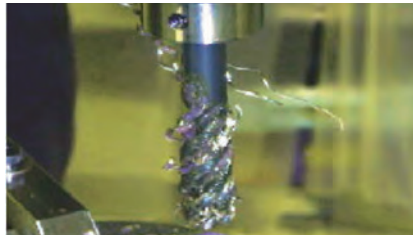
Unique flute design

Unique flute design for smooth chip ejection

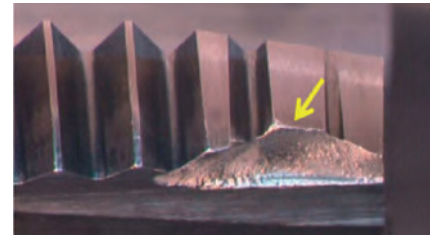
Soft Structural steel such as St44-2 and low carbon steels are widely used in large size parts. Chips created by large size taps are thick and long becoming difficult to eject, resulting in high risk of chip tangling and cutting edge chipping.



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 +



=

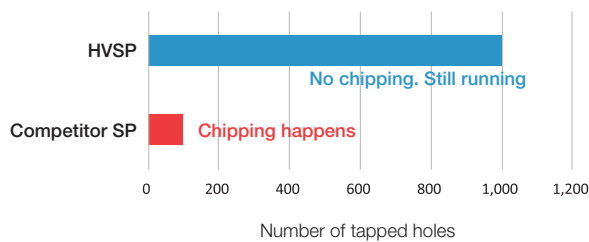


Excellent internal thread surface!

Process data

Case 1

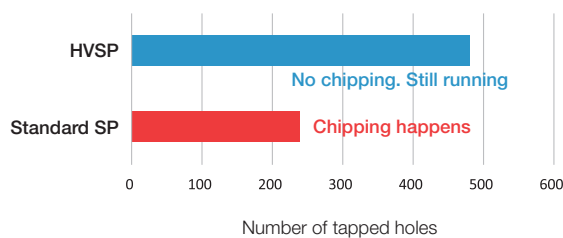
Comparison with other brand SP



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

Case 2

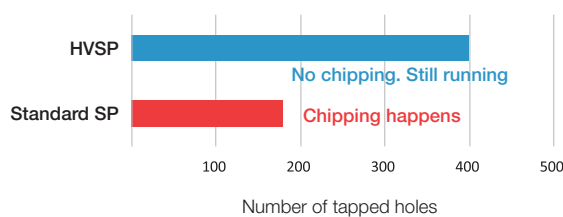
Comparison with standard SP



Item	HVSP M30
	Standard SP M30
Workpiece material	42CrMo4 / 1.7218
Hole shape (depth)	Blind hole (60 mm)
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
	Standard SP M36
Workpiece material	Ck55 / 1.1203 / C55
Hole shape (depth)	Blind hole (42 mm)
Direction	Vertical
Bored hole dia. (mm)	32.50
Machine	Drilling machine (non rigid)
Cutting speed (m/min)	5.0
Lubrication	Straight oil



Spiral pointed taps for excellent chip evacuation

Parameters

Recommended tapping conditions for the HVPO tap series.

Workpiece materials	Vc (m/min)
P1 Low carbon steel	3 ÷ 12
P2 Medium carbon steel	3 ÷ 12
P3 High carbon and medium alloy steel	3 ÷ 12
P4 Alloy steel	3 ÷ 12
M1 Stainless steel	<5



WATCH THE VIDEO

Product features

HVPO is designed with unique flute shape to achieve excellent internal threads and long tool life thanks to smooth chip ejection and reduced cutting resistance.

HVPO



Unique spiral pointed shape

PO

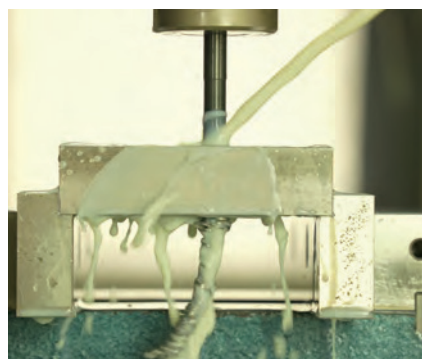


Conventional

Process data

HVPO M10x1.5

Workpiece material	1.0116 (St 37-3)
Tapping speed	10 m/min
Tapping Length	24 mm
Machine type	Vertical M/C
Tapping fluid	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

Chips keep an acceptable form and length, also with ductile materials that tend to produce long chips.



Excellent internal threads

In 1.0116 (St 37-3) tapping, an excellent internal thread surface can be obtained even using water-soluble cutting fluid.



HSS-E

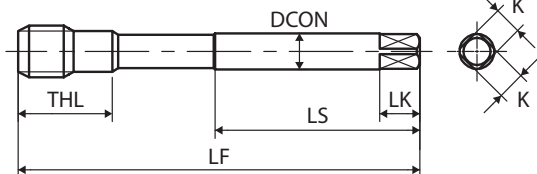
OX



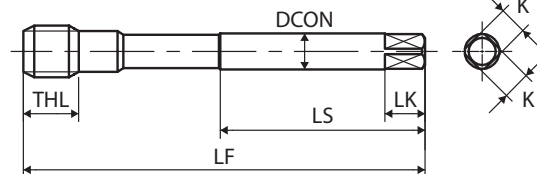
2.5P
THCHT

Dimensions and sizes

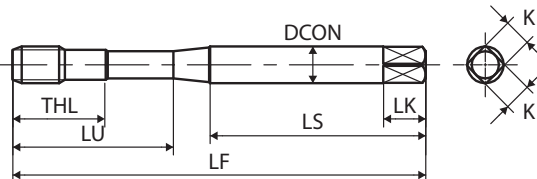
TYPE: EU_148



TYPE: EU_023



TYPE: EU_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
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	-	●



HSS-E

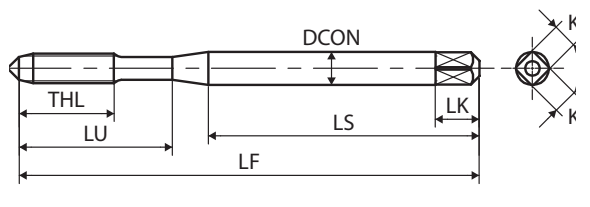
OX



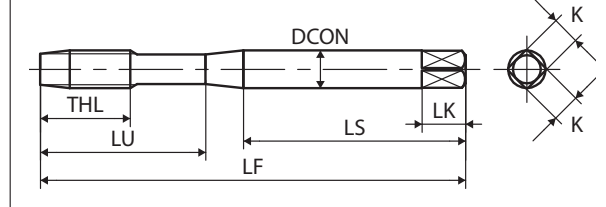
5P
THCHT

Dimensions and sizes

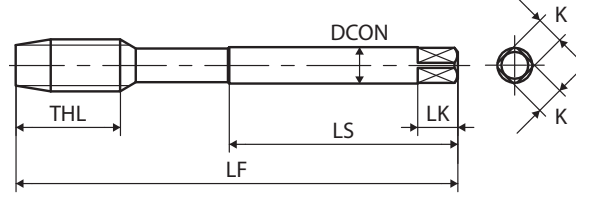
TYPE: EU_057



TYPE: EU_084



TYPE: EU_186



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
M																
M3X0.5	ISO2X(6HX)	2.50	2.56	3113101035	5P	56	-	9	18	34	3.5	2.7	6	3	057	●
M3.5X0.6	ISO2X(6HX)	2.90	2.97	3113101038	5P	56	-	11	20	32	4	3	6	3	057	●
M4X0.7	ISO2X(6HX)	3.30	3.38	3113101042	5P	45	-	13	21	38	4.5	3.4	6	3	057	●
M5X0.8	ISO2X(6HX)	4.20	4.28	3113101049	5P	70	-	14	25	39	6	4.9	8	3	057	●
M6X1	ISO2X(6HX)	5.00	5.09	3113101055	5P	80	-	15	30	45	6	4.9	8	3	057	●
M7X1	ISO2X(6HX)	6.00	6.09	3113101060	5P	80	-	15	30	45	7	5.5	8	3	084	●
M8X1.25	ISO2X(6HX)	6.80	6.85	3113101064	5P	90	-	19	35	47	8	6.2	9	3	084	●
M10X1.5	ISO2X(6HX)	8.50	8.60	3113101078	5P	100	-	23	39	52	10	8	11	3	084	●
M12X1.75	ISO2X(6HX)	10.30	10.36	3113101088	5P	110	-	26	-	56	9	7	10	3	086	●
M14X2	ISO2X(6HX)	12.00	12.12	3113101100	5P	110	-	26	-	56	11	9	12	3	086	●
M16X2	ISO2X(6HX)	14.00	14.12	3113101114	5P	110	-	26	-	56	12	9	12	3	086	●
M18X2.5	ISO2X(6HX)	15.50	15.63	3113101128	5P	125		33	-	64	14	11	14		086	●
M20X2.5	ISO2X(6HX)	17.50	17.63	3113101141	5P	140		33	-	71	16	12	15		086	●
M22X2.5	ISO2X(6HX)	19.50	19.63	3113101156	5P	140		33	-	71	18	14.5	17		086	●
M24X3	ISO2X(6HX)	21.00	21.13	3113101167	5P	160		37	-	82	18	14.5	17		086	●
M27X3	ISO2X(6HX)	24.00	24.13	3113101186	5P	160		37	-	82	20	16	19		086	●
M30X3.5	ISO2X(6HX)	26.50	26.63	3113101199	5P	180		44	-	92	22	18	21		086	●
M33X3.5	ISO2X(6HX)	29.50	29.63	3113101211	5P	180		46	-	92	25	20	23		086	●
M36X4	ISO2X(6HX)	32.00	32.12	3113101225	5P	200		52	-	102	28	22	25		086	●

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																
M3X0.35	ISO2X(6HX)	2.65	2.70	3113101036	5P	56	-	5	18	34	3.5	2.7	6	3	057	●
M4X0.5	ISO2X(6HX)	3.50	3.56	3113101043	5P	63	-	5	21	38	4.5	3.4	6	3	057	●
M5X0.5	ISO2X(6HX)	4.50	4.56	3113101051	5P	70	-	6	25	39	6	4.9	8	3	057	●
M6X0.75	ISO2X(6HX)	5.30	5.33	3113101056	5P	80	-	8	30	45	6	4.9	8	3	057	●
M6X0.5	ISO2X(6HX)	5.50	5.56	3113101057	5P	80	-	8	30	45	6	4.9	8	3	057	●
M8X1	ISO2X(6HX)	7.00	7.09	3113101065	5P	90	-	19	-	46	6	4.9	8	3	086	●
M10X1.25	ISO2X(6HX)	8.80	8.85	3113101079	5P	100	-	23	-	51	7	5.5	8	3	086	●
M10X1	ISO2X(6HX)	9.00	9.09	3113101080	5P	90	-	19	-	46	7	5.5	8	3	086	●
M12X1.5	ISO2X(6HX)	10.50	10.60	3113101089	5P	100	-	21	-	51	9	7	10	3	086	●
M12X1.25	ISO2X(6HX)	10.80	10.85	3113101090	5P	100	-	21	-	51	9	7	10	3	086	●
M12X1	ISO2X(6HX)	11.00	11.09	3113101091	5P	100	-	21	-	51	9	7	10	3	086	●
M14X1.5	ISO2X(6HX)	12.50	12.60	3113101102	5P	100	-	21	-	51	11	9	12	3	086	●
M16X1.5	ISO2X(6HX)	14.50	14.60	3113101116	5P	100	-	21	-	51	12	9	12	3	086	●
M18X2	ISO2X(6HX)	16.00	16.12	3113101129	5P	125	-	33	-	64	14	11	14	3	086	●
M18X1.5	ISO2X(6HX)	16.50	16.60	3113101130	5P	110	-	24	-	56	14	11	14	3	086	●
M20X2	ISO2X(6HX)	18.00	18.12	3113101142	5P	140	-	33	-	71	16	12	15	3	086	●
M20X1.5	ISO2X(6HX)	18.50	18.60	3113101144	5P	125	-	24	-	64	16	12	15	3	086	●
M20X1	ISO2X(6HX)	19.00	19.09	3113101146	5P	125	-	24	-	64	16	12	15	3	086	●
M22X2	ISO2X(6HX)	20.00	20.12	3113101157	5P	140	-	33	-	71	18	14.5	17	3	086	●
M22X1.5	ISO2X(6HX)	20.50	20.60	3113101158	5P	125	-	24	-	64	18	14.5	17	3	086	●
M24X1.5	ISO2X(6HX)	22.50	22.60	3113101170	5P	140	-	27	-	71	18	14.5	17	3	086	●
M25X1.5	ISO2X(6HX)	23.50	23.60	3113101177	5P	140	-	27	-	71	18	14.5	17	3	086	●
M26X3	ISO2X(6HX)	23.00	23.12	3113101181	5P	160	-	37	-	82	18	14.5	17	4	086	●
M27X1.5	ISO2X(6HX)	25.50	25.60	3113101188	5P	140	-	27	-	71	20	16	19	4	086	●
M30X3	ISO2X(6HX)	27.00	27.13	3113101200	5P	180	-	44	-	92	22	18	21	4	086	●
M30X2	ISO2X(6HX)	28.00	28.12	3113101201	5P	150	-	27	-	77	22	18	21	4	086	●
M30X1.5	ISO2X(6HX)	28.50	28.60	3113101202	5P	150	-	27	-	77	22	18	21	4	086	●
M32X2	ISO2X(6HX)	30.00	30.12	3113101207	5P	150	-	27	-	77	22	18	21	4	086	●
M32X1.5	ISO2X(6HX)	30.50	30.60	3113101208	5P	150	-	27	-	77	22	18	21	4	086	●
M33X3	ISO2X(6HX)	30.00	30.13	3113101212	5P	180	-	46	-	92	25	20	23	4	086	●
M36X3	ISO2X(6HX)	33.00	33.13	3113101226	5P	200	-	52	-	102	28	22	25	4	086	●



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HH HERSBACH TOOLS Specialist in verspanen

Vliststraat 4, 3044 ET Rotterdam

T 010 204 06 80 - E info@hhtools.nl