# NPA

December 2015

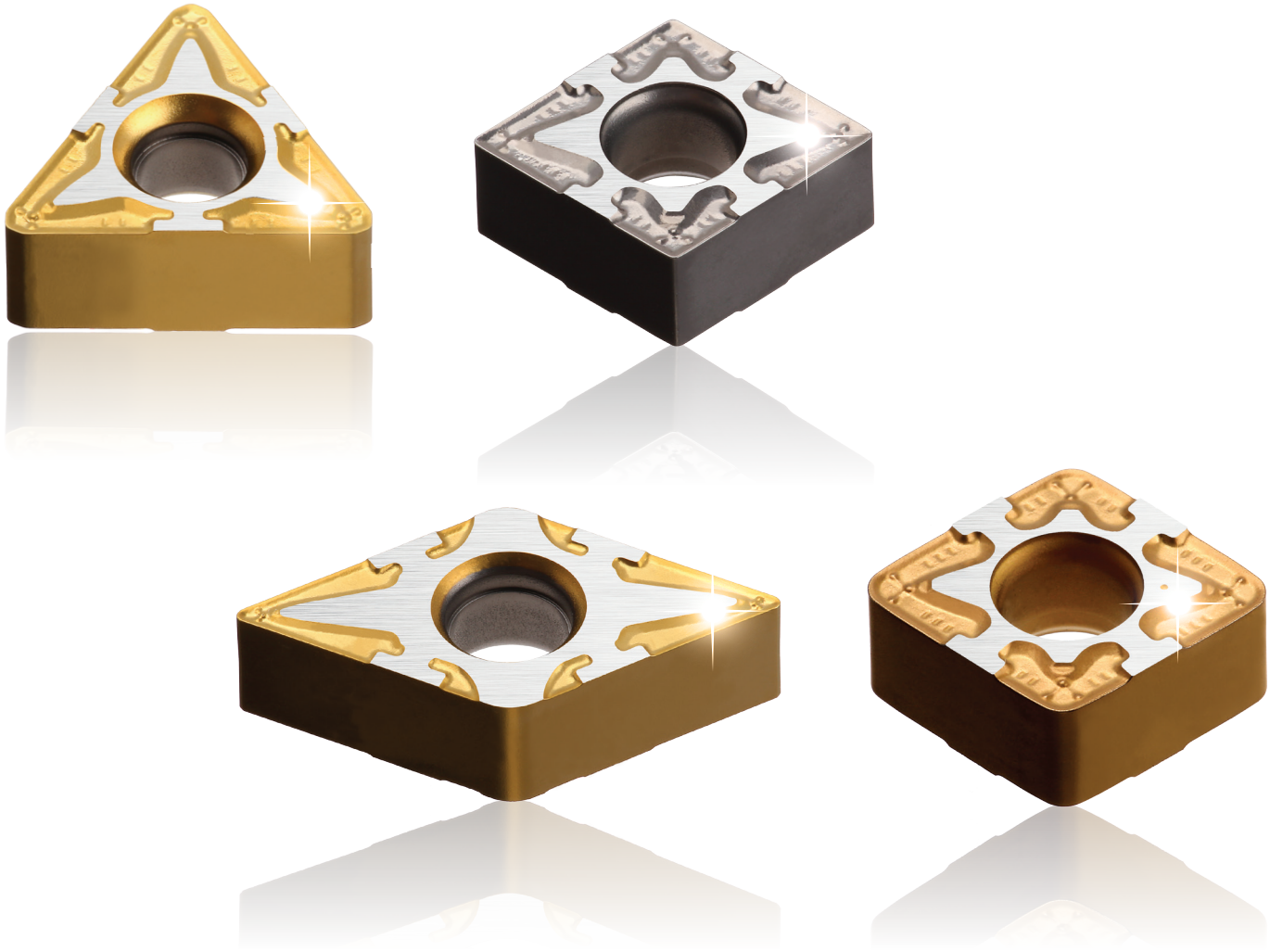
www.taegutec.com

New Product Announcement No. 2015-21

new

# RHINO-RUSH

## A New Wiper Insert Line, Now Available for RHINORUSH



TaeguTec
Member IMC Group

# New Product Announcement No. 2015-21

RHINO•RUSH

TaeguTec is pleased to announce the introduction of wiper inserts that extend tool life as well as achieving excellent surface finish to the RHINORUSH line.

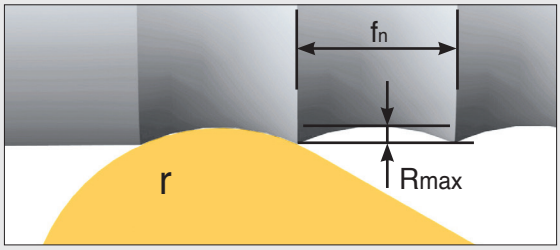
Available in C, D, T and W type wiper inserts and corner R 0.4/0.8/1.2 sizes, the RHINORUSH wiper inserts cover a wide range of machining applications.

For further questions, please contact the relevant product manager.

## WIPER INSERT'S FEATURES

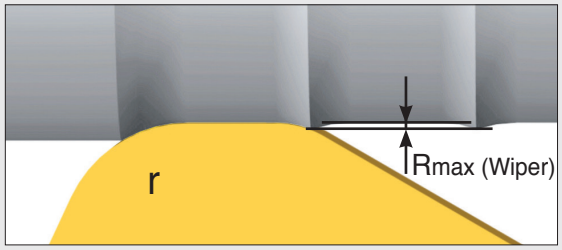
- **Compared to general inserts, the new wiper insert achieves equivalent roughness even in double feed rate conditions.**
- **At equivalent feed rates, the new RHINORUSH wiper insert achieves 2-3 times better surface roughness.**
- **Predictable surface roughness in a wide feed range.**
- **Higher feed with more productivity.**

**Conventional insert**

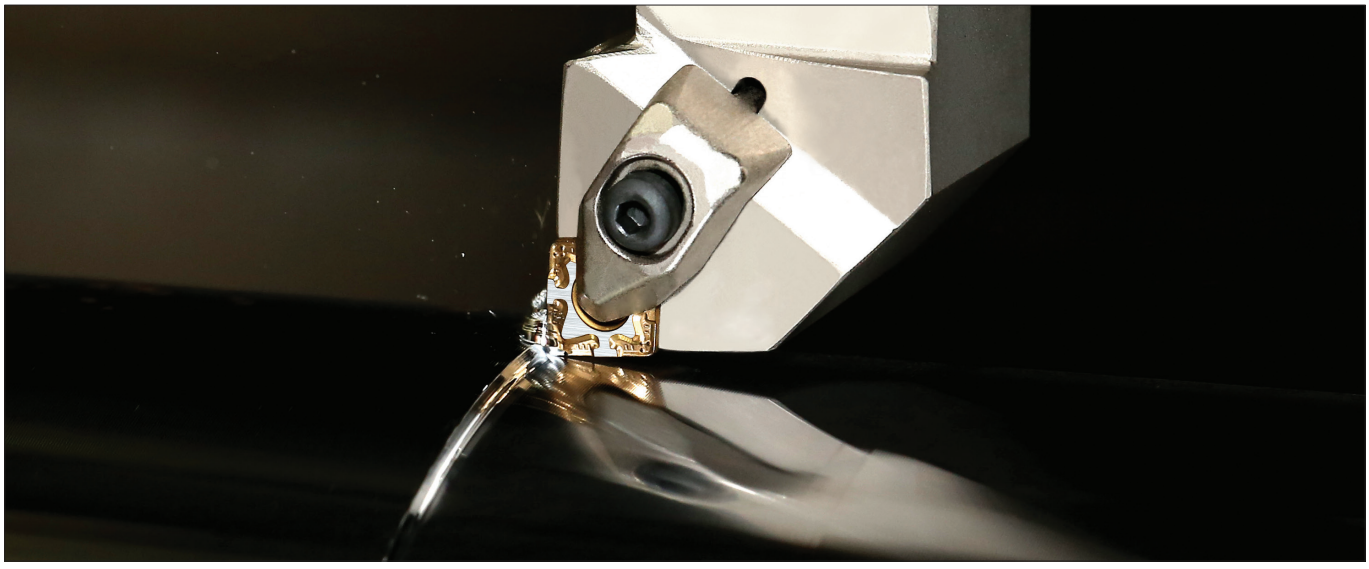



$R_{max} = f_n^2 \times 1000 / 8r$

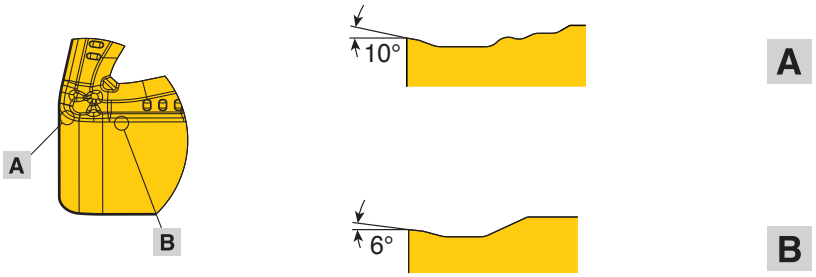
**Wiper insert**



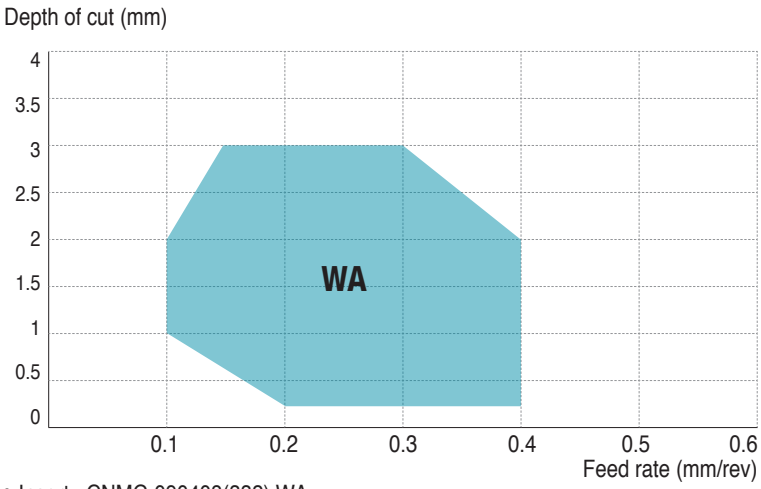

$R_{max}\ (Wiper) = R_{max} / 2$



# RHINORUSH wiper insert's edge geometry

| Chip breaker | Edge geometry |
|---|---|
|  WA |   |

# RHINORUSH wiper insert range



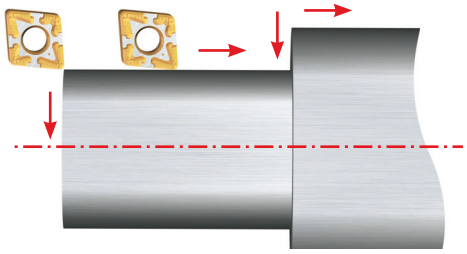
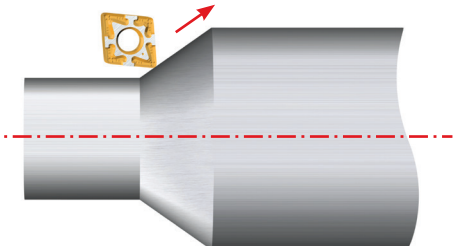

- Insert : CNMG 090408(332) WA
- Cutting speed (V) : 200m/min
- Material : 0.45% Carbon Steel (HB200~230)

# NOTE: Prior to using wiper inserts

■ **In order to obtain the full effect of the insert's wiper capability, please combine both the holder and the insert as suggested below:**

| Tool holder | Insert |
|---|---|
| Approach angle at 95° | CNMG-WA (80° corner), WNMX-WA |
| Approach angle at 75° | CNMG-WA (100° corner) |
| Approach angle at 93° | DNMG-WA |
| Approach angle at 91° | TNMG-WA |

With the exception of the above holder/wiper insert combinations, it is not possible to achieve the wiper effect during machining.

| ■ **Effective application**<br>- Straight cutting in parallel or perpendicular to the work-piece's center line | ■ **Ineffective application**<br>- Tapered or curved face cutting |
|---|---|
|  |  |

* TaeguTec does not recommend using wiper inserts for internal machining in long overhang conditions due to vibration.

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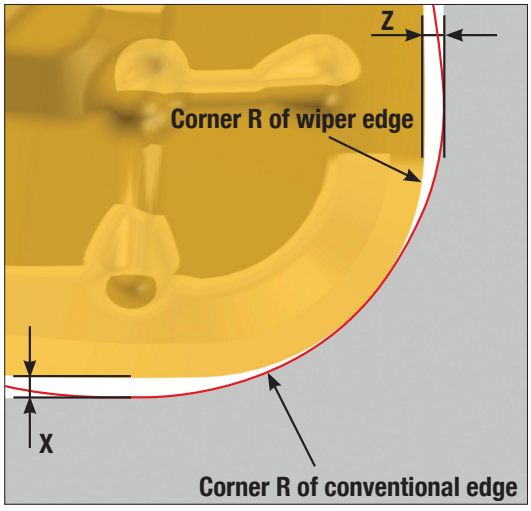
■ **To set the wiper insert cutting edge height on the non wiper insert equivalent, the following correction values must be applied.**

| Index position difference | | | | |
|---|---|---|---|---|
| Insert type | Corner R | Designation | X (mm) | Z (mm) |
| C & W (80˚) | 0.4 | CNMG 090404 WA | 0.03 | 0.03 |
| | | WNMX 060404 WA | | |
| | 0.8 | CNMG 090408 WA | 0.03 | 0.03 |
| | | WNMX 060408 WA | | |
| | 1.2 | CNMG 090412 WA | 0.05 | 0.05 |
| | | WNMX 060412 WA | | |
| C (100˚) | 0.4 | CNMG 090404 WA | 0.03 | 0 |
| | 0.8 | CNMG 090408 WA | 0.03 | 0 |
| | 1.2 | CNMG 090412 WA | 0.06 | 0 |
| D (55˚) | 0.4 | DNMG 130504 WA | 0.02 | 0 |
| | 0.8 | DNMG 130508 WA | 0.05 | 0.01 |
| | 1.2 | DNMG 130512 WA | 0.07 | 0.02 |
| T (60˚) | 0.4 | TNMG 130404 WA | 0.02 | 0 |
| | 0.8 | TNMG 130408 WA | 0.05 | 0.01 |
| | 1.2 | TNMG 130412 WA | 0.08 | 0.01 |




**Availability**
In stock

**Price**
Available in the GAL system

Sincerely,
TaeguTec

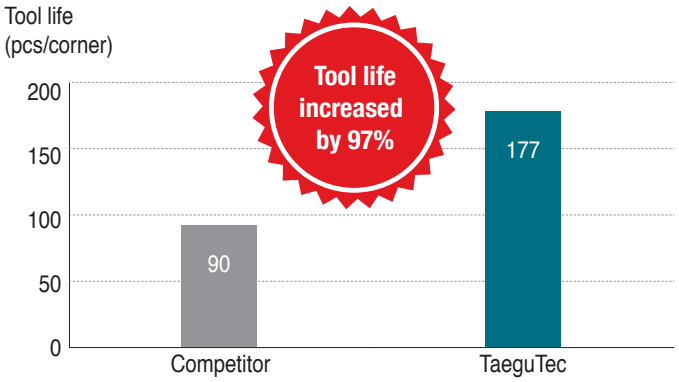
**Park Hong-sik**
Rotating & Non-Rotating Product Manager

Sincerely,
TaeguTec

**Bae Dae-wi**
Turning Product Manager

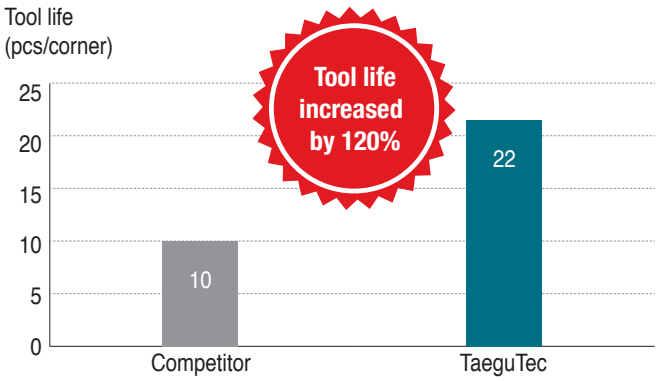
# Case study 1

| | | Competitor | TaeguTec |
|---|---|---|---|
| Workpiece material | | Automotive structural steel (SAPH 440-P) | |
| Operation | | Internal turning | |
| Insert | | CNMG 120408 cermet PVD coated | CNMG 090404 WA TT8115 |
| Cutting speed | V (m/min) | 360 | |
| Feed rate | F (mm/rev) | 0.13 | |
| Depth of cut | ap (mm) | 0.5 | |
| Coolant | | Yes | |
| Tool life (pcs/corner) | | 90 | 177 |
| Surface finish (Ra) | | 0.26-0.54 µm | |



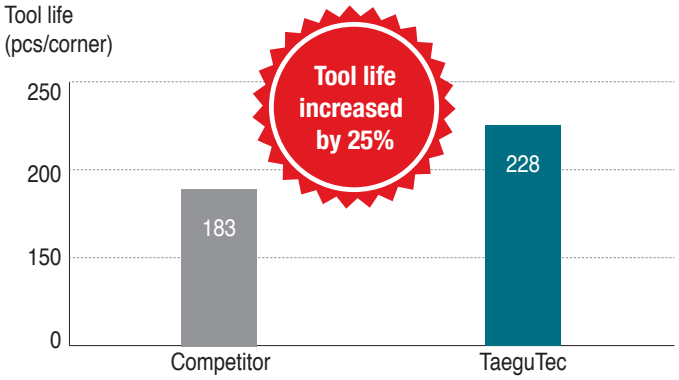

# Case study 2

| | | Competitor | TaeguTec |
|---|---|---|---|
| Workpiece material | | SAE 8620 (SNCM220(H)) | |
| Operation | | External turning | |
| Holder | | PDJNR 2525 M15 | PDJNR 2525 K13 |
| Insert | | DNMG 150408 carbide CVD coated | DNMG 130508 WA TT8115 |
| Cutting speed | V (m/min) | 211 | |
| Feed rate | F (mm/rev) | 0.05 | |
| Depth of cut | ap (mm) | 0.2 | |
| Coolant | | Yes | |
| Tool life (pcs/corner) | | 10 | 22 |
| Surface finish (Ra) | | 1.2-3.14 µm | |



# Case study 3

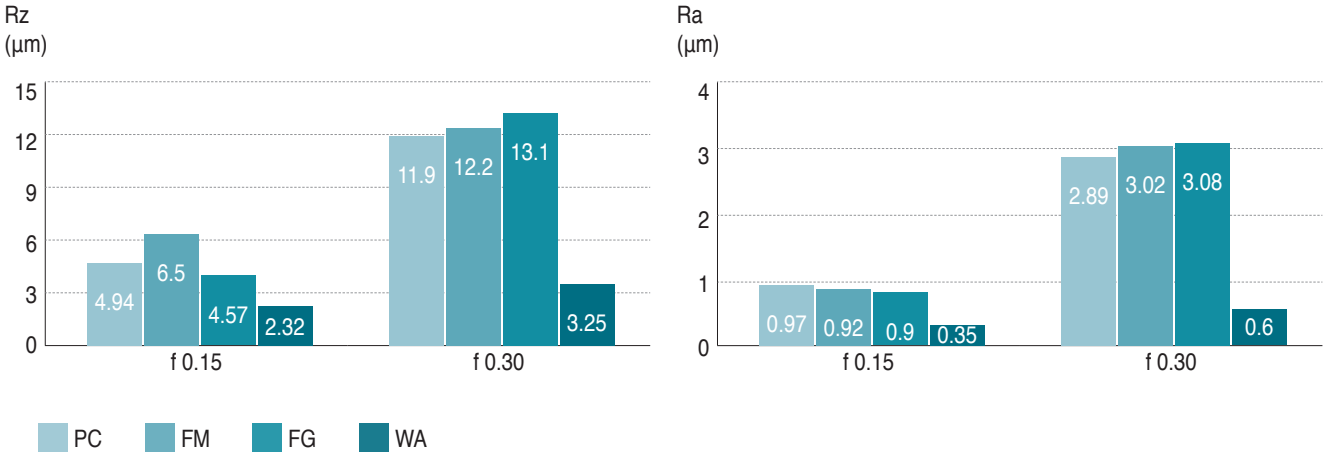
| | | Competitor | TaeguTec |
|---|---|---|---|
| Workpiece material | | SAE 8620 (SNCM220(H)) | |
| Operation | | External turning | |
| Holder | | MTJNR 2525 M16 | WTJNR 2525 M1304 |
| Insert | | TNMG 160408 carbide CVD coated | TNMG 130408 WA TT8115 |
| Cutting speed | V (m/min) | 300 | |
| Feed rate | F (mm/rev) | 0.4 | |
| Depth of cut | ap (mm) | 0.5 | |
| Coolant | | Yes | |
| Tool life (pcs/corner) | | 183 | 228 |
| Surface finish (Ra) | | 2 µm | |




# Case study 4

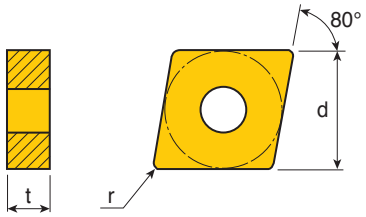
## Surface roughness comparison among several chip breakers

| | | TaeguTec |
|---|---|---|
| Workpiece material | | S45C (AISI 1045) |
| Operation | | External continuous turning |
| Insert | | CNMG 090408 PC TT8115 / CNMG 090408 FM TT8115 / CNMG 090408 FG TT8115 / CNMG 090408 WA TT8115 |
| Cutting speed | V (m/min) | 200 |
| Feed rate | F (mm/rev) | 0.15, 0.30 |
| Depth of cut | ap (mm) | 1.5 |
| Coolant | | Wet |



# CNMG (Tool holders: ☐CLNR/L... , ☐CBNR/L... , ☐CKNR/L...)

## Negative 80° rhombic inserts



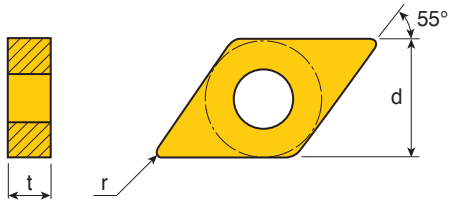

| Size | Dimension (mm) | | |
|---|---|---|---|
| | d | t | r |
| **09** | 9.52 | 4.76 | 0.4-1.2 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Insert | Designation | | Feed (mm/rev) | ap (mm) | Cermet | | CVD coated | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PV3010 | CT3000 | TT7005 | TT7015 | TT8105 | TT8115 | TT8125 | TT5100 |
|  | **CNMG** | **090404 WA** | 0.08 - 0.25 | 0.25 - 2.50 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **090408 WA** | 0.10 - 0.40 | 0.25 - 3.00 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **090412 WA** | 0.20 - 0.50 | 0.40 - 3.00 | ● | ● | ● | ● | ● | ● | ● | ● |

● : Standard items

# DNMG (Tool holders: ☐DJNR/L... , ☐DUNR/L..., ☐DZNR/L...)

## Negative 55° rhombic inserts



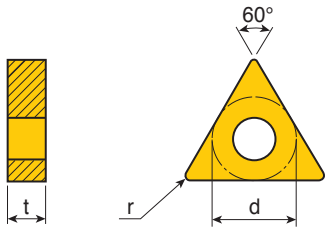

| Size | Dimension (mm) | | |
|---|---|---|---|
| | d | t | r |
| **13** | 11.11 | 5.56 | 0.4-1.2 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Insert | Designation | | Feed (mm/rev) | ap (mm) | Cermet | | CVD coated | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PV3010 | CT3000 | TT7005 | TT7015 | TT8105 | TT8115 | TT8125 | TT5100 |
|  | **DNMG** | **130504 WA** | 0.08 - 0.25 | 0.25 - 2.50 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **130508 WA** | 0.10 - 0.35 | 0.25 - 3.00 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **130512 WA** | 0.15 - 0.45 | 0.40 - 3.50 | ● | ● | ● | ● | ● | ● | ● | ● |

● : Standard items

# TNMG (Tool holders: □TFNR/L... , □TGNR/L...)

## Negative triangular inserts




| Size | Dimension (mm) | | |
|---|---|---|---|
| | d | t | r |
| **13** | 7.94 | 4.76 | 0.4-1.2 |
| | | | |
| | | | |
| | | | |
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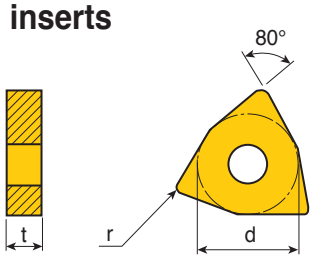
| | | | |
| | | | |

| Insert | Designation | | Feed (mm/rev) | ap (mm) | Cermet | | CVD coated | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PV3010 | CT3000 | TT7005 | TT7015 | TT8105 | TT8115 | TT8125 | TT5100 |
|  | **TNMG** | **130404 WA** | 0.08 - 0.25 | 0.25 - 2.50 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **130408 WA** | 0.10 - 0.35 | 0.25 - 3.00 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **130412 WA** | 0.15 - 0.45 | 0.40 - 3.50 | ● | ● | ● | ● | ● | ● | ● | ● |

● : Standard items

# WNMX (Tool holders: □WLNR/L...)

## Negative 80° trigon inserts




| Size | Dimension (mm) | | |
|---|---|---|---|
| | d | t | r |
| **06** | 9.52 | 4.76 | 0.4-1.2 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Insert | Designation | | Feed (mm/rev) | ap (mm) | Cermet | | CVD coated | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PV3010 | CT3000 | TT7005 | TT7015 | TT8105 | TT8115 | TT8125 | TT5100 |
|  | **WNMX** | **060404 WA** | 0.08 - 0.25 | 0.25 - 2.50 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **060408 WA** | 0.10 - 0.40 | 0.25 - 3.00 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **060412 WA** | 0.20 - 0.50 | 0.40 - 3.00 | ● | ● | ● | ● | ● | ● | ● | ● |

● : Standard items

# Recommended Cutting Conditions

| ISO | Material | | Condition | Tensile strength ($N/mm^2$) | Hardness HB | Material No. | Cermet | | Coated | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | PV3010 | CT3000 | TT7005 | TT7015 | TT8105 | TT8115 | TT8125 | TT5100 |
| P | Non-alloy steel, cast steel, free cutting steel | < 0.25%C | Annealed | 420 | 125 | 1 | 350-650 | 300-570 | | | 310-580 | 280-530 | 230-480 | 200-450 |
| | | >= 0.25%C | Annealed | 650 | 190 | 2 | 270-520 | 250-500 | | | 270-530 | 240-480 | 200-420 | 170-390 |
| | | < 0.55%C | Quenched and tempered | 850 | 250 | 3 | 240-480 | 220-460 | | | 230-490 | 200-440 | 160-380 | 130-350 |
| | | >= 0.55%C | Annealed | 750 | 220 | 4 | 260-500 | 240-470 | | | 250-500 | 220-450 | 190-400 | 160-370 |
| | | | Quenched and tempered | 1000 | 300 | 5 | 240-460 | 220-440 | | | 210-470 | 180-420 | 150-350 | 120-320 |
| | Low alloy steel and cast steel (less than 5% of alloying elements) | | Annealed | 600 | 200 | 6 | 240-540 | 220-520 | | | 230-550 | 200-500 | 170-400 | 140-370 |
| | | | Quenched and tempered | 930 | 275 | 7 | 190-330 | 170-300 | | | 180-330 | 150-280 | 140-250 | 110-220 |
| | | | | 1000 | 300 | 8 | 170-300 | 150-270 | | | 160-300 | 130-250 | 120-230 | 90-200 |
| | | | | 1200 | 350 | 9 | 140-270 | 130-250 | | | 150-280 | 120-230 | 110-200 | 80-170 |
| | High alloy steel, cast steel and tool steel | | Annealed | 680 | 200 | 10 | 260-405 | 250-395 | | | 210-420 | 190-380 | 140-280 | 110-250 |
| | | | Quenched and tempered | 1100 | 325 | 11 | 140-205 | 130-195 | | | 100-200 | 90-180 | 70-130 | 40-100 |
| M | Stainless steel and cast steel | | Ferritic / martensitic | 680 | 200 | 12 | 200-300 | 180-270 | | | | | | |
| | | | Martensitic | 820 | 240 | 13 | 200-270 | 170-250 | | | | | | |
| | | | Austenitic | 600 | 180 | 14 | 170-260 | 150-240 | | | | | | |
| K | Gray cast iron (GG) | | Ferritic | | 160 | 15 | 230-330 | 220-320 | 160-400 | 150-350 | | | | |
| | | | Pearlitic | | 250 | 16 | 215-290 | 205-280 | 140-350 | 130-300 | | | | |
| | Cast iron nodular (GGG) | | Ferritic | | 180 | 17 | 170-265 | 160-255 | 300-550 | 290-450 | | | | |
| | | | Pearlitic | | 260 | 18 | 180-240 | 170-230 | 300-430 | 250-360 | | | | |
| | Malleable cast iron | | Ferritic | | 130 | 19 | 145-220 | 135-200 | 200-460 | 250-390 | | | | |
| | | | Pearlitic | | 230 | 20 | 105-150 | 95-140 | 180-350 | 200-320 | | | | |
| N | Aluminum - wrought alloy | | Not cureable | | 60 | 21 | | | | | | | | |
| | | | Cured | | 100 | 22 | | | | | | | | |
| | Aluminum-cast, alloyed | <=12% Si | Not cureable | | 75 | 23 | | | | | | | | |
| | | | Cured | | 90 | 24 | | | | | | | | |
| | | >12% Si | High temp. | | 130 | 25 | | | | | | | | |
| | Copper alloys | >1% Pb | Free cutting | | 110 | 26 | | | | | | | | |
| | | | Brass | | 90 | 27 | | | | | | | | |
| | | | Electrolitic copper | | 100 | 28 | | | | | | | | |
| | Non-metallic | | Duroplastics, fiber plastics | | | 29 | | | | | | | | |
| | | | Hard rubber | | | 30 | | | | | | | | |
| S | High temp. alloys | Fe based | Annealed | | 200 | 31 | | | | | | | | |
| | | | Cured | | 280 | 32 | | | | | | | | |
| | | Ni or Co based | Annealed | | 250 | 33 | | | | | | | | |
| | | | Cured | | 350 | 34 | | | | | | | | |
| | | | Cast | | 320 | 35 | | | | | | | | |
| | Titanium, Ti alloys | | | Rm 400 | | 36 | | | | | | | | |
| | | | Alpha+beta alloys cured | Rm 1050 | | 37 | | | | | | | | |
| H | Hardened steel | | Hardened | | 55HRC | 38 | | | | | | | | |
| | | | Hardened | | 60HRC | 39 | | | | | | | | |
| | Chilled cast iron | | Cast | | 400 | 40 | | | | | | | | |
| | Cast iron nodular | | Hardened | | 55HRC | 41 | | | | | | | | |

Steel  Stainless steel  Cast iron  Nonferrous  High temp. alloys  Hardened steel