

# BIG KAISER

INSTALLATION & INSTRUCTION MANUAL

## unilock

ZERO-POINT CLAMPING SYSTEM





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## BASIC SAFETY NOTES

- Injury due to improper handling, assembly, installation, and adjustment may occur if proper safety guidelines are not followed.
- Be sure to read, understand and follow all instructions before proceeding.
- If you have any questions, please contact BIG KAISER.

## INTENDED USE

- The Unilock zero-point clamping system is intended for the positioning and clamping of pallets or workpieces.

## WARNINGS

- The clamping chucks are spring loaded. Care should be taken during use to ensure that the system supplying air to the chuck is set up correctly.
- If the chucks need to be maintained or disassembled, safety glasses should be worn at all times.
- Care should be taken when disconnecting air lines and they must be properly secured if not used.
- Ensure the system is locked out during maintenance according to your company guidelines.
- Only use spare parts provided by BIG KAISER or Innotool.

## WARRANTY

- All Unilock chucks, knobs, pallets and accessories are covered under a 90 day warranty against manufacturing defects.
- Customer parts and worn components are not warranted.

## SYSTEM SPECIFICATIONS

- Operating Air Pressure: Minimum 6 BAR (75 PSI)
  - More pressure may be required for more chucks
  - Operating Air Lubricant: Class I Turbine Oil ISO VG32
  - Operating Temperature: 15°-60°C (59°-140°F)
- Tube Diameter and Quantity of Chucks:
  - 1 Chuck = 6mm OD (1/4" OD)
  - 2-4 Chucks = 8mm OD (5/16" OD)
  - 5+ Chucks = 10 mm OD (3/8" OD)

# HOLDING FORCE & RETENTION LOAD

- Holding force is based on the quality, size and tensile strength of the fastener used to hold the knob to the fixture.
- Chuck retention loads are listed below. This is the force the chuck exerts on to the knob.

Chuck Model	Catalog Number	Notch (Width x Qty)	Recommended Bolt Sizes					Retention Force (lbs.)		Weight (lbs.)	Air Connection	
			M10	M12	M16	M20†	M24†	Spring Only	Turbo Assist		Port Size	Flange
ESM 138	15.270.100	—	x	x	x	x	x	990-1,320	3,300-3,520*	9.9	1/8	x
	15.270.107	14h6 x 1										
EFM 138	15.260.105	—	x	x	x	x	x	990-1,350	3,300-3,520	8	—	x
	15.263.107	14h6 x 1										
ASM 90	15.240.090	—	x	x	—	—	—	550-660	1,540-1,760	5.1	1/8	x
	15.240.091	12hs x 1										
ASM 120	15.270.150	—	x	x	—	—	—	770-990	2,860-3,300*	8.8	1/8	x
	15.270.155	8h6 x 1										
	15.270.161	—										
	15.270.160	8h6 x 1										
ASM 120M	15.270.180	—	x	x	—	—	—	1,760-2,200	—	8.8	—	—
	15.270.185	8h6 x 1										
MSM 170	15.260.100	12h6 x 4	x	x	x	x	x	1,650-1,980	3,520-4,400	16.5	1/8	x
ESM 176	15.272.170	—	x	x	x	x	x	1,540-1,760	4,180-4,840	17.5	1/8	x
	15.272.171	25h6 x 1										
HSM 196††	15.274.407	25h6 x 1	—	—	—	—	x	1,980-2,200	4,400-5,060	19.3	1/8	x
AFM 105/65	15.272.165	12h6 x 2	x	x	—	—	—	660-880	1,980-2,200	6.3	1/8	x
	15.272.167	10h6 x 2										
EDM 100/150	15.272.150	—	x	x	—	—	—	440-550	1,100-1,350	7.3	1/8	—
ESM 100/75	15.272.175	—	x	x	—	—	—	440-660	3,300-3,520	4.5	1/8	x
AFM 146	15.260.146	14h6 x 1	x	x	x	—	—	1,100-1,540	3,300-3,740	9.2	1/8	x
ISM 160	15.260.160	See Drawing	x	x	x	—	—	1,100-1,540	3,300-3,740	12.1	1/8	x
MLM 150	15.270.350	—	x	x	x	x	x	990-1,320	NA	15.4	1/8	—
	15.270.355	12h6 x 4										
MCM 150	15.270.250	—	x	x	x	x	x	999-1,320	NA	17.8	1/8	—
DCM 200	15.270.200	12h6 x 4	x	x	x	x	x	1,980-2,640**	NA	46.2	1/4	—
DLM 200	15.270.300	—	x	x	x	x	x	1,980-2,640**	NA	37.4	1/4	—
	15.270.307	14h6 x 1										
QC 400	15.270.340	—	x	x	x	x	x	3,960-5,280**	NA	78.3	1/4	—

\* Sealed pocket required for Turbo Assist

\*\* Combined value from individual chuck

† Optional

†† M74 optional

# SCREW TORQUE

## SHCS, GRADE 12.9

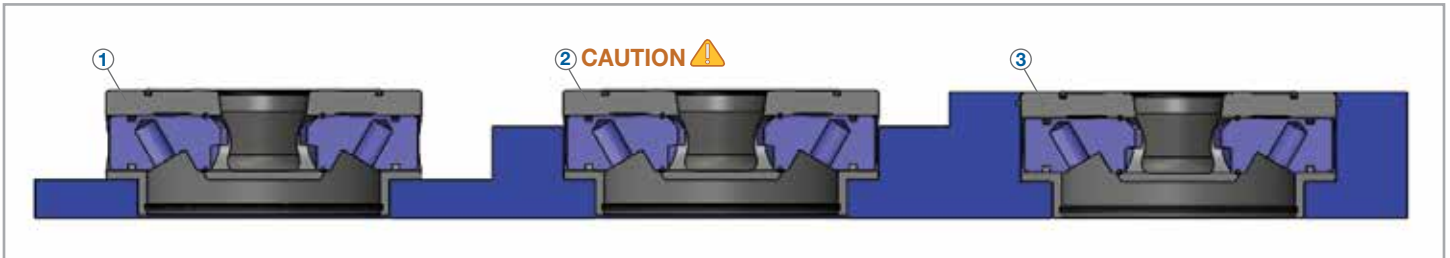
Screw Size	M6	M8	M10	M12	M14	M16
Torque (Nm)	15	32	62	108	170	262

## SHCS, GRADE 8

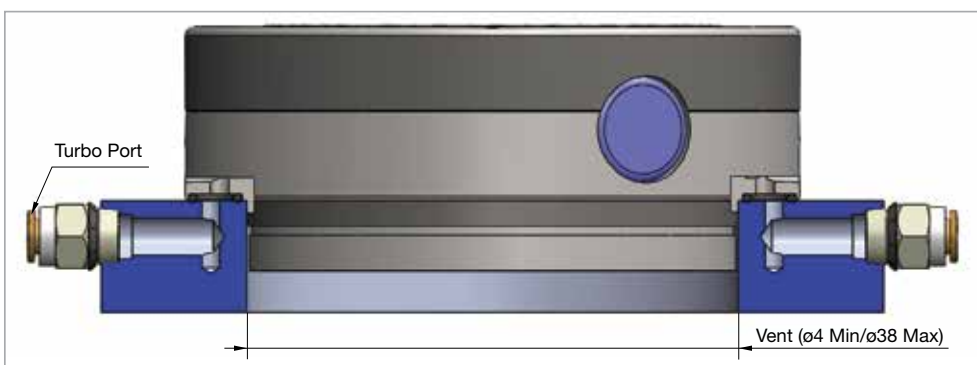
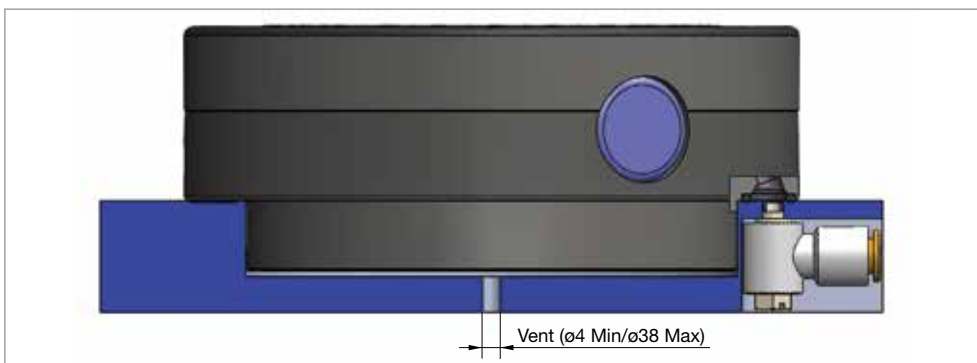
Screw Size	1/4"	5/16"	3/8"	1/2"	9/16"	5/8"
Torque (ft-lbs)	11	23	45	79	125	193

## ASSEMBLY

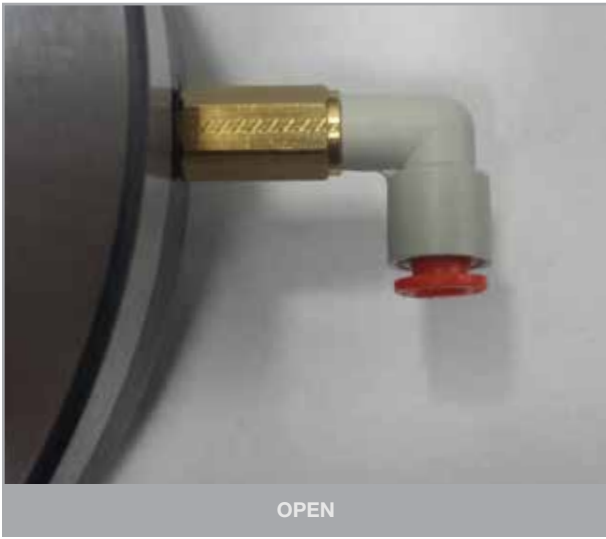
- Chuck Mounting Drawing
  - Please reference the mounting drawing for each chuck to ensure correct chuck mounting, location and air port locations.
- Chuck Mounting Options
  - Scenario ①: Top of plate — acceptable
  - Scenario ②: Partial submersion — ⚠ not recommended due to chip collection
  - Scenario ③: Full submersion — acceptable with use of o-ring



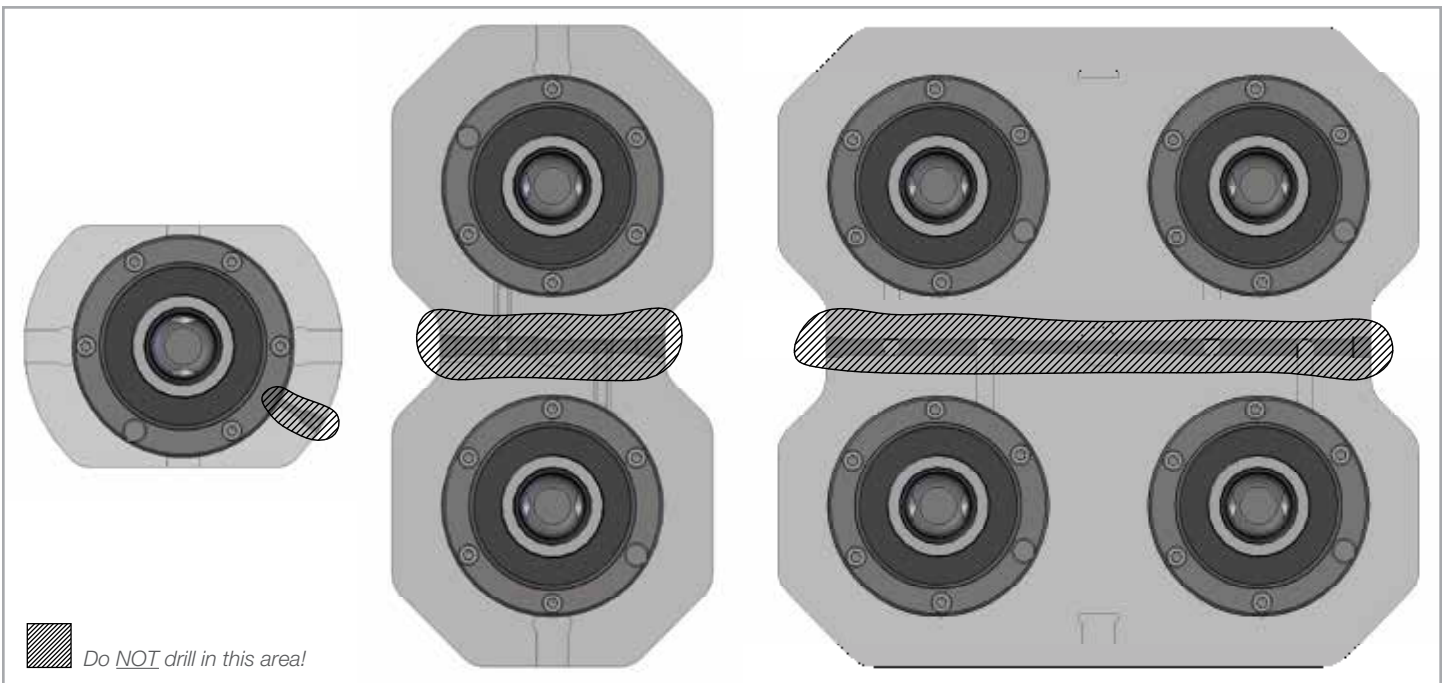
- Venting of Turbo Port and/or Rear of Piston
  - If the Turbo Port is not being used then it must be allowed to vent to atmosphere.
  - Caution should be taken to prevent coolant from entering the Turbo Port.



- When not in use, pipe port tube fittings should be plugged.



- Pre-assembled Chucks
  - Pre-assembled chuck base plates can offer two mounting options:
    1. Toe clamps
    2. Thru holes
  - Do not drill in the area indicated on the mounting drawing so as not to interfere with the internal air passages.

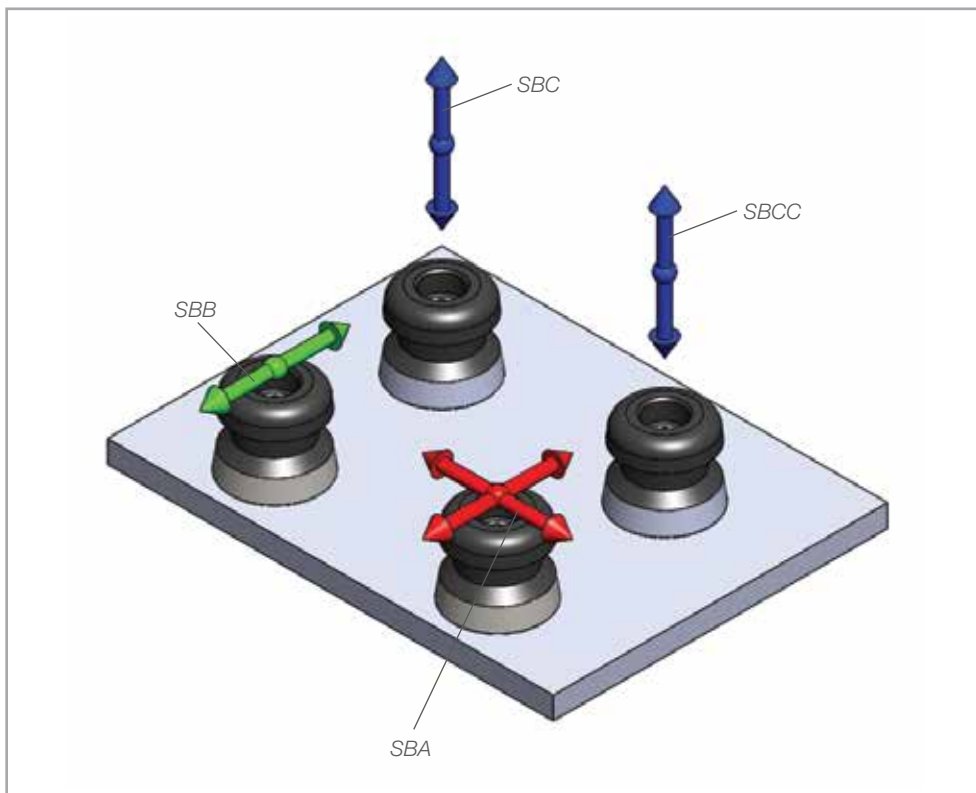


# KNOB INSTALLATION

- Please reference the mounting drawing for proper knob location, fastener options and other options.
- Use a torque wrench to tighten knob fasteners to the following recommended torque values:

Screw Size	M6	M8	M10	M12	M14	M16
Recommended Torque (Nm)	15	32	62	108	170	262
Recommended Torque (ft-lbs)	11	23.5	45.7	79.6	125	193

- Knob Functions and Recommended Locations
  - SBA — master datum (.0001"/.0002" location repeatability)
  - SBB — orientation control in one direction
  - SBC — downward clamping only (.1mm clearance)
  - SBCC — downward clamping only (.3mm and .6mm clearance) \*optional





## MAINTENANCE AND CARE

- Use air that has been set to the correct pressure and also applies oil.
- Use high quality coolant with rust preventative.
- Maintenance inspections should be done on a 1 year schedule.
- Repair manuals are available and should be followed. Please contact the BIG KAISER Engineering Dept. at [engineering@us.bigkaiser.com](mailto:engineering@us.bigkaiser.com) or call 224.770.2999 x254.









# QUESTIONS 888-TOOL-PRO

**BIG KAISER**

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