

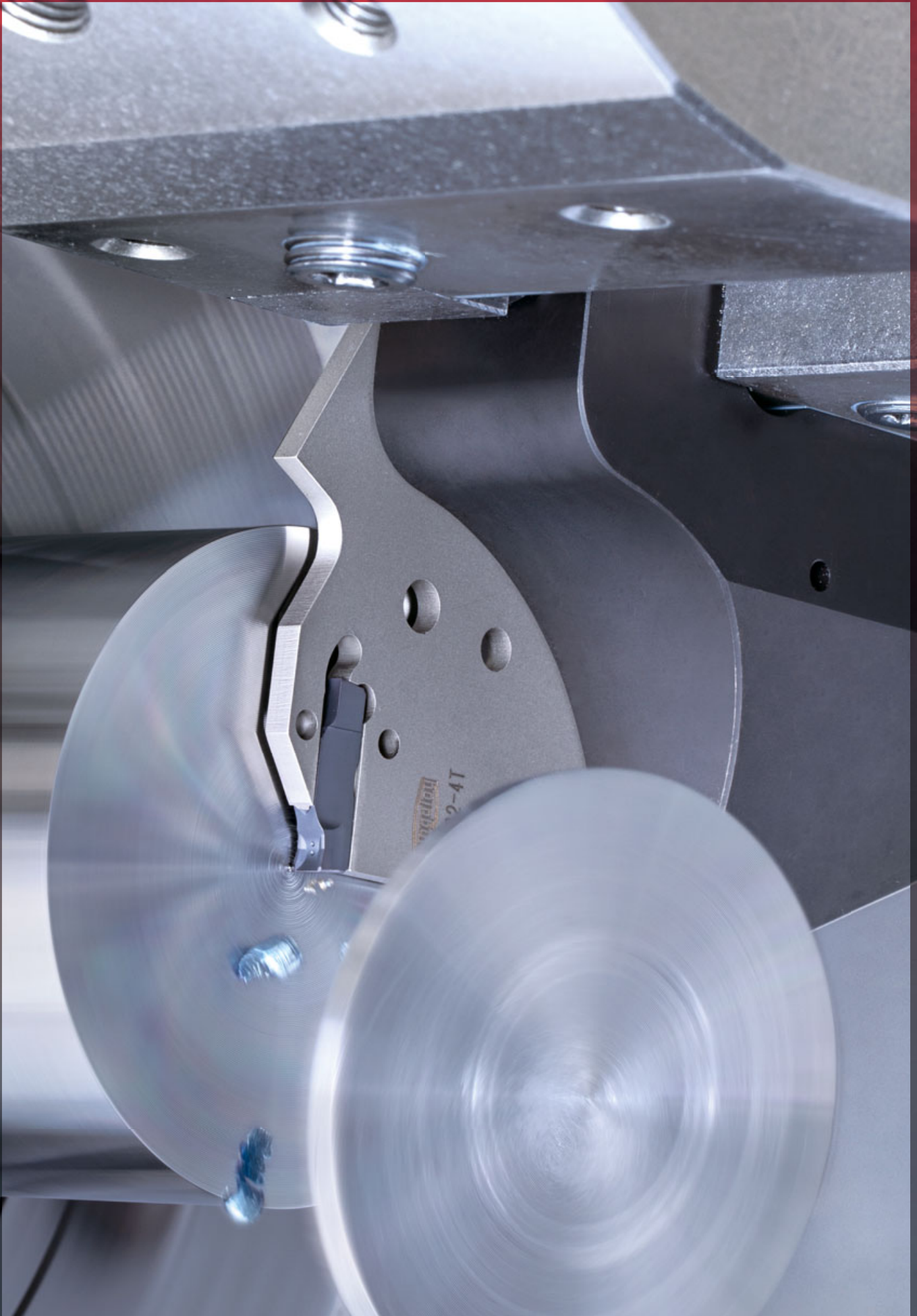
Grooving and parting-off tool

TUNG^{FEED}**FBLADE**

Tungaloy Report No. 559-US

High-efficiency parting and grooving tool series





INDUSTRY 4.0
FEED the SPEED!



TUNG^{FEED}BLADE

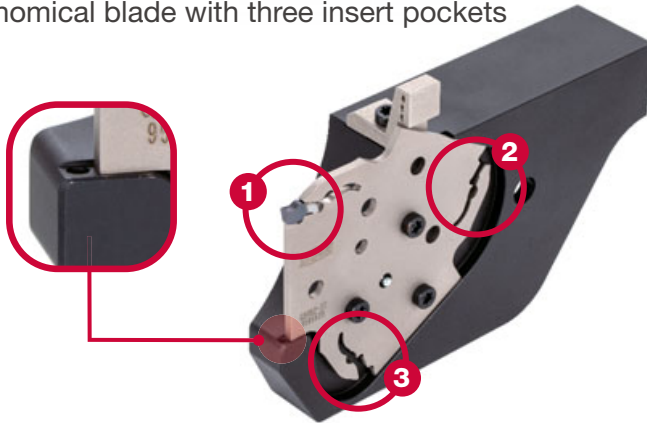


Rigid parting and grooving tool series
for high efficiency machining

Exceptional stability and productivity

New high rigidity toolholder

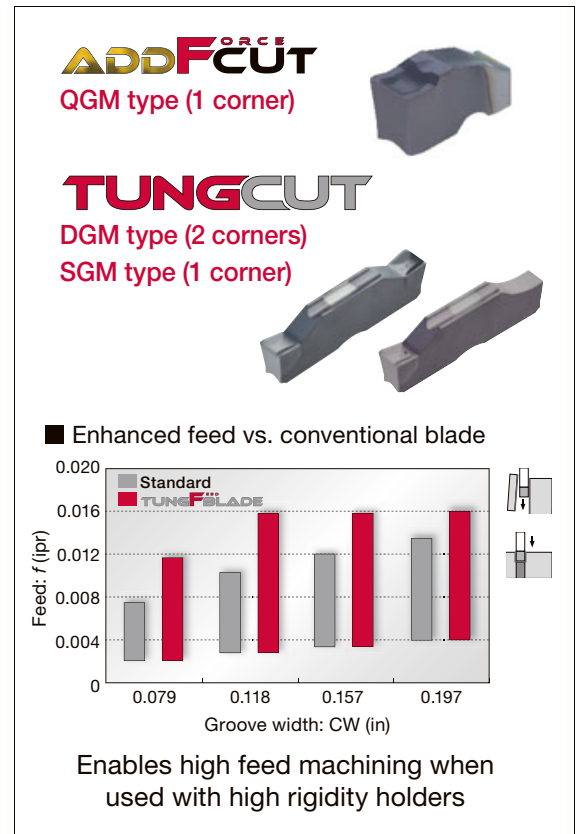
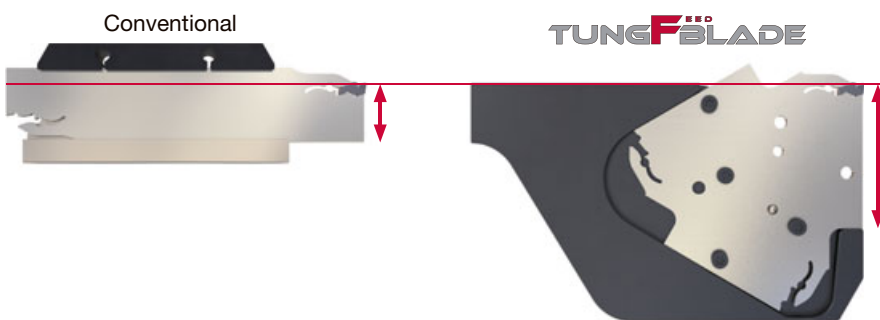
- A thick support beneath the insert allows the tool to produce grooves with high surface quality and straightness at increased feed rates
- Economical blade with three insert pockets



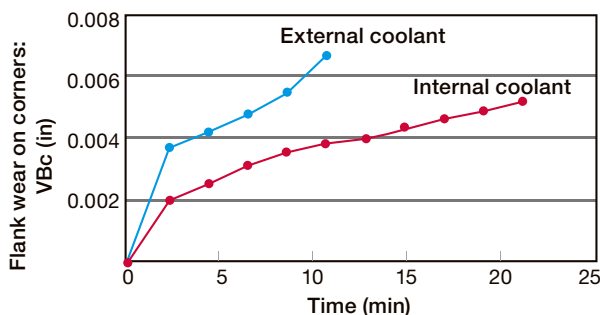
- The block is clamped by contacting two surfaces for enhanced rigidity



- With much thicker support than existing grooving blades, tool deflection and chatter are minimized even at higher feed rates



Coolant through tool block design reduces cutting edge wear



Parting-off

P 4140

Toolholder : QSG82-2T/ CHTBR16-82
(External coolant)
: QSG82-2T/ CHTBR16-82-CHP
(Internal coolant)

Insert : QGM2-020 AH7025

Cutting speed : $V_c = 394$ sfm

Feed : $f = 0.008$ ipr

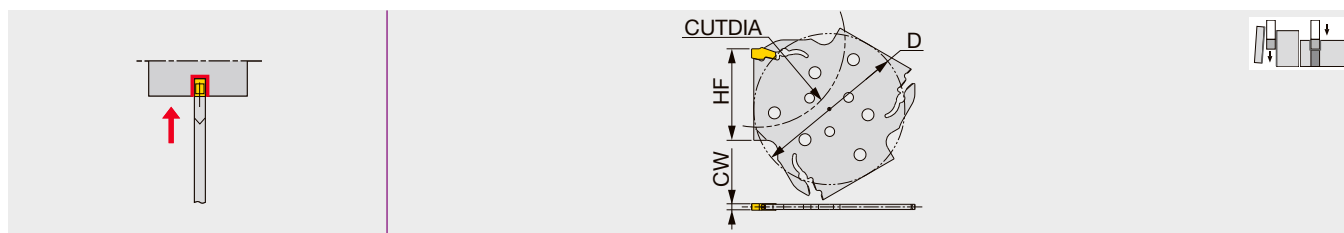
Groove width : $CW = 0.079$ "

BLADE

QSG

ADDFORCECUT

Parting-off and external grooving blade for AddForceCut inserts



Inch	CW (in)	CW (mm)	Seat size	CUTDIA	HF	D
QSG52-2T	0.079	2	2	2.047	1.063	1.902
QSG82-2T	0.079	2	2	3.228	1.654	2.728
QSG52-3T	0.118	3	3	2.047	1.063	1.902
QSG82-3T	0.118	3	3	3.228	1.654	2.728
QSG120-3T	0.118	3	3	4.724	2.402	3.465
QSG52-4T	0.157	4	4	2.047	1.063	2.728
QSG82-4T	0.157	4	4	3.228	1.654	2.728
QSG120-4T	0.157	4	4	4.724	2.402	3.465
QSG120-5T	0.197	5	5	4.724	2.402	3.465

SPARE PARTS



Designation	Wrench
QSG...	QL-39

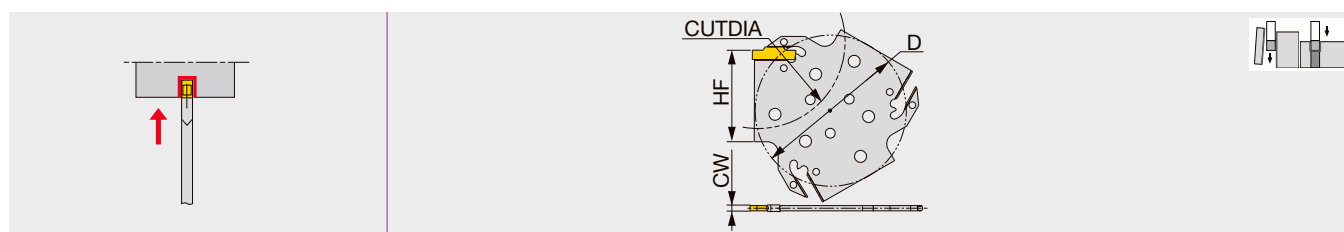
Related Items



CHGP

TUNGCUT

Parting-off and external grooving blade for TungCut inserts



Inch	CW (in)	CW (mm)	Seat size	CUTDIA	HF	D
CHGP52-2T	0.079	2	2	2.047	1.063	1.902
CHGP52-3T	0.118	3	3	2.047	1.063	1.902
CHGP82-3T	0.118	3	3	3.228	1.654	2.728
CHGP82-4T	0.157	4	4	3.228	1.654	2.728

When depth is deeper than insert length - 0.059", 1 corner type is recommended.

SPARE PARTS



Designation	Wrench (Optional)
CHGP...	CRW33

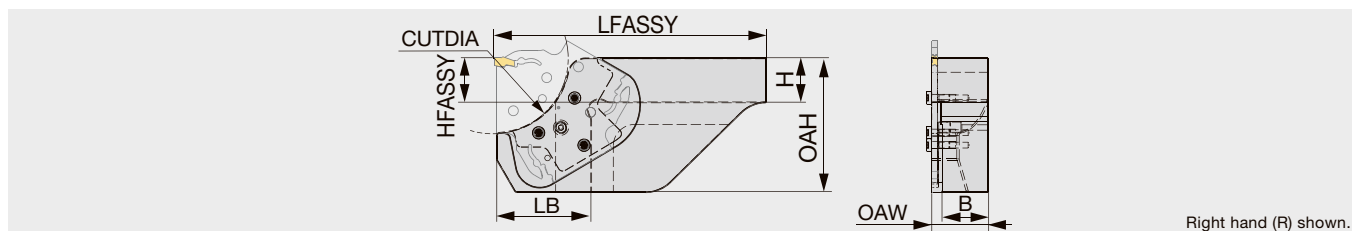
Related Items



TOOL BLOCK

CHTBR/L

Tool block for QSG/CHGP blade



Inch	CUTDIA	H	B	LFASSY	HFASSY	OAH	OAW	LB	Blade
CHTBR/L12-52	2.047	0.750	0.770	4.000	0.750	1.970	1.000	1.457	QSG52 / CHGP52
CHTBR/L16-52	2.047	1.000	1.020	5.000	1.000	1.970	1.250	1.457	QSG52 / CHGP52
CHTBR/L12-82	3.228	0.750	0.770	5.500	0.750	2.950	1.000	2.087	QSG82 / CHGP82
CHTBR/L16-82	3.228	1.000	1.020	6.000	1.000	2.950	1.250	2.087	QSG82 / CHGP82
CHTBR/L16-120	4.724	1.000	1.020	6.500	1.000	3.940	1.250	2.638	QSG120
CHTBR/L20-120	4.724	1.250	1.270	6.500	1.250	3.940	1.500	2.638	QSG120
Metric	CUTDIA	H	B	LFASSY	HFASSY	OAH	OAW	LB	Blade
CHTBR/L2020-52	52	20	20.5	100	20	50	26.5	37	QSG52 / CHGP52
CHTBR/L2525-52	52	25	25.5	125	25	50	31.5	37	QSG52 / CHGP52
CHTBR/L2020-82	82	20	20.5	140	20	75	26.5	53	QSG82 / CHGP82
CHTBR/L2525-82	82	25	25.5	150	25	75	31.5	53	QSG82 / CHGP82
CHTBR/L2525-120	120	25	25.5	165	25	100	31.5	67	QSG120
CHTBR/L3232-120	120	32	32.5	165	32	100	38.5	67	QSG120

The blade clamping screw heads protrude out for as much as 0.122" (3.1 mm) over the insert cutting edge point. Maintain the clearance from the chucking device to avoid interference.

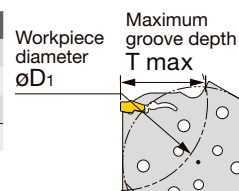
SPARE PARTS



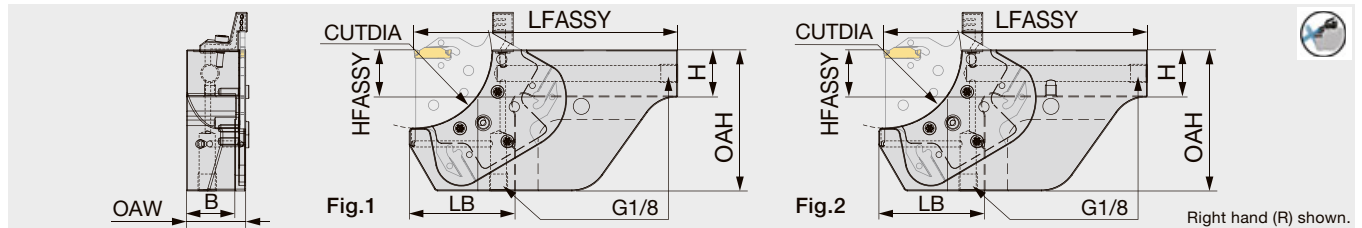
Designation	Clamping screw	Grip	Torx bit
CHTBR/L....	SR ISO 14580 M4X10	SW6-SD	BLDT20/S7

Maximum groove depth (T max) as function of workpiece diameter (øD₁)

Designation	øD ₁ (in)															
CHTBR/L****-52	2.087	2.126	2.165	2.205	2.283	2.362	2.441	2.559	2.677	2.835	3.071	3.307	3.622	4.016	4.528	5.236
CHTBR/L****-82	4.094	4.252	4.409	4.567	4.764	5.000	5.276	5.591	5.945	6.378	6.929	7.559	8.346	9.331	10.630	12.323
CHTBR/L****-120	8.071	8.425	8.819	9.252	9.724	10.276	10.945	11.693	12.559	13.583	14.803	16.299	18.189	20.551	23.661	27.913
T max	0.827	0.787	0.748	0.709	0.669	0.630	0.591	0.551	0.512	0.472	0.433	0.394	0.354	0.315	0.276	0.236
Designation	øD ₁ (in)															
CHTBR/L****-82	3.268	3.307	3.307	3.346	3.386	3.425	3.504	3.543	3.622	3.701	3.780	3.858	3.976			
CHTBR/L****-120	5.669	5.787	5.906	6.024	6.142	6.299	6.457	6.614	6.811	7.008	7.244	7.480	7.756			
T max	1.339	1.299	1.260	1.220	1.181	1.142	1.102	1.063	1.024	0.984	0.945	0.906	0.866			
Designation	øD ₁ (in)															
CHTBR/L****-120	4.764	4.803	4.843	4.882	4.921	4.961	5.000	5.039	5.079	5.118	5.157	5.236	5.276	5.354	5.433	5.512
T max	2.165	2.047	1.969	1.890	1.850	1.811	1.772	1.732	1.693	1.654	1.614	1.575	1.535	1.496	1.457	1.417



Tool block for QSG/CHGP blade, with high pressure coolant capability



Inch	CUTDIA	H	B	LFASSY	HFASSY	OAH	OAW	LB	Fig.	Blade
CHTBR/L12-52-CHP	2.047	0.750	0.770	4.000	0.750	1.970	1.000	1.594	1	QSG52 / CHGP52
CHTBR/L16-52-CHP	2.047	1.000	1.020	5.000	1.000	1.970	1.250	1.594	1	QSG52 / CHGP52
CHTBR/L12-82-CHP	3.228	0.750	0.770	5.500	0.750	2.950	1.000	2.224	1	QSG82 / CHGP82
CHTBR/L16-82-CHP	3.228	1.000	1.020	6.000	1.000	2.950	1.250	2.224	1	QSG82 / CHGP82
CHTBR/L16-120-CHP	4.724	1.000	1.020	6.500	1.000	3.940	1.250	2.972	1	QSG120
CHTBR/L20-120-CHP	4.724	1.250	1.270	6.500	1.250	3.940	1.500	2.972	1	QSG120
Metric	CUTDIA	H	B	LFASSY	HFASSY	OAH	OAW	LB	Fig.	Blade
CHTBR/L2020-52-CHP	52	20	20.5	100	20	50	26.5	40.5	2	QSG52 / CHGP52
CHTBR/L2525-52-CHP	52	25	25.5	123	25	50	31.5	40.5	2	QSG52 / CHGP52
CHTBR/L2020-82-CHP	82	20	20.5	126	20	75	26.5	56.5	2	QSG82 / CHGP82
CHTBR/L2525-82-CHP	82	25	25.5	139	25	75	31.5	56.5	2	QSG82 / CHGP82
CHTBR/L2525-120-CHP	120	25	25.5	158	25	100	31.5	75.5	2	QSG120
CHTBR/L3232-120-CHP	120	32	32.5	173	32	100	38.5	75.5	2	QSG120

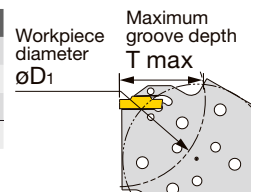
The blade clamping screw heads protrude out for as much as 0.122" (3.1 mm) over the insert cutting edge point. Maintain the clearance from the chucking device to avoid interference.

SPARE PARTS

Designation	Clamping screw	Grip	Torx bit	Coolant plug	Nozzle	O-ring
CHTBR***-CHP	SR ISO 14580 M4X10	SW6-SD	BLDT20/S7	PLUGG1/8-6.5TL360	CNZHR20	ORSS-0454.5X1.0NBR70
CHTBL***-CHP	SR ISO 14580 M4X10	SW6-SD	BLDT20/S7	PLUGG1/8-6.5TL360	CNZHL20	ORSS-0454.5X1.0NBR70

Maximum groove depth (T max) as function of workpiece diameter (øD1)

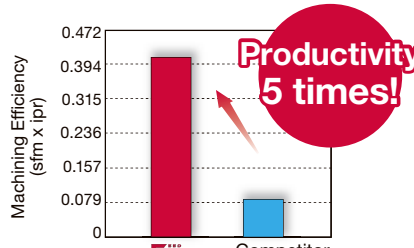
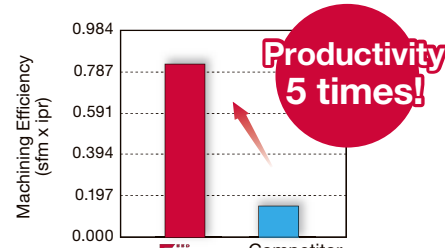
Designation	øD1 (in)															
CHTBR/L****-52-CHP	2.047	2.087	2.087	2.126	2.165	2.205	2.283	2.323	2.402	2.520	2.638	2.756	2.913	3.110	3.386	3.701
CHTBR/L****-82-CHP	3.819	3.937	4.055	4.173	4.291	4.449	4.646	4.843	5.079	5.354	5.669	6.024	6.457	7.008	7.638	8.425
CHTBR/L****-120-CHP	7.126	7.362	7.638	7.953	8.268	8.622	9.055	9.488	10.039	10.630	11.339	12.126	13.071	14.213	15.551	17.244
T max	0.827	0.787	0.748	0.709	0.669	0.630	0.591	0.551	0.512	0.472	0.433	0.394	0.354	0.315	0.276	0.236
Designation	øD1 (in)															
CHTBR/L****-82-CHP	3.268	3.268	3.307	3.307	3.346	3.386	3.425	3.465	3.504	3.543	3.622	3.661	3.740			
CHTBR/L****-120-CHP	5.394	5.472	5.551	5.630	5.748	5.866	5.984	6.102	6.220	6.496	6.535	6.732	6.929			
T max	1.339	1.299	1.260	1.220	1.181	1.142	1.102	1.063	1.024	0.984	0.945	0.906	0.866			
Designation	øD1 (in)															
CHTBR/L****-120-CHP	4.724	4.764	4.803	4.843	4.882	4.921	4.961	5.000	5.039	5.118	5.157	5.197	5.276	5.315		
T max	2.165	2.047	1.890	1.850	1.772	1.732	1.654	1.614	1.575	1.535	1.496	1.457	1.417	1.378		



STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness	Priority	Grade	Cutting speed Vc (sfm)
P	Steel 1045, 4137, etc.	< 300 HB	First choice	AH7025, AH725	164 - 591
		< 300 HB	Wear resistance	T9225, AH8005	262 - 984
		< 300 HB	Impact resistance	AH6235, GH130	164 - 394
		< 300 HB	Surface quality	NS9530	262 - 722
M	Stainless steel 303SS, 304SS, etc.	< 200 HB	First choice	AH7025, AH725	164 - 394
		< 200 HB	Wear resistance	AH8005	164 - 394
		< 200 HB	Impact resistance	AH6235, GH130	164 - 394
K	Gray cast iron Class 25, etc.	-	First choice	T515, AH8005	164 - 591
		-	Impact resistance	AH6235, GH130	164 - 591
	Ductile cast iron 60-40-18, etc.	-	First choice	T515, AH8005	164 - 394
		-	Impact resistance	AH6235, GH130	164 - 394
N	Aluminum alloys Si < 12%	-	First choice	TH10	328 - 1640
		-	First choice	KS05F	328 - 1969
S	Superalloys Inconel718, etc.	< HRC 40	First choice	AH8005	66 - 262
		< HRC 40	Impact resistance	AH7025, AH725	66 - 197
	Titanium alloys Ti-6Al-4V, etc.	< HRC 40	First choice	KS05F	66 - 262
		< HRC 40	Impact resistance	AH7025, AH725	66 - 262
H	Hardened steel 4137, 52100, etc.	> HRC 50	First choice	BXA20, BX360	262 - 492

PRACTICAL EXAMPLES

Workpiece type		Bolt parts	Rotary shaft parts
Toolholder		CHGP82-4T / CHTBR16-82	QSG52-3T / CHTBR12-52-CHP
Insert		SGS4-030	QGM3-020
Grade		AH7025	AH7025
Workpiece material		1045	SUS304 / X5CrNi18-9
		 P	 M
Cutting conditions	Grooving width : CW (in)	0.157	0.118
	Cutting speed : Vc (fm)	230	230
	Feed : f (ipr)	0.006	0.012
	Cutting edge depth : CDX (in)	0.984	0.984
	Machining	Parting off	Parting off
	Coolant	Wet	Wet
Results		 Productivity 5 times! TungFeed-Blade doubled tool life, while also increasing feed rate 5 times when used with high rigidity CHTBR holder.	 Productivity 5 times! High rigidity toolholder allowed 5 times higher feed rate. In addition, coolant-through system and optimal coolant delivery helped reduce the cutting edge wear, providing 3 times tool life increase.



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