

unilock
clamping system

**MODULAR
WORKHOLDING
SYSTEM**

VOL. 5

AHB
TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

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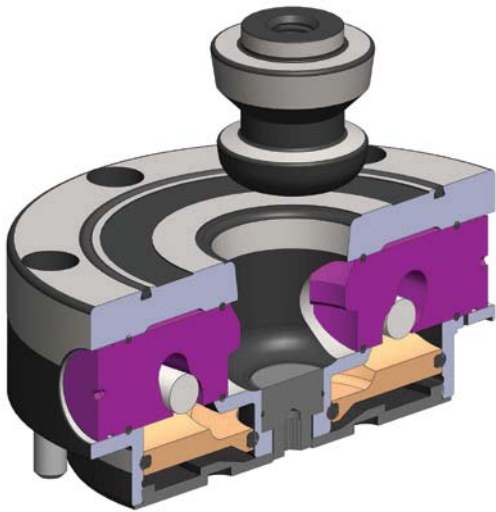
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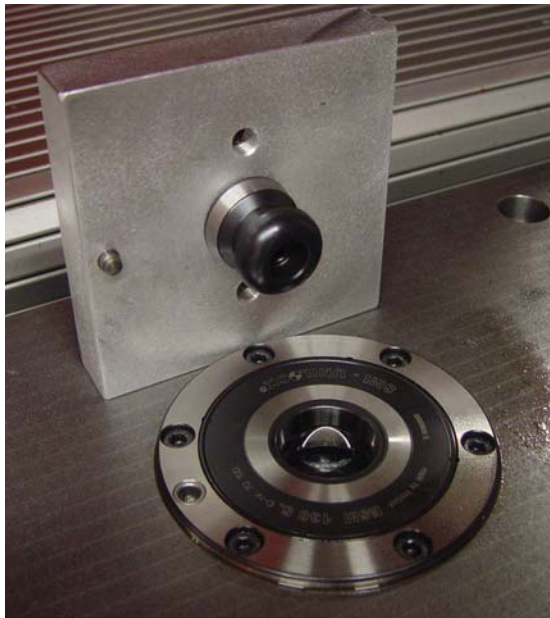


How it Works

UNILOCK uses spring pressure to drive clamping pins against a tapered knob for quick, repeatable clamping. Air pressure retracts the pins, and releasing the air re-engages the clamp. The knob mounts to a base plate, fixture or workpiece. A manual version is also available.

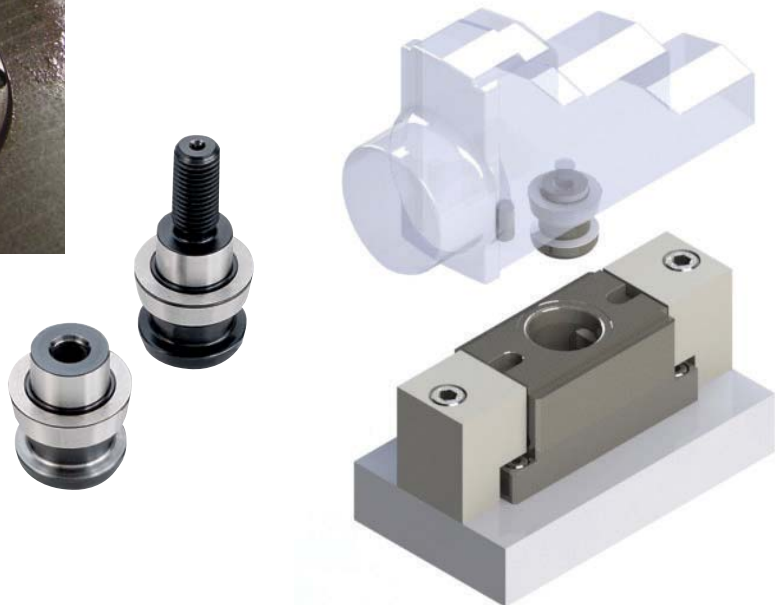
Features

- Powerful clamping: Heavy-duty die springs deliver reliable holding force
- Quick release: Air pressure easily opens chuck by compressing springs
- Stable and compact: Low-profile design with taper wedges ensures rock-solid stability
- Precise positioning: Conforms to the workpiece for consistent accuracy
- Efficient operation: Unlocks with just 75 PSI of air pressure
- Turbo Assist: Boosts clamping force for demanding applications



Single Chuck Applications

The UNILOCK clamping knob engages with the chuck's central taper to establish the XY reference in a Cartesian coordinate system. A timing pin or key fits into a notch or bushing to orient the fixture and prevent rotation. The Z reference is determined by contact between the bottom of the fixture or workpiece and the top ground surfaces of the chuck, ensuring axial alignment. When external locating features are utilized, the clamping knob can secure the workpiece without affecting its position.



Multiple Chuck Applications

UNILOCK supports multiple clamping knobs and chucks for larger or heavier fixtures, ensuring stability beyond the range of a single chuck. Undersized knobs offer clearance for oversized parts or off-center locations.



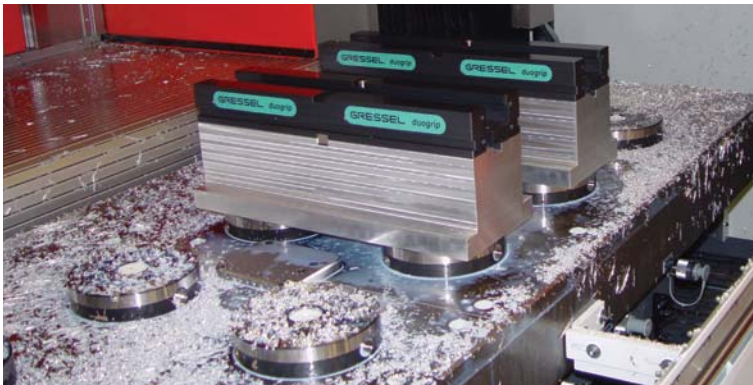
SBC Knob Diametral Clearances

Type	Metric	Inch
SBA	.005mm	.0002
SBB	.005mm	.0002
SBC	.1mm	.004

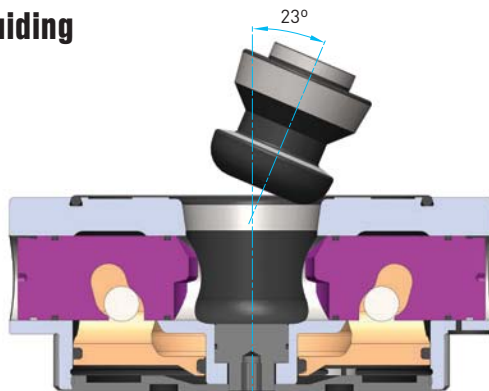
SBA = Establishes centerline
 SBB = Orients about centerline
 SBC = Clamp only, no positioning
 • See pg. 48 for more details on knob functions

Designed for Manufacturing

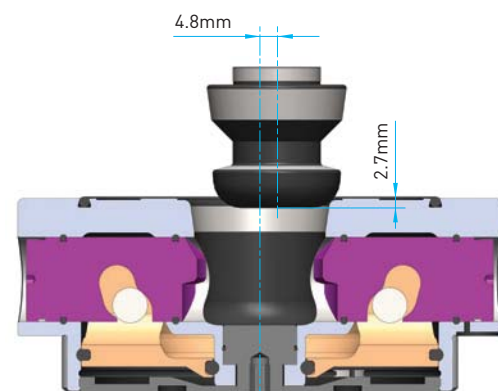
UNILOCK chucks are easy to maintain with compressed air. Chips won't be forced inside due to the tight fit between clamping rams and the chuck body. Any debris in the clamping pocket can be quickly cleared with an air gun. The fully retracting wedges and 1:1 length-to-diameter ratio make cleaning simple with no vacuum needed. The robust 40 mm x 40 mm clamping knob adds stability and acts as a foot for safe handling and storage. No protective sleeves or special shelving are required. Multiple male and female thread sizes are available.



Self-Guiding Design



UNILOCK is built to accommodate warped workpieces and fixtures. Its shallow clamping pocket allows knob entry at angles up to 23°, making it ideal for uneven setups. Undersized, standard and special clamping knobs are available to support out-of-position datums with ease.



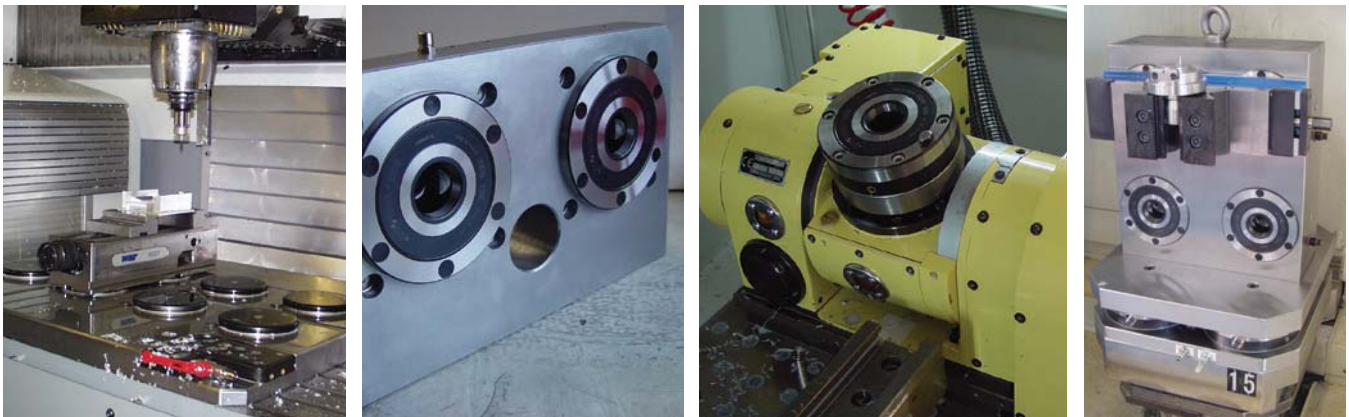
The radius on the clamping knob's smaller bottom diameter helps guide it into the chuck during out-of-position loading. This is especially useful for large workpieces that may warp, expand or contract, ensuring smooth and accurate engagement.

Process Your Way to Savings

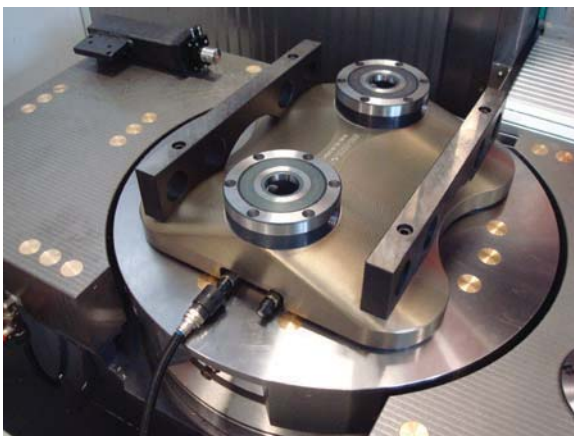
Fixtures and workpieces easily adapt to UNILOCK clamping knobs, unlocking significant savings. By reorienting or transferring parts while still mounted, you can machine additional features without reclamping. On horizontal machines, fixtures can rotate 90° or shift to the top of the column. Minimizing clamping steps reduces setup time, scrap, and improves feature-to-feature accuracy, all while eliminating the need for multiple fixtures.

Transfer Workpieces Between Processes

- Vertical machining cells
- Horizontal machining cells
- High-speed drilling and tapping centers
- Surface and cylindrical grinding cells
- Horizontal and vertical lathes
- Coordinate measuring cells



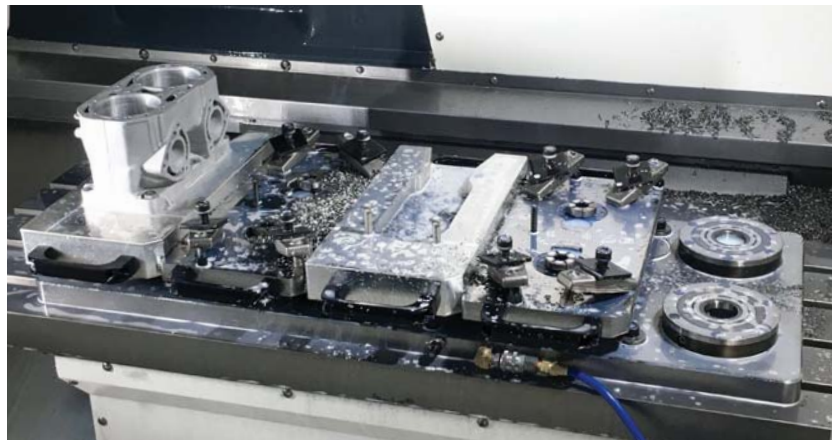
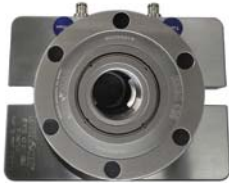
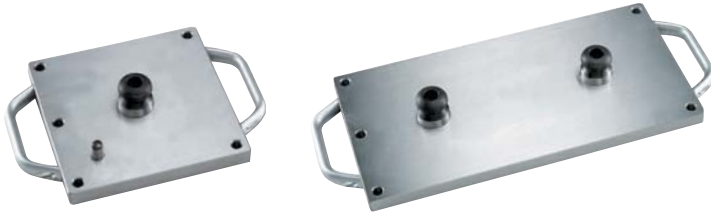
Once the part is fixtured, use UNILOCK to carry it through as many operations as possible without removal. UNILOCK clamps and locates from a single face, keeping other sides fully accessible for machining. With rotary tables, angle or sine plates, and multi-sided tombstones, parts can be easily reoriented for additional operations, maximizing efficiency and precision.



Expand the operational envelope of any UNILOCK chuck by adding external timing features and support for areas of the workpiece or pallet that extend beyond the chuck's top surface.

Working Solutions in Minutes

Table chucks come pre-mounted on base plates, ready to clamp directly to your workstation for fast setup. Supported by preassembled pallets, the Mono, Duo, and Quad table chucks offer versatile options for any application. Pneumatic kits are also available; install a complete solution in minutes.



Build Your Own Custom Solutions

UNILOCK components are available individually, giving you the flexibility to integrate them seamlessly into your own custom designs.

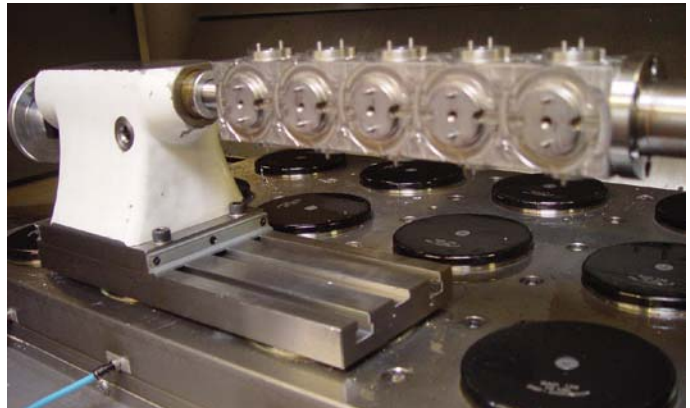


APPLICATION EXAMPLES

Scheduling Flexibility and Setup Versatility

A Clamping System Flexible Enough to Change the Entire Table or Workpieces and Fixtures

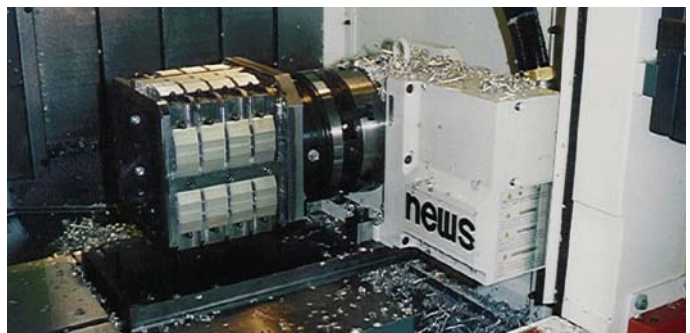
UNILOCK creates predefined datums across all machines for fast, repeatable setups. Load, lock, and hit cycle start with no wasted time. Use multiple chucks to quickly switch between small parts or larger setups, converting from headstock and tailstock to table-mounted fixtures with ease.



Use in Any Configuration and Process

Endless Applications – Limited Only by Your Imagination

Quickly align all your rotary table fixtures with UNILOCK. As you move away from the spindle nose, UNILOCK's heavy-duty chucks absorb the additional leverage and torque. These chucks ensure stability even during demanding cuts. Sold individually, the components allow you to create custom solutions in-house or with your tooling partner. Whether you need six chucks for heavy machining or a single chuck with a timing feature for inspection, UNILOCK adapts to nearly any setup or process.



Large Parts

Save Money on Your Next Job

UNILOCK offers undersized clamping knobs so you don't need to hold ultra-tight fixture tolerances, ideal when production specs are more forgiving. These knobs are perfect for warped or loosely toleranced workpieces. When tight tolerances aren't required or possible, simply choose the right undersized knob for the job. For heavier setups, UNILOCK's heavy-duty 40 mm knobs, with a 1:1 length-to-diameter ratio, provide the strength and stability needed for hoist loading and can stay on fixtures during handling, storage, and transport without risk of damage.



SBC Knob Diametral Clearances

Type	Metric	Inch
SBA	.005mm	.0002
SBB	.005mm	.0002
SBC	.1mm	.004

SBA = Establishes centerline
 SBB = Orients about centerline
 SBC = Clamp only, no positioning

• See pg. 48 for more details on knob functions



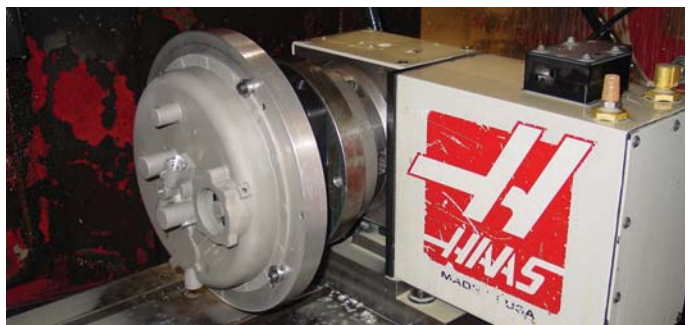
Small Parts

Remove Process Time – Save More Than Just Setup Time

With UNILOCK, parts that once required clamping and unclamping for each machining step now stay fixtured through multiple operations. This reduces labor, minimizes the chance for error, and increases spindle uptime. By keeping the part in the same fixture, you eliminate unnecessary setups, reduce scrap, and avoid the cost of additional fixtures for later operations, saving both time and money.



Operation	Before UNILOCK		After UNILOCK		
	Set Up	Production	Set Up	Production	Savings
Op-10 Lathe	3 hours	4 hours	1 hour	4 hours	2 hours
Op-20 Lathe	2 hours	10 hours	1 hour	2 hours	9 hours
Op-30 Mill	4 hours	11 hours	1 hour	8 hours	6 hours
Total	10 hours	25 hours	3 hours	14 hours	18 hours



ROUND CHUCKS

A.1



ESM 138A	12-13
ERGO 138	14-15
EFM 138A	16-17
ASM 90A	18-19
ASM 99	20-21
ISM 160	22-23
ESM 176A	24-25
ESM 168	26-27

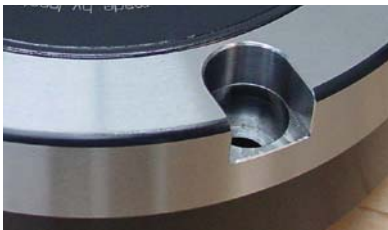
ESM 138A

Air-Assisted Clamping Turbo Chuck

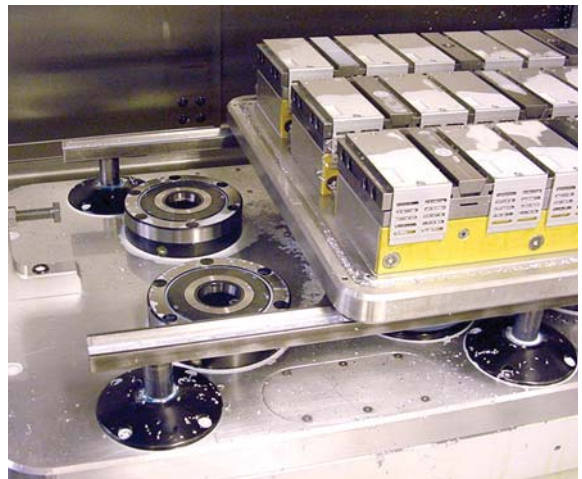
Features air-assisted turbo clamping for enhanced holding power. A sealed cover plate over the piston enables a new slide wedge actuation system, delivering increased retention force and improved performance.

Features

- Mid-sized diameter fits most applications
- Top side mounting for ease of integration
- Choose from air connections at bottom or side
- Optional timing notch in face of chuck
- Same body and locating diameters
- Same mounting bolt hole pattern
- Same flange air port location
- Same timing notch



Available with Notches



Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20†	M24†	Spring Only	Turbo Assist	Port Size	Flange	
15.270.140A	ESM 138A	—	✓	✓	✓	✓	✓	1,686	5,620	G1/8"	✓	9.9
15.270.147A		14 H7 x 1										

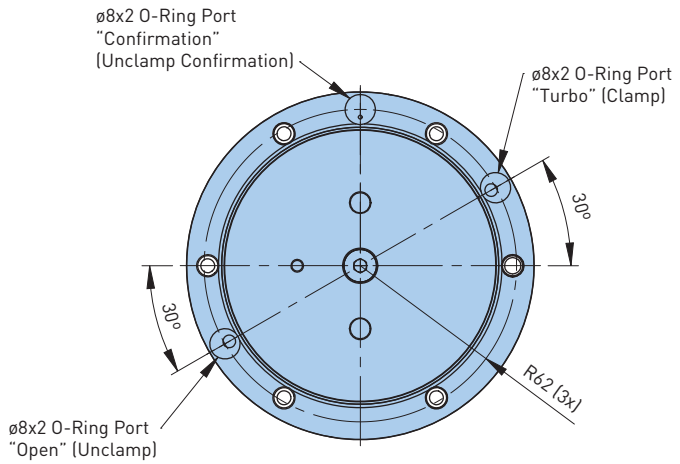
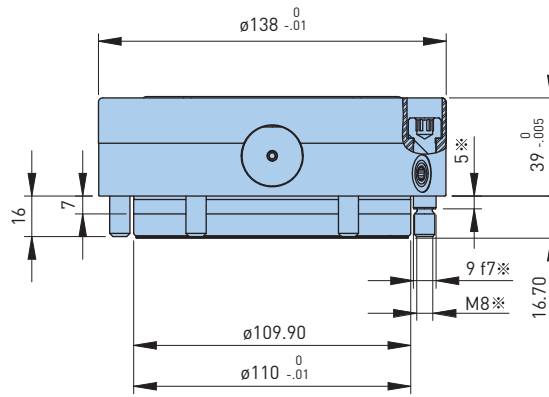
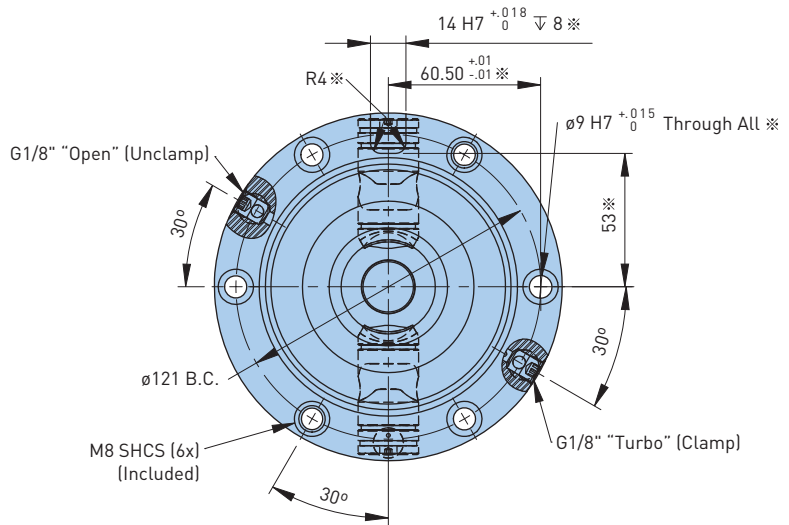
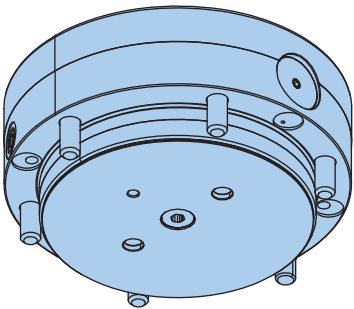
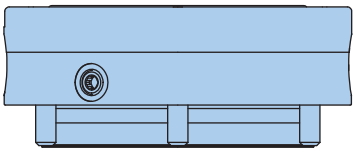
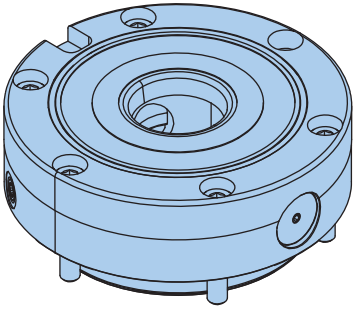
†Optional
 • Screws, screw covers and O-ring included

ACCESSORIES

<p>KNOBBS PG. 47</p>	<p>AIR FITTINGS PG. 108</p>	<p>DUST COVERS PG. 112</p>	<p>REPAIR PG. 113</p>
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ROUND CHUCKS

ESM 138A



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

ERGO 138

Space-Saving, Low-Profile Chuck

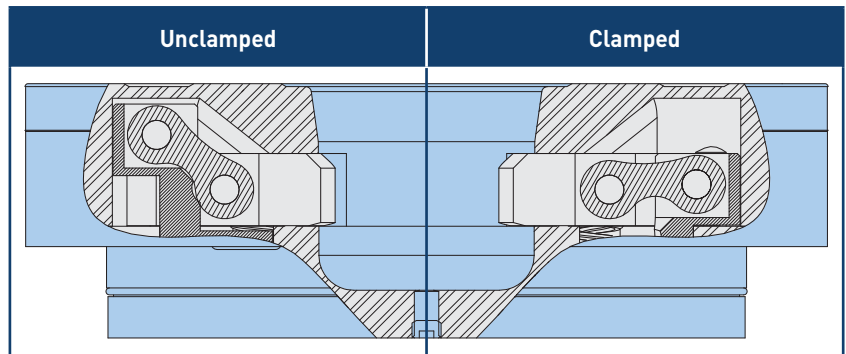
With a compact height of just 28mm, the ERGO 138 saves 11mm compared to the ESM 138, making it ideal for applications where every millimeter counts.

Features

- Mid-sized diameter fits most applications
- Top side mounting for ease of integration
- Choose from air connections at bottom or side
- Optional timing notch in face of chuck
- Same body and location diameters
- Same mounting bolt hole pattern
- Same flange air port location
- Increased inner support ring diameter
- Knee locking mechanism



Available with Notches



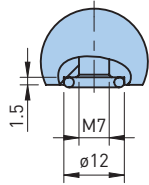
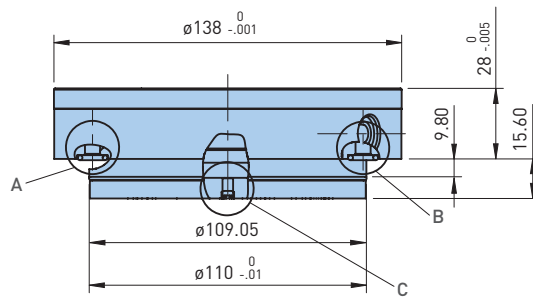
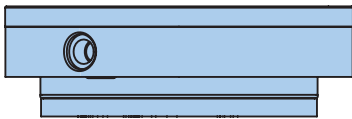
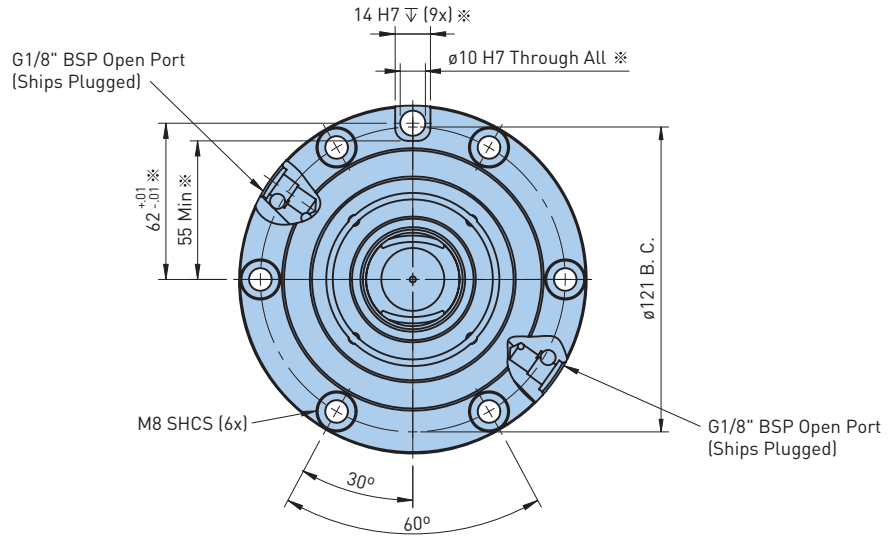
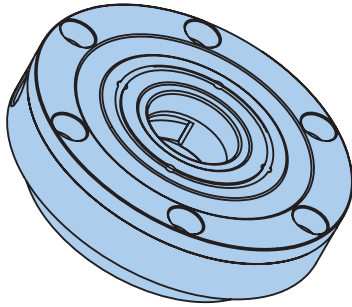
Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20+	M24+	Spring Only	Turbo Assist	Port Size	Flange	
15.270.110A	ERGO 138	—						990-1,320	3,300-3,520	G1/8"	✓	9.9
15.270.117A		14 H7 x 1	✓	✓	✓	✓	✓					

- †Optional
- Screws, screw covers and O-ring included

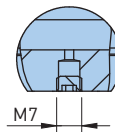
ACCESSORIES



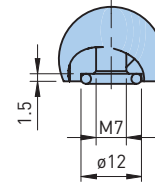
ERGO 138



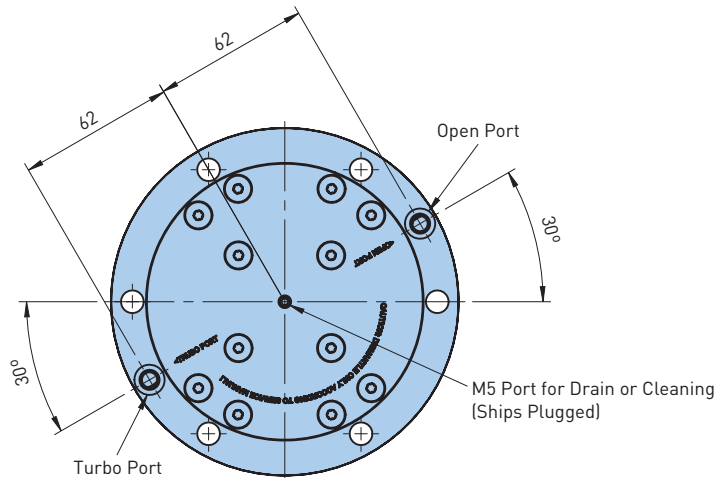
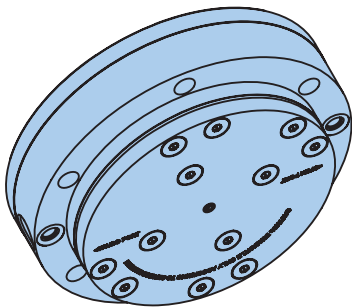
Detail A
Scale 2:3
ø8x2 O-Ring
(Ships Plugged)



Detail C
Scale 2:3
Air Cleaning
(Ships Plugged)



Detail B
Scale 2:3
ø8x2 O-Ring
(Ships Plugged)



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

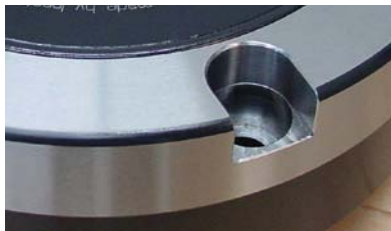
EFM 138A

Ideal for Thin-Walled Tombstones

This flange-mount chuck features a reduced projection height, making it easy to integrate into custom fixtures, perfect for use on thinner-walled tombstones.

Features

- Mid-sized diameter fits most applications
- Top side mounting for ease of integration
- Reduced projection height by mounting in fixtures
- Optional timing notch in face of chuck



Available with Notches



Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20†	M24†	Spring Only	Turbo Assist	Port Size	Flange	
15.263.100A	EFM 138A	—	✓	✓	✓	✓	✓	1,348	4,496	—	✓	8.0
15.263.107A		14 H7 x 1										

†Optional

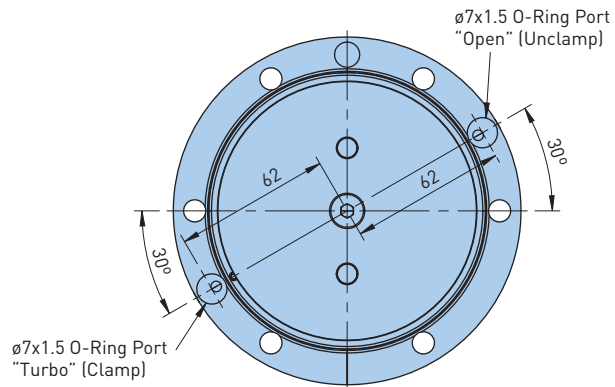
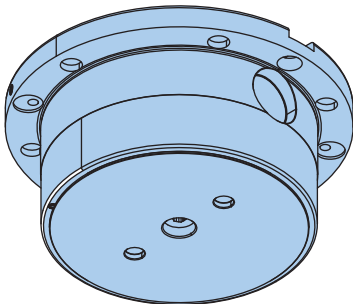
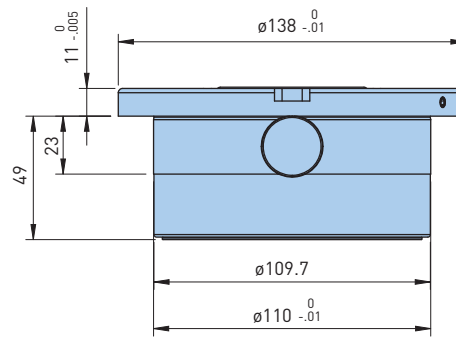
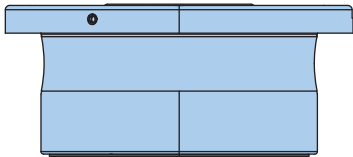
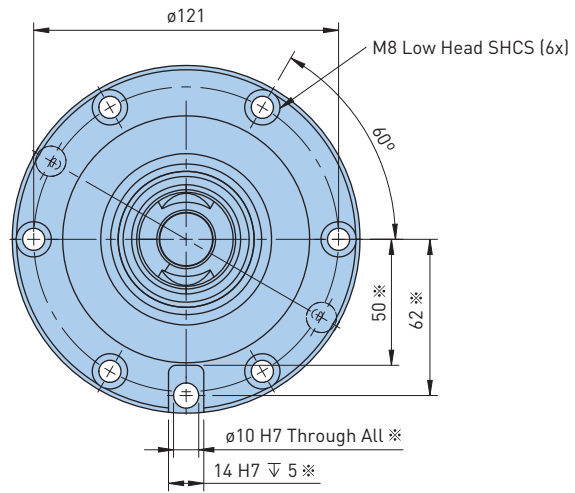
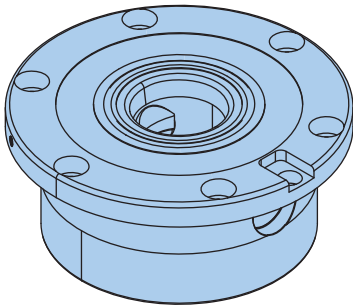
- Screws, screw covers and O-rings included

ACCESSORIES

<p>KNOBBS PG. 47</p>	<p>AIR FITTINGS PG. 108</p>	<p>DUST COVERS PG. 112</p>	<p>REPAIR PG. 113</p>
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ROUND CHUCKS

EFM 138A



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

ASM 90A

Compact Chuck for Small Applications

One of the smallest in the UNILOCK lineup, the ASM 90A is designed for tight spaces and small jobs, providing secure clamping without obstructing the area.

Features

- Reduced diameter for small work or tight spaces
- Integrated toe clamp lip
- Turbo option for increasing holding power
- Air supply from bottom or side of chuck
- Optional reference notch in face of chuck



Available with Notches

Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20+	M24+	Spring Only	Turbo Assist	Port Size	Flange	
15.240.090A	ASM 90A	—			—	—	—	562	2,472	G1/8"	✓	5.1
15.240.091A		12 H7 x 1	✓	✓	—	—	—					

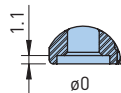
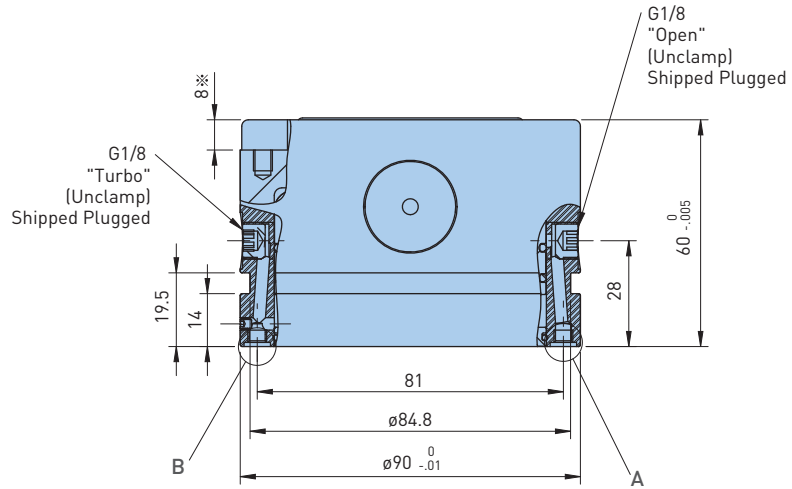
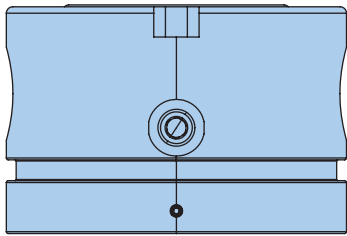
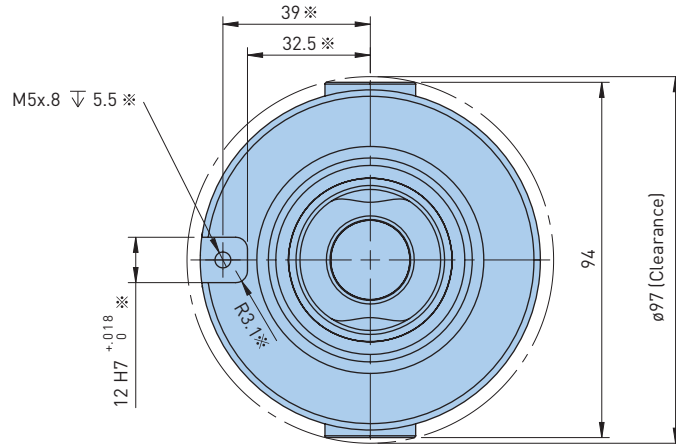
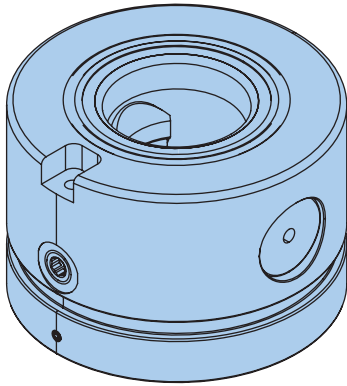
+Optional
• O-rings included

ACCESSORIES

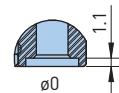


ROUND CHUCKS

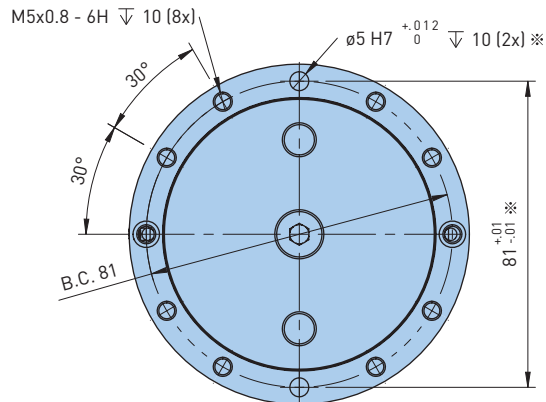
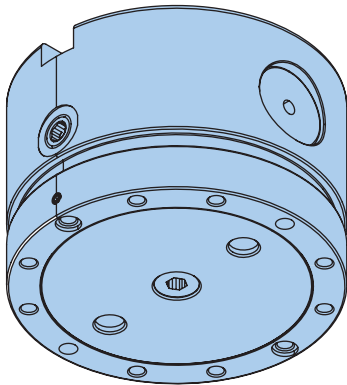
ASM 90A



Detail B
Scale 1:1
ø4x1.5 O-Ring
(Ships Unplugged)



Detail A
Scale 1:1
ø4x1.5 O-Ring
(Ships Unplugged)



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

ASM 99

Semi-Compact Body Size

The ASM 99 chuck helps to bridge the gap between the ASM 90 and ESM 138 chuck bodies.



Features

- Medium diameter size
- Mounting from top
- Air supply from bottom or M5 side ports
- Unclamp conformation port
- Multiple timing options



Available with Notches

Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20†	M24†	Spring Only	Turbo Assist	Port Size	Flange	
15.240.099	ASM99	—										
15.240.097		12 H7 x 1 ø8 F7 x 1	✓	✓	—	—	—	899	3370	M5x0.8	✓	5.5

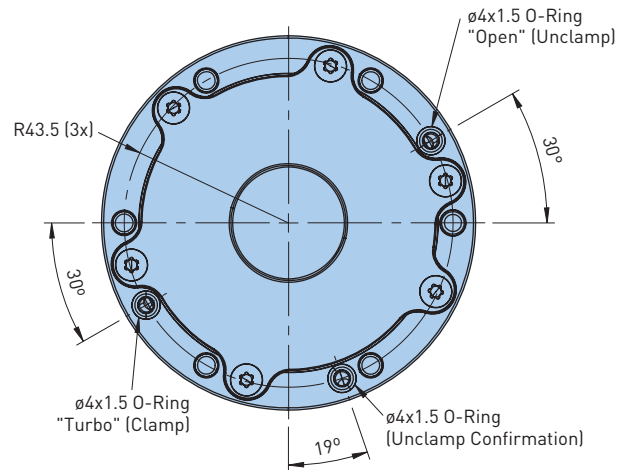
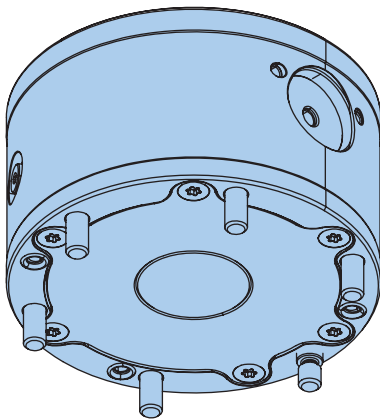
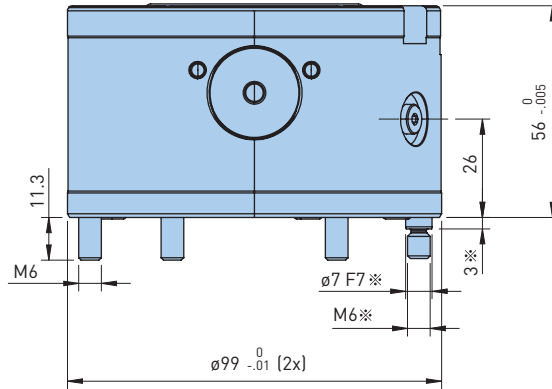
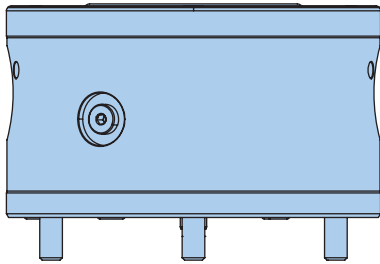
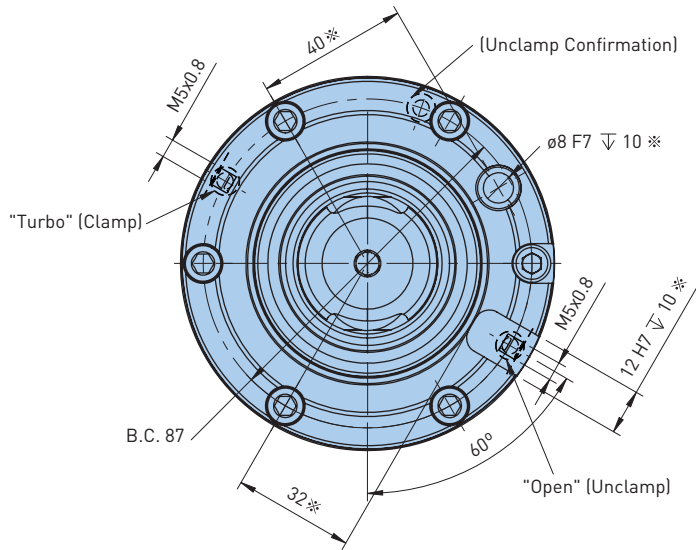
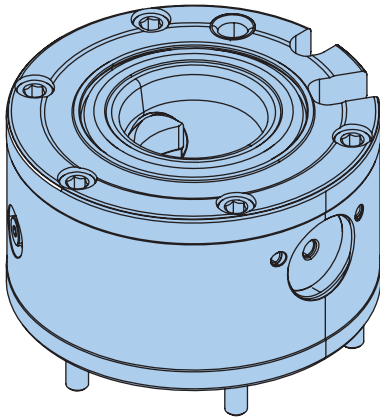
†Optional
• O-rings included

ACCESSORIES



ROUND CHUCKS

ASM 99



- All dimensions are in millimeters
- Dimensions marked ** are for notch option

ISM 160

Single-Chuck Solution for 4th and 5th Axis Rotary Tables

Engineered for the face of 4th and 5th axis rotary tables, the ISM 160 provides a compact, dependable clamping solution. Exterior timing features align with UNILOCK MCM 150 and MSM 170 chucks, while the adjustable timing pin slot supports non-standard pallet sizes, offering greater flexibility in setup.

Features

- Simple surface mount design
- Now available with A2-6 mounting
- Dowel pins into location
- Supports 60° and 90° t-slots
- Air-assisted clamping option
- Low profile 46mm (1.811")
- Through-hole eases cleaning
- Multiple indexing options



Slot Allows for Variations in Radial Pin Location



Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20†	M24†	Spring Only	Turbo Assist	Port Size	Flange	
15.260.160	ISM 160	ø14 H7 x 1	✓	✓	✓	—	—	1,100-1,540	3,300-3,740	G1/8"	✓	12.1
		ø12 H7 x 4										
15.300.008	ISM 160 (A2-6)	ø12 H7 x 2										

†Optional
• No hardware included

ACCESSORIES



Adapter Plate

For ISM 160 to HAAS 160/210 Size Indexers and Trunnions

Features

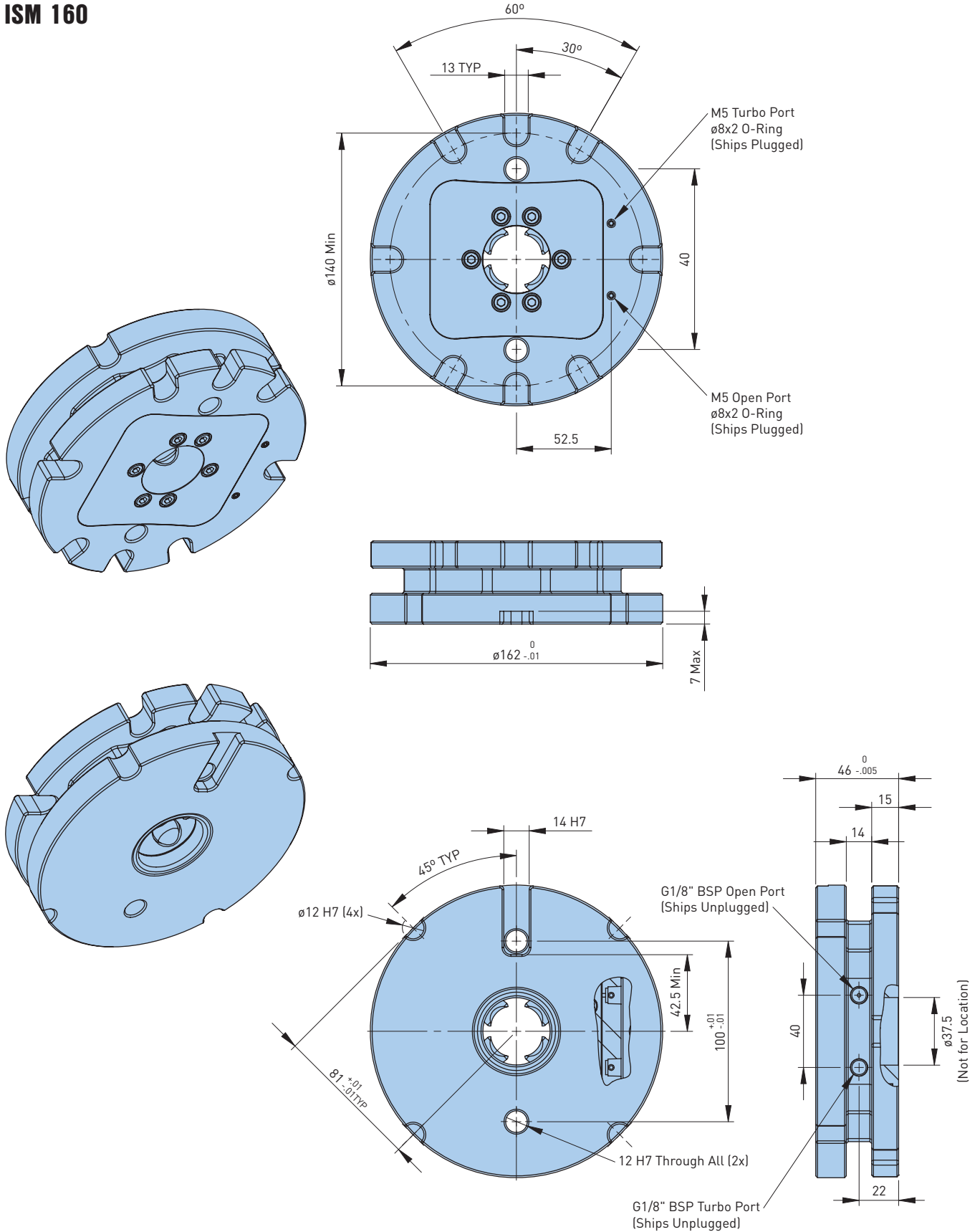
- Replaces t-slot platter
- Allows for both open and turbo
- Low 20mm height

Catalog Number	Description	Indexer Model
15.260.164	ISM 160	HAAS 160
15.260.166		HAAS 210

• Other sizes available upon request
• Please contact the BIG DAISHOWA Engineering Dept. for additional information



ISM 160



• All dimensions are in millimeters

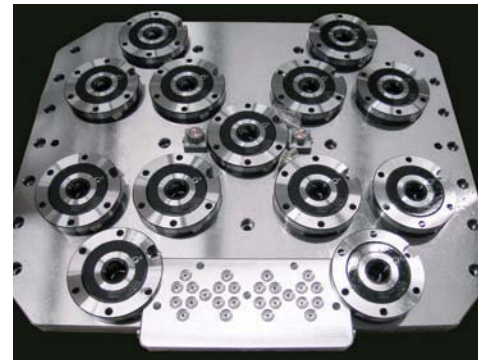
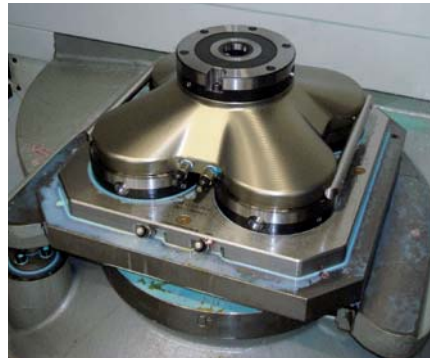
ESM 176A

Built for Heavyweight Fixtures

The ESM 176A offers enhanced size and retention force, making it ideal for securely handling heavyweight fixtures with confidence.

Features

- Flange design for top side mounting
- Large diameter with turbo clamping for more rigidity
- Air supply from bottom or side of chuck
- Optional reference notch in face of chuck



Available with Notches

Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Force (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20 †	M24†	Spring Only	Turbo Assist	Port Size	Flange	
15.272.170A	ESM 176A	—	✓	✓	✓	✓	✓	2,023	8,992	G1/8"	✓	17.5
15.272.171A		25 H6 x 1										

†Optional

- Screws, screw covers and O-rings included
- Notched version comes with timing bushing and all hardware listed above

ACCESSORIES

<p>KNOBBS PG. 47</p>	<p>AIR FITTINGS PG. 108</p>	<p>DUST COVERS PG. 112</p>	<p>REPAIR PG. 113</p>
--------------------------	---------------------------------	--------------------------------	---------------------------

ESM 168

Through-Hole Access for Versatile Machining

Ideal for 4th and 5th axis rotary tables, lathes or mills, the ESM 168 allows workpieces to pass through the center of the chuck.

ROUND CHUCKS A.1

Features

- Removable center cover
- Work can pass through chuck
- Air-assisted clamping option
- Offers clamp/unclamp confirmation
- Bolts into place from top side



Catalog Number	Description	Notch (Width x Qty)	Recommended Bolt Sizes					Clamping Forces (lbs)		Air Connection		Weight (lbs)
			M10	M12	M16	M20 †	M24 †	Spring Only	Turbo Assist	Port Size	Flange	
15.500.168	ESM168	—	—	—	—	—	✓	2,248	8,992	G1/8"	✓	14.3

†Optional

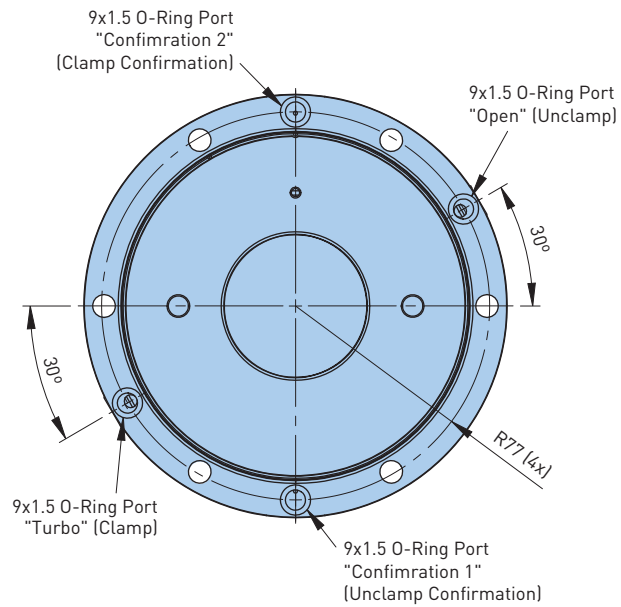
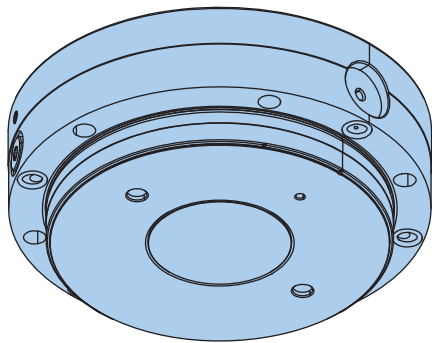
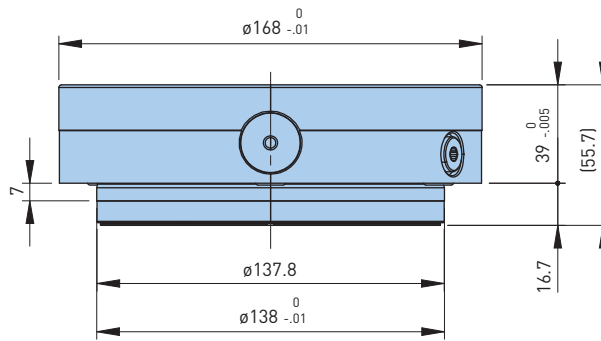
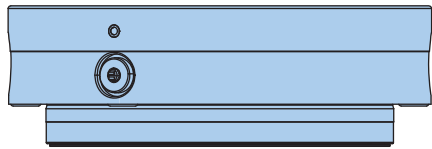
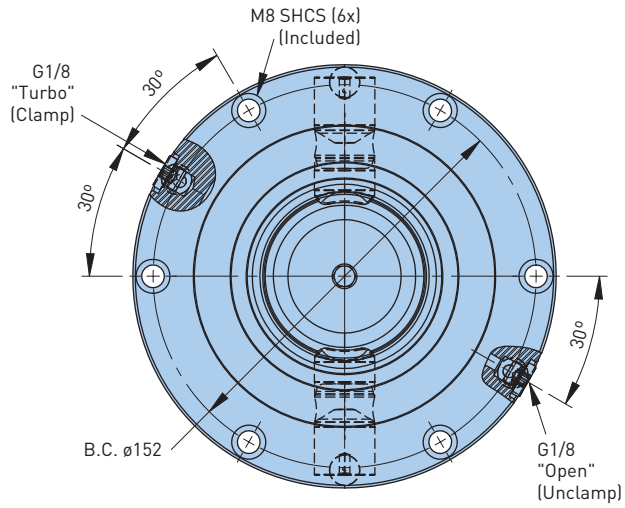
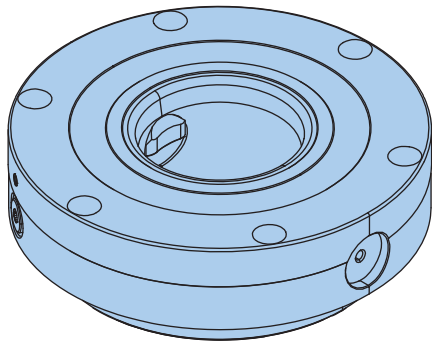
- Screws, screw covers and O-rings included
- See pg. 52 for M74 option

ACCESSORIES

<p>KNOBBS PG. 47</p>	<p>AIR FITTINGS PG. 108</p>	<p>DUST COVERS PG. 112</p>	<p>REPAIR PG. 113</p>
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ROUND CHUCKS

ESM 168



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

PREASSEMBLED CHUCKS

A.2



ERGO 138	30-31
E100B	32
E200B	33
E300B	34
E400B	35-36
E600B	37
E800B	38
E1000B	39

PREASSEMBLED CHUCKS

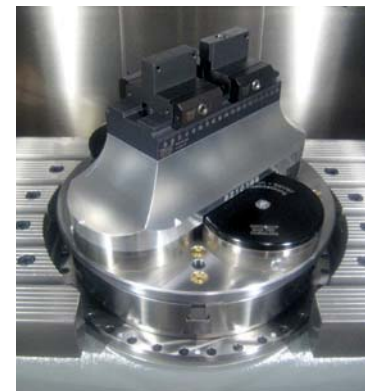
ERGO 138 PREASSEMBLED BASES

Compact Double Table Chuck Solutions

Preassembled base stations featuring the ERGO 138 chuck offer a low-profile design, saving 11mm in height compared to the ESM 138. Available with turbo clamping right out of the box.

Features

- Mid-sized diameter chuck fits most operations
- Finish ground steel baseplate
- Predesigned solutions for up to 10 chucks
- Optional timing notch in face of ERGO 138 chucks



Catalog Number	Page	Metric (mm)			Imperial (in)			Number of Chucks
		Length	Width	Height	Length	Width	Height	
15.270.370B	32	196	149	49	7.717	5.866	1.929	1
15.270.371B	33	396	196		15.591	7.717		2
15.270.372B	34	595	195		23.425	7.677		3
15.270.373B	35	395	395		15.551	15.551		4
15.270.374B	37	596	395	60	23.465	15.551	2.362	6
15.270.375A	38	796	396		31.339	15.591		8
15.270.376A	39	996	396		39.213	15.591		10

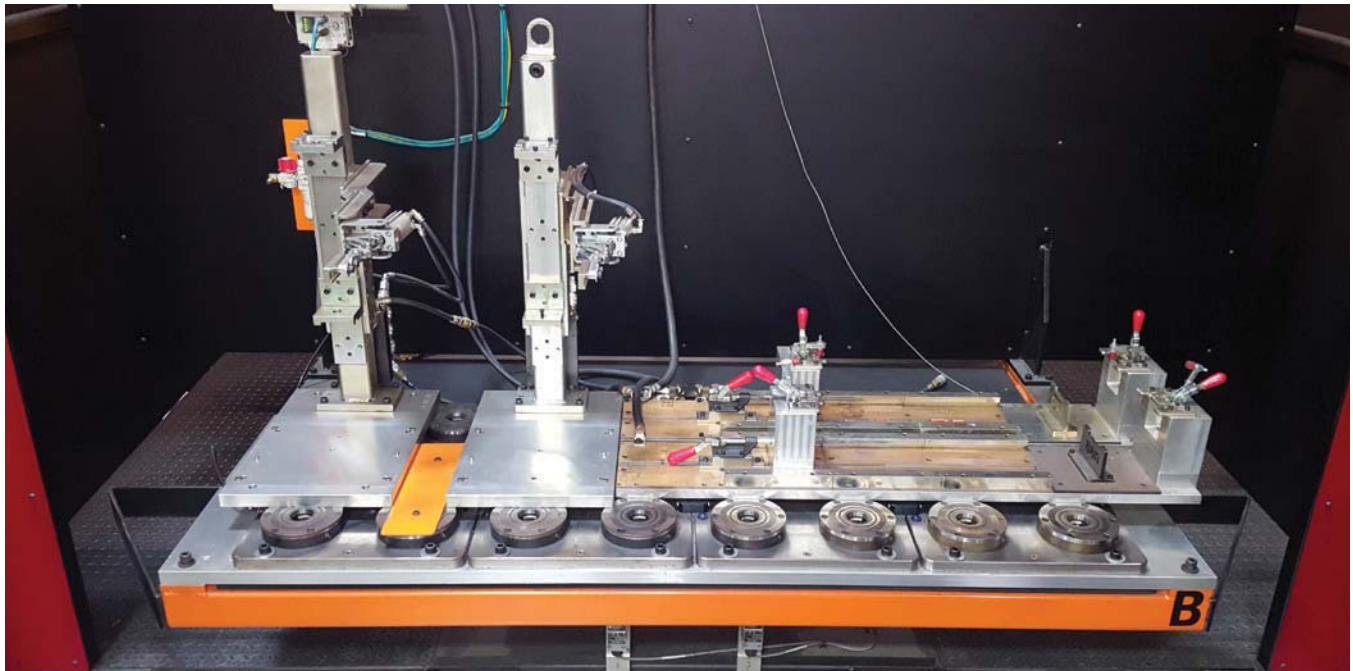
- No hardware included
- See pg. 14 for ERGO 138 chuck specifics

ACCESSORIES



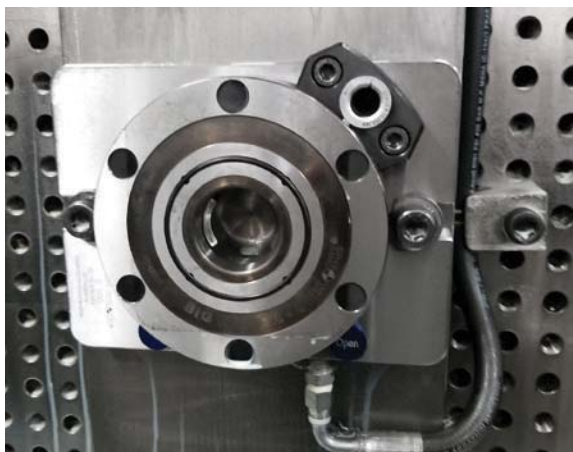
ERGO 138 PREASSEMBLED BASES

Application Examples



ERGO 138 – Welding

Four ERGO E600 bases are used to hold welding fixtures, allowing for the quick changeover of fixtures when the production changes from one series of parts to another. There is no need to retouch points between changes as the system repeatability of .005 µm (.0002") is greater than needed in most welding applications.



ERGO 138 – Timing Block

The ERGO E100 base can be modified by the end user to accept a timing block allowing for the timing of smaller fixtures at 45° or 135°.

In all cases the block (15.270.331) is sold separately.



ERGO E300 – Round, Special Item

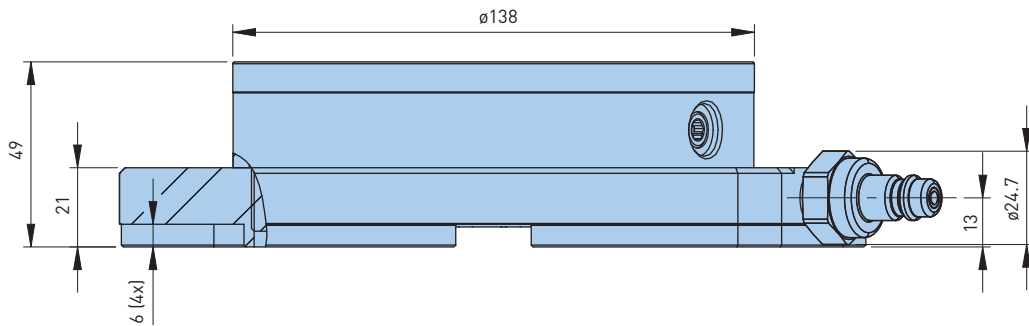
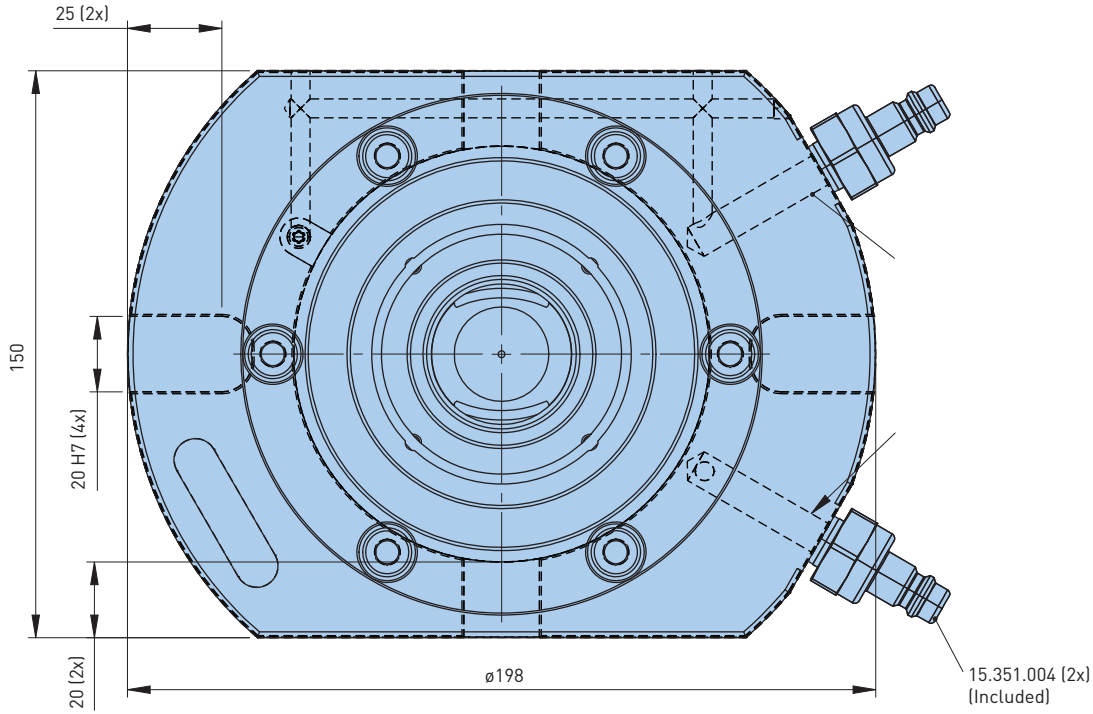
Special versions of round bases can be built to customer specifications.

For assistance, please consult the BIG DAISHOWA Engineering Dept.



ERGO E100B

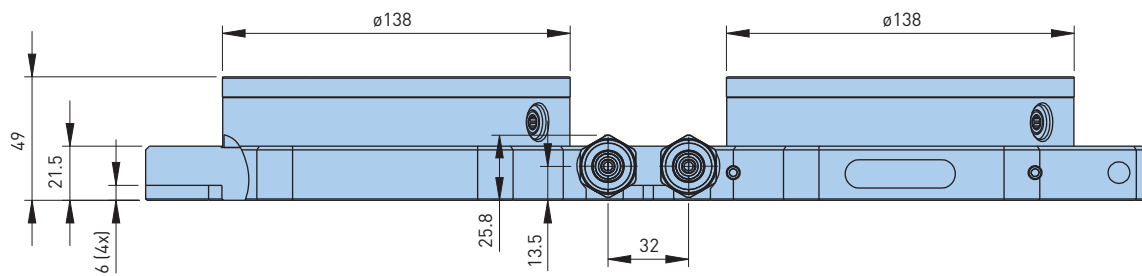
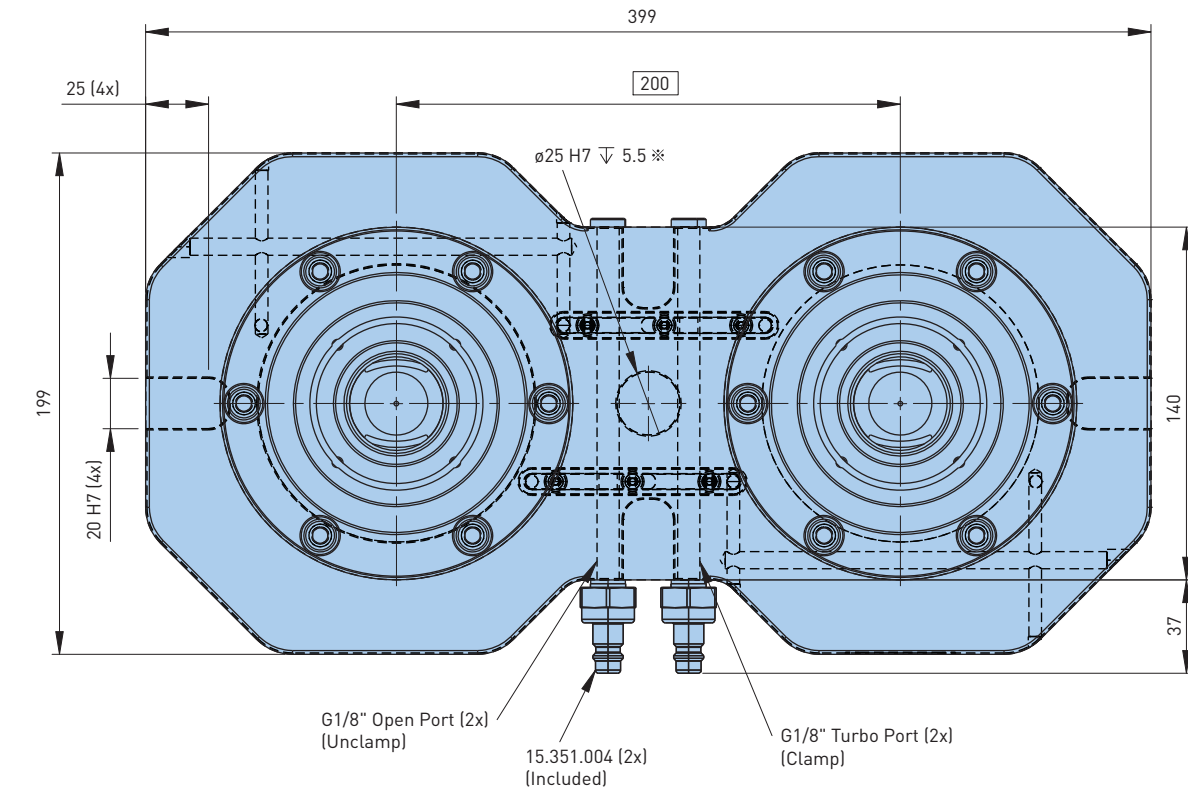
PREASSEMBLED CHUCKS A.2



Catalog Number
15.270.370B

- All dimensions are in millimeters
- For detailed information on additional mounting hole locations, please consult the BIG DAISHOWA Engineering Dept.

ERGO E200B



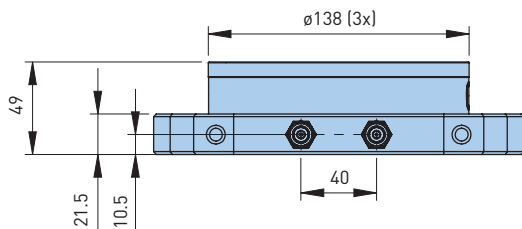
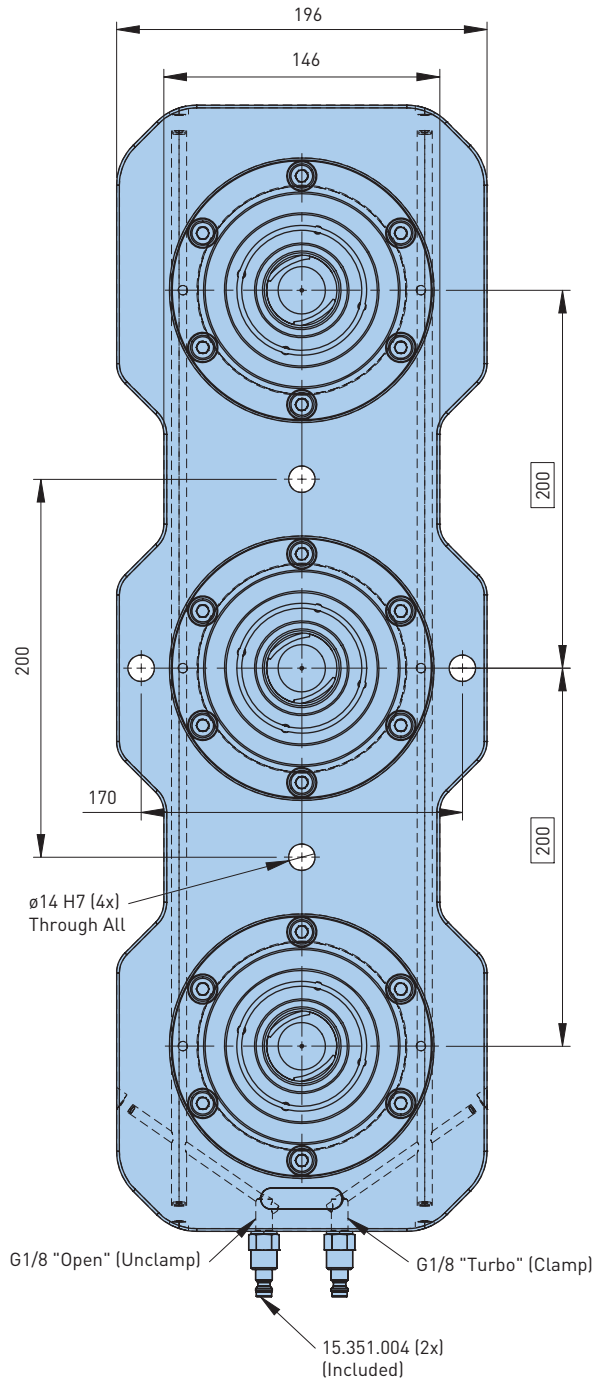
Catalog Number
15.270.371B

- All dimensions are in millimeters
- Dimensions marked ※ are for notch option
- For detailed information on additional mounting hole locations, please consult the BIG DAISHOWA Engineering Dept.



ERGO E300B

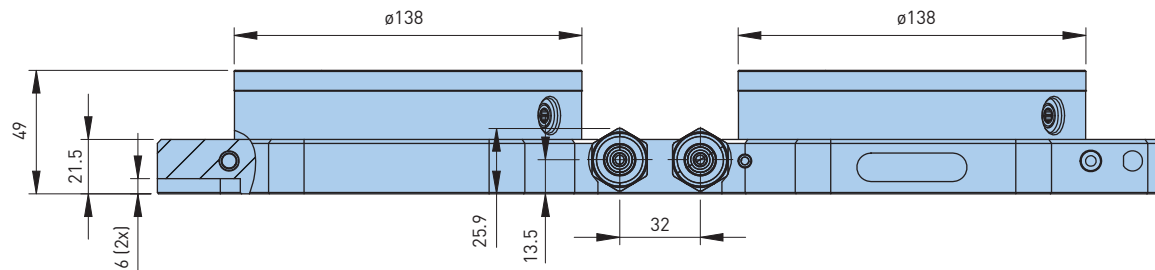
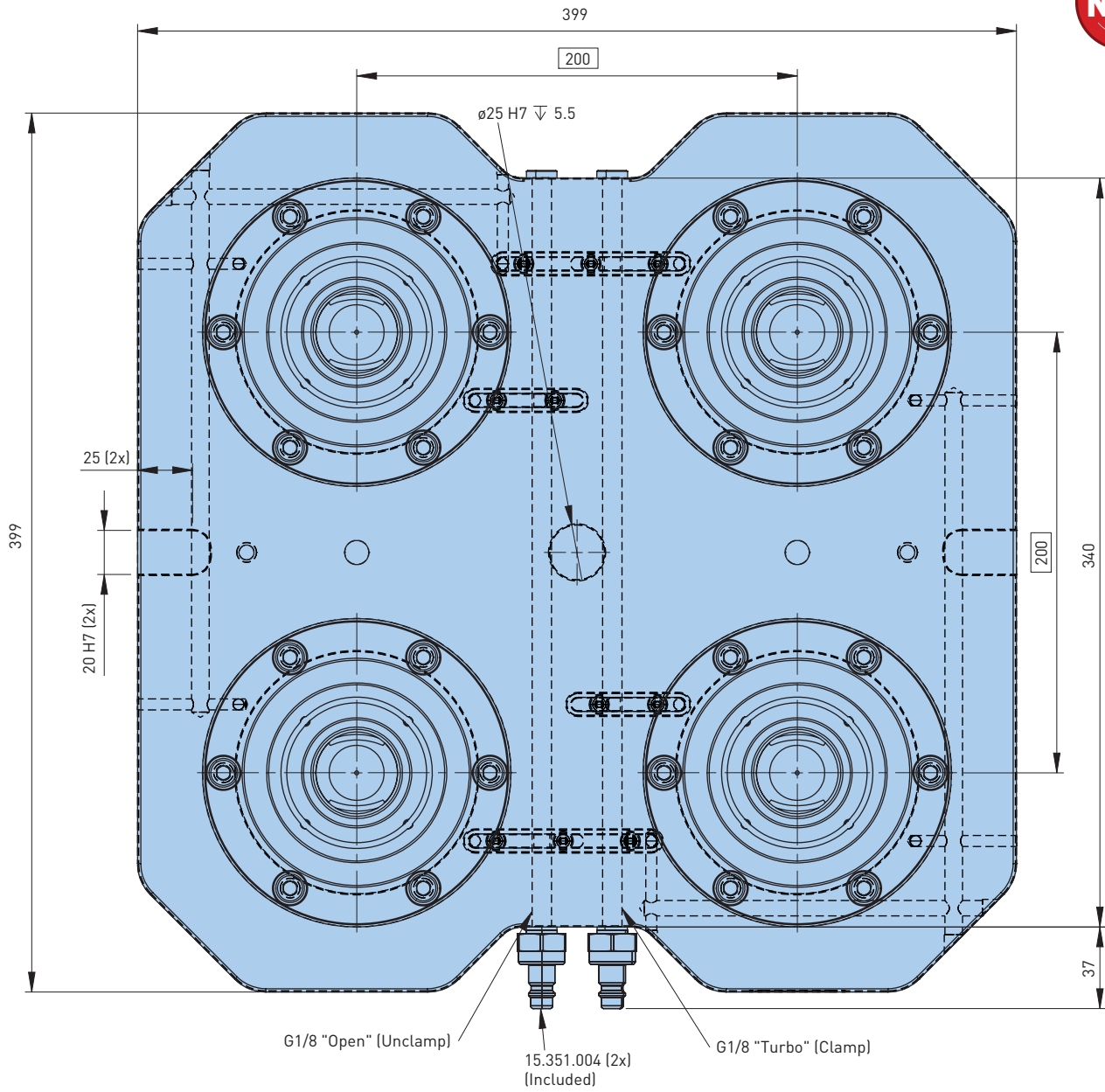
PREASSEMBLED CHUCKS
A.2



Catalog Number
15.270.372B

- All dimensions are in millimeters
- For detailed information on additional mounting hole locations, please consult the BIG DAISHOWA Engineering Dept.

ERGO E400B



Catalog Number
15.270.373B

- All dimensions are in millimeters
- For detailed information on additional mounting hole locations, please consult the BIG DAISHOWA Engineering Dept.

ERGO E400B

Application Examples

PREASSEMBLED CHUCKS A.2

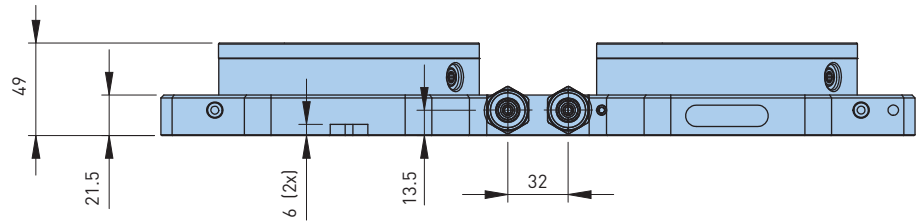
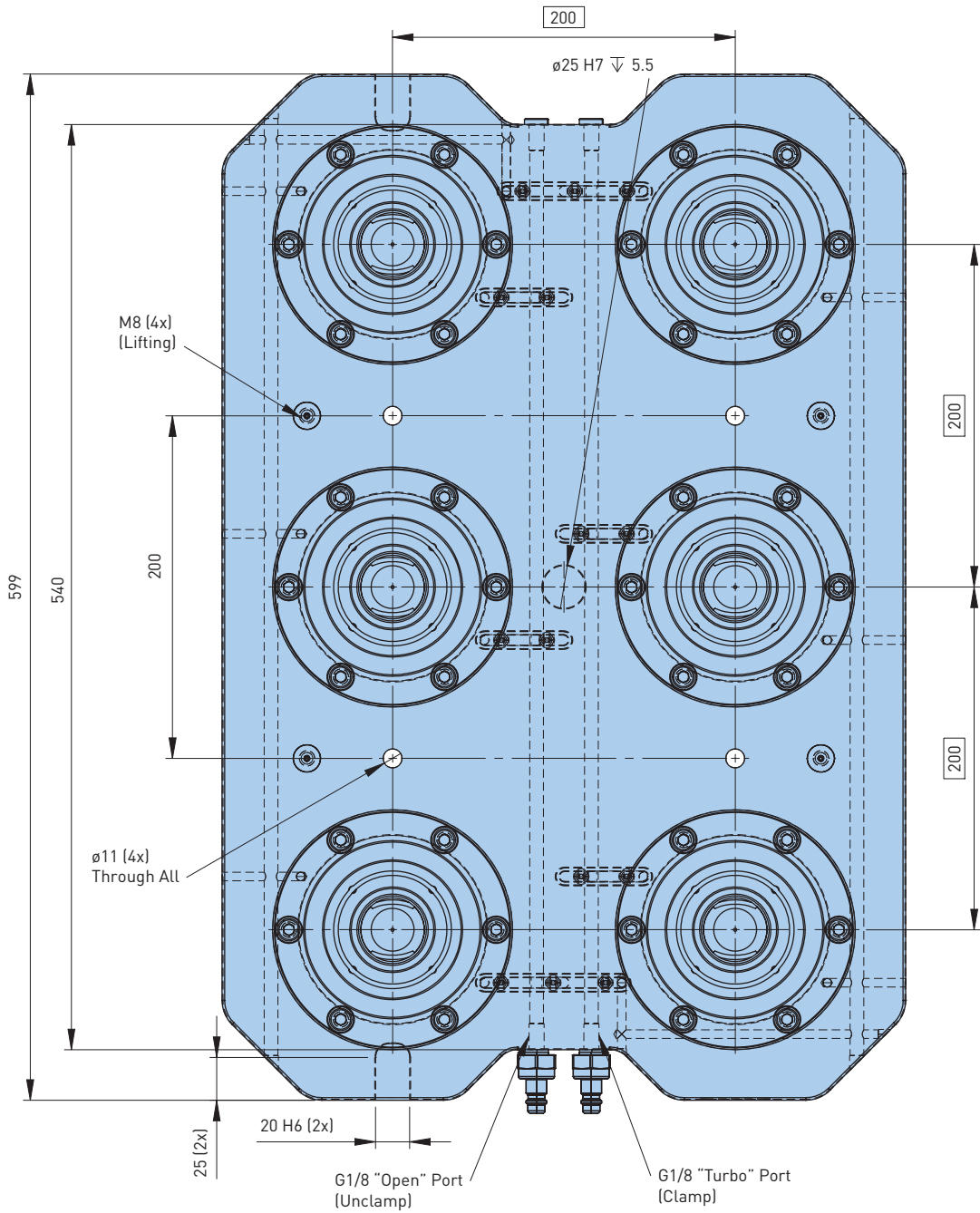


The ERGO E400 base stations shown above are mounted together for a master reference system on the table of the machine. They are also pneumatically linked to operate in unison. The vise plate (left bottom) and the grid plate (right bottom) are easily swapped or removed entirely. Then, when needed, replaced within .0002" (.005mm) of their original location.



ERGO E600B

A.2 PREASSEMBLED CHUCKS

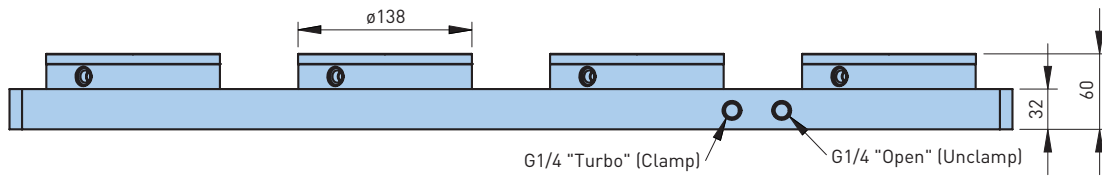
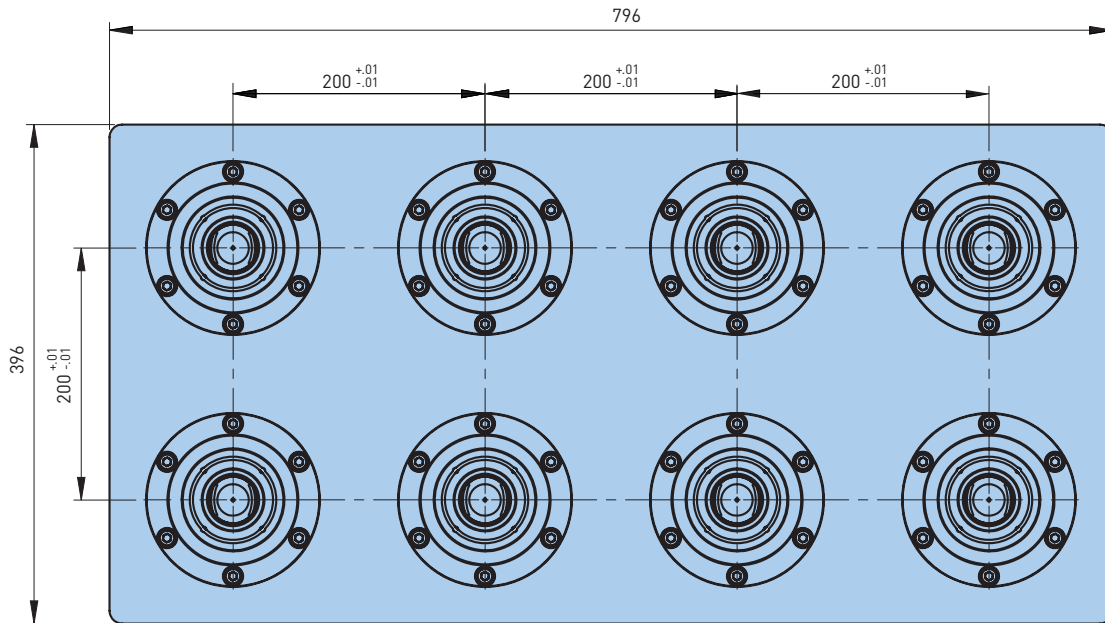


Catalog Number
15.270.374B

- All dimensions are in millimeters
- For detailed information on additional mounting hole locations, please consult the BIG DAISHOWA Engineering Dept.

ERGO E800A

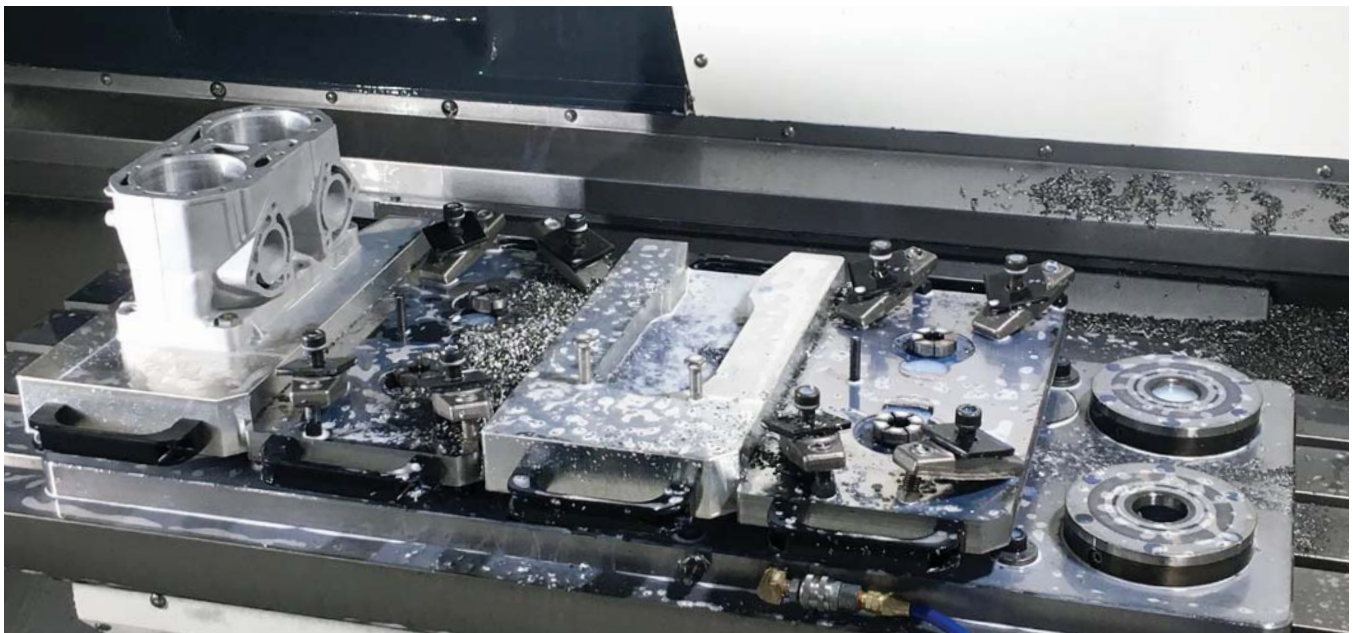
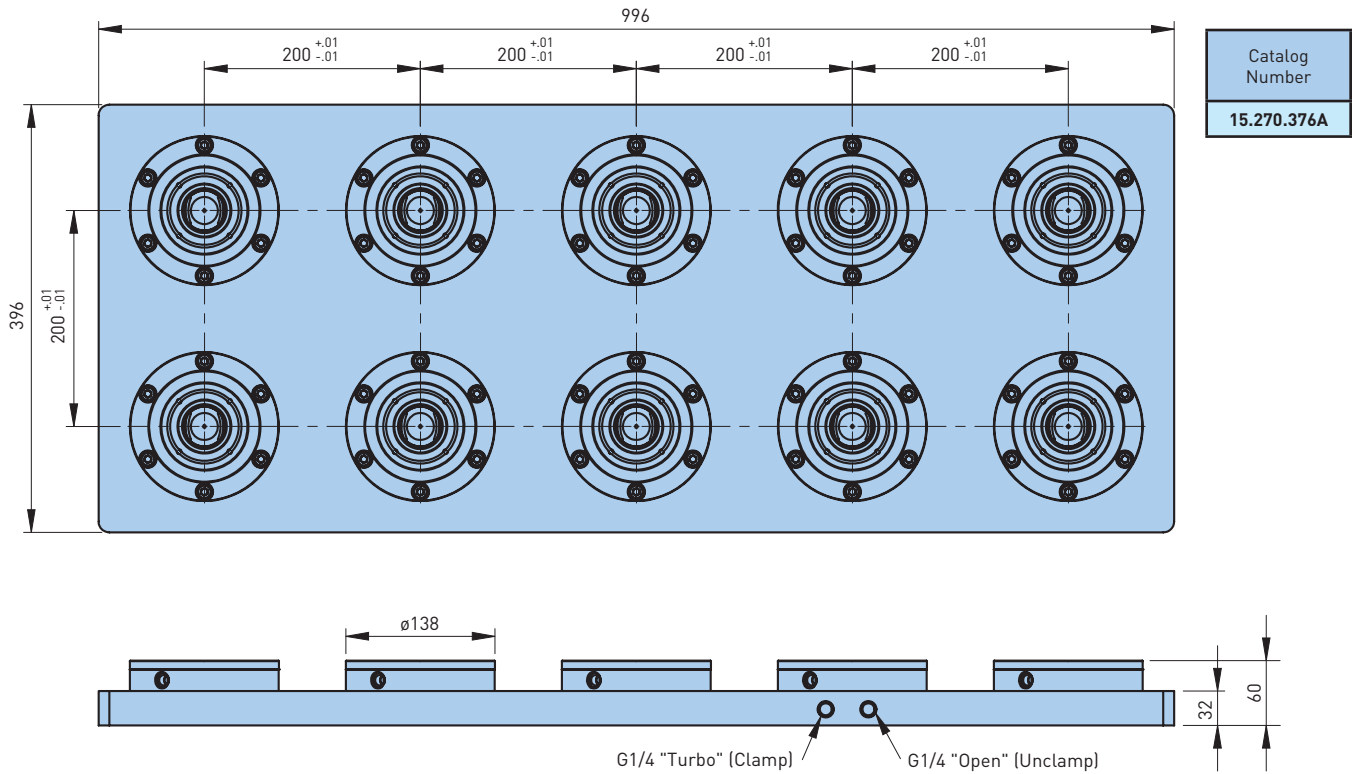
Catalog Number
15.270.375A



The ERGO E800A preassembled bases shown with custom mounting holes designed to match the T-slot pattern of the customer's machine for fast, precise installation.

- All dimensions are in millimeters
- For detailed information on additional mounting hole locations or base modifications, please consult the BIG DAISHOWA Engineering Dept.

ERGO E1000A



Shown with four custom-designed fixtures. Standard fixture pallets are available in aluminum or steel, and come in a variety of sizes and thicknesses. See pg. 30 for details.

- All dimensions are in millimeters
- For detailed information on additional mounting hole locations, please consult the BIG DAISHOWA Engineering Dept.

AUTOMATION SYSTEMS

A.3



AUTOMATION SYSTEMS OVERVIEW	42
ESA 138	43
EGM 110-75	44
PKL 110	45



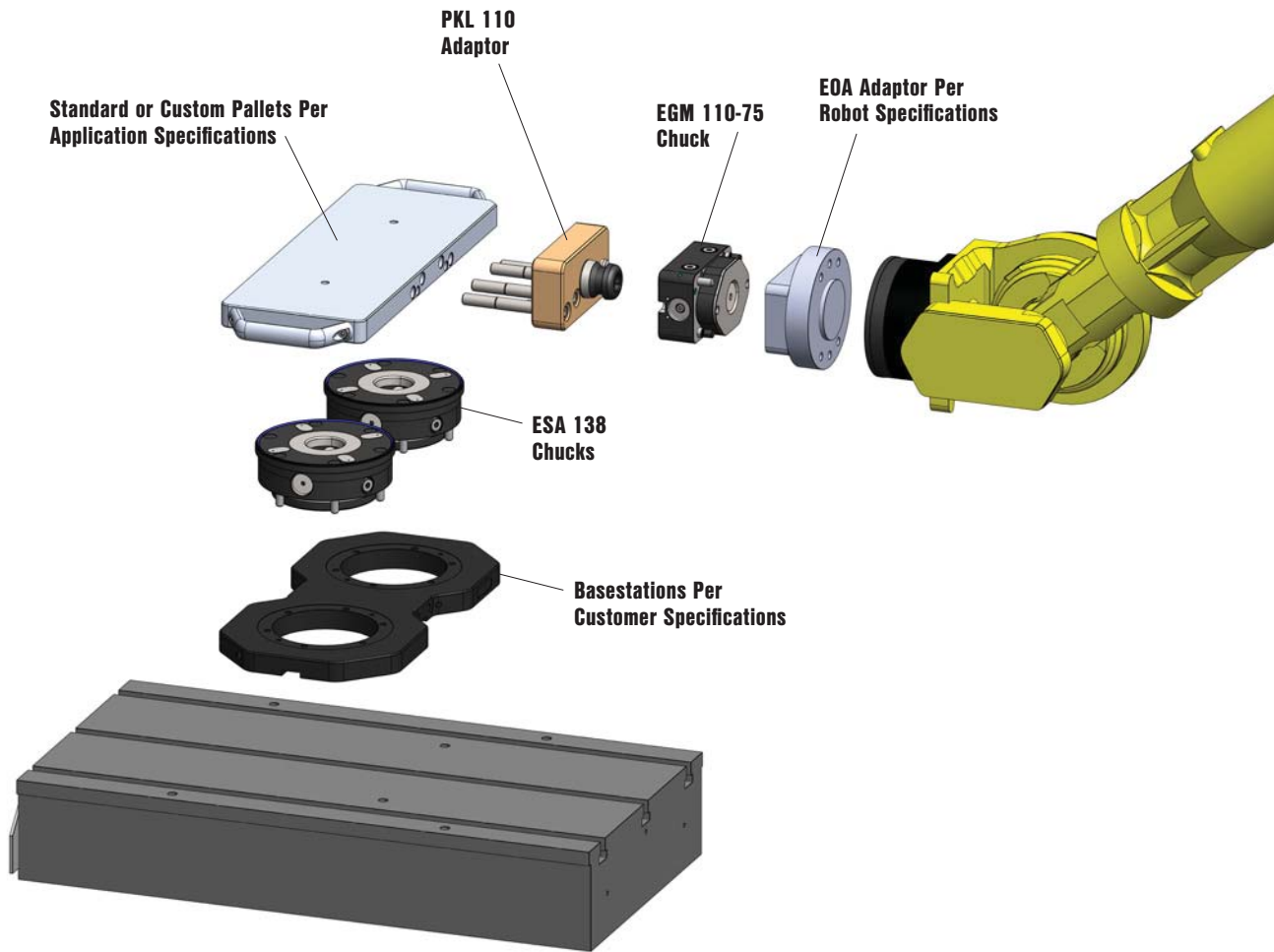
AUTOMATION SYSTEMS

Supporting End-User or Integrator Applications for Robotic Loading of Palletized Fixtures

ESA 138 Chuck – Enables automatic loading and unloading, with clamp/unclamp confirmation and pallet presence detection. An optional through-center air blast is available for knob cleaning.

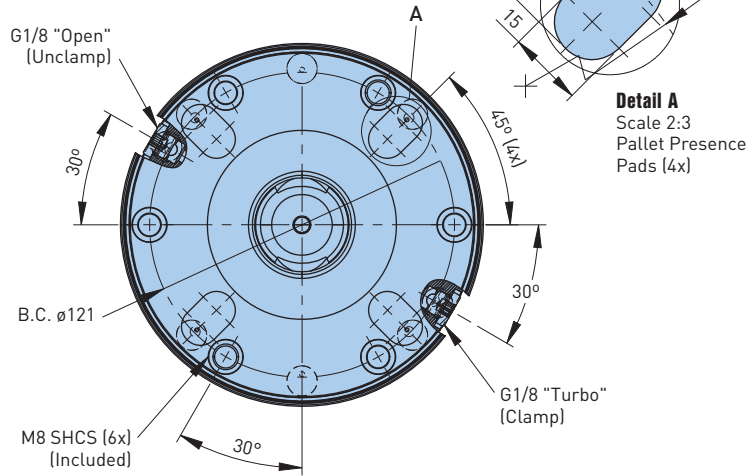
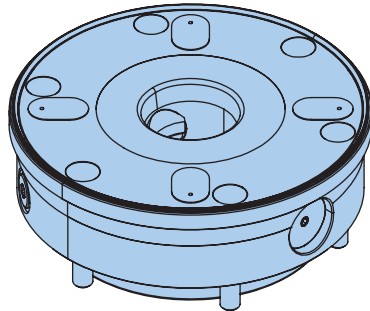
PKL 110 Pallet Adaptor – Allows end users or integrators to modify pallets or fixtures for robotic pick-and-place operations.

EGM 110-75 Chuck – Used with an adaptor on the end of arm to grip the pallet for pick-and-place applications. Clamp/unclamp confirmation is built into the chuck, and an air-blast option is available.

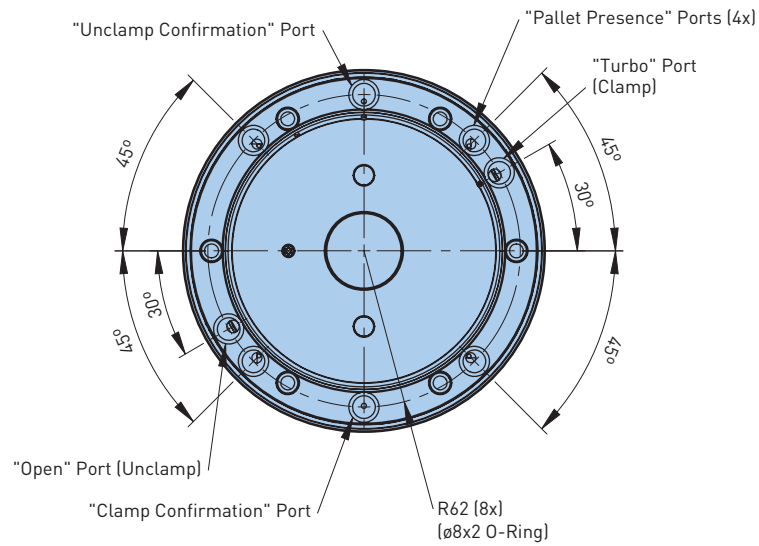
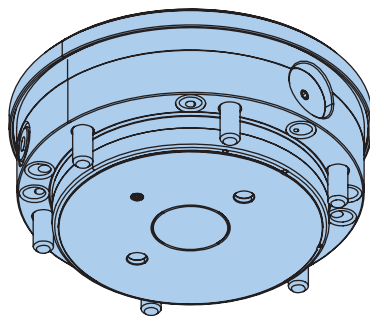
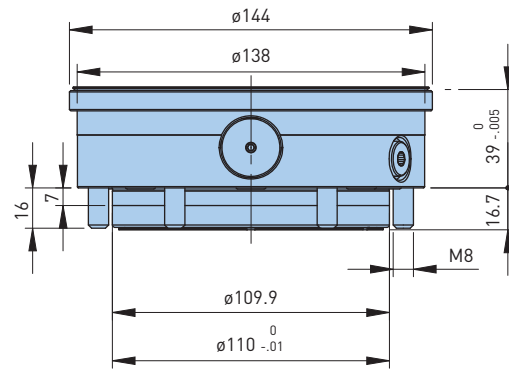
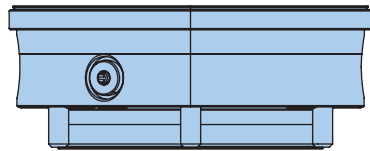


Robot and control not supplied by BIG DAISHOWA.
Pallet storage rack not supplied by BIG DAISHOWA.
Direct part picking not available.

ESA 138



Detail A
Scale 2:3
Pallet Presence
Pads (4x)



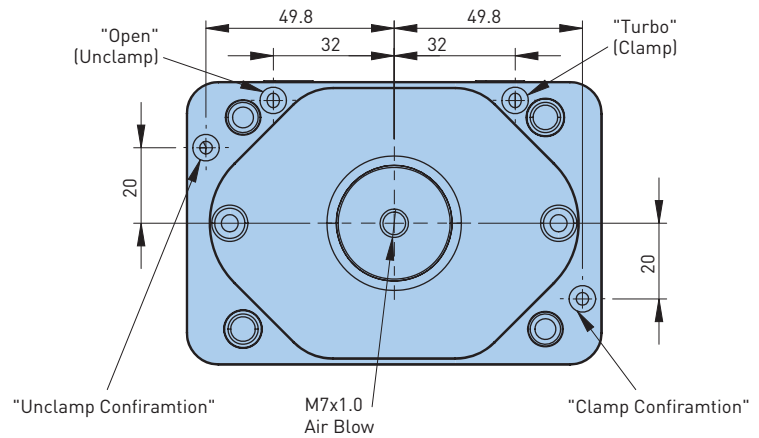
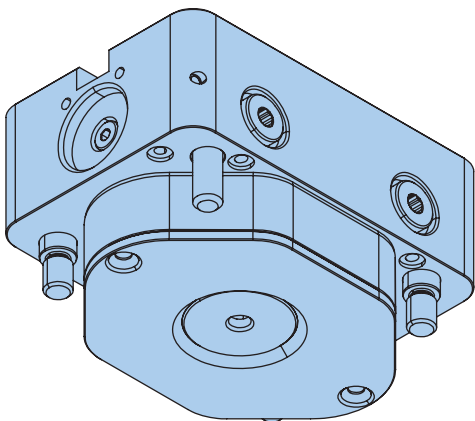
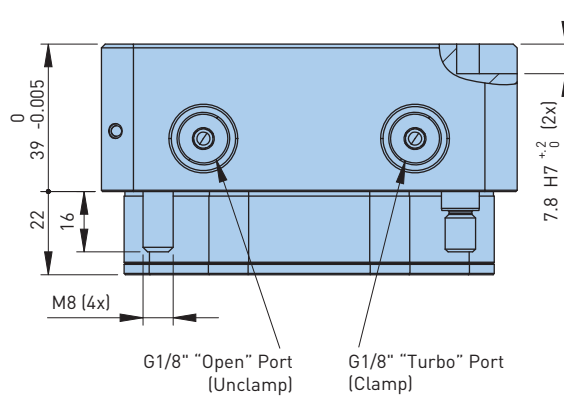
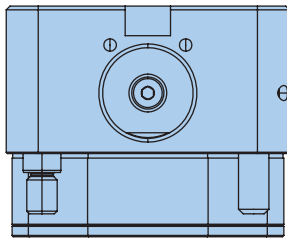
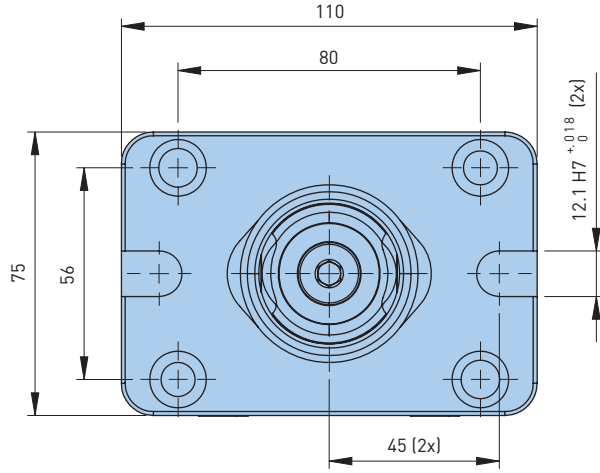
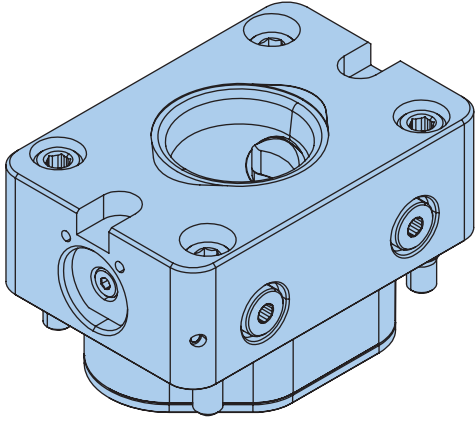
Catalog Number	Description	Notch	Clamping Force (lbs)		Air Connection		Weight (lbs)
			Spring Only	Turbo Assist	Port Size	Flange	
15.279.300	ESA 138	—	1,686	5,620	G1/8	X	9.9

• All dimensions are in millimeters



EGM 110-75

AUTOMATION SYSTEMS A.3

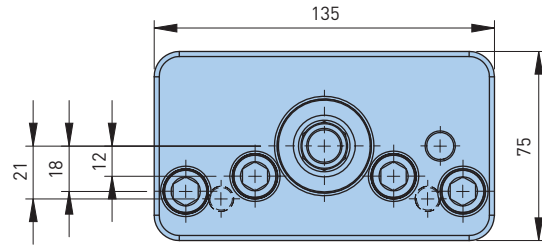
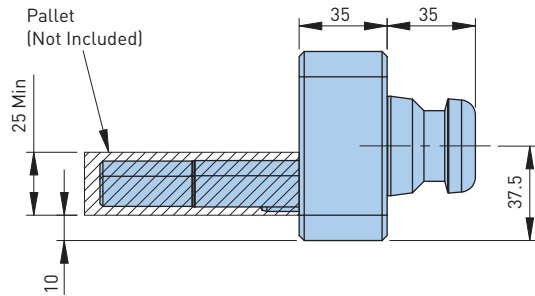
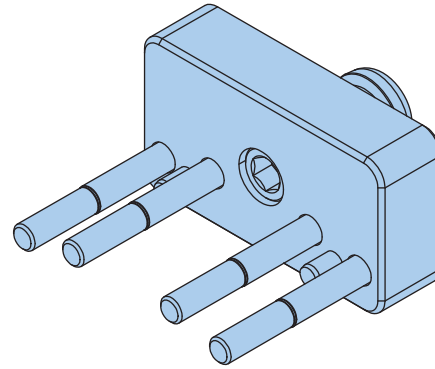
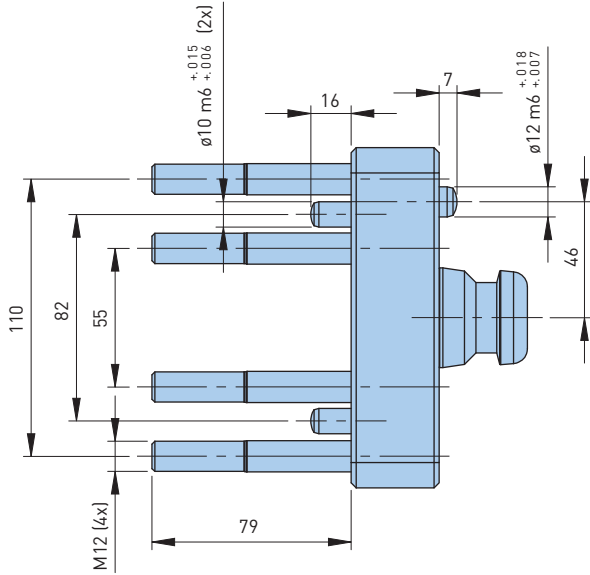


Catalog Number	Description	Notch	Clamping Force (lbs)		Air Connection		Weight (lbs)
			Spring Only	Turbo Assist	Port Size	Flange	
15.279.320	EGM110-75	2x 12	899	3,147	G1/8	X	5.9

• All dimensions are in millimeters

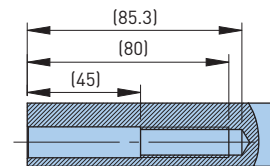
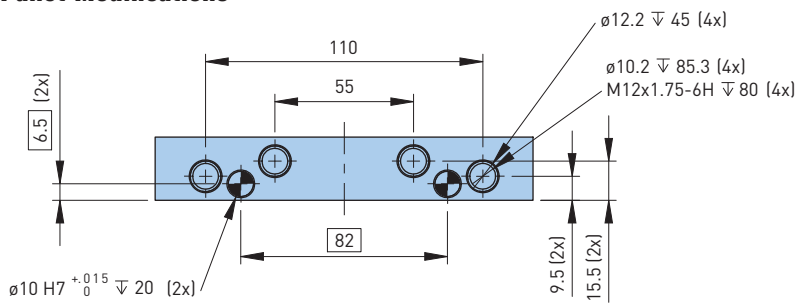


PKL 110



Catalog Number	Weight (lbs)
15.279.330	3.5

Pallet Modifications



• All dimensions are in millimeters

KNOBBS, BALLS AND PALLETS

A.4



CLAMPING KNOBS

CLAMPING KNOB OVERVIEW	48
SYSTEM 40 KNOBS	49-51
SYSTEM 25 KNOBS	52-53
SYSTEM 68 KNOBS	54

CLAMPING BALLS

5-AXIS STABILIZER BALLS	55-56
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PALLETS

SYSTEM 40 PALLETS	57-59
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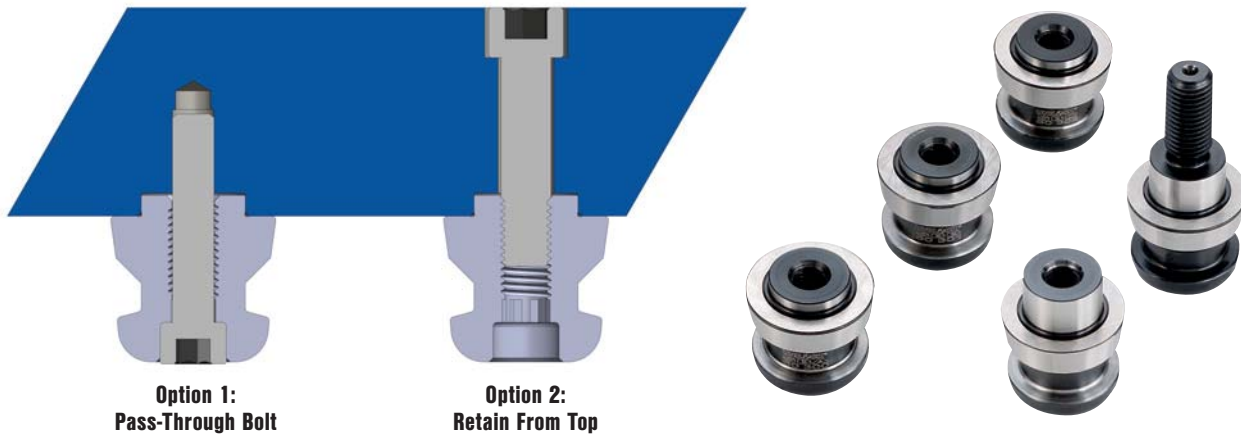
KNOBS, BALLS AND PALLETS

CLAMPING KNOBS


Can be attached to fixtures or directly to workpieces. Our standard knobs can be mounted in a blind hole from the bottom or pulled up from the top. Standard clamping knobs accept the following:


OPTION 1: PASS-THROUGH BOLT – The bolt is inserted past the clamping knob and threads into the workpiece or fixture.


OPTION 2: RETAIN FROM TOP – The bolt passes through the workpiece or fixture and pulls the knob into position.

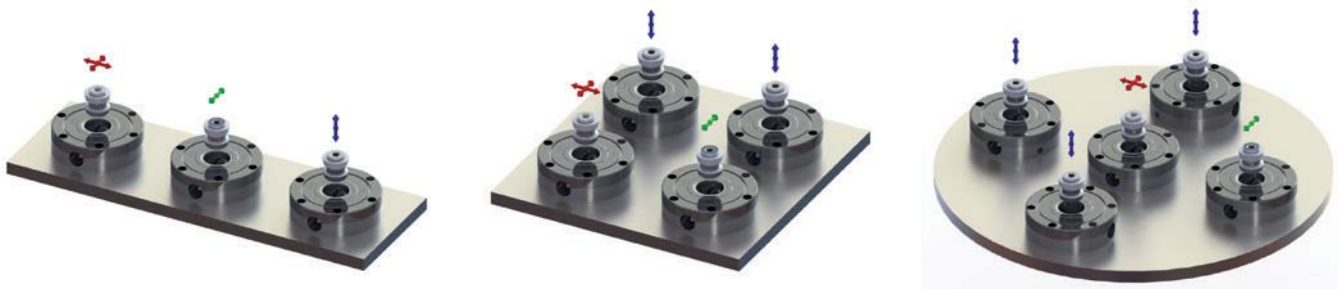


Standard clamping knobs have a metric positioning boss which is $\varnothing 25\text{mm}$ and ground to a fit of h6. This boss is 5mm tall. The overall measurements of the clamping knob is $\varnothing 40\text{mm}$ by 40mm tall.

 The SBA Knob is ground to fit with the center ground taper of the chuck. This fit establishes centerline location. This location will repeat to better than $\pm 0.0002''$ (.005mm).

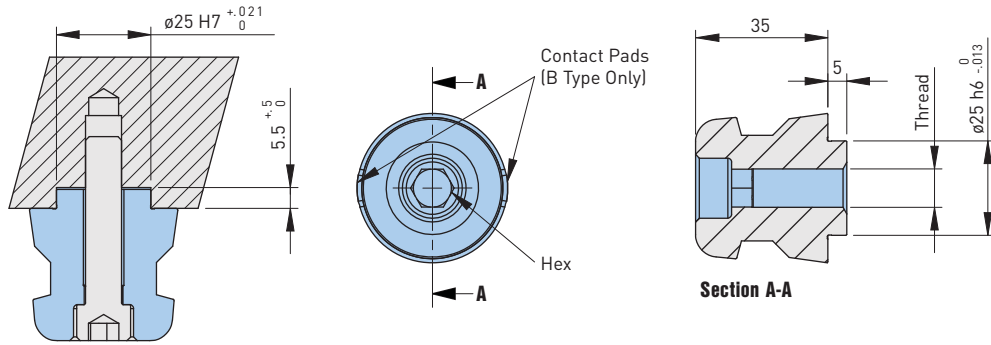
 The SBB Knob is ground like a diamond pin and orients your work relative to the centerline of the SBA Knob.

 The SBC Knob is ground undersize. It will bring the bottom of the workpiece or fixture down on the top of the UNILOCK chuck.



SYSTEM 40

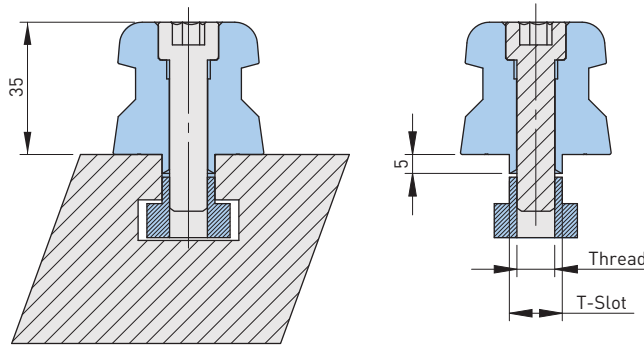
Knobs



Knob Type	Catalog Number	Description	Repeatability (in)	Internal Thread	Pass-Through Bolt Size	Hex
A	15.260.300	SBA—Absolute Position	.0002	M12	M10	10mm
B	15.260.301	SBB—Orientation	.0002	M12	M10	10mm
C	15.260.302	SBC—Undersized .1mm—Downward Clamping Only	.0040	M12	M10	10mm
A	15.260.400	SBA—Absolute Position	.0002	M16	M12	17mm
B	15.260.401	SBB—Orientation	.0002	M16	M12	17mm
C	15.260.402	SBC—Undersize .1mm	.0040	M16	M12	17mm

- For inch options please consult the BIG DAISHOWA Engineering Dept.
- All dimensions are in millimeters

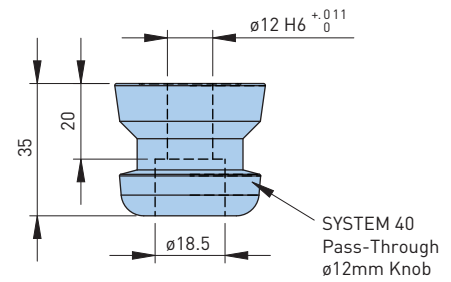
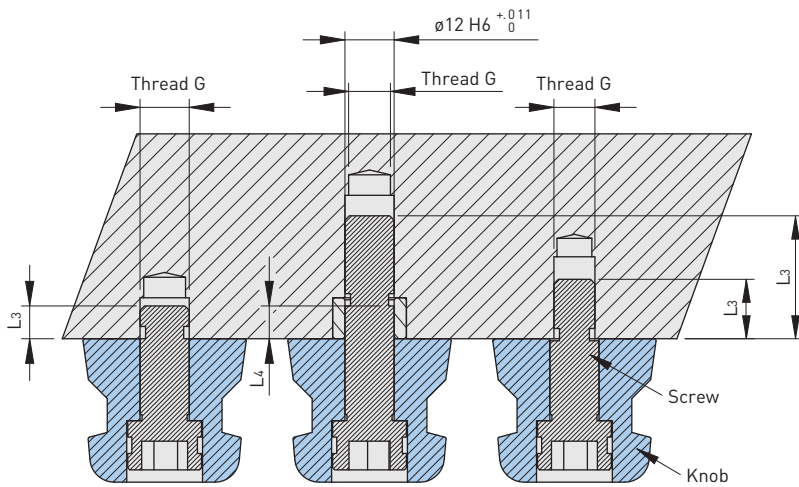
T-Slot Knobs



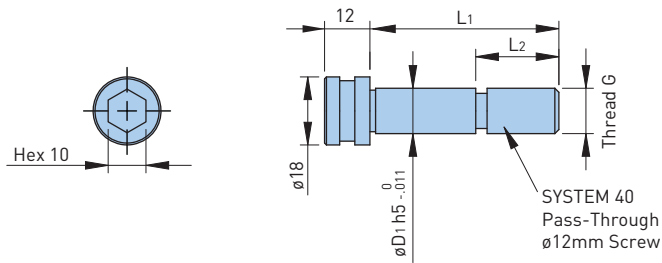
Knob Type	Catalog Number	Description	Repeatability (in)	Thread	T-Slot
A	15.250.360	SBA—Absolute Position	.0002	M10xP1.5	14mm
C	15.250.361	SBC—Undersized .3mm	.0040	M10xP1.5	14mm
A	15.250.366	SBA—Absolute Position	.0002	M12xP1.75	16mm
C	15.250.367	SBC—Undersized .3mm	.0004	M12xP1.75	16mm
A	15.250.362	SBA—Absolute Position	.0002	M12xP1.75	18mm
C	15.250.363	SBC—Undersized .3mm	.0040	M12xP1.75	18mm
A	15.250.364	SBA—Absolute Position	.0002	M12xP1.75	22mm
C	15.250.365	SBC—Undersized .3mm	.0040	M12xP1.75	20mm

- T-nuts and fasteners are included
- Inch t-slot versions available upon request
- All dimensions are in millimeters

SYSTEM 40 PASS-THROUGH Knobs and Screws (ø12mm)



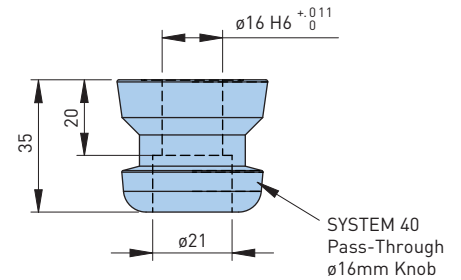
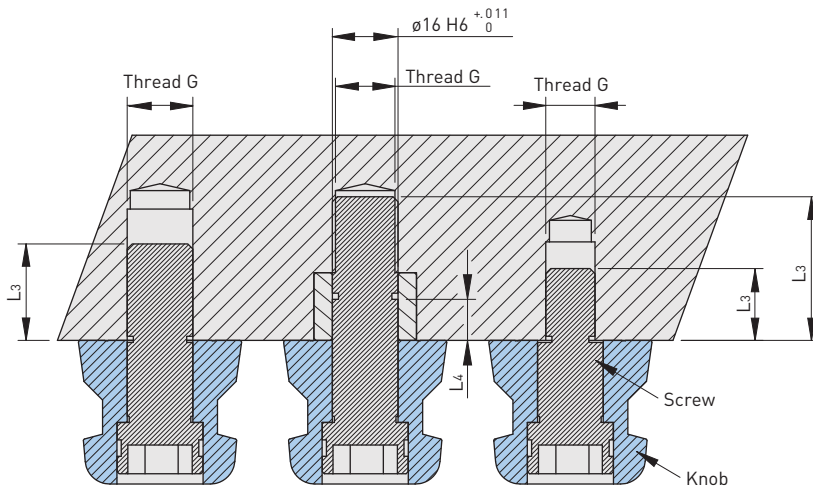
Knob Type	Knob Catalog Number
SBA	15.250.317
SBB	15.250.318
SBA	15.250.319



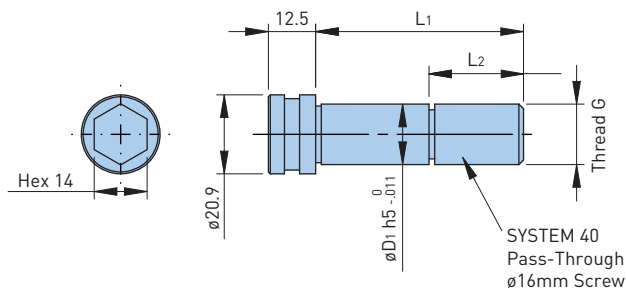
Screw Catalog Number	øD1	Thread (G)	L1	L2	L3	L4
15.250.505	12	M12xP1.75	50.0	22.0	30.0	8.0
15.250.501	12	M12xP1.75	55.0	22.0	35.0	13.0

- All dimensions are in millimeters
- Other sizes available upon request; please consult the BIG DAISHOWA Engineering Dept.

SYSTEM 40 PASS-THROUGH Knobs and Screws (ø16mm)



Knob Type	Knob Catalog Number
SBA	15.250.307
SBB	15.250.308
SBC	15.250.309



Screw Catalog Number	øD1	Thread (G)	L1	L2	L3	L4
15.250.535	16	M16xP2	55.0	25.0	35.0	10.0
15.250.504	16	M16xP2	43.5	24.0	23.5	—
15.250.537	16	M12xP1.75	37.5	18.0	17.5	—
15.250.523	16	M12xP1.75	28.0	—	8.0	—
15.250.528	16	M10xP1.5	28.0	—	8.0	—

• All dimensions are in millimeters

SYSTEM 25

Knobs

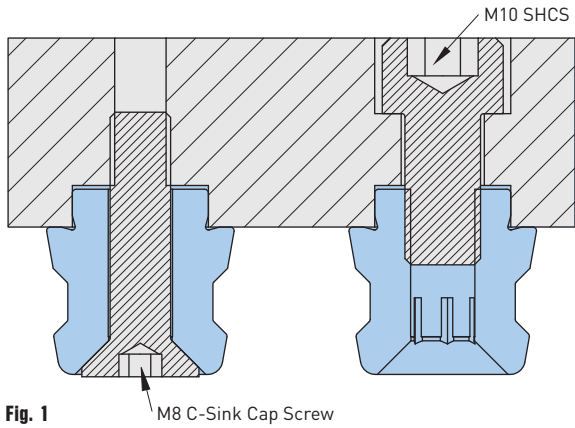
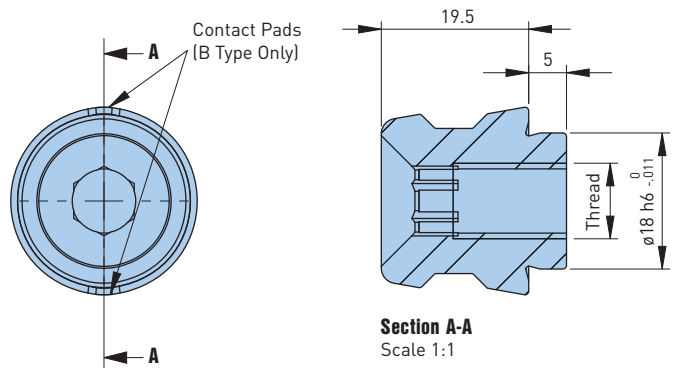


Fig. 1 M8 C-Sink Cap Screw



Section A-A
Scale 1:1

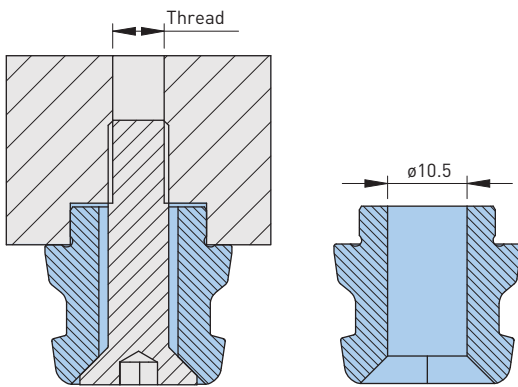


Fig. 2

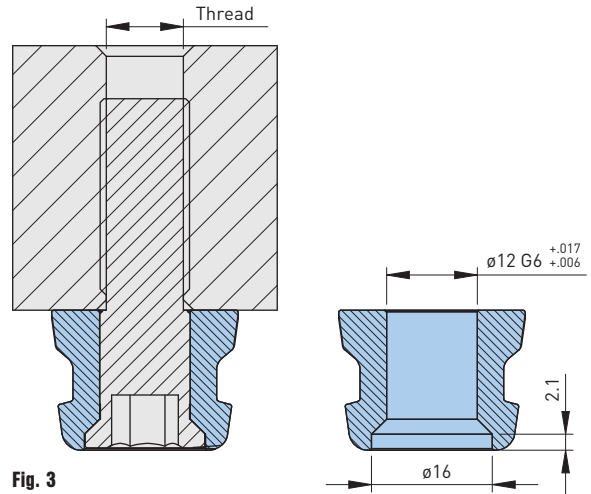


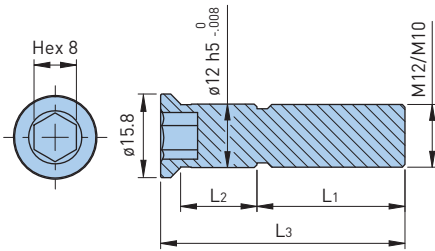
Fig. 3

Knob Type	Catalog Number	Description	Location Diameter	Internal Thread	Pass-Through Thread	Hex	Fig.	Weight (lbs)
A	15.255.400	SPA25—Absolute Position	ø18 h6	M10	M8	8	1	.11
B	15.255.401	SPB25—Orientation						
C	15.255.402	SPC25—Undersized .1mm						
A	15.255.410	SPA25—Absolute Position	ø18 h6	—	M8	—	2	.11
B	15.255.411	SPB25—Orientation						
C	15.255.412	SPC25—Undersized .1mm						
A	15.255.420	SPA25—Absolute Position (Thru Bore)	ø12 G6	—	M8/M10/M12	—	3	.11
B	15.255.421	SPB25—Orientation (Thru Bore)						
C	15.255.542	SPC25—Undersized .1mm (Thru Bore)						

- All dimensions are in millimeters
- See pg. 82 for compatible chucks

SYSTEM 25

Shoulder Screws



Catalog Number	Shoulder Diameter	Thread	L1	L2	L3	Weight (lbs)
15.255.425	ø12 h5	M12xP1.75	28.0	14.4	45.7	.04
15.255.426			17.5		35.7	
15.255.427		M10xP1.5	14.5		32.7	
15.255.428		M8xP1.25	11.5		29.7	

- All dimensions are in millimeters
- Other sizes available upon request; please consult BIG DAISHOWA Engineering Dept.

SYSTEM 68

Knobs

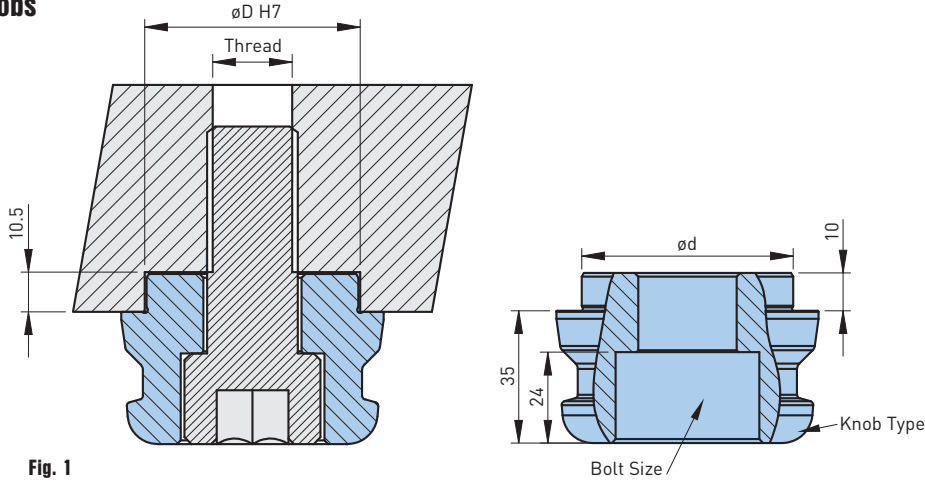


Fig. 1

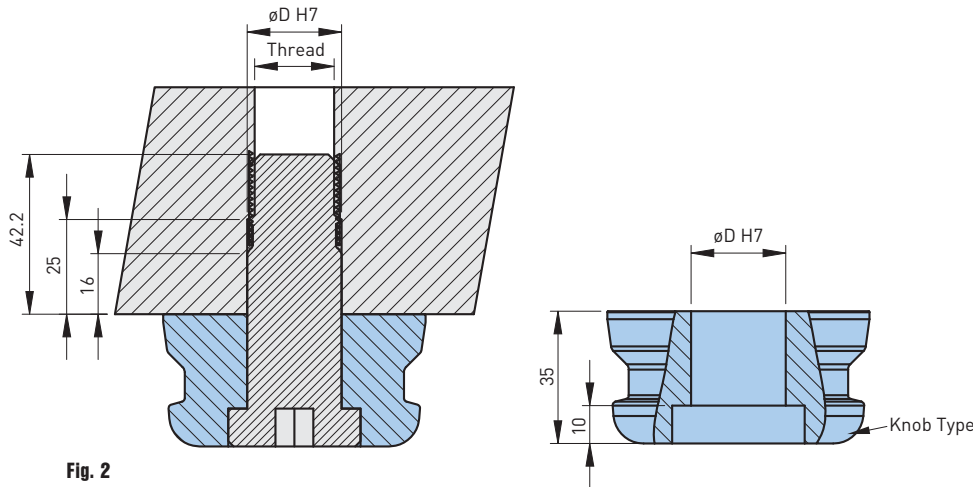
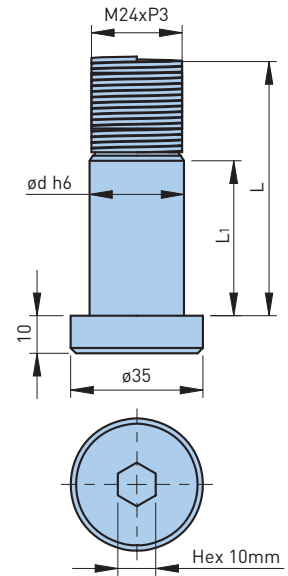


Fig. 2

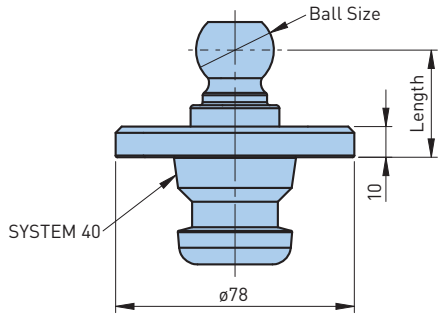


Knob Type	Catalog Number	Fig.	Description	Bolt Thread	$\varnothing D/\varnothing d$
A	15.500.593	1	SBA—Absolute Position	M24	57H7/57h6
B	15.500.594	1	SBB—Orientation	M24	57H7/57h6
C	15.500.595	1	SBC—Retention Only	M24	57H7/57h6
A	15.500.596	1	SBA—Absolute Position	M30	57H7/57h6
B	15.500.597	1	SBB—Orientation	M30	57H7/57h6
C	15.500.598	1	SBC—Retention Only	M30	57H7/57h6
A	15.500.603	1	SBA—Absolute Position	M24	25H7/25h6
B	15.500.604	1	SBB—Orientation	M24	25H7/25h6
C	15.500.605	1	SBC—Retention Only	M24	25H7/25h6
A	15.500.606	2	SBA—Absolute Position	M24	25H7/25h6
B	15.500.607	2	SBB—Orientation	M24	25H7/25h6
C	15.500.608	2	SBC—Retention Only	M24	25H7/25h6

• All dimensions are in millimeters

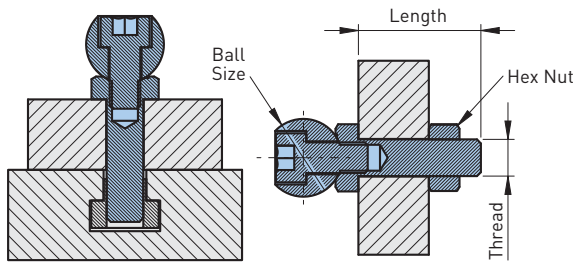
5-AXIS STABILIZER

Ball to Knob Adaptor



Catalog Number	Description	Ball Size	Length (mm)	Weight (lbs)
15.252.060	SBA40	ø25.4	35	1.5
15.252.061	SBA40	ø50	24	2.4

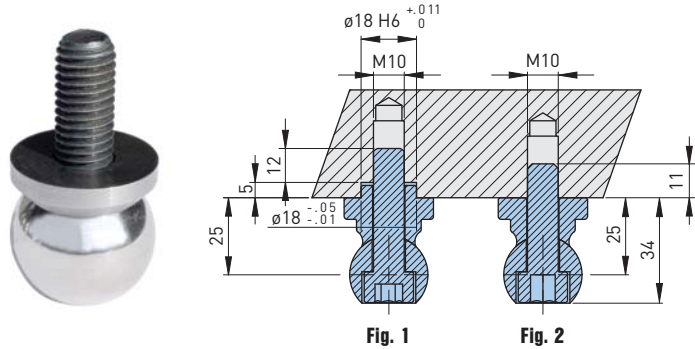
Ball Mounting Screw



Catalog Number	Thread	Ball Size	Length (mm)	Weight (lbs)
15.252.080	M12xP1.75	ø25.4	40	.4
15.252.082	M16xP2			.4
15.252.084	M20xP2.5		50	.4
15.252.085	M24xP3			.9
15.252.086	M24xP3	ø50	50	1.2
15.252.087	M30xP3.5		60	1.3
15.252.089	M36xP4		70	1.5

- Hex nut included; T-nut not included
- Inch sizes available upon request

Ball and Collar

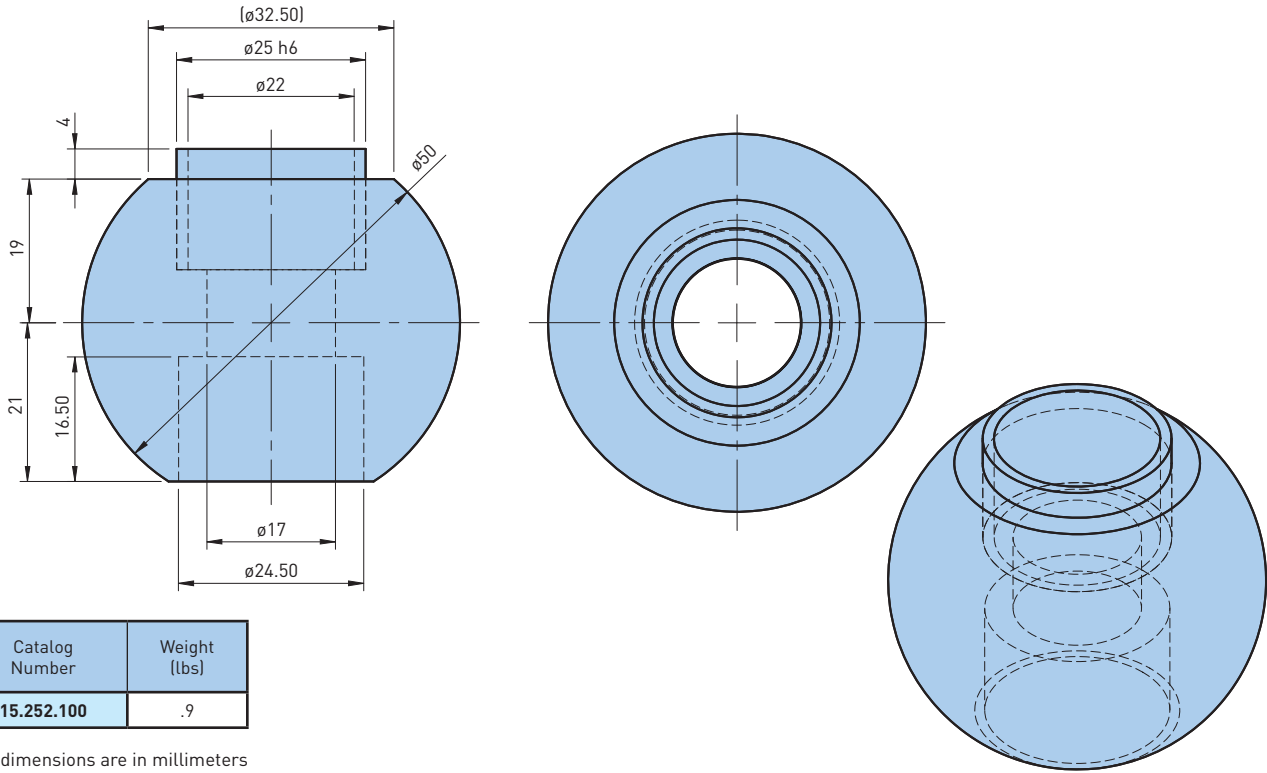


Catalog Number	Fig.	Description	Ball Size	Height (mm)	Weight (lbs.)
15.252.382	1	5-Axis Stabilizer Ball and Collar with Location	ø25.4	25	.2
15.252.383	2	5-Axis Stabilizer Ball and Collar without Location			
15.252.385*	1&2	5-Axis Stabilizer Ball and Collar Set			.4

- *Set includes 1 ball and 3 collars
- See pg. 56 for ø50 balls

5-AXIS STABILIZER

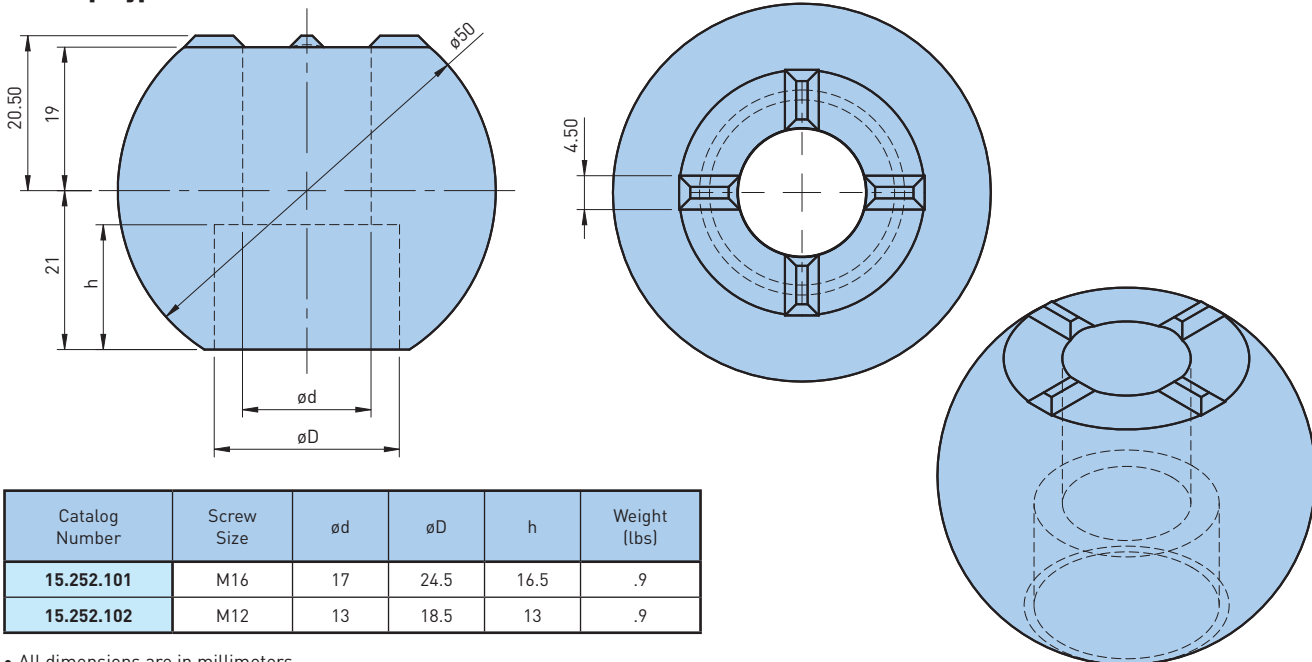
Ball Location Type



Catalog Number	Weight (lbs)
15.252.100	.9

- All dimensions are in millimeters
- M16 x L50 SHCS not included

Ball Grip Type



Catalog Number	Screw Size	ϕd	ϕD	h	Weight (lbs)
15.252.101	M16	17	24.5	16.5	.9
15.252.102	M12	13	18.5	13	.9

- All dimensions are in millimeters
- Mounting screw not included
- This will mar surfaces and should be used with rough surfaces

SYSTEM 40

Pallets

Preassembled with Knobs and Handles

Pallets are provided fully assembled with their required quantity of UNILOCK knobs and lifting handles, and are available in either steel or aluminum.

Mono Pallet

The UNILOCK ESM 138 chuck accepts a 14mm key or pin. The UNILOCK ESM 176 chuck accepts a 25mm key or pin.

Can be Configured for the Following Chucks

- ESM/EFM/ERGO 138
- MLM/MCM 150
- ISM 160
- MSM 170
- ESM 176 TURBO
- DC 200

Duo & Quad Pallet

Duo and Quad pallets will load on the UNILOCK QC 400 or any set of chucks on 200mm spacing.

Can be configured for the UNILOCK ERGO base stations.

While loading and unloading work into the fixture, the holes in the bottom of the pallet mate to setup plates that stabilize the pallet for safe operation outside of a UNILOCK chuck.



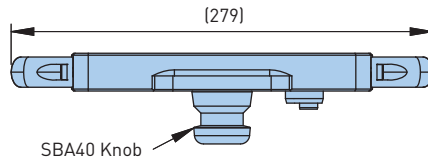
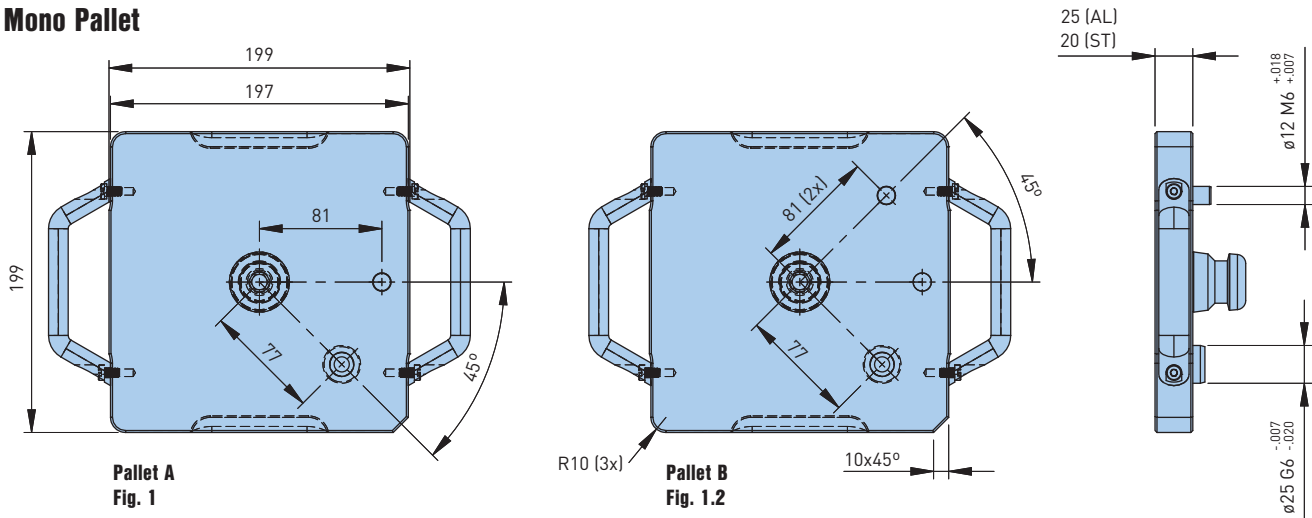
Pallet Type	Page	Pwallet Name	Catalog Number	Material	Thickness (mm)	Length (mm)	Width (mm)	Length w/Handles (mm)	#12 H7 of Pin Holes	Weight (lbs)
MONO*	58	SPA200	15.260.540A	STEEL	20	199	199	279	0° [1x]	9.3
			15.260.540B						0° & 45° [2x]	
MONO*	58	APA200	15.260.640A	ALUM	25	199	199	279	0° [1x]	4.9
			15.260.640B						0° & 45° [2x]	
DUO	58	SAP400	15.260.545A	STEEL	20	399	159	481	—	23.4
		APA400	15.260.645A	ALUM	25				—	11.2
TRIO	59	SPQ300	15.270.546A	STEEL	20	599	159	681	—	34.4
		APQ300	15.270.646A	ALUM	25				—	16.3
QUAD	59	SPQ400	15.270.544A	STEEL	20	399	399	481	—	61.7
		APQ400	15.270.644A	ALUM	25				—	26.5

***MONO pallets include ø12mm pin (1x) and ø25mm pin (1x); customer to install as needed**

• For pallet compatibility to older base stations please contact the BIG DAISHOWA Engineering Dept. for assistance

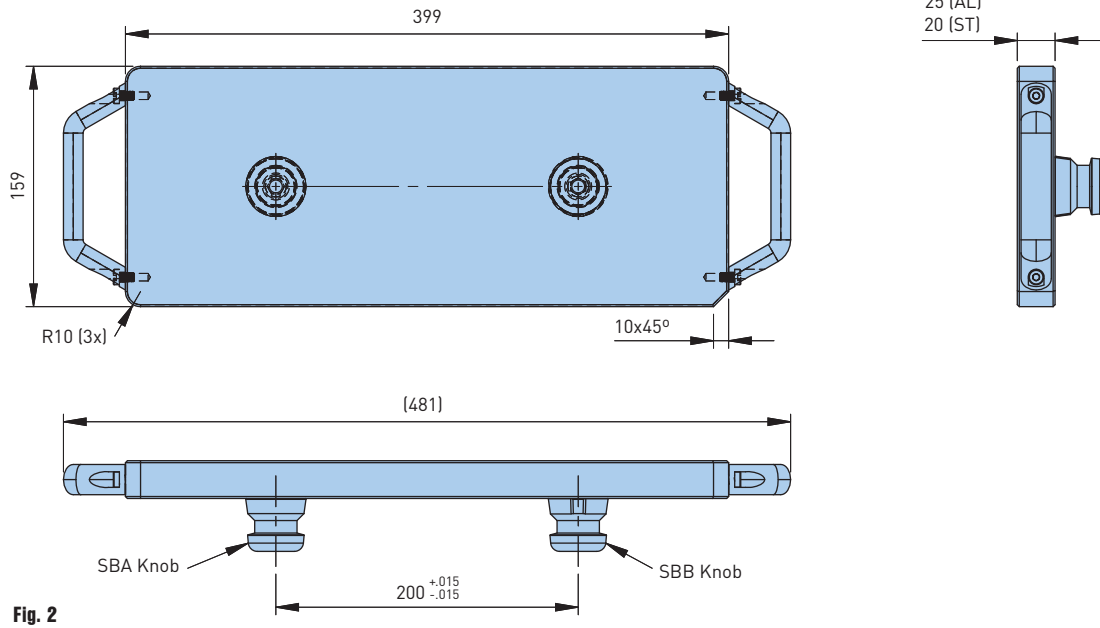
SYSTEM 40

Mono Pallet



- $\varnothing 12$ mm pin (1x) and $\varnothing 25$ mm pin (1x); customer to install as needed
- For pallet compatibility please contact the BIG DAISHOWA Engineering Dept. for assistance

Duo Pallet



- All dimensions are in millimeters

SYSTEM 40

Trio Pallet

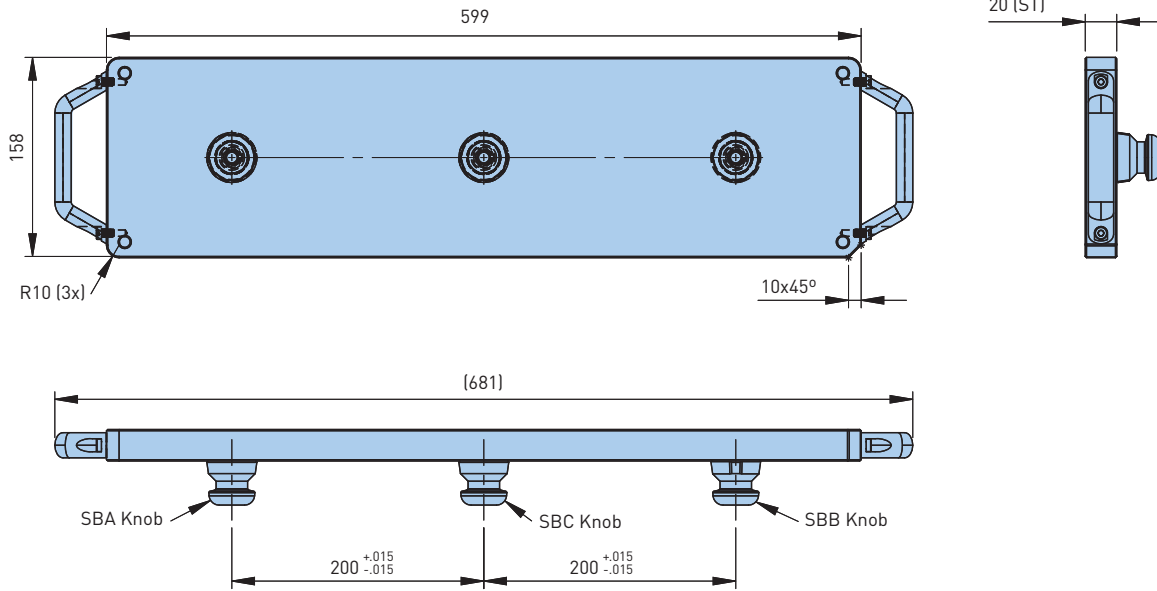


Fig. 3

Quad Pallet

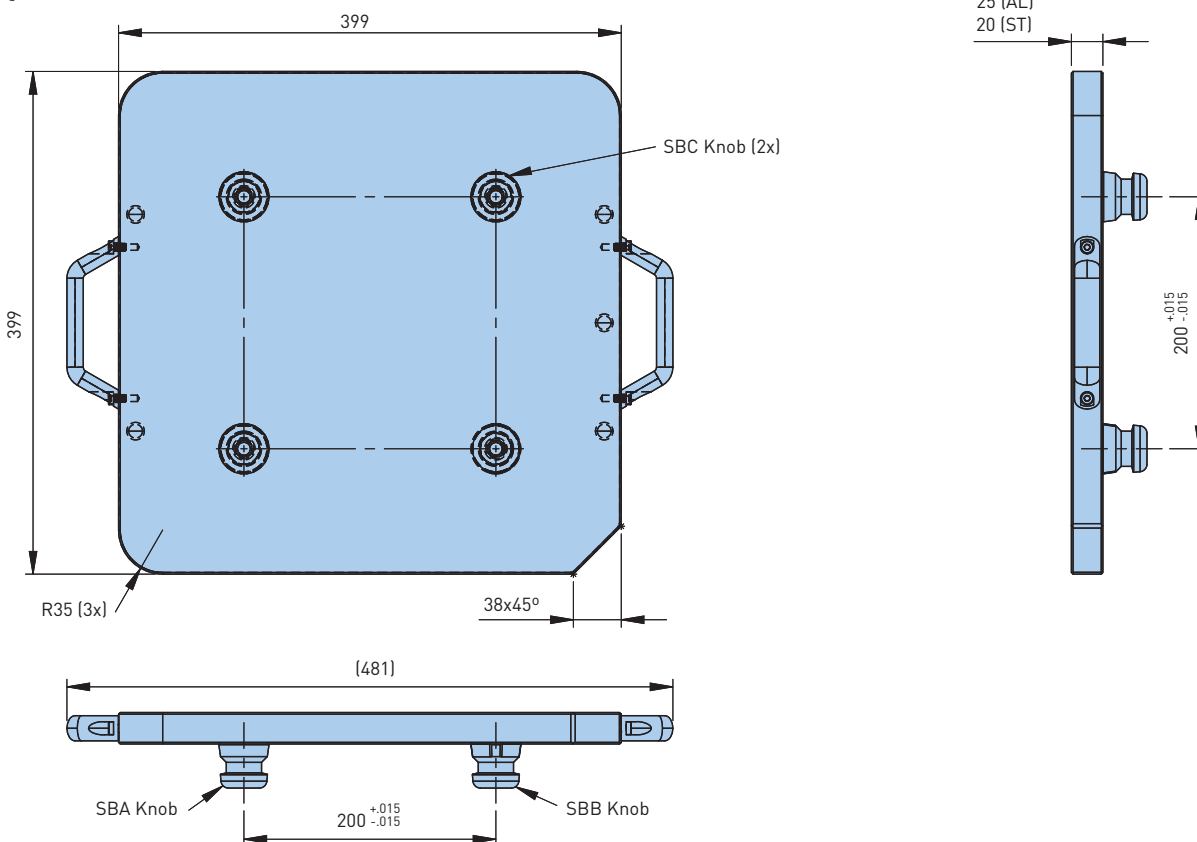


Fig. 4

- All dimensions are in millimeters

MULTI-AXIS SYSTEMS

A.5



5-AXIS SYSTEM OVERVIEW	62-63
5-AXIS BASE	64-65
5-AXIS B-STYLE BASE	66-67
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5-AXIS SYSTEMS

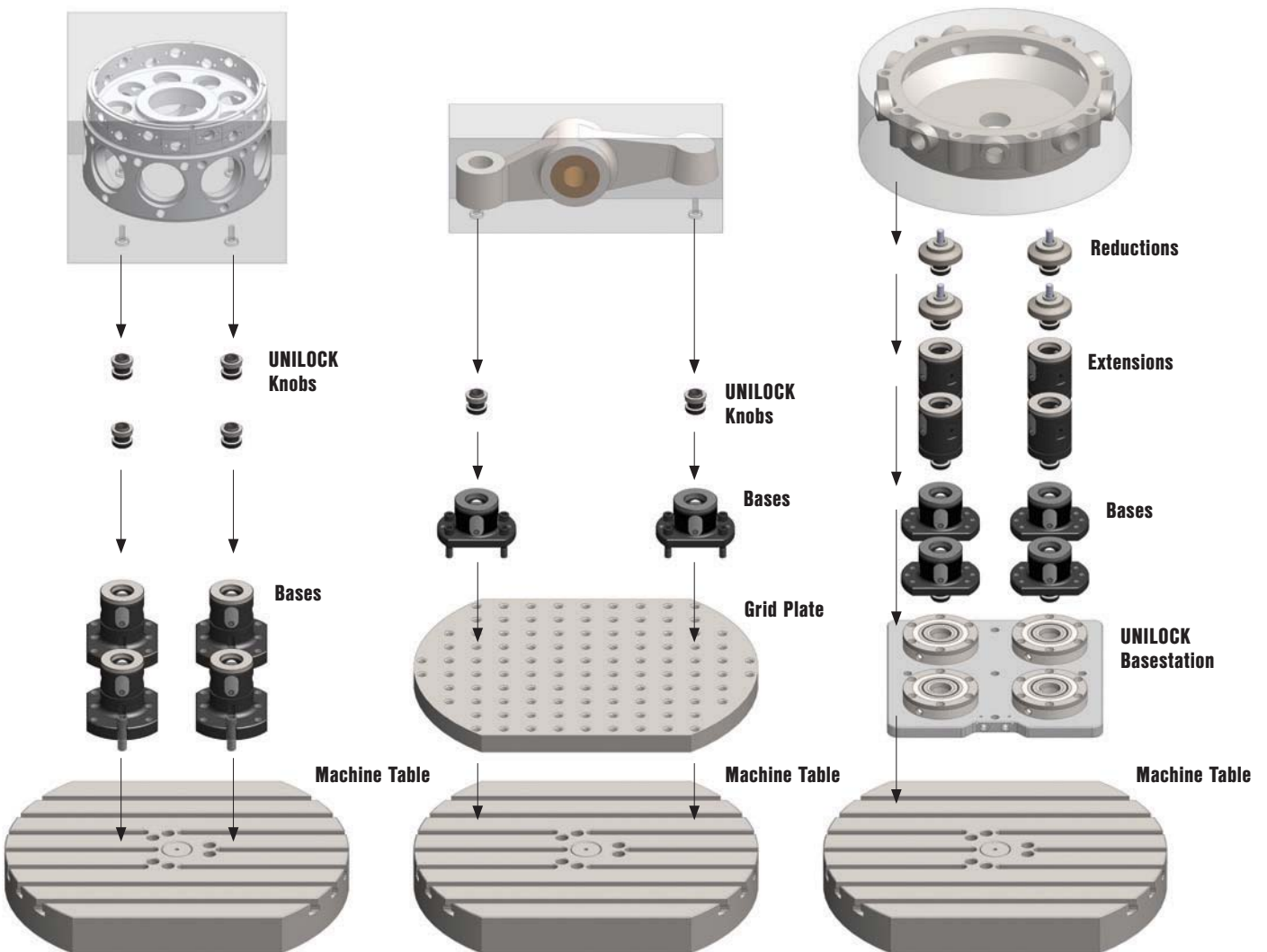
Precision Where You Need It Most

When your optimal work zone is centered on the machine table, our low-profile grid plates with integrated UNILOCK zero-point clamping offer out-of-the-box, turnkey solutions. These plates combine cap screw and dowel pin technology with UNILOCK chucks, enabling fast setup of virtually any workholding product, including 5-axis vises and dovetail clamps.

Need to elevate the workpiece? UNILOCK allows you to raise the workholding or the workpiece, or enables clamping knobs to be mounted directly to the bottom of the part—within 25mm of the machining edge.

UNILOCK chucks like the ASM 146 and ISM 160 (46mm height) can also be surface-mounted for fast, flexible changeover. Pair with Univice Synchro, Uniclamp or First Grip for a fully integrated 5-axis solution.

Assembly Examples



MULTI-AXIS SYSTEMS A.5

5-AXIS SYSTEM 40

UNILOCK Riser Chucks, Extensions & Reductions

UNILOCK riser chucks feature an 80mm working diameter and are available as base-mounted units or stackable modules in 75mm and 100mm heights. Base plate chucks include $\phi 12$ mm dowel pin holes for locating on 40mm and 50mm grid patterns. They can also accept clamping knobs for use in other UNILOCK chucks. Stackable versions provide added elevation and clearance. All versions open and close quickly with a single hex key.

These chucks are compatible with all UNILOCK System 40 (40mm) clamping knobs. Using riser assemblies, parts can be clamped just 40mm from their edge. Extensions reduce the working diameter to 50mm and add 25mm or 50mm of additional height, enabling clamping as close as 25mm from the edge.



5-AXIS

Base

Integral Mounting Flange

Offered with a timing key for single base applications. Table adapters are also offered. These chucks can be mounted on 40mm, 50mm and M12 grids, as well as on UNILOCK clamping systems using UNILOCK clamping knobs.

Features

- Elevate your workpiece for clearance
- Use UNILOCK clamping knobs
- Stackable chucks available
- Quickly open and close with a single hex key

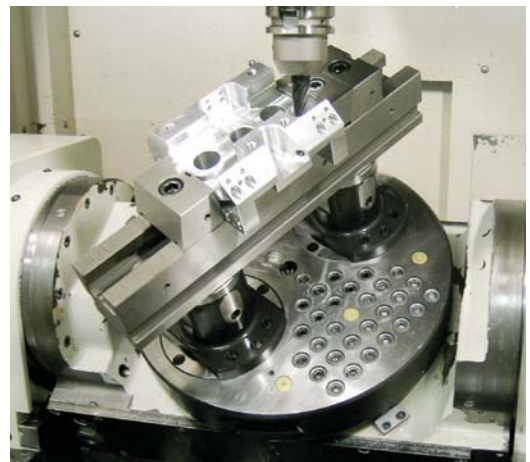


Catalog Number	Notch (Width x Qty)	Height	Clamping Force (lbs) (at 11 ft/lbs)	Weight (lbs)
15.250.101	—	75	2,200-2,500	8.1
15.250.103*	10 H7 x 1			
15.250.102	—	100		9.8
15.250.104*	10 H7 x 1			

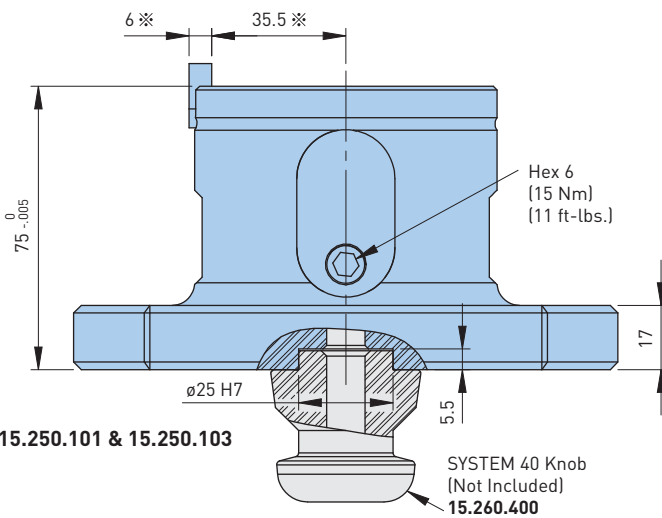
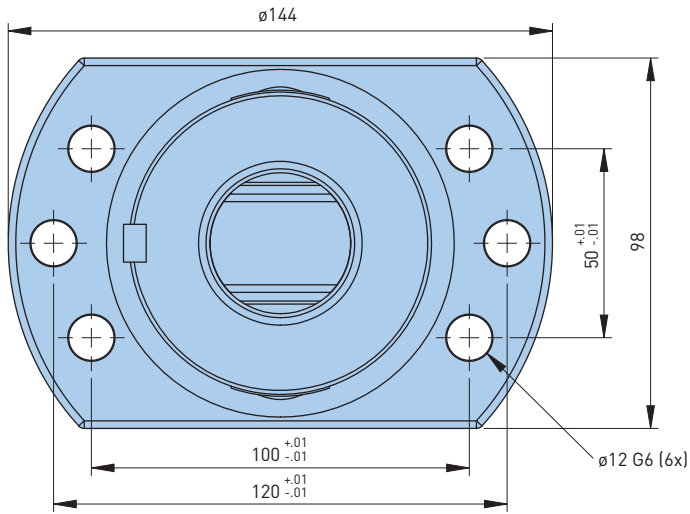
*Timing key option is a non-stock standard

- All dimensions are in millimeters
- Manual actuation, 6mm hex wrench not included

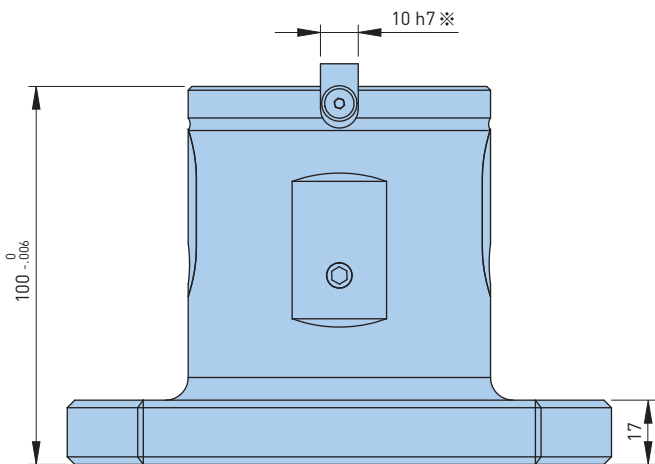
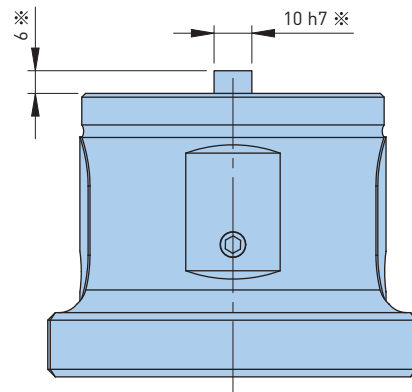
ACCESSORIES



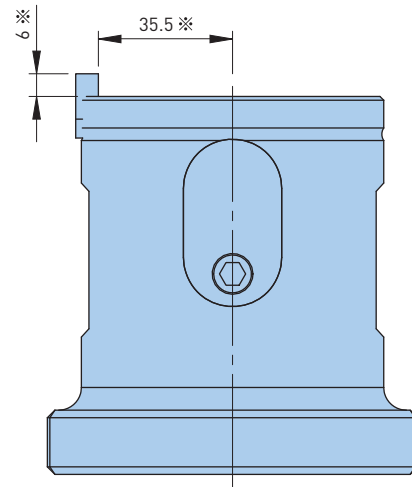
5-AXIS
Base



15.250.101 & 15.250.103



15.250.102 & 15.250.104



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

5-AXIS

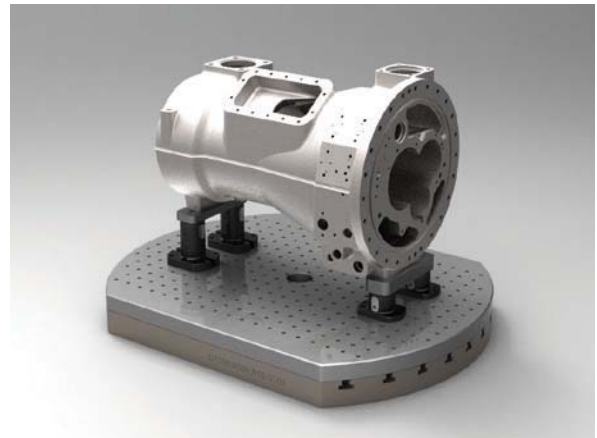
B-Style Base

For Flexibility of Position

Chucks allow for flexibility of the position of the base via the use of a slotted flange directly over t-slots. These chucks can be mounted on 40mm, 50mm and M12 grids as well as on t-nut machine tables.

Features

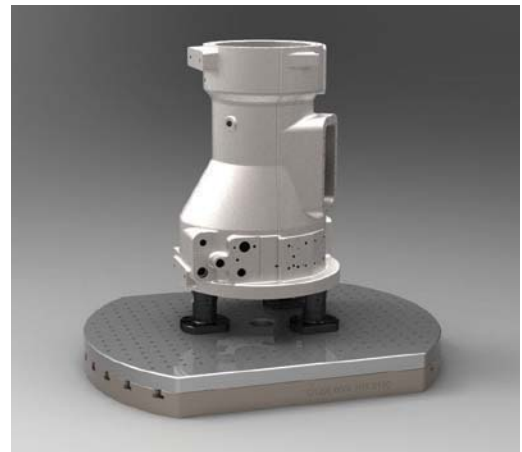
- Elevate your workpiece for clearance
- Use UNILOCK clamping knobs
- Stackable chucks available
- Quickly open and close with a single hex key



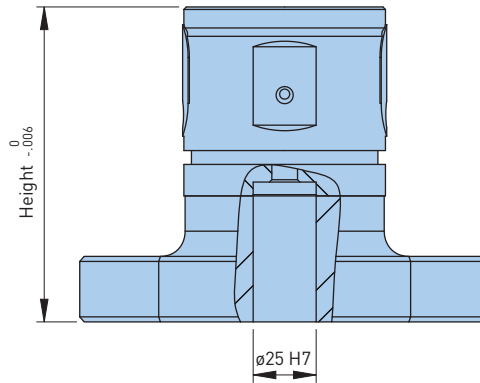
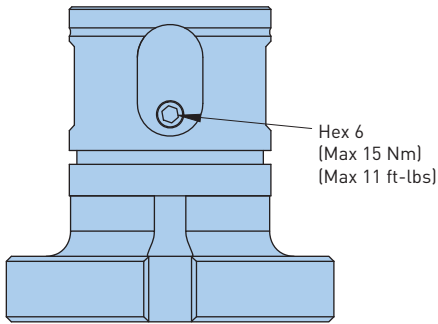
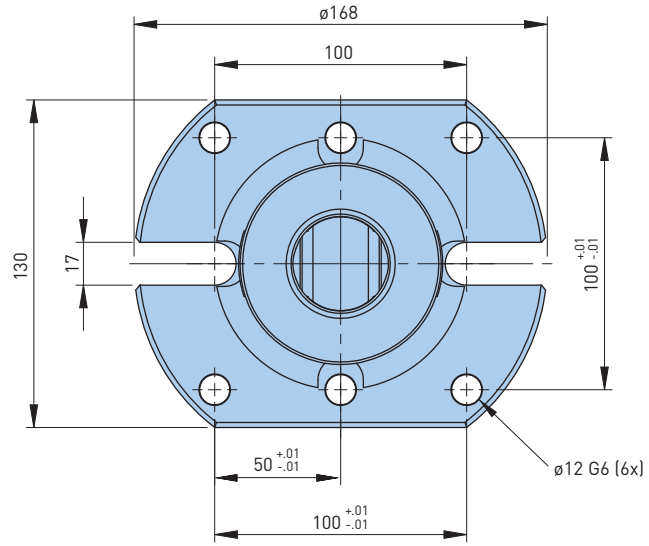
Catalog Number	Notch (Width x Qty)	Height	Clamping Force (lbs) (at 11 ft/lbs)	Weight (lbs)
15.250.111	—	125	2,200-2,500	14.7
15.250.113*	10 H7 x 1			
15.250.112	—	150		16.8
15.250.114*	10 H7 x 1			
15.250.115	—	175		18.6
15.250.116*	10 H7 x 1			

- *Timing key option is a non-stock standard**
- All dimensions are in millimeters
 - Manual actuation, 6mm hex wrench not included

ACCESSORIES



5-AXIS
B-Style Base



• All dimensions are in millimeters

5-AXIS

C-Style Base

Allows for mounting over t-slots in a patterns that allow for a tighter spacing in either linear or circular.

Features

- Elevate your workpiece for clearance
- Use UNILOCK clamping knobs
- Stackable chucks available
- Quickly open and close with a single hex key

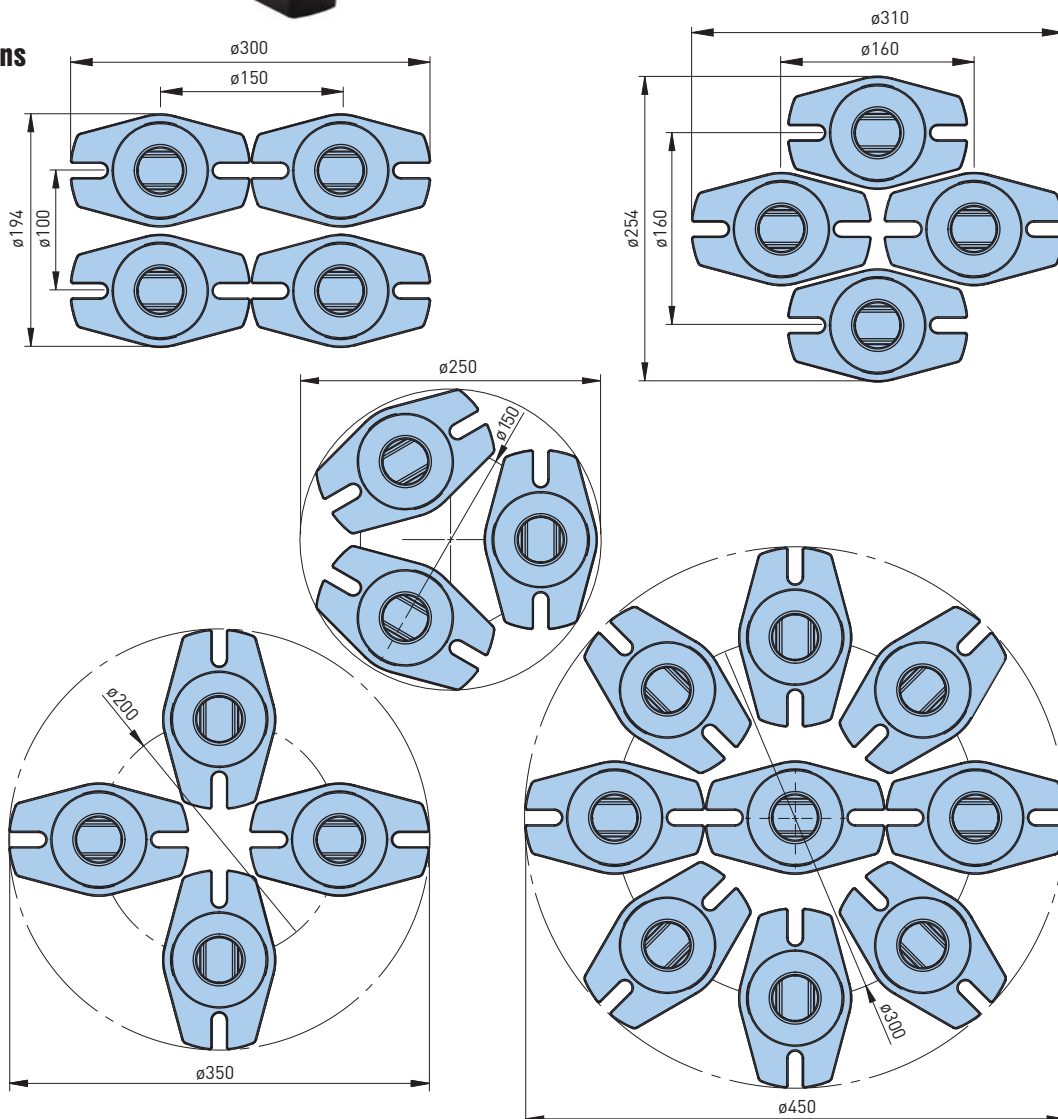


Catalog Number	Height (mm)	Weight (lbs)
15.250.117	100	5.5
15.250.118	125	5.7

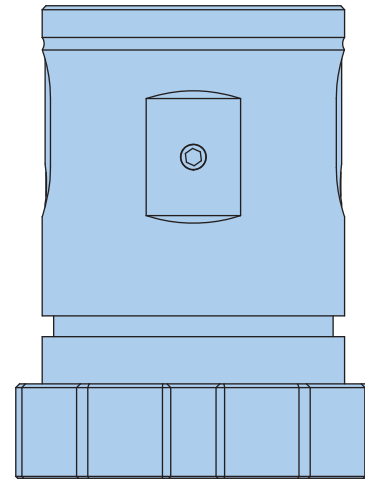
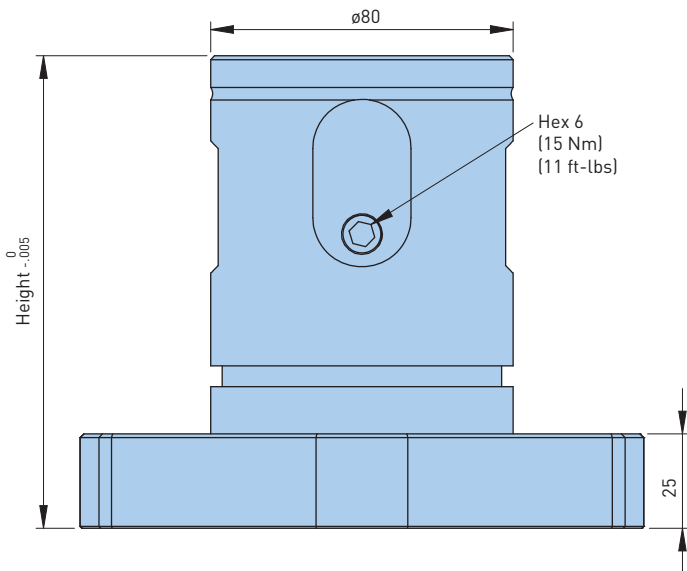
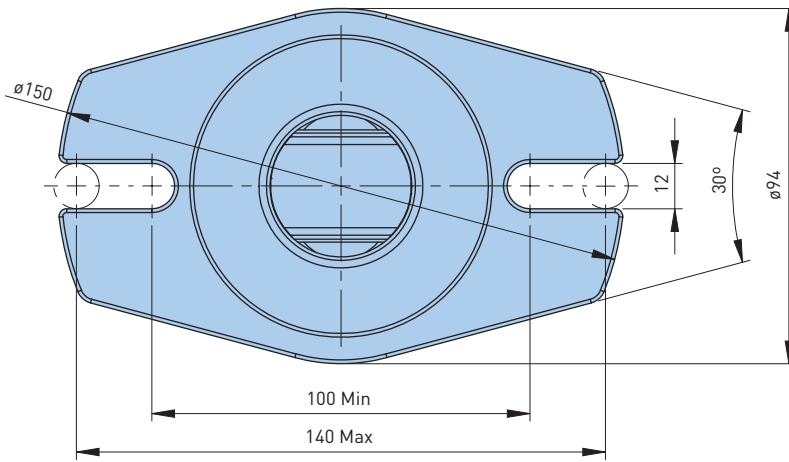
ACCESSORIES



Layout Options



5-AXIS
C-Style Base



• All dimensions are in millimeters

5-AXIS

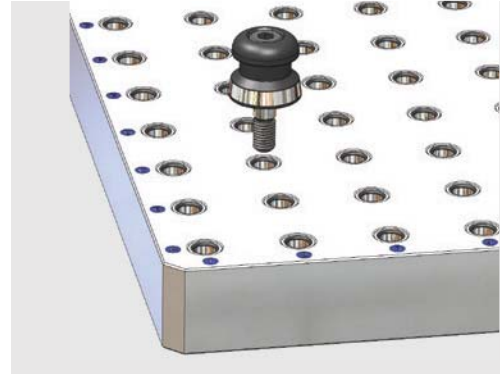
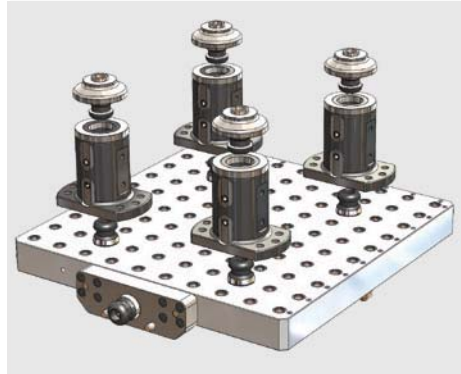
Double-Ended Clamping Base

Knobs Can be Used on Grids and T-Slot Tables

Allows for knobs to be used on grids and t-slot tables to affix the clamping base. This offers a universal interface between your machine table and workpiece.

Features

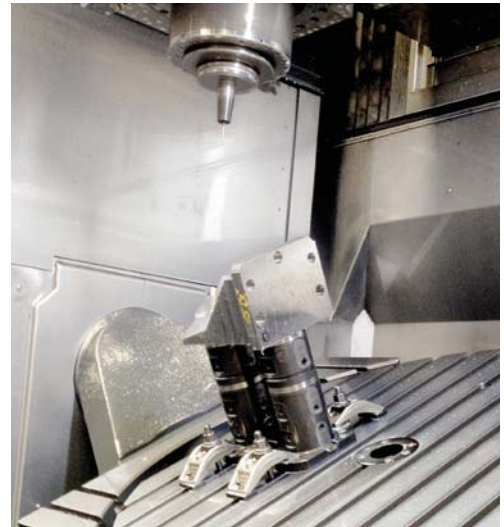
- Elevate your workpiece for clearance
- Use UNILOCK clamping knobs
- Stackable chucks available
- Quickly open and close with a single hex key



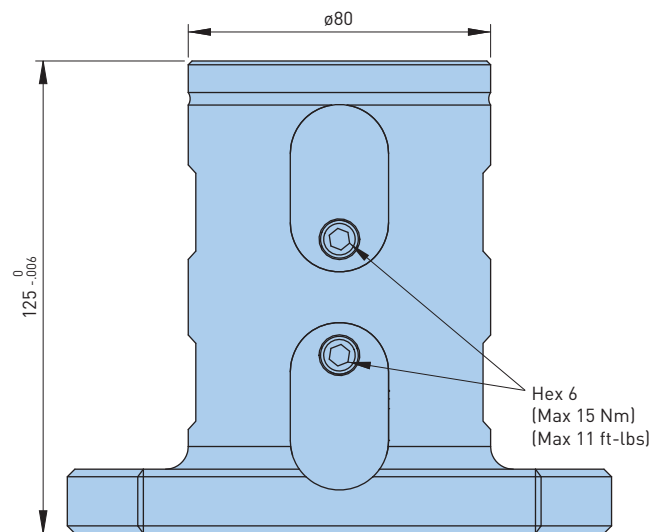
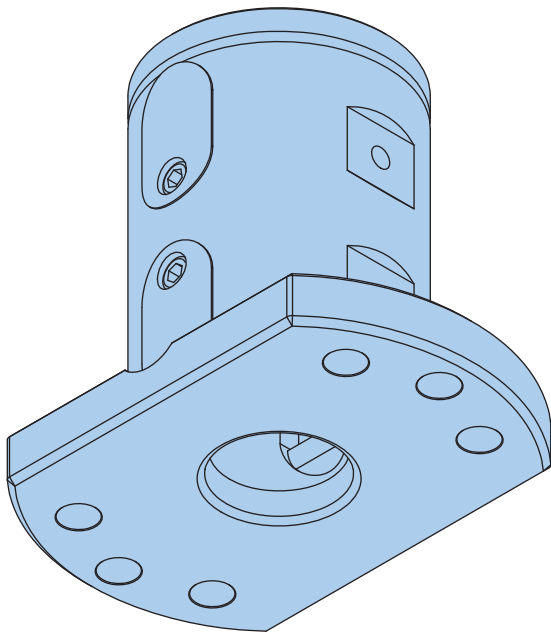
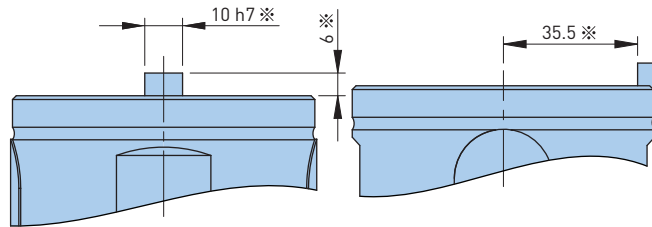
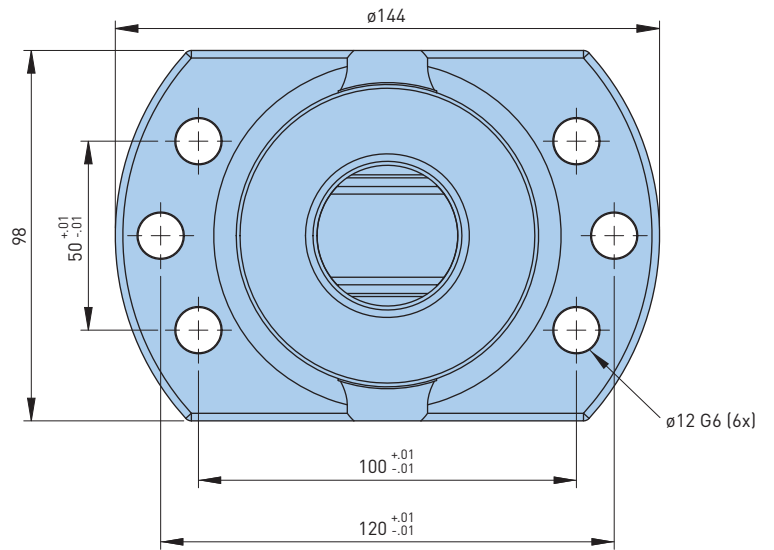
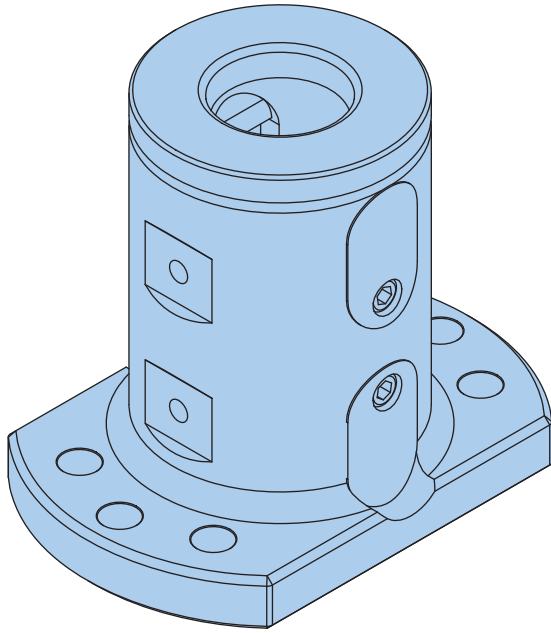
Catalog Number	Notch (Width x Qty)	Height	Clamping Force (lbs) (at 11 ft/lbs)	Weight (lbs)
15.250.105	—	125	2,200-2,500	11
15.250.106*	10 H7 x 1			

- *Timing key option is a non-stock standard
- All dimensions are in millimeters
 - Manual actuation, 6mm hex wrench not included

ACCESSORIES



5-AXIS Double-Ended Clamping Base



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

5-AXIS

Table Adapter

Mount Anywhere to the Table T-Slots or Grid Holes

Allows the base chucks to be mounted anywhere they are needed in order to access the table t-slots or grid holes, while providing a strong foundation. They come in three different styles with up to four different heights.

Features

- 5-Axis base chucks can mount anywhere
- Strong foundation
- 4 different heights available

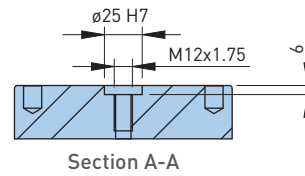
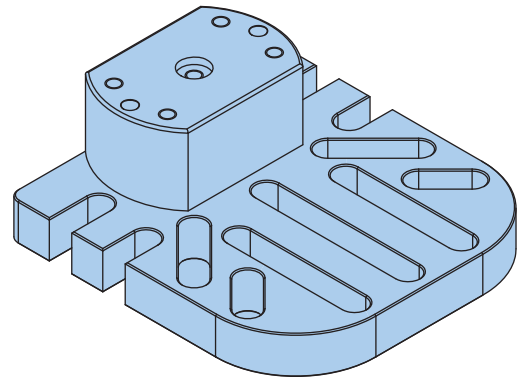
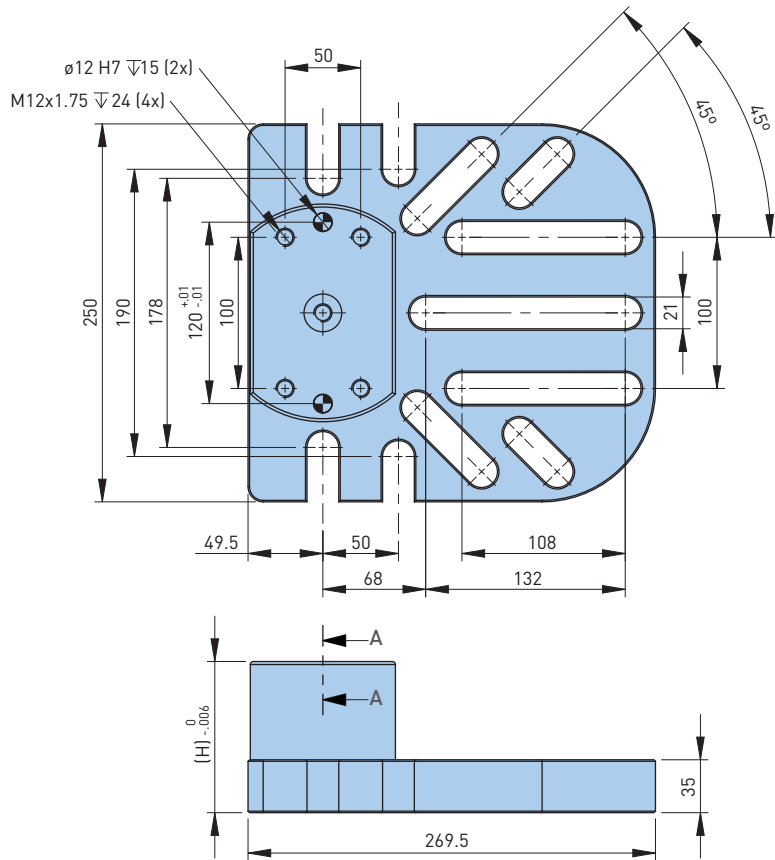


Catalog Number	Height
15.250.175	50

• All dimensions are in millimeters

5-AXIS

Table Adapter



• All dimensions are in millimeters

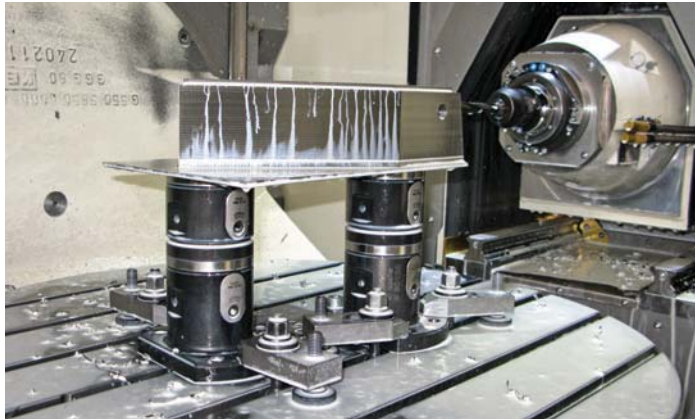
5-AXIS

Extensions

Used on the top of a base unit to provide additional height and/or clearance for certain applications. They are supplied with clamping knobs so they are ready to use out of the box. By building up different extensions, workpieces which are difficult to access or have different heights are easy to clamp.

Features

- Timed or untimed
- Clamping knob included
- Clamp workpieces with different heights



Available with Notches

Catalog Number	Notch (Width x Qty)	Height	Clamping Force (lbs) (at 11 ft/lbs)	Weight (lbs)
15.250.201	—	75	2,200-2,500	6.3
15.250.211*	10 H7 x 1			
15.250.202	—	100		8.0
15.250.212*	10 H7 x 1			
15.250.203	—	125		10.3
15.250.213*	10 H7 x 1			

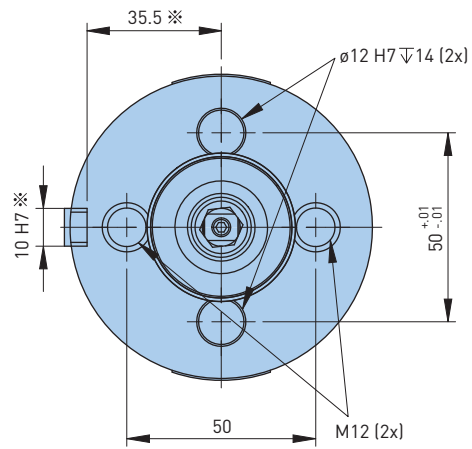
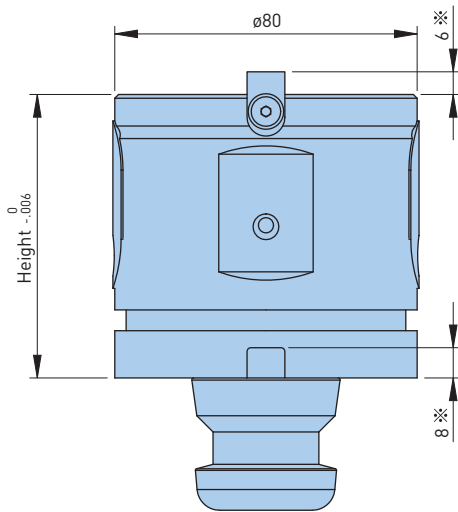
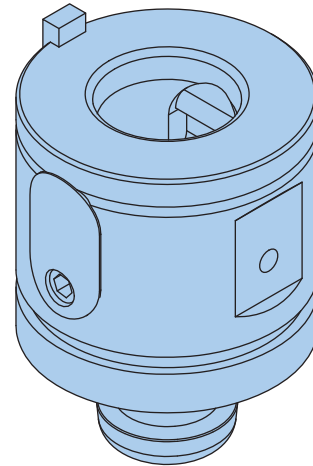
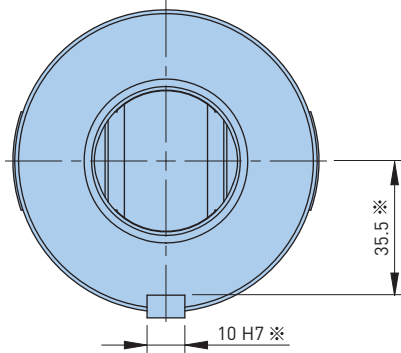
*Timing key option is a non-stock standard

- All dimensions are in millimeters
- Manual actuation, 6mm hex wrench not included

ACCESSORIES



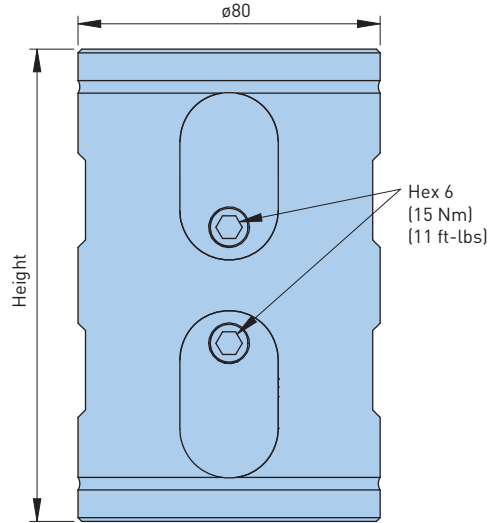
5-AXIS
Extensions



- All dimensions are in millimeters
- Dimensions marked ※ are for notch option

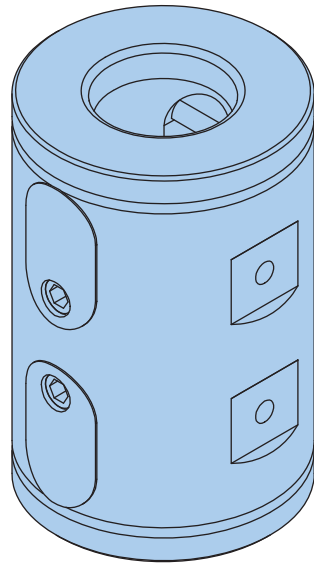
DOUBLE-ENDED BASE

Used as a base when spacing between items needs to be closer on grid plates.
In limited applications they can be stacked.



Catalog Number	Clamp Direction	Height (mm)	Weight (lbs)
15.250.107	0°	125	9.9

ACCESSORIES



• All dimensions are in millimeters

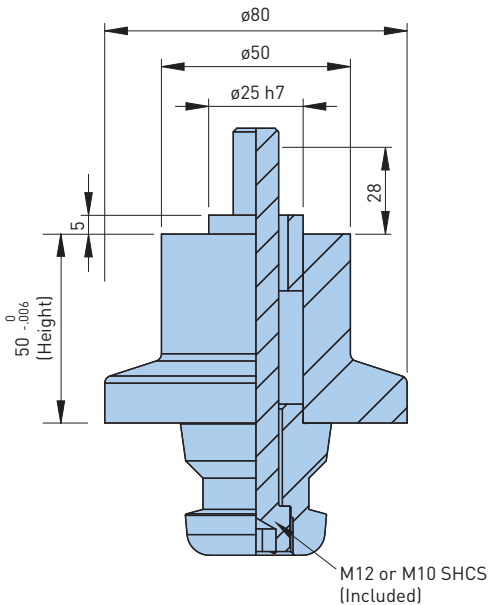
5-AXIS

Reductions

Clamp Workpieces with Limited Supporting Surfaces

Used on the top of a base unit to provide additional height and/or clearance for certain applications. They are supplied with clamping knobs so they are ready to use out of the box.

Reduce from $\varnothing 80$ -50mm to clamp workpieces with limited supporting surfaces. They are also offered in 25, 50 & 75mm heights and two hardnesses if modification is needed. SYSTEM 40 clamping knob and bolt are included.



Catalog Number	Knob Type	Height	Thread Size	Material State
15.250.301	SBA	50	M12	Hard
15.250.331	SBB			

- All dimensions are in millimeters

ESA125/85 FLAT CHUCK

For Smaller Parts

For the SYSTEM 40 knob for smaller parts and machines with smaller work envelopes.

The clamping is manual, eliminating the need for air.

The use of a torque limiting wrench is recommended in cases where a lighter retention force is required and to limit overtightening. The chuck can be used on its own or in combination with other chucks.

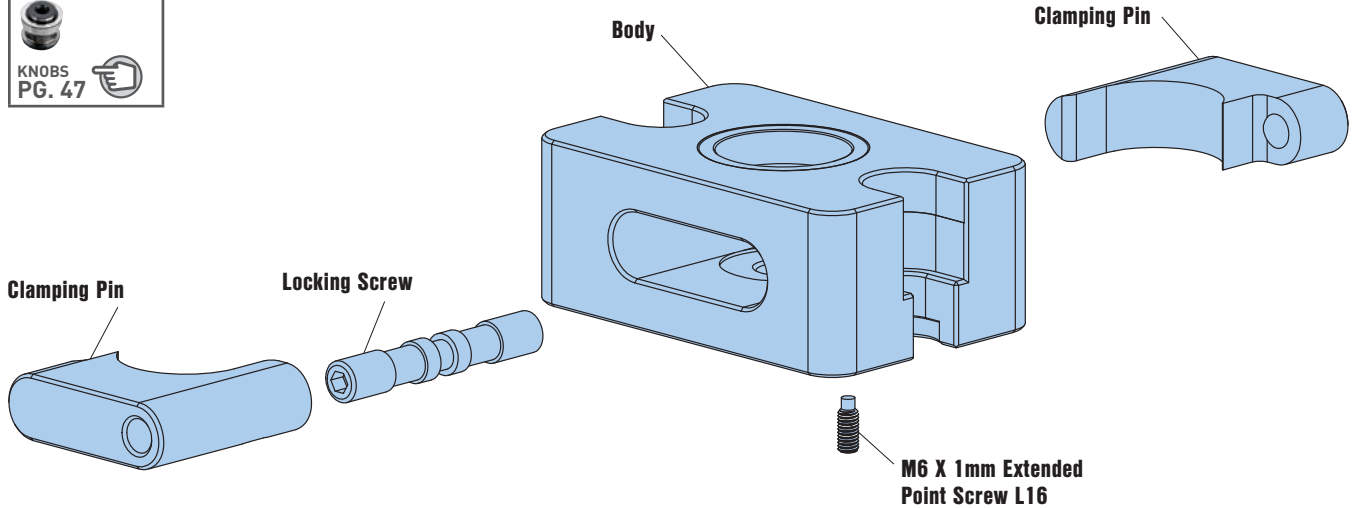
Features

- Compact body form
- Precision timing slots on the top face
- Precision location bores on the bottom face
- Mounting via M12 or M16 screws

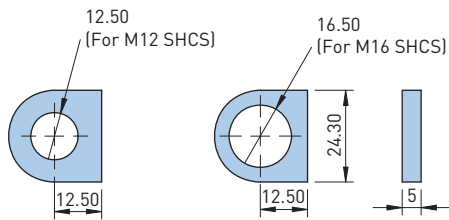
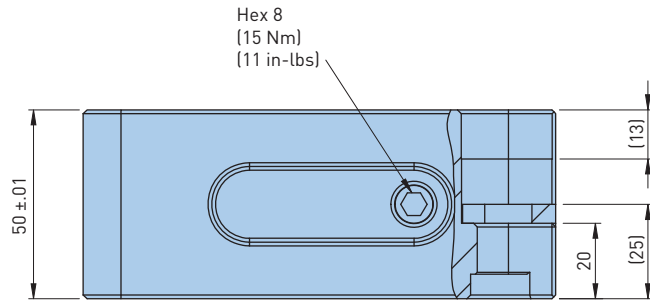
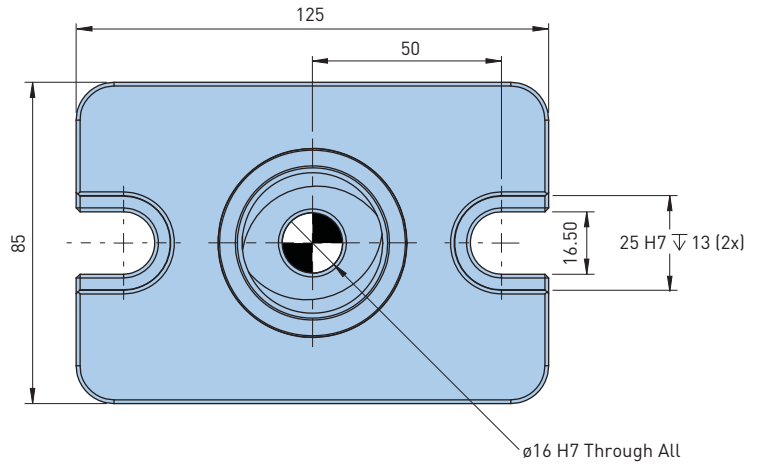
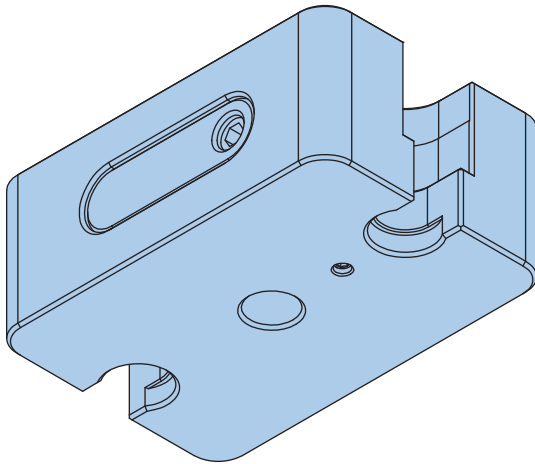
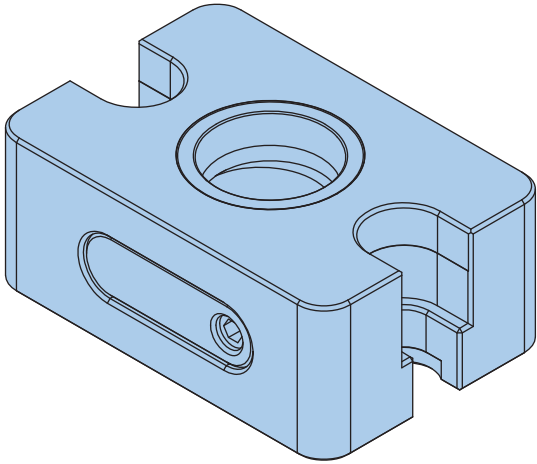


Catalog Number	Description
15.250.160	ESM125-85

ACCESSORIES

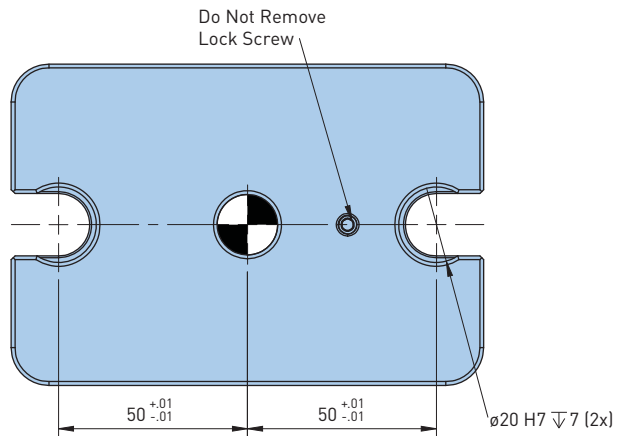


ESA125/85 FLAT CHUCK



15.250.161

15.250.162



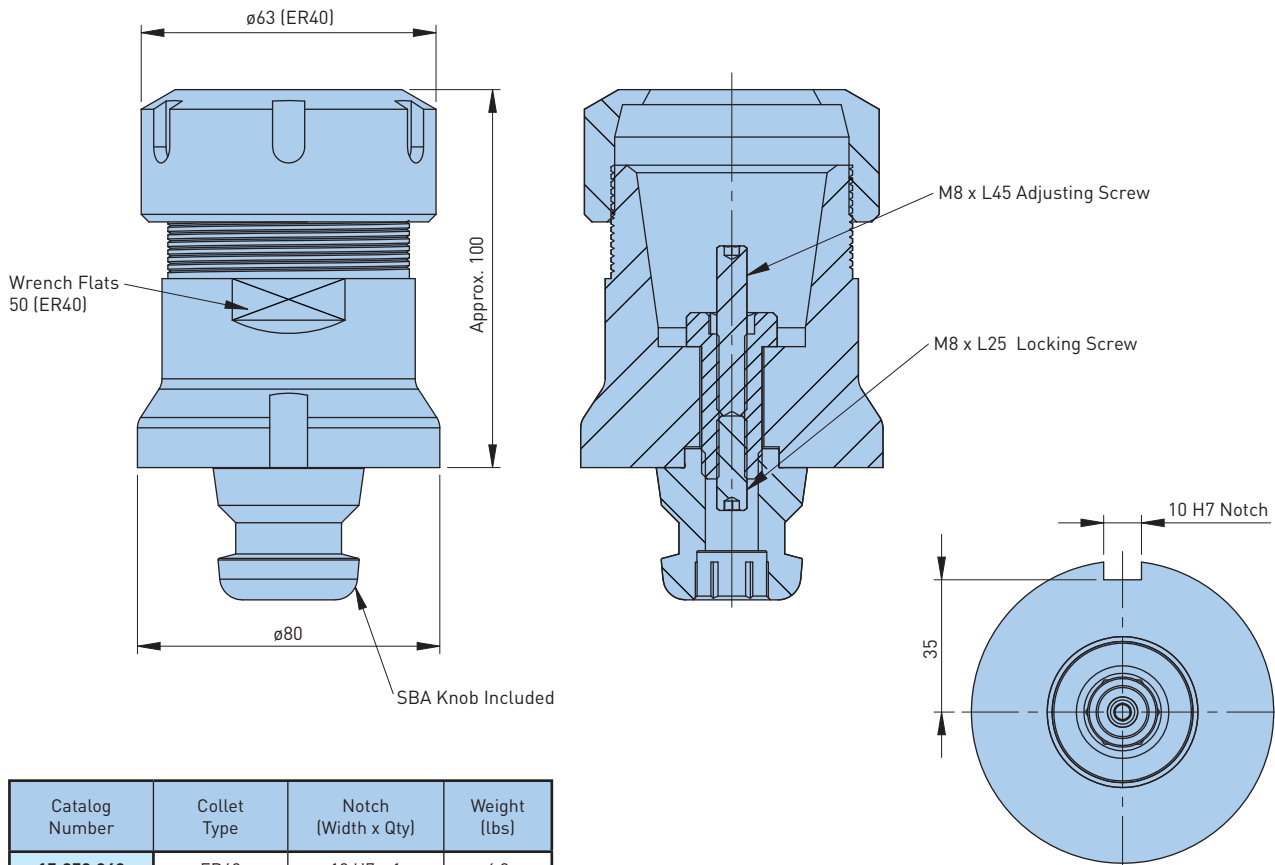
- All dimensions are in millimeters
- 2 pcs. of each washer included with chuck

5-AXIS ER

Collet Chuck

For Clamping Shafts and Small Round Workpieces

The collet chucks fit any 5-axis base chuck or 5-axis extension with a timing key, and use standard ER40 and ER50 collets.



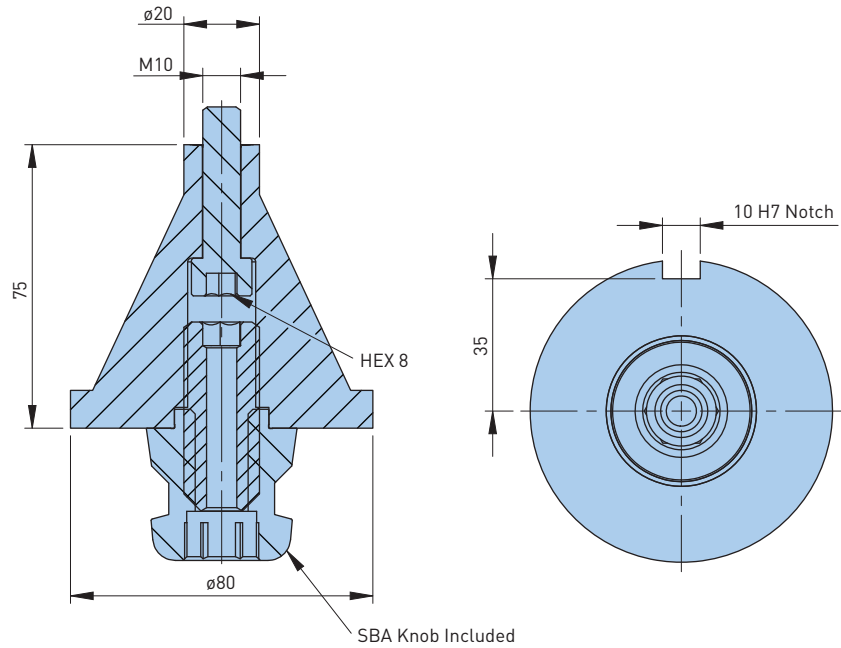
Catalog Number	Collet Type	Notch (Width x Qty)	Weight (lbs)
15.250.040	ER40	10 H7 x 1	4.3

- Includes SYSTEM 40 SBA clamping knob (1x)
- ER Collets are not included
- All dimensions are in millimeters

SERRATED ADAPTER

For Small Raw Workpieces

Used for small raw workpieces with the aid of an M10 mounting thread through the UNILOCK clamping knob. The workpiece is securely clamped thanks to the serrated contact surface. Fits on any 5-axis base extension with a timing key.



Catalog Number	Notch (Width x Qty)	Weight (lbs)
15.250.041	10 H7 x 1	2.9

- Includes SYSTEM 40 SBA clamping knob (1x)
- All dimensions are in millimeters

5-AXIS SYSTEM 25

Precision Clamping for Small Workpieces

Designed for 5-sided machining of smaller parts, the System 25 series builds on the proven performance of the System 40. It includes A, B, and C clamping knobs, a base compatible with System 40 chucks and knobs, and both an extension and a reduction made entirely of stainless steel. The System 25 provides reliable, compact clamping for precision applications.

MULTI-AXIS SYSTEMS A.5



Catalog Number	Notch (ø H7 x Qty)	Height (mm)	Weight (lbs)	Fig.	Page
15.255.100	ø6 H7 x 1	50	2.0	1	89
15.255.200	ø6 H7 x 1	50	1.5	2	90
15.255.250	ø6 H7 x 1	75	2.5	3	91
15.255.300	—	25	.5	4	91
15.255.301	—	50	.5	4	91

- Manual actuation, 4mm hex wrench not included
- See pg. 52 for SYSTEM 25 Knobs

5-AXIS SYSTEM 25

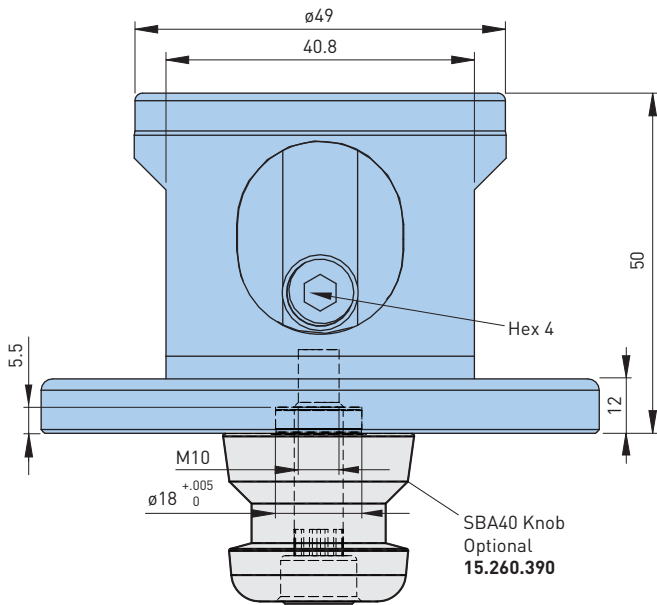
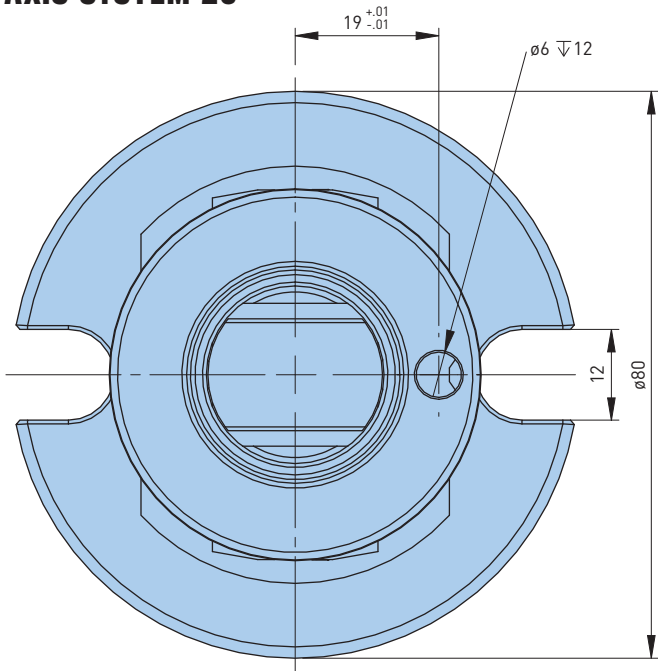


Fig. 1

Catalog Number
15.255.100

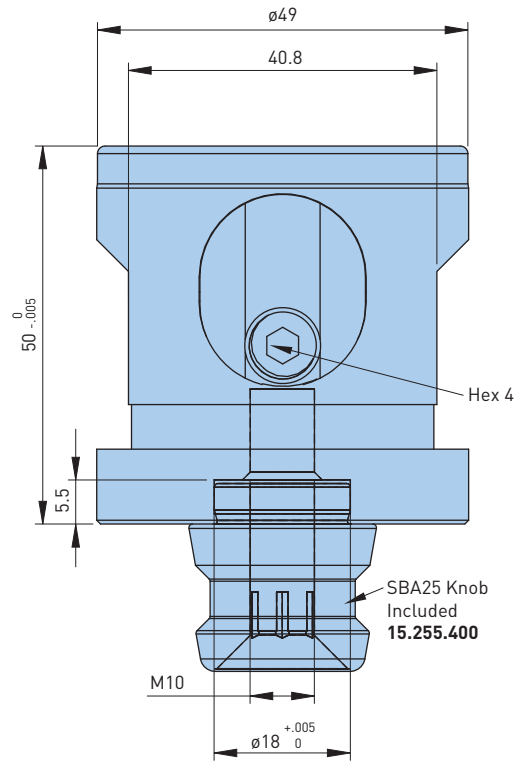


Fig. 2

Catalog Number
15.255.200

• All dimensions are in millimeters

ACCESSORIES



5-AXIS SYSTEM 25

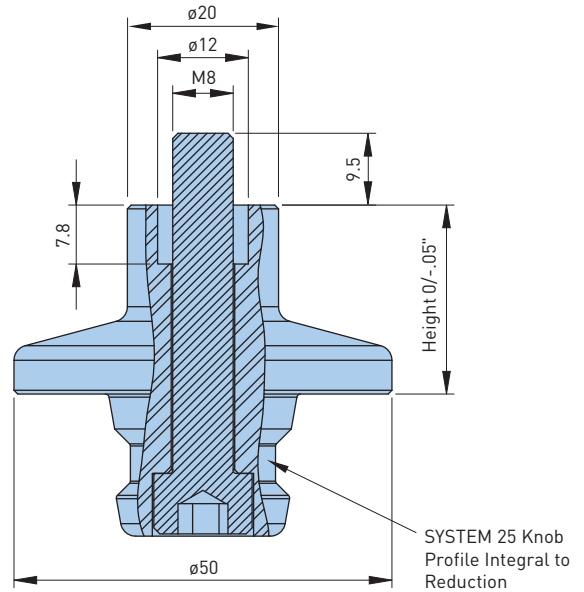
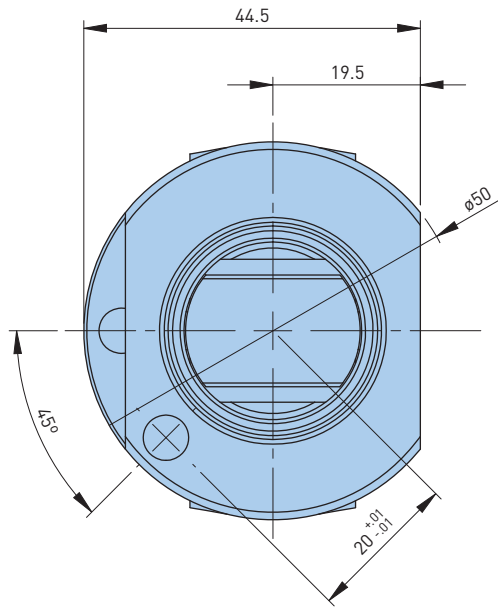


Fig. 4

Catalog Number	Height
15.255.300	25
15.255.301	50

SYSTEM 25 Knob Profile Integral to Reduction

MULTI-AXIS SYSTEMS A.5

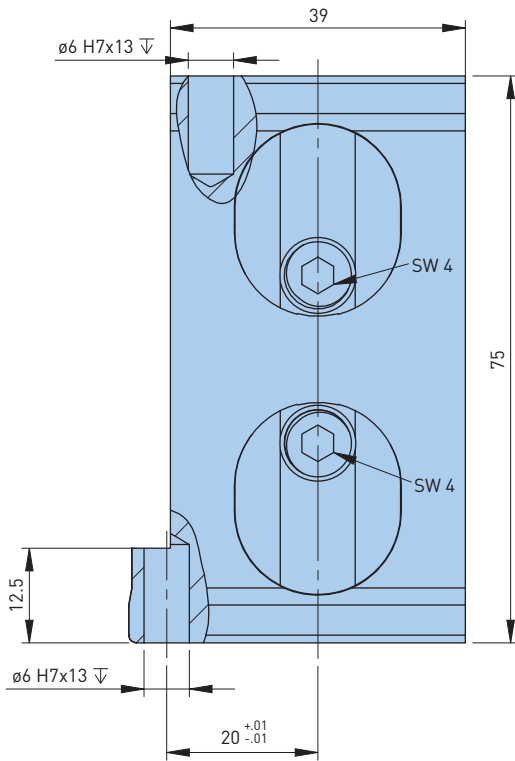


Fig. 3

Catalog Number
15.255.250

ACCESSORIES



• All dimensions are in millimeters



SYSTEM 68

Large, Robust Clamping Solution

A larger version of the original UNILOCK System 40, System 68 is designed for bigger, heavier workpieces. It includes a base chuck, an optional ground plate, two reduction styles and expanded clamping knob options, all fully compatible with the original UNILOCK ESM 180/150 pneumatic chuck.

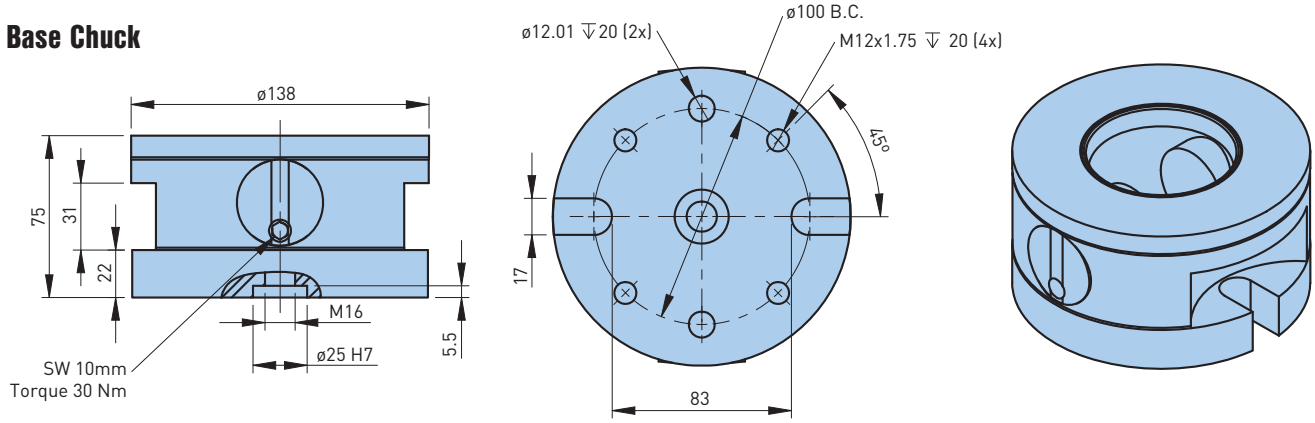
Features

- Manual
- Two reduction options
- Compatible with smaller SYSTEM 40 for 5-Axis
- Large robust knobs for M24 & M30 SHCS and M24 precision shoulder screws
- Knobs are compatible with ESM 180/150 pneumatic chuck



SYSTEM 68

Base Chuck



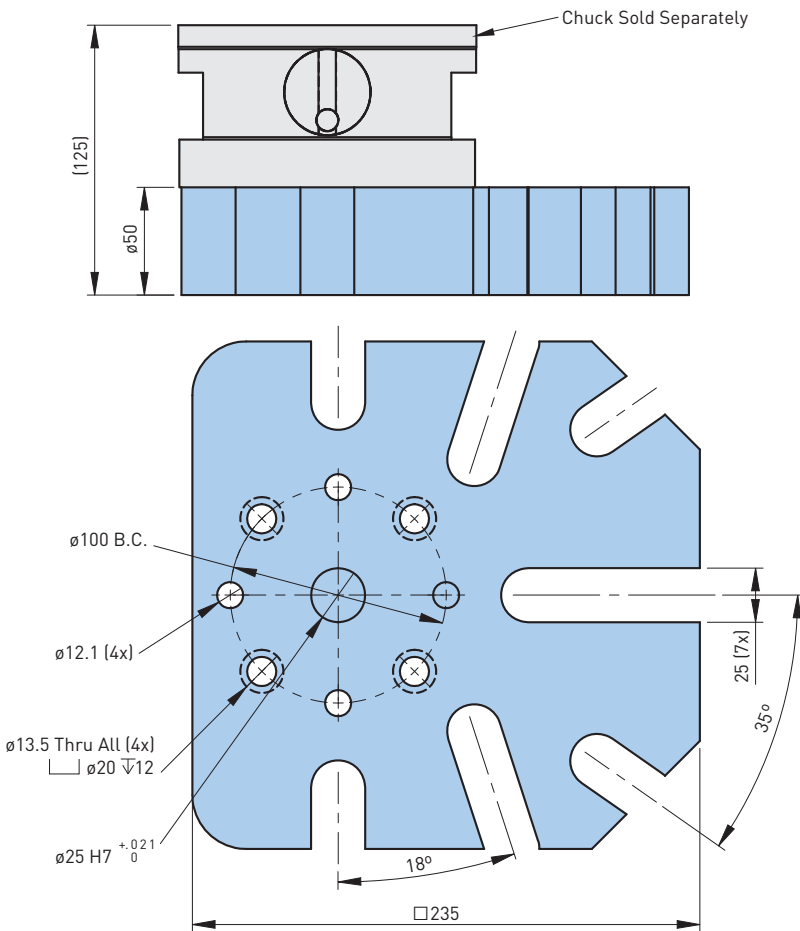
ACCESSORIES

Catalog Number	Weight (lbs)
15.500.710	14.1



• All dimensions are in millimeters

Table Adapter



Catalog Number	Weight (lbs)
15.500.740	36.4

• All dimensions are in millimeters
• Other heights available upon request

ACCESSORIES



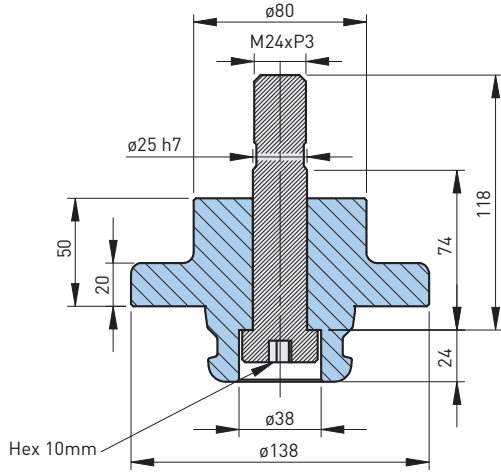
MULTI-AXIS SYSTEMS

SYSTEM 68

Reduction

Compact Clamping for Limited Surfaces

Reduces the System 68 base from $\varnothing 138\text{mm}$ to $\varnothing 80\text{mm}$, enabling secure clamping of workpieces with limited supporting surfaces. Supplied with an M24 bolt and available in one standard height.



Catalog Number	Weight (lbs)
15.500.720	9.7

- All dimensions are in millimeters
- Bolt included
- For other length options, please consult the BIG DAISHOWA Engineering Dept.

ACCESSORIES

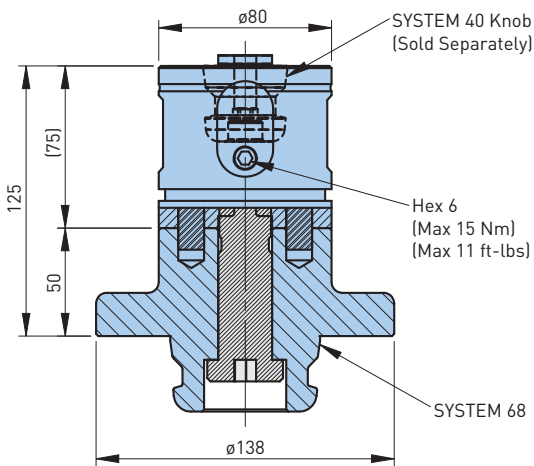


SYSTEM 68 TO SYSTEM 40

Reduction

Adapt Existing Fixtures with Ease

Used in cases where a fixture already has the SYSTEM 40 clamping knob. This allows the use of current fixtures without the need to modify or replace them.



Catalog Number	Weight (lbs)
15.500.731	10.3


- All dimensions are in millimeters


ACCESSORIES




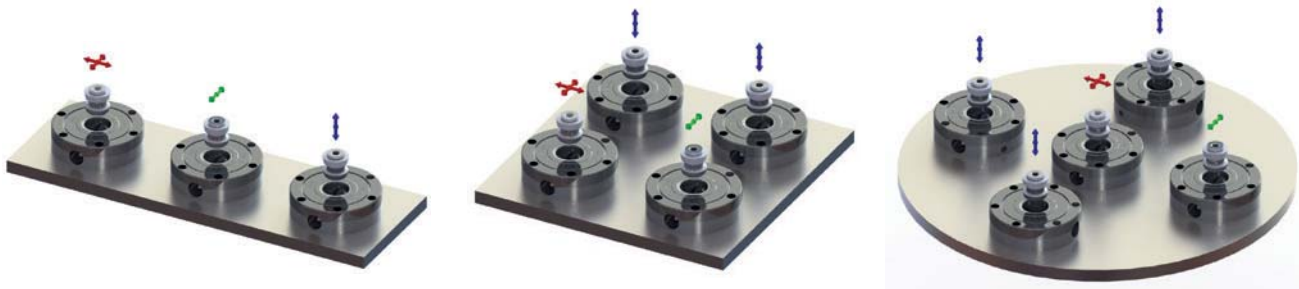
SYSTEM 68 Clamping Knobs

Standard clamping knobs have a metric positioning boss which is $\varnothing 25\text{mm}$ and ground to a fit of h6. This boss is 5mm tall. The overall measurements of the clamping knob is $\varnothing 40\text{mm}$ by 40mm tall.

 The SBA Knob is ground to fit with the center ground taper of the chuck. This fit establishes centerline location. This location will repeat to better than $\pm 0.0002''$ (.005mm).

 The SBB Knob is ground like a diamond pin and orients your work relative to the centerline of the SBA Knob.

 The SBC Knob is ground undersize. It will bring the bottom of the workpiece or fixture down on the top of the UNILOCK chuck.



CHAIN CLAMPING

A.6



5-AXIS CHAIN CLAMPING OVERVIEW	92
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5-AXIS CHAIN CLAMPING HOOK KIT	96
5-AXIS CHAIN CLAMPING CHAIN	97
5-AXIS CHAIN CLAMPING CHAIN COUPLING	97

5-AXIS CHAIN CLAMPING

The Most Flexible Clamping Solution for Round and Odd Shaped Workpieces



Workpiece Fixation

Various lengths of chains are attached to the starter chain, placed around the workpiece and then fed through the main body. A chain coupling is available (see pg. 97) to lengthen or shorten the chain.

Chain Fixation

The chain is tensioned using the pulling hook. When in the lower position, the chain can be pulled into the required point, then the hook is pulled upward and interlocking with the chain.



Rollers

The rollers are offered with or without knurling and are used to support the part. A kit of rollers with knurling is included with 15.253.910. When using the knurled rollers, workpieces will be clamped with enough force to mar the surface. For holding on finished surfaces use the non-knurled rollers. They are keyed to the base in to 1 of 6 positions to accommodate different diameter parts.



Assembly Possibilities

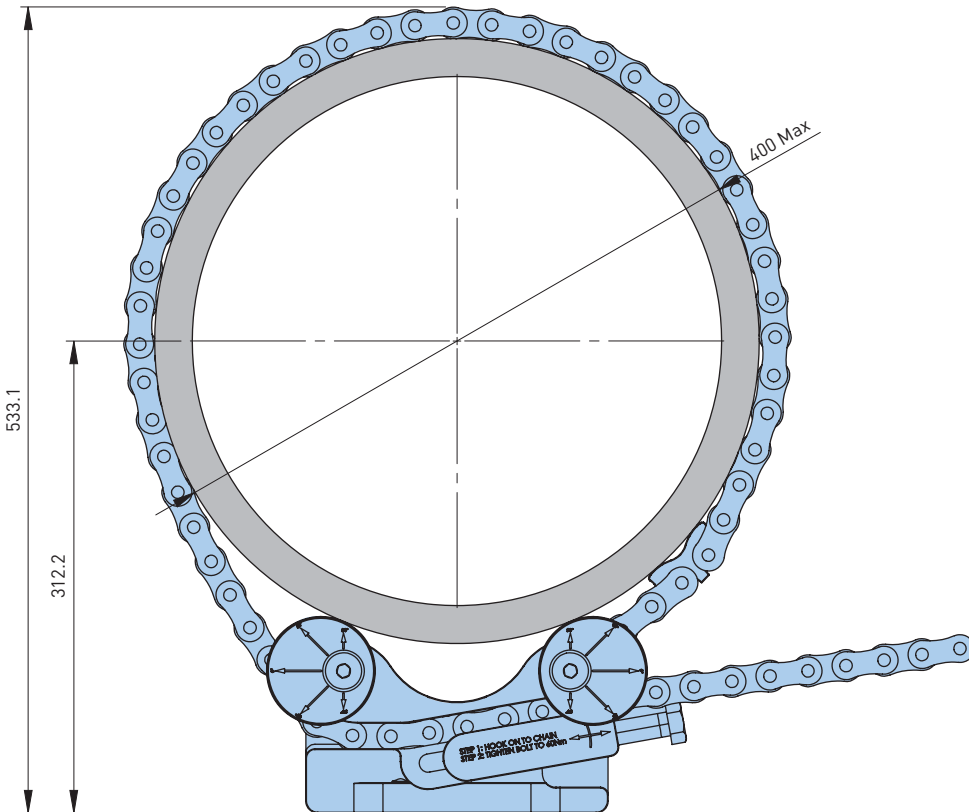
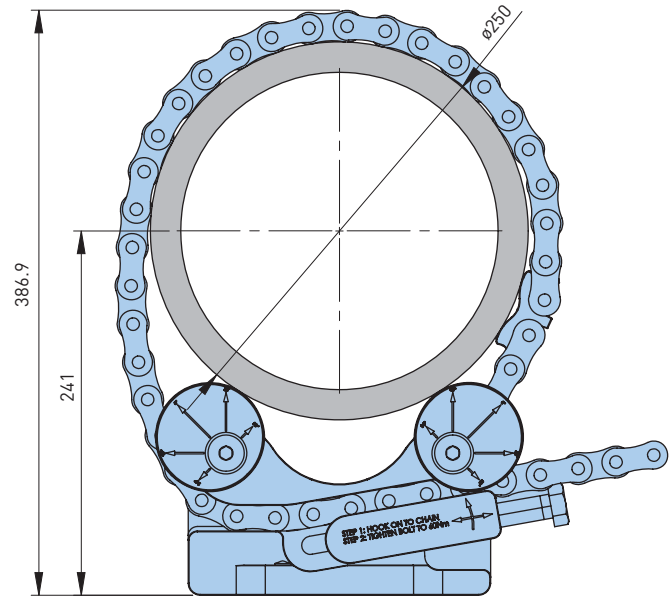
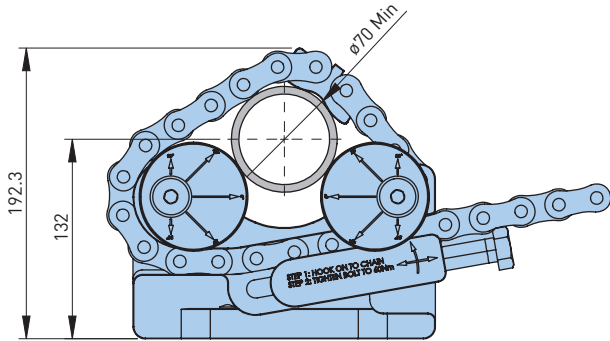
The chain clamp base comes with three location bore holes for attaching UNILOCK clamping knobs 15.260.400 and 15.260.401 (sold separately, location pilot $\varnothing 25$ h6, pilot length 5mm, M12 SHCS). It can also be installed on a 50x50mm grid using $\varnothing 12$ mm pins and M12 SHCS. For quicker mounting, the base has flanges for easy toe clamping to any table.

Base Options

The chain clamping offers many possibilities to be built up. From direct mounting on t-slot or grid machine tables to assembling on existing clamping devices (i.e. pneumatic clamping stations, manual stacking chucks, etc.).

5-AXIS CHAIN CLAMPING

Application Examples



5-AXIS CHAIN CLAMPING

Safely Clamp Round Workpieces

Allows round and bulky raw parts to be set up for optimal machining. Can be set up quickly on existing UNILOCK clamping chucks to process round as well as odd shaped workpieces easily and safely.

Features

- Flexible
- Raw material clamber for multi-sides machining
- High clamping force
- Bulky and round workpieces can be safely clamped
- Loads up to 2 tons are possible
- Various assembly options available



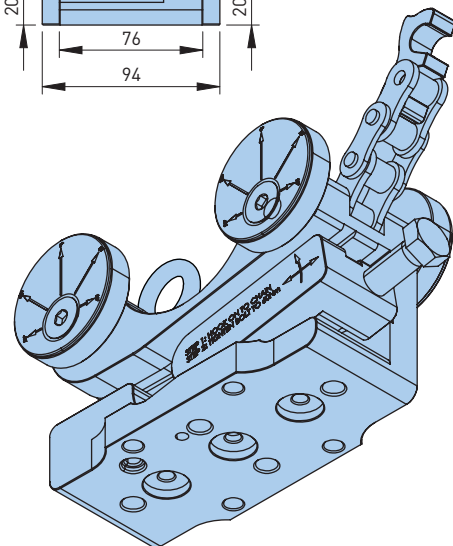
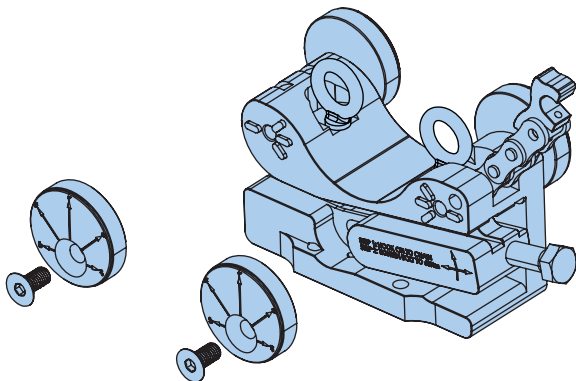
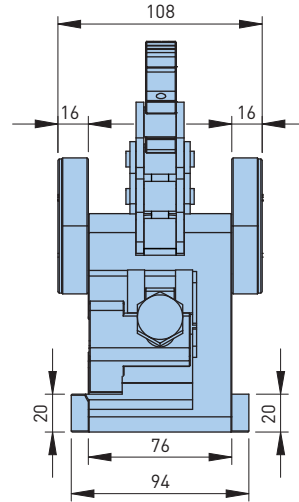
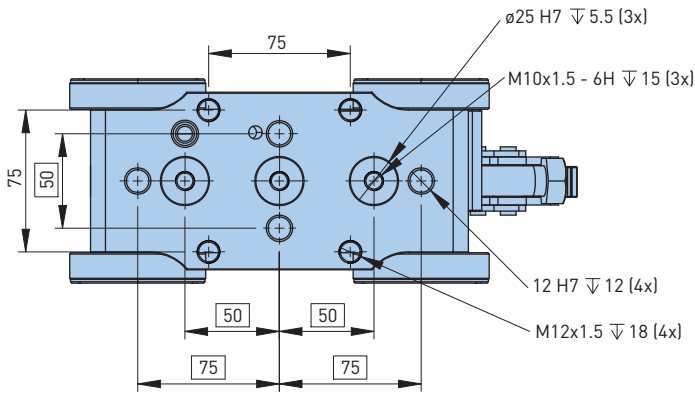
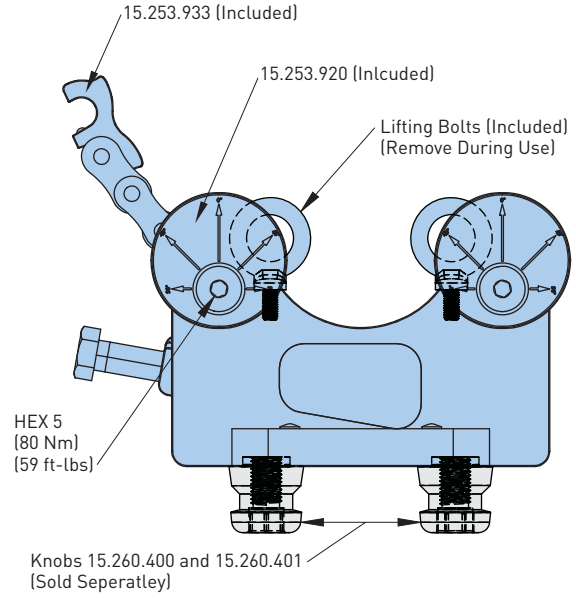
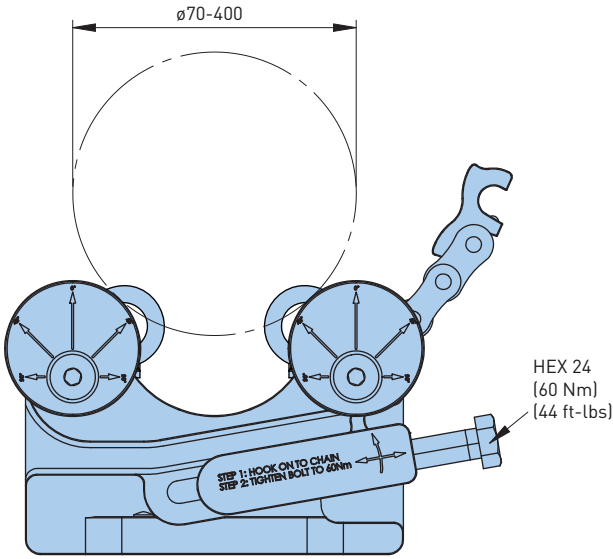
75mm and 1000mm Chain Included



Catalog Number	Weight (lbs)
15.253.910	26.5

- Roller kit with kurl, 75mm & 1000mm chain and clamping hook are included

5-AXIS CHAIN CLAMPING



• SYSYSTEM 40 Knobs 15.260.400 and 15.260.401 are recommended; see pg. 49

5-AXIS CHAIN CLAMPING

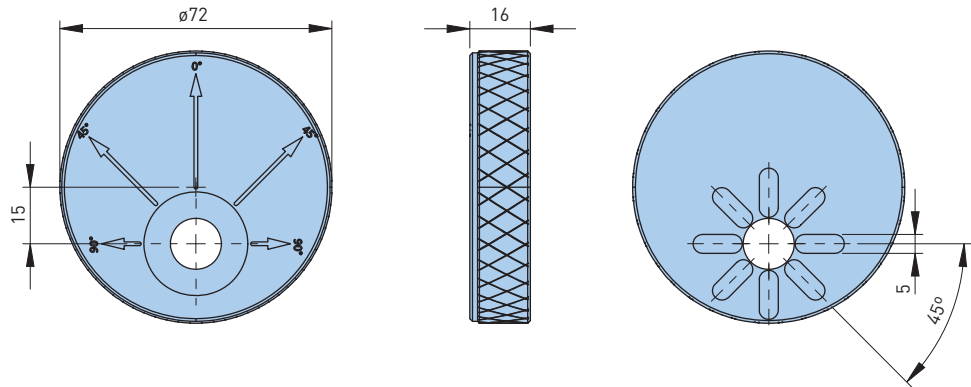
Roller Kit

Two different roller kits are available: a roller kit with knurl (grip) or without knurl.



Catalog Number	Description	Mounting	Weight (lbs)
15.253.920*	With Knurl	M12-25mm	3.3
15.253.934	Without Knurl		

*Included with 15.263.910
 • Mounting screws included (4x)

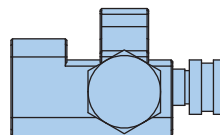
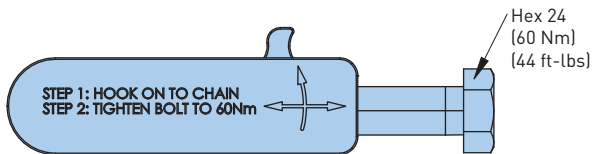
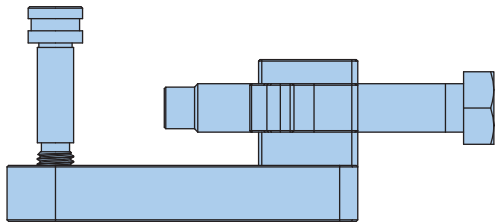


CHAIN CLAMPING A.6

Hook Kit



Catalog Number	Mounting Screw	Length (mm)	Width (mm)	Height (mm)	Weight (lbs)
15.253.911	M16-100mm	116	53.5	.7	1.5



5-AXIS CHAIN CLAMPING

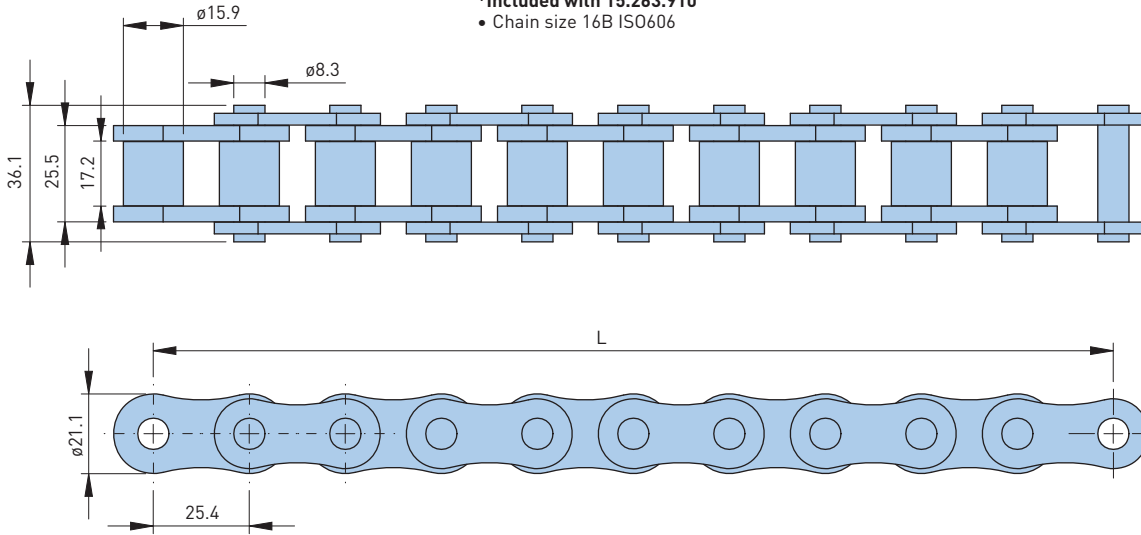
Chain

Four lengths of clamping chains are available. More lengths and inch dimensions are available upon request.

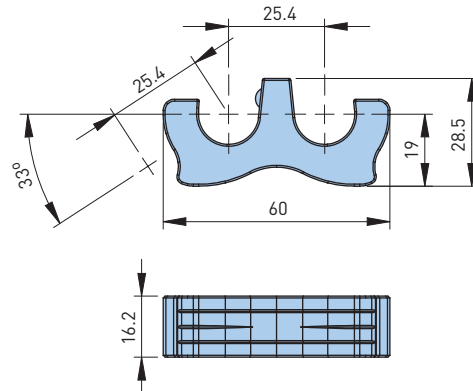
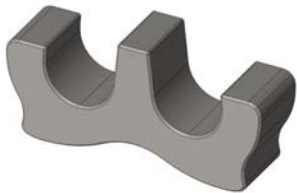


Catalog Number	L (mm)	Recommended Workpiece Diameter (mm)	Weight (lbs)
15.253.946*	75	—	.9
15.253.947	500	ø70-150	9.9
15.253.948*	1000	ø100-300	20.3
15.253.949	1500	ø150-450	30.1

*Included with 15.263.910
 • Chain size 16B ISO606



Chain Coupling



Catalog Number	Weight (lbs)
15.253.933	.2

• Required with base

STABILIZER SYSTEM

A.7



UNIFLEX BALL SYSTEM OVERVIEW (ø25.4 & ø50)	100-101
STABILIZER ADJUSTABLE BASE	102
STABILIZER FIXED EXTENSION	102
STABILIZER END CLAMP	103
STABILIZER BRACKET	103
STABILIZER FINE ADJUSTABLE EXTENSION	103
STABILIZER BALL TO KNOB ADAPTOR	104
STABILIZER MOUNTING SCREW	104
STABILIZER BALL AND COLLAR	104
STABILIZER MAGNETIC BASE	105

UNIFLEX BALL SYSTEM (ø25.4 & ø50)

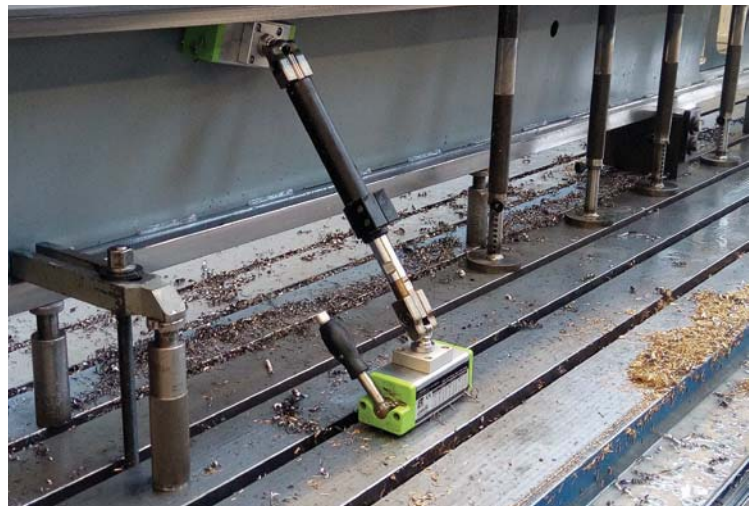
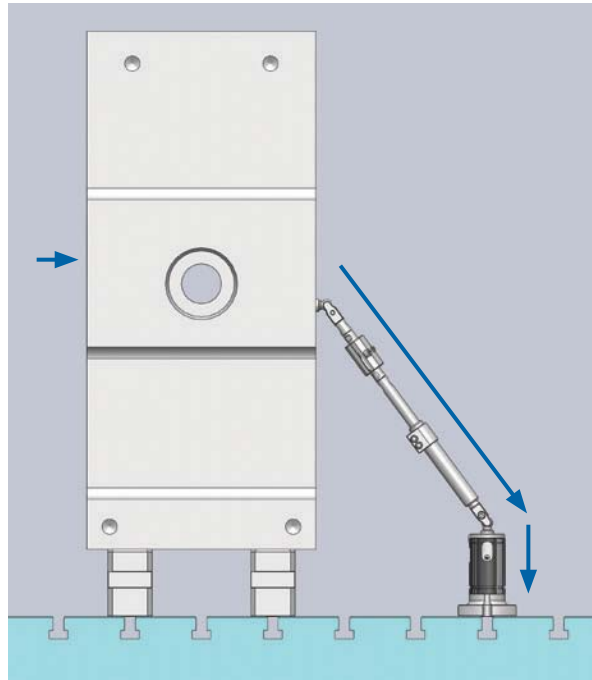
Provides lateral support for tall parts during machining, welding or assembly processes.
Allows for the transfer of loads to the table or base.

Features

- Compatible with standard SYSTEM 40 chucks, manual 5-axis clamping units and UNIFLEX clamping system
- Fine adjustment unit allows for adjusting the position of parts as needed

Options

- Magnetic base
- Tab/flange gripper
- Direct ball attachment with no location requirement
- Multiple fixed length extensions
- 2 adjustable length bases



UNIFLEX BALL SYSTEM (ø25.4 & ø50)

Part Attachment Options

These items allow you to attach or grab the workpiece in different ways.

- 1) Mounting screw
- 2) Mounting screw
- 3) Tab/flange gripper

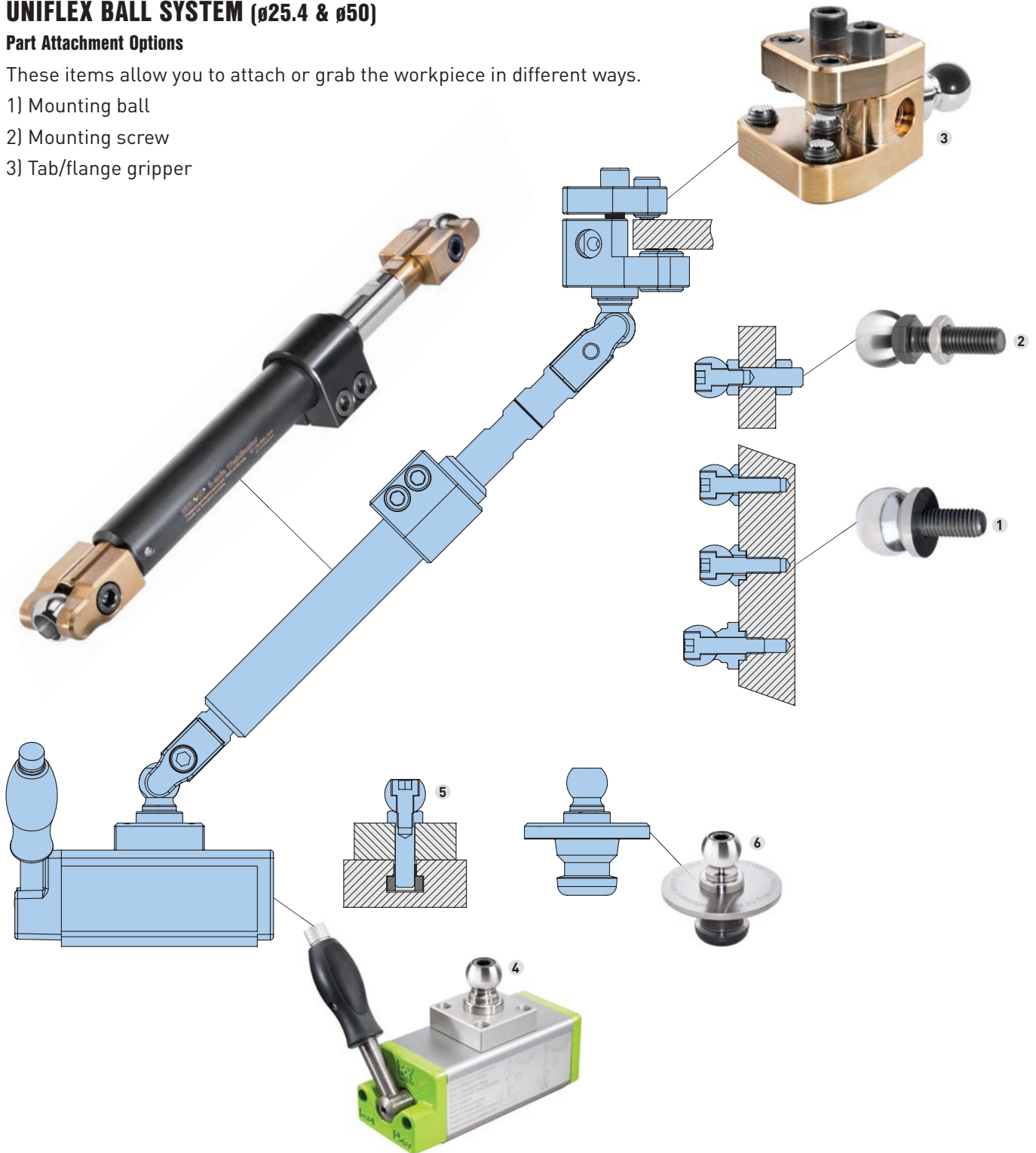


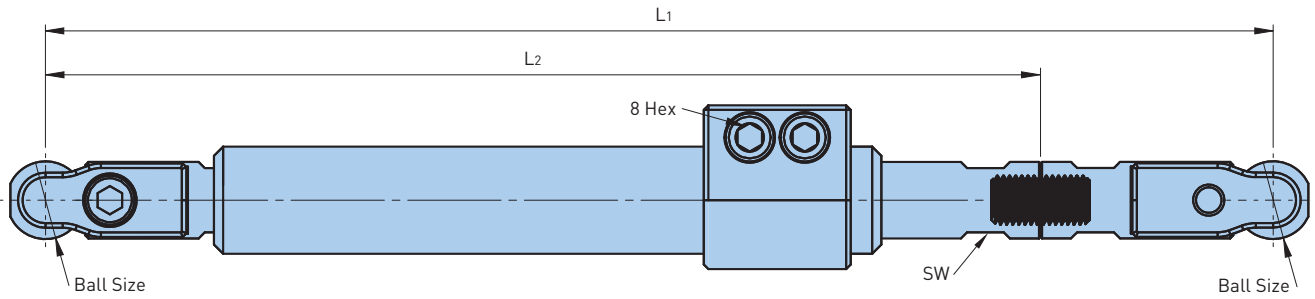
Table Attachment Options

These items are used at the bottom of the stabilizer system and allow it to be rigidly fixed in place.

- 4) Magnetic base
- 5) Mounting screw via t-slot nut
- 6) UNILOCK SYSTEM 40 knob adapter

STABILIZER

Adjustable Base

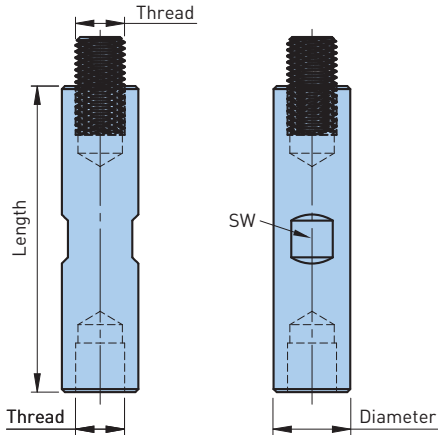


Catalog Number	Length L1 (mm)	Length L2* (mm)	Ball Size (mm)	Weight (lbs)
15.252.009	255-305	187	ø25.4	4.3
15.252.010	400-550	287		5.3
15.252.011	350-450	257	ø50.0	14.7
15.252.012	450-650	356		16.9

*L2 at minimum position

- Two balls are included; clamps can be ordered separately

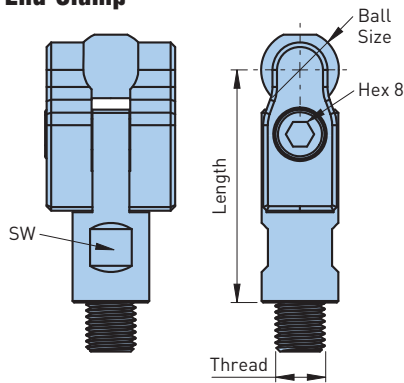
Fixed Extension



Catalog Number	Length (mm)	Diameter (mm)	Thread	Wrench (SW)	Weight (lbs)
15.252.030	75	25	M16xP1.5	21	.3
15.252.031	100				.4
15.252.032	150				.8
15.252.033	500				2.6
15.252.034	250	40	M27xP2	36	1.4
15.252.040	100				.7
15.252.041	150				1.2
15.252.042	250				2.2
15.252.043	500				3.9

STABILIZER

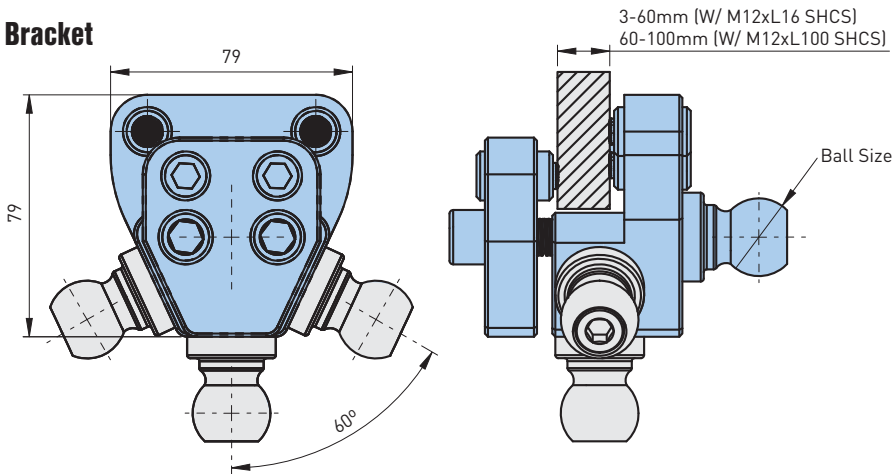
End Clamp



Catalog Number	Ball Size (mm)	Length (mm)	Thread	SW	Weight (lbs)
15.252.001	ø25.4	75.0	M16xP1.5	21	3.4
15.252.002	ø50.0	92.6	M27xP2	36	4.5

• Ball included

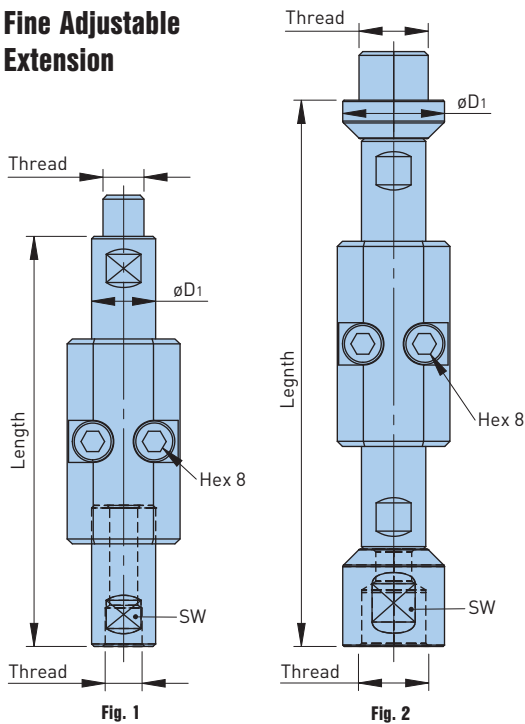
Bracket



Catalog Number	Ball Size (mm)	Weight (lbs)
15.252.070	ø25.4	3.4
15.252.071	ø50.0	5.1

• One ball included; additional balls can be ordered separately

Fine Adjustable Extension

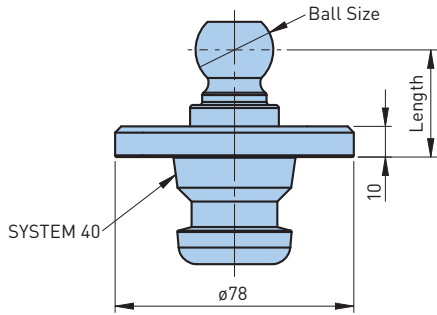


Catalog Number	Description	Fig.	Length (mm)	øD1 (mm)	Thread	Wrench (SW)	Weight (lbs)
15.252.020	ø25	1	120-160	25	M16xP1.5	21	2.6
15.252.021	ø50	2	173-213	40	M27xP2	36	3.7

• Hex nut included

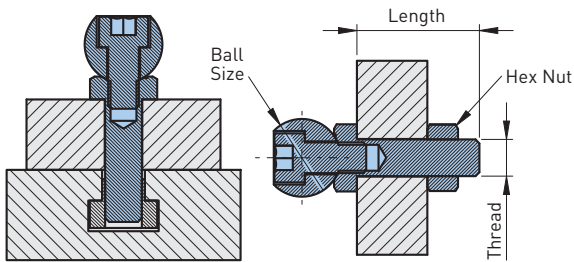
STABILIZER

Ball to Knob Adaptor



Catalog Number	Description	Ball Size	Length (mm)	Weight (lbs)
15.252.060	SBA40	ø25.4	35	1.5
15.252.061	SBA40	ø50	24	2.4

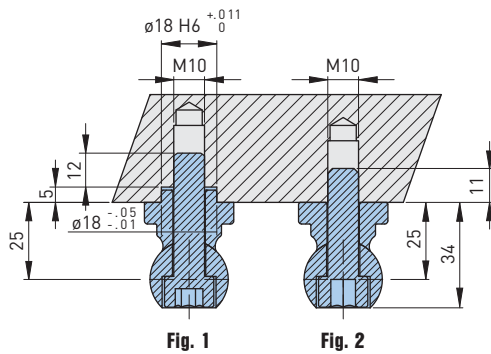
Mounting Screw



Catalog Number	Thread	Ball Size	Length (mm)	Weight (lbs)
15.252.080	M12xP1.75	ø25.4	40	.4
15.252.082	M16xP2			.4
15.252.084	M20xP2.5		50	.4
15.252.085	M24xP3			.9
15.252.086	M24xP3	ø50	50	1.2
15.252.087	M30xP3.5		60	1.3
15.252.089	M36xP4		70	1.5

- Hex nut included; T-nut not included
- Inch sizes available upon request

Ball and Collar



Catalog Number	Fig.	Description	Ball Size	Height (mm)	Weight (lbs.)
15.252.382	1	5-Axis Stabilizer Ball and Collar with Location	ø25.4	25	.2
15.252.383	2	5-Axis Stabilizer Ball and Collar without Location			.2
15.252.385	1&2	5-Axis Stabilizer Ball and Collar Set			.4

- *Set includes 1 ball and 3 collars
- See pg. 56 for ø50 balls

STABILIZER

Magnetic Base

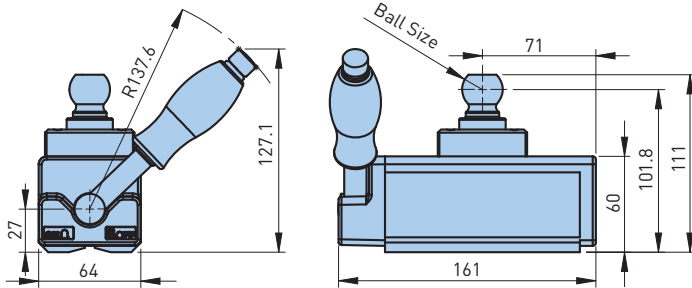
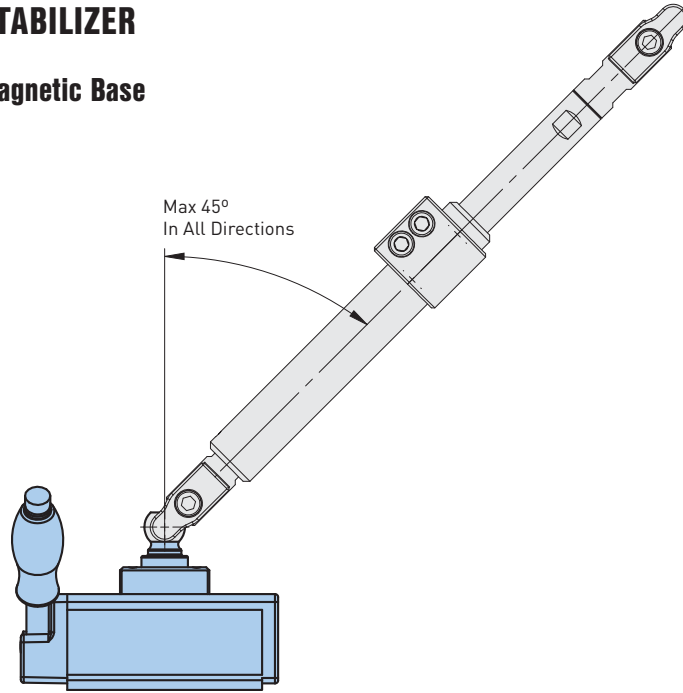


Fig. 1

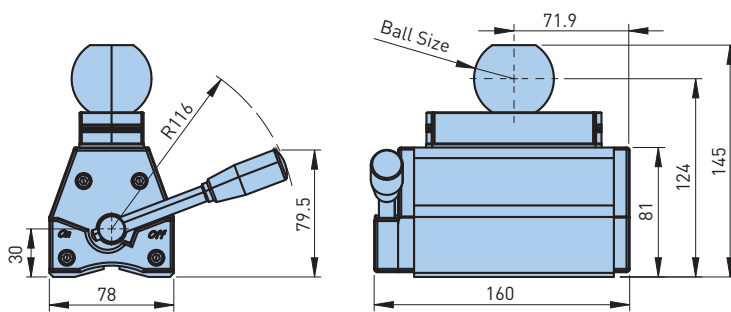


Fig. 2

Catalog Number	Load Capacity*		Ball Size	Qty. of Balls	Fig.	Weight (lbs)
	(lbs)	(kg)				
15.252.055	330	150	ø25.4	1	1	7.5
15.252.068	275	125	ø50	1	2	34.1
15.252.069	550	250		1		34.2

*Load rating is for flat surfaces; for round surface holding, please consult the BIG DAISHOWA Engineering Dept.
 • All dimensions are in millimeters

Not for lifting. Do not stand or lift loads overhead.

ACCESSORIES AND MAINTENANCE

A.8



ACCESSORIES

CHUCK AIR FITTINGS	108-109
QUICK DISCONNECT FITTINGS	110
AIR CIRCUIT DIAGRAM	111
POSITIONING PINS & BUSHINGS	112
TOE CLAMPS	112
DUST COVERS	112

MAINTENANCE

REPAIR & REPLACEMENT COMPONENTS	113
SERVICE & OPERATING INSTRUCTIONS	114

CHUCK AIR FITTINGS

Air fittings and parts are sold separately or as a kit. Other valve options available upon request. Please consult the BIG DAISHOWA Engineering Dept.

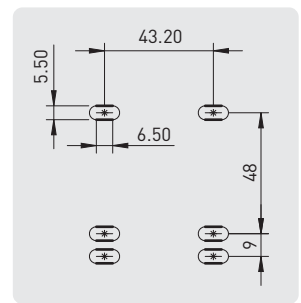


- Fully assembled
- Other options available
- All dimensions are in millimeters

Air Kit Catalog Number	Contents		
	Catalog Number	Description	Quantity
15.350.000	15.312.001	Filter Regulator Oiler Assembly	1
	15.350.009	Standard Hand Valve	1
	15.350.020	Uni Thread 1/4" Tube	1
	15.350.021	Uni Thread 1/8" Pipe x 1/4" Tube	1
	15.350.001	1/4" OD Tube	10 ft

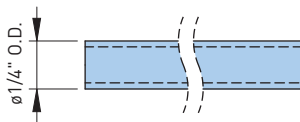


Mounting Bracket Positions



1/4 OD Tube

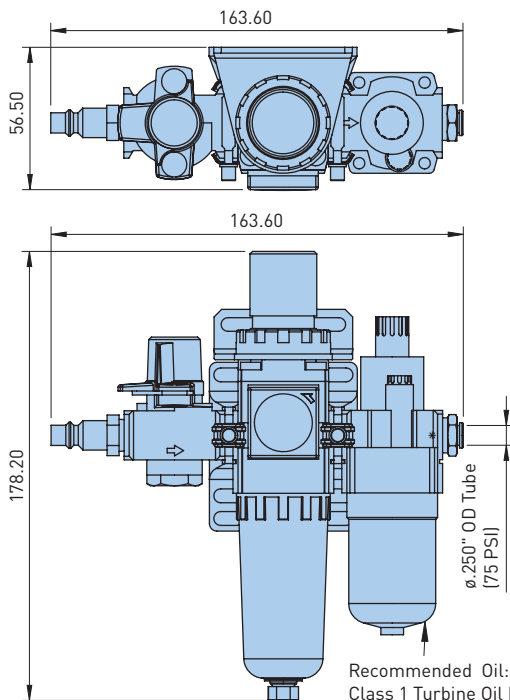
Catalog Number
15.350.001



- Sold by the foot

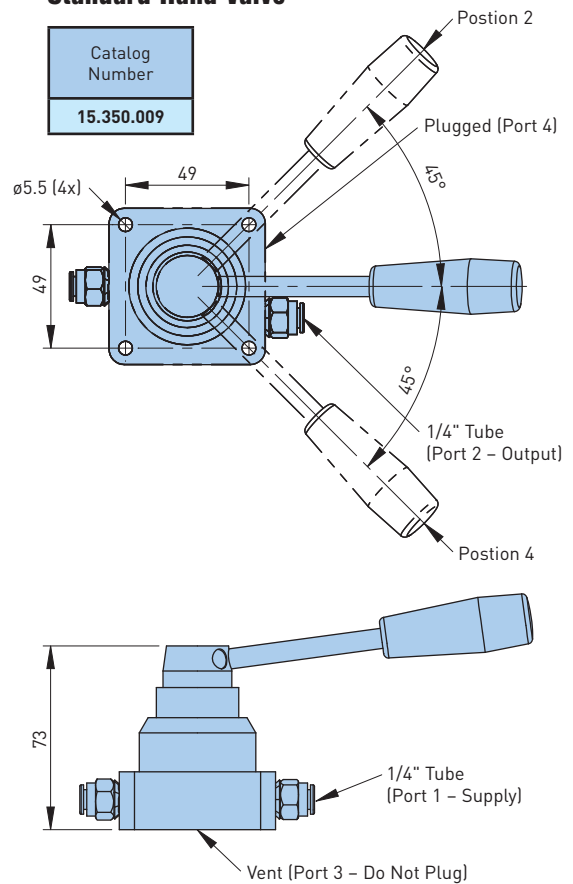
Filter Regulator Oiler Assembly

Catalog Number
15.312.001



Standard Hand Valve

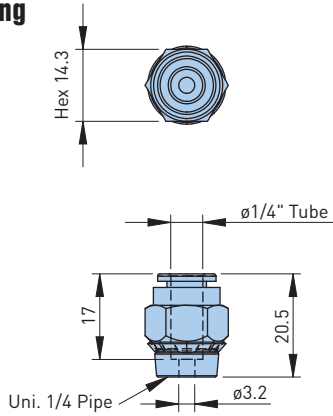
Catalog Number
15.350.009



CHUCK AIR FITTINGS

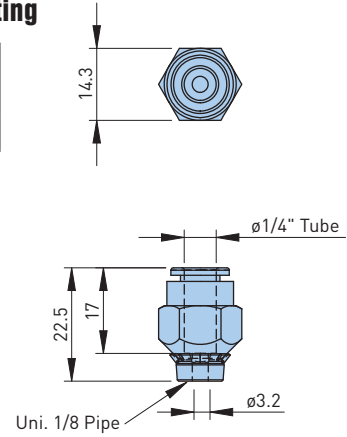
1/4 Pipe Fitting

Catalog Number
15.350.020



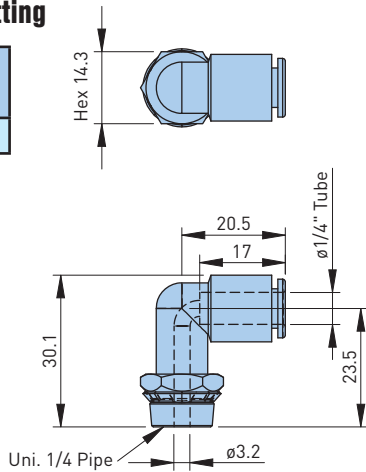
1/8 Pipe Fitting

Catalog Number
15.350.021



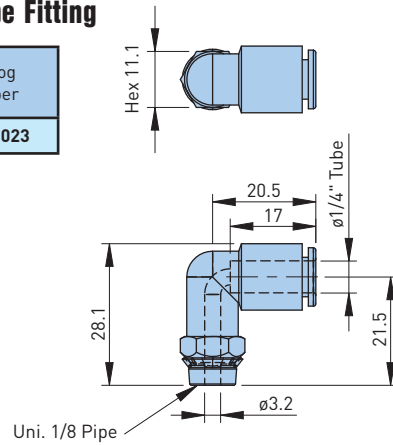
1/4 Pipe Fitting

Catalog Number
15.350.022



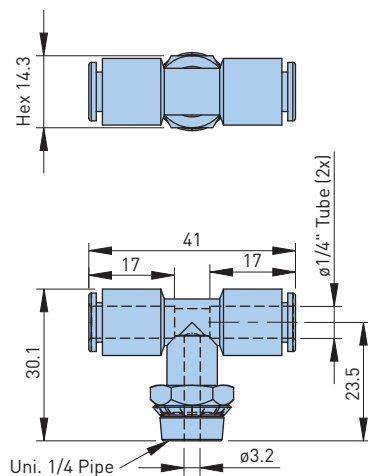
1/8 Pipe Fitting

Catalog Number
15.350.023



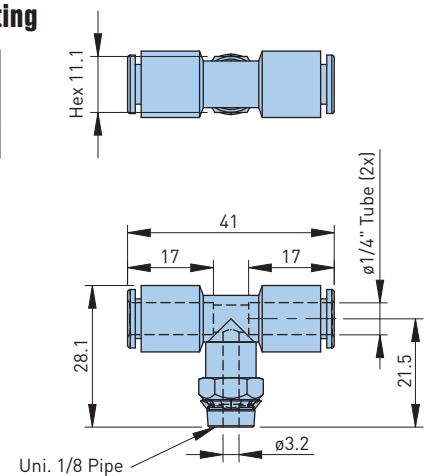
1/4 Pipe Fitting

Catalog Number
15.350.024



1/8 Pipe Fitting

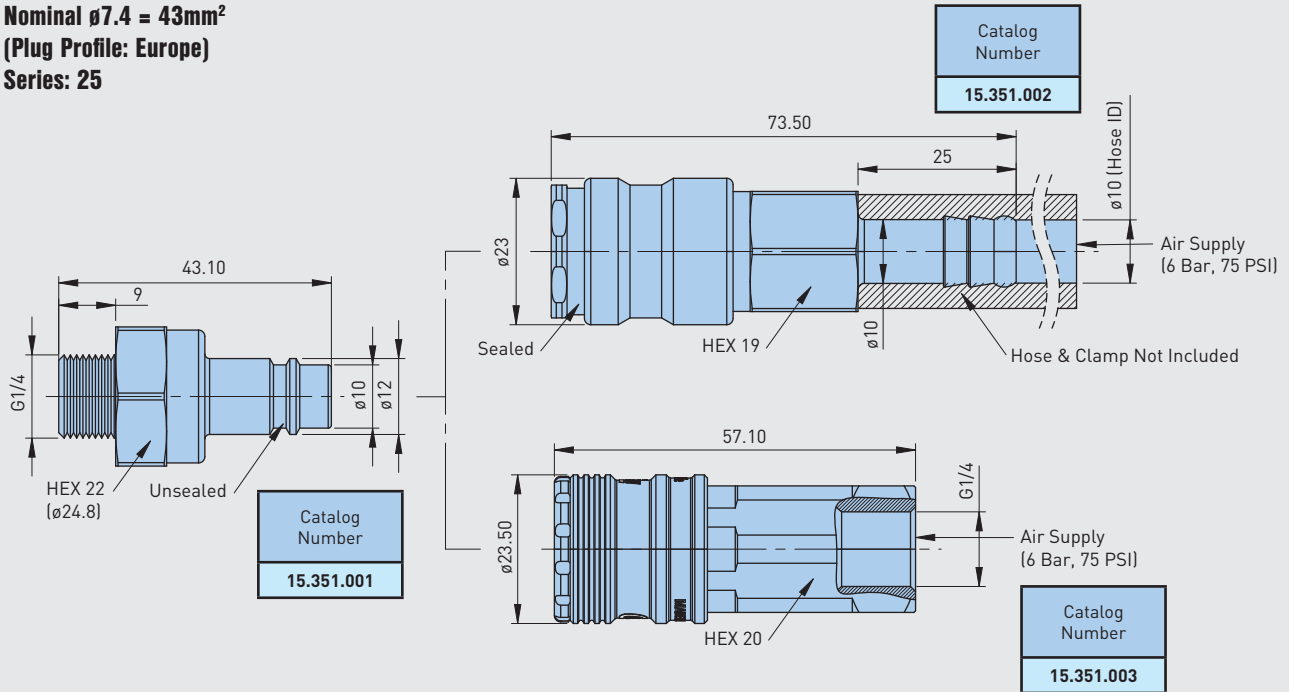
Catalog Number
15.350.025



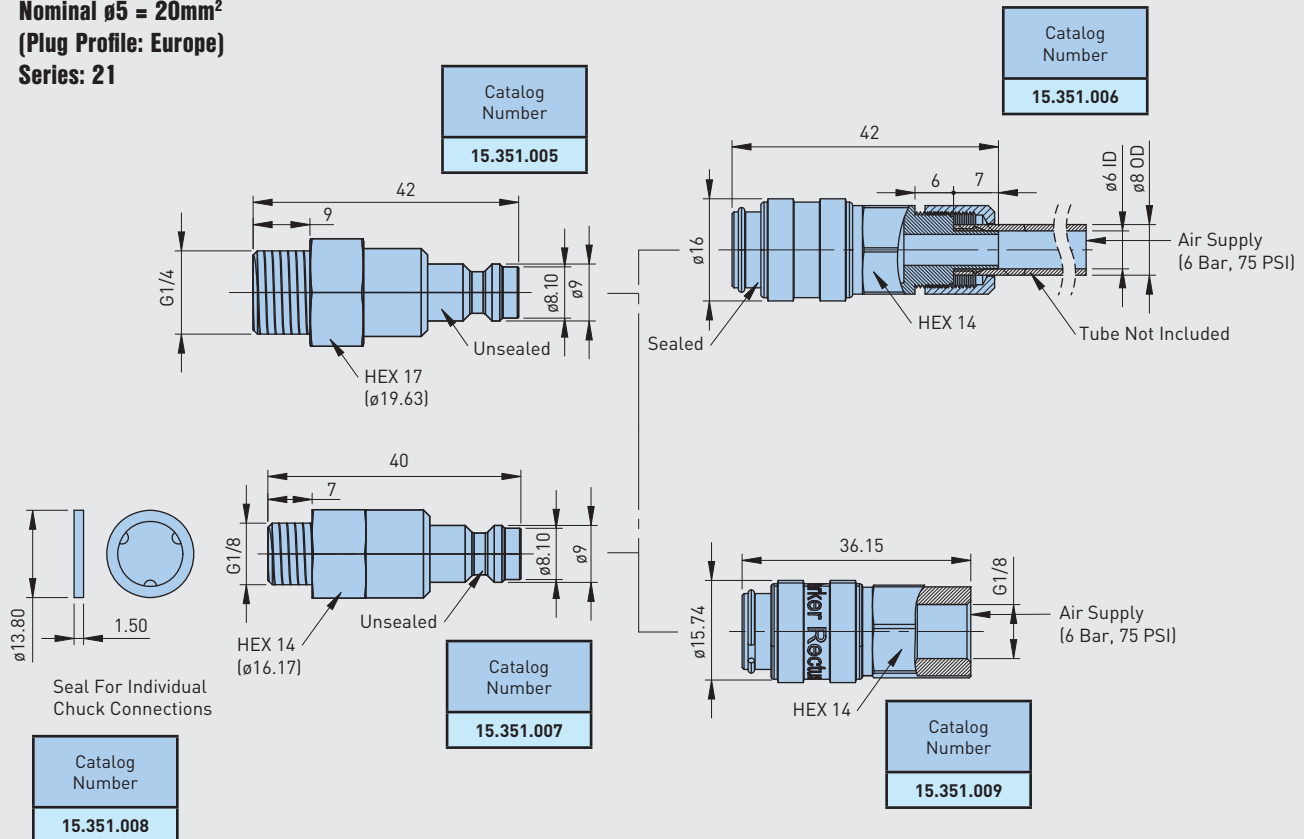
- Compatible with Rc, GNDT & NDTF
- All dimensions are in millimeters

QUICK DISCONNECT FITTINGS

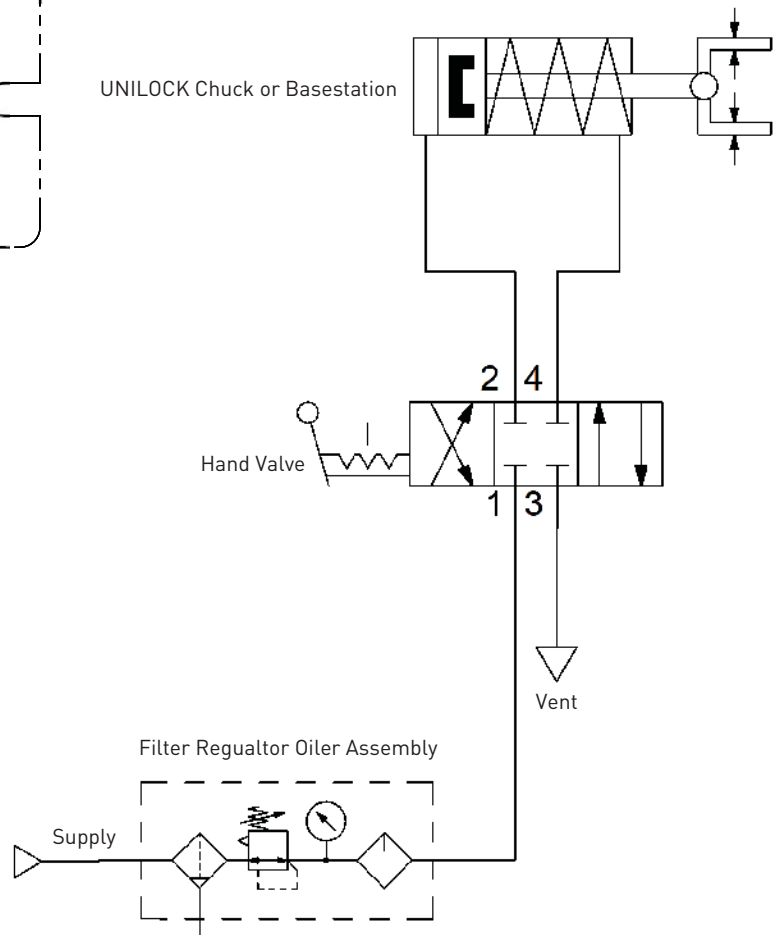
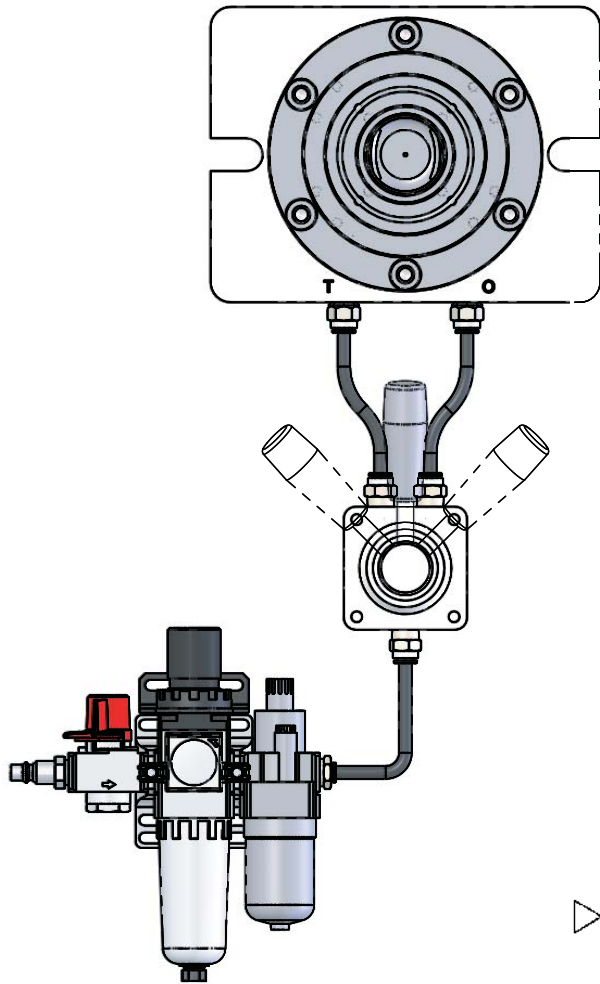
Nominal $\phi 7.4 = 43\text{mm}^2$
(Plug Profile: Europe)
Series: 25



Nominal $\phi 5 = 20\text{mm}^2$
(Plug Profile: Europe)
Series: 21



Air Circuit Diagram



ACCESSORIES

POSITIONING PINS & BUSHINGS



Catalog Number	Description
15.260.309	Positioning Bushing—Indexing
15.260.351	Positioning Pin—8mm Indexing
15.260.352	Positioning Pin—10mm Indexing
15.260.350	Positioning Pin—12mm Indexing
15.261.169	Positioning Pin—25mm Indexing
15.270.420	Positioning Pin—ASM 120 - 12/10
15.270.422	Positioning Pin—ASM 120 - 12/12
15.270.426	Positioning Pin—ASM 120 - 12/16
15.270.427	Indexing Pin— \varnothing 14mm
15.270.428	Indexing Step Pin— \varnothing 8mm/ \varnothing 14mm
15.270.429	Indexing—Key 14mm

TOE CLAMPS



Catalog Number	Description
15.270.403	Adjustable Toe Clamp—S30
15.270.404	Adjustable Toe Clamp—S40
15.270.405	Adjustable Toe Clamp—S50
15.270.450	Toe Clamp Blank
15.270.454	Toe Clamp Blank (Set of 4)

DUST COVERS



Catalog Number	Description
15.270.090	Chip Guard—90
15.270.120	Chip Guard—120
15.270.130	Chip Guard—138
15.260.170	Chip Guard—170
15.260.310	Chip Guard Clamping Knob—M8
15.260.790	M8 SHCS Cover (pkg of 6)

- Clamping knobs included with dust covers

REPAIR & REPLACEMENT COMPONENTS



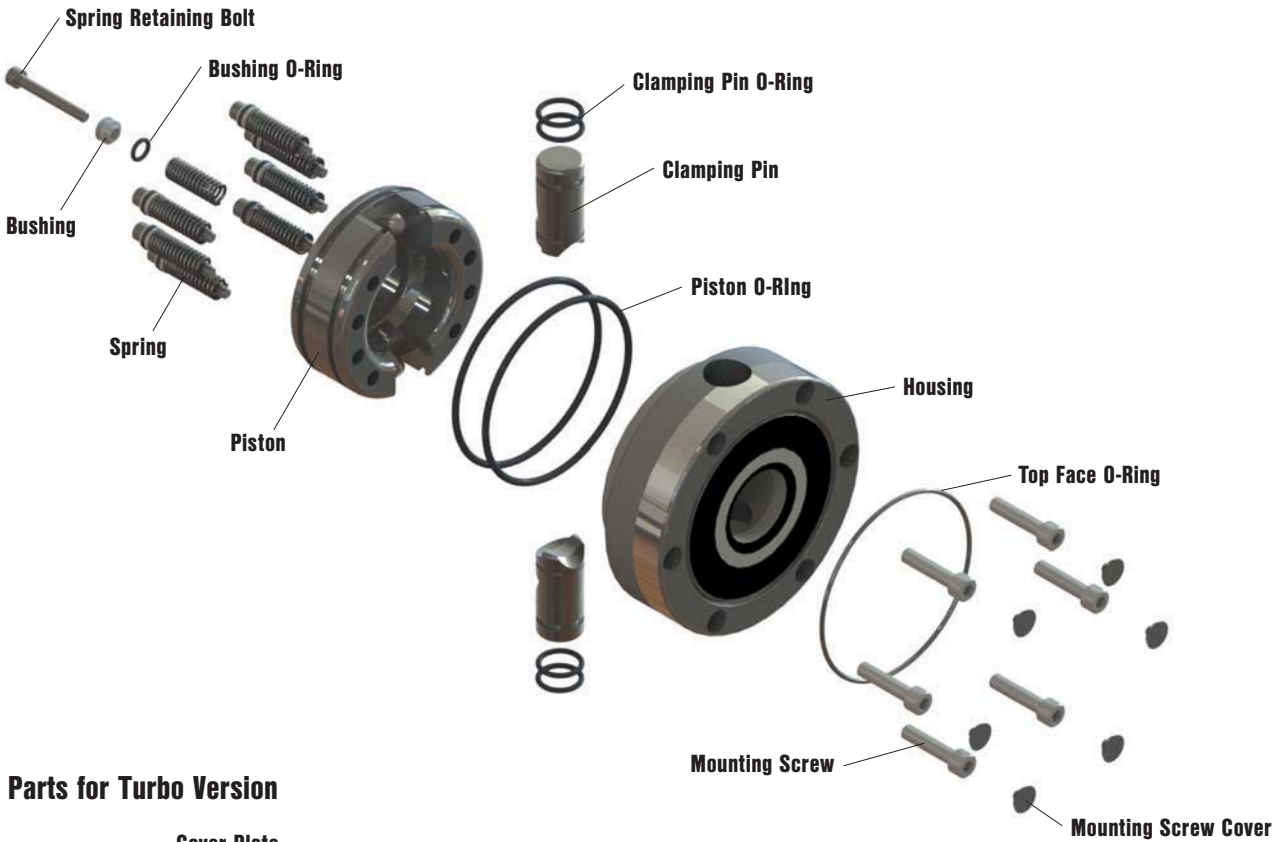
Chuck Type	O-Ring Only Kits		Full Repair Kit		Chuck Catalog Number
	Catalog Number		Catalog Number		
	BUNA	VITON	BUNA	VITON	
5-Axis (Air)	—	—	—	—	15.250.205
5-Axis (Manual)	—	—	—	—	15.250.1XX/2XX
AFM 105/65*	—	—	—	—	15.272.16X
AFM 146*	15.269.285	—	15.269.029	—	15.260.146
ASH 120	—	—	—	—	15.270.170
ASM 120*	15.270.198	15.270.199	15.269.007	—	15.270.15X
ASM 120-M*	—	—	—	—	15.270.18X
ASM 120-SS*	—	—	—	—	15.270.16X
ASM 90*	—	—	15.269.004	—	15.240.09X
ASM90A**	—	—	—	—	15.240.09XA
ASSF 170	—	—	15.269.028	—	15.279.170
ASSF 250	—	—	—	—	15.279.250
EDM 100/150*	—	—	15.269.027	—	15.272.150
EFM 138*	—	15.270.195	15.269.013	15.269.014	15.263.10X
EFM 138A**	—	—	—	—	15.263.10XA
EFM 138 SS	—	—	—	—	15.276.10X
ERGO 138	15.269.035	—	15.269.036	—	15.270.11X
ESA 110	—	—	—	—	15.277.300
ESA 120/70	—	—	—	—	15.277.200
ESA 185*	—	—	—	—	15.277.185
ESM 100/75*	15.269.021	—	15.269.022	—	15.272.175/.185
ESM 138*	15.270.192	15.270.195	15.270.193	15.269.030	15.270.10X
ESM 138-SS*	—	—	15.269.011	—	15.276.10X
ESM 138-C*	—	—	15.269.015	—	15.270.14X
ESM 138A**	—	—	—	—	15.270.14XA
ESM 176*	—	15.272.190	15.269.019	—	15.272.17X
ESM176A**	—	—	—	—	15.272.17XA
ESM 176-SS*	—	—	—	—	15.260.11X
ESM 180/150*	—	—	—	—	15.500.590
HSM 196*	15.269.020	—	—	—	15.274.407
ISM 160	15.269.285	—	15.269.029	—	15.260.160/.160A
MSM 170*	15.260.190	15.260.192	15.269.017	—	15.260.100
NSA 125	—	—	15.269.023	—	15.277.125

*Discontinued chucks

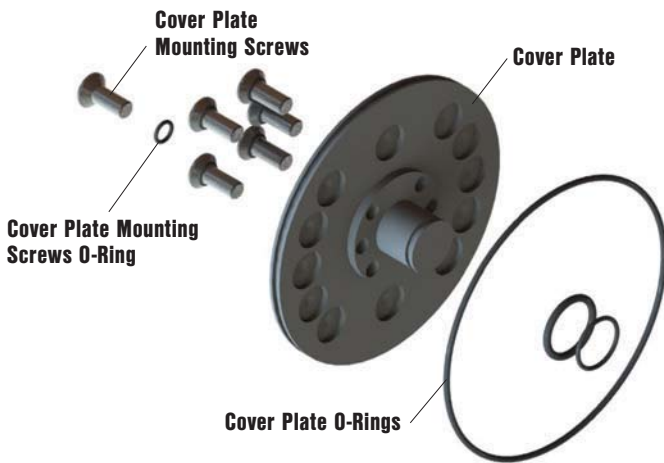
**Chucks cannot be repaired by end user

• Please contact BIG DAISHOWA Eng. Dept. for additional service information

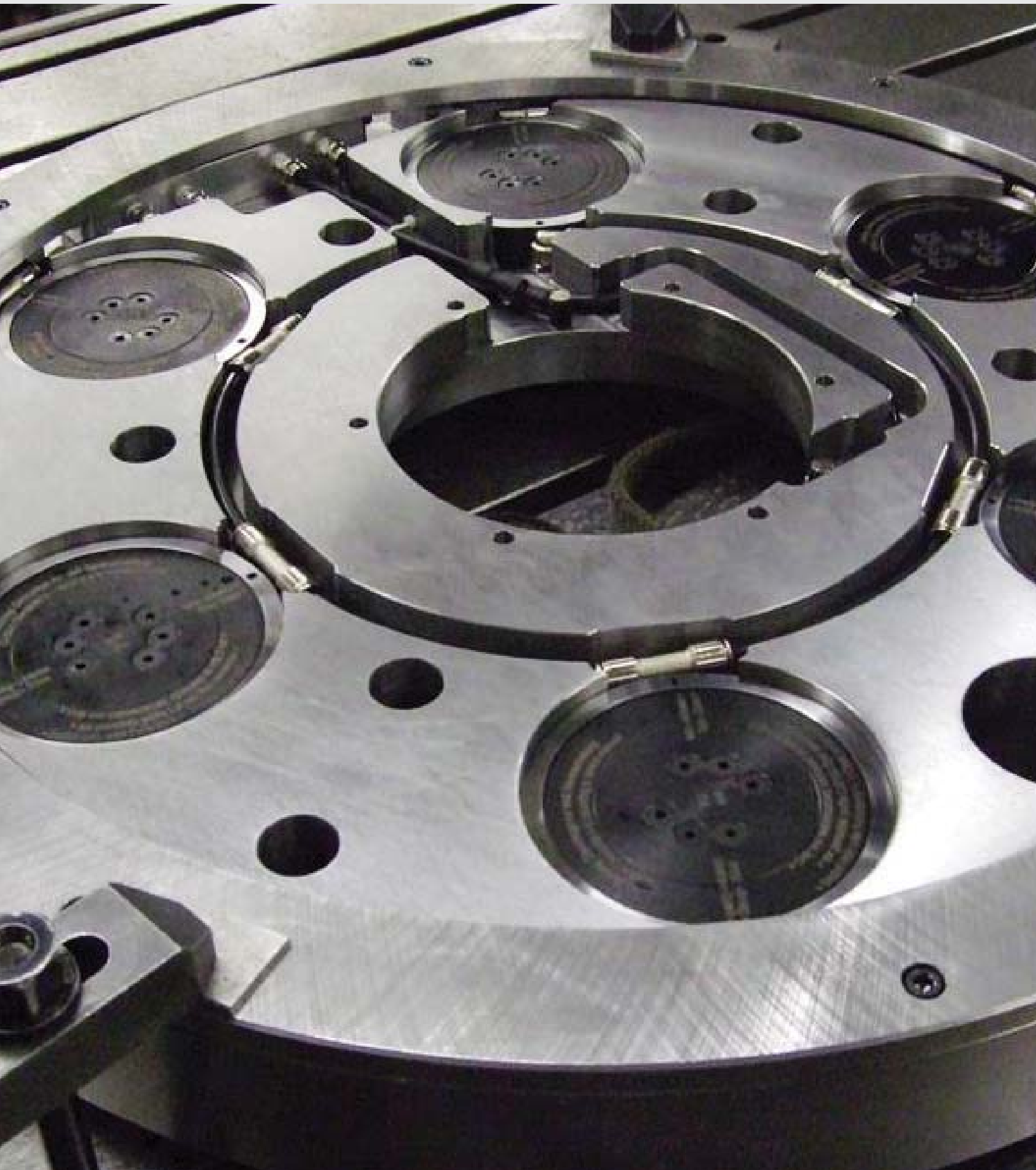
Service & Operating Instructions



Parts for Turbo Version



- Min. operating air pressure: 75 PSI
- Min. recommended air line: $\varnothing.250"$ O.D.
- Air must be filtered to a maximum particle size of $10\mu\text{m}$, dried and lubricated
- Use of dust covers is recommended for chucks when not in use
- Close all air connections when chuck is not in use
- For vertical wall mounting, chuck orientation should be such that the clamping pins are horizontal
- For long-term storage, spray rust preventive into air ports and cycle the chuck 4-5 times
- For more in-depth service instructions, please consult the BIG DAISHOWA Engineering Dept.



Represented by

BIG DAISHOWA Inc.

Tool Holders | Boring Tools | Cutting Tools | Workholding | Tool Measuring

2600 Huntington Blvd | Hoffman Estates, IL 60192

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