

Z-PRO

Ultimate Machining Taps

DIN

VDF

Z-PRO Series optimum tap for water soluble oil processing



Product Features

Z-PRO
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 Steel	10~30	Alloy Steel	10~30
Carbon Steel	10~30	Stainless Steel	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.

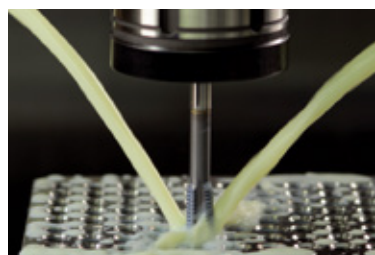
Fluid	Hole shape	Hand tapping	Drilling machine	Low speed (NC lathe, MC)	Middle speed (NC lathe, MC)	
Water soluble cutting fluid					VUSP	
					VUPO Vc ≤ 30m/min	
Oil		HT IHT	ISP	SP	+SP	AU+SP
			IPO	PO	+PO	AU+SL

Tapping Data

Tapping conditions VUPO M10X1.5

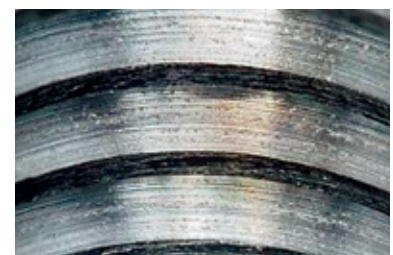
Workpiece Material	SUS304
Tapping Speed	10m/min
Machine	Vertical Machining center
Tapping Fluid	Water soluble cutting fluid

Excellent supply of cutting fluid



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

Excellent internal thread



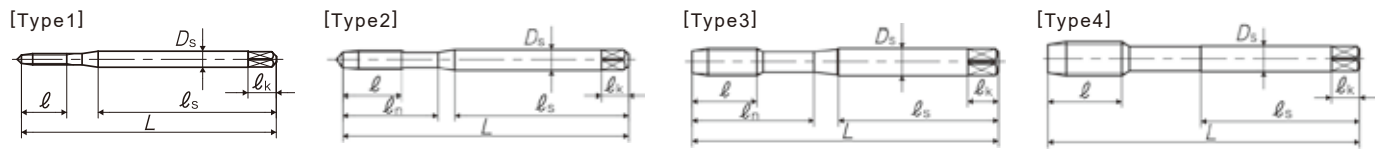
In tapping of SUS304, excellent internal thread surface is obtained even in tapping environments that use water-soluble cutting fluid.

Tapping conditions 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



Size	Class	Product Code	Chamfer	L (mm)	l (mm)	l _n (mm)	l _s (mm)	D _s (mm)	No. of flutes	Type	Recommended bored hole dia. (mm)
M2 X 0.4	ISO2X	3102101021	5P	45	8	–	32	2.8	2	1	1.65
M2.2X 0.45	ISO2X	3102101024	5P	45	9	–	32	2.8	2	1	1.81
M2.3X 0.4	ISO2X	3102101026	5P	45	9	–	32	2.8	2	1	1.95
M2.5X 0.45	ISO2X	3102101029	5P	50	8	15	33	2.8	2	2	2.11
M2.6X 0.45	ISO2X	3102101032	5P	50	8	15	33	2.8	2	2	2.21
M3 X 0.5	ISO2X	3102101035	5P	56	9	18	34	3.5	3	2	2.56
M3 X 0.35	ISO2X	3102101036	5P	56	6.5	18	34	3.5	3	2	2.70
M4 X 0.7	ISO2X	3102101042	5P	63	13	21	38	4.5	3	2	3.38
M4 X 0.5	ISO2X	3102101043	5P	63	9	21	38	4.5	3	2	3.56
M5 X 0.8	ISO2X	3102101049	5P	70	14	25	39	6	3	2	4.28
M5 X 0.5	ISO2X	3102101051	5P	70	9	25	39	6	3	2	4.56
M6 X 1	ISO2X	3102101055	5P	80	15	30	45	6	3	2	5.09
M6 X 0.75	ISO2X	3102101056	5P	80	15	30	45	6	3	2	5.33
M6 X 0.5	ISO2X	3102101057	5P	80	9	30	45	6	3	2	5.56
M8 X 1.25	ISO2X	3102101064	5P	90	19	35	47	8	3	3	6.85
M8 X 1	ISO2X	3102101065	5P	90	19	–	46	6	3	4	7.09
M10 X 1.5	ISO2X	3102101078	5P	100	23	39	52	10	3	3	8.60
M10 X 1.25	ISO2X	3102101079	5P	100	23	–	51	7	3	4	8.85
M10 X 1	ISO2X	3102101080	5P	90	19	–	46	7	3	4	9.09
M12 X 1.75	ISO2X	3102101088	5P	110	26	–	56	9	3	4	10.4
M12 X 1.5	ISO2X	3102101089	5P	100	21	–	51	9	3	4	10.60
M12 X 1.25	ISO2X	3102101090	5P	100	21	–	51	9	3	4	10.85
M14 X 2	ISO2X	3102101100	5P	110	26	–	56	11	3	4	12.1
M14 X 1.5	ISO2X	3102101102	5P	100	21	–	51	11	3	4	12.60
M16 X 2	ISO2X	3102101114	5P	110	26	–	56	11	3	4	14.1
M16 X 1.5	ISO2X	3102101116	5P	100	21	–	51	12	3	4	14.60
M18 X 2.5	ISO2X	3102101128	5P	125	33	–	64	14	3	4	15.6
M18 X 1.5	ISO2X	3102101130	5P	110	24	–	56	14	3	4	16.60
M20 X 2.5	ISO2X	3102101141	5P	140	33	–	71	16	3	4	17.6
M20 X 1.5	ISO2X	3102101144	5P	125	24	–	64	16	3	4	18.60
M22 X 2.5	ISO2X	3102101156	5P	140	33	–	71	18	3	4	19.6
M22 X 1.5	ISO2X	3102101158	5P	125	24	–	64	18	3	4	20.60
M24 X 3	ISO2X	3102101167	5P	160	37	–	82	18	3	4	21.1
M24 X 1.5	ISO2X	3102101170	5P	140	27	–	71	18	3	4	22.60

Tapping record for VUPO taps

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	10.2	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.



YouTube
Z-PRO VU SERIES

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.

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