

# VU SERIES

Z-PRO Ultimate Machining Taps.  
The evolution of high performance tapping.

# Z-PRO

Ultimate Machining Taps

JIS



## VUSP

## VUPO

## Product Features

**Z-PRO**  
Ultimate Machining Taps

Coated Spiral Fluted Taps

**VUSP**

HSS-P

Coating



- Improved tool life from using a high grade of powder high speed steel with a special coating!
  - Improved chip evacuation and cutting resistance from a unique flute shape to produce excellent internal threads!
  - Utilizing a longer overall length to avoid the chips interfering with the holder!
- The Z-PRO VUSP is designed for use with water soluble cutting fluid where there is a good coolant supply.

## Compatible with a wide range of workpiece material

### VUSP Recommended Tapping Conditions

Workpiece Material	Tapping Speed (m/min)	Workpiece Material	Tapping Speed (m/min)
General Structural Steels	10~20	Alloy Steels	10~20
Carbon Steels	10~25	Stainless Steels	5~10

## VUSP is suitable for use with water soluble cutting fluid

Ideal for machining in the medium speed range using water soluble cutting fluid.

Fluid	Hole shape	Hand tapping	Drilling machine	Low speed (NC lathe, MC)	Middle speed (NC lathe, MC)
Water soluble cutting fluid					<b>VUSP</b> Vc ≤ 25m/min
					<b>VUPO</b>
Non-water soluble cutting oil		HT IHT	ISP IPO	SP PO	+SP +PO
					AU+SP AU+SL

## Tapping Data

### Tapping conditions VUSP M8X1.25

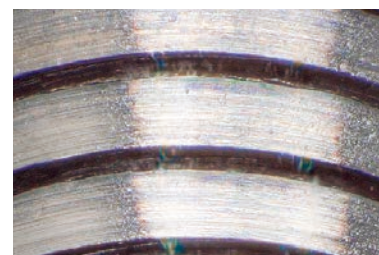
Workpiece Material	SUS304
Tapping Speed	10m/min
Machine	Vertical Machining center
Tapping Fluid	Water soluble cutting fluid

### Excellent chip evacuation



The unique cutting edge shape and the long overall-length tap prevent chips from interfering with the holder. They also ensure an excellent supply of water soluble cutting fluid.

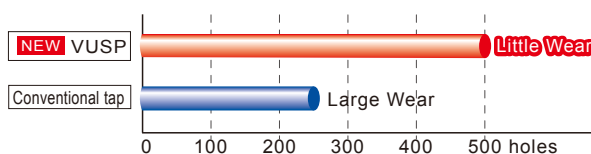
### Excellent internal thread



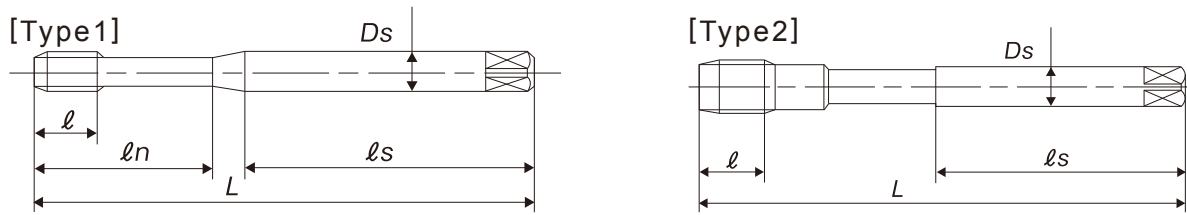
In tapping of SUS304, excellent internal thread surface is obtained even in tapping environments that use water soluble cutting fluid.

### Tapping conditions VUSP M3X0.5

Workpiece Material	S50C
Tapping Length	4.5mm
Tapping Speed	20m/min
Machine	Vertical Machining center
Tapping Fluid	Water soluble cutting fluid



After 250 holes tapped. Little wear, No chipping

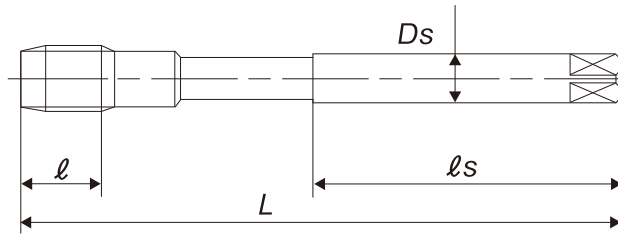


### For Metric Threads

Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	No. of flutes	Type
M3 X 0.5	P2	1101101035	2.5P	56	5	18	32	4	3	1
M3 X 0.5	P3	1101201035	2.5P	56	5	18	32	4	3	1
M3 X 0.5	P4	1101301035	2.5P	56	5	18	32	4	3	1
M3 X 0.35	P2	1101101036	2.5P	56	5	18	32	4	3	1
M3 X 0.35	P3	1101201036	2.5P	56	5	18	32	4	3	1
M3 X 0.35	P4	1101301036	2.5P	56	5	18	32	4	3	1
M4 X 0.7	P2	1101101042	2.5P	63	7	21	36	5	3	1
M4 X 0.7	P3	1101201042	2.5P	63	7	21	36	5	3	1
M4 X 0.7	P4	1101301042	2.5P	63	7	21	36	5	3	1
M4 X 0.5	P2	1101101043	2.5P	63	5	21	36	5	3	1
M4 X 0.5	P3	1101201043	2.5P	63	5	21	36	5	3	1
M4 X 0.5	P4	1101301043	2.5P	63	5	21	36	5	3	1
M5 X 0.8	P2	1101101049	2.5P	70	9	25	40	5.5	3	1
M5 X 0.8	P3	1101201049	2.5P	70	9	25	40	5.5	3	1
M5 X 0.8	P4	1101301049	2.5P	70	9	25	40	5.5	3	1
M5 X 0.5	P2	1101101051	2.5P	70	6	25	40	5.5	3	1
M5 X 0.5	P3	1101201051	2.5P	70	6	25	40	5.5	3	1
M5 X 0.5	P4	1101301051	2.5P	70	6	25	40	5.5	3	1
M6 X 1	P2	1101101055	2.5P	80	11	30	45	6	3	1
M6 X 1	P3	1101201055	2.5P	80	11	30	45	6	3	1
M6 X 1	P4	1101301055	2.5P	80	11	30	45	6	3	1
M6 X 0.75	P2	1101101056	2.5P	80	8	30	45	6	3	1
M6 X 0.75	P3	1101201056	2.5P	80	8	30	45	6	3	1
M6 X 0.75	P4	1101301056	2.5P	80	8	30	45	6	3	1
M6 X 0.5	P2	1101101057	2.5P	80	8	30	45	6	3	1
M6 X 0.5	P3	1101201057	2.5P	80	8	30	45	6	3	1
M6 X 0.5	P4	1101301057	2.5P	80	8	30	45	6	3	1
M8 X 1.25	P3	1101101064	2.5P	90	12	-	46	6.2	3	2
M8 X 1.25	P4	1101201064	2.5P	90	12	-	46	6.2	3	2
M8 X 1.25	P5	1101301064	2.5P	90	12	-	46	6.2	3	2
M8 X 1	P3	1101101065	2.5P	90	12	-	46	6.2	3	2
M8 X 1	P4	1101201065	2.5P	90	12	-	46	6.2	3	2
M8 X 1	P5	1101301065	2.5P	90	12	-	46	6.2	3	2

Oversize

[Type2]



**For Metric Threads**

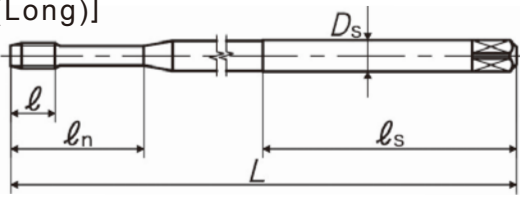
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	No. of flutes	Type
M10 X 1.5	P3	1101101078	2.5P	100	13	-	51	7	3	2
M10 X 1.5	P4	1101201078	2.5P	100	13	-	51	7	3	2
M10 X 1.5	P5	1101301078	2.5P	100	13	-	51	7	3	2
M10 X 1.25	P3	1101101079	2.5P	100	13	-	51	7	3	2
M10 X 1.25	P4	1101201079	2.5P	100	13	-	51	7	3	2
M10 X 1.25	P5	1101301079	2.5P	100	13	-	51	7	3	2
M10 X 1	P3	1101101080	2.5P	100	13	-	51	7	3	2
M10 X 1	P4	1101201080	2.5P	100	13	-	51	7	3	2
M10 X 1	P5	1101301080	2.5P	100	13	-	51	7	3	2
M12 X 1.75	P4	1101101088	2.5P	110	15	-	56	8.5	3	2
M12 X 1.75	P5	1101201088	2.5P	110	15	-	56	8.5	3	2
M12 X 1.75	P6	1101301088	2.5P	110	15	-	56	8.5	3	2
M12 X 1.5	P3	1101101089	2.5P	110	15	-	56	8.5	3	2
M12 X 1.5	P4	1101201089	2.5P	110	15	-	56	8.5	3	2
M12 X 1.5	P5	1101301089	2.5P	110	15	-	56	8.5	3	2
M12 X 1.25	P3	1101101090	2.5P	110	15	-	56	8.5	3	2
M12 X 1.25	P4	1101201090	2.5P	110	15	-	56	8.5	3	2
M12 X 1.25	P5	1101301090	2.5P	110	15	-	56	8.5	3	2
M14 X 2	P4	1101101100	2.5P	110	18	-	56	10.5	3	2
M14 X 2	P5	1101201100	2.5P	110	18	-	56	10.5	3	2
M14 X 2	P6	1101301100	2.5P	110	18	-	56	10.5	3	2
M14 X 1.5	P3	1101101102	2.5P	110	14	-	56	10.5	3	2
M14 X 1.5	P4	1101201102	2.5P	110	14	-	56	10.5	3	2
M14 X 1.5	P5	1101301102	2.5P	110	14	-	56	10.5	3	2
M16 X 2	P4	1101101114	2.5P	110	18	-	56	12.5	3	2
M16 X 2	P5	1101201114	2.5P	110	18	-	56	12.5	3	2
M16 X 2	P6	1101301114	2.5P	110	18	-	56	12.5	3	2
M16 X 1.5	P3	1101101116	2.5P	110	14	-	56	12.5	3	2
M16 X 1.5	P4	1101201116	2.5P	110	14	-	56	12.5	3	2
M16 X 1.5	P5	1101301116	2.5P	110	14	-	56	12.5	3	2
M18 X 2.5	P5	1101101128	2.5P	125	20	-	64	14	4	2
M18 X 1.5	P4	1101101130	2.5P	125	20	-	64	14	3	2
M20 X 2.5	P5	1101101141	2.5P	140	20	-	71	15	4	2
M20 X 1.5	P4	1101101144	2.5P	140	20	-	71	15	3	2
M22 X 2.5	P5	1101101156	2.5P	140	20	-	71	17	4	2
M22 X 1.5	P4	1101101158	2.5P	140	20	-	71	17	3	2
M24 X 3	P5	1101101167	2.5P	160	25	-	82	19	4	2
M24 X 1.5	P4	1101101170	2.5P	160	18	-	82	19	3	2

 Oversize

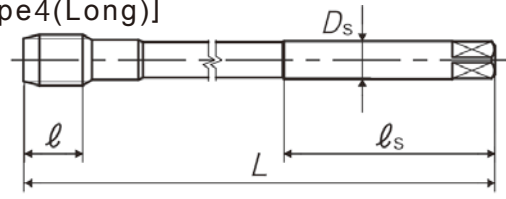
Coated Spiral Fluted Taps **VUSP Long Shank**



[Type3(Long)]



[Type4(Long)]



**For Metric Threads**

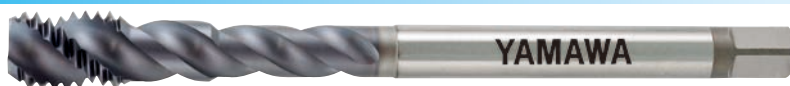
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	No. of flutes	Type
M 3 X 0.5	P2	2101101035	2.5P	100	5	18	40	4	3	3
M 3 X 0.35	P2	2101101036	2.5P	100	5	18	40	4	3	3
M 4 X 0.7	P2	2101101042	2.5P	100	7	21	40	5	3	3
M 4 X 0.5	P2	2101101043	2.5P	100	5	21	40	5	3	3
M 5 X 0.8	P2	2101101049	2.5P	100	9	25	40	5.5	3	3
M 5 X 0.5	P2	2101101051	2.5P	100	6	25	40	5.5	3	3
M 6 X 1	P2	2101101055	2.5P	100	11	30	40	6	3	3
M 6 X 0.75	P2	2101101056	2.5P	100	8	30	40	6	3	3
M 6 X 0.5	P2	2101101057	2.5P	100	8	30	40	6	3	3
M 8 X 1.25	P3	2101101064	2.5P	150	12	-	50	6.2	3	4
M 8 X 1	P3	2101101065	2.5P	150	12	-	50	6.2	3	4
M10 X 1.5	P3	2101101078	2.5P	150	13	-	50	7	3	4
M10 X 1.25	P3	2101101079	2.5P	150	13	-	50	7	3	4
M10 X 1	P3	2101101080	2.5P	150	13	-	50	7	3	4
M12 X 1.75	P4	2101101088	2.5P	150	15	-	50	8.5	3	4
M12 X 1.5	P3	2101101089	2.5P	150	15	-	50	8.5	3	4
M12 X 1.25	P3	2101101090	2.5P	150	15	-	50	8.5	3	4
M14 X 2	P4	2101101100	2.5P	150	18	-	60	10.5	3	4
M14 X 1.5	P3	2101101102	2.5P	150	14	-	60	10.5	3	4
M16 X 2	P4	2101101114	2.5P	150	18	-	60	12.5	3	4
M16 X 1.5	P3	2101101116	2.5P	150	14	-	60	12.5	3	4

Product Features



Coated Spiral Fluted Taps 1.5P

VUSP 1.5P



- The chamfer length is 1.5 pitches, making it ideal for machining blind holes where there is little room between the bored hole depth and the full thread length.
- Durability is improved by premium powder HSS and special coating.
- Chip ejection efficiency is improved and cutting resistance is reduced by the unique cutting edge shape, achieving a good internal thread and long tool life.
- Proper tool projection length is secured, preventing chips from interfering with the holder.
- This is most suitable for tapping with water soluble cutting fluid.

Compatible with a wide range of workpiece material

VUSP Recommended Tapping Conditions

Workpiece Material	Tapping Speed (m/min)
General Structural Steels	5~15
Carbon Steels	5~15

Workpiece Material	Tapping Speed (m/min)
Alloy Steels	5~15
Stainless Steels	3~5

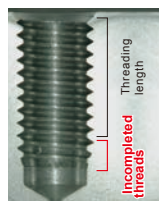
Tapping Data

Tapping conditions VUSP 1.5P M6X1

Workpiece Material	S50C
Tapping Speed	15m/min
Machine	Machining center, Vertical type
Tapping Fluid	Water soluble cutting fluid
Tapping Length	13mm, blind hole



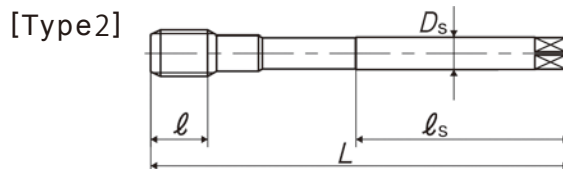
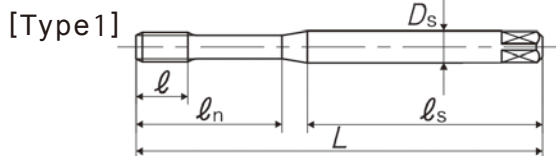
VUSP 1.5P  
Internal thread surface



VUSP (chamfer 2.5P)  
Internal thread surface

Coated Spiral Fluted Taps 1.5P

VUSP 1.5P



For Metric Threads

Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	No. of flutes	Type
M 3 X 0.5	P2	1103101035	1.5P	56	5	18	32	4	3	1
M 3 X 0.35	P2	1103101036	1.5P	56	5	18	32	4	3	1
M 4 X 0.7	P2	1103101042	1.5P	63	7	21	36	5	3	1
M 4 X 0.5	P2	1103101043	1.5P	63	5	21	36	5	3	1
M 5 X 0.8	P2	1103101049	1.5P	70	9	25	40	5.5	3	1
M 5 X 0.5	P2	1103101051	1.5P	70	6	25	40	5.5	3	1
M 6 X 1	P2	1103101055	1.5P	80	11	30	45	6	3	1
M 6 X 0.75	P2	1103101056	1.5P	80	8	30	45	6	3	1
M 6 X 0.5	P2	1103101057	1.5P	80	8	30	45	6	3	1
M 8 X 1.25	P3	1103101064	1.5P	90	12	-	46	6.2	3	2
M 8 X 1	P3	1103101065	1.5P	90	12	-	46	6.2	3	2
M10 X 1.5	P3	1103101078	1.5P	100	13	-	51	7	3	2
M10 X 1.25	P3	1103101079	1.5P	100	13	-	51	7	3	2
M10 X 1	P3	1103101080	1.5P	100	13	-	51	7	3	2
M12 X 1.75	P4	1103101088	1.5P	110	15	-	56	8.5	3	2
M12 X 1.5	P3	1103101089	1.5P	110	15	-	56	8.5	3	2
M12 X 1.25	P3	1103101090	1.5P	110	15	-	56	8.5	3	2
M14 X 2	P4	1103101100	1.5P	110	18	-	56	10.5	3	2
M14 X 1.5	P3	1103101102	1.5P	110	14	-	56	10.5	3	2
M16 X 2	P4	1103101114	1.5P	110	18	-	56	12.5	3	2
M16 X 1.5	P3	1103101116	1.5P	110	14	-	56	12.5	3	2

# Product Features



Coated Spiral Fluted Taps with Coolant Through Hole

VUSP CH



- Improved durability with high-grade powdered HSS and special coating.
- The unique shape of the cutting edge improves chip evacuation and reduces cutting resistance, resulting in good threading and tool life.
- Proper tool protrusion is ensured and interference of chips with holder can be avoided.
- Suitable for water soluble cutting fluid processing.
- The Coolant Hole diameter is optimized for internal lubrication system, and cutting fluid is sufficiently supplied to tap biting area to improve cooling, welding and wear resistance, and to obtain a good surface finish. In addition, chips are discharged smoothly, allowing for continuous machining.

### Situation during tapping



At discharge pressure of 1.5 MPa



At discharge pressure 3MPa



Discharge pressure 6MP



### Tapping Data

**Tapping conditions**  
VUSP CH  
M6X1

Workpiece Material	S50C
Tapping Length	12mm
Tapping Speed	20m/min
Machinery Type	CNC vertical machining center (Synchronous)
Tapping Fluid	Water soluble cutting fluid
Internal lubrication pressure	1.5MPa

After tapping 500 holes		
good Surface Internal Threads	Less tap wear	Good chip quality

**Tapping conditions**  
VUSP CH  
M10X1.5

Workpiece Materials	S50C
Tapping Length	20mm
Tapping Speed	20m/min
Machinery Type	CNC vertical machining center (Synchronous)
Tapping Fluid	Water soluble cutting fluid
Internal lubrication pressure	1.5MPa

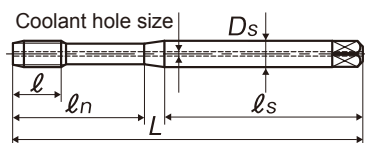
After tapping 420 holes		
good Surface Internal Threads	Less tap wear	Good chip quality

Coated Spiral Fluted Taps with Coolant Through Hole

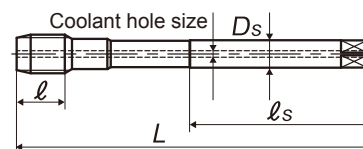
VUSP CH



[Type1]



[Type2]



### For Metric Threads

Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l <sub>n</sub> (mm)	l <sub>s</sub> (mm)	D <sub>s</sub> (mm)	No. of flutes	Coolant hole size (mm)	Type
M 6 X 1	P2	1201101055	2.5P	80	11	30	45	6	3	1	1
M 8 X 1.25	P3	1201101064	2.5P	90	12	-	46	6.2	3	1	2
M 8 X 1	P3	1201101065	2.5P	90	12	-	46	6.2	3	1	2
M10 X 1.5	P3	1201101078	2.5P	100	13	-	51	7	3	1.5	2
M10 X 1.25	P3	1201101079	2.5P	100	13	-	51	7	3	1.5	2
M10 X 1	P3	1201101080	2.5P	100	13	-	51	7	3	1.5	2
M12 X 1.75	P4	1201101088	2.5P	110	15	-	56	8.5	3	2	2
M12 X 1.5	P3	1201101089	2.5P	110	15	-	56	8.5	3	2	2
M12 X 1.25	P3	1201101090	2.5P	110	15	-	56	8.5	3	2	2
M14 X 2	P4	1201101100	2.5P	110	18	-	56	10.5	3	2	2
M14 X 1.5	P3	1201101102	2.5P	110	14	-	56	10.5	3	2	2
M16 X 2	P4	1201101114	2.5P	110	18	-	56	12.5	3	2	2
M16 X 1.5	P3	1201101116	2.5P	110	14	-	56	12.5	3	2	2

Product Features

**Z-PRO** Coated Spiral Pointed Taps  
Ultimate Machining Taps

Coated Spiral Pointed Taps

**VUPO**

HSS-P

Coating



- Improved tool life from using a high grade of powder high speed steel with a special coating!
- Improved chip evacuation and cutting resistance from a unique flute shape to produce excellent internal threads!
- Longer overall Length...Allows a longer projected length out of the holder for better application of cutting fluids. The Z-PRO VUPO is designed for use with water soluble cutting fluid where there is a good coolant supply.

Compatible with a wide range of workpiece material

VUPO Recommended Processing Conditions

Workpiece Material	Tapping Speed (m/min)	Workpiece Material	Tapping Speed (m/min)
General Structural Steels	10~30	Alloy Steels	10~30
Carbon Steels	10~30	Stainless Steels	5~15

VUPO is suitable for use with water soluble cutting fluid

Ideal for machining in the medium speed range using water soluble cutting fluid.

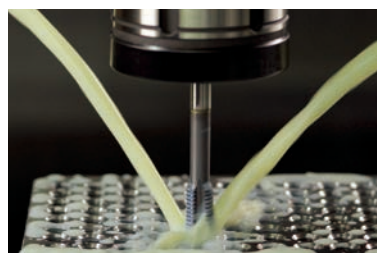
Fluid	Hole shape	Hand tapping	Drilling machine	Low speed (NC lathe, MC)	Middle speed (NC lathe, MC)
Water soluble cutting fluid					VUSP
					VUPO Vc ≤ 30m/min
Non-water soluble cutting oil		HT IHT	ISP IPO	SP PO	+SP +PO
					AU+SP AU+SL

Tapping Data

Tapping conditions VUPO M10X1.5

Workpiece Material	SUS304
Tapping Speed	10m/min
Machine	Vertical Machining center
Tapping Fluid	Water soluble cutting fluid

Excellent supply of tapping fluid



The unique cutting edge shape and the longer projection achieve a excellent supply of water soluble cutting fluid.

Excellent internal thread



In tapping of SUS304, excellent internal thread surface is obtained even in tapping environments that use water soluble cutting fluid.

Tapping conditions VUPO M10X1.5

Workpiece Material	S50C
Tapping Length	20mm(2D)
Tapping Speed	20m/min
Machine	Vertical Machining center
Tapping Fluid	Water soluble cutting fluid

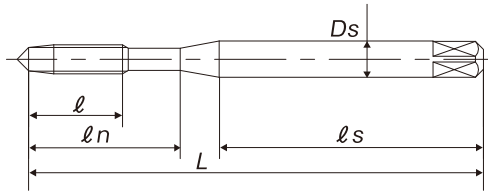
	NEW VUPO	Conventional tap
Wear after 560 holes tapped		



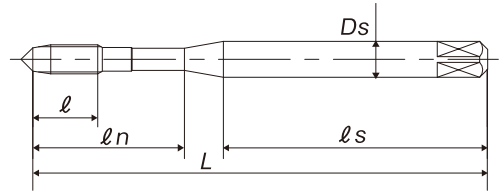
## Coated Spiral Pointed Taps VUPO



[Type1]



[Type2]



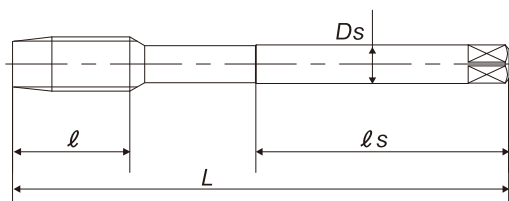
### For Metric Threads

Size	Class	Product Code	Chamfer	L (mm)	l (mm)	ln (mm)	ls (mm)	Ds (mm)	No. of flutes	Type
M2 X 0.4	P2	1102101021	5P	45	8	15	27	3	2	1
M2.2 X 0.45	P2	1102101024	5P	45	8	15	27	3	2	1
M2.3 X 0.4	P2	1102101026	5P	45	8	15	27	3	2	1
M2.5 X 0.45	P2	1102101029	5P	50	8	15	32	3	2	1
M2.6 X 0.45	P2	1102101032	5P	50	8	15	32	3	2	1
M3 X 0.5	P2	1102101035	5P	56	9	18	32	4	3	1
M3 X 0.5	P3	1102201035	5P	56	9	18	32	4	3	1
M3 X 0.5	P4	1102301035	5P	56	9	18	32	4	3	1
M3 X 0.35	P2	1102101036	5P	56	6.5	18	32	4	3	2
M3 X 0.35	P3	1102201036	5P	56	6.5	18	32	4	3	2
M3 X 0.35	P4	1102301036	5P	56	6.5	18	32	4	3	2
M4 X 0.7	P3	1102101042	5P	63	13	21	36	5	3	1
M4 X 0.7	P4	1102201042	5P	63	13	21	36	5	3	1
M4 X 0.7	P5	1102301042	5P	63	13	21	36	5	3	1
M4 X 0.5	P2	1102101043	5P	63	9	21	36	5	3	2
M4 X 0.5	P3	1102201043	5P	63	9	21	36	5	3	2
M4 X 0.5	P4	1102301043	5P	63	9	21	36	5	3	2
M5 X 0.8	P3	1102101049	5P	70	14	25	40	5.5	3	1
M5 X 0.8	P4	1102201049	5P	70	14	25	40	5.5	3	1
M5 X 0.8	P5	1102301049	5P	70	14	25	40	5.5	3	1
M5 X 0.5	P2	1102101051	5P	70	9	25	40	5.5	3	2
M5 X 0.5	P3	1102201051	5P	70	9	25	40	5.5	3	2
M5 X 0.5	P4	1102301051	5P	70	9	25	40	5.5	3	2
M6 X 1	P3	1102101055	5P	80	15	30	45	6	3	1
M6 X 1	P4	1102201055	5P	80	15	30	45	6	3	1
M6 X 1	P5	1102301055	5P	80	15	30	45	6	3	1
M6 X 0.75	P2	1102101056	5P	80	15	30	45	6	3	1
M6 X 0.75	P3	1102201056	5P	80	15	30	45	6	3	1
M6 X 0.75	P4	1102301056	5P	80	15	30	45	6	3	1
M6 X 0.5	P2	1102101057	5P	80	9	30	45	6	3	2
M6 X 0.5	P3	1102201057	5P	80	9	30	45	6	3	2
M6 X 0.5	P4	1102301057	5P	80	9	30	45	6	3	2

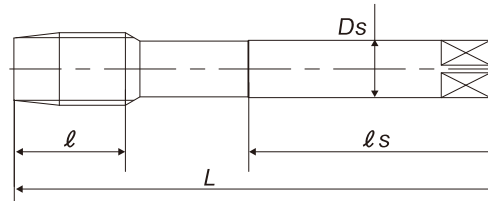
Oversize



[Type3]



[Type4]

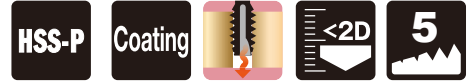


### For Metric Threads

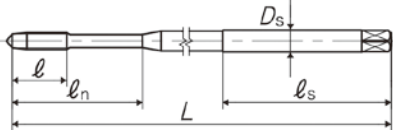
Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l <sub>n</sub> (mm)	l <sub>s</sub> (mm)	D <sub>s</sub> (mm)	No. of flutes	Type
M 8 X 1.25	P3	1102101064	5P	90	19	–	46	6.2	3	3
M 8 X 1.25	P4	1102201064	5P	90	19	–	46	6.2	3	3
M 8 X 1.25	P5	1102301064	5P	90	19	–	46	6.2	3	3
M 8 X 1	P3	1102101065	5P	90	19	–	46	6.2	3	3
M 8 X 1	P4	1102201065	5P	90	19	–	46	6.2	3	3
M 8 X 1	P5	1102301065	5P	90	19	–	46	6.2	3	3
M10 X 1.5	P3	1102101078	5P	100	23	–	51	7	3	3
M10 X 1.5	P4	1102201078	5P	100	23	–	51	7	3	3
M10 X 1.5	P5	1102301078	5P	100	23	–	51	7	3	3
M10 X 1.25	P3	1102101079	5P	100	23	–	51	7	3	3
M10 X 1.25	P4	1102201079	5P	100	23	–	51	7	3	3
M10 X 1.25	P5	1102301079	5P	100	23	–	51	7	3	3
M10 X 1	P3	1102101080	5P	100	23	–	51	7	3	3
M10 X 1	P4	1102201080	5P	100	23	–	51	7	3	3
M10 X 1	P5	1102301080	5P	100	23	–	51	7	3	3
M12 X 1.75	P4	1102101088	5P	110	26	–	56	8.5	3	3
M12 X 1.75	P5	1102201088	5P	110	26	–	56	8.5	3	3
M12 X 1.75	P6	1102301088	5P	110	26	–	56	8.5	3	3
M12 X 1.5	P3	1102101089	5P	110	26	–	56	8.5	3	3
M12 X 1.5	P4	1102201089	5P	110	26	–	56	8.5	3	3
M12 X 1.5	P5	1102301089	5P	110	26	–	56	8.5	3	3
M12 X 1.25	P4	1102101090	5P	110	26	–	56	8.5	3	3
M12 X 1.25	P5	1102201090	5P	110	26	–	56	8.5	3	3
M12 X 1.25	P6	1102301090	5P	110	26	–	56	8.5	3	3
M14 X 2	P4	1102101100	5P	110	26	–	56	10.5	3	3
M14 X 2	P5	1102201100	5P	110	26	–	56	10.5	3	3
M14 X 2	P6	1102301100	5P	110	26	–	56	10.5	3	3
M14 X 1.5	P3	1102101102	5P	110	26	–	56	10.5	3	3
M14 X 1.5	P4	1102201102	5P	110	26	–	56	10.5	3	3
M14 X 1.5	P5	1102301102	5P	110	26	–	56	10.5	3	3
M16 X 2	P4	1102101114	5P	110	26	–	56	12.5	3	3
M16 X 2	P5	1102201114	5P	110	26	–	56	12.5	3	3
M16 X 2	P6	1102301114	5P	110	26	–	56	12.5	3	3
M16 X 1.5	P3	1102101116	5P	110	26	–	56	12.5	3	3
M16 X 1.5	P4	1102201116	5P	110	26	–	56	12.5	3	3
M16 X 1.5	P5	1102301116	5P	110	26	–	56	12.5	3	3
M18 X 2.5	P5	1102101128	5P	125	33	–	64	14	3	3
M18 X 1.5	P4	1102101130	5P	125	33	–	64	14	3	3
M20 X 2.5	P5	1102101141	5P	140	33	–	71	15	3	4
M20 X 1.5	P4	1102101144	5P	140	33	–	71	15	3	4
M22 X 2.5	P5	1102101156	5P	140	33	–	71	17	3	4
M22 X 1.5	P4	1102101158	5P	140	33	–	71	17	3	4
M24 X 3	P5	1102101167	5P	160	37	–	82	19	3	4
M24 X 1.5	P4	1102101170	5P	160	37	–	82	19	3	4

Oversize

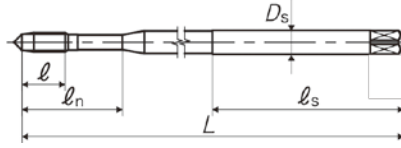
# Coated Spiral Pointed Taps VUPO Long Shank



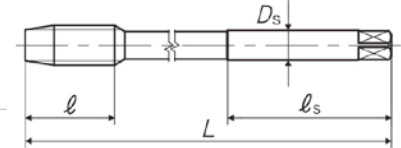
[TYPE5(Long)]



[TYPE6(Long)]



[TYPE 7 (Long)]



## For Metric Threads

Size	Class	Product Code	Chamfer	$L$ (mm)	$\ell$ (mm)	$\ell_n$ (mm)	$\ell_s$ (mm)	$D_s$ (mm)	No. of flutes	Type
M 3 X 0.5	P2	2102101035	5P	100	9	18	40	4	3	5
M 3 X 0.35	P2	2102101036	5P	100	6.5	18	40	4	3	6
M 4 X 0.7	P3	2102101042	5P	100	11	21	40	5	3	5
M 4 X 0.5	P2	2102101043	5P	100	9	21	40	5	3	6
M 5 X 0.8	P3	2102101049	5P	100	13	25	40	5.5	3	5
M 5 X 0.5	P2	2102101051	5P	100	9	25	40	5.5	3	6
M 6 X 1	P3	2102101055	5P	100	15	30	40	6	3	5
M 6 X 0.75	P2	2102101056	5P	100	15	30	40	6	3	5
M 6 X 0.5	P2	2102101057	5P	100	9	30	40	6	3	6
M 8 X 1.25	P3	2102101064	5P	150	19	—	50	6.2	3	7
M 8 X 1	P3	2102101065	5P	150	19	—	50	6.2	3	7
M10 X 1.5	P3	2102101078	5P	150	23	—	50	7	3	7
M10 X 1.25	P3	2102101079	5P	150	23	—	50	7	3	7
M10 X 1	P3	2102101080	5P	150	23	—	50	7	3	7
M12 X 1.75	P4	2102101088	5P	150	26	—	50	8.5	3	7
M12 X 1.5	P3	2102101089	5P	150	26	—	50	8.5	3	7
M12 X 1.25	P4	2102101090	5P	150	26	—	50	8.5	3	7
M14 X 2	P4	2102101100	5P	150	26	—	60	10.5	3	7
M14 X 1.5	P3	2102101102	5P	150	26	—	60	10.5	3	7
M16 X 2	P4	2102101114	5P	150	26	—	60	12.5	3	7
M16 X 1.5	P3	2102101116	5P	150	26	—	60	12.5	3	7

# Tapping record for VU series taps

## VUSP For blind hole

Size	Workpiece material	Tapping condition/Tapping result							(Remarks) Conventional product status/Workpiece name
	Material symbol (Hardness)	Hole Size (mm)	Tapping Length (mm)(*)	Machine	Tapping speed (m/min)	Feed	Tapping Fluid	Tool Life (Holes)	
M 4 X 0.7	SKD11 (25HRC)	3.3	8 (2D)	M/C	10	Fully synchronous	Water soluble	500	Replaced due to chipping at 400 holes.
M 5 X 0.8	SCM435	4.2	15 (3D)	N/C	4	Gear	Water soluble	1,400	Broken at 100 holes due to entanglement of chips.
M 8 X 1.25	FCD750	6.8	20 (2.5D)	M/C	20	Fully synchronous	Water soluble	1,500	Replaced due to chipping at 1,000 holes.
M 8 X 1.25	SUS304	6.75	16 (2D)	M/C	15	Fully synchronous	Water soluble	1,390	Chipping occurs at 600 holes.
M 8 X 1.25	SS400	6.8	16 (2D)	M/C	30	Fully synchronous	Water soluble	1,500	Tool Life is 800 holes. • Workpiece name: Cylinder head
M 8 X 1.25	S50C	6.8	16 (2D)	M/C	15	Fully synchronous	Water soluble	900	Tool Life is 700 holes.
M10 X 1.5	SS400	8.5	15 (1.5D)	M/C	10	Fully synchronous	Water soluble	1,500	Tool Life is unstable.
M12 X 1.75	SS400	10.4	24 (2D)	M/C	12	Fully synchronous	Water soluble	2,800	Chipping randomly and breakage at 2,000 holes.
M12 X 1.75	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.
M12 X 1.75	SCM415	10.3	24 (2D)	N/C	7	Fully synchronous	Water soluble	800	Screw plug gauge OUT at 500 holes. • Workpiece name: Machine parts(Spindle)
M12 X 1.25	S45C	10.8	24 (2D)	Drilling machine	5.6	Non-synchronous	Non-water soluble (Spray)	1,100	Tool Life is 1,000 holes.
M14 X 2	SCM435 (35HRC)	12.1	21 (1.5D)	M/C	10	Fully synchronous	Non-water soluble	150	Broken at 10 holes due to entanglement of chips. • Workpiece name: Shaft
M16 X 1.5	S45C	14.5	32 (2D)	M/C	20	Fully synchronous	Water soluble	1,900	Screw plug gauge OUT at 1,500 holes. • Workpiece name: Rocker arm

\*(D) shows the tapping length as a ratio of tap diameter.

## VUPO For through hole

Size	Workpiece material	Tapping condition/Tapping result							(Remarks) Conventional product status/Workpiece name
	Material symbol (Hardness)	Hole Size (mm)	Tapping Length (mm)(*)	Machine	Tapping speed (m/min)	Feed	Tapping Fluid	Tool Life (Holes)	
M 3 X 0.5	SCM440 (39HRC)	2.5	6 (2D)	N/C	5.6	Fully synchronous	Water soluble	1,260	Tool Life is unstable and poor surface finish. • Workpiece name: Flange
M 3 X 0.5	S45C (25HRC)	2.5	9 (3D)	M/C	10	Fully synchronous	Water soluble	500	Tool Life is 400 holes.
M 4 X 0.7	SUS304	3.3	10 (2.5D)	M/C	10	Fully synchronous	Water soluble	830	The chamfer part is worn and replaced at about 300 holes.
M 4 X 0.7	A5052	3.4	12 (3D)	M/C	12	Fully synchronous	Water soluble	1,500	Tool Life is 1,000 holes. • Workpiece name: Medical parts
M 6 X 1	S33C	5.1	9 (1.5D)	M/C	20	Fully synchronous	Water soluble	4,500	Tool Life is 3,400 holes. • Workpiece name: Hub bearing
M 8 X 1.25	SUS303	6.8	12 (1.5D)	M/C	11	Fully synchronous	Water soluble	33,000	Replaced due to wear or chipping at 10,000 holes. • Workpiece name: Nut
M10 X 1.5	S45C	8.5	25 (2.5D)	M/C	7.5	Fully synchronous	Water soluble	3,600	Breaks randomly at 1,000 holes. • Workpiece name: Crank plate
M12 X 1.75	SCM415	10.3	24 (2D)	M/C	15	Fully synchronous	Water soluble	1,000	Replaced due to chipping at 700 holes.
M12 X 1.75	SCM440 (30HRC)	10.4	30 (2.5D)	N/C	11	Fully synchronous	Water soluble	650	Replaced due to chipping at 420 holes.
M12 X 1.25	S45C	10.8	36 (3D)	M/C	30	Non-synchronous	Water soluble	1,100	Tool Life is unstable.
M12 X 1.25	S43C	10.8	24 (2D)	M/C	15	Fully synchronous	Water soluble	1,500	Replaced due to chipping at 500 holes. • Workpiece name: Wheel shaft

\*(D) shows the tapping length as a ratio of tap diameter.

### Warning

- ◆Tools may shatter during use. Wear safety eye cover or eye glasses to avoid injury during tapping.
- ◆Use tools under the proper tapping condition.
- ◆Never wear gloves during turning operations as the gloves may get caught in the tools.
- ◆Wear safety shoes to avoid foot injury by the falling tools.
- ◆When attaching tools to the machine, fasten firmly to avoid chatter and run-out.
- ◆Fasten the workpiece firmly so it never moves during the tapping operation. Never use worn tools or damaged tools.
- ◆Take a special care to prevent fire during machining. High temperature during tapping can cause a fire.

**YAMAWA MFG. Co., Ltd.**

Head office

Nakajima Gold bldg.13-10 Kyobashi  
3chome, Chuo-ku, Tokyo 104-0031, JAPAN

Website: <https://www.yamawa.com>

**YAMAWA group for Overseas**

**YAMAWA International Co., Ltd.**



JQA-QMA14664



JQA-EM3465