

TS200 & TS300

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Tungaloy Report No. 535-G

SiAlON Ceramic inserts & holders
for super alloy turning



INDUSTRY 4.0
FEED the SPEED!



ACCELERATED MACHINING

TurnLine

TS200 & TS300

TUNGALOY



The optimum solution for high speed turning
of high temperature alloys

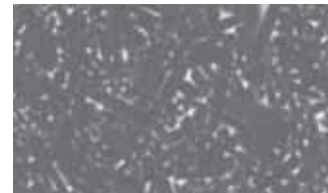
Highly reliable holders and **SiAlON inserts** for high temperature alloy turning

New SiAlON grade inserts for high reliability

These two new ceramic grades are characterized by their excellent toughness and anti-chipping capabilities.

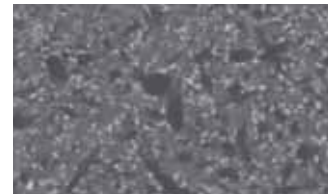
TS200

- Superior wear resistance due to high chemical stability
- Superior flank and notch wear resistance



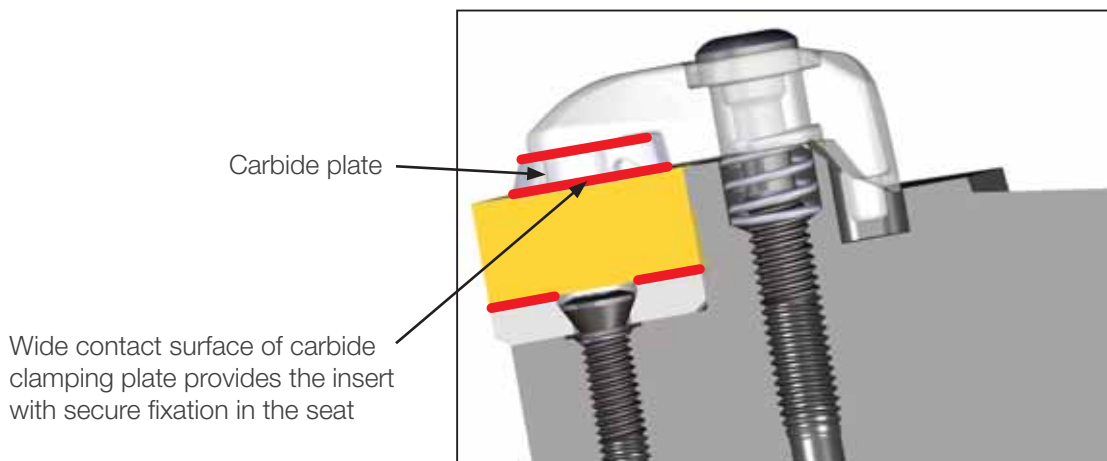
TS300

- Extreme toughness allows for higher feed and greater depth of cut machining
- Suitable for scaling and roughing applications

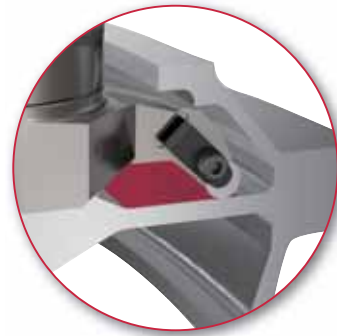
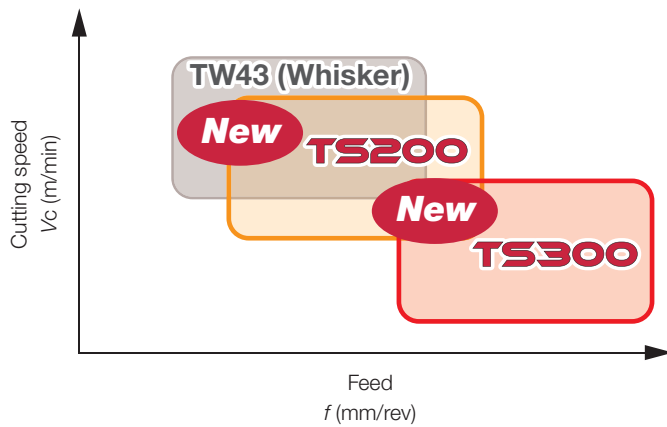


T type holder — Provides secure clamping of ceramic insert

Insert clamp is equipped with carbide plate that is designed to securely fix ceramic insert in place, while also preventing the insert from breaking during demanding machining.



APPLICATION RANGE (high temperature alloys)



TS200: High speed finishing
TS300: Scaling and roughing

STANDARD CUTTING CONDITIONS

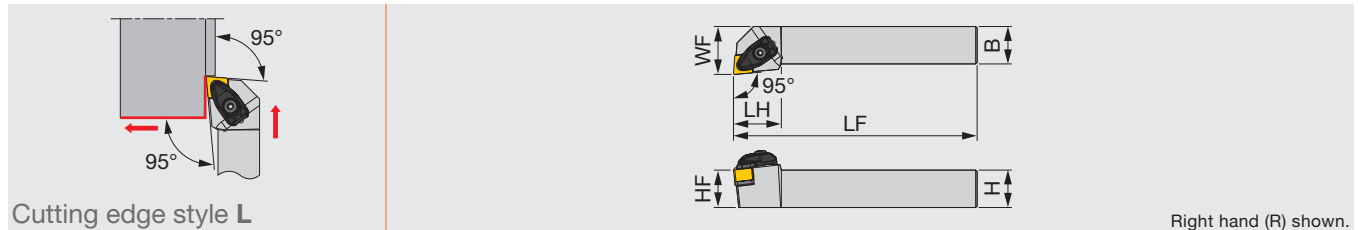
ISO	Workpiece materials	Grades	Cutting speed V_c (m/min)	Feed f (mm/rev)	Depth of cut a_p (mm)
S	Ni-based super alloys	TS200	200 - 350	0.1 - 0.4	0.1 - 2
		TS300	150 - 250	0.1 - 0.2	0.1 - 2
	Co-based super alloys	TS200	200 - 350	0.1 - 0.4	0.1 - 2
		TS300	150 - 250	0.1 - 0.2	0.1 - 2

TS200 & TS300

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TCLNR/L-F

Toolholder with carbide clamping plate, with 95° approach angle, for negative 80° rhombic ceramic inserts without hole



Designation	H	B	LF	LH	HF	WF	RE**	Insert
TCLNR/L2525M1204-F	25	25	150	32	25	32	0.8	CNGN1204...
TCLNR/L2525M1207-F	25	25	150	32	25	32	0.8	CNGN1207...

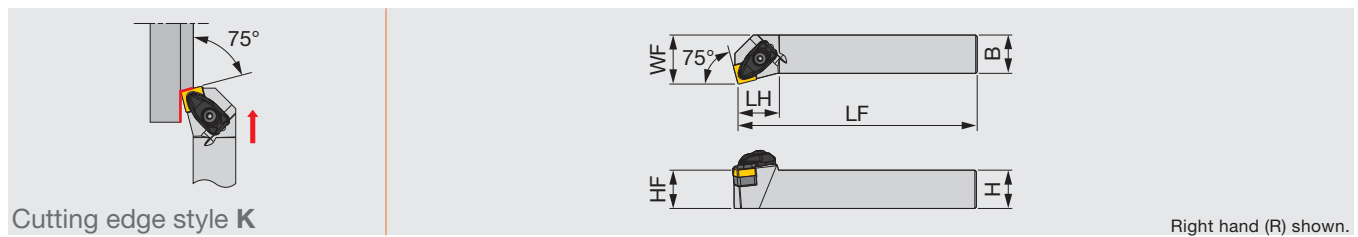
**RE: Standard corner radius

SPARE PARTS

Designation	Clamp	Clamp screw	Shim	Shim screw	Spring	Wrench 1	Wrench 2
TCLNR/L2525M1204-F	DCLS-4F	DLS-4A	TSC-44	BH-40050-A	DSP-4A	T-15F	P-3
TCLNR/L2525M1207-F	DCLS-4F	DLS-4A	TSC-42	BH-40050-A	DSP-4A	T-15F	P-3

TSKNR/L-F

Toolholder with carbide clamping plate, with 75° approach angle, for negative square ceramic inserts without hole



Designation	H	B	LF	LH	HF	WF	RE**	Insert
TSKNR/L2525M1207-F	25	25	150	27	25	32	0.8	SNGN1207...

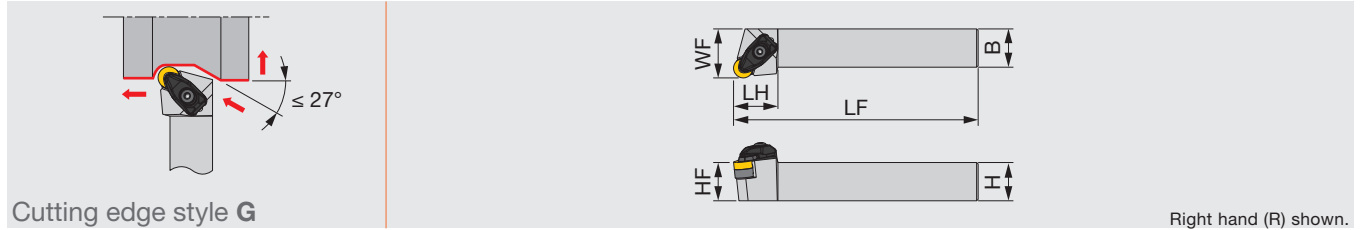
**RE: Standard corner radius

SPARE PARTS

Designation	Clamp	Clamp screw	Shim	Shim screw	Spring	Wrench 1	Wrench 2
TSKNR/L2525M1207-F	DCLS-4F	DLS-4A	TSS-42	BH-40050-A	DSP-4A	T-15F	P-3

TRGNR/L-F

Toolholder with carbide clamping plate, with 90° approach angle, for negative round ceramic inserts without hole



Designation	H	B	LF	LH	HF	WF	RE**	Insert
TRGNR/L2525M1207-F	25	25	150	29	25	32	6.35	RNGN1207...

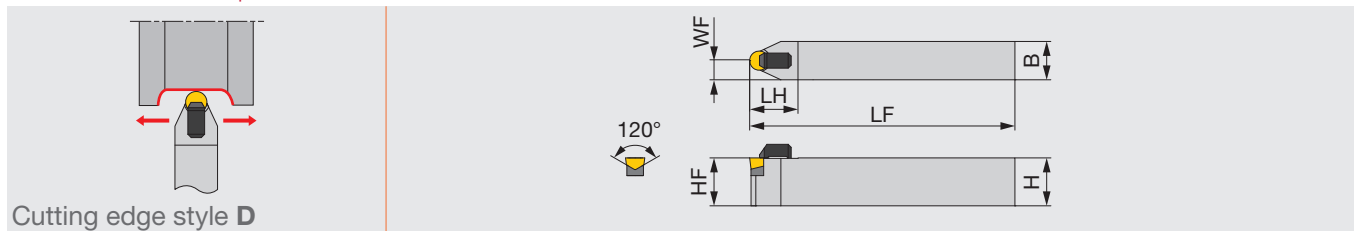
**RE: Standard corner radius

SPARE PARTS

Designation	Clamp	Clamp screw	Shim	Shim screw	Spring	Wrench 1	Wrench 2
TRGNR/L2525M1207-F	DCLS-4F	DLS-4A	S-43	BH-M5X0.8X0.8	DSP-4A	T-15F	P-3

TRDCN

Toolholder with carbide clamping plate, with 45° approach angle, for positive round ceramic inserts with V-bottom shape



Designation	H	B	LF	LH	HF	WF	RE**	Insert
TRDCN3225P09-120	32	25	170	30	32	12.5	4.76	RCGX090700
TRDCN3225P12-120	32	25	170	32	32	12.5	6.35	RCGX120700

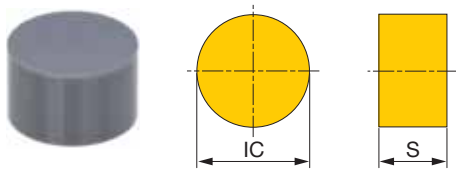
**RE: Standard corner radius

SPARE PARTS

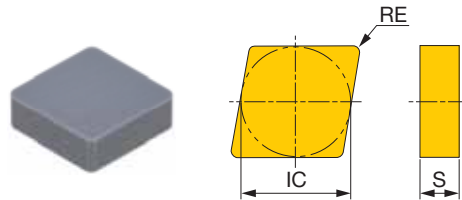
Designation	Clamp	Clamp screw	Shim	Shim screw	Wrench 1	Wrench 2
TRDCN3225P09-120	BCL6-20A	BH-M6X1X25	CBRS-09	BH-M2.5X0.45X10	P-4	P-1.5
TRDCN3225P12-120	BCL6	BH-M6X1X25	CBRS-12	BH-M2.5X0.45X10	P-4	P-1.5

INSERT

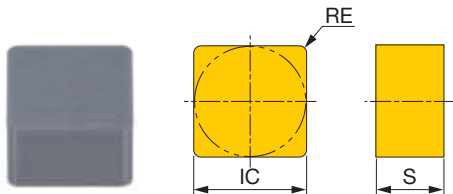
RNGN-E/T1



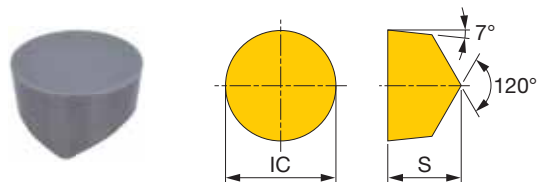
CNGN-E/T1



SNGN-T1



RCGX-E/T1



P	Steel									
M	Stainless									
K	Cast iron									
N	Non-ferrous									
S	Superalloys	★	★							
H	Hard materials									

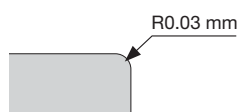
★ : First choice

Designation	Edge prep.*	Ceramic										RE	IC	S	
		TS200	TS300												
RNGN120700-E	E	●	●										-	12.7	7.94
RNGN120700-T1	T1	●	●										-	12.7	7.94
CNGN120408-E	E		●										0.8	12.7	4.76
CNGN120412-E	E		●										1.2	12.7	4.76
CNGN120412-T1	T1	●											1.2	12.7	4.76
CNGN120708-E	E		●										0.8	12.7	7.94
CNGN120712-E	E	●	●										1.2	12.7	7.94
CNGN120716-T1	T1	●											1.6	12.7	7.94
SNGN120712-T1	T1		●										1.2	12.7	7.94
RCGX090700-E	E	●	●										-	9.525	7.94
RCGX090700-T1	T1	●	●										-	9.525	7.94
RCGX120700-E	E	●	●										-	12.7	7.94
RCGX120700-T1	T1	●	●										-	12.7	7.94

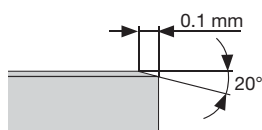
* Types of cutting edge preparations

● : Line up


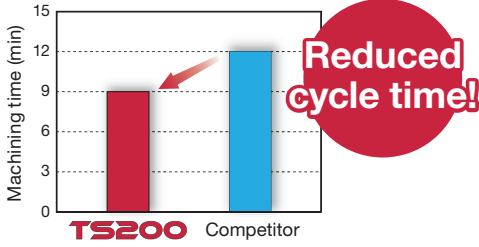
E: Low cutting force



T1: Strong cutting edge



PRACTICAL EXAMPLES

Workpiece type		Aircraft part
Toolholder		CRGNL2525M1207
Insert		RNGN120700-E
Grade		TS200
Workpiece material		INCONEL718
		
Cutting conditions	Cutting speed: V_c (m/min)	TS200: 280, Competitor: 210
	Feed : f (mm/rev)	0.2
	Depth of cut : a_p (mm)	1.5
	Machining	External turning
	Coolant	Wet
	Machine	Vertical lathe
	Tool life	1 pc/corner
Results		 <p>Reduced cycle time!</p> <p>TS200 is capable of high speed turning, contributing to high-efficiency turning.</p>

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