

BLUE RING SERIES

The best solution for stainless steel.



Stainless steel features

Austenitic stainless steels have the following characteristics and are classified as difficult to cut materials.

- They harden while machining
- Cold welding occurs frequently.
- Poor chip ejection.
- Tend to shrink.
- Tool friction is high.

	Machinability	Steel grade	Element Content (%)	
			Ni	Cr
Austenitic stainless steels	Low M2	1.4466 (AISI 317)	11.00~15.00	18.00~20.00
		1.4401 (AISI 316)	10.00~14.00	16.00~18.00
	Medium M1	1.4350 (AISI 304)	8.00~10.50	18.00~20.00
		1.4305 (AISI 303)	8.00~11.00	17.00~19.00

Product for medium machinability stainless steel

SP+VA



SP-VA



SP-VA E(1.5P)



The difference between SP+VA and SP-VA

"+" means version up taps

SP+VA: Medium speed machining.

Effective for use with synchronous feed (rigid) tapping on CNC machining centers.

SP-VA is for low speed machining on drilling machines and machining centers.

Effective tapping on drilling machines.

Steel grade	Recommended tapping speed	
	5 m/min	10 m/min
1.4350 (AISI 304) M1	SP+VA	
1.4305 (AISI 303) M1	SP-VA	

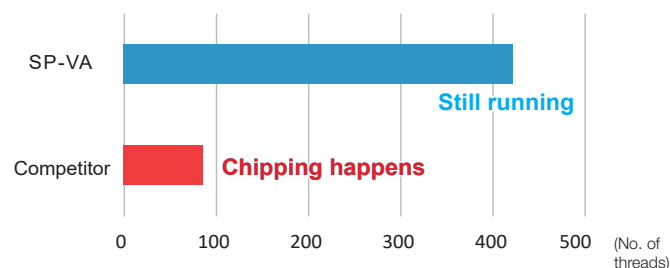
For blind hole application

Yamawa "Blue ring series" taps can be used especially for stainless steels.

SP+VA and SP-VA are recommended for tapping stainless steels such as 1.4350 (AISI 304) and 1.4305 (AISI 303). SP+VA and SP-VA can also be used for chrome steels, chrome molybdenum steels, and other ductile materials with great tendency to harden while machining

	Machinability	Steel grade	Element Content (%)	
			Ni	Cr
Austenitic stainless steels	Medium M1	1.4350 (AISI 304)	8.00~10.50	18.00~20.00
		1.4305 (AISI 303)	8.00~11.00	17.00~19.00

Process data



Product	SP-VA M12
	Competitor M12
Workpiece material	1.4350 (AISI 304)
Tapping speed	8 m/min
Hole diameter	ø10.3
Threading length	25 mm, Blind hole
Machine	CNC
Lubrication	Non-water soluble oil

SU2-SP



SU2-SP is designed with the first 3 threads at full height and the balance of the threads at about the pitch diameter in height. By adopting this unique thread design (BLF shape), SU2-SP realizes smooth chip ejection.

Tapping with conventional SP type => Chipping happens on full thread portion.



Chipping

Tapping with SU2-SP => No chipping.



No chipping

Recommendation for using SU2-SP

- Use with fully synchronized feed machine.
- Use with complete fix holder.
- Use with non-water soluble oil.
- Recommended tapping speed is 5 - 15 m/min.

Steel grade	Recommended tapping speed		
	5 m/min	10 m/min	15 m/min
1.4350 (AISI 304) M2	SU2-SP		
1.4305 (AISI 303) M1			

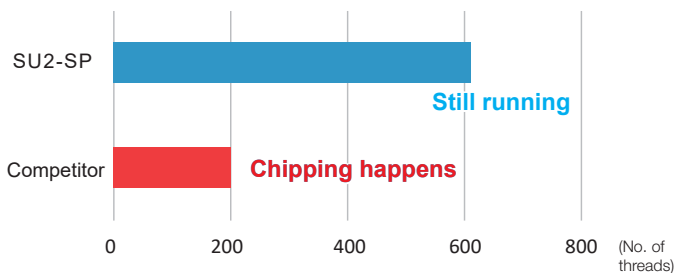
For low machinability stainless steel, blind hole application

Austenitic stainless steels with high Nickel (Ni) content such as 1.4401 (AISI 316) and 1.4466 (AISI 317) are classified as "difficult-to-cut stainless steels".

SU2-SP is the best recommendation for tapping such tough stainless steels.

Austenitic stainless steels	Machinability	Steel grade	Element Content (%)	
			Ni	Cr
	Low M2	1.4466 (AISI 317)	11.00~15.00	18.00~20.00
	1.4401 (AISI 316)	10.00~14.00	17.00~19.00	

Process data



Product	SU2-SP M12
	Competitor M12
Workpiece material	1.4401(AISI 316)
Tapping speed	8 m/min
Hole diameter	ø10.3
Threading length	25 mm, Blind hole
Machine	CNC
Lubrication	Non-water soluble oil


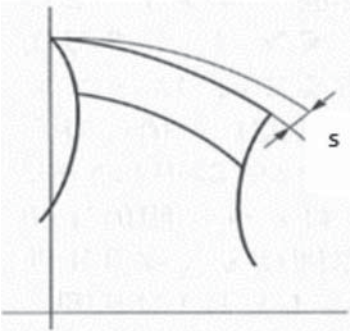

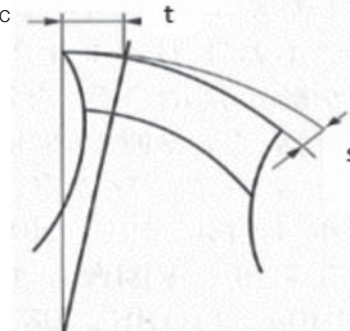

Thread relief depending on Taps

· Eccentric thread relief: excellent cutting performance.

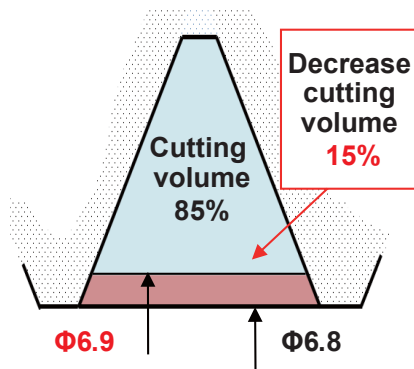
This type should be used with a machine that has a full synchronous feed and a full fixed tap holder.

· Con-eccentric thread relief: high cutting performance.

This type can be used with machines having full synchronous feed mechanism and other types of machines.

Taps	Type of thread relief (s=thread relief, t=width of margin)	Specification	Applicable Machine
 <p>SU2-SP</p>	<p>Eccentric thread relief</p> 	<p>Relief (s) begins from the edge of the flute at the cutting edge.</p> <p><Advantage></p> <ul style="list-style-type: none"> · Minimizing of cutting torque and friction resistance. · Minimizing of welding. 	Full synchronous feed
 <p>SP+VA</p>	<p>Con-eccentric thread relief</p> 	<p>Relief (s) begins after the margin (t).</p> <p><Advantage></p> <p>Self-guidance property enables stable cutting.</p>	High spindle speed tapping. => Full synchronous feed
 <p>SP-VA</p>			Low spindle speed tapping. => Asynchronous feed
			Both for Full synchronized feed and Asynchronous feed

Troubleshooting in stainless steels tapping



When tapping troubles occur, the 1st solution is to make larger bored hole size before tapping.

For example, tapping M8x1.25 thread, by adjusting the bored hole diameter from 6.8 mm to 6.9 mm, the cutting volume decreases by 15%. The tapping load decreases as well.

Larger bored hole diameter can help to solve tap breakage and welding problems.

Size	Minor diameter of 6H internal threads		Recommended bored hole size
	Max.	Min.	
M 4X0.7	3.422	3.242	3.38
M 5X0.8	4.334	4.134	4.28
M 6X1	5.153	4.917	5.09
M 8X1.25	6.912	6.647	6.85
M 10X1.5	8.676	8.376	8.6
M 12X1.75	10.441	10.106	10.4

· For other sizes, please refer to the technical page of Yamawa product catalogue.

Please make the hole before tapping as close as Max value of minor diameter of 6H internal threads.

Product for medium machinability stainless steel

SL+VA

HSS-E

OX



PO-VA

HSS-E

OX



For through hole application

Yamawa offers 2 types of taps SL and PO for through hole use.

SL+VA and PO-VA can be used on stainless steels, chrome steels, chrome molybdenum steels, and other ductile materials with tendency to work harden.

<How to distinguish SL+VA and PO-VA >

SL+VA: Recommended tapping speed is 6 - 18 m/min.

PO-VA: Recommended tapping speed is approximately 5 m/min.

Tapping with a fully synchronous feed is recommended for tapping speeds higher than 8 m/min.

Steel grade	Recommended tapping speed			
	5 m/min	8 m/min	10 m/min	15 m/min
1.4350 (AISI 304) M1	PO-VA	SL+VA	SL+VA	SL+VA
1.4305 (AISI 303) M1	PO-VA	SL+VA	SL+VA	SL+VA

Chip shape

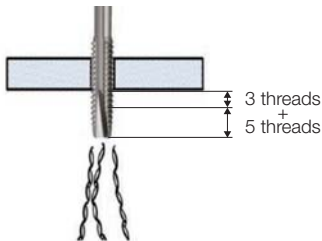


Ejected by SL+VA at 15 m/min



Ejected by PO-VA at 4 m/min

Process data



Chamfer portion must completely come out of the hole. If not, during the reverse motion, the chips might be brought back into the hole causing edge chipping problems.

Please try to lengthen the feed stroke by 3 additional threads to ensure that the cutting chamfer is completely out of the bored hole.



No space enough for chip ejection on through-hole tapping

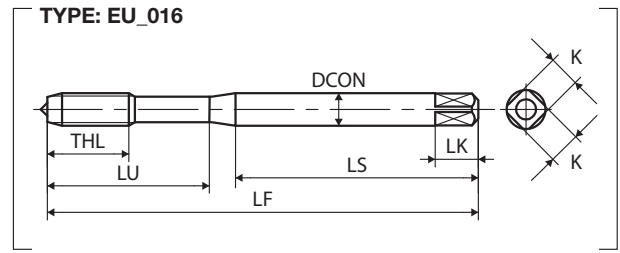
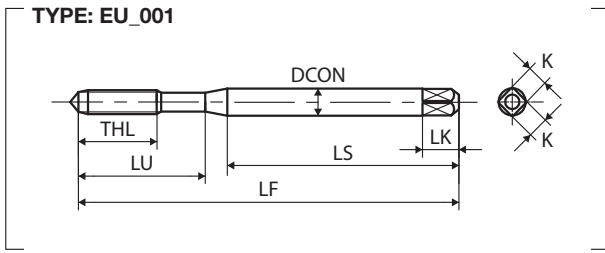
- In case of thin plate tapping, or if there is no space enough for chip ejection between the workpiece material and the jig, we recommend PO more than SL type.

- In some cases, ejected chips get stuck in the fixture and new chips can not be ejected smoothly. => Remove chips regularly.

- For tapping long threading length, we recommend the SL type that allows smoother chip discharge.

Dimensions and sizes

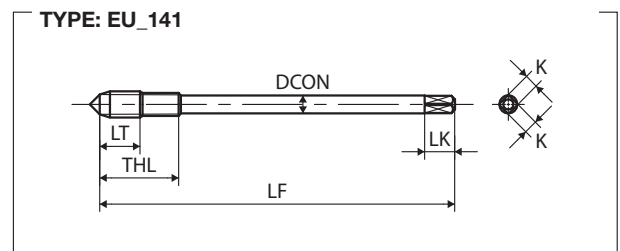
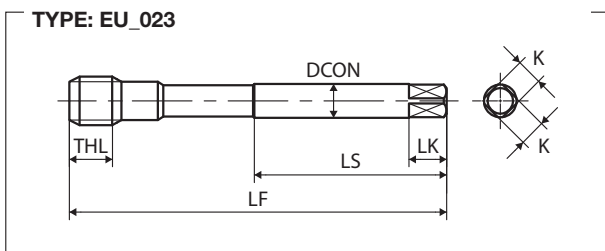
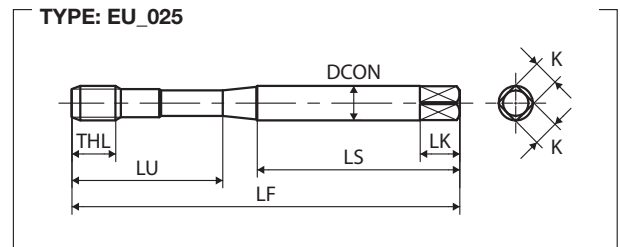
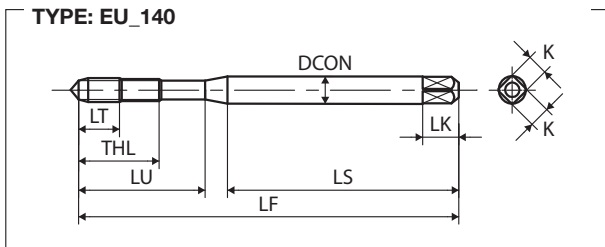
SP+VA



● stock standard, ○ check availability

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371																
M3X0.5	IS02(6H)	2.5	2.56	SE3.0GAGEX	2.5P	56	-	9	18	34	3.5	2.7	6	3	001	●
M4X0.7	IS02(6H)	3.3	3.38	SE4.0IAGEX	2.5P	63	-	13	21	38	4.5	3.4	6	3	001	●
M5X0.8	IS02(6H)	4.2	4.28	SE5.0KAGEX	2.5P	70	-	14	25	39	6	4.9	8	3	001	●
M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN YMW																
M6X1	IS02(6H)	5	5.09	SZ6.0MAGEX	2.5P	80	-	15	30	45	6	4.9	8	3	016	●
M8X1.25	IS02(6H)	6.8	6.85	SZ8.0NAGEX	2.5P	90	-	19	35	48	8	6.2	9	3	016	●
M10X1.5	IS02(6H)	8.5	8.6	SZ0100AGEX	2.5P	100	-	23	39	53	10	8	11	4	016	●
M12X1.75	IS02(6H)	10.3	10.36	SZ012PAGEX	2.5P	110	-	26	45	56	12	9	12	4	016	●


SP-VA





Oversized


● stock standard, ○ check availability




M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock	
DIN 371																
M2X0.4	IS02(6H)	1.6	1.65	SD2.0EAGEX	2.5P	45	8	-	32	2.8	2.1	5	2	140	●	
M2.5X0.45	IS02(6H)	2.1	2.11	SD2.5FAGEX	2.5P	50	8	15	33	2.8	2.1	5	2	140	●	
M3X0.5	IS02(6H)	2.5	2.56	SD3.0GAGEX	2.5P	56	9	18	34	3.5	2.7	6	2	140	●	
	IS03(6G)	2.5	2.56	SD3.0GMGEX	2.5P	56	9	18	34	3.5	2.7	6	2	140	●	

M	TCTR (tolerance)	 (mm)	Hole \emptyset (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
M4X0.7	ISO2(6H)	3.3	3.38	SD4.0IAGEX	2.5P	63	13	21	38	4.5	3.4	6	3	140	●
	ISO3(6G)	3.3	3.38	SD4.0IMGEX	2.5P	63	13	21	38	4.5	3.4	6	3	140	●
M5X0.8	ISO2(6H)	4.2	4.28	SD5.0KAGEX	2.5P	70	14	25	39	6	4.9	8	3	140	●
	ISO3(6G)	4.2	4.28	SD5.0KMGEX	2.5P	70	14	25	39	6	4.9	8	3	140	●
M6X1	ISO2(6H)	5	5.09	SD6.0MAGEX	2.5P	80	15	30	45	6	4.9	8	3	140	●
	ISO3(6G)	5	5.09	SD6.0MMGEX	2.5P	80	15	30	45	6	4.9	8	3	140	●
M8X1.25	ISO2(6H)	6.8	6.85	SD8.0NAGEX	2.5P	90	12	35	47	8	6.2	9	3	025	●
	ISO3(6G)	6.8	6.85	SD8.0NMGEX	2.5P	90	12	35	47	8	6.2	9	3	025	●
M10X1.5	ISO2(6H)	8.5	8.6	SD0100AGEX	2.5P	100	13	39	52	10	8	11	3	025	●
	ISO3(6G)	8.5	8.6	SD0100MGEX	2.5P	100	13	39	52	10	8	11	3	025	●

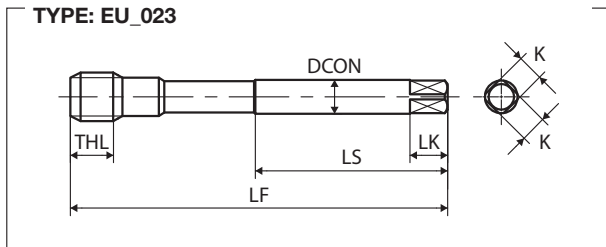
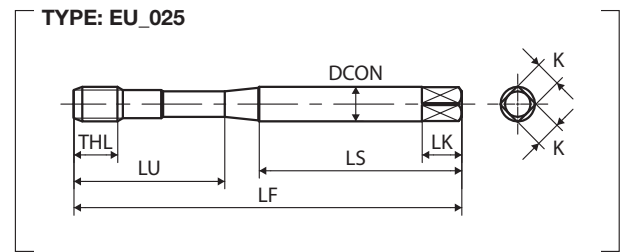
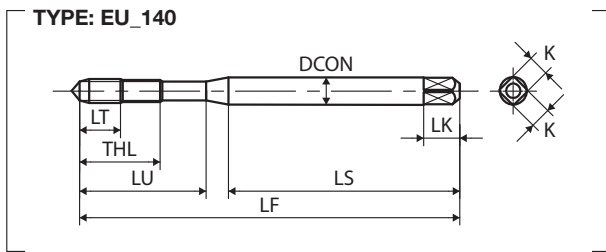
M	TCTR (tolerance)	 (mm)	Hole \emptyset (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 376															
M8X1.25	ISO2(6H)	6.8	6.85	SG8.0NAGEX	2.5P	90	12	-	46	6	4.9	8	3	023	●
M10X1.5	ISO2(6H)	8.5	8.6	SG0100AGEX	2.5P	100	13	-	51	7	5.5	8	3	023	●
M12X1.75	ISO2(6H)	10.3	10.36	SG012PAGEX	2.5P	110	15	-	56	9	7	10	3	023	●
	ISO3(6G)	10.3	10.36	SG012PMGEX	2.5P	110	15	-	56	9	7	10	3	023	●
M14X2	ISO2(6H)	12	12.12	SG014QAGEX	2.5P	110	18	-	56	11	9	12	3	023	●
M16X2	ISO2(6H)	14	14.12	SG016QAGEX	2.5P	110	18	-	56	12	9	12	3	023	●
M18X2.5	ISO2(6H)	15.5	15.63	SG018RAGEX	2.5P	125	20	-	64	14	11	14	4	023	●
M20X2.5	ISO2(6H)	17.5	17.63	SG020RAGEX	2.5P	140	20	-	71	16	12	15	4	023	●
M22X2.5	ISO2(6H)	19.5	19.63	SG022RAGEX	2.5P	140	20	-	71	18	14.5	17	4	023	●
M24X3	ISO2(6H)	21	21.13	SG024SAGEX	2.5P	160	25	-	82	18	14.5	17	4	023	●
M27X3	ISO2(6H)	24	24.13	SG027SAGEX	2.5P	160	25	-	82	20	16	19	4	023	●
M30X3.5	ISO2(6H)	26.5	26.63	SG030TAGEX	2.5P	180	30	-	92	22	18	21	4	023	●
M36X4	ISO2(6H)	32	32.12	SG036UAGEX	2.5P	200	40	-	102	28	22	25	4	023	●

MF	TCTR (tolerance)	 (mm)	Hole \emptyset (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 374															
M6X0.75	ISO2(6H)	5.3	5.33	SM6.0JAGEX	2.5P	80	13	-	-	4.5	3.4	6	3	141	●
M8X1	ISO2(6H)	7	7.09	SM8.0MAGEX	2.5P	90	12	-	46	6	4.9	8	3	023	●
M8X0.75	ISO2(6H)	7.3	7.33	SM8.0JAGEX	2.5P	80	12	-	41	6	4.9	8	3	023	●
M10X1.25	ISO2(6H)	8.8	8.85	SM010NAGEX	2.5P	100	13	-	51	7	5.5	8	3	023	●
M10X1	ISO2(6H)	9	9.09	SM010MAGEX	2.5P	90	13	-	46	7	5.5	8	3	023	●
M12X1.5	ISO2(6H)	10.5	10.6	SM012OAGEX	2.5P	100	15	-	51	9	7	10	3	023	●
M12X1.25	ISO2(6H)	10.8	10.85	SM012NAGEX	2.5P	100	15	-	51	9	7	10	3	023	●
M12X1	ISO2(6H)	11	11.09	SM012MAGEX	2.5P	100	15	-	51	9	7	10	3	023	●
M14X1.5	ISO2(6H)	12.5	12.6	SM014OAGEX	2.5P	100	14	-	51	11	9	12	3	023	●
M14X1	ISO2(6H)	13	13.09	SM014MAGEX	2.5P	100	14	-	51	11	9	12	3	023	●
M16X1.5	ISO2(6H)	14.5	14.6	SM016OAGEX	2.5P	100	14	-	51	12	9	12	3	023	●
M16X1	ISO2(6H)	15	15.09	SM016MAGEX	2.5P	100	14	-	51	12	9	12	3	023	●
M18X1.5	ISO2(6H)	16.5	16.6	SM018OAGEX	2.5P	110	14	-	56	14	11	14	4	023	●
M20X1.5	ISO2(6H)	18.5	18.6	SM020OAGEX	2.5P	125	14	-	64	16	12	15	4	023	●
M22X1.5	ISO2(6H)	20.5	20.6	SM022OAGEX	2.5P	125	14	-	64	18	14.5	17	4	023	●
M24X2	ISO2(6H)	22	22.12	SM024QAGEX	2.5P	140	18	-	71	18	14.5	17	4	023	●
M24X1.5	ISO2(6H)	22.5	22.6	SM024OAGEX	2.5P	140	18	-	71	18	14.5	17	4	023	●
M27X2	ISO2(6H)	25	25.12	SM027QAGEX	2.5P	140	20	-	71	20	16	19	4	023	●
M30X2	ISO2(6H)	28	28.12	SM030QAGEX	2.5P	150	20	-	77	22	18	21	4	023	●
M30X1.5	ISO2(6H)	28.5	28.6	SM030OAGEX	2.5P	150	20	-	77	22	18	21	4	023	●



UNC	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
No.4-40UNC	2B	2.3	2.33	SDUN4HXGEX	2.5P	56	9	18	34	3.5	2.7	6	2	140	●
No.6-32UNC	2B	2.8	2.83	SDUN6JXGEX	2.5P	56	11	19	32	4	3	6	3	140	●
No.8-32UNC	2B	3.4	3.47	SDUN8JXGEX	2.5P	63	13	21	38	4.5	3.4	6	3	140	●
No.10-24UNC	2B	3.89	3.9	SDUNAMXGEX	2.5P	70	14	24	39	6	4.9	8	3	140	●
1/4-20UNC	2B	5.1	5.19	SDU04NXGEX	2.5P	80	15	30	42	7	5.5	8	3	140	●
5/16-18UNC	2B	6.6	6.65	SDU050XGEX	2.5P	90	12	35	47	8	6.2	9	3	025	●
3/8-16UNC	2B	8	8.07	SDU06PXGEX	2.5P	100	13	39	54	9	7	10	3	025	●
DIN 376															
7/16-14UNC	2B	9.4	9.45	SGU07QXGEX	2.5P	100	13	-	51	8	6.2	9	3	023	●
1/2-13UNC	2B	10.9	10.91	SGU08RXGEX	2.5P	110	15	-	56	9	7	10	3	023	●
9/16-12UNC	2B	12.2	12.33	SGU09SXGEX	2.5P	110	18	-	56	11	9	12	3	023	●
5/8-11UNC	2B	13.6	13.75	SGU10UXGEX	2.5P	110	18	-	56	12	9	12	3	023	●
3/4-10UNC	2B	16.6	16.7	SGU12VXGEX	2.5P	125	20	-	64	14	11	14	4	023	●
7/8-9UNC	2B	19.6	19.61	SGU14WXGEX	2.5P	140	20	-	71	18	14.5	17	4	023	●
1-8UNC	2B	22.3	22.45	SGU16XXGEX	2.5P	160	25	-	82	18	14.5	17	4	023	●
1 1/8-7UNC	2B	25	25.17	SGU18YXGEX	2.5P	180	30	-	92	22	18	21	4	023	●
1 1/4-7UNC	2B	28.2	28.35	SGU20YXGEX	2.5P	180	30	-	92	22	18	21	4	023	●
1 3/8-6UNC	2B	30.8	30.92	SGU22ZXGEX	2.5P	200	40	-	102	28	22	25	4	023	●
1 1/2-6UNC	2B	34	34.1	SGU24ZXGEX	2.5P	200	40	-	102	32	24	27	4	023	●
DIN 371															
No.10-32UNF	2B	4.1	4.12	SDUNAJXGEX	2.5P	70	14	24	39	6	4.9	8	3	140	●
1/4-28UNF	2B	5.5	5.53	SDU04KXGEX	2.5P	80	15	30	42	7	5.5	8	3	140	●
DIN 374															
5/16-24UNF	2B	6.9	6.97	SMU05MXGEX	2.5P	90	12	-	46	6	4.9	8	3	023	●
3/8-24UNF	2B	8.5	8.57	SMU06MXGEX	2.5P	100	13	-	51	7	5.5	8	3	023	●
7/16-20UNF	2B	9.9	9.96	SMU07NXGEX	2.5P	100	13	-	51	8	6.2	9	3	023	●
1/2-20UNF	2B	11.5	11.54	SMU08NXGEX	2.5P	100	15	-	51	9	7	10	3	023	●
9/16-18UNF	2B	12.9	13	SMU09OXGEX	2.5P	100	14	-	51	11	9	12	3	023	●
5/8-18UNF	2B	14.5	14.6	SMU10OXGEX	2.5P	100	14	-	51	12	9	12	3	023	●
3/4-16UNF	2B	17.5	17.59	SMU12PXGEX	2.5P	110	14	-	56	14	11	14	4	023	●
7/8-14UNF	2B	20.5	20.57	SMU14QXGEX	2.5P	125	20	-	64	18	14.5	17	4	023	●
1-12UNF	2B	23.3	23.46	SMU16SXGEX	2.5P	140	18	-	71	18	14.5	17	4	023	●
1 1/8-12UNF	2B	26.5	26.63	SMU18SXGEX	2.5P	150	20	-	77	22	18	21	4	023	●
1 1/4-12UNF	2B	29.6	29.81	SMU20SXGEX	2.5P	150	20	-	77	22	18	21	4	023	●
1 3/8-12UNF	2B	32.8	32.98	SMU22SXGEX	2.5P	170	20	-	87	28	22	25	4	023	●
1 1/2-12UNF	2B	36	36.16	SMU24SXGEX	2.5P	170	20	-	87	32	24	27	4	023	●
DIN 374															
1 1/8-8UN	2B	25.5	25.62	SMU18XXGEX	2.5P	180	28	-	92	22	18	21	4	023	●
1 1/4-8UN	2B	28.5	28.8	SMU20XXGEX	2.5P	180	28	-	92	22	18	21	4	023	●
1 3/8-8UN	2B	31.8	31.97	SMU22XXGEX	2.5P	200	30	-	102	28	22	25	4	023	●
1 1/2-8UN	2B	35	35.15	SMU24XXGEX	2.5P	200	30	-	102	32	24	27	4	023	●
1 5/8-8UN	2B	38.1	38.32	SMU26XXGEX	2.5P	200	30	-	102	32	24	27	4	023	●
1 3/4-8UN	2B	41.3	41.5	SMU28XXGEX	2.5P	200	40	-	102	36	29	32	4	023	●
2-8UN	2B	47.8	47.85	SMU32XXGEX	2.5P	225	40	-	115	40	32	35	4	023	●


G(BSP)	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 5156															
1/8-28	-	8.75	8.78	SVG0020GEX	2.5P	90	12	-	46	7	5.5	8	3	023	●
1/4-19	-	11.75	11.78	SVG0040GEX	2.5P	100	14	-	51	11	9	12	3	023	●
3/8-19	-	15.25	15.28	SVG0060GEX	2.5P	100	14	-	51	12	9	12	3	023	●
1/2-14	-	19	19.04	SVG0080GEX	2.5P	125	18	-	64	16	12	15	4	023	●
3/4-14	-	24.5	24.52	SVG0120GEX	2.5P	140	20	-	71	20	16	19	4	023	●
1-11	-	30.75	30.77	SVG0160GEX	2.5P	160	20	-	82	25	20	23	4	023	●
NPT	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
1/8-27	-	8.35	8.39	OAFBZ002	2.5P	90	12	26	64	10	8	11	3		●
1/4-18	-	10.8	10.85	NHFBZ008	2.5P	100	18	43	57	14	11	14	3		●
NPT	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 374															
3/8-18	-	14.25	14.27	NFFBZ007	2.5P	110	18	-	90	14	11	14	4		●
1/2-14	-	17.5	17.6	ODFBZ003	2.5P	140	23	-	114	16	12	15	4		●
3/4-14	-	22.9	22.91	NHFBZ006	2.5P	150	24	-	123	20	16	19	4		●
1-11.5	-	28.75	28.78	NKYLZ001	2.5P	170	30	-	136	25	20	23	4		●

SP-VA E(1.5P)

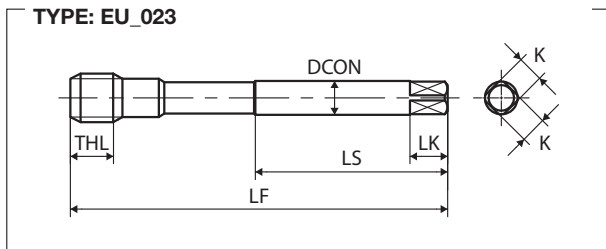
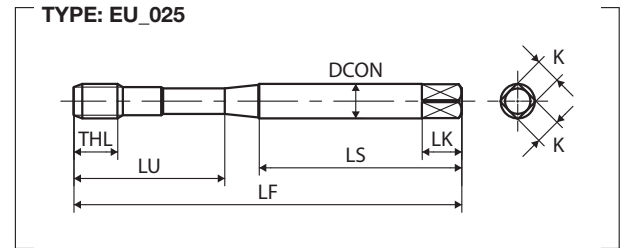
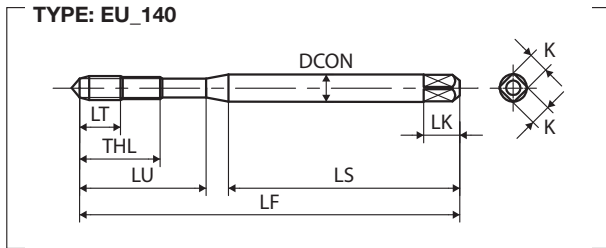


● stock standard, ○ check availability


M	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
M3X0.5	IS02(6H)	2.5	2.56	SD3.0GAGEXA	1.5P	56	9	18	34	3.5	2.7	6	2	140	●
M4X0.7	IS02(6H)	3.3	3.38	SD4.0IAGEXA	1.5P	63	13	21	38	4.5	3.4	6	3	140	●
M5X0.8	IS02(6H)	4.2	4.28	SD5.0KAGEXA	1.5P	70	14	25	39	6	4.9	8	3	140	●
M6X1	IS02(6H)	5	5.09	SD6.0MAGEXA	1.5P	80	15	30	45	6	4.9	8	3	140	●
M8X1.25	IS02(6H)	6.8	6.85	SD8.0NAGEXA	1.5P	90	12	35	47	8	6.2	9	3	025	●
M10X1.5	IS02(6H)	8.5	8.6	SD0100AGEXA	1.5P	100	13	39	52	10	8	11	3	025	●
M	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 376															
M12X1.75	IS02(6H)	10.3	10.36	SG012PAGEXA	1.5P	110	15	-	56	9	7	10	3	023	●
M14X2	IS02(6H)	12	12.12	SG014QAGEXA	1.5P	110	18	-	56	11	9	12	3	023	●
M16X2	IS02(6H)	14	14.12	SG016QAGEXA	1.5P	110	18	-	56	12	9	12	3	023	●
M20X2.5	IS02(6H)	17.5	17.63	SG020RAGEXA	1.5P	140	20	-	71	16	12	15	4	023	●


MF	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 374															
M8X1	IS02(6H)	7	7.09	SM8.0MAGEXA	1.5P	90	12	-	46	6	4.9	8	3	023	●
M10X1.25	IS02(6H)	8.8	8.85	SM010NAGEXA	1.5P	100	13	-	51	7	5.5	8	3	023	●
M10X1	IS02(6H)	9	9.09	SM010MAGEXA	1.5P	90	13	-	46	7	5.5	8	3	023	●
M12X1.5	IS02(6H)	10.5	10.6	SM0120AGEXA	1.5P	100	15	-	51	9	7	10	3	023	●
M12X1.25	IS02(6H)	10.8	10.85	SM012NAGEXA	1.5P	100	15	-	51	9	7	10	3	023	●
M14X1.5	IS02(6H)	12.5	12.6	SM0140AGEXA	1.5P	100	14	-	51	11	9	12	3	023	●
M16X1.5	IS02(6H)	14.5	14.6	SM0160AGEXA	1.5P	100	14	-	51	12	9	12	3	023	●


SU2-SP



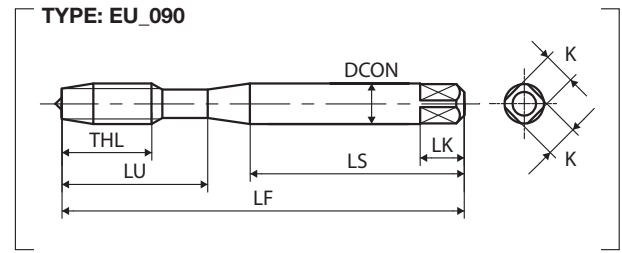
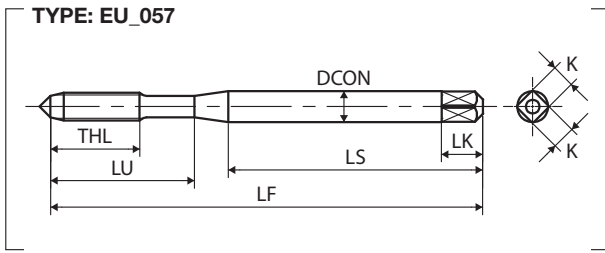
● stock standard, ○ check availability

M	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371																
M3X0.5	IS02(6H)	2.5	2.56	SD3.0GAGEXJ	2.5P	56	-	9	18	34	3.5	2.7	6	3	140	●
M4X0.7	IS02(6H)	3.3	3.38	SD4.0IAGEXJ	2.5P	63	-	13	21	38	4.5	3.4	6	3	140	●
M5X0.8	IS02(6H)	4.2	4.28	SD5.0KAGEXJ	2.5P	70	-	14	25	39	6	4.9	8	3	140	●
M6X1	IS02(6H)	5	5.09	SD6.0MAGEXJ	2.5P	80	-	15	30	45	6	4.9	8	3	140	●
M8X1.25	IS02(6H)	6.8	6.85	SD8.0NAGEXJ	2.5P	90	-	19	35	47	8	6.2	9	3	025	●
M10X1.5	IS02(6H)	8.5	8.6	SD0100AGEXJ	2.5P	100	-	23	39	52	10	8	11	3	025	●

M	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	LT (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 376																
M12X1.75	IS02(6H)	10.3	10.36	SG012PAGEXJ	2.5P	110	-	26	-	56	9	7	10	4	023	●
M14X2	IS02(6H)	12	12.12	SG014QAGEXJ	2.5P	110	-	26	-	56	11	9	12	4	023	●
M16X2	IS02(6H)	14	14.12	SG016QAGEXJ	2.5P	110	-	26	-	56	12	9	12	4	023	●
M18X2.5	IS02(6H)	15.5	15.63	SG018RAGEXJ	2.5P	125	-	33	-	64	14	11	14	4	023	●
M20X2.5	IS02(6H)	17.5	17.63	SG020RAGEXJ	2.5P	140	-	33	-	71	16	12	15	4	023	●
M22X2.5	IS02(6H)	19.5	19.63	SG022RAGEXJ	2.5P	140	-	33	-	71	18	14.5	17	4	023	○
M24X3	IS02(6H)	21	21.13	SG024SAGEXJ	2.5P	160	-	37	-	82	18	14.5	17	4	023	●

G(BSP)	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	Basic major Ø (mm)	LF (mm)	THL (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 5156															
1/8-28	-	8.75	8.78	SVG0020GEXJ	2.5P	9.728	90	19	46	7	5.5	8	3	023	●
1/4-19	-	11.75	11.78	SVG0040GEXJ	2.5P	13.157	100	21	51	11	9	12	4	023	●
3/8-19	-	15.25	15.28	SVG0060GEXJ	2.5P	16.662	100	21	51	12	9	12	4	023	●
1/2-14	-	19	19.04	SVG0080GEXJ	2.5P	20.955	125	24	64	16	12	15	4	023	●
3/4-14	-	24.5	24.52	SVG0120GEXJ	2.5P	26.441	140	27	71	20	16	19	4	023	●

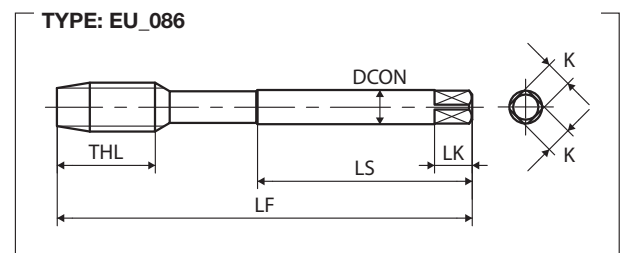
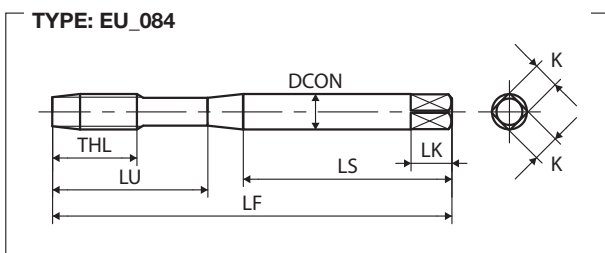
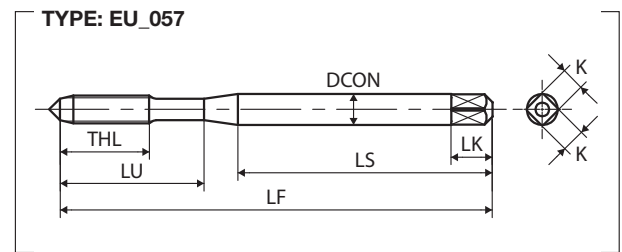
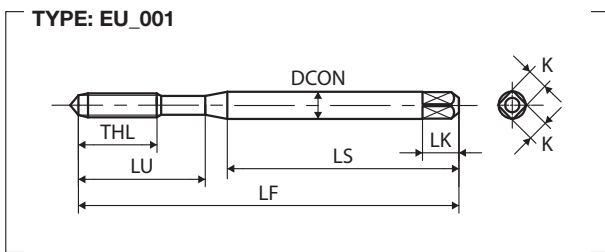
SL+VA



● stock standard, ○ check availability






M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
M3X0.5	ISO2X(6HX)	2.5	2.56	LE3.0BGEEX	5P	56	9	18	34	3.5	2.7	6	3	057	●
M4X0.7	ISO2X(6HX)	3.3	3.38	LE4.0BGEEX	5P	63	13	21	38	4.5	3.4	6	3	057	●
M5X0.8	ISO2X(6HX)	4.2	4.28	LE5.0BGEEX	5P	70	14	25	39	6	4.9	8	3	057	●
M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN YMW															
M6X1	ISO2X(6HX)	5	5.09	LZ6.0MBGEEX	5P	80	15	30	45	6	4.9	8	3	090	●
M8X1.25	ISO2X(6HX)	6.8	6.85	LZ8.0NBGEEX	5P	90	19	35	48	8	6.2	9	3	090	●
M10X1.5	ISO2X(6HX)	8.5	8.6	LZ0100BGEEX	5P	100	23	39	53	10	8	11	3	090	●
M12X1.75	ISO2X(6HX)	10.3	10.36	LZ012PBGEEX	5P	110	26	45	56	12	9	12	3	090	●





PO-VA



● stock standard, ○ check availability

M	TCTR (tolerance)	Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
M2X0.4	ISO2X(6HX)	1.6	1.65	PD2.0EBGEEX	4.5P	45	8	-	32	2.8	2.1	5	2	001	●
M2.5X0.45	ISO2X(6HX)	2.1	2.11	PD2.5FBGEEX	4.5P	50	8	15	33	2.8	2.1	5	2	057	●
M3X0.5	ISO2X(6HX)	2.5	2.56	PD3.0BGEEX	4.5P	56	9	18	34	3.5	2.7	6	3	057	●
M4X0.7	ISO2X(6HX)	3.3	3.38	PD4.0BGEEX	4.5P	63	13	21	38	4.5	3.4	6	3	057	●
M5X0.8	ISO2X(6HX)	4.2	4.28	PD5.0KBGEEX	4.5P	70	14	25	39	6	4.9	8	3	057	●

M	TCTR (tolerance)	 (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
M6X1	IS02X(6HX)	5	5.09	PD6.0MBGEX	4.5P	80	15	30	45	6	4.9	8	3	057	●
M8X1.25	IS02X(6HX)	6.8	6.85	PD8.0NBGEX	4.5P	90	19	35	47	8	6.2	9	3	084	●
M10X1.5	IS02X(6HX)	8.5	8.6	PD0100BGEX	4.5P	100	23	39	52	10	8	11	3	084	●
M	TCTR (tolerance)	 (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 376															
M8X1.25	IS02X(6HX)	6.8	6.85	PG8.0NBGEX	4.5P	90	19	-	46	6	4.9	8	3	086	●
M10X1.5	IS02X(6HX)	8.5	8.6	PG0100BGEX	4.5P	100	23	-	51	7	5.5	8	3	086	●
M12X1.75	IS02X(6HX)	10.3	10.36	PG012PBGEX	4.5P	110	26	-	56	9	7	10	3	086	●
M14X2	IS02X(6HX)	12	12.12	PG014QBGEX	4.5P	110	26	-	56	11	9	12	3	086	●
M16X2	IS02X(6HX)	14	14.12	PG016QBGEX	4.5P	110	26	-	56	12	9	12	3	086	●
M18X2.5	IS02X(6HX)	15.5	15.63	PG018RBGEX	4.5P	125	33	-	64	14	11	14	3	086	●
M20X2.5	IS02X(6HX)	17.5	17.63	PG020RBGEX	4.5P	140	33	-	71	16	12	15	3	086	●
M22X2.5	IS02X(6HX)	19.5	19.63	PG022RBGEX	4.5P	140	33	-	71	18	14.5	17	3	086	●
M24X3	IS02X(6HX)	21	21.13	PG024SBGEX	4.5P	160	37	-	82	18	14.5	17	3	086	●
M27X3	IS02X(6HX)	24	24.13	PG027SBGEX	4.5P	160	37	-	82	20	16	19	4	086	●
M30X3.5	IS02X(6HX)	26.5	26.63	PG030TBGEX	4.5P	180	44	-	92	22	18	21	4	086	●
M36X4	IS02X(6HX)	32	32.12	PG036UBGEX	4.5P	200	52	-	102	28	22	25	4	086	●
MF	TCTR (tolerance)	 (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 374															
M8X1	IS02X(6HX)	7	7.09	PM8.0MBGEX	4.5P	90	19	-	46	6	4.9	8	3	086	●
M10X1.25	IS02X(6HX)	8.8	8.85	PM010NBGEX	4.5P	100	23	-	51	7	5.5	8	3	086	●
M10X1	IS02X(6HX)	9	9.09	PM010MBGEX	4.5P	90	19	-	46	7	5.5	8	3	086	●
M12X1.5	IS02X(6HX)	10.5	10.6	PM0120BGEX	4.5P	100	21	-	51	9	7	10	3	086	●
M12X1.25	IS02X(6HX)	10.8	10.85	PM012NBGEX	4.5P	100	21	-	51	9	7	10	3	086	●
M12X1	IS02X(6HX)	11	11.09	PM012MBGEX	4.5P	100	21	-	51	9	7	10	3	086	●
M14X1.5	IS02X(6HX)	12.5	12.6	PM0140BGEX	4.5P	100	21	-	51	11	9	12	3	086	●
M16X1.5	IS02X(6HX)	14.5	14.6	PM0160BGEX	4.5P	100	21	-	51	12	9	12	3	086	●
M18X1.5	IS02X(6HX)	16.5	16.6	PM0180BGEX	4.5P	110	24	-	56	14	11	14	3	086	●
M20X1.5	IS02X(6HX)	18.5	18.6	PM0200BGEX	4.5P	125	24	-	64	16	12	15	3	086	●
M22X1.5	IS02X(6HX)	20.5	20.6	PM0220BGEX	4.5P	125	24	-	64	18	14.5	17	3	086	●
M24X1.5	IS02X(6HX)	22.5	22.6	PM0240BGEX	4.5P	140	27	-	71	18	14.5	17	3	086	●
UNC	TCTR (tolerance)	 (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
No.4-40UNC	2BX	2.3	2.33	PDUN4HYGEX	4.5P	56	9	18	34	3.5	2.7	6	3	057	●
No.6-32UNC	2BX	2.8	2.83	PDUN6JYGEX	4.5P	56	11	19	32	4	3	6	3	057	●
No.8-32UNC	2BX	3.4	3.47	PDUN8JYGEX	4.5P	63	13	21	38	4.5	3.4	6	3	057	●
No.10-24UNC	2BX	3.89	3.9	PDUNAMYGEX	4.5P	70	14	24	39	6	4.9	8	3	057	●
1/4-20UNC	2BX	5.1	5.19	PDU04NYGEX	4.5P	80	15	30	42	7	5.5	8	3	057	●
5/16-18UNC	2BX	6.6	6.65	PDU050YGEX	4.5P	90	19	35	47	8	6.2	9	3	084	●
3/8-16UNC	2BX	8	8.07	PDU06PYGEX	4.5P	100	23	39	54	9	7	10	3	084	●
UNC	TCTR (tolerance)	 (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 376															
7/16-14UNC	2BX	9.4	9.45	PGU07QYGEX	4.5P	100	23	-	51	8	6.2	9	3	086	●
1/2-13UNC	2BX	10.9	10.91	PGU08RYGEX	4.5P	110	26	-	56	9	7	10	3	086	●
9/16-12UNC	2BX	12.2	12.33	PGU09SYGEX	4.5P	110	26	-	56	11	9	12	3	086	●
5/8-11UNC	2BX	13.6	13.75	PGU10UYGEX	4.5P	110	26	-	56	12	9	12	3	086	●
3/4-10UNC	2BX	16.6	16.7	PGU12VYGEX	4.5P	125	33	-	64	14	11	14	3	086	●
7/8-9UNC	2BX	19.6	19.61	PGU14WYGEX	4.5P	140	33	-	71	18	14.5	17	3	086	●

UNC	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 376															
1 -8UNC	2BX	22.3	22.45	PGU16XYGEX	4.5P	160	37	-	82	18	14.5	17	3	086	●
UNF	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 371															
No.10-32UNF	2BX	4.1	4.12	PDUNAJYGEX	4.5P	70	14	24	39	6	4.9	8	3	057	●
1/4-28UNF	2BX	5.5	5.53	PDU04KYGEX	4.5P	80	15	30	42	7	5.5	8	3	057	●
UNF	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	LF (mm)	THL (mm)	LU (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 374															
5/16-24UNF	2BX	6.9	6.97	PMU05MYGEX	4.5P	90	19	-	46	6	4.9	8	3	086	●
3/8-24UNF	2BX	8.5	8.57	PMU06MYGEX	4.5P	100	23	-	51	7	5.5	8	3	086	●
1/2-20UNF	2BX	11.5	11.54	PMU08NYGEX	4.5P	100	21	-	51	9	7	10	3	086	●
9/16-18UNF	2BX	12.9	13	PMU090YGEX	4.5P	100	21	-	51	11	9	12	3	086	●
5/8-18UNF	2BX	14.5	14.6	PMU100YGEX	4.5P	100	21	-	51	12	9	12	3	086	●
3/4-16UNF	2BX	17.5	17.59	PMU12PYGEX	4.5P	110	24	-	56	14	11	14	3	086	●
7/8-14UNF	2BX	20.5	20.57	PMU14QYGEX	4.5P	125	24	-	64	18	14.5	17	3	086	●
1 -12UNF	2BX	23.3	23.46	PMU16SYGEX	4.5P	140	27	-	71	18	14.5	17	3	086	●
G(BSP)	TCTR (tolerance)	 Hole Ø (mm)	Hole Ø (mm)	Code	THCHT (chamfer)	Basic major Ø (mm)	LF (mm)	THL (mm)	LS (mm)	DCON (mm)	K (mm)	LK (mm)	NOF	Type	Stock
DIN 5156															
1/8-28	-	8.75	8.78	UDYCZ001	4.5P	9.728	90	19	46	7	5.5	8	3	086	●
1/4-19	-	11.75	11.78	UDYCZ002	4.5P	13.157	100	21	51	11	9	12	3	086	●
3/8-19	-	15.25	15.28	UDYCZ003	4.5P	16.662	100	21	51	12	9	12	3	086	●
1/2-14	-	19	19.04	UDYCZ004	4.5P	20.955	125	24	64	16	12	15	3	086	●
3/4-14	-	24.5	24.52	UDYCZ005	4.5P	26.441	140	27	71	20	16	19	4	086	●
1 -11	-	30.75	30.77	UDYCZ006	4.5P	33.249	160	29	82	25	20	23	4	086	●

WARNING

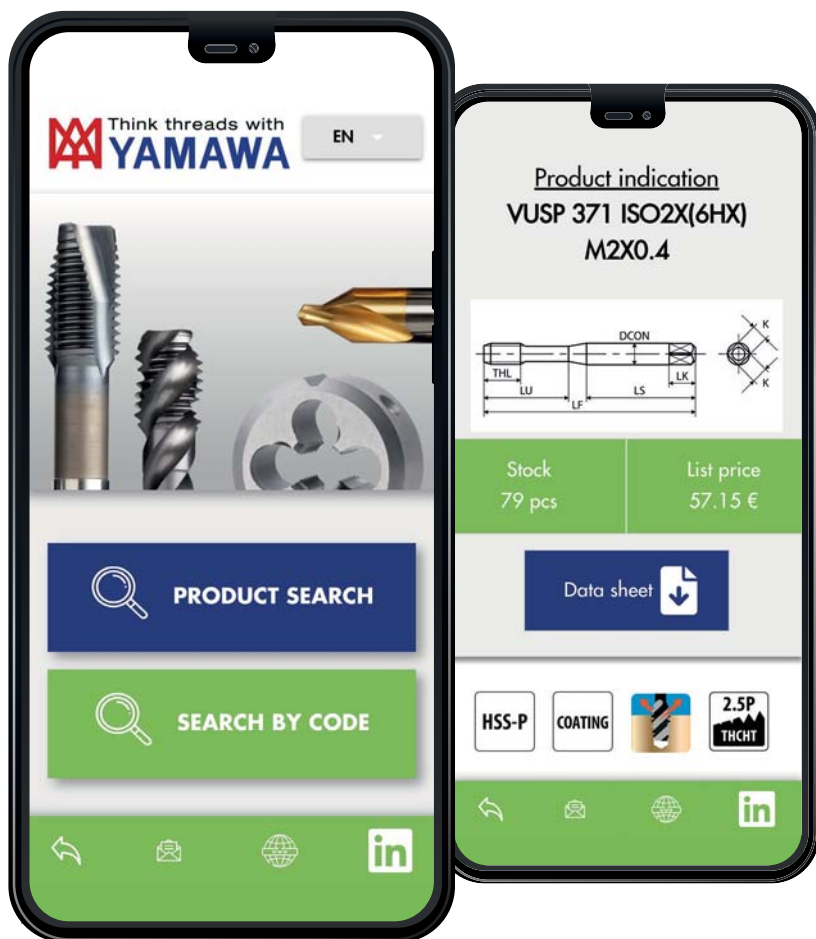
- Tools may shatter. Wear cover or eye glass to avoid injury during tapping.
- Tools may be shatter. Use tools under the proper tapping condition.
- Never wear gloves during turning operations as the gloves may get caught with the tools.
- Wear safety shoes to avoid injuring yourself by the falling tools.
- On attaching tools to the machine, fasten firmly to avoid chattering 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.



JQA-QMA14664



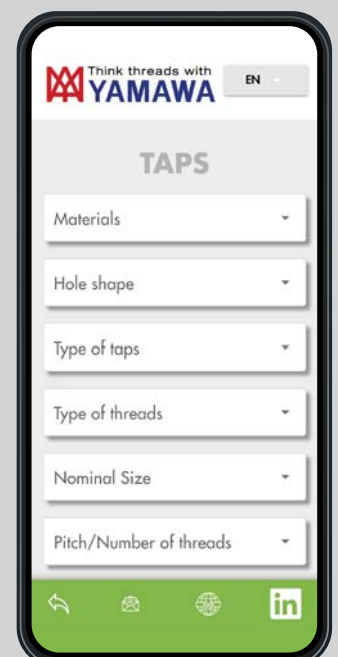
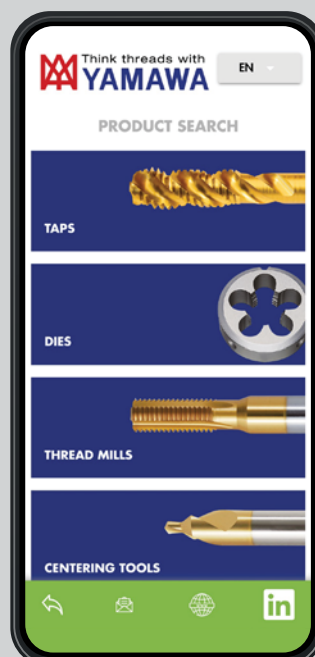
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