

NEW

INNOTOOL

LOOK FORWARD



ECO 6

SQUARE SHOULDER CUTTERS & END MILLS WITH WNMU04 INSERTS

- *High economic efficiency due to 6-edged insert*
- *Square shoulder cutters and end mills dia. 16 up to 63 mm*
- *Cutting tool system capable for ramping*

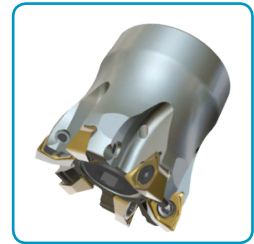
Product Overview

After the **Eco6 series** for insert WNMU06 has demonstrated its versatility, efficiency and productivity very successfully, Innotool expands the product range with the smaller insert **WNMU04**.

With the **4 mm insert** attractive numbers of teeth as well as good ramping capabilities can be guaranteed.

The milling cutters for **WNMU04 inserts** are available as **end mills** with TopOn screw-in type adaption resp. Weldon adaption in diameter range from **16 up to 40 mm**.

Square shoulder cutters with fine pitch or coarse pitch with **dia. 32 up to 63 mm** are part of our standard program.



Iindexable Insert

The insert **WNMU04T304N** is capable for max. cutting depth of $a_p = 3.8$ mm and generates 90 deg. shoulders.

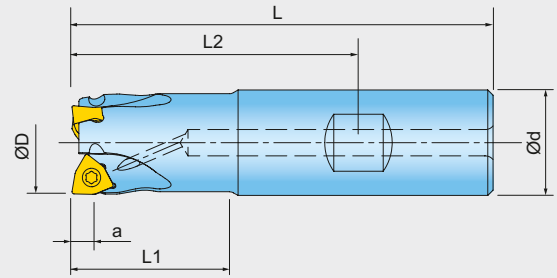
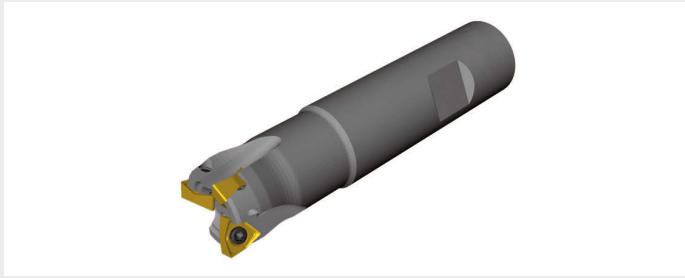


Advantages

- High economic efficiency due to 6-edged insert
- Fine insert spacing for highest productivity
- Square shoulder cutters and end mills from dia. 16 up to 63 mm
- Tool system can be used for ramping

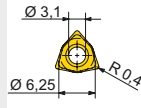
EGO 6 END MILLS SW04D03

ADAPTION ACC. TO DIN 1835 B (WELDON)



Designation	D	d	L	L1	L2	a	Z			
SW.016.001	16	16	85	26	61	3,8	2	3,0	✓	0,11
SW.020.001	20	20	90	30	65	3,8	3	2,4	✓	0,18
SW.025.003	25	25	100	40	68	3,8	5	1,9	✓	0,33
SW.032.003	32	25	100	40	68	3,8	6	1,5	✓	0,35

WNMU04T304N



Designation	fz(min/max)	Design	Grade	IN2505	IN2530						
WNMU04T304N	0,07/0,18	positive geometry R0,4									

● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS

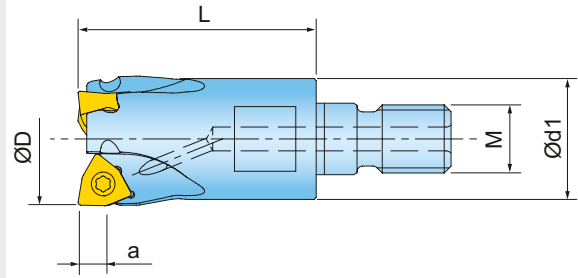


SM25-064-00 (1,1Nm) DS-T08S

① = Insert screw ② = Screw driver

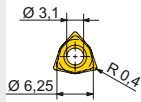
ECO 6 END MILLS SW04E01

SCREW-IN TYPE ADAPTION



Designation	D	d1	L	a	M	Z			
SW.016.002	16	13	23	3,8	8	2	3,0	✓	0,03
SW.020.002	20	18	35	3,8	10	3	2,4	✓	0,07
SW.025.004	25	21	35	3,8	12	5	1,9	✓	0,10
SW.032.004	32	29	43	3,8	16	6	1,5	✓	0,22
SW.035.001	35	29	43	3,8	16	6	1,7	✓	0,23
SW.040.003	40	29	43	3,8	16	7	2,1	✓	0,25

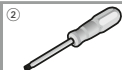
WNMU04T304N



Designation	fz(min/max)	Design	Grade	IN2505	IN2530					
WNMU04T304N	0,07/0,18	positive geometry R0,4								

● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS

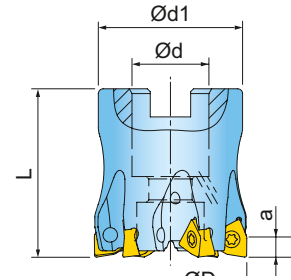


SM25-064-00 (1,1Nm) DS-T08S

① = Insert screw ② = Screw driver

EGO 6 SQUARE SHOULDER CUTTERS EW04D10

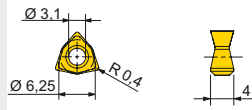
ADAPTION ACC. TO DIN 8030



Designation	D	d	d1	L	a	Z			
EW.032.001 ¹⁾	32	16	30	35	3,8	6	1,5	✓	0,13
EW.040.005	40	16	30	40	3,8	5	2,1	✓	0,18
EW.040.006 ¹⁾	40	16	30	40	3,8	7	2,1	✓	0,18
EW.040.003	40	22	38	40	3,8	5	2,1	✓	0,23
EW.040.004 ¹⁾	40	22	38	40	3,8	7	2,1	✓	0,23
EW.050.005	50	22	45	40	3,8	6	2,5	✓	0,36
EW.050.006 ¹⁾	50	22	45	40	3,8	9	2,5	✓	0,35
EW.063.005	63	22	55	40	3,8	8	2,4	✓	0,61
EW.063.006 ¹⁾	63	22	55	40	3,8	11	2,4	✓	0,62

¹⁾Narrow spacing (only for short chip producing materials)

WNMU04T304N



Designation	fz(min/max)	Design	Grade	IN2505	IN2530						
WNMU04T304N	0,07/0,18	positive geometry R0,4									

● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS



SM25-064-00 (1,1Nm) DS-T08S

① = Insert screw ② = Screw driver

Tips & Parameters

insert: **WNMU04T3_R**
 average chip thickness: **hm = 0.07 mm**
 max. cutting depth: **ap = 3.8 mm**



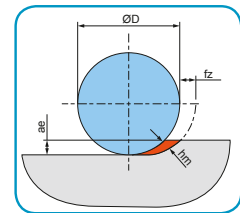
Recommended Cutting Data:

material	cutting speed Vc [m/min]				feed per tooth fz [mm]
	1st choice dry machining resp. wear resistant carbide		1st choice wet machining resp. tough carbide		
unalloyed steel	IN2505	250-290	IN2530	200-240	0.07-0.18
alloyed steel 800 N/mm ²	IN2505	210-250	IN2530	160-200	0.07-0.13
alloyed steel 1100 N/mm ²	IN2505	160-180	IN2530	110-130	0.07
stainless steel	IN2505	120-180	IN2530	80-130	0.07-0.18
cast iron	IN2505	180-250	IN2530	150-200	0.07-0.18
nodular cast iron	IN2505	140-210	IN2530	110-160	0.07-0.13
aluminum	IN2505	800-1500	IN2530	500-800	0.07-0.20
high temperature alloys	IN2505	110-125	IN2530	60-80	0.07
titanium alloys	IN2505	40-50	IN2530	30-40	0.07
hard machining < 54 HRC	IN2505	30-40	-	-	0.07
hard machining < 63 HRC	-	-	-	-	-

Tips

- The worse the material machinability, the smaller the tool engagement should be chosen.
- The smaller the cutting tool diameter, the higher the cutting speed can be.
- If tool engagement is less than 1/3 of cutting tool diameter, the feed per tooth should be calculated with the following formula:

$$fz = hm \times \sqrt{\frac{D}{ae}}$$



Ramping Data and Circular Interpolation:

tool diameter [mm]	max. ramping angle [°]	min. bore dia. [mm]	max. ap/rev. [mm]	max. bore dia. even ground [mm]	max. ap/rev. [mm]
16	3.0	24.1	1.3	31.2	2.5
20	2.4	31.7	1.5	39.2	2.5
25	1.9	41.4	1.7	49.2	2.5
32	1.5	55.2	1.9	63.2	2.6
35	1.7	60.5	2.4	69.2	3.2
40	2.1	69.3	3.4	79.2	3.8
50	2.5	87.2	3.8	99.2	3.8
63	2.4	111.5	3.8	125.2	3.8

General Information:

insert screw: **SM25-064-00**
 torque: **1.1 Nm**
 torque wrench: **DTN011S with bit DS-T08TB**

Successful machining results depend on many factors, so cutting data recommendations can only be a rough guideline. Therefore in any case of doubt do not hesitate to contact your Innoutil partner.

NOTES

A large grid of small squares, intended for taking notes. The grid consists of 20 columns and 30 rows of squares, totaling 600 squares. The squares are arranged in a uniform pattern across the page.

INNOTOOL

INNOVATIVE CUTTING TOOLS

Florianstraße 13-17

71665 Vaihingen-Horrheim, Germany

Tel.: +49 (0)7042-8316-0

Fax: +49 (0)7042-8316-26

E-Mail: info@innotool.de

www.innotool.de



ECO 6