



## Aluminum Series

Optimum edge treatment and advanced clamping technology

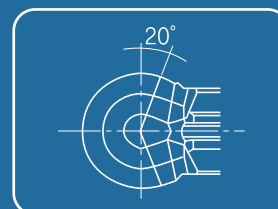
**New**

# Machining Al wheels

### Features

- Optimal configurations for aluminum wheel operation.
- Long tool-life by applying new grade.
- Strong clamping of insert by unique clamping mechanism
- Various insert types for multipurpose

- Complete radius through out the cutting edge



### Various insert style



#### MRGN-A (General use)

- High rake angle
- Cutting conditions  
vc = 1,000 ~ 2,500 m/min  
fn = 0.1 ~ 0.8 mm/rev  
ap = 0.5 ~ 4.0 mm



#### MRGN-A5 (Copy machining)

- Reinforced clamping
- Cutting conditions  
vc = 1,000 ~ 2,500 m/min  
fn = 0.1 ~ 0.8 mm/rev  
ap = 0.5 ~ 4.0 mm



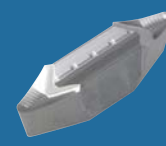
#### MRGN-AM (Medium finishing)

- Medium-finishing cut
- For ductile cast iron
- Cutting conditions  
vc = 1,000 ~ 2,500 m/min  
fn = 0.1 ~ 0.6 mm/rev  
ap = 0.5 ~ 3.0 mm



#### MRGN-AP (PCD insert)

- Improved chip control
- Cutting conditions  
vc = 1,000 ~ 3,000 m/min  
fn = 0.1 ~ 0.6 mm/rev  
ap = 0.5 ~ 2.0 mm



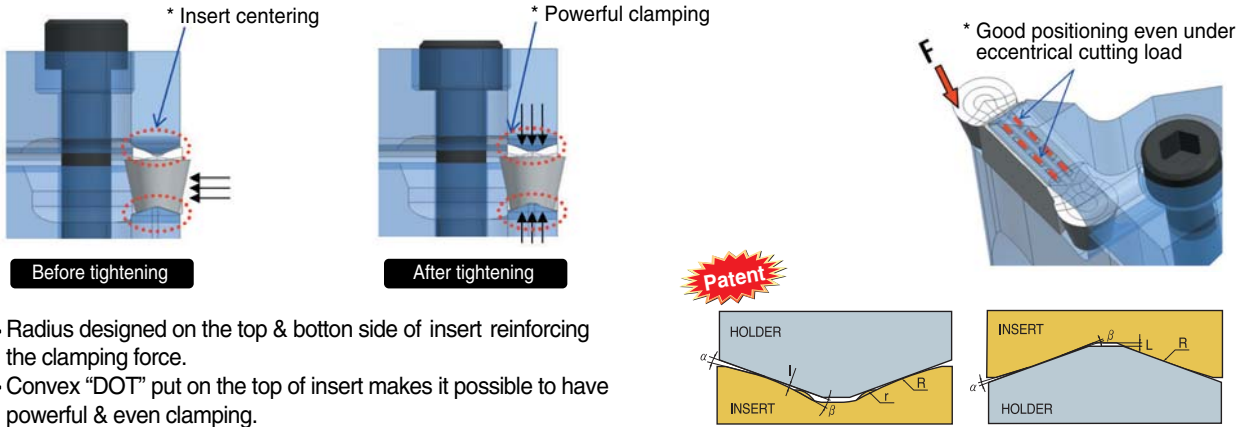
#### MVGN-A (Fine finishing)

- High rake, high relief angle
- Cutting conditions  
vc = 1,000 ~ 2,500 m/min  
fn = 0.1 ~ 0.8 mm/rev  
ap = 0.5 ~ 4.0 mm

# Machining AI Wheels

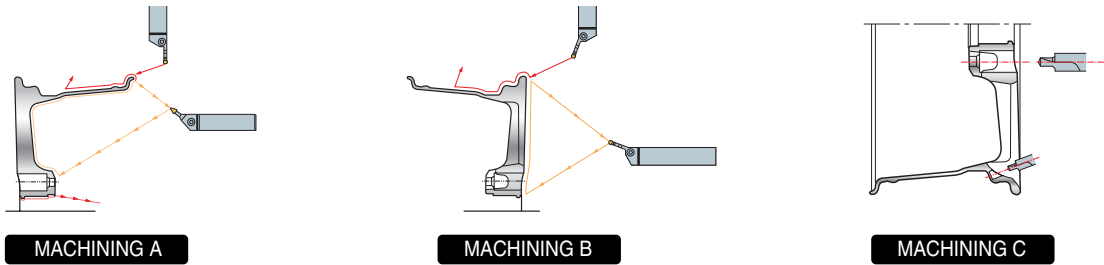
New clamping system | Application of AI wheel | Insert

## New clamping system

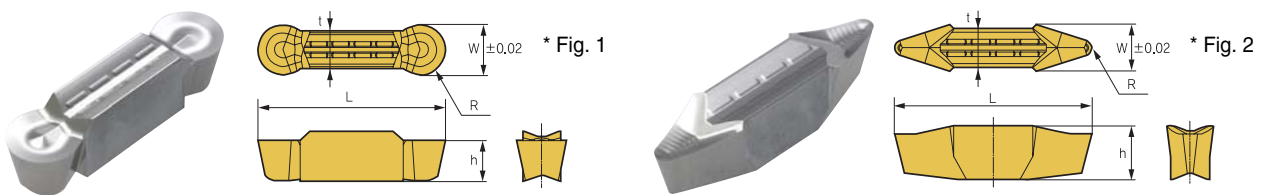


- Radius designed on the top & bottom side of insert reinforcing the clamping force.
- Convex "DOT" put on the top of insert makes it possible to have powerful & even clamping.

## Application of AI wheel



## Insert

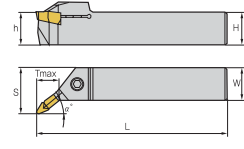
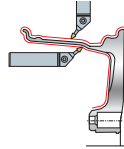


Designation	Grade			Dimensions (mm)					Fig.	Available holder
	G10	H05	H01	W	R	L	t	h		
MRGN6N-A	●			6.0	3.0	26.0	7.2	5.9	1	MGEHR/L25N-6A
MRGN6N-AM	●			6.0	3.0	26.0	7.2	5.9	1	
MRGN6N-AP	●			6.0	3.0	26.0	7.2	5.9	1	
MRGN6N-A5	●			6.0	3.0	26.0	7.2	5.9	1	MGEHR/L25N-6A5
MRGN8N-A	●			8.0	4.0	30.0	8.0	6.5	1	MGEHR/L32N-8A
MRGN8N-AM	●			8.0	4.0	30.0	8.0	6.5	1	
MRGN8N-AP	●			8.0	4.0	30.0	8.0	6.5	1	
MRGN8N-A5	●			8.0	4.0	30.0	8.0	6.5	1	MGEHR/L32N-8A5
MVGN8N-A-R1.2	●			8.0	1.2	30.0	8.0	6.9	2	MGEXR/L25N-8A-22.5°
MVGN8N-A-R1.6	●			8.0	1.6	30.0	8.0	6.9	2	

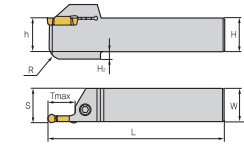
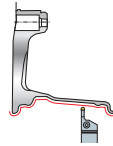
# Machining AI Wheels

Holder | Boring bar

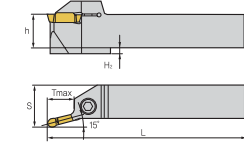
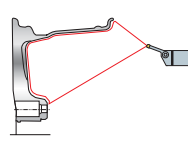
## Holder



Designation	Stock		Dimensions(mm)						Available Insert	Screw	Wrench
	R	L	H(h)	W	L	S	T max	$\alpha^\circ$			
MGEHR/L25N-8A-5V	●		25	25	150	29	23.5	5	MVGN8N-A-R1.2	BHA0620	HW50L
MGEHR/L25N-8A-22.5V	●		25	25	150	35	27	22.5	MVGN8N-A-R1.6		

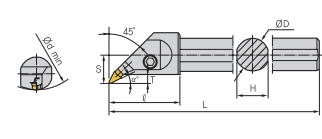
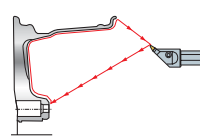


Designation	Stock		Dimensions(mm)							Available Insert	Screw	Wrench
	R	L	H(h)	W	L	S	T max	R	H <sub>2</sub>			
MGEHR/L25N-6A	●		25	25	150	25.55	23.5	6	7	MRGN6N-A MRGN6N-AP MRGN6N-AM	BHA0620	HW50L
MGEHR/L32N-6A	○		32	32	150	32.55	27	12	8			
MGEHR/L25N-6A5	●		25	25	150	25.55	23.5	6	7			
MGEHR/L32N-6A5	○		32	32	150	32.55	27	12	8	MRGN6N-A5		
MGEHR/L25N-8A	●		25	25	150	25.55	23.5	6	7	MRGN8N-A MRGN8N-AP MRGN8N-AM		
MGEHR/L32N-8A	●		32	32	150	32.55	27	12	8			
MGEHR/L25N-8A5	●		25	25	150	25.55	23.5	6	7			
MGEHR/L32N-8A5	●		32	32	150	32.55	27	12	8	MRGN8N-A5		



Designation	Stock		Dimensions(mm)							Available Insert	Screw	Wrench
	R	L	H(h)	W	L	S	T max	R	H <sub>2</sub>			
MGEHR/L25N-6A-15	●		25	25	150	32.2	20	6	7	MRGN6N-A MRGN6N-AP MRGN6N-AM	BHA0620	HW50L
MGEHR/L32N-6A-15	○		32	32	150	39.2	25	12	8			
MGEHR/L25N-6A5-15	●		25	25	150	32.2	20	6	7			
MGEHR/L32N-6A5-15	○		32	32	150	39.2	25	12	8	MRGN6N-A5		
MGEHR/L25N-8A-15	●		25	25	150	32.2	20	6	7	MRGN8N-A MRGN8N-AP MRGN8N-AM		
MGEHR/L32N-8A-15	●		32	32	150	39.2	25	12	8			
MGEHR/L25N-8A5-15	●		25	25	150	32.2	20	6	7			
MGEHR/L32N-8A5-15	●		32	32	150	39.2	25	12	8	MRGN8N-A5		

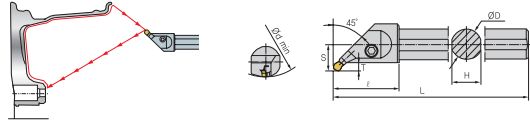
## Boring bar



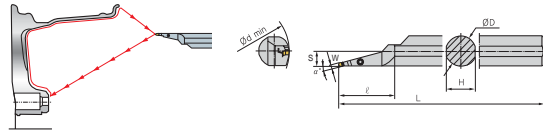
Designation	Stock		Dimensions(mm)							Available Insert	Screw	Wrench	
	R	L	$\phi D$	$\phi d_{min}$	L	$\ell$	T	H	$\alpha^\circ$				S
MGIUR/L6832-8A-MV	●		32	68	170	65	8.0	30	27.5	26	MVGN8N-A-R1.2 MVGN8N-A-R1.6	BHA0616	HW50L

# Machining AI Wheels

Machining example | Recommended cutting condition

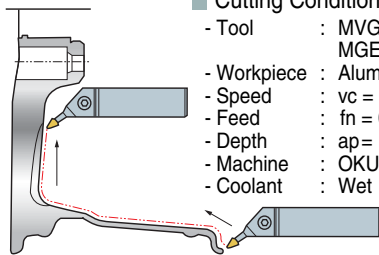


Designation	Stock		Dimensions(mm)							Available Insert	Screw	Wrench
	R	L	øD	ødmin	L	ℓ	T	H	S			
MGIUR/L6832-8A-MR	●		32	68	170	65	8.0	30	26	MRGN8N-A MRGN8N-AM MRGN8N-AP	BHA0616	HW50L
MGIUR/L6832-8A5-MR	●		32	68	170	65	8.0	30	26	MRGN8N-A5	BHA0616	HW50L



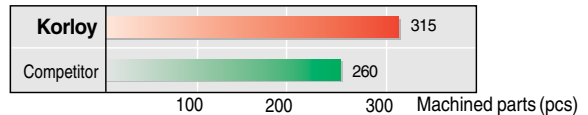
Designation	Stock		Dimensions(mm)								Available Insert	Screw	Wrench
	R	L	øD	ødmin	L	ℓ	W	H	α°	S			
MGIXR/L7050-8A-MR	●		50	70	350	80	8	46	27.5	30.2	MRGN8N-A MRGN8N-AM MRGN8N-AP	BHA0616	HW50L
MGIXR/L7050-8A5-MR	●		50	70	350	80	8	46	27.5	30.2	MRGN8N-A5	BHA0616	HW50L

## Machining example



### ■ Cutting Condition

- Tool : MVGN8N-A-R1.2  
MGEXR2525-8A-39.5V
- Workpiece : Aluminum Alloys(15inch Wheel)
- Speed :  $vc = 1907$  m/min
- Feed :  $fn = 0.4$  mm/rev
- Depth :  $ap = 1.5 \sim 2$  mm
- Machine : OKUMA
- Coolant : Wet



## Recommended cutting condition

Workpiece	Hardness (HB)	vc	fn	
		m/min	mm/rev	
Aluminum alloy (Forged)	Unhardenable	50 ~ 70	1,000 ~ 2,500	0.1 ~ 0.6
	Hardened	90 ~ 110	300 ~ 1,000	0.1 ~ 0.5
Aluminum alloy (Cast)	Unhardenable	70 ~ 80	300 ~ 1,000	0.1 ~ 0.5
	Hardened	80 ~ 110	200 ~ 600	0.1 ~ 0.4
Copper alloy	Short chipping	90 ~ 110	300 ~ 800	0.1 ~ 0.5
Magnesium alloy		70 ~ 80	300 ~ 1,000	0.1 ~ 0.5



### ※ Safety instruction

- Use glasses safely and face cover with protective equipment. If cutting condition and use method are inaccurate, you may be injured by broken tools or scattered chips.
- Excessive cutting load may influence badly on both tool and machine.  
Make suitable tool replacement for preventing failure of machining.
- After machine stopped, clean remained chips from machine with special cleaning equipment.
- Keep safety distance from acute and hot chip during machining.
- Make precaution for prevention of fire in advance when you use insoluble cutting oil.
- Assembled parts may be scattered at high speed cutting. Please use protective equipment.



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