

# WP-Z4-Gr.11-TiAlN-T4

## 4-tooth carbide indexable inserts for external threads



applications – material		cutting speed vc in m/min	fz in mm
P1.1 Construction steels, Free-cutting steels, etc.	<= 600 N/mm <sup>2</sup>	250 - 500	0,15 - 0,25
P2.1 Construction steels, Cementation steels, Steel castings, etc.	<= 800 N/mm <sup>2</sup>	250 - 500	0,15 - 0,25
P3.1 Cementation steels, Heat-treatable steels, Cold work steels, etc.	<= 1000 N/mm <sup>2</sup>	150 - 250	0,10 - 0,15
P4.1 Heat-treatable steels, Cold work steels, Nitriding steels, etc.	<= 1200 N/mm <sup>2</sup>	150 - 250	0,10 - 0,15
P5.1 High-alloyed steels, Cold work steels, Hot work steels, etc.	<= 1400 N/mm <sup>2</sup>	150 - 250	0,10 - 0,15
M1.1 Ferritic, martensitic	<= 950 N/mm <sup>2</sup>	80 - 150	0,10 - 0,15
M2.1 Austenitic	<= 950 N/mm <sup>2</sup>	80 - 150	0,10 - 0,15
M3.1 Austenitic-ferritic (Duplex)	<= 1100 N/mm <sup>2</sup>	60 - 120	0,08 - 0,12
M4.1 Austenitic-ferritic heat-resistant (Super Duplex)	<= 1250 N/mm <sup>2</sup>	60 - 120	0,08 - 0,12
K1.1 Cast iron with lamellar graphite (GJL)	100-250 N/mm <sup>2</sup>	180 - 400	0,15 - 0,25
K1.2 Cast iron with lamellar graphite (GJL)	250-450 N/mm <sup>2</sup>	180 - 400	0,15 - 0,25
K2.1 Cast iron with nodular graphite (GJS)	350-500 N/mm <sup>2</sup>	180 - 400	0,15 - 0,25
K2.2 Cast iron with nodular graphite (GJS)	500-900 N/mm <sup>2</sup>	180 - 400	0,15 - 0,25
K3.1 Cast iron with vermicular graphite (GJV)	300-400 N/mm <sup>2</sup>	150 - 250	0,10 - 0,15
K3.2 Cast iron with vermicular graphite (GJV)	400-500 N/mm <sup>2</sup>	150 - 250	0,10 - 0,15
K4.1 Malleable cast iron (GTMW, GTMB)	250-500 N/mm <sup>2</sup>	180 - 400	0,15 - 0,25

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N1.1 Aluminium wrought alloys	$\leq 200 \text{ N/mm}^2$	400 - 500	0,15 - 0,30
N1.2 Aluminium wrought alloys	$\leq 350 \text{ N/mm}^2$	400 - 500	0,15 - 0,30
N1.3 Aluminium wrought alloys	$\leq 550 \text{ N/mm}^2$	400 - 500	0,15 - 0,30
N1.4 Aluminium cast alloys	Si $\leq 7\%$	400 - 500	0,15 - 0,30
N1.5 Aluminium cast alloys	$7\% < \text{Si} \leq 12\%$	400 - 500	0,15 - 0,30
N1.6 Aluminium cast alloys	$12\% < \text{Si} \leq 17\%$	150 - 250	0,15 - 0,30
N2.1 Pure copper, low-alloyed copper	$\leq 400 \text{ N/mm}^2$	250 - 500	0,15 - 0,25
N2.2 Copper-zinc alloys (brass, long-chipping)	$\leq 550 \text{ N/mm}^2$	250 - 500	0,15 - 0,25
N2.3 Copper-zinc alloys (brass, short-chipping)	$\leq 550 \text{ N/mm}^2$	250 - 500	0,15 - 0,25
N2.4 Copper-aluminium alloys (alu bronze, long-chipping)	$\leq 800 \text{ N/mm}^2$	150 - 250	0,10 - 0,25
N2.5 Copper-tin alloys (tin bronze, long-chipping)	$\leq 700 \text{ N/mm}^2$	150 - 250	0,10 - 0,25
N2.6 Copper-tin alloys (tin bronze, short-chipping)	$\leq 400 \text{ N/mm}^2$	150 - 250	0,10 - 0,25
N2.7 Special copper alloys	$\leq 600 \text{ N/mm}^2$	80 - 150	0,10 - 0,15
N2.8 Special copper alloys	$\leq 1400 \text{ N/mm}^2$	80 - 150	0,10 - 0,15
N3.1 Magnesium wrought alloys	$\leq 500 \text{ N/mm}^2$	400 - 500	0,15 - 0,30
N3.2 Magnesium cast alloys	$\leq 500 \text{ N/mm}^2$	400 - 500	0,15 - 0,30
N4.1 Duroplastics (short-chipping)		180 - 400	0,15 - 0,25
N4.2 Thermoplastics (long-chipping)		180 - 400	0,15 - 0,25
N4.3 Fibre-reinforced synthetics (fibre content $\leq 30\%$ )		80 - 150	0,15 - 0,25
N4.4 Fibre-reinforced synthetics (fibre content $> 30\%$ )		80 - 150	0,15 - 0,25
S1.1 Pure titanium	$\leq 450 \text{ N/mm}^2$	60 - 120	0,08 - 0,12
S1.2 Titanium alloys	$\leq 900 \text{ N/mm}^2$	60 - 120	0,08 - 0,12
S1.3 Titanium alloys	$\leq 1250 \text{ N/mm}^2$	60 - 120	0,08 - 0,12