

TURNLINE TAC boring bars

DOMINIBORE

**Expansion of
chipbreaker line**

**Sharpness of positive inserts with twice the number of
cutting edges**



Remarkable edge sharpness reduces cutting forces while the double sided insert increases the number of cutting edges !

Uniquely designed double sided insert

Minimum bore diameter: $\varnothing 12$ mm

→ Economic advantages with twice the number of cutting edges

Advanced edge shape reduces the cutting forces

→ Similar design to positive type inserts to prevent chattering

→ G-Class Inserts create precision machining

One insert type for toolholder shank diameter range from $\varnothing 10$ mm ~ $\varnothing 20$ mm

→ One insert type for the minimum bore range from 12 mm diameter upwards, reducing the inventory

Ideal grade series for various applications

→ **AH725** for general steel cutting, **GT530** with high wear resistance for fine surface finishes and the **NS530** for economic performance



Originally designed exclusive insert

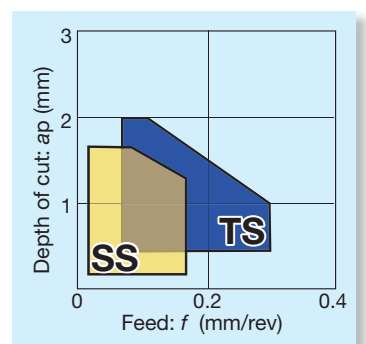
TS: general purpose

(Recommended for steel machining)



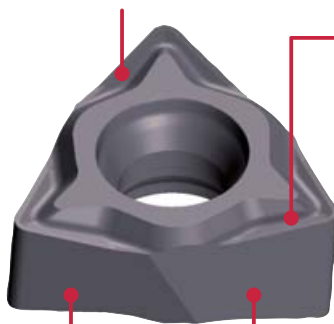
SS: generates low cutting forces

(Recommended for stainless steel machining)



Large inclination on edge

Reduces cutting forces and chattering

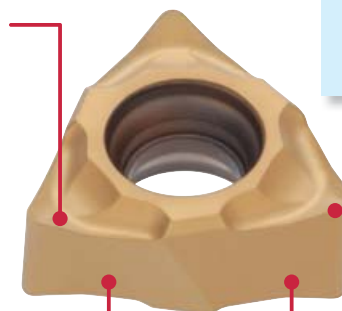


Wide chip-pocket

Prevents chip packing
Prevents the re-cutting of chips

Enhances the clamping rigidity

Uniquely designed shape to precisely fit to the toolholder



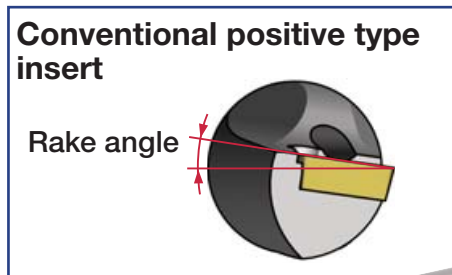
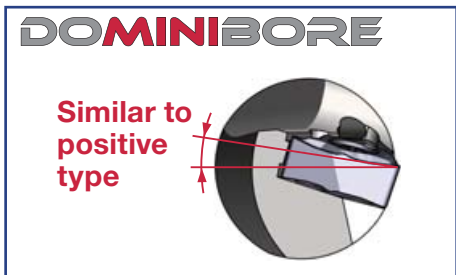
Large rake angle and optimum pocket shape

Drastically reduces cutting forces
Smooth chip evacuation

High performance boring bars with new optimum design

Excellent chip evacuation and high rigidity

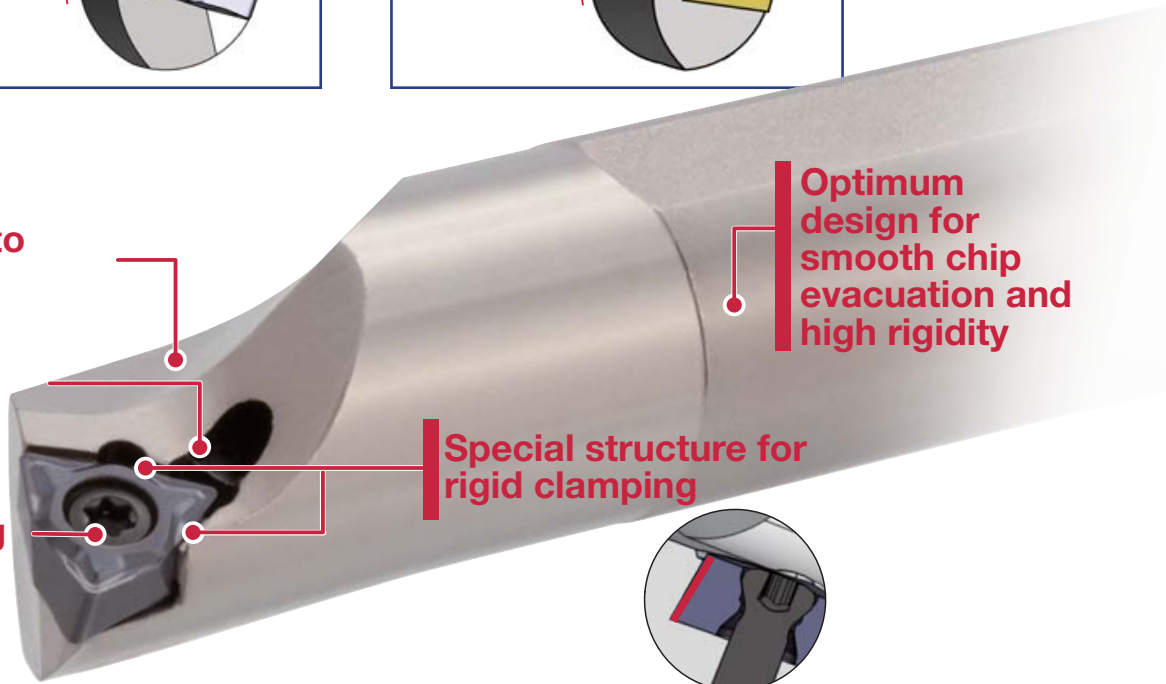
(Same structure as StreamJetBar series)



Optimal space to evacuate chips

Oil hole directs coolant to the cutting edge

Screw clamping with high rigidity



Dove-tail structure (wedge shape) creates high clamping force

Cutting performance

Anti-vibration design

Same strength performance as positive type inserts

■ Steel shank
 Cutting speed : $V_c = 150$ m/min
 Work material : S45C / C45
 Coolant : Wet (internal supply)

Overhang length: 36 mm ($L/D = 3$), Shank diameter: $\phi 12$ mm

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Depth of cut: ap (mm)	2.0	OK	OK	OK	OK
	1.5	OK	OK	OK	OK
	1.0	OK	OK	OK	OK
	0.5	OK	OK	OK	OK
	ap/f	0.05	0.10	0.15	0.20

Feed: f (mm/rev)

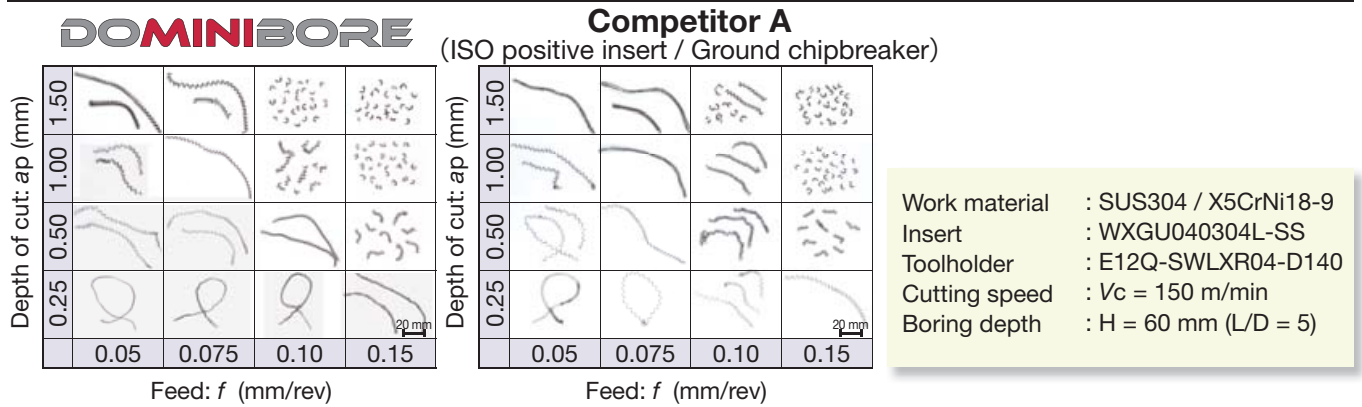
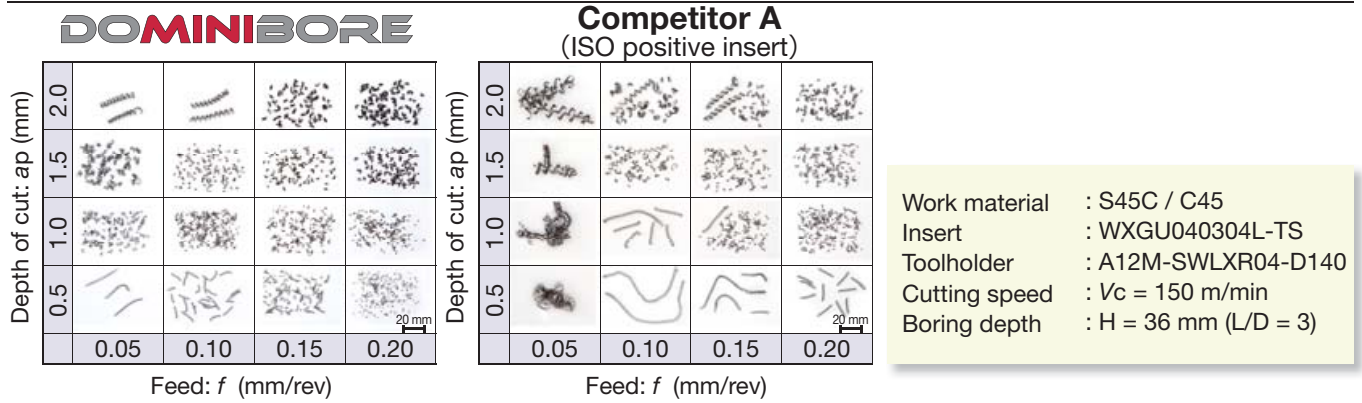
Overhang length

Depth of cut: ap (mm)	2.0	OK	OK	OK	OK
	1.5	OK	OK	OK	OK
	1.0	OK	OK	OK	OK
	0.5	OK	OK	OK	OK
	ap/f	0.05	0.10	0.15	0.20

Feed: f (mm/rev)

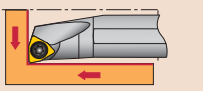
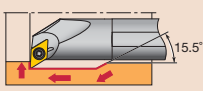
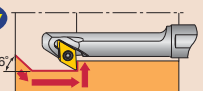
Chip control

Excellent chip control for a wide range of cutting conditions



Comparison of products

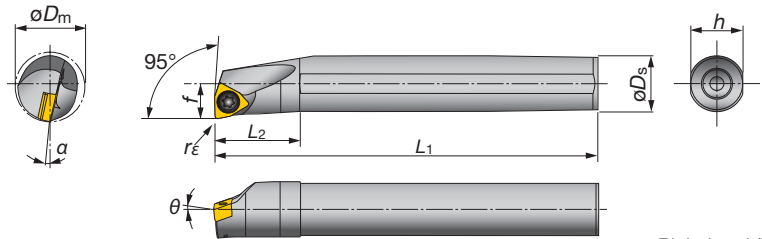
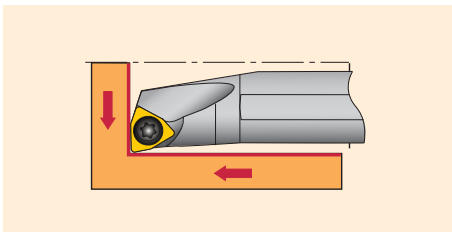
Line-ups

Style	Shank type	Shank diameter (mm)	Minimum bore diameter ϕD_m (mm)					
			0	10	15	20	25	
 SWLXR/L Boring and facing Insert type: WXGU	Steel /	$\phi 10 \sim \phi 20$		$\phi 12$			$\phi 22$	
	Carbide	$\phi 10 \sim \phi 20$		$\phi 12$			$\phi 22$	
 SDXXR/L Internal profiling Insert type: DXGU	Steel /	$\phi 10 \sim \phi 20$		$\phi 13$			$\phi 24$	
	Carbide	$\phi 10 \sim \phi 20$		$\phi 13$			$\phi 24$	
 SDZXR/L Internal retracting Insert type: DXGU	Steel /	$\phi 12 \sim \phi 20$			$\phi 14$		$\phi 20$	
	Carbide	$\phi 12 \sim \phi 16$			$\phi 18$		$\phi 22$	
Tool	Minimum bore diameter ϕD_m (mm)							
	5	10	15	20	25	30	35	40
DOMINIBORE Negative type insert			$\phi 12$					$\phi 24$
STREAMJETBAR Negative type insert (1)				$\phi 20$				$\phi 40$
STREAMJETBAR Positive type insert (2)	$\phi 4.5$							$\phi 34$

(1) ISO negative type insert: with PTUNR/L type toolholder
 (2) ISO negative type insert: with STUPR/L type toolholder

Toolholders

SWLXR/L Boring & internal facing



Right hand (R) shown

Steel shank

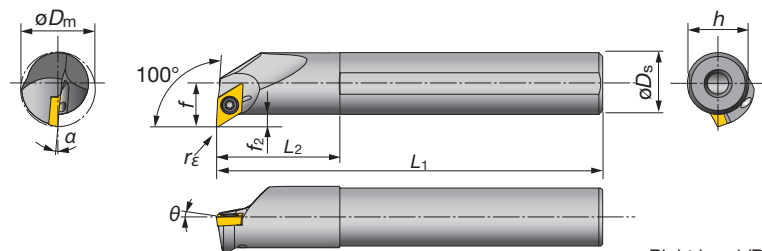
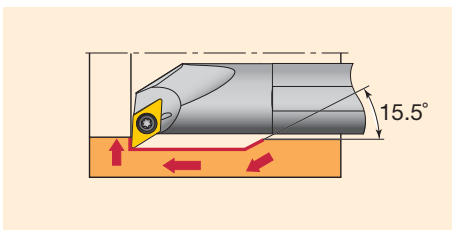
Cat. No	Stock		Min. bore dia. ϕD_m	Dimensions (mm)							Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)	
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ			α	Clamping screw		Wrench
A10K-SWLXR/L04-D120	●	●	12	10	6	125	20	9	-	-10°	-16°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
A12M-SWLXR/L04-D140	●	●	14	12	7	150	24	11	-	-10°	-14°	0.4				
A16Q-SWLXR/L04-D180	●	●	18	16	9	180	32	15	-	-10°	-11°	0.4				
A20R-SWLXR/L04-D220	●	●	22	20	11	200	36	18	-	-10°	-10°	0.4				

Carbide shank

Cat. No	Stock		Min. bore dia. ϕD_m	Dimensions (mm)							Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)	
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ			α	Clamping screw		Wrench
E10M-SWLXR/L04-D120	●	●	12	10	6	150	25	9	-	-10°	-16°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
E12Q-SWLXR/L04-D140	●	●	14	12	7	180	27	11	-	-10°	-14°	0.4				
E16R-SWLXR/L04-D180	●	●	18	16	9	200	32	15	-	-10°	-11°	0.4				
E20S-SWLXR/L04-D220	●	●	22	20	11	250	36	18	-	-10°	-10°	0.4				

When using a right or left hand insert, the right hand insert (R) is used with the left hand toolholders (SWLXL04-D**), while the left hand insert (L) is used with the right hand toolholders (SWLXR04-D**).

SDXXR/L Boring & internal profiling



Right hand (R) shown

Steel shank

Cat. No	Stock		Min. bore dia. ϕD_m	Dimensions (mm)							Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)	
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ			α	Clamping screw		Wrench
A10K-SDXXR/L07-D130	●	●	13	10	7.6	125	20	9	2.6	-14°	-16°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
A12M-SDXXR/L07-D160	●	●	16	12	8.6	150	24	11	2.6	-14°	-14°	0.4				
A16Q-SDXXR/L07-D200	●	●	20	16	10.6	180	32	15	2.6	-13°	-13°	0.4				
A20R-SDXXR/L07-D240	●	●	24	20	12.6	200	36	18	2.6	-13°	-12°	0.4				

Carbide shank

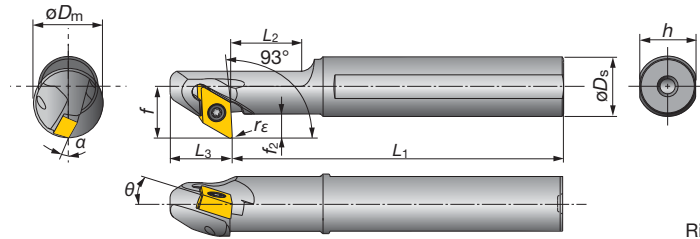
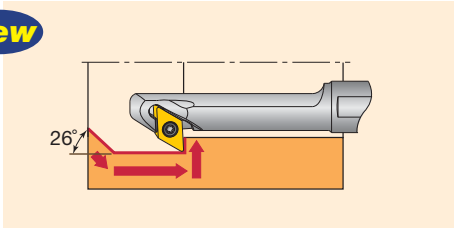
Cat. No	Stock		Min. bore dia. ϕD_m	Dimensions (mm)							Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)	
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ			α	Clamping screw		Wrench
E10M-SDXXR/L07-D130	●	●	13	10	7.6	150	25	9	2.6	-14°	-16°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
E12Q-SDXXR/L07-D160	●	●	16	12	8.6	180	27	11	2.6	-14°	-14°	0.4				
E16R-SDXXR/L07-D200	●	●	20	16	10.6	200	32	15	2.6	-13°	-13°	0.4				
E20S-SDXXR/L07-D240	●	●	24	20	12.6	250	36	18	2.6	-13°	-12°	0.4				

When using a right or left hand insert, the right hand insert (R) is used with the left hand toolholders (SDXXL07-D**), and the left hand insert (L) is used with the right hand toolholders (SDXXR07-D**).

● : Stocked items

SDZXR/L Internal retracting

New



Right hand (R) shown

Steel shank

Cat. No	Stock		Min bore dia. ϕD_m	Dimensions (mm)									Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	L_3	h	f_2	θ	a			Clamping screw	Wrench	
A12M-SDZXR/L07-D140	★	★	14	12	11	150	30	13	11	4.5	-10°	-14°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9
A16Q-SDZXR/L07-D160	★	★	16	16	13	180	35	13	15	4.5	-10°	-12.5°	0.4				
A20R-SDZXR/L07-D200	★	★	20	20	15	200	40	13	18	4.5	-10°	-10.5°	0.4				

Carbide shank

Cat. No	Stock		Min bore dia. ϕD_m	Dimensions (mm)									Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	L_3	h	f_2	θ	a			Clamping screw	Wrench	
E12Q-SDZXR/L07-D180	★	★	18	12	11	180	-	13	11	4.5	-11°	-11°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9
E16R-SDZXR/L07-D220	★	★	22	16	13	200	-	13	15	4.5	-11°	-9°	0.4				

When using a right or left hand insert, the right hand insert (R) is used with the right hand toolholders (SDZXR07-D**), and the left hand insert (L) is used with the left hand toolholders (SDZXL07-D**).

★ : Available in 2013

Inserts

80° Trigon

Application	Chipbreaker Appearance (Cross section)	Cat. No.	Grades			Dimensions (mm)			
			Coated	Coated cermet	Cermet	I.C. dia. ϕd	Thickness s	Hole dia. ϕd_1	Corner radius r_ϵ
			AH725	GT530	NS530				
New Finishing (low cutting forces)	SS 	WXGU040302R-SS	●	●	●	6.35	3.18	2.7	0.2
		WXGU040302L-SS	●	●	●				
		WXGU040304R-SS	●	●	●				0.4
		*WXGU040304L-SS	●	●	●				
Finishing to medium cutting	TS 	WXGU040302R-TS	●	●	●	6.35	3.18	2.7	0.2
		WXGU040302L-TS	●	●	●				
		WXGU040304R-TS	●	●	●				0.4
		*WXGU040304L-TS	●	●	●				
		WXGU040308R-TS	●	●	●				0.8
		WXGU040308L-TS	●	●	●				

55° Rhombic

Application	Chipbreaker Appearance (Cross section)	Cat. No.	Grades			Dimensions (mm)			
			Coated	Coated cermet	Cermet	I.C. dia. ϕd	Thickness s	Hole dia. ϕd_1	Corner radius r_ϵ
			AH725	GT530	NS530				
New Finishing (low cutting forces)	SS 	DXGU070302R-SS	●	●	●	6.35	3.18	2.7	0.2
		DXGU070302L-SS	●	●	●				
		DXGU070304R-SS	●	●	●				0.4
		*DXGU070304L-SS	●	●	●				
Finishing to medium cutting	TS 	DXGU070302R-TS	●	●	●	6.35	3.18	2.7	0.2
		DXGU070302L-TS	●	●	●				
		DXGU070304R-TS	●	●	●				0.4
		*DXGU070304L-TS	●	●	●				
		DXGU070308R-TS	●	●	●				0.8
		DXGU070308L-TS	●	●	●				

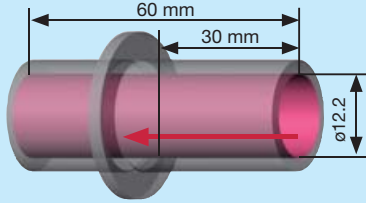
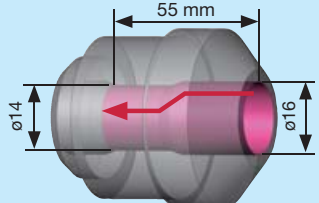
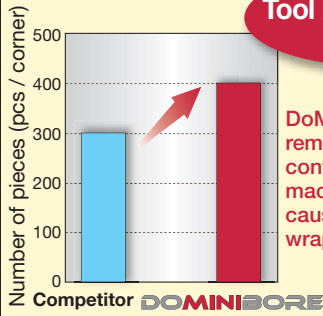
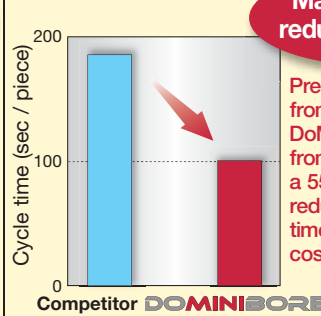
Note: Chipbreaker cross-sections are of * marked inserts.

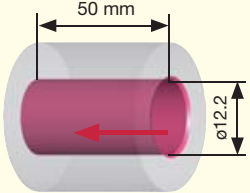
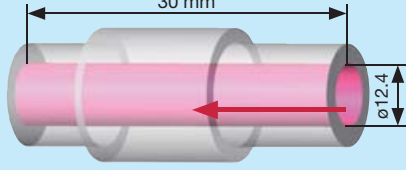
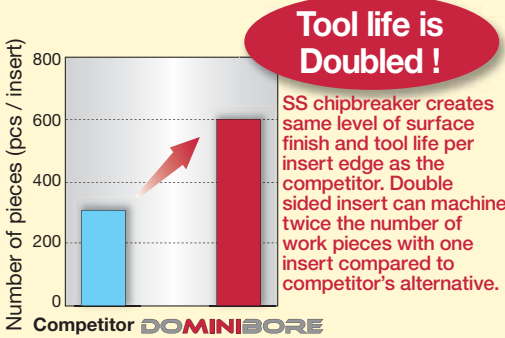
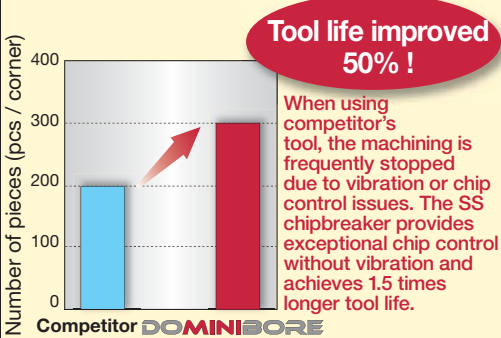
● : Stocked items

Standard cutting conditions

Work materials	Priority	Grades	Cutting Speed Vc (m/min)	Chip-breaker	Depth of cut ap (mm)	Feed f (mm/rev)
Low carbon steels SS400, SM490, S25C etc. (St42-1, St52-3, C25 etc.) Carbon steels S45C, S55C etc. (C45, C55 etc.) Low alloy steels SCM415 etc. Alloy steels SCM440, SCr420 etc. (42CrMo4, 20Cr4 etc.)	First choice	AH725	50 ~ 180	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
	For improved surface finish	NS530	80 ~ 250	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
	For wear resistance	GT530	80 ~ 300	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
Stainless steels (Austenitic) SUS304, SUS316 etc. (X5CrNi18-9, X5CrNiMo17-12-2 etc.) Stainless steels (Martensitic and ferritic) SUS430, SUS416 etc. (X6Cr17, X20Cr13 etc.) Stainless steels (Precipitation hardening) SUS630 etc. (X5CrNiCuNb16-4 etc.)	First choice	AH725	50 ~ 150	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
Grey cast irons FC250 etc. (GG25 etc.)	First choice	AH725	50 ~ 180	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
	For improved surface finish	NS530	80 ~ 250	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
	For wear resistance	GT530	80 ~ 300	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
Ductile cast irons FCD700 etc. (GGG70 etc.)	First choice	AH725	50 ~ 120	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
	For improved surface finish	NS530	80 ~ 150	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3
	For wear resistance	GT530	80 ~ 180	SS	0.15 - 1.5	0.05 - 0.2
				TS	0.3 - 2.0	0.08 - 0.3

Practical examples

Workpiece type		Machine parts	Machine parts
Toolholder		A10K-SWLXR04-D120	E12Q-SWLXR04-D140
Insert		WXGU040304L-TS	WXGU040304L-TS
Grade		AH725	AH725
Work material		S45C / C45	SCr420H / 20Cr4(H)
			
Cutting conditions	Cutting speed : Vc (m/min)	60	120
	Feed : f (mm/rev)	0.25	0.15
	Depth of cut : ap (mm)	0.85	0.5 ~ 2.0
	Machining	Internal turning (continuous cutting)	Internal profiling (continuous cutting)
	Coolant	Wet	Wet
Results		 <p>Tool life improved 30% !</p> <p>DoMiniBore shows remarkable chip control and prevents machine stoppages caused by chip wrapping.</p>	 <p>Machining time reduced by 45% !</p> <p>Previously: Machined from both ends. DoMiniBore: Machined from ONE end with a 55 mm depth. This reduces machining time, set ups and tool costs significantly.</p>

Workpiece type		Machine parts	Machine parts
Toolholder		A10K-SWLXR04-D120	E10M-SWLXR04-D120
Insert		WXGU040304L-SS	WXGU040304L-SS
Grade		AH725	GT530
Work material		SUS303 / X10CrNiS18-9	SCr420 / 20Cr4
			
Cutting conditions	Cutting speed : Vc (m/min)	120	120
	Feed : f (mm/rev)	0.15	0.15
	Depth of cut : ap (mm)	0.2	0.2
	Machining	Internal turning	Internal turning
Coolant		Wet	Wet
Results			
		Competitor DOMINIBORE	Competitor DOMINIBORE

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