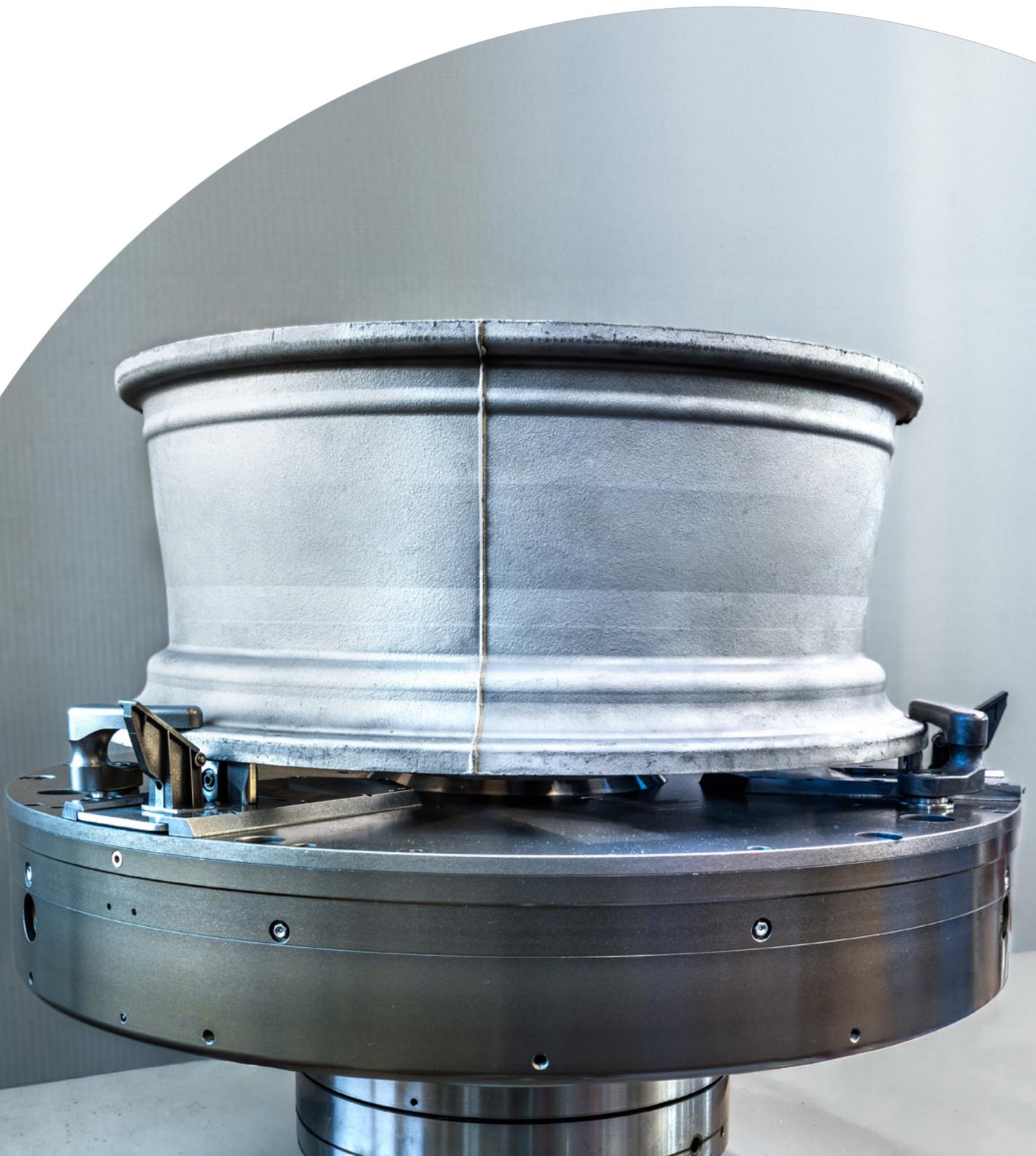
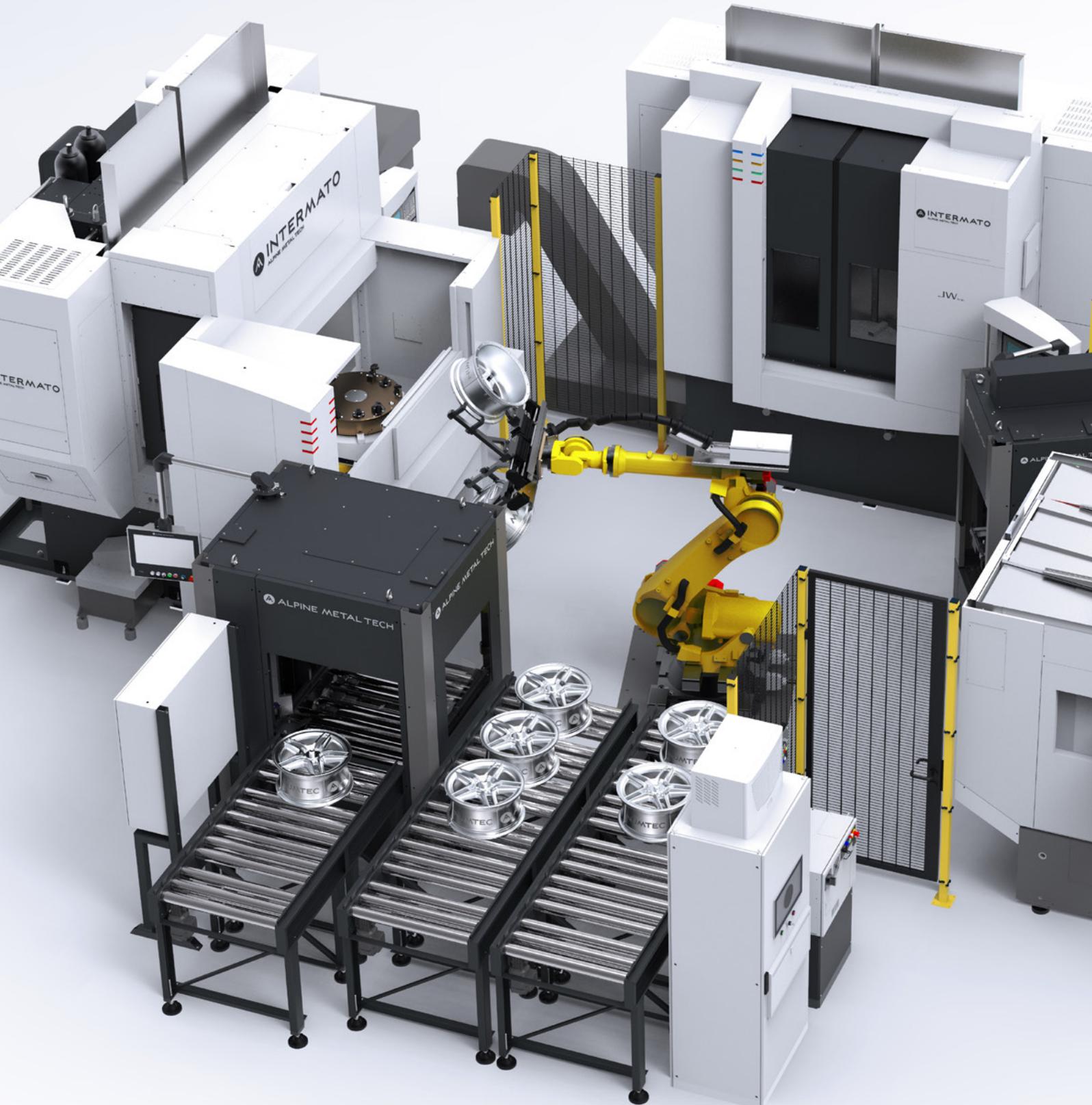


WORKHOLDING WHEELS

OP1 | OP2 | OP3



Clamping devices of Alpine Metal Tech are especially developed for wheel machining.



WORKHOLDING

OP1 | OP2 | OP3

Alpine Metal Tech covers the entire clamping equipment portfolio in OP1, OP2 and OP3, from single size clamping devices to random systems. Due to in-house production of all key components, we assure continuously high quality and the fastest possible respond to customer requirements and individual

configurations. In addition to a robust design, key aspects of Alpine Metal Tech clamping devices are safety and ease of use. Thus, safe clamping situations, as well as high availability along with long maintenance intervals, are the main focus.

YOUR ADVANTAGES

- » Entire clamping equipment portfolio in OP1, OP2, OP3
- » Covering all common wheel sizes from 14" to 24"
- » One-stop-shop-solution
- » Modular concepts for simple retooling
- » Quick changeover, especially developed for wheel machining
- » Clamping safety for automated loading
- » Permanently high repeat accuracy
- » Constant clamping force due to centrifugal force balancing
- » Toothed base jaws guarantee high power transmission
- » Hardened, rigid base body, thus no vibrations and irritations
- » Long maintenance intervals

UCS-4

Automatic clamping system for 4 wheel sizes

The Ultimate Clamping System matches the needs for random manufacturing of aluminum wheels during the 1st lathe operation. It enables machining of four different wheel sizes without the need for retooling. Each wheel size can be loaded onto the ramp and will be automatically centered and clamped.

All common wheel designs fit onto the UCS-4 and can be machined perfectly. Owing to the centrifugal force compensation, spindle speeds up to 2500 rpm can be performed with a permanently high and constant clamping force. All parts can easily be disassembled from top to bottom; this guarantees fast maintenance work.



- ① Wheel loading ramp
- ② Wheel support
- ③ Clamping finger

YOUR ADVANTAGES

- » Random production of four different wheel diameters
- » Automatic wheel size detection during centering
- » One clamping height for all wheel diameters
- » Clamping range between 15" and 24"
- » High chips contamination tolerance
- » Long maintenance intervals (radial sealings)

FEATURES

Automatic centering unit

- » Stepless centering within the range of 4 inches
- » Ramp for easy wheel loading
- » Easy centering adjustment
- » Wheel support with pneumatic clamping detection



Clamping finger

- » Automatic swiveling into the optimal clamping position
- » Innovative, high-end part of extremely resilient and stiff material manufactured in 3D-print technology
- » Constant clamping force up to 10 kN
- » Mechanical swiveling-stop prevents opening during operation



TECHNICAL DATA

Version	15" – 21"	19" – 24"
Chuck type	3 fingers	3 fingers
Change finger and centering unit	set 1: 15" – 18" set 2: 16" – 19" set 3: 17" – 20" set 4: 18" – 21"	set 1: 19" – 22" set 2: 20" – 23" set 3: 21" – 24"
Max. speed	2500 rpm	2500 rpm
Chucking force per clamping finger	9.8 kN	9.8 kN
Stroke per clamping finger	11 mm	11 mm
Chuck path monitoring	with actuating pin	with actuating pin
Pneumatic connection	6 bar	6 bar
Diameter	700 mm	800 mm
Height	366 mm	366 mm
Rest pad height	245 mm	245 mm
Weight	160 kg	200 kg



CS112

Modular plate chuck – manually adjustable clamping device

The modular plate chuck is a clamping solution for the highest machining quality of wheels in terms of concentricity and unbalance. The centering is possible on the inside or outside of the outer flange.

Since only one diameter is clamped per change set, the tolerances are in the minimum range. The change sets are preset per diameter, therefore the changeover process can be done fast.



- ① Wheel support
- ② Centering unit
- ③ Clamping finger
- ④ Change plate
- ⑤ Basic chuck

YOUR ADVANTAGES

- » High accuracy at high speeds and large wheel sizes
- » Constant chucking force
- » Self-centering
- » Customized chucking fingers and resting pad
- » Secured loading and removal position of the wheel

FEATURES

Clamping unit

- » Customized clamping fingers compensate casting tolerances
- » Easy changing system
- » Air-sensor checks the right clamping position



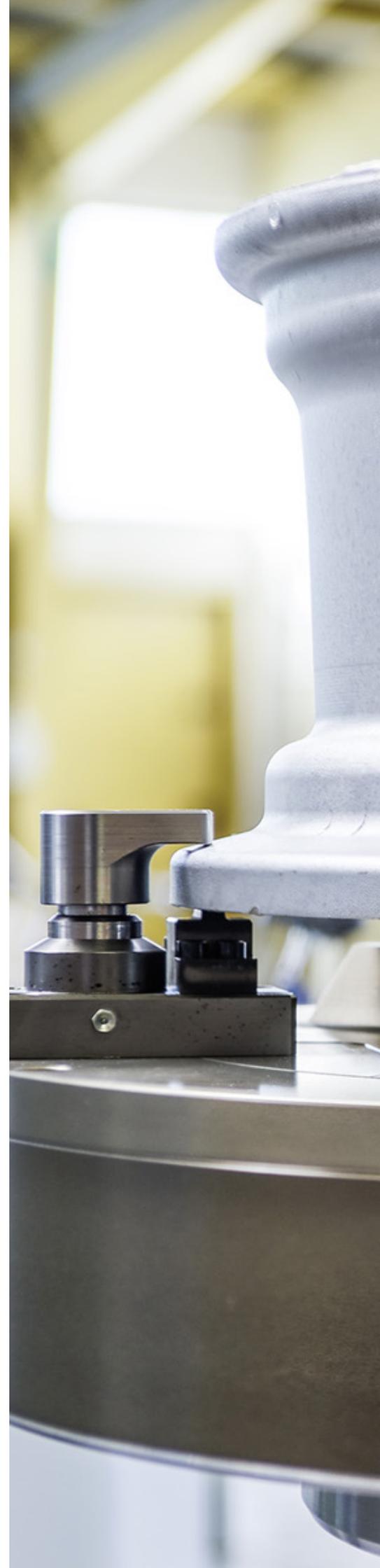
Change plate

- » Preset change set per diameter for lowest tolerances
- » Quick and easy change unit
- » Perfectly adjusted centering



TECHNICAL DATA

Version	with pallet	without pallet
Chuck type	3 fingers	3 fingers
Change plate	one set per diameter, available 14" – 24"	one set per diameter, available 14" – 24"
Max. speed	14" – 18": 2000 rpm 19" – 20": 2000 rpm 21" – 22": 1600 rpm 23" – 24": 1600 rpm	14" – 18": 2000 rpm 19" – 20": 2000 rpm 21" – 22": 1600 rpm 23" – 24": 1600 rpm
Chucking force per finger	9 kN	9 kN
Stroke per clamping finger	11,5 mm	11,5 mm
Chuck path monitoring	with actuating pin	with actuating pin
Pneumatic connection	6 bar	6 bar
Diameter	14" – 18": 670 mm 19" – 20": 730 mm 21" – 22": 780 mm 23" – 24": 800 mm	14" – 18": 670 mm 19" – 20": 730 mm 21" – 22": 780 mm 23" – 24": 800 mm
Height	342 mm	342 mm
Rest pad height	266 mm	266 mm
Weight	14" – 18": 202 kg 19" – 20": 277 kg 21" – 22": 327 kg 23" – 24": 366 kg	14" – 18": 171 kg 19" – 20": 246 kg 21" – 22": 296 kg 23" – 24": 335 kg

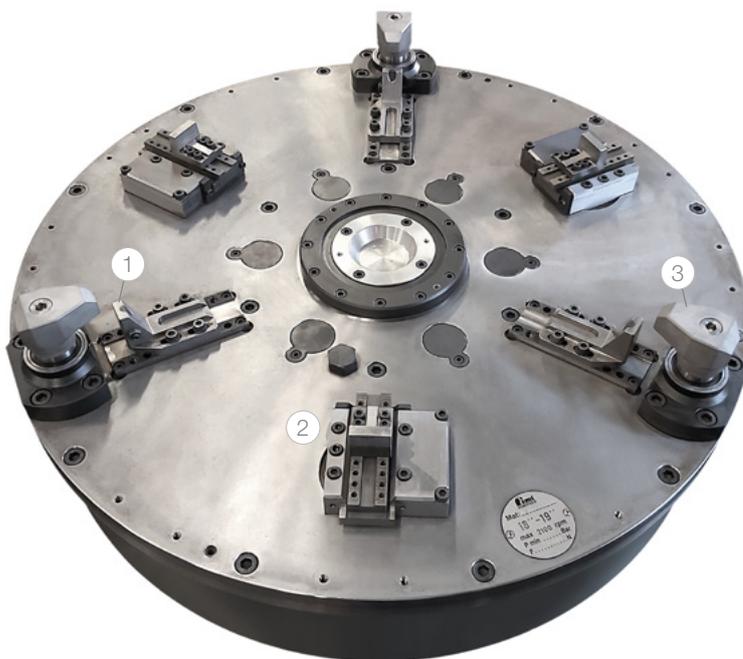


CS111 INTERMATO ALPINE METAL TECH

Modular finger chuck – manually adjustable clamping device

The CS111 modular finger chuck is the ideal choice for large-scale production. The design of the Ergal body represents the perfect compromise between strength and weight with the possibility to reach high-revolution speed. The clamping system is capable to clamp four different wheel dimensions with the same body

by only changing the clamping fingers and adjusting the wheel support and the centering unit. This modification can be realized from inside or outside the outboard flange. With a limited set of clamping devices, it is possible to cover the complete production range.



- ① Wheel support
- ② Centering unit
- ③ Clamping finger

YOUR ADVANTAGES

- » High-precision self-centering
- » For large-scale production of the same wheel size
- » High rigidity

FEATURES

Wheel support

- » Moveable rest pad
- » Air sensors for pneumatic detection
- » Fast positioning



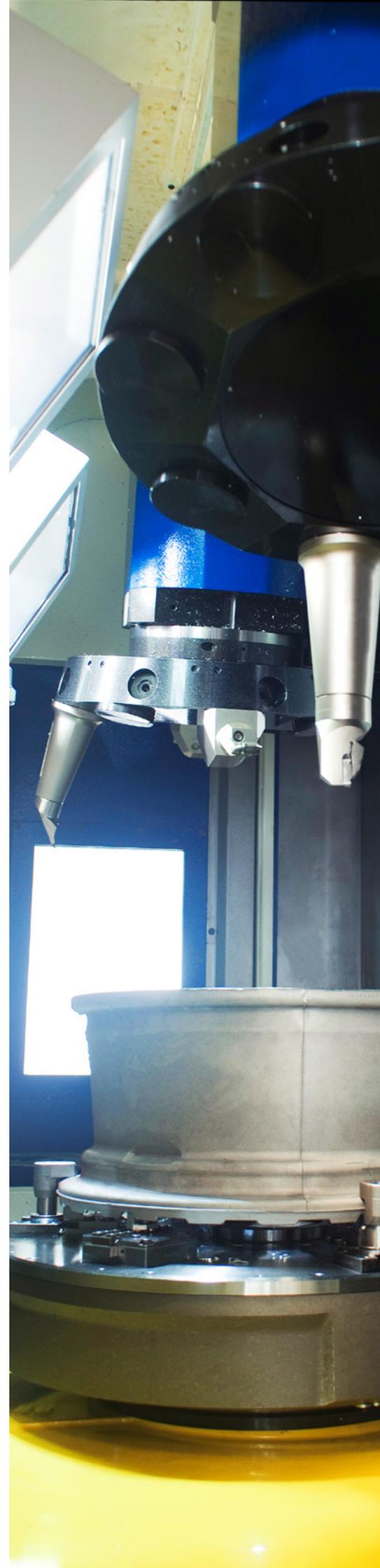
Centering unit

- » Moveable centering unit
- » Adjusting from inside or outside possible



Clamping finger

- » Special treated long-lasting material
- » Set for wheel 4 diameters
- » Large clamping stroke



TECHNICAL DATA

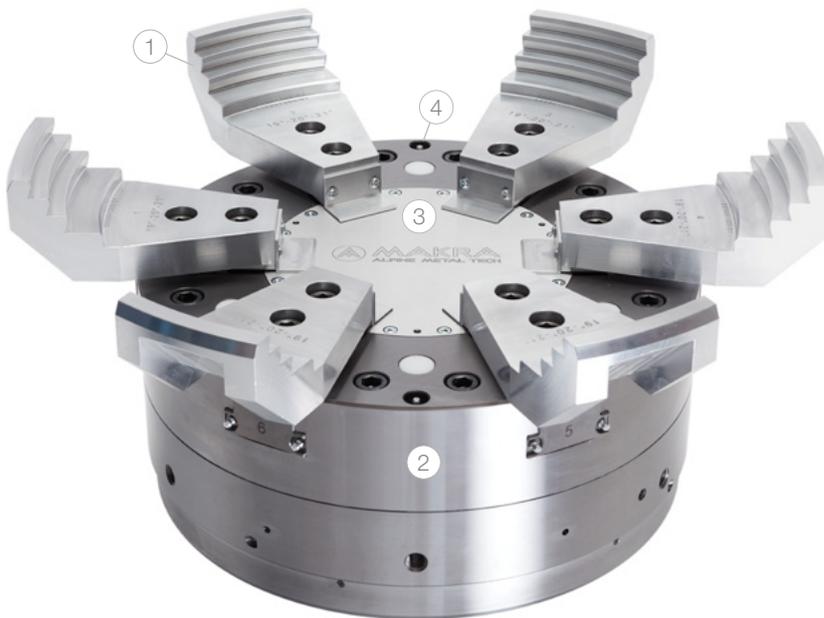
Version	with pallet	without pallet
Chuck type	3 fingers	3 fingers
Max. speed	14" – 17": 2250 rpm 16" – 19": 2100 rpm 18" – 21": 1950 rpm 20" – 23": 1800 rpm 21" – 24": 1700 rpm	14" – 17": 2250 rpm 16" – 19": 2100 rpm 18" – 21": 1950 rpm 20" – 23": 1800 rpm 21" – 24": 1700 rpm
Chucking force per finger	7.06 kN (at 6 bar)	8.33 kN (at 25 bar)
Stroke per clamping finger	15 mm	15 mm
Chuck path monitoring	pin in the rest pad	pin in the rest pad
Pneumatic connection	6 bar	mech. connection
Diameter	14" – 17": 632 mm 16" – 19": 683 mm 18" – 21": 734 mm 20" – 23": 785 mm 21" – 24": 811 mm	14" – 17": 632 mm 16" – 19": 683 mm 18" – 21": 734 mm 20" – 23": 785 mm 21" – 24": 811 mm
Height	299.5 mm	292.5 mm
Rest pad height	as of 247 mm	as of 247 mm
Weight	14" – 17": 160 kg 16" – 19": 174 kg 18" – 21": 195 kg 20" – 23": 210 kg 22" – 24": 217 kg	14" – 17": 147 kg 16" – 19": 157 kg 18" – 21": 177 kg 20" – 23": 192 kg 22" – 24": 201 kg

CS223

Automatic jaw chuck – clamping system with changeable jaws

The 6-jaw chuck allows random machining for the 2nd operation (final lathe operation). To do so, the wheel is clamped on the rear flange from the outside. Due to the excellent properties, the automatic chuck is also suitable for diamond cut machining of aluminum wheels. The centrifugal

force compensation prevents a loss of clamping force; therefore, the processing of the wheels can be done faster and with higher precision. The low-weight jaws are available for up to five wheel sizes per set and enable perfect concentricity and axial runout.



- ① Clamping jaws
- ② Chuck body
- ③ Cover plate
- ④ Lubricant nipple

YOUR ADVANTAGES

- » Up to eight times higher rigidity for large diameter wheels
- » Centrifugal force compensation enables fast machining speed
- » Constant clamping force
- » Low wheel deformation
- » Clamping jaws changeable without demounting of the chuck
- » Useable for lathes with and without pallet changing table

FEATURES

Centrifugal force balancing

- » Maximum accuracy at high speeds and large wheel sizes
- » Constant clamping force over the entire speed range guarantees low wheel deformation



Clamping jaws

- » Three types of clamping jaws available – jaws for 3, 4 and 5 wheel sizes
- » Maximum precision for best lathe operation results
- » High level of process reliability due to safe loading and removal position of the wheel



Chuck body

- » Mechanical, pneumatic and hydraulic body versions available



TECHNICAL DATA

Spindle fastening	ASA11	base flange pneumatic
Chuck type	6 jaws	6 jaws
Wheel size	14" – 24"	14" – 24"
Max. speed	2500 rpm	2500 rpm
Chucking force per jaw	10 kN	10 kN
Stroke per clamping jaw	8 mm	14 mm
Chuck path monitoring	via chucking cylinders of the machine	with actuating pin
Pneumatic connection	6 bar	6 bar
Diameter	450 mm	450 mm
Height	261 mm	336 mm
Rest pad height	as of 204 mm	as of 279 mm
Weight	130 kg	210 kg

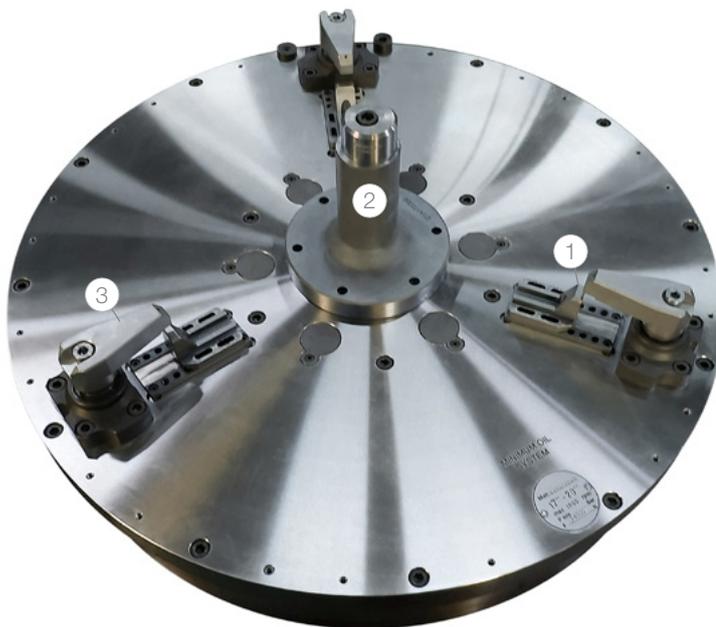


CS211 INTERMATO ALPHE METAL TECH

Modular finger chuck – manually adjustable clamping device

The CS211 modular finger chuck was developed for high precise wheel machining at the 2nd operation. Due to centering the wheel at the very accurate center hole, a maximum overall wheel quality after machining can be achieved. Fixation of the wheel is realized by swiveling fingers.

The clamping system is capable for four different wheel sizes by retooling the wheel support and the clamping fingers. In order to clamp wheels with different center bore diameters, the centering unit can easily be exchanged.



- ① Wheel support
- ② Centering unit
(optional expanding collet)
- ③ Clamping finger

YOUR ADVANTAGES

- » For large-scale production of the same wheel size
- » Highest precision due to centering at the center bore
- » Four possible wheel sizes with same body
- » High rigidity
- » Self-centering
- » Changeable centering unit for bore diameter adjustment

FEATURES

Wheel support

- » Movable rest pad
- » Air sensor
- » Fast positioning



Centering unit

- » Center locator with fix diameter
- » Wheel centering at the center bore
- » Optional expanding collet with adjustable diameter



Clamping finger

- » Clamping finger with soft insert
- » Set for 4 wheel diameters



TECHNICAL DATA

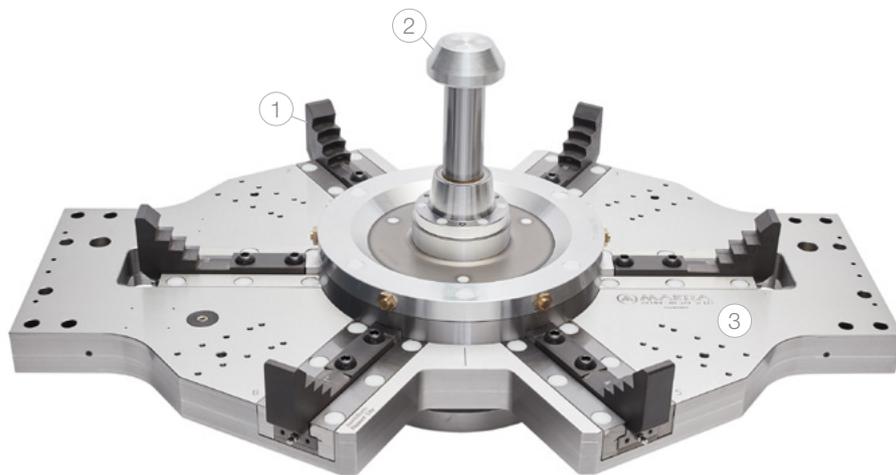
Version	with pallet	without pallet
Chuck type	3 fingers	3 fingers
Max. speed	14" – 17": 2350 rpm 16" – 19": 2200 rpm 18" – 21": 2000 rpm 20" – 23": 1900 rpm 21" – 24": 1800 rpm	14" – 17": 2350 rpm 16" – 19": 2200 rpm 18" – 21": 2000 rpm 20" – 23": 1900 rpm 21" – 24": 1800 rpm
Chucking force per finger	7.06 kN (at 6 bar)	8.33 kN (at 25 bar)
Stroke per clamping finger	15 mm	15 mm
Chuck path monitoring	pin in the rest pad	pin in the rest pad
Pneumatic connection	6 bar	mech. connection
Diameter	14" – 17": 603 mm 16" – 19": 653 mm 18" – 21": 704 mm 20" – 23": 755 mm 21" – 24": 881 mm	14" – 17": 603 mm 16" – 19": 653 mm 18" – 21": 704 mm 20" – 23": 755 mm 21" – 24": 881 mm
Height	273.5 mm	266.5 mm
Rest pad height	as of 221 mm	as of 221 mm
Weight	14" – 17": 136 kg 16" – 19": 148 kg 18" – 21": 162 kg 20" – 23": 190 kg 22" – 24": 210 kg	14" – 17": 124 kg 16" – 19": 133 kg 18" – 21": 145 kg 20" – 23": 170 kg 22" – 24": 190 kg

CS323

Automatic jaw chuck – clamping system with changeable jaws

This clamping bridge was developed for clamping aluminum wheels during the 3rd operation. The replaceable clamping jaws enable random machining of wheels up to four different sizes without adjustment. The wheel is clamped from the outside on the rear flange where it has already

been machined, so smallest tolerance deviation can be achieved. Due to the flat design, swiveling to the valve hole is possible. The support cylinder for the center bore prevents vibrations during operation and secures best machining results.



- ① Clamping jaws
- ② Damping cylinder
- ③ Bridge plate

YOUR ADVANTAGES

- » Continuous clamping force
- » Up to four wheel sizes without adjustment
- » Quick jaw changing system
- » Flat construction
- » Movable for valve hole drilling

FEATURES

Clamping jaws

- » Long operational lifetime
- » Replaceable, up to 4 wheel sizes possible



Damping cylinder

- » Vibrations are damped
- » Optionally with integrated measuring head



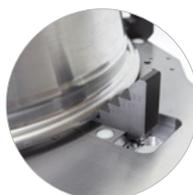
Bridge plate

- » Flat design for optimal chip removal
- » Various designs (customization possible)



Clamping monitoring (optional)

- » Integrated check system determines the XY position of the wheel center in chucked state and transmits the correction value to the drilling machine
- » High process reliability due to 100% check



TECHNICAL DATA

Chuck type	6 jaws
Wheel size	14" – 24"
Chucking force per jaw	7.5 kN
Pneumatic connection	6 bar
Hydraulic connection possible	40 bar
Dimensions (L x W x H)	856 x 570 x 390 mm
Weight	146 kg

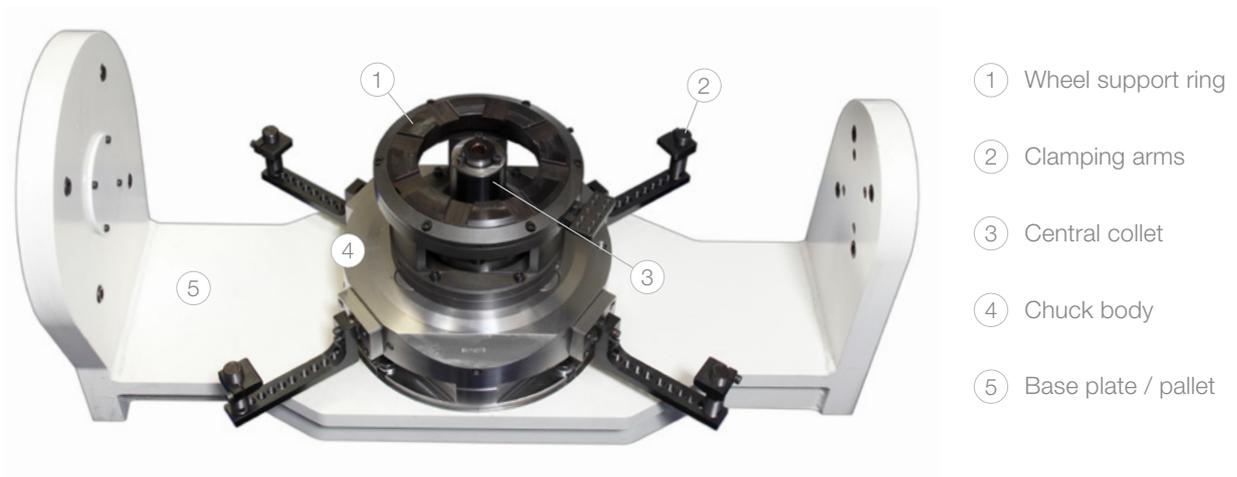


CS311 INTERMATO ALPINE METAL TECH

Extension collet chuck – clamping system for one diameter

The extension collet chuck represents the basic clamping system for drilling machines. The wheel is clamped by using an expanding collet in the hub hole in order to grant the correct wheel positioning.

The chuck body accepts wheels from 13" to 24". In case of wheel model changes, only the central collet and the wheel support ring, which are designed for each wheel size, need to be changed.



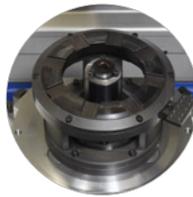
YOUR ADVANTAGES

- » Low vibration due to high-precision wheel centering
- » One clamping device for all sizes, low tolerances
- » Quick changing system for central collet and support ring

FEATURES

Wheel support ring

- » Wheel resting on the offset plane
- » Optional air sensor
- » Dedicated design for each model



Clamping arms

- » Moveable arms
- » Vibration stop function
- » Adjustable according to the wheel model



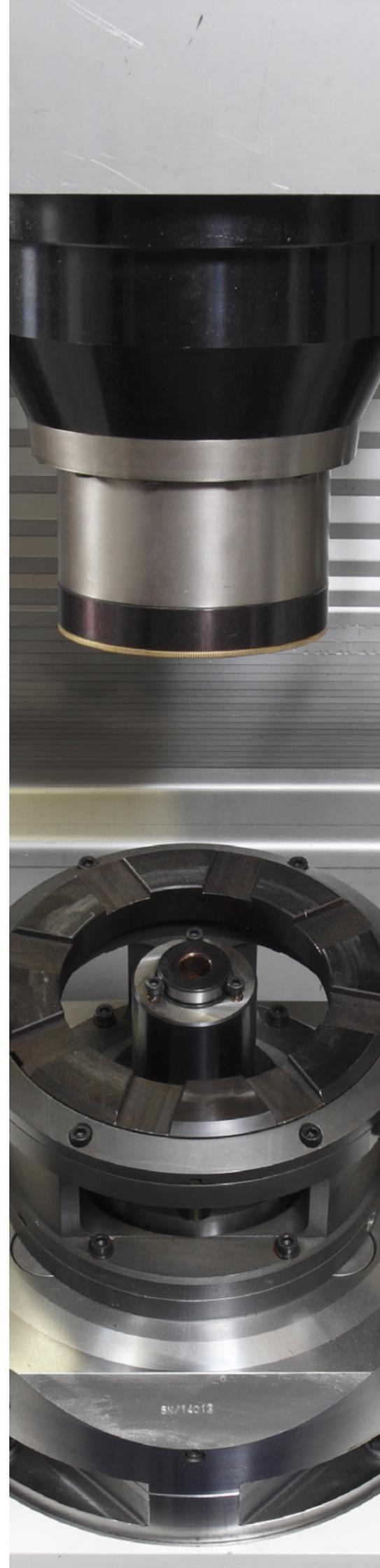
Central collet

- » High-precise wheel positioning
- » Self-centering clamping condition



TECHNICAL DATA

Wheel size	13 – 24"
Chuck path monitoring	air sensor in the rest pad
Diameter	693 mm
Height	280 mm
Rest pad height	as of 255 mm
Weight	68 kg



CLAMPING MANDRELS

The mandrel chucks are developed for wheel clamping in the center bore. Due to the high precision and small clamping sizes, they are best suited for measuring, OP2 and OP3 operations and diamond cut. Optionally, center bore measurement is available.



8-jaw chuck for measuring

- » For high-precision clamping in the machined center bore
- » Very low runout tolerance
- » Pneumatic actuation



Fixed centering device

- » One setup for each wheel
- » Designed for manual machining or prototyping



Collet chuck with clamping sleeve

- » For diamond cut
- » High-precision clamping
- » Perfect horizontal clamping support



Collet chuck with centering pin

- » Orientation for valve hole drilling
- » Integrated vibration damper
- » Defined wheel orientation adjusted on spoke design

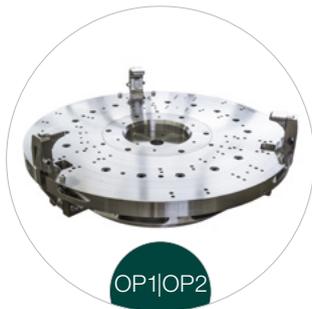
CUSTOMIZED DEVICES

Some examples of customer-designed clamping devices are given below. Thanks to our 40 years of experience, we are able to develop individual solutions for your applications.



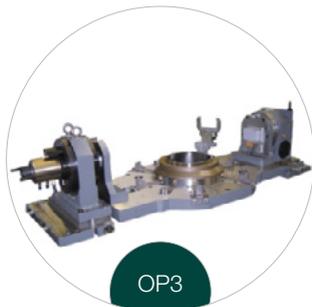
Clamping in the bolt holes INTERMATO

- » Reduced wheel runout
- » Concentricity of rim, central hole and lug holes



Fold-in chuck MAKRA

- » Jaws fold-in to fix the wheel
- » Lightweight design for increased spindle life and fast cycle times
- » Quick set-up chuck
- » Simple, economic and reliable
- » Mechanical drawbar connection
- » Wheels up to 24" diameter



6-jaw clamping device MAKRA

- » Orientation of attachment and step jaws
- » Gripper arm for wheel alignment
- » Swiveling at 180° enables machining the inner wheel contour
- » Pneumatic actuation



Clamping device with mandrel MAKRA

- » Collet chuck with clamping sleeve
- » Wheel design specific clamping
- » Pneumatic actuation

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