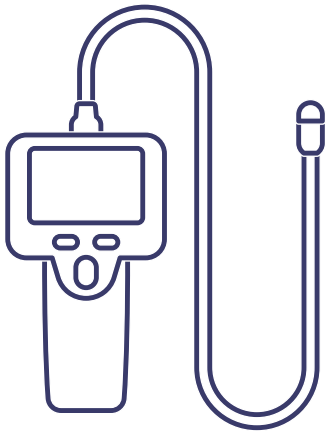
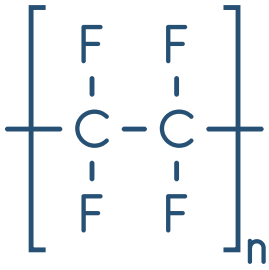
Solution for Machining Plastics

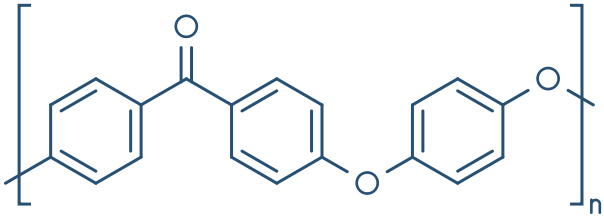
For turning small parts | Y-axis holder + KM1 Insert

NTK CUTTING TOOLS

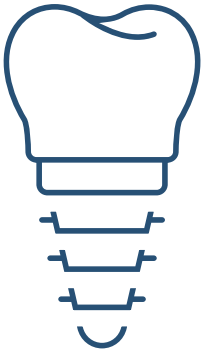


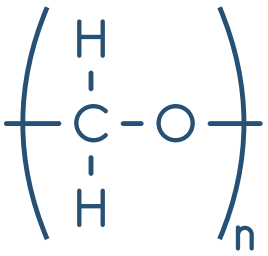


PTFE

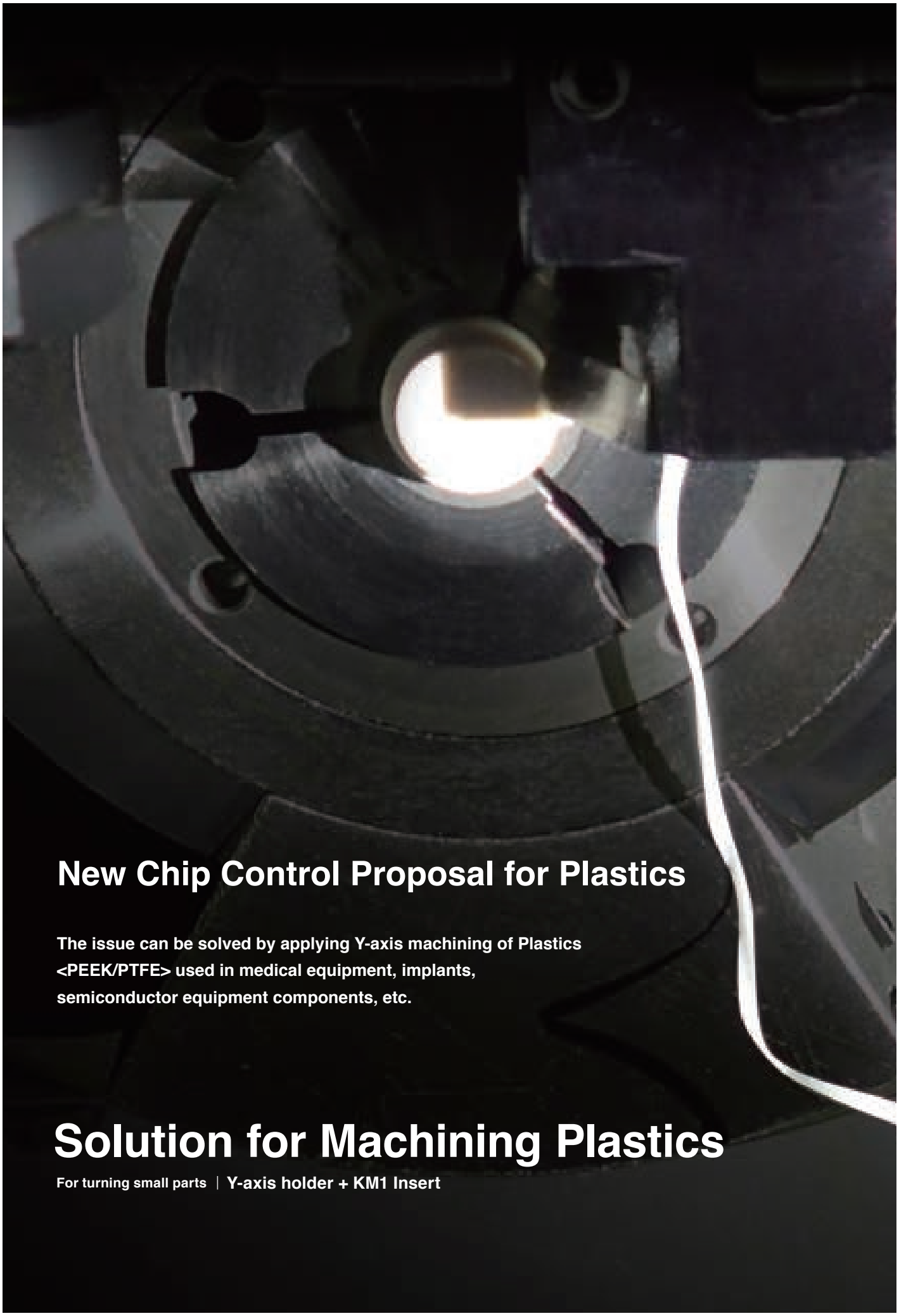


PEEK





POM



New Chip Control Proposal for Plastics

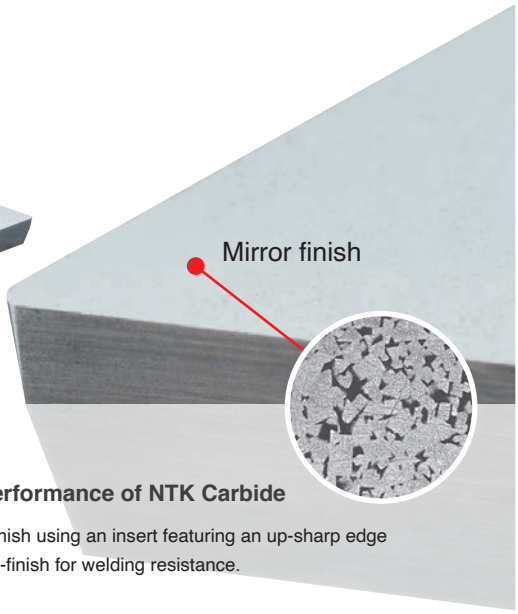
The issue can be solved by applying Y-axis machining of Plastics <PEEK/PTFE> used in medical equipment, implants, semiconductor equipment components, etc.

Solution for Machining Plastics

For turning small parts | Y-axis holder + KM1 Insert

Solution for Machining Plastics
The Realization of Stable Machining

Improved chip control with a Y-axis holder
High quality surface finish with KM1



Performance

- **Applying Y-axis machining eliminates chip control issues.**
- **Mirror-finish polished fine grain cemented carbide ensures an excellent surface finish**

Application Area

Automatic lathe (Gang type) machining plastic materials (PEEK/PTFE, etc.)

Machining Performance of NTK Carbide

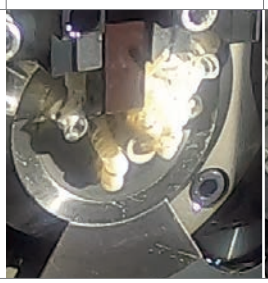
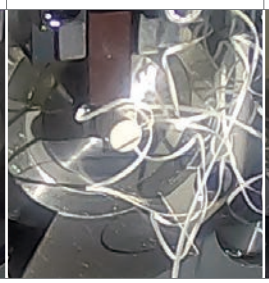
Excellent surface finish using an insert featuring an up-sharp edge and polished mirror-finish for welding resistance.

Recommended Cutting Conditions

Grade	Material	Operation	Machining	Cutting speed (m/min)	Feed (mm/rev)	DOC (mm)	DRY	AIR
KM1	Plastic (PEEK,PTFE,etc.)	Turning	Roughing - Finishing	50 - 150	0.05 - 0.10	0.5 - 3.0	●	●

Chip Control Performance

Material : PEEK(φ10) Cutting conditions : v_c=80m/min f=0.05mm/rev a_p=1.00mm

Machining approach	Standard machining		Y-axis machining	
Chipbreaker	Yes	No	Yes	No
Machining image				

Case Study

Medical implant : PEEK

	NTK	Competitor
Tool	KM1 VCGT11T302H No chipbreaker	Carbide VCGT11T302 Molded chipbreaker
Cutting speed (m/min)	100	
Feed (mm/rev)	0.06	
DOC (mm)	2.50	
Coolant	AIR	DRY
Tool life	**80 pcs.**	**40 pcs.**

Automotive component : PEEK (with glass fiber)

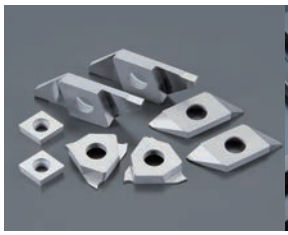
	NTK	Competitor
Tool	KM1 DCGT11T302H No chipbreaker	PVD Carbide VNMG160408 Molded chipbreaker
Cutting speed (m/min)	120	40
Feed (mm/rev)	0.08	0.05
DOC (mm)	0.25	
Coolant	AIR	DRY
Tool life	**3 pcs.**	**1 pc.**

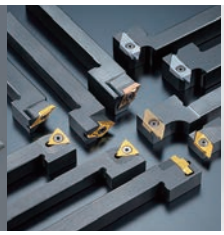
Lineup

Application types : Front turning (ISO) / Back turning / Grooving / Cut-off / Threading / Boring

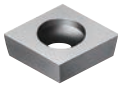
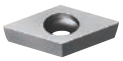
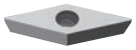
Standard holder	☐ 7 / 8 / 10 / 12 / 16 / 20 * ☐10～Coolant through available
Y-axis coolant through holder	☐ 12 / 16
Boring bar	Minimum machining diameter: Standard holder - from φ1mm * Coolant through holder - from φ2.2mm available

* For details, please refer to the NTK General Catalog or Swiss Tooling Catalog.

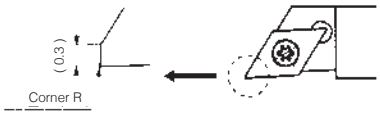




Insert Lineup

Shape	EDP	Item number	Corner R	Grade	Dimensions (mm)		Remarks
				KM1	IC	Thickness	
 No chipbreaker	5556196	CCGW 060200 H	0.03	●	6.35	2.38	
	5556204	CCGW 060201 H	0.1	●			
	5556212	CCGW 060202 H	0.2	●			
	5556220	CCGW 09T300 H	0.03	●	9.525	3.97	
	5556246	CCGW 09T301 H	0.1	●			
	5556253	CCGW 09T302 H	0.2	●			
 No chipbreaker	5556139	DCGW 070200 H	0.03	●	6.35	2.38	
	5556147	DCGW 070201 H	0.1	●			
	5556154	DCGW 070202 H	0.2	●			
	5556162	DCGW 11T300 H	0.03	●	9.525	3.97	
	5556170	DCGW 11T301 H	0.1	●			
	5556188	DCGW 11T302 H	0.2	●			
	5556295	TFD 07FR05 H	0.05	●	6.35	2.38	with wiper
	5556303	TFD 11FR05 H	0.05	●	9.525	3.97	
 No chipbreaker	5556261	VCGW 110300 H	0.03	●	6.35	3.18	
	5556279	VCGW 110301 H	0.1	●			
	5556287	VCGW 110302 H	0.2	●			

*For details, please refer to the NTK General Catalog or Swiss Tooling Catalog.



Features of TFD type

* The insert geometry of the TFD-style is the same as a DCGT style.
* The TFD style insert is designed with a 0.3 mm wiper flat when the insert is set in the holder; enabling improved work surface finish at increased feed rates.
* The TFD-style inserts can be used on toolholders (SDJC-N, SDJC-N-F, SDJC, CH-SDUC, Y-SDJC, Y-SDJC-OH) with a cutting edge angle of 93°.

NTK CUTTING TOOLS

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