Member IMC Group
Tungaloy

TurnLine

For more information

Grades for small parts machining

SH7025 Success cases

Superior surface quality and process security in small part machining

TUNGALOY ADDFORCE ACCELERATED LINES

Explore a series of success stories in the upcoming pages that highlight how the latest-generation grade **SH7025** has triumphantly resolved challenges in Automatic Lathe Processing, including achieving superior surface quality, eliminating burr formation, and mastering chip control.

03
Surface Quality

06
Burr Formation

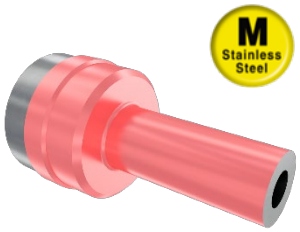
08
Chip Control

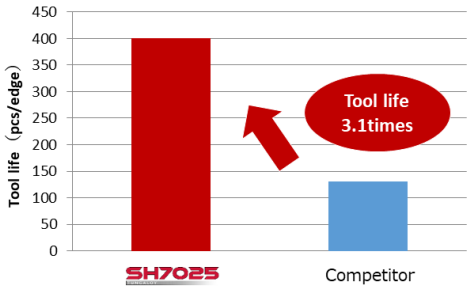
Success examples to improve Surface Quality

CASE 1

Part: LM guide
Work material: SUS316
Insert: DCGT11T302FN-JP
Grade: SH7025

Cutting conditions:
Vc = 150 (m/min)
f = 0.03 (mm/rev)
ap = 0.1 (mm)
Application: External turning
Coolant: Wet



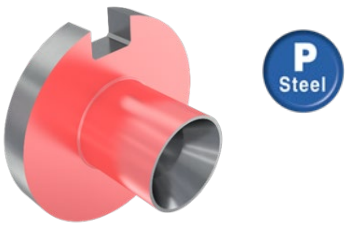


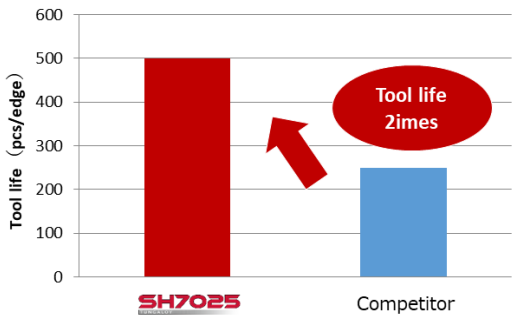
Result:
In competitor's product, the machining surface quality was bad due to adhesion to the cutting edge. SH7025 suppressed the occurrence of adhesion and maintained the quality of the machining surface, extending tool life.

CASE 2

Part: Flange
Work material: SUM23
Insert: DCGT11T302FN-JP
Grade: SH7025

Cutting conditions:
Vc = 143 (m/min)
f = 0.03 -0.05 (mm/rev)
ap = 2.5 (mm)
Application: Facing, External turning
Coolant: Wet





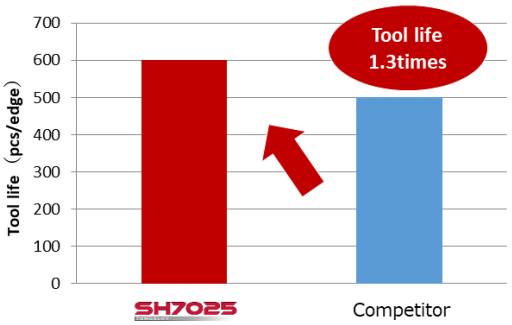
Result:
Competitor's product had problems of the bad machining surface due to the progression of damage to the cutting edge, resulting in defective products. SH7025 suppressed the occurrence of streaks and achieved up to a 2.0 times longer lifespan.

Success examples to improve Surface Quality

CASE 3

Part: Adjustment screw
Work material: SUM23
Insert: DCGT11T302FN-JP
Grade: SH7025

Cutting conditions:
Vc = 37 (m/min)
f = 0.05 (mm/rev)
ap = 0.5 (mm)
Application: Facing, External turning
Coolant: Wet

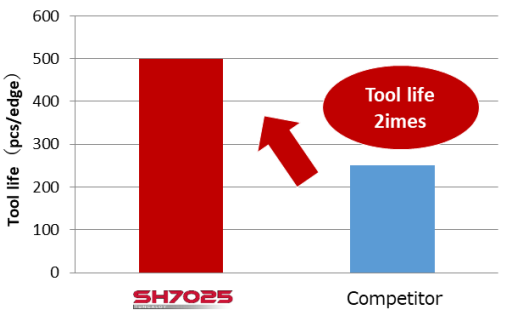


Result:
Competitor's product had issues with the bad machining surface due to adhesion at the cutting edge. SH7025 was capable of suppressing this adhesion, maintaining a high-quality machining surface and achieving a 1.3 times extension in tool life.

CASE 4

Part: Delivery valve
Work material: SUS430
Insert: DCGT11T301FN-JS
Grade: SH7025

Cutting conditions:
Vc = 125 (m/min)
f = 0.03 (mm/rev)
ap = 0.2 (mm)
Application: External turning
Coolant: Wet



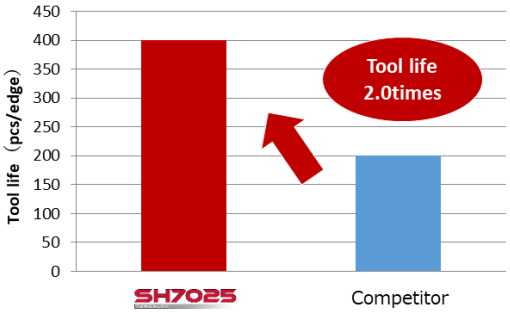
Result:
Competitor's product experienced bad machining surface quality problems due to wear progression and reached their lifespan prematurely. SH7025 significantly suppressed wear progression, achieving double the lifespan extension.

Success examples to improve Surface Quality

CASE 5

Part: Separated pipe
Work material: S45C
Insert: DCGT11T302FN-JS
Grade: SH7025

Cutting conditions:
Vc = 150 (m/min)
f = 0.04 (mm/rev)
ap = 1 (mm)
Application: External turning
Coolant: Wet

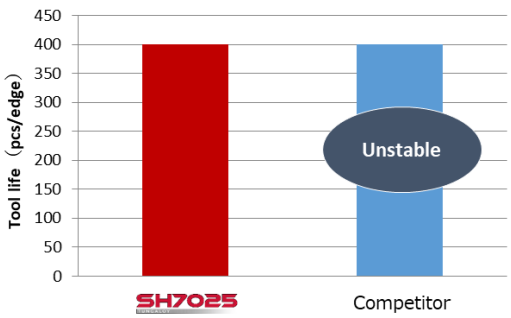


Result:
Competitor's product had issues with surface roughness worsening near the machining constant. SH7025 greatly suppressed the progression of damage to the cutting edge, maintaining good machining surface roughness, and achieving double the lifespan extension!

CASE 6

Part: Spool pin
Work material: SCM440
Insert: DCGT11T302FN-JS
Grade: SH7025

Cutting conditions:
Vc = 123 (m/min)
f = 0.08 (mm/rev)
ap = 0.5 (mm)
Application: External turning
Coolant: Wet

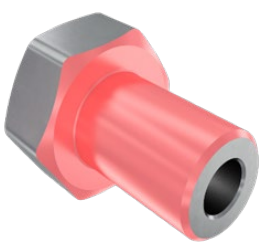


Result:
Variations in the machining surface roughness near the machining constant due to adhesion to the cutting edge were an issue with Competitor's product. SH7025 suppressed the occurrence of welding, achieving excellent machining surface quality and stable processing! !

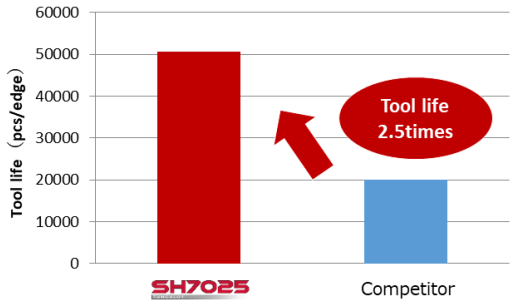
Success examples to improve Burr Formation

CASE 1

Part: Cylinder Part
Work material: SUS303
Insert: DCGT11T302FN-JP
Grade: SH7025



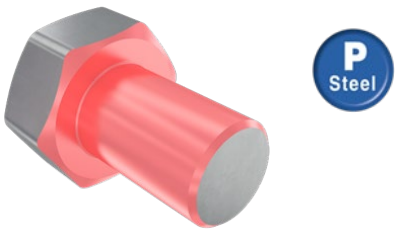
Cutting conditions:
Vc = 95 (m/min)
f = 0.05 (mm/rev)
ap = 0.1 (mm)
Application: External turning
Coolant: Wet



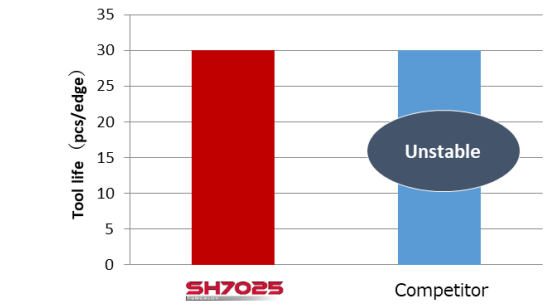
Result:
Competitor's product had issues with burrs on the workpiece due to chipping at the boundary. SH7025 demonstrated excellent chip resistance, achieving a 2.5 times lifespan extension!

CASE 2

Part: Screw
Work material: S45C
Insert: DCGT11T302FN-JS
Grade: SH7025



Cutting conditions:
Vc = 196 (m/min)
f = 0.15 (mm/rev)
ap = 0.8 (mm)
Application: External turning
Coolant: Wet



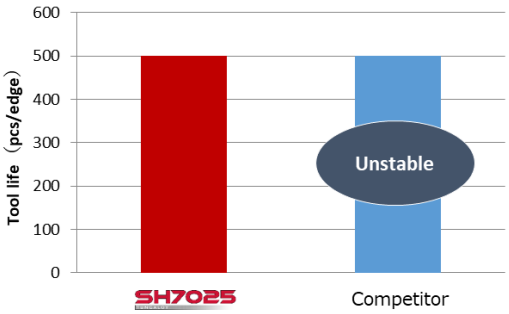
Result:
In competitor's products, the part quality was decreasing due to chipping at the cutting edge and burrs occurring on the workpiece during hexagonal material processing. The combination of SH7025 and JP Breaker allows for stable chip disposal even near processing constants, significantly reducing machine downtime!

Success examples to improve Burr Formation

CASE 3

Part: Tapping screw
Work material: SCM435
Insert: DCGT11T301FN-JP
Grade: SH7025

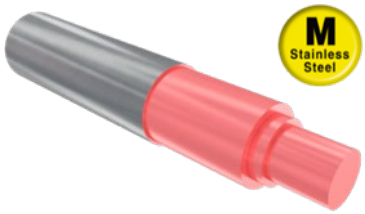
Cutting conditions:
Vc = 120 (m/min)
f = 0.05 (mm/rev)
ap = 1.5 (mm)
Application: External turning
Coolant: Wet



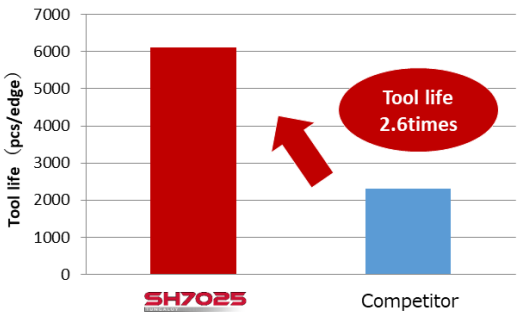
Result:
Competitor's product had issues with burrs coming off near the processing constants on the workpiece, leading to product defects. SH7025 suppresses damage to corner parts and burr formation, achieving stable processing

CASE 4

Part: Shaft
Work material: SUS303Cu
Insert: DCGT11T302FN-JP
Grade: SH7025



Cutting conditions:
Vc = 64 (m/min)
f = 0.03 (mm/rev)
ap = 0.05 (mm)
Application: External turning
Coolant: Wet

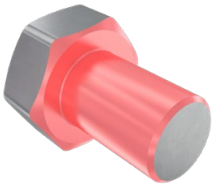


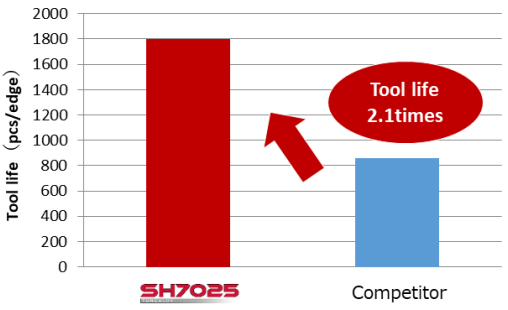
Result:
In competitor's products, burrs were generated near the processing constants, causing problems with workpiece transport errors. SH7025 suppresses tool damage and significantly reduces the occurrence of burrs. It prevents workpiece transport errors and ultimately achieves 2.6times extension of tool life

Success examples to improve Chip Control

CASE 1

Part: Bolt
Work material: SS400
Insert: DCGT11T301FN-JP
Grade: SH7025



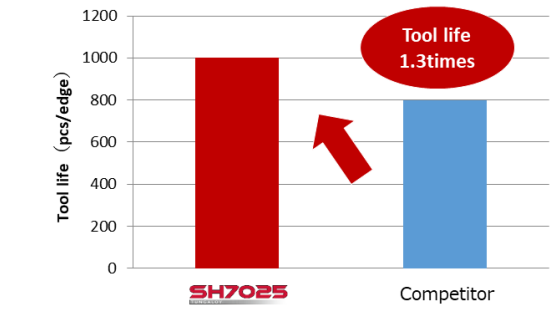


Cutting conditions:
Vc = 93 (m/min)
f = 0.04 (mm/rev)
ap = 1.6 (mm)
Application: External turning
Coolant: Wet

Result:
Competitor's product experienced instability in chip disposal due to the progression of wear on the cutting edge, leading to chip entanglement and problematic machine stops. SH7025 is capable of suppressing the progression of wear, stabilizing chip disposal, preventing machine stops, and ultimately achieving a 2.1 times extension in tool life!"

CASE 2

Part: Shaft
Work material: SCM435
Insert: DCGT11T304FN-JS
Grade: SH7025



Cutting conditions:
Vc = 38 (m/min)
f = 0.07 (mm/rev)
ap = 0.95 (mm)
Application: External turning
Coolant: Wet

Result:
Competitor's product faced issues with the early progression of flank wear leading to deterioration in chip disposal. SH7025 suppresses wear progression, enabling stable chip disposal, and has achieved a 1.3 times extension of tool life