

THE NEW VALUE FRONTIER



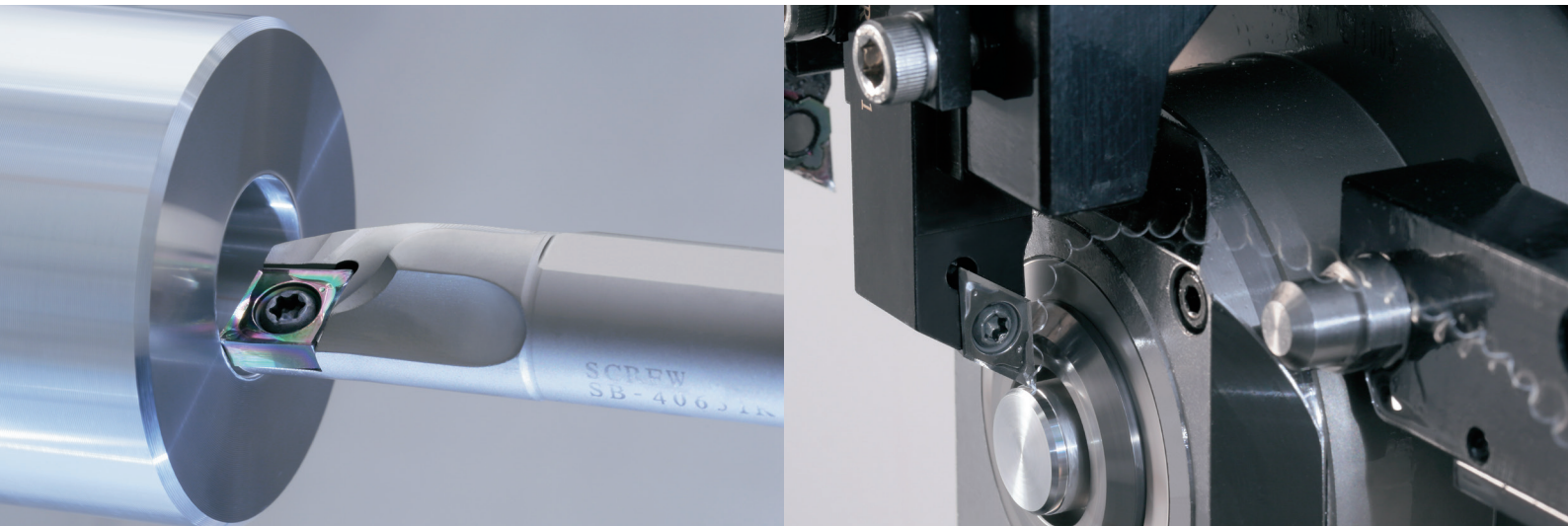
Positive Chipbreaker for
Aluminum Finishing

AP Chipbreaker

Positive Chipbreaker for Aluminum Finishing

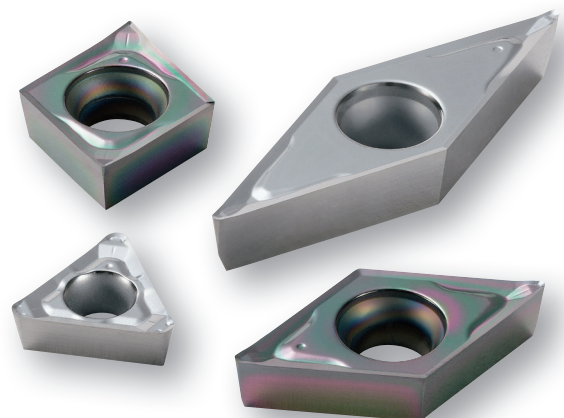
AP Chipbreaker

NEW



Provides Excellent Surface Finish when Finishing Aluminum

**Improved Chip Control during Aluminum Finishing Applications
Combination of Sharp Cutting Edge and DLC Coating Prevents Burrs**

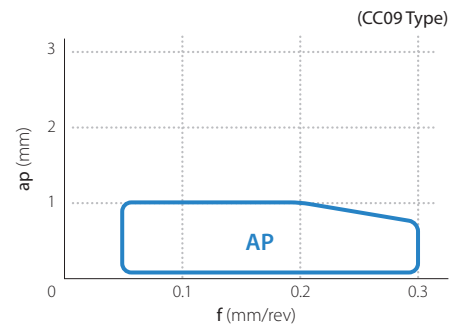


Positive Chipbreaker for Aluminum Finishing

AP Chipbreaker

Improved Chip Control during Aluminum Finishing Applications

Applicable Chipbreaker Range



1 Improved Chip Control during Finishing

Optimized chipbreaker provides better chip control

Concave Face
Excellent chip control when finishing at large D.O.C.

Large Rake Angle
Sharp cutting edge suppresses cutting forces

Curved Cutting Edge
Curved corner edge creates better chip flow

Optimized rake and bottom surface design
Creates small curled chips

Chipbreaker corner cross-section

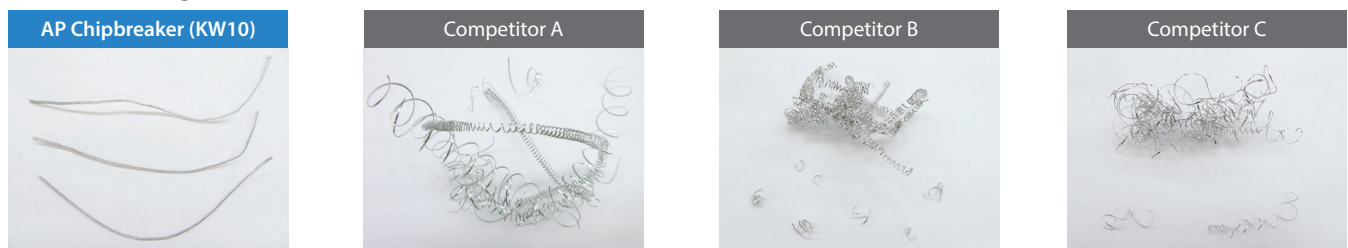
Chip Control Comparison (Internal Evaluation)

External Turning



Cutting Conditions : $V_c = 400$ m/min, $a_p = 0.5$ mm, $f = 0.15$ mm/rev, Wet, CC ** 09T304 Type
Workpiece : A6061

Internal Turning

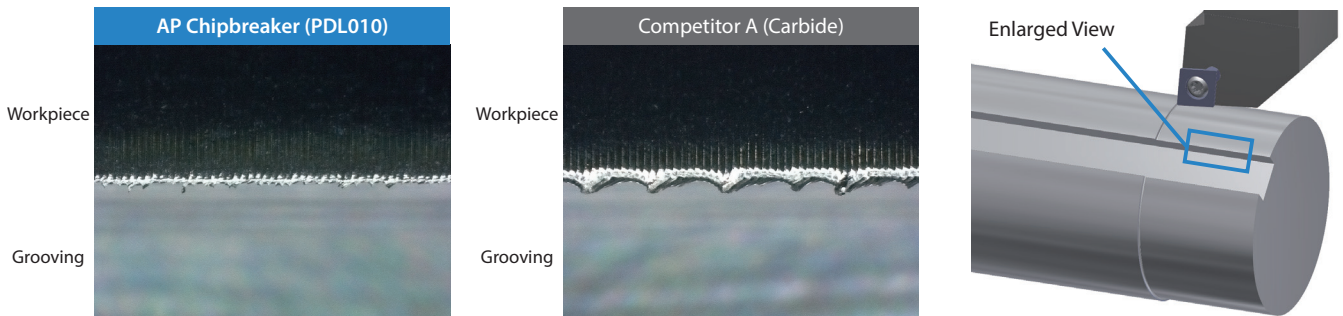


Cutting Conditions : $V_c = 400$ m/min, $a_p = 0.3$ mm, $f = 0.15$ mm/rev, Wet, CC ** 09T304 Type
Workpiece : A6061

AP chipbreaker showed better chip control than competitors for both external and internal turning

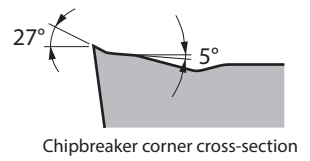
2 Sharp Cutting Edge and DLC Coating Prevent Burrs

Burr Comparison when Exiting the Hole (Internal Evaluation)

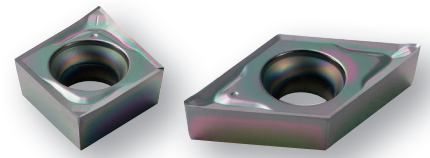


AP Chipbreaker (PDL010) suppressed burrs of exiting the hole

Cutting Conditions : Vc = 400 m/min, ap = 0.25 mm, f = 0.12 mm/rev, CC **09T304 Type, Wet, External Turning
Workpiece : A5052

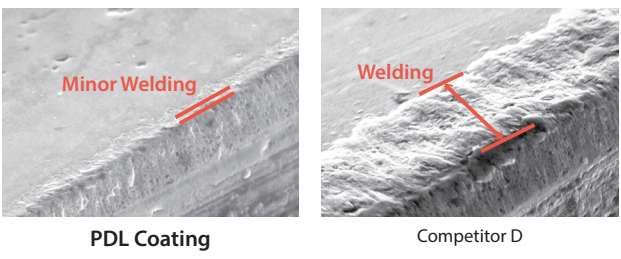


3 DLC Coated Grade PDL010 is Available



Excellent Surface Finish with Aluminum Welding Resistance

Welding Resistance Comparison (Internal Evaluation)

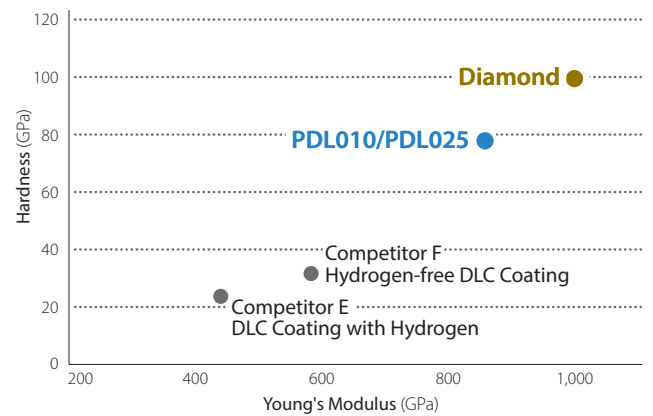


Cutting Conditions : Vc = 800 m/min, fz = 0.1 mm/t, ap x ae = 3 x 5 mm, Dry
Cutter Dia. ø25 mm Workpiece : A5052 Cutting Length : 57 m


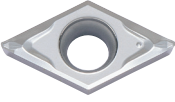
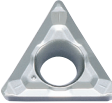
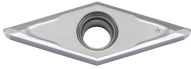
Achieves Long Tool Life with Hardness Close to that of Diamond

High Hardness with Kyocera's Proprietary Hydrogen-free DLC Coating

Coating Properties (Internal Evaluation)



Stock Items

| Shape | Description | Dimensions (mm) | | | | | Grade | |
|--|---------------|-----------------|-----------|------|---------------|--------------|-------------|---------|
| | | I.C. | Thickness | Hole | Corner-R (RE) | Relief Angle | DLC coating | Carbide |
| | | | | | | | PDL010 | KW10 |
| Finishing  Sharp Edge / Mirror Surface Finish | CCGT 060202AP | 6.35 | 2.38 | 2.8 | 0.2 | 7° | ● | ● |
| | 060204AP | | | | 0.4 | | ● | ● |
| | CCGT 09T302AP | 9.525 | 3.97 | 4.4 | 0.2 | | ● | ● |
| | 09T304AP | | | | 0.4 | | ● | ● |
| | 09T308AP | | | | 0.8 | | ● | ● |
| Finishing  Sharp Edge / Mirror Surface Finish | DCGT 070202AP | 6.35 | 2.38 | 2.8 | 0.2 | 7° | ● | ● |
| | 070204AP | | | | 0.4 | | ● | ● |
| | DCGT 11T302AP | 9.525 | 3.97 | 4.4 | 0.2 | | ● | ● |
| | 11T304AP | | | | 0.4 | | ● | ● |
| | 11T308AP | | | | 0.8 | | ● | ● |
| Finishing  Sharp Edge / Mirror Surface Finish | TPGT 090202AP | 5.56 | 2.38 | 2.8 | 0.2 | 7° | ● | ● |
| | 090204AP | | | | 0.4 | | ● | ● |
| | 090208AP | | | | 0.8 | | ● | ● |
| | TPGT 110302AP | 6.35 | 3.18 | 3.3 | 0.2 | 11° | ● | ● |
| | 110304AP | | | | 0.4 | | ● | ● |
| | 110308AP | | | | 0.8 | | ● | ● |
| Finishing  Sharp Edge / Mirror Surface Finish | VCGT 160404AP | 9.525 | 4.76 | 4.4 | 0.4 | 7° | ● | ● |

● : Standard Stock

Applicable Chipbreaker Range

