VU SERIES

The evolution of high performance tapping ISO P M K N

VUSP
VUSP CH
VUSP E (1.5P)
VUSP (LS)

VUPO
VUPO (LS)

Z-PRO
Ultimate Machining Taps

Think threads with YAMAWA

VUSP / VUSP (LS)

VUSP

DIN | HSS-P | COATING | 2.5P THCHT

VUSP (LS)

JIS | HSS-P | COATING | 2.5P THCHT

Coated spiral fluted taps

- Improved tool life thanks to HSSP Premium Grade with a special coating.
- The improved chip ejection and the reduced cutting resistance, made possible by the unique flute shape, allow longer life and excellent internal threads quality.
- The Z-PRO VUSP is specifically designed for use with water-soluble cutting fluid.
- Compatible with a wide range of workpiece materials.
- **VUSP taps from M3 to M16 available in a wide range of oversized tolerances ISO3X(6GX), 7GX, ISO2X(6HX)+100.**

Lubricant	Hand tapping	Low speed	Medium-low speed	Medium-high speed
Emulsion				VUSP Vc ≤ 25 m/min
Oil	HTset	SP	SP V	AU+SP

Product features

Recommended tapping conditions

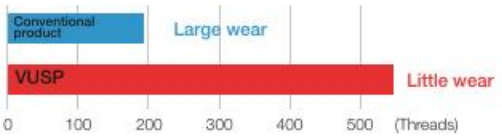
Workpiece materials		Vc (m/min)
P1	General structural steel	10÷20
P2	Carbon steel	10÷25
P3	Medium alloy steel	10÷20
P4	High alloy steel	10÷20
M	Stainless steel	5÷10
N	Non ferrous materials	10÷30

Process data

M3x0.5

Workpiece material	1.0540 - Ck50
Tapping length	4.5 mm
Tapping speed	20 m/min
Machine	Vertical M/C
Tapping fluid	Water-soluble cutting fluid

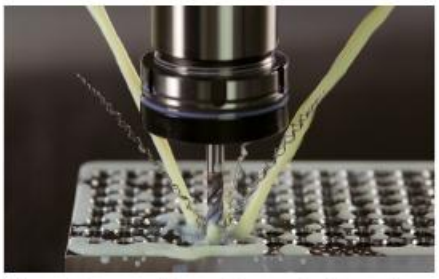
After 250 holes tapped.
Little wear, no chipping.



M8x1.25

Workpiece material	1.4301 - AISI304 - X 5 CrNi 18 10
Tapping speed	10 m/min
Machine	Vertical M/C
Tapping fluid	Water-soluble cutting fluid

Excellent chip evacuation



The unique cutting edge and flute shape allows perfect chip ejection and excellent flow of coolant.

Excellent internal thread

In tapping of 1.4301 - AISI 304 - X 5 CrNi 18 10, excellent internal thread surface is obtained even in tapping environments that use water-soluble cutting fluid.

VUSP CH

DIN | HSS-P | COATING | 2.5P THCHT

Coated spiral fluted taps with central coolant hole

- Durability is improved by HSSP Premium Grade and special coating.
- The improved chip ejection and the reduced cutting resistance, made possible by the unique flute shape, allow longer life and excellent internal threads quality.
- Suitable for water-soluble cutting fluid processing.
- The Coolant hole diameter is optimized to allow abundant internal lubrication for drastic heating and welding reduction resulting in improvement of the wear resistance and the quality of the internal thread.
- Chips are discharged smoothly, allowing for continuous machining and process reliability.

Lubricant	Hand tapping	Low speed	Medium-low speed	Medium-high speed
Emulsion				VUSP CH Vc ≤ 25 m/min
Oil	HTset	SP	SP V	AU+SP

Product features

Recommended tapping conditions

Workpiece materials		Vc (m/min)
P1	General structural steel	10÷20
P2	Carbon steel	10÷25
P3	Medium alloy steel	10÷20
P4	High alloy steel	10÷20
M	Stainless steel	5÷10
N	Non ferrous materials	10÷30

Situation during tapping

Discharge at pressure of 1.5 MPa (15 bar)

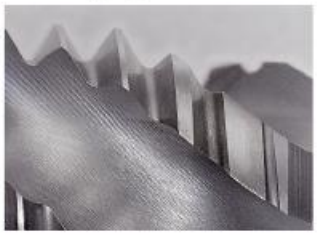
Discharge at pressure of 6 MPa (60 bar)

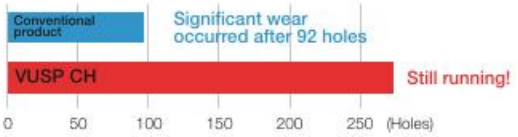
Process data

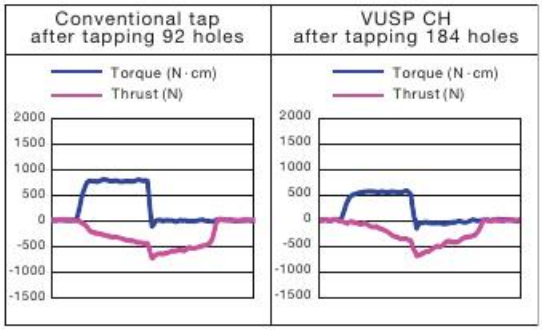
M8x1.25

Workpiece material	1.7225 - 42CrMo4
Tapping length	16 mm (2D blind hole)
Tapping speed	15 m/min
Machine	Vertical M/C BT30
Tapping fluid	Water-soluble oil FX-30 5%
Feed	Synchronous
Bored hole size	ø 6.8 mm

No signs of wear even after tapping 184 holes.







After tapping 184 holes with VUSP CH taps the surface finish is still excellent.

Ejected chips

Conventional tap (after tapping 92 holes)

VUSP CH (after tapping 184 holes)

VUSP E(1.5P)

DIN | HSS-P | COATING | 1.5P THCHT

Coated spiral fluted taps VUSP E(1.5P)

- The chamfer length is 1.5 pitches, making it ideal for machining blind holes with little room between the bored hole depth and the full thread length.
- Durability is improved by HSSP Premium Grade and special coating.
- The improved chip ejection and the reduced cutting resistance, made possible by the unique flute shape, allow longer life and excellent internal threads quality.
- Specifically developed for tapping with water-soluble cutting oil.
- Compatible with a wide range of workpiece materials.

Lubricant	Hand tapping	Low speed	Medium-low speed	Medium-high speed
Emulsion				VUSP 1.5P Vc ≤ 20 m/min
Oil	HTset	SP	SP V	AU+SP

Product features

Recommended tapping conditions

Workpiece materials		Vc (m/min)
P1	General structural steel	5÷15
P2	Carbon steel	5÷15
P3	Medium alloy steel	5÷15
P4	High alloy steel	5÷10
M	Stainless steel	3÷5
N	Non ferrous materials	5÷20

Process data

M6

Workpiece material	1.0540 - Ck50
Tapping length	13 mm blind hole
Tapping speed	15 m/min
Machine	Vertical M/C
Tapping fluid	Water-soluble cutting fluid

Internal-threaded surface

VUSP E (1.5P) VUSP (2.5P)

VUPO / VUPO (LS)

DIN | HSS-P | COATING | 5P THCHT

JIS | HSS-P | COATING | 5P THCHT

Coated spiral pointed taps

- Improved tool life thanks to HSSP Premium Grade with a special coating.
- The improved chip ejection and the reduced cutting resistance, made possible by the unique flute shape, allow longer life and excellent internal threads quality.
- The Z-PRO VUPO is designed for use with water-soluble cutting fluid.
- **VUPO taps from M3 to M16 available in a wide range of oversized tolerances ISO3X(6GX), 7GX, ISO2X(6HX)+100.**

Lubricant	Hand tapping	Low speed	Medium-low speed	Medium-high speed
Emulsion				VUPO Vc ≤ 30 m/min
Oil	HTset	PO	PO V	AU+SL

Product features

Recommended tapping conditions

Workpiece materials		Vc (m/min)
P1	General structural steel	10÷30
P2	Carbon steel	10÷30
P3	Medium alloy steel	10÷30
P4	High alloy steel	10÷25
M	Stainless steel	5÷15
N	Non ferrous materials	10÷40

Process data

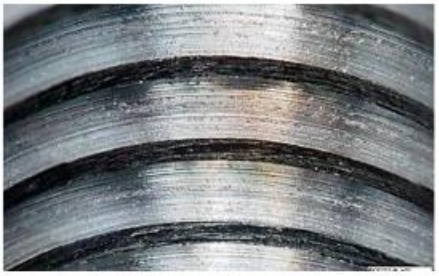
M10x1.5

Workpiece material	1.4301 - AISI 304 - X 5 CrNi 18 10
Tapping speed	10 m/min
Machine	Vertical M/C
Tapping fluid	Water-soluble cutting fluid

Excellent supply of cutting fluid

The unique cutting edge shape allows an excellent supply of water-soluble cutting fluid and perfect chip ejection.

Excellent internal thread



Thanks to the specific geometry and coating, even tapping 1.4301 - AISI 304 - X 5 CrNi 18 10 with water-soluble cutting fluid, excellent internal thread surface is obtained.

M10x1.5

Workpiece material	1.0540 - Ck50
Tapping length	20 mm (2D)
Tapping speed	20 m/min
Machine	Vertical M/C
Tapping fluid	Water-soluble cutting fluid

Wear after 560 holes tapped

VUPO

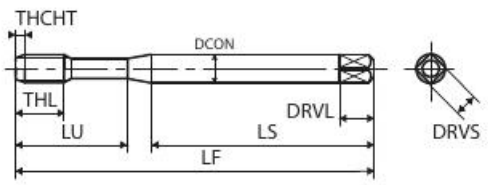
Conventional tap

Dimensions and sizes

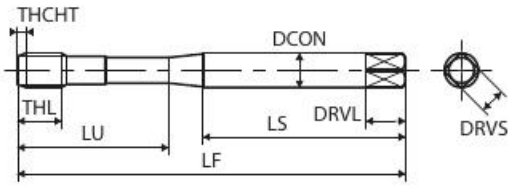
VUSP

Z-PRO SERIES

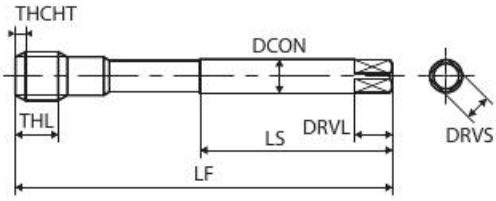
DIN | HSS-P | COATING | 2.5P THCHT



TYPE: A03 Measurements in mm



TYPE: A17 Measurements in mm



TYPE: A24 Measurements in mm

Oversized ● stock standard, ○ check stock, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
M2x0.4	ISO2X(6HX)	1.6	1.65	3101101021	2.5P	45	-	4	10	32	2.8	2.1	5	2	A03	●
M2.2x0.45	ISO2X(6HX)	1.75	1.81	3101101024	2.5P	45	-	4	11	32	2.8	2.1	5	2	A03	●
M2.3x0.4	ISO2X(6HX)	1.9	1.95	3101101026	2.5P	45	-	4	11	32	2.8	2.1	5	2	A03	●
M2.5x0.45	ISO2X(6HX)	2.1	2.11	3101101029	2.5P	50	-	4	15	32	2.8	2.1	5	2	A03	●
M2.6x0.45	ISO2X(6HX)	2.2	2.21	3101101032	2.5P	50	-	4	15	32	2.8	2.1	5	2	A03	●
M3x0.5	ISO2X(6HX)	2.5	2.56	3101101035	2.5P	56	-	5	18	34	3.5	2.7	6	3	A03	●
	ISO3X(6GX)	2.5	2.56	3101201035	2.5P	56	-	5	18	34	3.5	2.7	6	3	A03	●
	7GX	2.5	2.56	3101301035	2.5P	56	-	5	18	34	3.5	2.7	6	3	A03	●
	ISO2X(6HX)+-100	2.5	2.56	3101501035	2.5P	56	-	5	18	34	3.5	2.7	6	3	A03	●
M4x0.7	ISO2X(6HX)	3.3	3.38	3101101042	2.5P	63	-	7	21	38	4.5	3.4	6	3	A03	●
	ISO3X(6GX)	3.3	3.38	3101201042	2.5P	63	-	7	21	38	4.5	3.4	6	3	A03	●
	7GX	3.3	3.38	3101301042	2.5P	63	-	7	21	38	4.5	3.4	6	3	A03	●
	ISO2X(6HX)+-100	3.3	3.38	3101501042	2.5P	63	-	7	21	38	4.5	3.4	6	3	A03	●
M5x0.8	ISO2X(6HX)	4.2	4.28	3101101049	2.5P	70	-	9	25	39	6	4.9	8	3	A03	●
	ISO3X(6GX)	4.2	4.28	3101201049	2.5P	70	-	9	25	39	6	4.9	8	3	A03	●
	7GX	4.2	4.28	3101301049	2.5P	70	-	9	25	39	6	4.9	8	3	A03	●
	ISO2X(6HX)+-100	4.2	4.28	3101501049	2.5P	70	-	9	25	39	6	4.9	8	3	A03	●
M6x1	ISO2X(6HX)	5	5.09	3101101055	2.5P	80	-	9	30	45	6	4.9	8	3	A03	●
	ISO3X(6GX)	5	5.09	3101201055	2.5P	80	-	11	30	45	6	4.9	8	3	A03	●
	7GX	5	5.09	3101301055	2.5P	80	-	11	30	45	6	4.9	8	3	A03	●
	ISO2X(6HX)+-100	5	5.09	3101501055	2.5P	80	-	11	30	45	6	4.9	8	3	A03	●

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
M8x1.25	ISO2X(6HX)	6.8	6.85	3101101064	2.5P	90	-	12	35	47	8	6.2	9	3	A17	●
	ISO3X(6GX)	6.8	6.85	3101201064	2.5P	90	-	12	35	47	8	6.2	9	3	A17	●
	7GX	6.8	6.85	3101301064	2.5P	90	-	12	35	47	8	6.2	9	3	A17	●
	ISO2X(6HX)+-100	6.8	6.85	3101501064	2.5P	90	-	12	35	47	8	6.2	9	3	A17	●
M10x1.5	ISO2X(6HX)	8.5	8.6	3101101078	2.5P	100	-	13	39	52.5	10	8	11	3	A17	●
	ISO3X(6GX)	8.5	8.6	3101201078	2.5P	100	-	13	39	52.5	10	8	11	3	A17	●
	7GX	8.5	8.6	3101301078	2.5P	100	-	13	39	52.5	10	8	11	3	A17	●
	ISO2X(6HX)+-100	8.5	8.6	3101501078	2.5P	100	-	13	39	52.5	10	8	11	3	A17	●

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 376																
M12x1.75	ISO2X(6HX)	10.3	10.36	3101101088	2.5P	110	-	15	-	56	9	7	10	3	A24	●
	ISO3X(6GX)	10.3	10.36	3101201088	2.5P	110	-	15	-	56	9	7	10	3	A24	●
	7GX	10.3	10.36	3101301088	2.5P	110	-	15	-	56	9	7	10	3	A24	●
	ISO2X(6HX)+-100	10.3	10.36	3101501088	2.5P	110	-	15	-	56	9	7	10	3	A24	●
M14x2	ISO2X(6HX)	12	12.12	3101101100	2.5P	110	-	18	-	56	11	9	12	3	A24	●
	ISO3X(6GX)	12	12.12	3101201100	2.5P	110	-	18	-	56	11	9	12	3	A24	●
	7GX	12	12.12	3101301100	2.5P	110	-	18	-	56	11	9	12	3	A24	●
	ISO2X(6HX)+-100	12	12.12	3101501100	2.5P	110	-	18	-	56	11	9	12	3	A24	●
M16x2	ISO2X(6HX)	14	14.12	3101101114	2.5P	110	-	18	-	56	12	9	12	3	A24	●
	ISO3X(6GX)	14	14.12	3101201114	2.5P	110	-	18	-	56	12	9	12	3	A24	●
	7GX	14	14.12	3101301114	2.5P	110	-	18	-	56	12	9	12	3	A24	●
	ISO2X(6HX)+-100	14	14.12	3101501114	2.5P	110	-	18	-	56	12	9	12	3	A24	●
M18x2.5	ISO2X(6HX)	15.5	15.63	3101101128	2.5P	125	-	20	-	64	14	11	14	4	A24	●
M20x2.5	ISO2X(6HX)	17.5	17.63	3101101141	2.5P	140	-	20	-	71	16	12	15	4	A24	●
M22x2.5	ISO2X(6HX)	19.5	19.63	3101101156	2.5P	140	-	20	-	71	18	14.5	17	4	A24	●
M24x3	ISO2X(6HX)	21	21.13	3101101167	2.5P	160	-	25	-	82	18	14.5	17	4	A24	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
M3x0.35	ISO2X(6HX)	2.65	2.7	3101101036	2.5P	56	-	5	18	34	3.5	2.7	6	3	A03	●
M4x0.5	ISO2X(6HX)	3.5	3.56	3101101043	2.5P	63	-	5	21	38	4.5	3.4	6	3	A03	●
M5x0.5	ISO2X(6HX)	4.5	4.56	3101101051	2.5P	70	-	6	25	39	6	4.9	8	3	A03	●
M6x0.75	ISO2X(6HX)	5.25	5.33	3101101056	2.5P	80	-	8	30	45	6	4.9	8	3	A03	●
M6x0.5	ISO2X(6HX)	5.5	5.56	3101101057	2.5P	80	-	8	30	45	6	4.9	8	3	A03	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 374																
M8x1	ISO2X(6HX)	7	7.09	3101101065	2.5P	90	-	12	-	46	6	4.9	8	3	A24	●
M10x1.25	ISO2X(6HX)	8.8	8.85	3101101079	2.5P	100	-	13	-	51	7	5.5	8	3	A24	●
M10x1	ISO2X(6HX)	9	9.09	3101101080	2.5P	90	-	13	-	46	7	5.5	8	3	A24	●
M12x1.5	ISO2X(6HX)	10.5	10.6	3101101089	2.5P	100	-	15	-	51	9	7	10	3	A24	●
M12x1.25	ISO2X(6HX)	10.8	10.85	3101101090	2.5P	100	-	15	-	51	9	7	10	3	A24	●
M14x1.5	ISO2X(6HX)	12.5	12.6	3101101102	2.5P	100	-	14	-	51	11	9	12	3	A24	●
M16x1.5	ISO2X(6HX)	14.5	14.6	3101101116	2.5P	100	-	14	-	51	12	9	12	3	A24	●
M18x1.5	ISO2X(6HX)	16.5	16.6	3101101130	2.5P	110	-	14	-	56	14	11	14	3	A24	●
M20x1.5	ISO2X(6HX)	18.5	18.6	3101101144	2.5P	125	-	14	-	64	16	12	15	3	A24	●
M22x1.5	ISO2X(6HX)	20.5	20.6	3101101158	2.5P	125	-	14	-	64	18	14.5	17	3	A24	●
M24x1.5	ISO2X(6HX)	22.5	22.6	3101101170	2.5P	140	-	18	-	71	18	14.5	17	3	A24	●

UNC	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
No.5-40UNC	2BX	2.6	2.64	3101103021	2.5P	56	-	5	18	34	3.5	2.7	6	2	A03	★
No.6-32UNC	2BX	2.8	2.83	3101103023	2.5P	56	-	7	19	32	4	3	6	2	A03	●
No.8-32UNC	2BX	3.4	3.47	3101103029	2.5P	63	-	7	21	38	4.5	3.4	6	2	A03	●
No.10-24UNC	2BX	3.89	3.9	3101103039	2.5P	70	-	9	24	39	6	4.9	8	2	A03	●
No.12-24UNC	2BX	4.5	4.53	3101103047	2.5P	80	-	9	28	45	6	4.9	8	2	A03	●
1/4-20UNC	2BX	5.1	5.19	3101103058	2.5P	80	-	11	30	42	7	5.5	8	2	A03	●
5/16-18UNC	2BX	6.6	6.65	3101103071	2.5P	90	-	12	35	47	8	6.2	9	3	A17	●
3/8-16UNC	2BX	8	8.07	3101103082	2.5P	100	-	13	39	54	9	7	10	3	A17	●

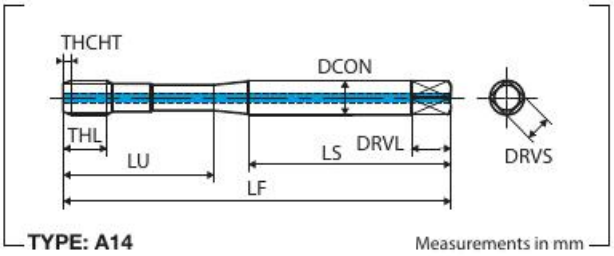
UNC	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 376																
7/16-14UNC	2BX	9.4	9.45	3101103098	2.5P	100	-	13	-	51	8	6.2	9	3	A24	●
1/2-13UNC	2BX	10.9	10.91	3101103111	2.5P	110	-	15	-	56	9	7	10	3	A24	●
9/16-12UNC	2BX	12.2	12.33	3101103126	2.5P	110	-	18	-	56	11	9	12	3	A24	●
5/8-11UNC	2BX	13.6	13.75	3101103138	2.5P	110	-	18	-	56	12	9	12	3	A24	●

UNF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
No.5-44UNF	2BX	2.7	2.69	3101103022	2.5P	56	-	5	18	34	3.5	2.7	6	2	A03	●
No.6-40UNF	2BX	2.9	2.97	3101103024	2.5P	56	-	7	19	32	4	3	6	2	A03	●
No.8-36UNF	2BX	3.5	3.55	3101103030	2.5P	63	-	7	21	38	4.5	3.4	6	2	A03	●
No.10-32UNF	2BX	4.1	4.12	3101103041	2.5P	70	-	9	24	39	6	4.9	8	2	A03	●
No.12-28UNF	2BX	4.6	4.67	3101103048	2.5P	80	-	9	28	45	6	4.9	8	2	A03	●
1/4-28UNF	2BX	5.5	5.53	3101103062	2.5P	80	-	11	30	42	7	5.5	8	2	A03	●

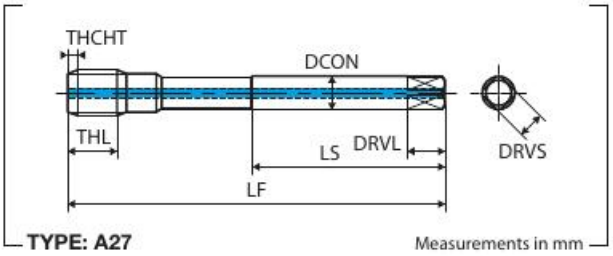
VUSP CH

Z-PRO SERIES

DIN | HSS-P | COATING | 2.5P THCHT



TYPE: A14 — Measurements in mm



TYPE: A27 — Measurements in mm

● stock standard, ○ check stock, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

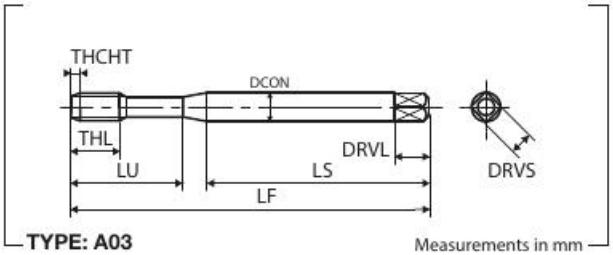
M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
M6x1	ISO2X(6HX)	5	5.09	3201101055	2.5P	80	-	11	30	45	6	4.9	8	3	A14	●
M8x1.25	ISO2X(6HX)	6.8	6.85	3201101064	2.5P	90	-	12	35	47	8	6.2	9	3	A14	●
M10x1.5	ISO2X(6HX)	8.5	8.6	3201101078	2.5P	100	-	13	39	52.5	10	8	11	3	A14	●

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 376																
M12x1.75	ISO2X(6HX)	10.3	10.36	3201101088	2.5P	110	-	15	-	56	9	7	10	3	A27	●
M14x2	ISO2X(6HX)	12	12.12	3201101100	2.5P	110	-	18	-	56	11	9	12	3	A27	●
M16x2	ISO2X(6HX)	14	14.12	3201101114	2.5P	110	-	18	-	56	12	9	12	3	A27	●

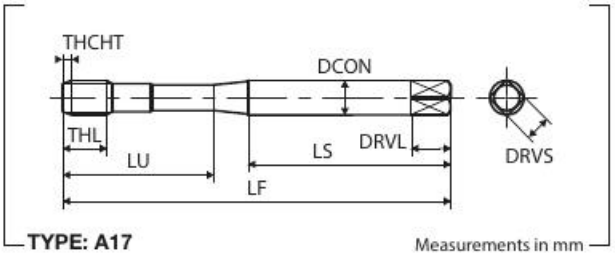
MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 374																
M8x1	ISO2X(6HX)	7	7.09	3201101065	2.5P	90	-	12	-	46	6	4.9	8	3	A27	●
M10x1.25	ISO2X(6HX)	8.8	8.85	3201101079	2.5P	100	-	13	-	51	7	5.5	8	3	A27	●
M10x1	ISO2X(6HX)	9	9.09	3201101080	2.5P	90	-	13	-	46	7	5.5	8	3	A27	●
M12x1.5	ISO2X(6HX)	10.5	10.6	3201101089	2.5P	100	-	15	-	51	9	7	10	3	A27	●
M12x1.25	ISO2X(6HX)	10.8	10.85	3201101090	2.5P	100	-	15	-	51	9	7	10	3	A27	●
M14x1.5	ISO2X(6HX)	12.5	12.6	3201101102	2.5P	100	-	14	-	51	11	9	12	3	A27	●
M16x1.5	ISO2X(6HX)	14.5	14.6	3201101116	2.5P	100	-	14	-	51	12	9	12	3	A27	●

VUSP E (1.5P)

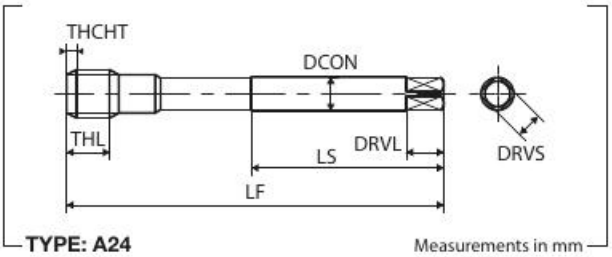
DIN | HSS-P | COATING | 1.5P THCHT



TYPE: A03 — Measurements in mm



TYPE: A17 — Measurements in mm



TYPE: A24 — Measurements in mm

● stock standard, ⭘ check stock, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
M3x0.5	ISO2X(6HX)	2.5	2.56	3103101035	1.5P	56	-	5	18	34	3.5	2.7	6	3	A03	●
M4x0.7	ISO2X(6HX)	3.3	3.38	3103101042	1.5P	63	-	7	21	38	4.5	3.4	6	3	A03	●
M5x0.8	ISO2X(6HX)	4.2	4.28	3103101049	1.5P	70	-	9	25	39	6	4.9	8	3	A03	●
M6x1	ISO2X(6HX)	5	5.09	3103101055	1.5P	80	-	11	30	45	6	4.9	8	3	A03	●
M8x1.25	ISO2X(6HX)	6.8	6.85	3103101064	1.5P	90	-	12	35	47	8	6.2	9	3	A17	●
M10x1.5	ISO2X(6HX)	8.5	8.6	3103101078	1.5P	100	-	13	39	52.5	10	8	11	3	A17	●

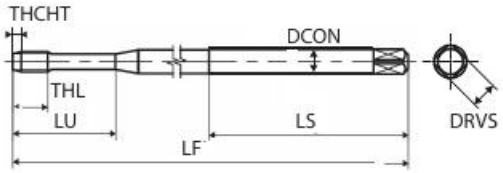
M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 376																
M12x1.75	ISO2X(6HX)	10.3	10.36	3103101088	1.5P	110	-	15	-	56	9	7	10	3	A24	●
M14x2	ISO2X(6HX)	12	12.12	3103101100	1.5P	110	-	18	-	56	11	9	12	3	A24	●
M16x2	ISO2X(6HX)	14	14.12	3103101114	1.5P	110	-	18	-	56	12	9	12	3	A24	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371																
M3x0.35	ISO2X(6HX)	2.65	2.7	3103101036	1.5P	56	-	5	18	34	3.5	2.7	6	3	A03	◉
M4x0.5	ISO2X(6HX)	3.5	3.56	3103101043	1.5P	63	-	5	21	38	4.5	3.4	6	3	A03	◉
M5x0.5	ISO2X(6HX)	4.5	4.56	3103101051	1.5P	70	-	6	25	39	6	4.9	8	3	A03	◉
M6x0.75	ISO2X(6HX)	5.25	5.33	3103101056	1.5P	80	-	8	30	45	6	4.9	8	3	A03	◉
M6x0.5	ISO2X(6HX)	5.5	5.56	3103101057	1.5P	80	-	8	30	45	6	4.9	8	3	A03	◉

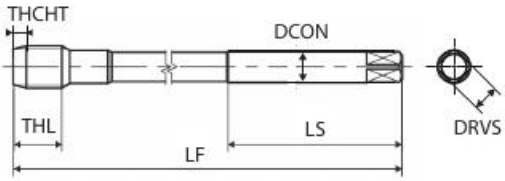
MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	LT	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 374																
M8x1	ISO2X(6HX)	7	7.09	3103101065	1.5P	90	-	12	-	46	6	4.9	8	3	A24	●
M10x1.25	ISO2X(6HX)	8.8	8.85	3103101079	1.5P	100	-	13	-	51	7	5.5	8	3	A24	●
M10x1	ISO2X(6HX)	9	9.09	3103101080	1.5P	90	-	13	-	46	7	5.5	8	3	A24	●
M12x1.5	ISO2X(6HX)	10.5	10.6	3103101089	1.5P	100	-	15	-	51	9	7	10	3	A24	●
M12x1.25	ISO2X(6HX)	10.8	10.85	3103101090	1.5P	100	-	15	-	51	9	7	10	3	A24	●
M14x1.5	ISO2X(6HX)	12.5	12.6	3103101102	1.5P	100	-	14	-	51	11	9	12	3	A24	●
M16x1.5	ISO2X(6HX)	14.5	14.6	3103101116	1.5P	100	-	14	-	51	12	9	12	3	A24	●

VUSP (LS)

JIS | HSS-P | COATING | 2.5P THCHT



TYPE: G01 — Measurements in mm



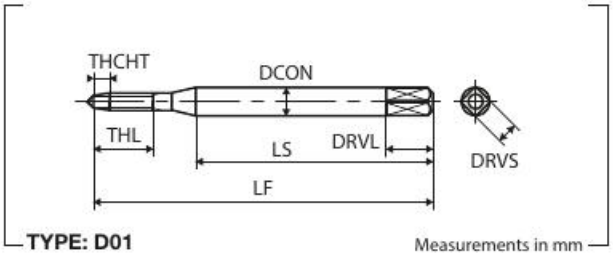
TYPE: G02 — Measurements in mm

● stock standard, ⭘ check stock, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

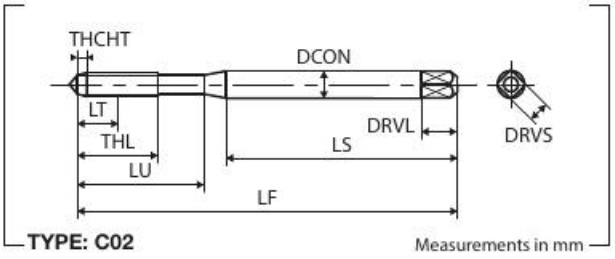
M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
JIS															
M3x0.5	P2	2.5	2.56	2101101035	2.5P	100	5	18	40	4	3.2	6	3	G01	●
M4x0.7	P2	3.3	3.38	2101101042	2.5P	100	7	21	40	5	4	7	3	G01	●
M5x0.8	P2	4.2	4.28	2101101049	2.5P	100	9	25	40	5.5	4.5	7	3	G01	●
M6x1	P2	5	5.09	2101101055	2.5P	100	11	30	40	6	4.5	7	3	G01	●
M8x1.25	P3	6.8	6.85	2101101064	2.5P	150	12	-	50	6.2	5	8	3	G02	●
M10x1.5	P3	8.5	8.6	2101101078	2.5P	150	13	-	50	7	5.5	8	3	G02	●
M12x1.75	P4	10.3	10.36	2101101088	2.5P	150	15	-	50	8.5	6.5	9	3	G02	●
M14x2	P4	12	12.12	2101101100	2.5P	150	18	-	60	10.5	8	11	3	G02	◉
M16x2	P4	14	14.12	2101101114	2.5P	150	18	-	60	12.5	10	13	3	G02	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
JIS															
M3x0.35	P2	2.65	2.7	2101101036	2.5P	100	5	18	40	4	3.2	6	3	G01	◉
M4x0.5	P2	3.5	3.56	2101101043	2.5P	100	5	21	40	5	4	7	3	G01	◉
M5x0.5	P2	4.5	4.56	2101101051	2.5P	100	6	25	40	5.5	4.5	7	3	G01	◉
M6x0.75	P2	5.25	5.33	2101101056	2.5P	100	8	30	40	6	4.5	7	3	G01	⭘
M6x0.5	P2	5.5	5.56	2101101057	2.5P	100	8	30	40	6	4.5	7	3	G01	◉
M8x1	P3	7	7.09	2101101065	2.5P	150	12	-	50	6.2	5	8	3	G02	⭘
M10x1.25	P3	8.8	8.85	2101101079	2.5P	150	13	-	50	7	5.5	8	3	G02	⭘
M10x1	P3	9	9.09	2101101080	2.5P	150	13	-	50	7	5.5	8	3	G02	◉
M12x1.5	P3	10.5	10.6	2101101089	2.5P	150	15	-	50	8.5	6.5	9	3	G02	⭘
M12x1.25	P3	10.8	10.85	2101101090	2.5P	150	15	-	50	8.5	6.5	9	3	G02	⭘
M14x1.5	P3	12.5	12.6	2101101102	2.5P	150	14	-	60	10.5	8	11	3	G02	⭘
M16x1.5	P3	14.5	14.6	2101101116	2.5P	150	14	-	60	12.5	10	13	3	G02	⭘

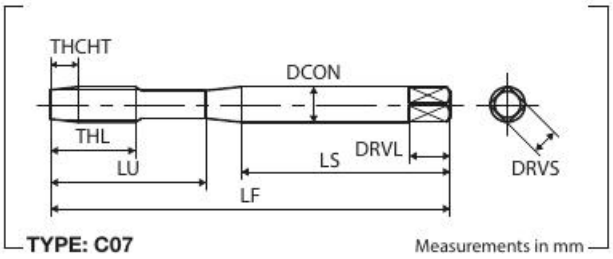
DIN | HSS-P | COATING | 5P THCHT



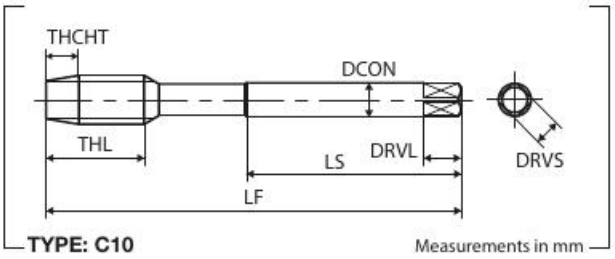
TYPE: D01 — Measurements in mm



TYPE: C02 — Measurements in mm



TYPE: C07 — Measurements in mm



TYPE: C10 — Measurements in mm

Oversized

● stock standard, ◘ check stock, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371															
M2x0.4	ISO2X(6HX)	1.6	1.65	3102101021	5P	45	8	-	32	2.8	2.1	5	2	D01	●
M2.2x0.45	ISO2X(6HX)	1.75	1.81	3102101024	5P	45	9	-	32	2.8	2.1	5	2	D01	●
M2.3x0.4	ISO2X(6HX)	1.9	1.95	3102101026	5P	45	9	-	32	2.8	2.1	5	2	D01	●
M2.5x0.45	ISO2X(6HX)	2.1	2.11	3102101029	5P	50	8	15	33	2.8	2.1	5	2	C02	●
M2.6x0.45	ISO2X(6HX)	2.2	2.21	3102101032	5P	50	8	15	33	2.8	2.1	5	2	C02	●
M3x0.5	ISO2X(6HX)	2.5	2.56	3102101035	5P	56	9	18	34	3.5	2.7	6	3	C02	●
	ISO3X(6GX)	2.5	2.56	3102201035	5P	56	9	18	34	3.5	2.7	6	3	C02	●
	7GX	2.5	2.56	3102301035	5P	56	9	18	34	3.5	2.7	6	3	C02	●
	ISO2X(6HX)+-100	2.5	2.56	3102501035	5P	56	9	18	34	3.5	2.7	6	3	C02	●
M4x0.7	ISO2X(6HX)	3.3	3.38	3102101042	5P	63	13	21	38	4.5	3.4	6	3	C02	●
	ISO3X(6GX)	3.3	3.38	3102201042	5P	63	13	21	38	4.5	3.4	6	3	C02	●
	7GX	3.3	3.38	3102301042	5P	63	13	21	38	4.5	3.4	6	3	C02	●
	ISO2X(6HX)+-100	3.3	3.38	3102501042	5P	63	13	21	38	4.5	3.4	6	3	C02	●
M5x0.8	ISO2X(6HX)	4.2	4.28	3102101049	5P	70	14	25	39	6	4.9	8	3	C02	●
	ISO3X(6GX)	4.2	4.28	3102201049	5P	70	14	25	39	6	4.9	8	3	C02	●
	7GX	4.2	4.28	3102301049	5P	70	14	25	39	6	4.9	8	3	C02	●
	ISO2X(6HX)+-100	4.2	4.28	3102501049	5P	70	14	25	39	6	4.9	8	3	C02	●
M6x1	ISO2X(6HX)	5	5.09	3102101055	5P	80	15	30	45	6	4.9	8	3	C02	●
	ISO3X(6GX)	5	5.09	3102201055	5P	80	15	30	45	6	4.9	8	3	C02	●
	7GX	5	5.09	3102301055	5P	80	15	30	45	6	4.9	8	3	C02	●
	ISO2X(6HX)+-100	5	5.09	3102501055	5P	80	15	30	45	6	4.9	8	3	C02	●
M8x1.25	ISO2X(6HX)	6.8	6.85	3102101064	5P	90	19	35	47	8	6.2	9	3	C07	●
	ISO3X(6GX)	6.8	6.85	3102201064	5P	90	19	35	47	8	6.2	9	3	C07	●
	7GX	6.8	6.85	3102301064	5P	90	19	35	47	8	6.2	9	3	C07	●
	ISO2X(6HX)+-100	6.8	6.85	3102501064	5P	90	19	35	47	8	6.2	9	3	C07	●

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371															
M10x1.5	ISO2X(6HX)	8.5	8.6	3102101078	5P	100	23	39	52.5	10	8	11	3	C07	●
	ISO3X(6GX)	8.5	8.6	3102201078	5P	100	23	39	52.5	10	8	11	3	C07	●
	7GX	8.5	8.6	3102301078	5P	100	23	39	52.5	10	8	11	3	C07	●
	ISO2X(6HX)+-100	8.5	8.6	3102501078	5P	100	23	39	52.5	10	8	11	3	C07	●

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 376															
M12x1.75	ISO2X(6HX)	10.3	10.36	3102101088	5P	110	26	-	56	9	7	10	3	C10	●
	ISO3X(6GX)	10.3	10.36	3102201088	5P	110	26	-	56	9	7	10	3	C10	●
	7GX	10.3	10.36	3102301088	5P	110	26	-	56	9	7	10	3	C10	●
	ISO2X(6HX)+-100	10.3	10.36	3102501088	5P	110	26	-	56	9	7	10	3	C10	●
M14x2	ISO2X(6HX)	12	12.12	3102101100	5P	110	26	-	56	11	9	12	3	C10	●
	ISO3X(6GX)	12	12.12	3102201100	5P	110	26	-	56	11	9	12	3	C10	●
	7GX	12	12.12	3102301100	5P	110	26	-	56	11	9	12	3	C10	●
	ISO2X(6HX)+-100	12	12.12	3102501100	5P	110	26	-	56	11	9	12	3	C10	●
M16x2	ISO2X(6HX)	14	14.12	3102101114	5P	110	26	-	56	12	9	12	3	C10	●
	ISO3X(6GX)	14	14.12	3102201114	5P	110	26	-	56	12	9	12	3	C10	●
	7GX	14	14.12	3102301114	5P	110	26	-	56	12	9	12	3	C10	●
	ISO2X(6HX)+-100	14	14.12	3102501114	5P	110	26	-	56	12	9	12	3	C10	●
M18x2.5	ISO2X(6HX)	15.5	15.63	3102101128	5P	125	33	-	64	14	11	14	3	C10	●
M20x2.5	ISO2X(6HX)	17.5	17.63	3102101141	5P	140	33	-	71	16	12	15	3	C10	●
M22x2.5	ISO2X(6HX)	19.5	19.63	3102101156	5P	140	33	-	71	18	14.5	17	3	C10	●
M24x3	ISO2X(6HX)	21	21.13	3102101167	5P	160	37	-	82	18	14.5	17	3	C10	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371															
M3x0.35	ISO2X(6HX)	2.65	2.7	3102101036	5P	56	6.5	18	34	3.5	2.7	6	3	C02	●
M4x0.5	ISO2X(6HX)	3.5	3.56	3102101043	5P	63	9	21	38	4.5	3.4	6	3	C02	●
M5x0.5	ISO2X(6HX)	4.5	4.56	3102101051	5P	70	9	25	39	6	4.9	8	3	C02	●
M6x0.75	ISO2X(6HX)	5.25	5.33	3102101056	5P	80	15	30	45	6	4.9	8	3	C02	●
M6x0.5	ISO2X(6HX)	5.5	5.56	3102101057	5P	80	9	30	45	6	4.9	8	3	C02	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 374															
M8x1	ISO2X(6HX)	7	7.09	3102101065	5P	90	19	-	46	6	4.9	8	3	C10	●
M10x1.25	ISO2X(6HX)	8.8	8.85	3102101079	5P	100	23	-	51	7	5.5	8	3	C10	●
M10x1	ISO2X(6HX)	9	9.09	3102101080	5P	90	19	-	46	7	5.5	8	3	C10	●
M12x1.5	ISO2X(6HX)	10.5	10.6	3102101089	5P	100	21	-	51	9	7	10	3	C10	●
M12x1.25	ISO2X(6HX)	10.8	10.85	3102101090	5P	100	21	-	51	9	7	10	3	C10	●
M14x1.5	ISO2X(6HX)	12.5	12.6	3102101102	5P	100	21	-	51	11	9	12	3	C10	●
M16x1.5	ISO2X(6HX)	14.5	14.6	3102101116	5P	100	21	-	51	12	9	12	3	C10	●
M18x1.5	ISO2X(6HX)	16.5	16.6	3102101130	5P	110	24	-	56	14	11	14	3	C10	●
M20x1.5	ISO2X(6HX)	18.5	18.6	3102101144	5P	125	24	-	64	16	12	15	3	C10	●
M22x1.5	ISO2X(6HX)	20.5	20.6	3102101158	5P	125	24	-	64	18	14.5	17	3	C10	●
M24x1.5	ISO2X(6HX)	22.5	22.6	3102101170	5P	140	27	-	71	18	14.5	17	3	C10	●

UNC	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371															
No.5-40UNC	2BX	2.6	2.64	3102103021	5P	56	11	18	34	3.5	2.7	6	2	C02	●
No.6-32UNC	2BX	2.8	2.83	3102103023	5P	56	11	19	32	4	3	6	2	C02	●
No.8-32UNC	2BX	3.4	3.47	3102103029	5P	63	13	21	38	4.5	3.4	6	2	C02	●

UNC	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371															
No.10-24UNC	2BX	3.89	3.9	3102103039	5P	70	14	24	39	6	4.9	8	2	C02	●
No.12-24UNC	2BX	4.5	4.53	3102103047	5P	80	15	28	45	6	4.9	8	3	C02	●
1/4-20UNC	2BX	5.1	5.19	3102103058	5P	80	15	30	42	7	5.5	8	3	C02	●
5/16-18UNC	2BX	6.6	6.65	3102103071	5P	90	19	35	47	8	6.2	9	3	C07	●
3/8-16UNC	2BX	8	8.07	3102103082	5P	100	23	39	54	9	7	10	3	C07	●

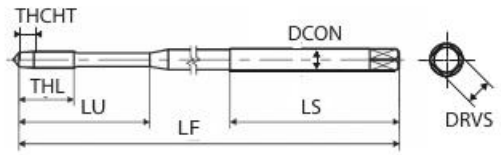
UNC	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 376															
7/16-14UNC	2BX	9.4	9.45	3102103098	5P	100	23	-	51	8	6.2	9	3	C10	●
1/2-13UNC	2BX	10.9	10.91	3102103111	5P	110	26	-	56	9	7	10	3	C10	●
9/16-12UNC	2BX	12.2	12.33	3102103126	5P	110	26	-	56	11	9	12	3	C10	●
5/8-11UNC	2BX	13.6	13.75	3102103138	5P	110	26	-	56	12	9	12	3	C10	●
3/4-10UNC	2BX	16.6	16.7	3102103161	5P	125	33	-	64	14	11	14	3	C10	●
7/8-9UNC	2BX	19.6	19.61	3102103181	5P	140	33	-	71	18	14.5	17	3	C10	●

UNF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 371															
No.5-44UNF	2BX	2.7	2.69	3102103022	5P	56	11	18	34	3.5	2.7	6	2	C02	●
No.6-40UNF	2BX	2.9	2.97	3102103024	5P	56	11	19	32	4	3	6	2	C02	●
No.8-36UNF	2BX	3.5	3.55	3102103030	5P	63	13	21	38	4.5	3.4	6	2	C02	●
No.10-32UNF	2BX	4.1	4.12	3102103041	5P	70	14	24	39	6	4.9	8	2	C02	●
No.12-28UNF	2BX	4.6	4.67	3102103048	5P	80	15	28	45	6	4.9	8	3	C02	●
1/4-28UNF	2BX	5.5	5.53	3102103062	5P	80	15	30	42	7	5.5	8	3	C02	●

UNF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
DIN 374															
5/16-24UNF	2BX	6.9	6.97	3102103074	5P	90	19	-	46	6	4.9	8	3	C10	●
3/8-24UNF	2BX	8.5	8.57	3102103085	5P	100	23	-	51	7	5.5	8	3	C10	●
7/16-20UNF	2BX	9.9	9.96	3102103101	5P	100	23	-	51	8	6.2	9	3	C10	●
1/2-20UNF	2BX	11.5	11.54	3102103115	5P	100	21	-	51	9	7	10	3	C10	●
9/16-18UNF	2BX	12.9	13	3102103129	5P	100	21	-	51	11	9	12	3	C10	●
5/8-18UNF	2BX	14.5	14.6	3102103142	5P	100	21	-	51	12	9	12	3	C10	●
3/4-16UNF	2BX	17.5	17.59	3102103164	5P	110	24	-	56	14	11	14	3	C10	●
7/8-14UNF	2BX	20.5	20.57	3102103184	5P	125	24	-	64	18	14.5	17	3	C10	●

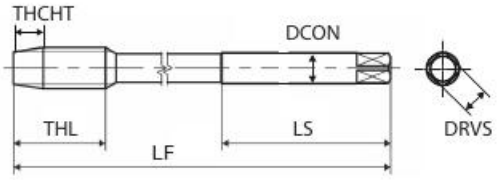
VUPO (LS)

JIS | HSS-P | COATING | 5P THCHT



TYPE: G10

Measurements in mm



TYPE: G11

Measurements in mm

● stock standard, ○ check stock, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
JIS															
M3x0.5	P2	2.5	2.56	2102101035	5P	100	9	18	40	4	3.2	6	3	G10	●
M4x0.7	P3	3.3	3.38	2102101042	5P	100	11	21	40	5	4	7	3	G10	●
M5x0.8	P3	4.2	4.28	2102101049	5P	100	13	25	40	5.5	4.5	7	3	G10	●
M6x1	P3	5	5.09	2102101055	5P	100	15	30	40	6	4.5	7	3	G10	●
M8x1.25	P3	6.8	6.85	2102101064	5P	150	19	-	50	6.2	5	8	3	G11	●
M10x1.5	P3	8.5	8.6	2102101078	5P	150	23	-	50	7	5.5	8	3	G11	●
M12x1.75	P4	10.3	10.36	2102101088	5P	150	26	-	50	8.5	6.5	9	3	G11	●
M14x2	P4	12	12.12	2102101100	5P	150	26	-	60	10.5	8	11	3	G11	◉
M16x2	P4	14	14.12	2102101114	5P	150	26	-	60	12.5	10	13	3	G11	●

MF	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT	LF	THL	LU	LS	DCON	DRVS	DRVL	NOF	Type	Stock
JIS															
M3x0.35	P2	2.65	2.7	2102101036	5P	100	6.5	18	40	4	3.2	6	3	G10	◉
M4x0.5	P2	3.5	3.56	2102101043	5P	100	9	21	40	5	4	7	3	G10	◉
M5x0.5	P2	4.5	4.56	2102101051	5P	100	9	25	40	5.5	4.5	7	3	G10	◉
M6x0.75	P2	5.25	5.33	2102101056	5P	100	15	30	40	6	4.5	7	3	G10	○
M6x0.5	P2	5.5	5.56	2102101057	5P	100	9	30	40	6	4.5	7	3	G10	◉
M8x1	P3	7	7.09	2102101065	5P	150	19	-	50	6.2	5	8	3	G11	○
M10x1.25	P3	8.8	8.85	2102101079	5P	150	23	-	50	7	5.5	8	3	G11	○
M10x1	P3	9	9.09	2102101080	5P	150	23	-	50	7	5.5	8	3	G11	◉
M12x1.5	P3	10.5	10.6	2102101089	5P	150	26	-	50	8.5	6.5	9	3	G11	○
M12x1.25	P4	10.8	10.85	2102101090	5P	150	26	-	50	8.5	6.5	9	3	G11	○
M14x1.5	P3	12.5	12.6	2102101102	5P	150	26	-	60	10.5	8	11	3	G11	○
M16x1.5	P3	14.5	14.6	2102101116	5P	150	26	-	60	12.5	10	13	3	G11	○

Tapping record

VUSP	Workpiece material	Tapping condition / Tapping result							Remarks
Size	Material symbol (hardness)	Hole size (mm)	Tapping length (mm)	Machine	Vc (m/min)	Feed	Tapping fluid	Tool life (holes)	Conventional product status ***Workpiece name**
M4x0.7	1.2379 - X155Cr-VMo12 1 - K110 (25 HRC)	3.3	8 (2D)	M/C	10	Fully synchronous	Water soluble	500	Replaced due to chipping at 400 holes
M5x0.8	1.7220 - 34CrMo4	4.2	15 (3D)	M/C	4	Gear	Water soluble	1.400	Broken at 100 holes due to entanglement of chips
M8x1.25	GG700	6.8	20 (2.5D)	M/C	20	Fully synchronous	Water soluble	1.500	Replaced due to chipping at 1.000 holes
M8x1.25	1.4301 - AISI 304 - X 5 CrNi 18 10	6.75	16 (2D)	M/C	15	Fully synchronous	Water soluble	1.390	Chipping occurs at 600 holes
M8x1.25	1.0044 - St 44-2	6.8	16 (2D)	M/C	30	Fully synchronous	Water soluble	1.500	Tool life is 800 holes ***cylinder head**
M8x1.25	1.0540 - Ck50	6.8	16 (2D)	M/C	15	Fully synchronous	Water soluble	900	Tool life is 700 holes
M10x1.5	1.0044 - St 44-2	8.5	15 (1.5D)	M/C	10	Fully synchronous	Water soluble	1.500	Tool life is unstable
M12x1.75	1.0044 - St 44-2	10.4	24 (2D)	M/C	12	Fully synchronous	Water soluble	2.800	Chipping randomly and breakage at 2.000 holes
M12x1.75	PVC (Thermoplastic resin)	10.3	18 (1.5D)	M/C	19	Fully synchronous	Water soluble	5.000	Screw plug gauge OUT at 3.000 holes
M12x1.75	1.7262 - 15CrMo	10.3	24 (2D)	M/C	7	Fully synchronous	Water soluble	800	Screw plug gauge OUT at 500 holes ***machine parts (spindle)**
M12x1.75	1.1191 - C45	10.8	24 (2D)	Drilling machine	5.6	Non synchronous	Oil (spray)	1.100	Tool life is 1.000 holes

VUPO	Workpiece material	Tapping condition / Tapping result							Remarks
Size	Material symbol (hardness)	Hole size (mm)	Tapping length (mm)	Machine	Vc (m/min)	Feed	Tapping fluid	Tool life (holes)	Conventional product status ***Workpiece name**
M3x0.5	1.7225 - 42CrMo4 (30HRC)	2.5	6 (2D)	N/C	5.6	Fully synchronous	Water soluble	1.260	Tool life is unstable and poor surface finish ***flange**
M3x0.5	1.1191 - C45 (25HRC)	2.5	9 (3D)	M/C	10	Fully synchronous	Water soluble	500	Tool life is 400 holes
M4x0.7	1.4301 - AISI 304 - X 5 CrNi 18 10	3.3	10 (2.5D)	M/C	10	Fully synchronous	Water soluble	830	The chamfer part is worn and replaced at about 300 holes
M4x0.7	3.3523 - AlMg2,5 - A5052	3.4	12 (3D)	M/C	12	Fully synchronous	Water soluble	1.500	Tool life is 1.000 holes ***medical parts**
M6x1	1.1170 - 28Mn6	5.1	9 (1.5D)	M/C	20	Fully synchronous	Water soluble	4.500	Tool life is 3.400 holes ***hub bearing**
M8x1.25	1.4305 - AISI303 - X 10 CrNiS 18 9	6.8	12 (1.5D)	M/C	11	Fully synchronous	Water soluble	33.000	Replaced due to wear or chipping at 10,000 holes ***nut**
M10x1.5	1.1191 - C45	8.5	25 (2.5D)	M/C	7.5	Fully synchronous	Water soluble	3.600	Breaks randomly at 1,000 holes ***crank plate**
M12x1.75	1.7262 - 15CrMo	10.3	24 (2D)	M/C	15	Fully synchronous	Water soluble	1.000	Replaced due to chipping at 700 holes
M12x1.75	1.7225 - 42CrMo4 (30HRC)	10.4	30 (2.5D)	M/C	11	Fully synchronous	Water soluble	650	Replaced due to chipping at 420 holes

9/2026

Think threads with YAMAWA

ISO 9001 JQA-QMA14664 ISO 14001 JQA-EM3465

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