

NEW PRODUCT NEWS



Tungaloy Report No. 564-G

Small internal grooving and threading tool

TINY **I**NTERNAL CUT

**INTERNAL GROOVING AND THREAD TURNING TOOL
SERIES FOR BORES AS SMALL AS ϕ 5 MM**



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TINY^{INTERNAL}CUT

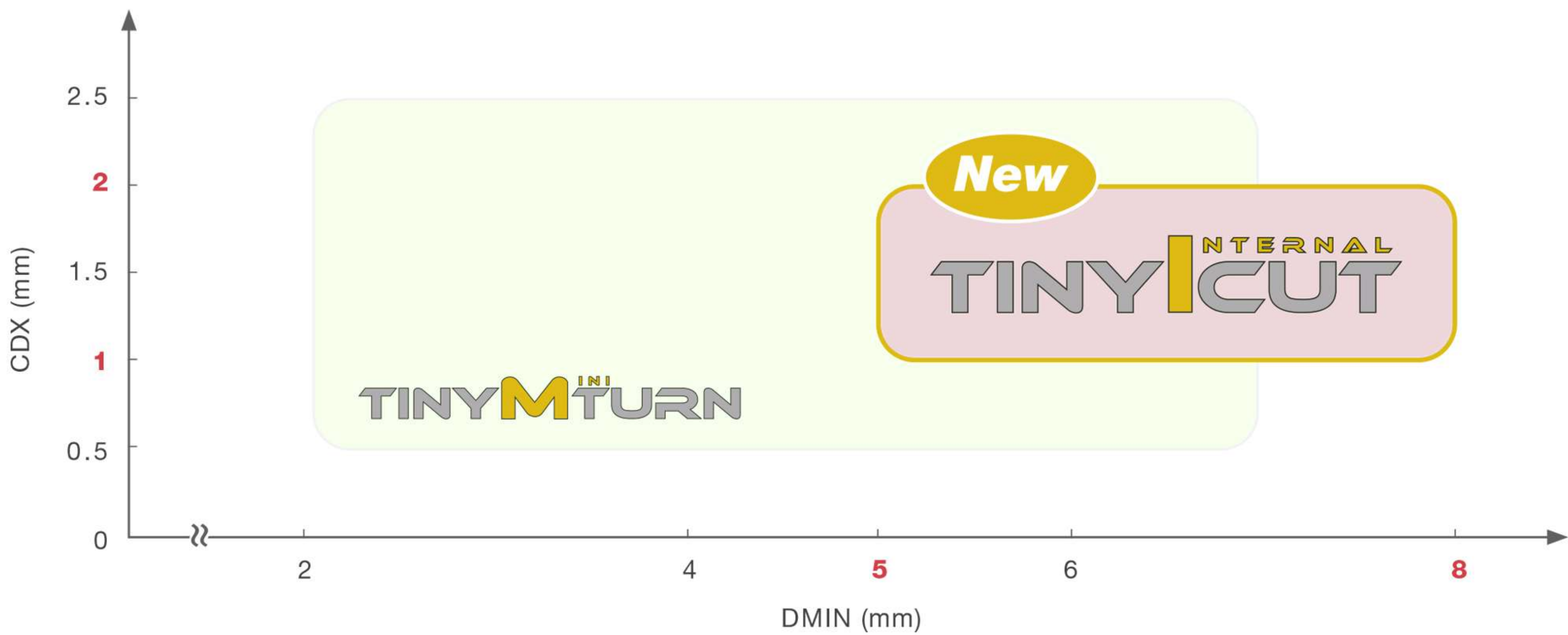


Indexable tooling solution for internal machining of
small diameter bores

TINY^{INTERNAL}CUT

Indexable solution for small holes!

Application ranges / Internal grooving holder



Three insert geometries

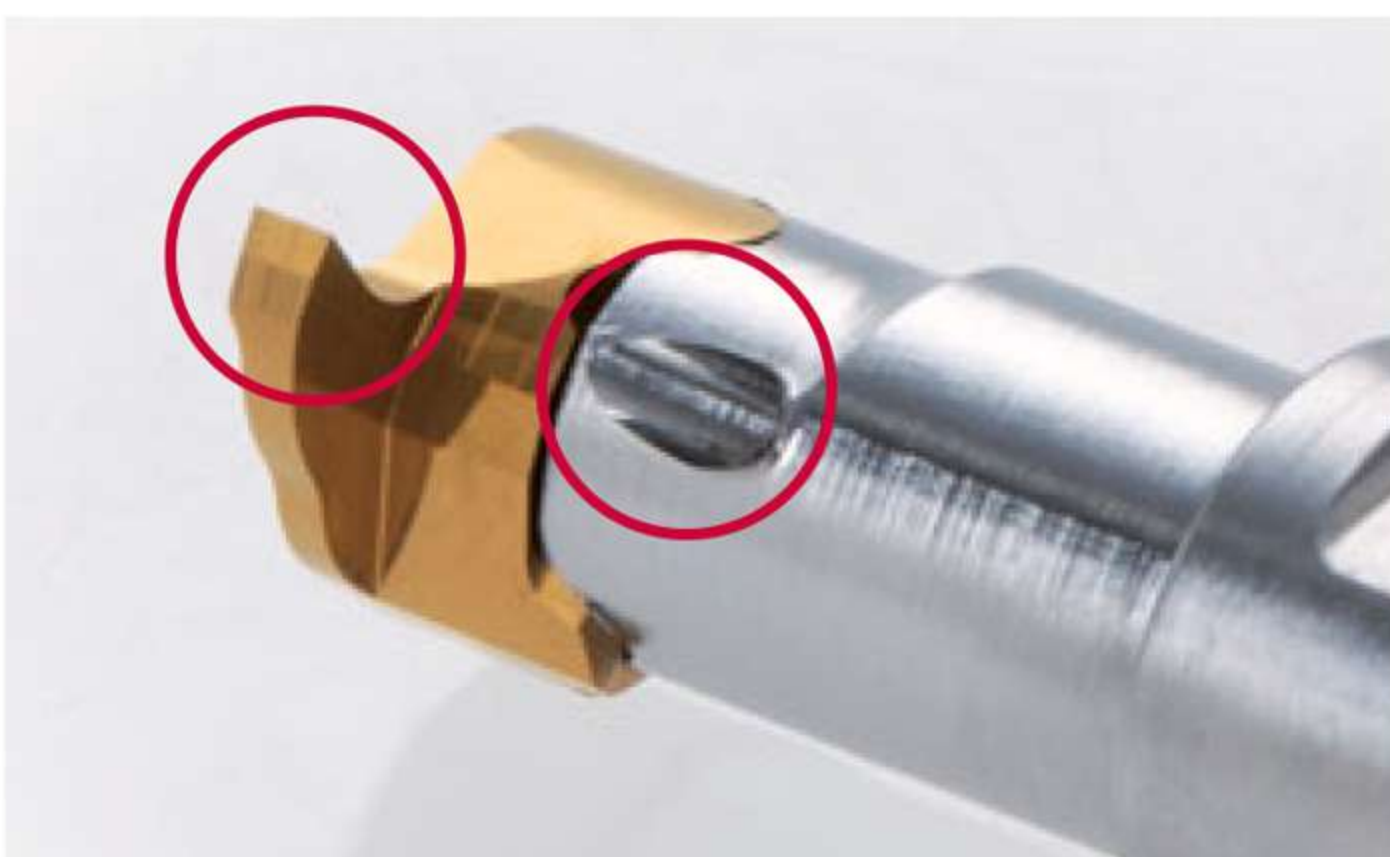


Unique clamping system for highly rigid clamping



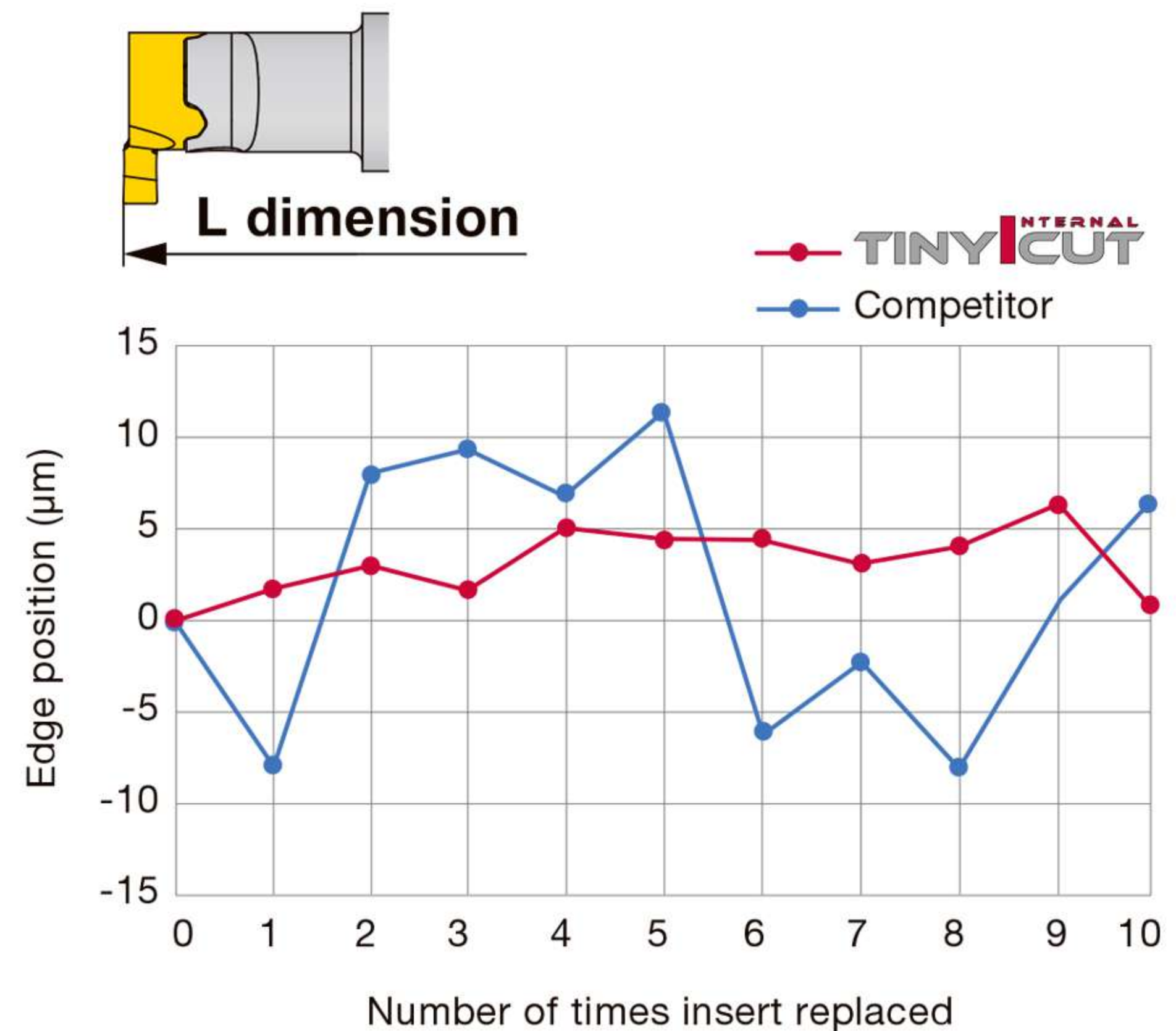
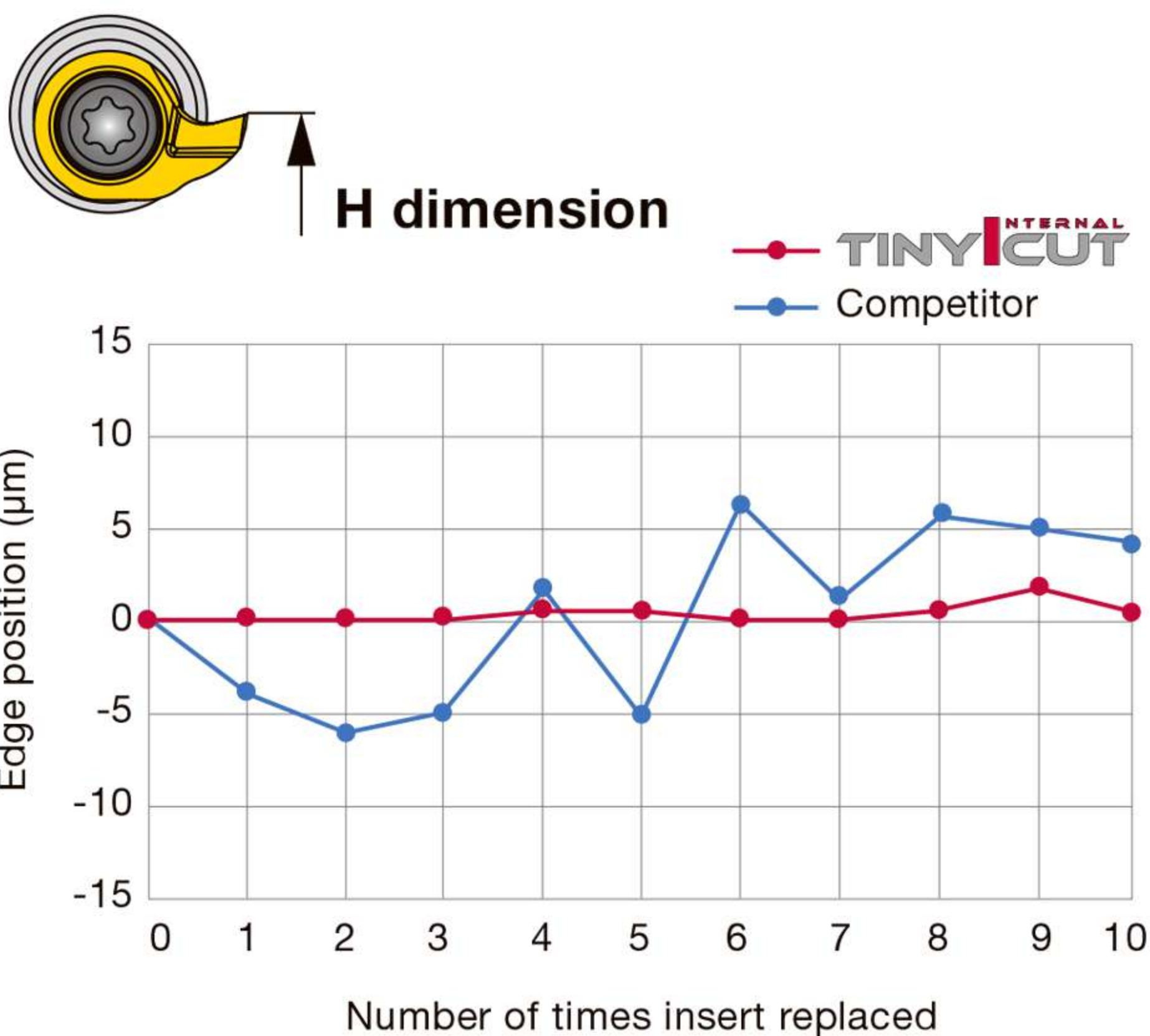
Tool body with through coolant

Make sure that, when assembling, the cutting edge is in line with the coolant outlet for effective chip evacuation.



Extremely precise edge repeatability

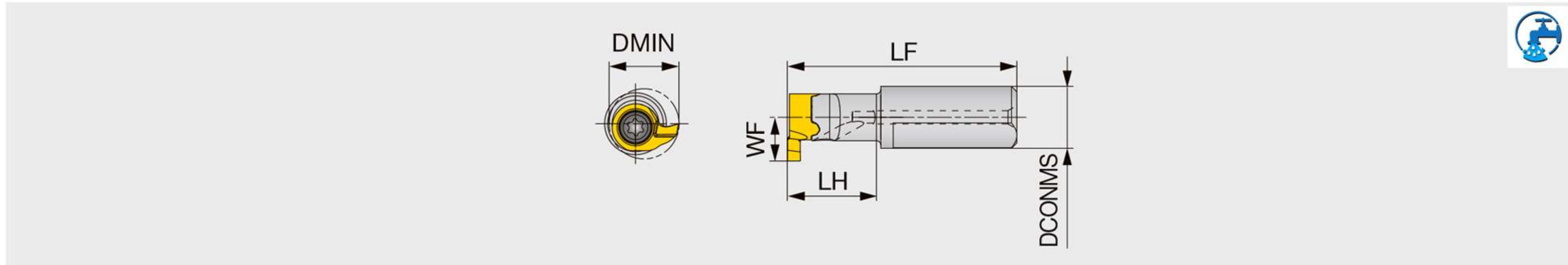
Exchangeable head system with extremely high repeatability



TINY INTERNAL CUT

A/E-SMR

Screw-on boring bar



Designation	Material	DCONMS	LH	LF	Insert	Torque*
A07080-SMR4	Steel	7	8	24	M*R4...	0.5
E07120-SMR4	Carbide	7	12	29	M*R4...	0.5
A07100-SMR5	Steel	7	10	26	M*R5...	1.3
E07180-SMR5	Carbide	7	18	34	M*R5...	1.3

*Torque: Recommended clamping torque (N·m)
 For A/E-SMR4, the above LF and LH dimensions are true with MGR4100F000-D05 insert assembled.
 For A/E-SMR5, the above LF and LH dimensions are true with MGR5150F003-D07 insert assembled.
 The DMIN and WF sizes vary depending on the insert sizes used.

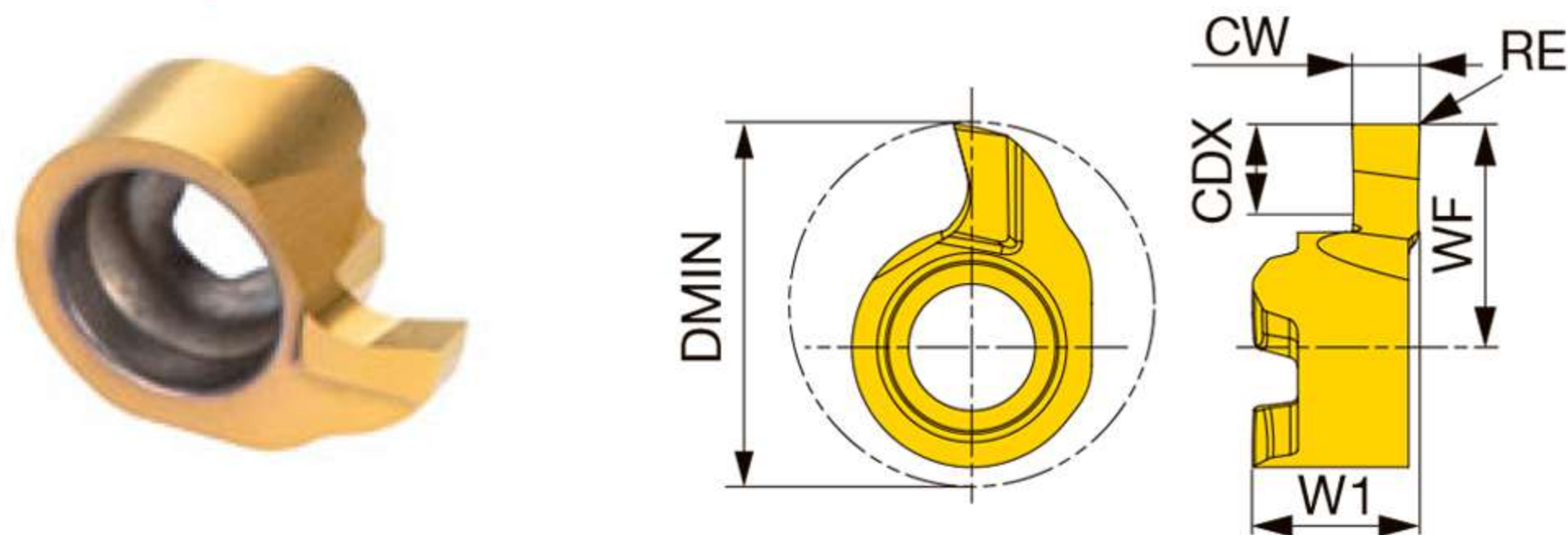
SPARE PARTS

Designation	Clamping screw	Wrench
A/E07**-SMR4	CSPB-1.8L3.6	IP-6F
A/E07**-SMR5	CSTB-2.5L054DR	T-7F

INSERTS

MGR

Grooving



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

★ : First choice

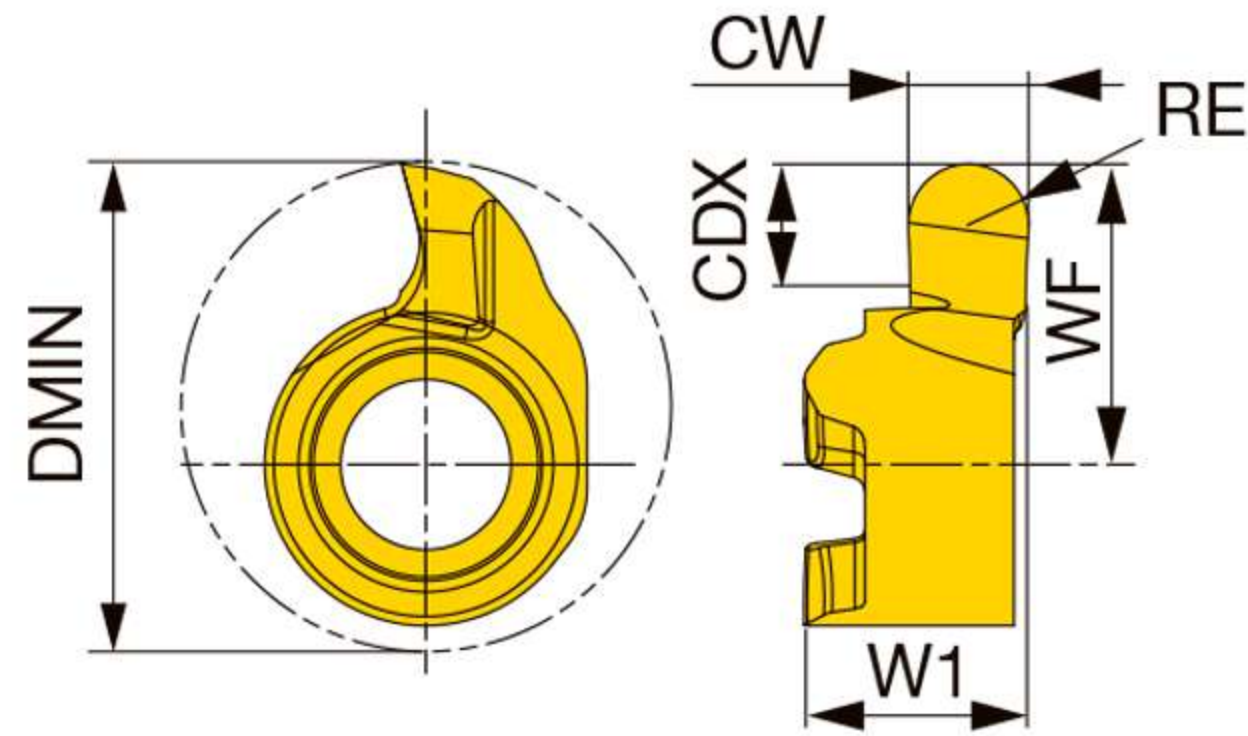
Designation	CW	RE	Coated						CDX	DMIN	WF	W1
			SH7025									
MGR4100F000-D05	1	0	●						1	5	2.95	2.3
MGR5100F003-D07	1	0.03	●						1	7	3.95	3.7
MGR5150F003-D07	1.5	0.03	●						1	7	3.95	3.7
MGR5100F003-D08	1	0.03	●						2	8	4.95	3.7
MGR5150F010-D08	1.5	0.1	●						2	8	4.95	3.7
MGR5200F020-D08	2	0.2	●						2	8	4.95	3.7

● : New product

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MGR

Profiling (Full R)



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

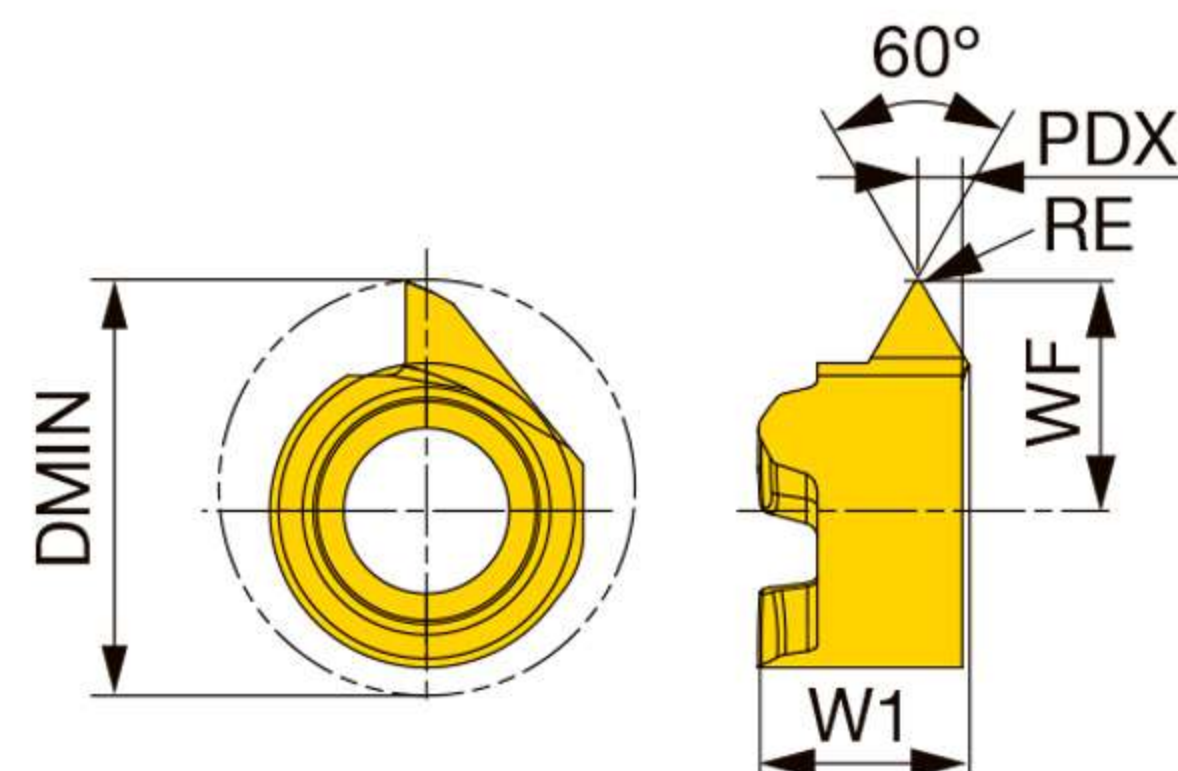
★ : First choice

Designation	CW	RE	Coated							CDX	DMIN	WF	W1
			SH7025										
MGR5100F050-D07	1	0.5	●							1	7	3.95	3.7
MGR5150F075-D07	1.5	0.75	●							1	7	3.95	3.7
MGR5200F100-D08	2	1	●							2	8	4.95	3.7

● : New product

MTR

Threading



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

★ : First choice

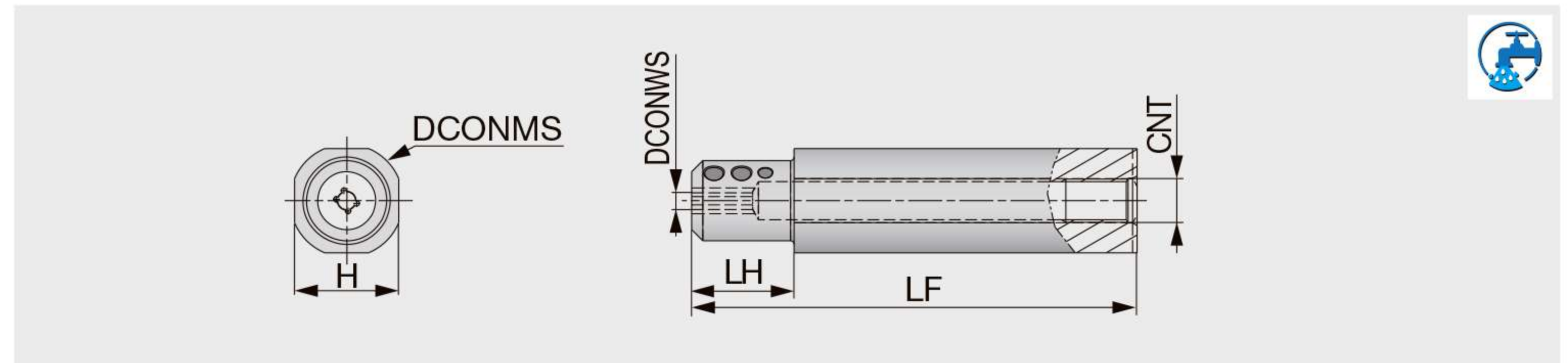
Designation	RE	Coated							Pitch min	Pitch max	DMIN	PDX	WF	W1	
		SH7025													
MTR460F003-D05	0.03	●								0.5	0.75	5	0.65	2.9	2.1
MTR560F007-D07	0.07	●								1	1.25	7	0.9	3.9	3.6

● : New product

TINY INTERNAL CUT

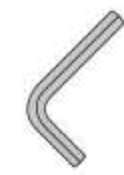
JBBS-4N

Sleeve for internal coolant supply with 4 coolant holes



Designation	DCONMS	DCONWS	LF	LH	H	CNT
JBBS159-7-L100C-4N	15.875	7	100	10	14.58	Rc1/8
JBBS16-7-L100C-4N	16	7	100	10	15	Rc1/8
JBBS19-7-L100C-4N	19.05	7	100	20	17.2	Rc1/8
JBBS20-7-L100C-4N	20	7	100	20	18	Rc1/8
JBBS22-7-L100C-4N	22	7	100	20	20	Rc1/8
JBBS25-7-L100C-4N	25	7	100	23	23	Rc1/8
JBBS254-7-L100C-4N	25.4	7	100	23	23.4	Rc1/8

SPARE PARTS



Designation	Clamping screw	Wrench
JBBS**-7-L***C-4N	SSHM5-4PF-S	P-2.5

STANDARD CUTTING CONDITIONS

Internal grooving

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed: f (mm/rev)			
				RE = 0 mm	RE = 0.03 mm	RE = 0.1 mm	RE = 0.2 mm
P	Low carbon steel S15C, etc., C15E4, etc.	SH7025	10 - 100	0.005 - 0.015	0.005 - 0.02	0.01 - 0.02	0.01 - 0.03
	Carbon steels, Alloy steel S55C, SCM440, etc., C55, 42CrMoS4, etc.	SH7025	10 - 60	0.005 - 0.01	0.005 - 0.015	0.005 - 0.015	0.01 - 0.03
	Prehardened steel NAK80, PX5, etc.	SH7025	10 - 40	0.005 - 0.008	0.005 - 0.01	0.005 - 0.01	0.01 - 0.025
M	Stainless steel SUS304, etc., X5CrNi18-9, etc.	SH7025	10 - 80	0.005 - 0.008	0.005 - 0.01	0.005 - 0.015	0.01 - 0.02

Profiling - full radius

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed: f (mm/rev)		
				RE = 0 mm (Max.ap = 0.35 mm)	RE = 0.03 mm (Max.ap = 0.5 mm)	RE = 0.2 mm (Max.ap = 0.7 mm)
P	Low carbon steel S15C, etc., C15E4, etc.	SH7025	10 - 120	0.005 - 0.015	0.005 - 0.02	0.01 - 0.02
	Carbon steels, Alloy steel S55C, SCM440, etc., C55, 42CrMoS4, etc.	SH7025	10 - 100	0.005 - 0.01	0.005 - 0.018	0.01 - 0.015
	Prehardened steel NAK80, PX5, etc.	SH7025	10 - 80	0.005 - 0.008	0.005 - 0.015	0.005 - 0.013
M	Stainless steel SUS304, etc., X5CrNi18-9, etc.	SH7025	10 - 100	0.005 - 0.01	0.005 - 0.012	0.005 - 0.01

Threading

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed: f (mm/rev)
P	Low carbon steel S15C, etc., C15E4, etc.	SH7025	10 - 100	30 - 60
	Carbon steels, Alloy steel S55C, SCM440, etc., C55, 42CrMoS4, etc.	SH7025	10 - 60	10
	Prehardened steel NAK80, PX5, etc.	SH7025	10 - 40	10 - 20
M	Stainless steel SUS304, etc., X5CrNi18-9, etc.	SH7025	10 - 80	10 - 80

Recommended infeeding passes for thread pitches

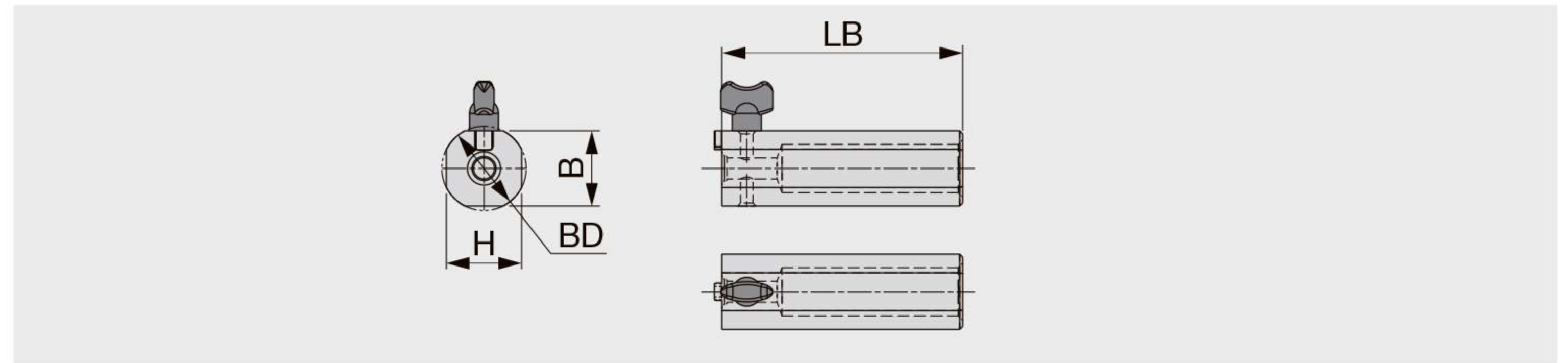
Thread pitch (mm)	Insert designation	RE (mm)	Total depth of feed	Recommended number of passes	Depth of cut per pass (mm)								
					Pass 1	Pass 2	Pass 3	Pass 4	Pass 5	Pass 6	Pass 7	Pass 8	Pass 9
0.5	MTR460F003-D05	0.03	0.3	5	0.08	0.07	0.06	0.05	0.04				
0.75		0.03	0.47	6	0.12	0.1	0.08	0.07	0.06	0.04			
1	MTR560F007-D07	0.07	0.6	6	0.18	0.15	0.1	0.08	0.05	0.04			
1.25		0.07	0.76	7	0.18	0.15	0.12	0.1	0.1	0.07	0.04		

TINYINTERNALCUT

ACCESSORY

QC-12D28EXC

Holder for insert change



Designation	BD	LB	H	B
QC-12D28EXC	28	80	25	25

Note: This is a dedicated holder designed to facilitate insert changes. Do not use this holder for machining as it may cause damages to tool, workpiece, machine, and possible human injury.

SPARE PARTS



Designation	Fixing screw
QC-12D28EXC	KNOBM5X10



TinyInternalCut heads are small. When it is difficult to change inserts while holding the modular head with fingers, use the dedicated holder to facilitate insert changes.

■ PRACTICAL EXAMPLES

Workpiece type		Cover	Valve seat	
Toolholder		A07080-SMR4	A07080-SMR4	
Insert		MGR4100F000-D05	MGR4100F000-D05	
Grade		SH7025	SH7025	
Workpiece material		Alloy steel	Alloy steel	
Cutting conditions	Cutting speed: V_c (m/min)	38	50	
	Feed : f (mm/rev)	0.01	0.01	
	Groove width : CW (mm)	1	1	
	Groove depth : CDX (mm)	0.7	0.5	
	Machining	Internal grooving	Internal grooving	
	Coolant	Wet	Wet	
Results	<p>With rigid insert clamping and the use of JBBS-4N tool sleeve, TinyInternalCut eliminated chip bird-nesting and provided 2.6 times tool life increase.</p>		<p>With excellent edge line security and sharpness, TinyInternalCut eliminated burr generation and extended tool life by 1.3 times.</p>	

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