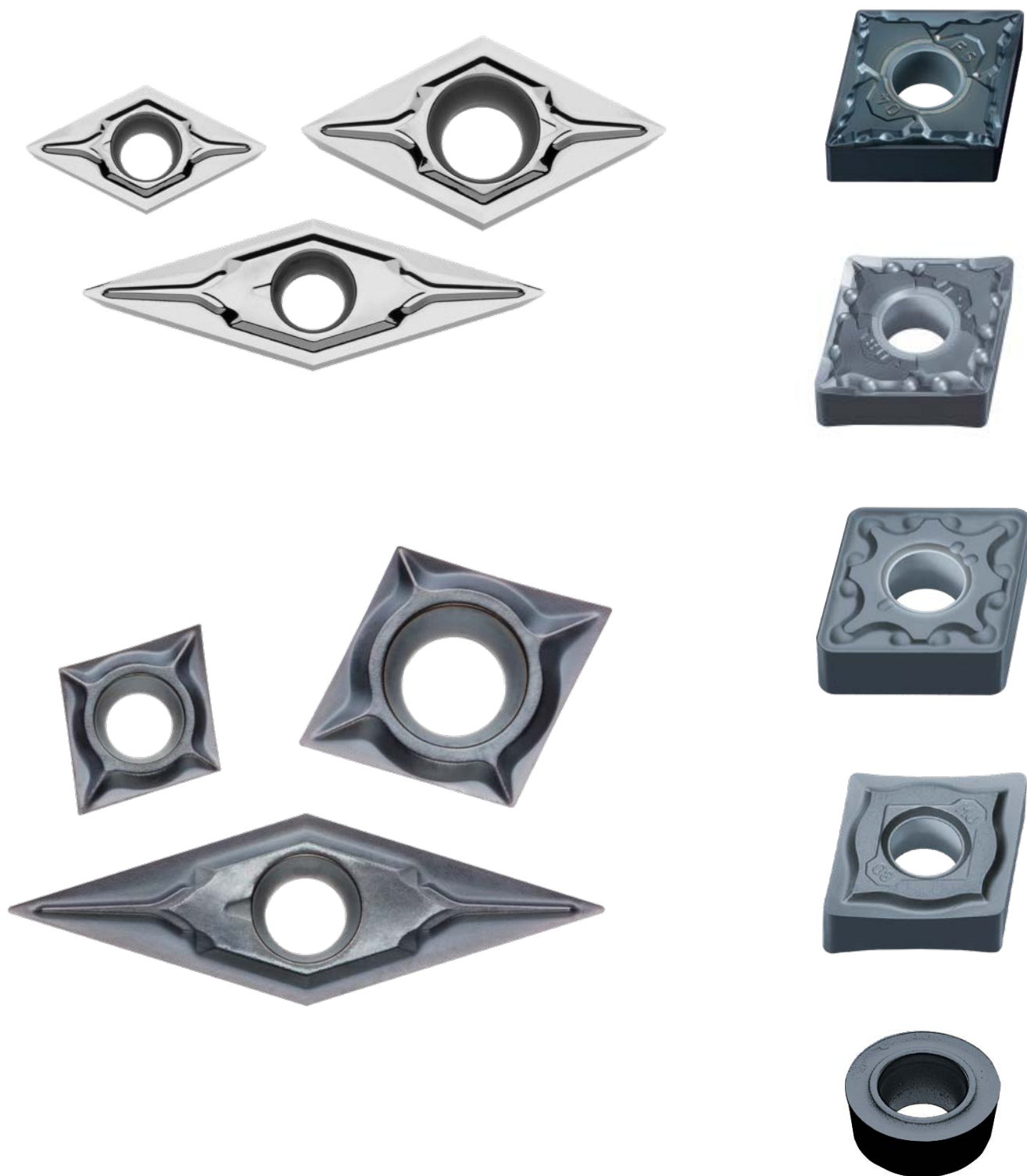


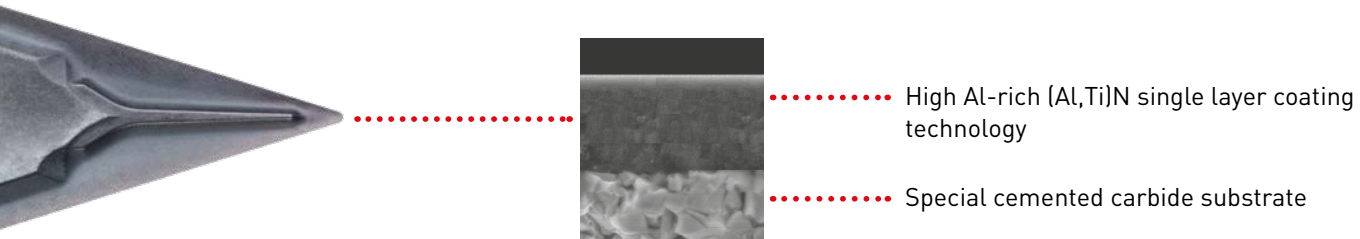
# MP/MT9000

ISO TURNING INSERTS  
FOR DIFFICULT TO CUT MATERIALS



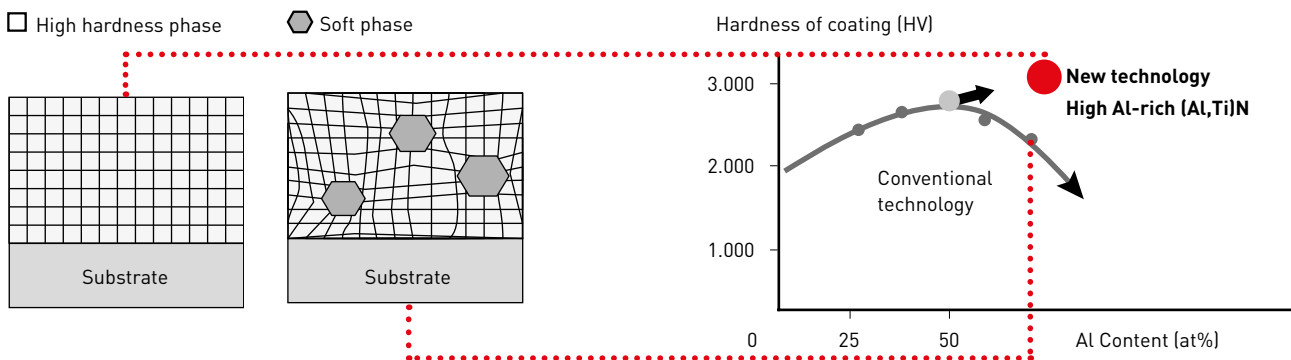
# MP9005 / MP9015 / MP9025

## PVD COATED CARBIDE GRADE



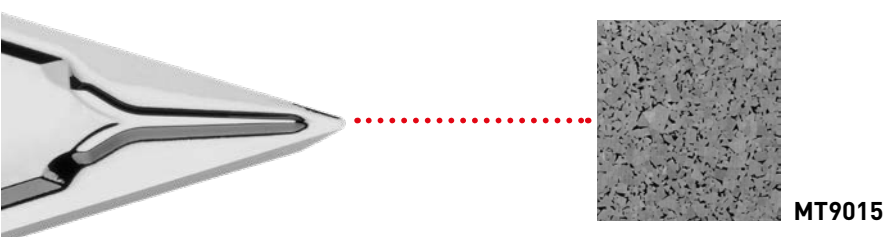
### HIGH AL AND CONVENTIONAL COATING COMPARISON

The new technology, high Al-rich (Al,Ti)N single layer coating provides stabilisation of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.



# MT9005 / MT9015

## CARBIDE GRADE (NON COATED)



| ISO | Grade | Concept              | Application                                                                          |
|-----|-------|----------------------|--------------------------------------------------------------------------------------|
| S   | S05   | <b>MP9005/MP9005</b> | High quality hard grade focusing on wear resistance                                  |
|     |       | <b>MP9015</b>        | First recommendation for general applications                                        |
|     | S15   | <b>MP9025</b>        | Prevents severe damage for increased stability                                       |
|     |       | <b>MT9015</b>        | New cemented carbide with sharp cutting edge, excellent wear and fracture resistance |
|     |       |                      | Titanium alloy General cutting                                                       |

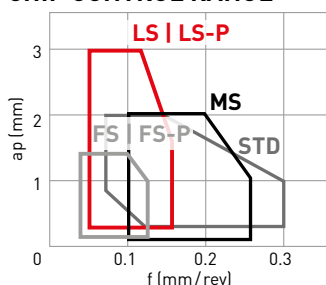
| ISO |     | PVD    |        |
|-----|-----|--------|--------|
| S   | S01 | MP9005 | MT9005 |
|     | S10 | MP9015 | MT9015 |
|     | S20 | MP9025 |        |
|     | S30 |        |        |

# CHIPBREAKER SYSTEM

## POSITIVE INSERTS/PRECISION POSITIVE INSERTS

| Tolerance             |             | Features                                                                                                                                                                                                                                                                                                                                                                                                           | Cross section geometry                                               |
|-----------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>FINISHING</b>      |             |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                      |
|                       | <b>FS</b>   | <p><i>Positive inserts</i></p> <p><b>FIRST RECOMMENDATION FOR FINISHING DIFFICULT TO CUT MATERIALS</b></p> <p>Ideal for heat-resistant, titanium and cobalt chromium alloys. Sharp cutting edges provide excellent surface finishes and geometric tolerance. Highly efficient chip discharge is possible due to curved cutting edges.</p>                                                                          | <p>Nose</p> <p>14°</p> <p>Flank</p> <p>9°</p>                        |
| G                     | <b>FS-P</b> | <p><i>Positive inserts</i></p> <p><b>FIRST RECOMMENDATION FOR FINISHING OF TITANIUM ALLOYS</b></p> <p>Ideal for titanium and copper alloys. Sharp cutting edges provide excellent surface finishes and geometric tolerance. Highly efficient chip discharge is possible due to curved cutting edges. Polished, mirror finish of insert surfaces drastically improves welding resistance and extends tool life.</p> | <p>Nose</p> <p>14°</p> <p>Flank</p> <p>9°</p>                        |
| <b>LIGHT CUTTING</b>  |             |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                      |
| M                     | <b>LS</b>   | <p><i>Positive inserts/PRECISION positive inserts</i></p> <p><b>FIRST RECOMMENDATION FOR LIGHT CUTTING OF DIFFICULT TO CUT MATERIALS</b></p> <p>Ideal for heat-resistant, titanium and cobalt chromium alloys. Excellent chip control at low to medium depths of cut.</p>                                                                                                                                          | <p>Nose</p> <p>18°</p> <p>Flank</p> <p>8°</p>                        |
| G                     | <b>LS-P</b> | <p><i>Positive inserts</i></p> <p><b>FIRST RECOMMENDATION FOR LIGHT CUTTING OF TITANIUM ALLOYS</b></p> <p>Ideal for titanium and copper alloys. Excellent chip control at low to medium depths of cut. Polished, mirror finish of insert surfaces drastically improves welding resistance and extends tool life.</p>                                                                                               | <p>Nose</p> <p>12°</p> <p>Flank</p> <p>6°</p>                        |
| <b>MEDIUM CUTTING</b> |             |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                      |
| M                     | <b>MS</b>   | <p><i>Precision positive inserts</i></p> <p><b>FIRST RECOMMENDATION FOR MEDIUM CUTTING OF DIFFICULT TO CUT MATERIALS</b></p> <p>A wide chip pocket copes with variations in cutting resistance and reduces vibration and chip jamming even at large, varying depths of cut.</p>                                                                                                                                    | <p>Nose</p> <p>18°</p> <p>0.1</p> <p>Flank</p> <p>18°</p> <p>0.1</p> |
|                       | <b>STD</b>  | <p><i>Positive inserts</i></p> <p><b>FIRST RECOMMENDATION FOR MEDIUM CUTTING OF DIFFICULT TO CUT MATERIALS</b></p> <p>Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.</p>                                                                                                                                                                                         | <p>Nose</p> <p>15°</p> <p>Flank</p> <p>15°</p>                       |

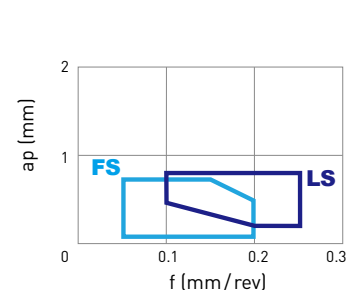
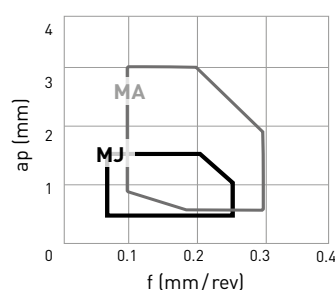
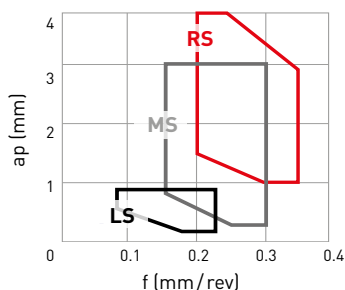
### CHIP CONTROL RANGE



# CHIPBREAKER SYSTEM – NEGATIVE INSERTS/ PRECISION NEGATIVE INSERTS

| Tolerance             |                  | Features                                                                                                                                                                                                                                                                                                                                                                                         | Cross section geometry                                   |
|-----------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>FINISHING</b>      |                  |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          |
| M                     | <p><b>FS</b></p> | <p><i>PRECISION negative inserts</i><br/> <b>FIRST RECOMMENDATION FOR FINISHING DIFFICULT TO CUT MATERIALS</b><br/>           Excellent chip breaking even at very small depths of cut.<br/>           The large rake angle and precision grade enables excellent sharpness.</p>                                                                                                                 | <p>Nose<br/>25° 0.22</p> <p>Flank<br/>25° 0.44</p>       |
| <b>LIGHT CUTTING</b>  |                  |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          |
| M                     | <p><b>LS</b></p> | <p><i>Negative inserts / PRECISION negative inserts</i><br/> <b>FIRST RECOMMENDATION FOR LIGHT CUTTING OF DIFFICULT TO CUT MATERIALS</b><br/>           Enhanced chip disposal for depths of cut smaller than the corner radius.</p>                                                                                                                                                             | <p>Nose<br/>20° 0.4</p> <p>Flank<br/>20° 0.6</p>         |
| M                     | <p><b>MJ</b></p> | <p><i>Negative inserts</i><br/> <b>FIRST RECOMMENDATION FOR LIGHT CUTTING OF DIFFICULT TO CUT MATERIALS</b><br/>           Double sided chipbreaker and a single sided chipbreaker (D type, V type).<br/>           The sharp edge produces a good surface finish.<br/>           Ideal for heat-resistant and titanium alloys.<br/>           The curved edge allows smooth chip discharge.</p> | <p>Nose<br/>13°</p> <p>Flank<br/>9°</p>                  |
| <b>MEDIUM CUTTING</b> |                  |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          |
| M                     | <p><b>MS</b></p> | <p><i>Negative inserts</i><br/> <b>FIRST RECOMMENDATION FOR MEDIUM CUTTING OF DIFFICULT TO CUT MATERIALS</b><br/>           Double sided chipbreaker.<br/>           The sharp edge provides superior performance.</p>                                                                                                                                                                           | <p>Nose<br/>25° 15° 0.5</p> <p>Flank<br/>25° 15° 0.5</p> |
| M                     | <p><b>MA</b></p> | <p><i>Negative inserts</i><br/> <b>MULTI-ASSIST CHIPBREAKER FOR MEDIUM CUTTING OF DIFFICULT TO CUT MATERIALS</b><br/>           Double sided chipbreaker.<br/>           Positive land provides a sharp cutting action.</p>                                                                                                                                                                      | <p>Nose<br/>22° 6° 0.2</p> <p>Flank<br/>22° 6° 0.2</p>   |
| <b>ROUGHING</b>       |                  |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          |
| M                     | <p><b>RS</b></p> | <p><i>Negative inserts</i><br/> <b>FIRST RECOMMENDATION FOR ROUGH CUTTING OF DIFFICULT TO CUT MATERIALS</b><br/>           During low speed cutting the positive land controls chip welding and abrasion at the depth of cut line.</p>                                                                                                                                                           | <p>Nose<br/>20° 10° 0.2</p> <p>Flank<br/>20° 0.2</p>     |

## CHIP CONTROL RANGE



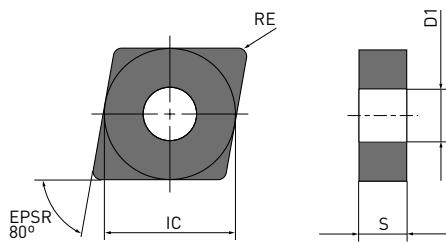
# CNCG, DNCG

## NEGATIVE INSERTS (WITH HOLE)

S

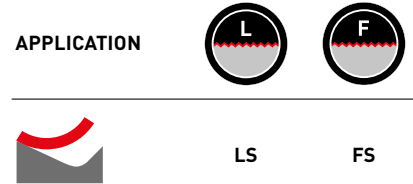
### G Class

#### CNCG

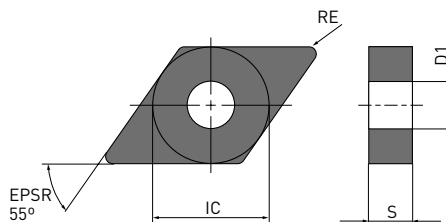


#### CHIPBREAKER IDENTIFICATION

#### APPLICATION



#### DNCG



| Order number  |   | MP9005 | MP9015 | MP9025 | MT9015 | IC   | S    | RE   | D1   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|------|------|------|------|
| CNCG1204V5-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.05 | 5.16 |
| CNCG120401-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.1  | 5.16 |
| CNCG120402-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.2  | 5.16 |
| CNCG120404-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.4  | 5.16 |
| CNCG120408-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.8  | 5.16 |
| CNCG120402-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.2  | 5.16 |
| CNCG120404-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.4  | 5.16 |
| CNCG120408-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.8  | 5.16 |
| DNCG150402-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.2  | 5.16 |
| DNCG150404-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.4  | 5.16 |
| DNCG150408-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.8  | 5.16 |
| DNCG150604-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 6.35 | 0.4  | 5.16 |
| DNCG150608-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 6.35 | 0.8  | 5.16 |
| DNCG150402-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.2  | 5.16 |
| DNCG150404-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.4  | 5.16 |
| DNCG150408-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 0.8  | 5.16 |
| DNCG150604-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 6.35 | 0.4  | 5.16 |
| DNCG150608-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 12.7 | 6.35 | 0.8  | 5.16 |

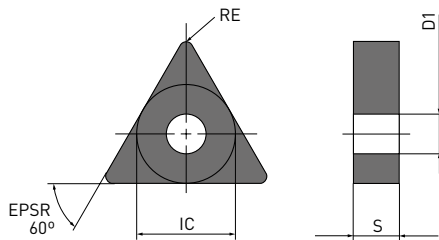
# TNGG, VNGG

## NEGATIVE INSERTS (WITH HOLE)

S

### G Class

#### TNGG



#### CHIPBREAKER IDENTIFICATION

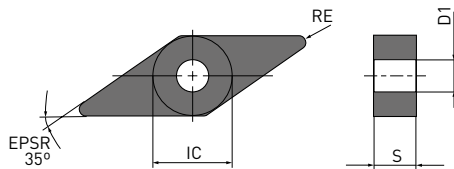
#### APPLICATION



LS

FS

#### VNGG



| Order number  |   | MP9005 | MP9015 | MP9025 | MT9015 | IC    | S    | RE   | D1   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|------|------|------|
| TNGG160402-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.2  | 3.81 |
| TNGG160404-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.4  | 3.81 |
| TNGG160408-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.8  | 3.81 |
| TNGG160402-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.2  | 3.81 |
| TNGG160404-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.4  | 3.81 |
| TNGG160408-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.8  | 3.81 |
| VNGG1604V5-FS | F                                                                                                                                                                       | ●      | ●      |        | ★      | 9.525 | 4.76 | 0.05 | 3.81 |
| VNGG160401-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.1  | 3.81 |
| VNGG160402-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.2  | 3.81 |
| VNGG160404-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.4  | 3.81 |
| VNGG160408-FS | F                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.8  | 3.81 |
| VNGG160402-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.2  | 3.81 |
| VNGG160404-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.4  | 3.81 |
| VNGG160408-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ★      | 9.525 | 4.76 | 0.8  | 3.81 |

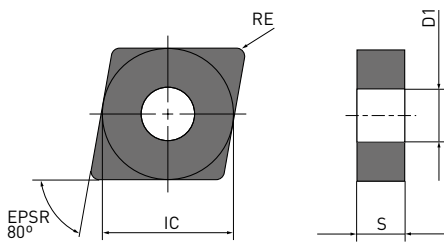
# CNMG

## NEGATIVE INSERTS (WITH HOLE)

S

M Class

CNMG



### CHIPBREAKER IDENTIFICATION

APPLICATION



LS

MA, MJ, MS

RS

| Order number  |    | MP9005 | MP9015 | MP9025 | MT9015 | IC     | S    | RE  | D1   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|------|-----|------|
|               |                                                                                                                                                                                                                                                       |        |        |        |        |        |      |     |      |
| CNMG090304-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      |        | 9.525  | 3.18 | 0.4 | 3.81 |
| CNMG090308-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      |        | 9.525  | 3.18 | 0.8 | 3.81 |
| CNMG120402-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.2 | 5.16 |
| CNMG120404-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.4 | 5.16 |
| CNMG120408-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| CNMG090304-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      |        | 9.525  | 3.18 | 0.4 | 3.81 |
| CNMG090308-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      |        | 9.525  | 3.18 | 0.8 | 3.81 |
| CNMG120404-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.4 | 5.16 |
| CNMG120408-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| CNMG120412-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 1.2 | 5.16 |
| CNMG160612-MS | M                                                                                                                                                                                                                                                     | ★      | ★      | ●      | ★      | 15.875 | 6.35 | 1.2 | 6.35 |
| CNMG160616-MS | M                                                                                                                                                                                                                                                     | ★      | ★      | ●      | ★      | 15.875 | 6.35 | 1.6 | 6.35 |
| CNMG120404-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7   | 4.76 | 0.4 | 5.16 |
| CNMG120408-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7   | 4.76 | 0.8 | 5.16 |
| CNMG120412-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7   | 4.76 | 1.2 | 5.16 |
| CNMG120416-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7   | 4.76 | 1.6 | 5.16 |
| CNMG120404-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7   | 4.76 | 0.4 | 5.16 |
| CNMG120408-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7   | 4.76 | 0.8 | 5.16 |
| CNMG120412-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7   | 4.76 | 1.2 | 5.16 |
| CNMG120416-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7   | 4.76 | 1.6 | 5.16 |
| CNMG120408-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| CNMG120412-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ●      | 12.7   | 4.76 | 1.2 | 5.16 |
| CNMG120416-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 12.7   | 4.76 | 1.6 | 5.16 |
| CNMG160612-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 15.875 | 6.35 | 1.2 | 6.35 |
| CNMG160616-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 15.875 | 6.35 | 1.6 | 6.35 |
| CNMG190612-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 19.05  | 6.35 | 1.2 | 7.93 |
| CNMG190616-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 19.05  | 6.35 | 1.6 | 7.93 |

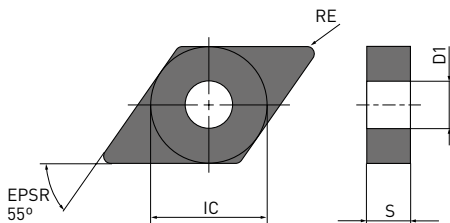
# DNMG

## NEGATIVE INSERTS (WITH HOLE)

S

M Class

DNMG



### CHIPBREAKER IDENTIFICATION

APPLICATION



LS

MA, MJ, MS

RS

| Order number  |    | MP9005 | MP9015 | MP9025 | MT9015 | IC   | S    | RE  | D1   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|------|------|-----|------|
|               |                                                                                                                                                                                                                                                       |        |        |        |        |      |      |     |      |
| DNMG150402-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 4.76 | 0.2 | 5.16 |
| DNMG150404-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 4.76 | 0.4 | 5.16 |
| DNMG150408-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 4.76 | 0.8 | 5.16 |
| DNMG150604-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 6.35 | 0.4 | 5.16 |
| DNMG150608-LS | L                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 6.35 | 0.8 | 5.16 |
| DNMG150404-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 4.76 | 0.4 | 5.16 |
| DNMG150408-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 4.76 | 0.8 | 5.16 |
| DNMG150412-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ★      | 12.7 | 4.76 | 1.2 | 5.16 |
| DNMG150604-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 6.35 | 0.4 | 5.16 |
| DNMG150608-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ●      | 12.7 | 6.35 | 0.8 | 5.16 |
| DNMG150612-MS | M                                                                                                                                                                                                                                                     | ●      | ●      | ●      | ★      | 12.7 | 6.35 | 1.2 | 5.16 |
| DNMG150404-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7 | 4.76 | 0.4 | 5.16 |
| DNMG150408-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7 | 4.76 | 0.8 | 5.16 |
| DNMG150412-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7 | 4.76 | 1.2 | 5.16 |
| DNMG150604-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7 | 6.35 | 0.4 | 5.16 |
| DNMG150608-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7 | 6.35 | 0.8 | 5.16 |
| DNMG150612-MA | M                                                                                                                                                                                                                                                     |        | ●      | ●      |        | 12.7 | 6.35 | 1.2 | 5.16 |
| DNMG150404-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 4.76 | 0.4 | 5.16 |
| DNMG150408-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 4.76 | 0.8 | 5.16 |
| DNMG150412-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 4.76 | 1.2 | 5.16 |
| DNMG150416-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 4.76 | 1.6 | 5.16 |
| DNMG150604-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 6.35 | 0.4 | 5.16 |
| DNMG150608-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 6.35 | 0.8 | 5.16 |
| DNMG150612-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 6.35 | 1.2 | 5.16 |
| DNMG150616-MJ | M                                                                                                                                                                                                                                                     | ●      | ●      |        |        | 12.7 | 6.35 | 1.6 | 5.16 |
| DNMG150408-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ●      | 12.7 | 4.76 | 0.8 | 5.16 |
| DNMG150412-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ●      | 12.7 | 4.76 | 1.2 | 5.16 |
| DNMG150416-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 12.7 | 4.76 | 1.6 | 5.16 |
| DNMG150608-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ●      | 12.7 | 6.35 | 0.8 | 5.16 |
| DNMG150612-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ●      | 12.7 | 6.35 | 1.2 | 5.16 |
| DNMG150616-RS | R                                                                                                                                                                                                                                                     |        | ●      | ●      | ★      | 12.7 | 6.35 | 1.6 | 5.16 |



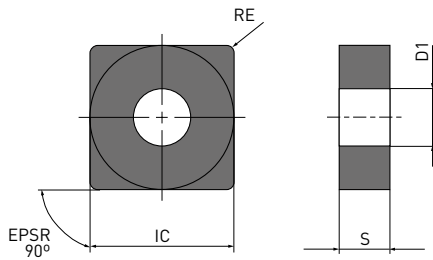
# SNMG, TNMG

## NEGATIVE INSERTS (WITH HOLE)

S

### M Class

#### SNMG



#### CHIPBREAKER IDENTIFICATION

#### APPLICATION

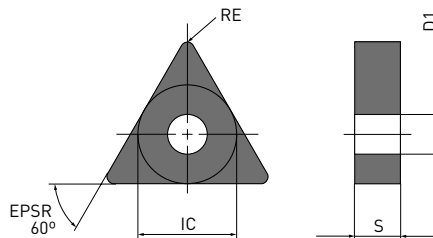


LS

MA, MJ, MS

RS

#### TNMG



| Order number  | <br><br> | MP9005 | MP9015 | MP9025 | MT9015 | IC     | S    | RE  | D1   |
|---------------|----------|--------|--------|--------|--------|--------|------|-----|------|
|               |          |        |        |        |        |        |      |     |      |
| SNMG120404-MS | M        | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.4 | 5.16 |
| SNMG120408-MS | M        | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| SNMG120412-MS | M        | ●      | ●      | ●      | ★      | 12.7   | 4.76 | 1.2 | 5.16 |
| SNMG150612-MS | M        | ★      | ★      | ●      | ★      | 15.875 | 6.35 | 1.2 | 6.35 |
| SNMG150616-MS | M        | ★      | ★      | ●      | ★      | 15.875 | 6.35 | 1.6 | 6.35 |
| SNMG190612-MS | M        | ●      | ●      | ●      |        | 19.05  | 6.35 | 1.2 | 7.93 |
| SNMG120404-MA | M        |        | ●      | ●      |        | 12.7   | 4.76 | 0.4 | 5.16 |
| SNMG120408-MA | M        |        | ●      | ●      |        | 12.7   | 4.76 | 0.8 | 5.16 |
| SNMG120412-MA | M        |        | ●      | ●      |        | 12.7   | 4.76 | 1.2 | 5.16 |
| SNMG120416-MA | M        |        | ●      | ●      |        | 12.7   | 4.76 | 1.6 | 5.16 |
| SNMG120408-RS | R        |        | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| SNMG120412-RS | R        |        | ●      | ●      | ●      | 12.7   | 4.76 | 1.2 | 5.16 |
| SNMG120416-RS | R        |        | ●      | ●      | ★      | 12.7   | 4.76 | 1.6 | 5.16 |
| SNMG150616-RS | R        |        | ★      | ●      | ★      | 15.875 | 6.35 | 1.6 | 6.35 |
| SNMG190612-RS | R        |        | ●      | ●      |        | 19.05  | 6.35 | 1.2 | 7.93 |
| SNMG190616-RS | R        |        | ★      | ●      | ★      | 19.05  | 6.35 | 1.6 | 7.93 |

## SNMG, TNMG – NEGATIVE INSERTS (WITH HOLE)

| Order number  |   | MP9005 | MP9015 | MP9025 | MT9015 | IC     | S    | RE  | D1   |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|------|-----|------|
|               |                                                                                                                                                                     |        |        |        |        |        |      |     |      |
| TNMG160402-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525  | 4.76 | 0.2 | 3.81 |
| TNMG160404-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525  | 4.76 | 0.4 | 3.81 |
| TNMG160408-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525  | 4.76 | 0.8 | 3.81 |
| TNMG160404-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525  | 4.76 | 0.4 | 3.81 |
| TNMG160408-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525  | 4.76 | 0.8 | 3.81 |
| TNMG160412-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ★      | 9.525  | 4.76 | 1.2 | 3.81 |
| TNMG220408-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ★      | 12.7   | 4.76 | 0.8 | 5.16 |
| TNMG220412-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ★      | 12.7   | 4.76 | 1.2 | 5.16 |
| TNMG160404-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 9.525  | 4.76 | 0.4 | 3.81 |
| TNMG160408-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 9.525  | 4.76 | 0.8 | 3.81 |
| TNMG160412-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 9.525  | 4.76 | 1.2 | 3.81 |
| TNMG220408-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 12.7   | 4.76 | 0.8 | 5.16 |
| TNMG220412-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 12.7   | 4.76 | 1.2 | 5.16 |
| TNMG220416-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 12.7   | 4.76 | 1.6 | 5.16 |
| TNMG270616-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 15.875 | 6.35 | 1.6 | 6.35 |
| TNMG330924-MA | M                                                                                                                                                                   |        | ●      | ●      |        | 19.05  | 9.52 | 2.4 | 7.93 |
| TNMG160404-MJ | M                                                                                                                                                                   | ●      | ●      |        |        | 9.525  | 4.76 | 0.4 | 3.81 |
| TNMG160408-MJ | M                                                                                                                                                                   | ●      | ●      |        |        | 9.525  | 4.76 | 0.8 | 3.81 |
| TNMG160412-MJ | M                                                                                                                                                                   | ●      | ●      |        |        | 9.525  | 4.76 | 1.2 | 3.81 |
| TNMG160408-RS | R                                                                                                                                                                   |        | ●      | ●      | ●      | 9.525  | 4.76 | 0.8 | 3.81 |
| TNMG160412-RS | R                                                                                                                                                                   |        | ●      | ●      | ●      | 9.525  | 4.76 | 1.2 | 3.81 |
| TNMG220408-RS | R                                                                                                                                                                   |        | ●      | ●      | ★      | 12.7   | 4.76 | 0.8 | 5.16 |
| TNMG220412-RS | R                                                                                                                                                                   |        | ●      | ●      | ★      | 12.7   | 4.76 | 1.2 | 5.16 |

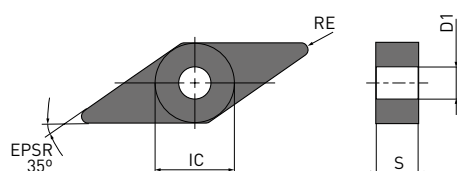
# VNMG, WNMG

## NEGATIVE INSERTS (WITH HOLE)

S

M Class

VNMG



### CHIPBREAKER IDENTIFICATION

APPLICATION

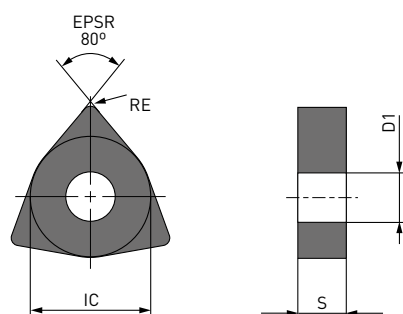


LS

MA, MJ, MS

RS

WNMG



| Order number  |   | MP9005 | MP9015 | MP9025 | MT9015 | IC    | S    | RE  | D1   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|------|-----|------|
|               |                                                                                                                                                                         |        |        |        |        |       |      |     |      |
| VNMG160402-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.2 | 3.81 |
| VNMG160404-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.4 | 3.81 |
| VNMG160408-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.8 | 3.81 |
| VNMG160404-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.4 | 3.81 |
| VNMG160408-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.8 | 3.81 |
| VNMG160404-MJ | M                                                                                                                                                                       | ●      | ●      |        |        | 9.525 | 4.76 | 0.4 | 3.81 |
| VNMG160408-MJ | M                                                                                                                                                                       | ●      | ●      |        |        | 9.525 | 4.76 | 0.8 | 3.81 |
| VNMG160412-MJ | M                                                                                                                                                                       | ●      | ●      |        |        | 9.525 | 4.76 | 1.2 | 3.81 |

## VNMG, WNMG – NEGATIVE INSERTS (WITH HOLE)

| Order number  | <br> | MP9005 | MP9015 | MP9025 | MT9015 | IC     | S    | RE  | D1   |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|------|-----|------|
|               |                                                                                                                                                                        |        |        |        |        |        |      |     |      |
| WNMG080402-LS | L                                                                                                                                                                      | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.2 | 5.16 |
| WNMG080404-LS | L                                                                                                                                                                      | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.4 | 5.16 |
| WNMG080408-LS | L                                                                                                                                                                      | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| WNMG080404-MS | M                                                                                                                                                                      | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.4 | 5.16 |
| WNMG080408-MS | M                                                                                                                                                                      | ●      | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| WNMG080412-MS | M                                                                                                                                                                      | ●      | ●      | ●      | ★      | 12.7   | 4.76 | 1.2 | 5.16 |
| WNMG080404-MA | M                                                                                                                                                                      |        | ●      | ●      |        | 12.7   | 4.76 | 0.4 | 5.16 |
| WNMG080408-MA | M                                                                                                                                                                      |        | ●      | ●      |        | 12.7   | 4.76 | 0.8 | 5.16 |
| WNMG080412-MA | M                                                                                                                                                                      |        | ●      | ●      |        | 12.7   | 4.76 | 1.2 | 5.16 |
| WNMG080416-MA | M                                                                                                                                                                      |        | ●      | ●      |        | 12.7   | 4.76 | 1.6 | 5.16 |
| WNMG080408-MJ | M                                                                                                                                                                      | ●      | ●      |        |        | 12.7   | 4.76 | 0.8 | 5.16 |
| WNMG080412-MJ | M                                                                                                                                                                      | ●      | ●      |        |        | 12.7   | 4.76 | 1.2 | 5.16 |
| WNMG080416-MJ | M                                                                                                                                                                      | ●      | ●      |        |        | 12.7   | 4.76 | 1.6 | 5.16 |
| WNMG080408-RS | R                                                                                                                                                                      |        | ●      | ●      | ●      | 12.7   | 4.76 | 0.8 | 5.16 |
| WNMG080412-RS | R                                                                                                                                                                      |        | ●      | ●      | ●      | 12.7   | 4.76 | 1.2 | 5.16 |
| WNMG080416-RS | R                                                                                                                                                                      |        | ●      | ●      | ★      | 12.7   | 4.76 | 1.6 | 5.16 |
| WNMG100612-RS | R                                                                                                                                                                      |        | ●      | ●      | ★      | 15.875 | 6.35 | 1.2 | 6.35 |

# MP / MT9000

## RECOMMENDED CUTTING CONDITIONS

### NEGATIVE INSERTS

| Material | Conditions |  |  | Grade  | Vc        | f           | ap        |
|----------|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------|-------------|-----------|
| M        | ●          | L                                                                                 | LS                                                                                | MP9005 | 125 – 175 | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9005 | 115 – 160 | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9015 | 105 – 150 | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ●          | L                                                                                 | LS                                                                                | MP9015 | 120 – 165 | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9015 | 110 – 150 | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9015 | 100 – 140 | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ✱          | L                                                                                 | LS                                                                                | MP9025 | 80 – 95   | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9025 | 75 – 90   | 0.16 – 0.50 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9025 | 70 – 85   | 0.20 – 0.35 | 1.0 – 4.0 |
| S        | ●          | L                                                                                 | LS                                                                                | MT9015 | 40 – 85   | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MT9015 | 40 – 80   | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MT9015 | 35 – 75   | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ●          | L                                                                                 | LS                                                                                | MT9015 | 40 – 85   | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MT9015 | 40 – 80   | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MT9015 | 35 – 75   | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ●          | L                                                                                 | LS                                                                                | MP9005 | 30 – 110  | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9005 | 30 – 100  | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9015 | 20 – 75   | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ●          | L                                                                                 | LS                                                                                | MP9015 | 25 – 85   | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9015 | 25 – 80   | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9015 | 20 – 75   | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ●          | L                                                                                 | LS                                                                                | MP9025 | 20 – 30   | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9025 | 20 – 30   | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9025 | 20 – 30   | 0.20 – 0.35 | 1.0 – 4.0 |
|          | ✱          | L                                                                                 | LS                                                                                | MP9005 | 30 – 110  | 0.10 – 0.25 | 0.2 – 0.8 |
|          |            | M                                                                                 | MS                                                                                | MP9005 | 30 – 100  | 0.10 – 0.25 | 0.5 – 4.0 |
|          |            | R                                                                                 | RS                                                                                | MP9015 | 20 – 75   | 0.20 – 0.35 | 1.0 – 4.0 |

1. When cutting conditions are unstable, please refer to page 4 for the recommended chipbreaker and grade.
2. Verify the recommended conditions for each boring bar as cutting conditions for internal machining will vary depending on the length of overhang.
3. MC7015, MC7025 and MP7035 grade are also recommended for precipitation hardening stainless steels.

### PRECISION NEGATIVE INSERTS

| Material | Conditions |  |  | Grade  | Vc       | f           | ap        |
|----------|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|----------|-------------|-----------|
| S        | ●          | F                                                                                   | FS                                                                                  | MT9015 | 45 – 95  | 0.05 – 0.20 | 0.1 – 0.7 |
|          |            | L                                                                                   | LS                                                                                  | MT9015 | 40 – 85  | 0.10 – 0.25 | 0.2 – 0.8 |
|          | ●          | F                                                                                   | FS                                                                                  | MT9015 | 45 – 95  | 0.05 – 0.20 | 0.1 – 0.7 |
|          |            | L                                                                                   | LS                                                                                  | MT9015 | 40 – 85  | 0.10 – 0.25 | 0.2 – 0.8 |
|          | ✱          | F                                                                                   | FS                                                                                  | MT9015 | 45 – 95  | 0.05 – 0.20 | 0.1 – 0.7 |
|          |            | L                                                                                   | LS                                                                                  | MT9015 | 40 – 85  | 0.10 – 0.25 | 0.2 – 0.8 |
|          | ●          | F                                                                                   | FS                                                                                  | MP9005 | 60 – 120 | 0.05 – 0.20 | 0.1 – 0.7 |
|          |            | L                                                                                   | LS                                                                                  | MP9005 | 55 – 110 | 0.10 – 0.25 | 0.2 – 0.8 |
|          | ●          | F                                                                                   | FS                                                                                  | MP9015 | 45 – 95  | 0.05 – 0.20 | 0.1 – 0.7 |
|          |            | L                                                                                   | LS                                                                                  | MP9015 | 40 – 85  | 0.10 – 0.25 | 0.2 – 0.8 |
|          | ✱          | F                                                                                   | FS                                                                                  | MP9025 | 35 – 50  | 0.05 – 0.20 | 0.1 – 0.7 |
|          |            | L                                                                                   | LS                                                                                  | MP9025 | 30 – 45  | 0.10 – 0.25 | 0.2 – 0.8 |

Cutting conditions: ●: Stable cutting ●: General cutting ✱: Unstable cutting

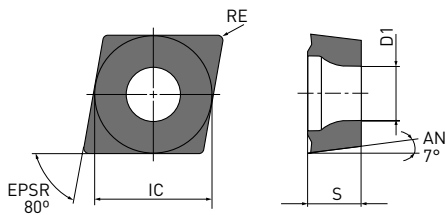
# CCMT, DCMT, SCMT

## 7° POSITIVE INSERTS (WITH HOLE)

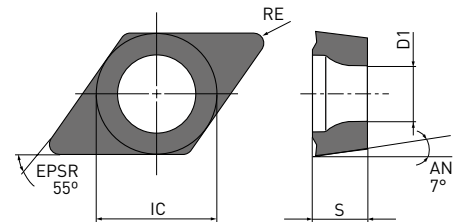
S

### M Class

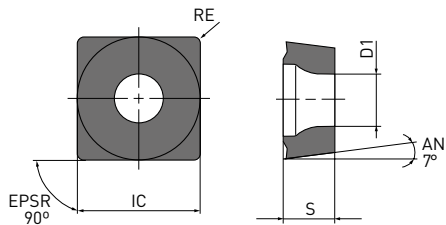
#### CCMT



#### DCMT



#### SCMT



#### CHIPBREAKER IDENTIFICATION

#### APPLICATION



LS



MS

| Order number  |   | MP9005 | MP9015 | MP9025 | MT9005 | IC    | S    | RE  | D1  |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|------|-----|-----|
| CCMT060202-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.2 | 2.8 |
| CCMT060204-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.4 | 2.8 |
| CCMT060202-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.2 | 2.8 |
| CCMT060204-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.4 | 2.8 |
| CCMT060208-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.8 | 2.8 |
| CCMT09T302-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.2 | 4.4 |
| CCMT09T304-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.4 | 4.4 |
| CCMT09T308-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.8 | 4.4 |
| CCMT09T302-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.2 | 4.4 |
| CCMT09T304-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.4 | 4.4 |
| CCMT09T308-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.8 | 4.4 |
| CCMT120404-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 12.7  | 4.76 | 0.4 | 5.5 |
| CCMT120408-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 12.7  | 4.76 | 0.8 | 5.5 |
| CCMT120412-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 12.7  | 4.76 | 1.2 | 5.5 |

## CCMT, DCMT, SCMT – 7° POSITIVE INSERTS (WITH HOLE)

| Order number  |   | MP9005 | MP9015 | MP9025 | MT9005 | IC    | S    | RE  | D1    |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|------|-----|-------|
| DCMT070202-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.2 | 2.8   |
| DCMT070204-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.4 | 2.8   |
| DCMT11T302-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.2 | 4.4   |
| DCMT11T304-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.4 | 4.4   |
| DCMT11T308-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.8 | 4.4   |
| DCMT11T312-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 1.2 | 4.4   |
| DCMT070204-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.4 | 2.8   |
| DCMT070208-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.8 | 2.8   |
| DCMT11T304-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.4 | 4.4   |
| DCMT11T308-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.8 | 4.4   |
| SCMT09T304-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.4 | 4.4   |
| SCMT09T308-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.8 | 4.4   |
| SCMT120404-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 12.7  | 4.76 | 0.4 | 5.5   |
| SCMT120408-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 12.7  | 4.76 | 0.8 | 5.5   |
| SCMT120412-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 12.7  | 4.76 | 1.2 | 5.5   |
|               |                                                                                                                                                                     |        |        |        |        |       |      |     | 2 / 2 |

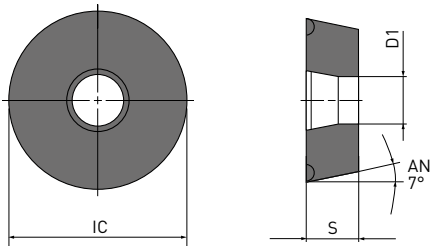
# RCMT

## 7° POSITIVE INSERTS (WITH HOLE)

S

M Class

RCMT



CHIPBREAKER IDENTIFICATION

APPLICATION



STD

| Order number |  | MP9005 | MP9015 | MP9025 | MT9005 | MT9015 | IC | S    | RE | D1  |
|--------------|-----------------------------------------------------------------------------------|--------|--------|--------|--------|--------|----|------|----|-----|
| RCMT0602M0   | M                                                                                 | ●      | ●      | ●      | ●      | ●      | 6  | 2.38 | –  | 2.8 |
| RCMT0803M0   | M                                                                                 | ●      | ●      | ●      | ●      | ●      | 8  | 3.18 | –  | 3.4 |
| RCMT10T3M0   | M                                                                                 | ●      | ●      | ●      | ●      | ●      | 10 | 3.97 | –  | 4.4 |
| RCMT1204M0   | M                                                                                 | ●      | ●      | ●      | ●      | ●      | 12 | 4.76 | –  | 4.4 |
| RCMT1606M0   | M                                                                                 | ●      | ●      | ●      | ●      | ●      | 16 | 6.35 | –  | 5.5 |

23 



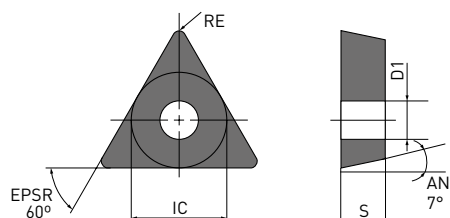
# TCMT, VBMT, VCMT

## 5° / 7° POSITIVE INSERTS (WITH HOLE)

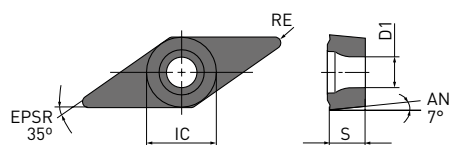
S

### M Class

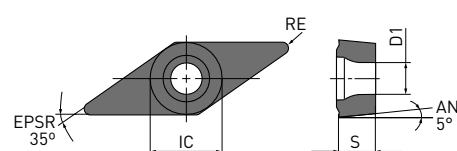
#### TCMT



#### VCMT



#### VBMT



#### CHIPBREAKER IDENTIFICATION

##### APPLICATION



LS

MS

| Order number  |   | MP9005 | MP9015 | MP9025 | MT9005 | IC    | S    | RE  | D1   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|------|-----|------|
| TCMT090202-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 5.56  | 2.38 | 0.2 | 2.5  |
| TCMT090204-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 5.56  | 2.38 | 0.4 | 2.5  |
| TCMT090208-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 5.56  | 2.38 | 0.8 | 2.5  |
| TCMT110202-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.2 | 2.8  |
| TCMT110204-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.4 | 2.8  |
| TCMT110208-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 2.38 | 0.8 | 2.8  |
| TCMT16T304-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.4 | 4.4  |
| TCMT16T308-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 0.8 | 4.4  |
| TCMT16T312-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 3.97 | 1.2 | 4.4  |
| VBMT110302-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.2 | 2.85 |
| VBMT110304-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.4 | 2.85 |
| VBMT110308-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.8 | 2.85 |
| VBMT160404-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.4 | 4.4  |
| VBMT160408-LS | L                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.8 | 4.4  |
| VBMT160402-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.2 | 4.43 |
| VBMT160404-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.4 | 4.4  |
| VBMT160408-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.8 | 4.4  |
| VBMT160412-MS | M                                                                                                                                                                       | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 1.2 | 4.43 |

**TCMT, VBMT, VCMT – 5°/7° POSITIVE INSERTS (WITH HOLE)**

| Order number  |   | MP9005 | MP9015 | MP9025 | MT9005 | IC    | S    | RE  | D1  |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|------|-----|-----|
| VCMT110302-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.2 | 2.8 |
| VCMT110304-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.4 | 2.8 |
| VCMT110302-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.2 | 2.8 |
| VCMT110304-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.4 | 2.8 |
| VCMT110308-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 6.35  | 3.18 | 0.8 | 2.8 |
| VCMT160404-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.4 | 4.4 |
| VCMT160408-LS | L                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.8 | 4.4 |
| VCMT160404-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.4 | 4.4 |
| VCMT160408-MS | M                                                                                                                                                                   | ●      | ●      | ●      | ●      | 9.525 | 4.76 | 0.8 | 4.4 |

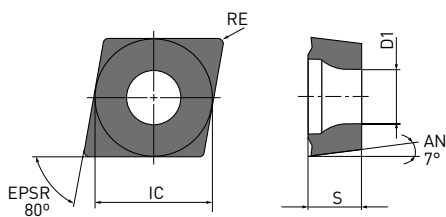
# CCGT, DCGT, VCGT

## 7° PRECISION POSITIVE INSERTS MINUS TOLERANCE (WITH HOLE)

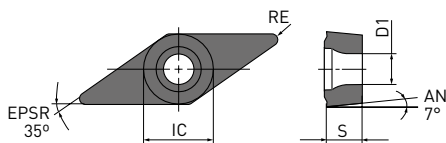
S

### G Class

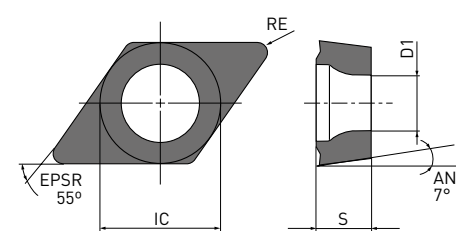
#### CCGT



#### VCGT



#### DCGT



#### CHIPBREAKER IDENTIFICATION

##### APPLICATION



FS

LS

| Order number   |   | MP9005 | MP9015 | MP9025 | IC    | S    | RE   | D1  |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------|------|------|-----|
| CCGT060201M-FS | F                                                                                                                                                                       | ●      | ●      | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| CCGT060201M-LS | L                                                                                                                                                                       | ●      | ●      | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| CCGT060202M-FS | F                                                                                                                                                                       | ●      | ●      | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| CCGT060202M-LS | L                                                                                                                                                                       | ●      | ●      | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| CCGT09T301M-FS | F                                                                                                                                                                       | ●      | ●      | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| CCGT09T301M-LS | L                                                                                                                                                                       | ●      | ●      | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| CCGT09T302M-FS | F                                                                                                                                                                       | ●      | ●      | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| CCGT09T302M-LS | L                                                                                                                                                                       | ●      | ●      | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| CCGT09T304M-FS | F                                                                                                                                                                       | ●      | ●      | ●      | 9.525 | 3.97 | 0.38 | 4.4 |
| CCGT09T304M-LS | L                                                                                                                                                                       | ●      | ●      | ●      | 9.525 | 3.97 | 0.38 | 4.4 |

## CCGT, DCGT, VCGT - 7° PRECISION POSITIVE INSERTS MINUS TOLERANCE (WITH HOLE)

| Order number   |  | MP9005 | MP9015 | MP9025 | IC    | S    | RE   | D1  |
|----------------|-----------------------------------------------------------------------------------|--------|--------|--------|-------|------|------|-----|
|                |                                                                                   |        |        |        |       |      |      |     |
| DCGT070201M-FS | F                                                                                 | ●      | ●      | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| DCGT070201M-LS | L                                                                                 | ●      | ●      | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| DCGT070202M-FS | F                                                                                 | ●      | ●      | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| DCGT070202M-LS | L                                                                                 | ●      | ●      | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| DCGT070204M-FS | F                                                                                 | ●      | ●      | ●      | 6.35  | 2.38 | 0.38 | 2.8 |
| DCGT070204M-LS | L                                                                                 | ●      | ●      | ●      | 6.35  | 2.38 | 0.38 | 2.8 |
| DCGT11T301M-FS | F                                                                                 | ●      | ●      | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| DCGT11T301M-LS | L                                                                                 | ●      | ●      | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| DCGT11T302M-FS | F                                                                                 | ●      | ●      | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| DCGT11T302M-LS | L                                                                                 | ●      | ●      | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| DCGT11T304M-FS | F                                                                                 | ●      | ●      | ●      | 9.525 | 3.97 | 0.38 | 4.4 |
| DCGT11T304M-LS | L                                                                                 | ●      | ●      | ●      | 9.525 | 3.97 | 0.38 | 4.4 |
| VCGT110301M-LS | L                                                                                 | ●      | ●      | ●      | 6.35  | 3.18 | 0.08 | 2.8 |
| VCGT110302M-LS | L                                                                                 | ●      | ●      | ●      | 6.35  | 3.18 | 0.18 | 2.8 |
| VCGT110304M-LS | L                                                                                 | ●      | ●      | ●      | 6.35  | 3.18 | 0.38 | 2.8 |
| VCGT130301M-LS | L                                                                                 | ●      | ●      | ●      | 7.94  | 3.18 | 0.08 | 3.4 |
| VCGT130302M-LS | L                                                                                 | ●      | ●      | ●      | 7.94  | 3.18 | 0.18 | 3.4 |
| VCGT130304M-LS | L                                                                                 | ●      | ●      | ●      | 7.94  | 3.18 | 0.38 | 3.4 |

# CCGT, DCGT, VCGT

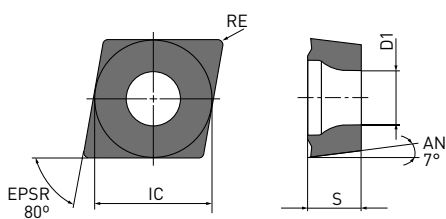
## 7° PRECISION POSITIVE INSERTS

## MINUS TOLERANCE / POLISHED (WITH HOLE)

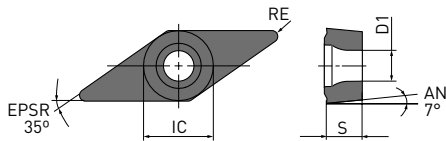
S

### G Class

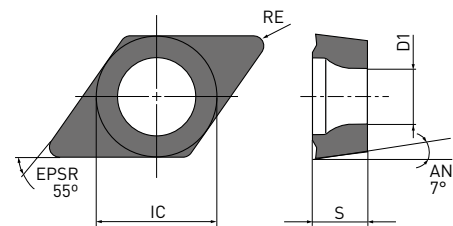
#### CCGT



#### VCGT



#### DCGT



#### CHIPBREAKER IDENTIFICATION

##### APPLICATION



FS-P

LS-P

| Order number     |   | MT9005 | IC    | S    | RE   | D1  |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|------|------|-----|
| CCGT060201M-FS-P | F                                                                                                                                                                       | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| CCGT060202M-FS-P | F                                                                                                                                                                       | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| CCGT09T301M-FS-P | F                                                                                                                                                                       | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| CCGT09T302M-FS-P | F                                                                                                                                                                       | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| CCGT09T304M-FS-P | F                                                                                                                                                                       | ●      | 9.525 | 3.97 | 0.38 | 4.4 |
| DCGT070201M-FS-P | F                                                                                                                                                                       | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| DCGT070202M-FS-P | F                                                                                                                                                                       | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| DCGT070204M-FS-P | F                                                                                                                                                                       | ●      | 6.35  | 2.38 | 0.38 | 2.8 |
| DCGT11T301M-FS-P | F                                                                                                                                                                       | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| DCGT11T302M-FS-P | F                                                                                                                                                                       | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| DCGT11T304M-FS-P | F                                                                                                                                                                       | ●      | 9.525 | 3.97 | 0.38 | 4.4 |

## CCGT, DCGT, VCGT – 7° PRECISION POSITIVE INSERTS MINUS TOLERANCE / POLISHED (WITH HOLE)

| Order number     |  | MT9005 | IC    | S    | RE   | D1  |
|------------------|-----------------------------------------------------------------------------------|--------|-------|------|------|-----|
| CCGT060201M-LS-P | L                                                                                 | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| CCGT060202M-LS-P | L                                                                                 | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| CCGT09T301M-LS-P | L                                                                                 | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| CCGT09T302M-LS-P | L                                                                                 | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| CCGT09T304M-LS-P | L                                                                                 | ●      | 9.525 | 3.97 | 0.38 | 4.4 |
| DCGT070201M-LS-P | L                                                                                 | ●      | 6.35  | 2.38 | 0.08 | 2.8 |
| DCGT070202M-LS-P | L                                                                                 | ●      | 6.35  | 2.38 | 0.18 | 2.8 |
| DCGT070204M-LS-P | L                                                                                 | ●      | 6.35  | 2.38 | 0.38 | 2.8 |
| DCGT11T301M-LS-P | L                                                                                 | ●      | 9.525 | 3.97 | 0.08 | 4.4 |
| DCGT11T302M-LS-P | L                                                                                 | ●      | 9.525 | 3.97 | 0.18 | 4.4 |
| DCGT11T304M-LS-P | L                                                                                 | ●      | 9.525 | 3.97 | 0.38 | 4.4 |
| VCGT110301M-LS-P | L                                                                                 | ●      | 6.35  | 3.18 | 0.08 | 2.8 |
| VCGT110302M-LS-P | L                                                                                 | ●      | 6.35  | 3.18 | 0.18 | 2.8 |
| VCGT110304M-LS-P | L                                                                                 | ●      | 6.35  | 3.18 | 0.38 | 2.8 |
| VCGT130301M-LS-P | L                                                                                 | ●      | 7.94  | 3.18 | 0.08 | 3.4 |
| VCGT130302M-LS-P | L                                                                                 | ●      | 7.94  | 3.18 | 0.18 | 3.4 |
| VCGT130304M-LS-P | L                                                                                 | ●      | 7.94  | 3.18 | 0.38 | 3.4 |

1. FS-P/LS-P: polished chipbreaker for improved chip evacuation.

# MP / MT9000

## RECOMMENDED CUTTING CONDITIONS

### PRECISION POSITIVE INSERTS

| Material | Conditions                                                                |  |  | Grade | Vc     | f     | ap        |         |
|----------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|--------|-------|-----------|---------|
| M        | Precipitation hardening stainless steels<br>(DIN X5CrNiCuNb17-4)          | ●                                                                                 | F                                                                                 | FS    | MP9005 | 40–80 | 0.04–0.10 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS    | MP9005 | 40–80 | 0.04–0.15 | 0.3–2.0 |
|          |                                                                           | ●                                                                                 | F                                                                                 | FS    | MP9015 | 40–80 | 0.04–0.10 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS    | MP9015 | 40–80 | 0.04–0.15 | 0.3–2.0 |
|          |                                                                           | ✱                                                                                 | L                                                                                 | LS    | MP9015 | 30–60 | 0.04–0.10 | 0.3–1.0 |
| S        | Titanium alloy<br>(Ti-6Al-4V)                                             | ●                                                                                 | F                                                                                 | FS-P  | MT9005 | 40–80 | 0.04–0.12 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS-P  | MT9005 | 40–80 | 0.04–0.20 | 0.3–3.0 |
|          |                                                                           | ●                                                                                 | F                                                                                 | FS-P  | MT9005 | 40–80 | 0.04–0.12 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS-P  | MT9005 | 40–80 | 0.04–0.12 | 0.3–2.0 |
|          |                                                                           | ✱                                                                                 | L                                                                                 | LS-P  | MT9005 | 30–60 | 0.04–0.10 | 0.2–1.4 |
|          | Cobalt chromium alloys<br>(Co-Cr-Mo Alloys)                               | ●                                                                                 | F                                                                                 | FS    | MP9005 | 40–80 | 0.04–0.10 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS    | MP9005 | 40–80 | 0.04–0.15 | 0.2–2.0 |
|          | Precipitation hardening stainless steels<br>(X5CrNiCuNb17-4)              | ●                                                                                 | F                                                                                 | FS    | MP9015 | 40–80 | 0.04–0.10 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS    | MP9015 | 40–80 | 0.04–0.15 | 0.3–2.0 |
|          |                                                                           | ✱                                                                                 | L                                                                                 | LS    | MP9015 | 30–60 | 0.04–0.10 | 0.3–1.0 |
|          | Ni-based heat-resistant alloy<br>(Inconel®718, Hastelloy®,<br>WASPALLOY®) | ●                                                                                 | F                                                                                 | FS    | MP9015 | 25–95 | 0.04–0.12 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS    | MP9015 | 25–95 | 0.04–0.12 | 0.3–2.0 |
|          |                                                                           | ●                                                                                 | F                                                                                 | FS    | MP9015 | 20–75 | 0.04–0.12 | 0.2–1.4 |
|          |                                                                           |                                                                                   | L                                                                                 | LS    | MP9015 | 20–75 | 0.04–0.12 | 0.3–2.0 |
|          |                                                                           | ✱                                                                                 | L                                                                                 | LS    | MP9015 | 20–60 | 0.04–0.10 | 0.3–1.0 |

1. Verify the recommended conditions for each boring bar as the cutting conditions for internal machining will vary depending on the length of overhang.

### POSITIVE INSERTS

Cutting conditions : ●: Stable cutting ●: General cutting ✱: Unstable cutting

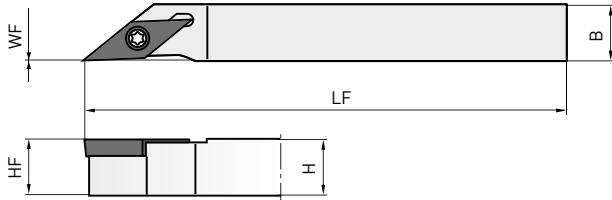
| Material |                                                                           | Conditions                                                                          |  |  | Grade  | Vc        | f           | ap        |
|----------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|-----------|-------------|-----------|
| M        | Precipitation hardening stainless steels<br>(DIN X5CrNiCuNb17-4)          |  | L                                                                                   | LS                                                                                  | MP9015 | 105 – 140 | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MP9015 | 85 – 120  | 0.08 – 0.25 | 0.3 – 2.0 |
|          |                                                                           |  | L                                                                                   | LS                                                                                  | MP9015 | 105 – 140 | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MP9015 | 85 – 120  | 0.08 – 0.25 | 0.3 – 2.0 |
|          |                                                                           |  | L                                                                                   | LS                                                                                  | MP9025 | 70 – 80   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MP9025 | 60 – 70   | 0.08 – 0.25 | 0.3 – 2.0 |
| S        | Titanium alloy<br>(Ti-6Al-4V)                                             |  | L                                                                                   | LS                                                                                  | MT9005 | 40 – 80   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MT9005 | 35 – 65   | 0.08 – 0.25 | 0.3 – 2.0 |
|          |                                                                           |  | L                                                                                   | LS                                                                                  | MT9005 | 40 – 80   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MT9005 | 35 – 65   | 0.08 – 0.25 | 0.3 – 2.0 |
|          |                                                                           |  | L                                                                                   | LS                                                                                  | MT9005 | 40 – 80   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MT9005 | 35 – 65   | 0.08 – 0.25 | 0.3 – 2.0 |
|          | Ni-based heat-resistant alloy<br>(Inconel®718, Hastelloy®,<br>WASPALLOY®) |  | L                                                                                   | LS                                                                                  | MP9005 | 25 – 95   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MP9005 | 20 – 80   | 0.08 – 0.25 | 0.3 – 2.0 |
|          |                                                                           |  | L                                                                                   | LS                                                                                  | MP9015 | 20 – 75   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MP9015 | 20 – 75   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |  | L                                                                                   | LS                                                                                  | MP9025 | 15 – 25   | 0.06 – 0.20 | 0.2 – 1.0 |
|          |                                                                           |                                                                                     | M                                                                                   | MS                                                                                  | MP9025 | 15 – 30   | 0.08 – 0.25 | 0.3 – 2.0 |

1. Verify the recommended conditions for each boring bar as the cutting conditions for internal machining will vary depending on the length of overhang.

Cutting conditions : ●: Stable cutting ●: General cutting ✱: Unstable cutting

# SVJC

## TOOL HOLDER FOR VC\*T11 / 13 INSERTS



| Order number       | Stock |   | Insert | H  | B  | LF  | HF | LH | WF | Insert screw | Wrench |
|--------------------|-------|---|--------|----|----|-----|----|----|----|--------------|--------|
|                    | R     | L |        |    |    |     |    |    |    |              |        |
| SVJCR/L1010JX11-SM | ●     | ● | VCGT   | 10 | 10 | 120 | 10 | 22 | 0  | TS255        | TKY08R |
| SVJCR/L1212JX11-SM | ●     | ● |        | 12 | 12 | 120 | 12 | 22 | 0  |              |        |
| SVJCR/L1616JX11-SM | ●     | ● |        | 16 | 16 | 120 | 16 | 22 | 0  |              |        |
| SVJCR/L1010JX13-SM | ●     | ● | VCGT   | 10 | 10 | 120 | 10 | 26 | 0  | TS32         | TKY08R |
| SVJCR/L1212JX13-SM | ●     | ● |        | 12 | 12 | 120 | 12 | 26 | 0  |              |        |
| SVJCR/L1616JX13-SM | ●     | ● |        | 16 | 16 | 120 | 16 | 26 | 0  |              |        |

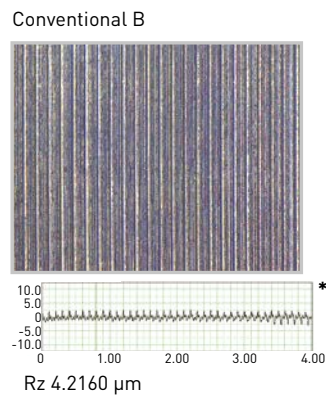
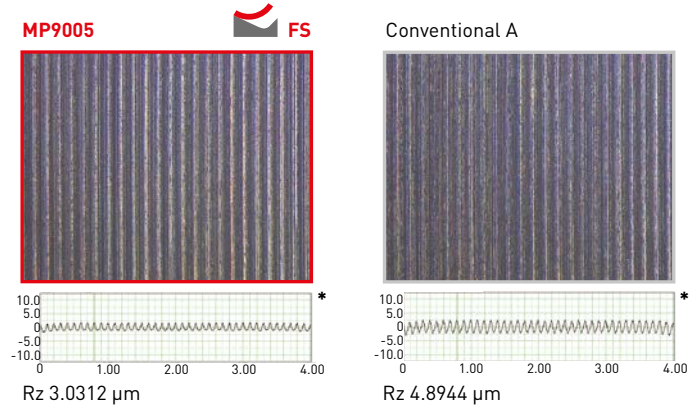


# CUTTING PERFORMANCE

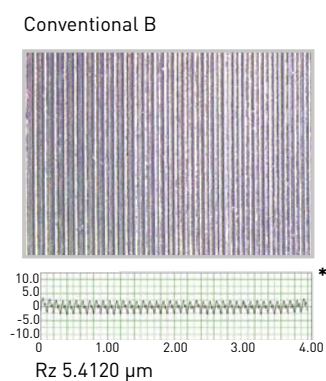
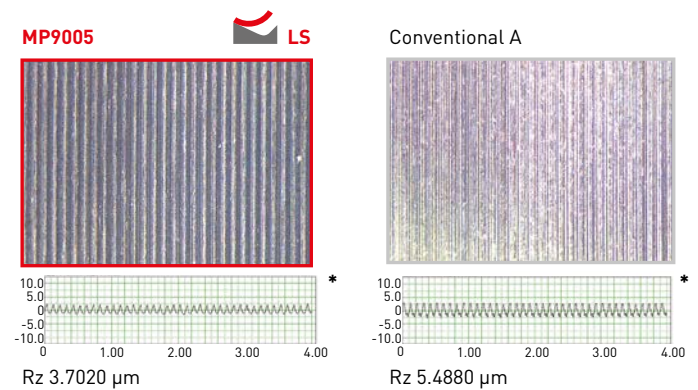
## COMPARISON OF FINISHED SURFACE OF INCONEL® 718

Excellent machining and chip breaking abilities provide good surface finishes.

|              |              |
|--------------|--------------|
| Material     | Inconel® 718 |
| Insert       | CNGG120404   |
| Vc (m/min)   | 50           |
| f (mm/rev)   | 0.1          |
| ap (mm)      | 0.2          |
| Cutting mode | Wet cutting  |



|              |              |
|--------------|--------------|
| Material     | Inconel® 718 |
| Insert       | CNGG120404   |
| Vc (m/min)   | 50           |
| f (mm/rev)   | 0.1          |
| ap (mm)      | 0.5          |
| Cutting mode | Wet cutting  |



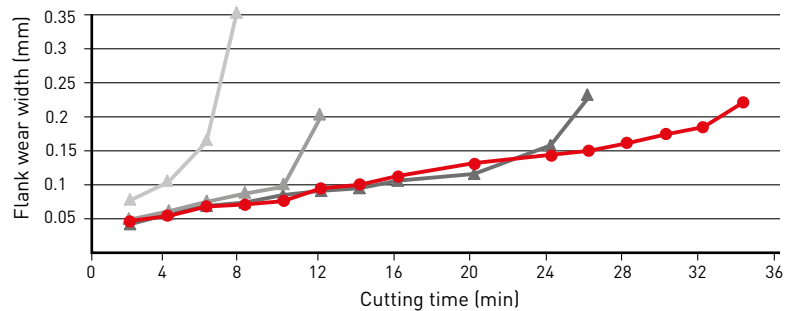
\* Roughness curve  
Vertical scale: x 2.000.00  
Horizontal scale: x 50.00

# CUTTING PERFORMANCE

## INCONEL®718, CONTINUOUS MACHINING

|              |               |
|--------------|---------------|
| Material     | Inconel®718   |
| Insert       | CNMG120408-MS |
| Vc (m/min)   | 60            |
| f (mm/rev)   | 0.15          |
| ap (mm)      | 0.75          |
| Cutting mode | Wet cutting   |

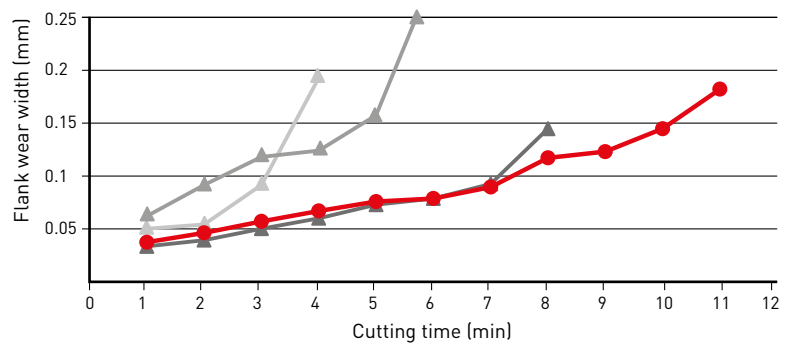
**28 % Increased tool life**



## INCONEL®718, CONTINUOUS MACHINING

|              |               |
|--------------|---------------|
| Material     | Inconel®718   |
| Insert       | CNMG120408-MS |
| Vc (m/min)   | 100           |
| f (mm/rev)   | 0.15          |
| ap (mm)      | 0.5           |
| Cutting mode | Wet cutting   |

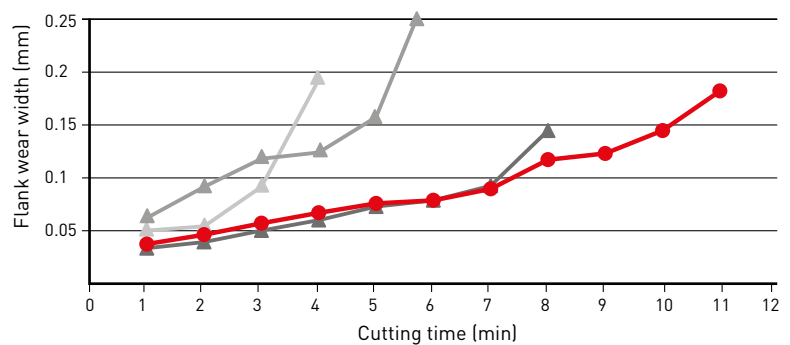
**Increased tool life by 37%**



## INCONEL®718, CONTINUOUS MACHINING

|              |               |
|--------------|---------------|
| Material     | Inconel®718   |
| Insert       | CNMG120408-RS |
| Vc (m/min)   | 40            |
| f (mm/rev)   | 0.2           |
| ap (mm)      | 2.0           |
| Cutting mode | Wet cutting   |

**Increased tool life by 33%**



—●— MP9005/15 —▲— Conventional A

—▲— Conventional B

—▲— Conventional C

# WASPALLOY® MACHINING

## MP9015 WITH RS BREAKER DISPLAYED THE LEAST DAMAGE

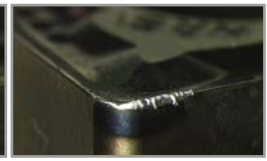
|                    |               |
|--------------------|---------------|
| Material           | WASPALLOY®    |
| Insert             | CNMG120408-RS |
| Vc (m/min)         | 29            |
| f (mm/rev)         | 0.22          |
| ap (mm)            | 4.0           |
| Cutting time (min) | 7             |
| Cutting mode       | Wet cutting   |



MP9015 - RS



Conventional A

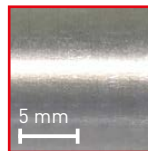


Conventional B

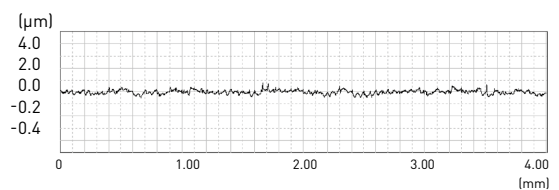
## TITANIUM ALLOY, COMPARISON OF SURFACE FINISH

|              |                  |
|--------------|------------------|
| Material     | Ti-6Al-6V(325HB) |
| Insert       | CNMG120408-LS    |
| Vc (m/min)   | 70               |
| f (mm/rev)   | 0.05             |
| ap (mm)      | 0.25             |
| Cutting mode | Wet cutting      |

Glossy surface

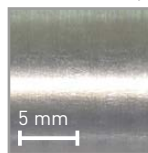


MT9015 - LS

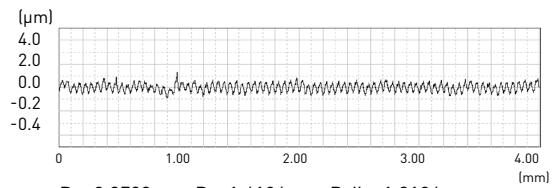


### Excellent surface finish

White turbidity

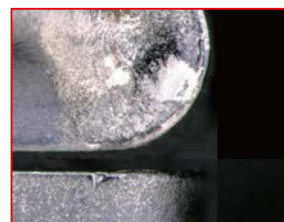
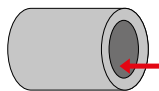


Conventional



## MP9015 WITH LS BREAKER DISPLAYED THE LEAST DAMAGE

|              |                           |
|--------------|---------------------------|
| Material     | Heat-resistant cast steel |
| Insert       | DCMT11T304-LS             |
| Vc (m/min)   | 100                       |
| f (mm/rev)   | 0.1                       |
| ap (mm)      | 0.25                      |
| Cutting mode | Wet cutting               |



MP9015 - LS

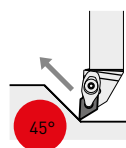


Conventional

## CHIP CONTROL WHEN TAPER TURNING

Non-tangling of chips when back turning Inconel®718.

|              |               |
|--------------|---------------|
| Material     | Inconel®718   |
| Insert       | DNMG150408-MS |
| Vc (m/min)   | 40            |
| f (mm/rev)   | 0.2           |
| ap (mm)      | 1.0           |
| Cutting mode | Wet cutting   |

MS Chipbreaker  
(New design)

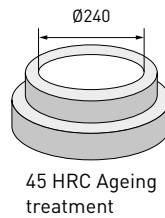
Conventional

# APPLICATION EXAMPLES

|                    |                                           |
|--------------------|-------------------------------------------|
| Insert             | DNMG150408-MS (MP9005)                    |
| Workpiece material | Inconel <sup>®</sup> 718 (Ni-based Alloy) |
| Cutting mode       | Wet cutting                               |
| Vc (m/min)         | 60                                        |
| f (mm/rev)         | 0.15                                      |
| ap (mm)            | 0.25                                      |
| Component          | Disc-Aerospace component                  |

Result

MP9005 – Stable machining, less wear plus long tool life without chip tangling.



**MP9005 + MS**

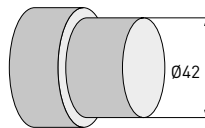


Conventional (S10)

|                    |                                                  |
|--------------------|--------------------------------------------------|
| Insert             | CNMG120408-RS (MP9015)                           |
| Workpiece material | HAYNES <sup>®</sup> alloy 25 (Ni,Co-based alloy) |
| Cutting mode       | Wet cutting                                      |
| Vc (m/min)         | 34                                               |
| f (mm/rev)         | 0.20                                             |
| ap (mm)            | 1.5                                              |
| Component          | Cover plate-Aerospace component                  |

Result

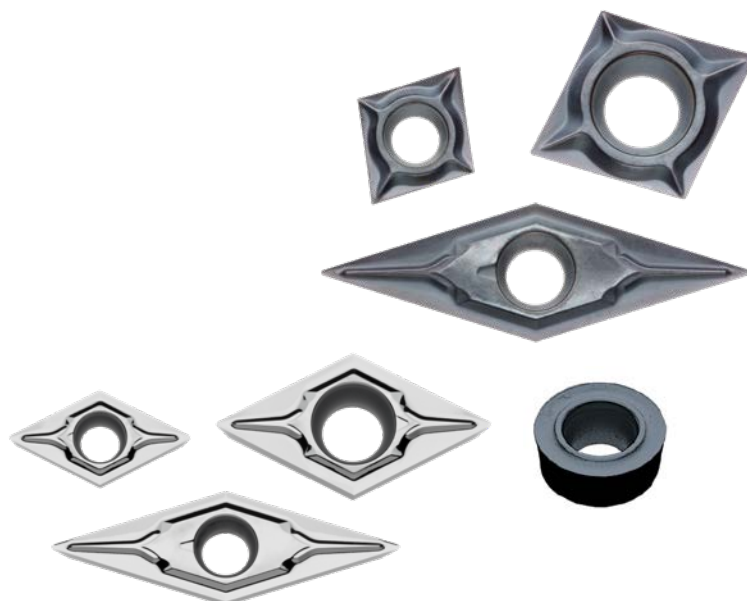
Both conventional and MP9015 display some notch wear, but the wear on the conventional grade was much larger and exposed the substrate.



**MP9015 + RS**



Conventional (S10)



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