

PC9035

Stainless steel Turning insert

 High toughness PVD coating insert optimized for cutting Hard-to-cut material small and medium sized valve and fitting

• Stable cutting due to applying Edge - Tech™ for increasing chipping resistance and welding resistance







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Stainless steel is a kind of metal materials used for various industries such as food, medical appliance, automobile components and construction due to its excellent corrosion resistance, high hardness and gloss. Especially it is widely used for valve, fitting and pipe components which require corrosion resistance. Because these components are usually produced under the casting process, they have uneven surface and complicated shape. For that reason, impact in unstable approach of cutting and welding characteristic of Stainless steel leads to chipping and fracture of tools.

KORLOY launched exclusive grade, PC9035 for enhanced productivity in Stainless steel turning.

PC9035 has good chipping resistance and fracture resistance in cutting due to applying TEX-Tech[™], high toughness PVD coating technology. In addition, Applying Edge-Tech[™] maximizes stability of cutting edge, reduces chipping and welding in the beginning of cutting, and realizes stable machining. Especially, it performs excellent in unstable cutting conditions with high interrupted cutting of hard-to-cut materials, small and medium sized valve, fitting and pipe etc.

PC9035 is a next generation grade solution of KORLOY, who leads small sized Stainless steel parts with heavily interrupted machining market, and it provides higher productivity and stable machining qualification.

Maximizing chipping resistance and fracture resistance

- Applying TEX-Tech™, high toughness PVD coating
 - layer technology

» Optimal for valve and fitting machining

- Optimal for small and medium sized hard-to-cut material cutting with frequent interruption

>> Stable machining

- Increasing chipping resistance and welding resistance from Edge-Tech™

- Preventing unexpected fracture in high interrupted cutting with vibration



✓ Features

- Optimally designed PVD grade for medium to finish cutting and interrupted cutting of Stainless steel turning
- High stability of cutting due to applying high toughness PVD coating layer technology with chipping resistance and fracture resistance
- Good chipping resistance and welding resistance in the beginning of cutting through the Edge-Tech™ technology

Applying TEX - TechTM, high toughness PVD coating layer technology

Applying Edge-Tech™, high lubrication edge technology

• Edge-Tech™ : Special high lubricated cutting edge technology increasing cutting stability through reducing welding, chipping and unexpected fracture





Application range



Application	Grada	vc (m/min)				
range	uraue	М	S			
Continuous, high speed	PC8110	110~220	45~70			
Continuous, medium speed	PC5300	100~200	35 ~ 55			
Continuous, medium speed	PC9030	90~180	-			
Low interrupted, medium speed	PC9035 🔎	70~160	30~50			
Heavy interrupted, medium speed	PC5400	50~140	-			

✓ Recommenden cutting conditions

		Workpiece		Specific	Brinell	Recommended cutting condition			
ISO	Workpiece	ISO		cutting	hardness	Continuous	Interrupted		
ISO	material	(DIN)	AISI	(N/mm ²)	(HB)	vc (m	/min)	m (mm/rev)	
		NO0 1140	105			120	110	0.30	
		X6CrAI13 X6Cr17	405 430	1650	≤ 183	160	140	0.15	
	Ferritic/	700117	400			200	170	0.05	
	martensitic series		400			100	90	0.30	
		- X12Cr13	403	1800	≤ 200	140	120	0.15	
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				180	150	0.05	
		X5CrNi18-9 X5CrNiMo17-12-2	304 316	2000	≤ 187	80	70	0.30	
М	Austenite series					120	100	0.15	
		,	010			160	130	0.05	
		(X2CrNiMoN22-5-3)	S31803 S32205	2200	≤ 310	60	40	0.30	
	Austenite-ferritic series (duplex)	(X2CrNiMoCuN25-6-3)				90	70	0.15	
		(X2CrNiMoN25-7-4)	S32750			120	100	0.05	
				2800		60	40	0.30	
	Precipitation	X5CrNiCuNb16-4	630 (17-4PH)		≤ 350	90	70	0.15	
	30103		(120	100	0.05	
			DE 4500			35	30	0.20	
	Ti alloy steel	(TiAl5Sn2.5)	R54520 R56401	1400	301~381	50	40	0.10	
6		(12.001.)				65	50	0.05	
3		-	N07041			30	20	0.20	
	Ni base	-	N04400	3000	286~409	45	30	0.10	
		-	N07718			60	40	0.05	

☑ Application industries

Fitting	Valve	Flange			

✓ Stainless steel turning grade selection guide





Grade	Stable machinability	Interrupted cutting	High speed cutting	General use of STS workpiece	Diversity of items
PC8110	**	**	****	**	***
PC5300	***	***	***	****	****
PC9030	***	***	***	***	***
PC9035 🔎	****	****	***	***	**
PC5400	***	****	**	**	***

✓ Performance evaluation

		Chipping res	istance							
Workpiece	Stainless steel (X5CrNi18-9), 6 S	Steel rectangular tu	be(Ø60)							
Cutting condition	- vc (m/min) = 120, fn (mm/rev) = 0.15, ap (mm) = 0.8, wet									
Tool Insert CNMG120408-VP3 (PC9035) Holder DCLNL3232-P12										
		PC9035			530 cm	3 50% more				



[PC9035]





	Chipping resistance
Workpiece	Stainless steel (X5CrNiMo17-12-2), 6 Steel rectangular tube (Ø60)
Cutting condition	vc(m/min) = 120, fn(mm/rev) = 0.12, ap(mm) = 0.6, wet
Tool	Insert CCMT09T304-MP (PC9035) Holder SCLCR2020-K09



[PC9035]





		Fracture re	sistance						
Workpiece	Stainless steel (X5CrNi18-9), 4	Steel rectangular	tube(70×70)						
Cutting condition	vc (m/min) = 80, fn (mm/rev) = 0.1, ap (mm) = 0.6, wet								
Tool	Insert WNMG080408-VP3 (P	C9035) Holder	DWLNL2525-M08						
		PC9035	003	32 cm ³ 21% more					
		Competitor	26 cm ³						

[PC9035]





• Material removal rate Q (cm³/min): 4.8 • Cutting time (min): 6.7

✓ Application examples

Norkpiece use	Fitting								
utting condition	vc (m/min) = 120, fn (mm/rev) = 0.1, ap (mm) = $1.0 \sim 2.0$, wet								
ool	Insert WNMG080408-VP3 (PC9035) Holder PWLNL2525-M08								
		PC9035 Competitor 0	230 E 100 43% longer too	330 EA EA/Corner 200 Life than con	300 Npetitor	43% more 400	► EA/Come		

	Stainless steel (X5CrNi18-9)
Workpiece use	Valve
Cutting condition	vc (m/min) = 90 (Internal dia. 70), fn (mm/rev) = 0.1, ap (mm) = 1.5 (Internal dia. 1.0), wet
Tool	Insert CNMG120408-VP3 (PC9035) Holder PCLNL2525-M12





Stainless steel (X2CrNiMo17-12-2)

Workpiece use	Valve							
Cutting condition	vc (m/min) = 150, fn (mm/rev) = $0.15 \sim 0.2$, ap (mm) = 1.5, wet							
Tool	Insert WNMG080408-VP3 (PC9035) Holder PWLNL2525-M08							





✓ Stock items

						Dime	nsion (mm)		Cutting o	condition	
Туре	Picture	De	signation	PC9035	L	IC	S	RE	D1	fn (mm/rev)	ap (mm)	Geometry
		CNMG	120404-VP2	•	12.896	12.7	4.76	0.4	5.16	0.05~0.30	0.10~3.00	
			120408-VP2	•	12.896	12.7	4.76	0.8	5.16	0.10~0.30	0.50~3.50	
		CNMG	120404-VP3	•	12.896	12.7	4.76	0.4	5.16	0.05~0.30	0.10~3.00	
			120408-VP3	•	12.896	12.7	4.76	0.8	5.16	0.10~0.35	0.50~4.00	С
		CNMG	120404-VP4	•	12.896	12.7	4.76	0.4	5.16	0.15~0.35	0.50~4.00	
			120408-VP4	•	12.896	12.7	4.76	0.8	5.16	0.15~0.40	1.00~4.50	
		TNMG	160404-VP2	•	16.498	9.525	4.76	0.4	3.81	0.05~0.30	0.10~3.00	
			160408-VP2	•	16.498	9.525	4.76	0.8	3.81	0.10~0.30	0.50~3.50	
		TNMG	160404-VP3	•	16.498	9.525	4.76	0.4	3.81	0.05~0.30	0.10~3.00	
ative			160408-VP3	•	16.498	9.525	4.76	0.8	3.81	0.10~0.35	0.50~4.00	
Neg												
		TNMG	160408-VP4	•	16.498	9.525	4.76	0.8	3.81	0.15~0.40	1.00~4.50	
	WN	WNMG	080404-VP2	•	8.687	12.7	4.76	0.4	5.16	0.05~0.30	0.10~3.00	
			080408-VP2	•	8.687	12.7	4.76	0.8	5.16	0.10~0.30	0.50~3.50	
		WNMG	080404-VP3	•	8.687	12.7	4.76	0.4	5.16	0.05~0.30	0.10~3.00	
			080408-VP3	•	8.687	12.7	4.76	0.8	5.16	0.10~0.35	0.50~4.00	
		WNMG	080404-VP4	•	8.687	12.7	4.76	0.4	5.16	0.15~0.35	0.50~4.00	
			080408-VP4	•	8.687	12.7	4.76	0.8	5.16	0.15~0.40	1.00~4.50	
		ССМТ	060204-MP	•	6.448	6.35	2.38	0.4	2.8	0.05~0.15	0.30~1.50	/ <mark>\</mark> 80° - ^S -
tive			09T304-MP	•	9.672	9.525	3.97	0.4	4.4	0.08~0.25	0.50~2.50	
Posi	- Contraction		09T308-MP	•	9.672	9.525	3.97	0.8	4.4	0.10~0.30	0.50~2.50	
₽.												

1 For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasess or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the inserts can be pulled out due to centrifugal force while high speed machining.





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