

JM PERFORMANCE PRODUCTS, INC.

The Industry Leader in Milling Machine Optimization

Hydraulic ClampForce Operating Instructions

For V-Flange, Capto, HSK & KM Spindles



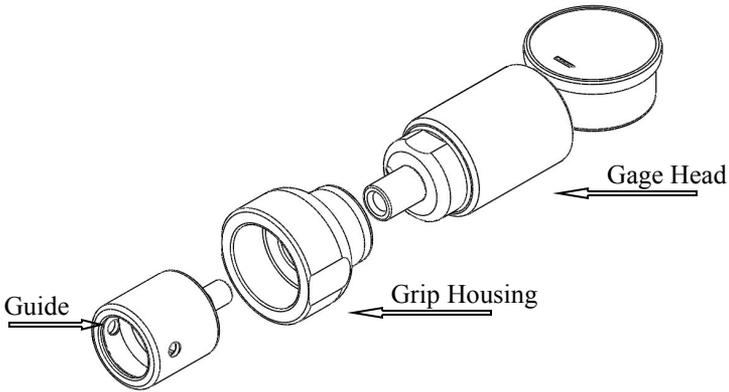
The ClampForce Gage is available in 3,000lbs to 30,000lbs configurations. The capacity of the gage can be found on the dial face indicator. Do not exceed the capacities of the gage.

For technical assistance, replacement parts, or accessories:

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HSK and Capto

Select the proper size adapter for the spindle that is to be checked. Verify the gage head exceeds the capacity of the machine. Slide the small end of the guide over the threaded end of the gage head. Slide the grip housing, threaded end first, into the guide until the threads of the grip housing meet the female end of the gage head. Screw the grip housing clockwise until tight. Preload the gage to 70% of the ISO Spec force for your size spindle. (For example - an HSK A50 $2450 \text{ LBS} \times .70 = 1715$). To preload the device, place the gage in a vice (holding the flats on the guide) and insert the supplied spanner wrench into one of the holes and turn clockwise until the desired preload is achieved. Do not compensate the gage reading for the preload. If the gage head does not read once it's energized in the spindle, back off the preload by increments of 15% until a measurable reading is reached.



Clamping Force (LBS) of HSK Spindle Type A&C ISO SPEC 12164-1:2001(E)

32	40	50	63	80	100
1,124	1,528	2,472	4,046	6,294	10,116

Clamping Force (LBS) of HSK Spindle Type "T" Static ISO SPEC 12164-3:2008(E)

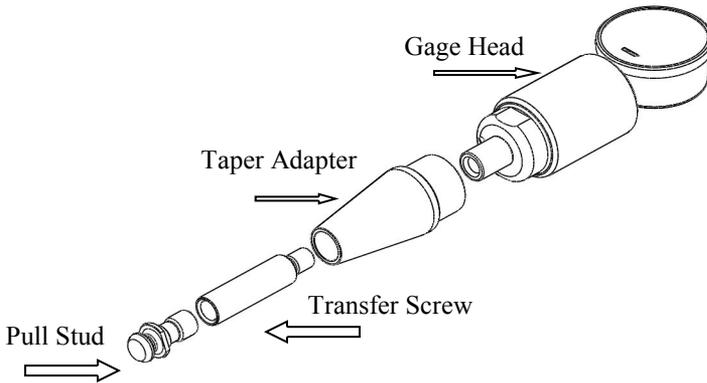
32	40	50	63	80	100
1,124	1,798	3,147	5,395	8,317	12,364

Clamping Force (LBS) of Capto Spindles ISO SPEC 26623-1:2008(E)

32 "C3"	40 "C4"	50 "C5"	60 "C6"	80 "C8"	80 "C8X"
3,372	4,496	5,620	6,744	8,992	8,992

V- Flange Tooling Adapters

Select the proper type of adapter needed for the taper of your spindle. Slide the large end of the taper adapter over the threaded end of the gage head. Then thread the internal transfer screw through the taper adapter and into the threaded end of the gage head. Using the supplied tightening wrench, insert it into the small end of the taper adapter and tighten until you feel the transfer screw properly seating into the gage head. Then thread your retention knob, into the small end of the taper adapter. Make sure that the retention knob is fully seated to the taper adapter. The toolholder can be preloaded with several hundred pounds and it will not affect the overall reading. Do not compensate the gage reading for the preload.



Not all retention knobs are universal. The retention knob designed for the spindle being checked must be used. If the wrong knob is used, inaccurate readings will be given. The grippers of the machine can also be damaged when the wrong retention knob is selected.

For all Spindle Adapters- a small application of grease is recommended on all moving parts and where contact is made.

If your machine's drawbar force is found in Pa, bar, Kg/cm or N/m, please contact us for a conversion in pounds of force.

Before following the general instructions below, refer to page 2 and 3 of this brochure to properly set up the ClampForce Gage.

General Instructions:

Using the manual tool change method, insert the gage into the spindle and energize the drawbar. The gage will immediately read out in pounds of force.

DO NOT START THE MACHINE WITH THE GAGE IN THE SPINDLE. MACHINE DAMAGE AND PERSONAL INJURY COULD OCCUR.

Clamping force should be within 80% of the original manufacturer's recommendation. Once it falls below 80%, the Belleville springs have begun to wear, the grippers are out of adjustment, or other machine maintenance is needed. If clamping force is left unchecked, a tool can be pulled out of the spindle during a cut causing damage to the work piece, the tool, and can endanger the operator. To avoid such events, we recommend a regular maintenance program be adopted. Clamping forces can change rapidly even on new machines and should be checked often.

Additional Information

The Clampforce Gage can be used to check all types of spindles. Additional non-stocked spindle adapters are available for KM Tooling, HSK, and CAPTO. For non-stocked items allow for three to four weeks for manufacturing.

Certification and Inspection

Yearly recertification is available for the ClampForce Gage. Please allow two to three business days for the certification and inspection process. The price for certification is \$79.99 plus shipping and handling.

For information about our other performance products, visit us online at www.jmperformanceproducts.com



Engineered to stop toolholder expansion, our patent-pending **High Torque retention knobs** can increase tool life 10-30%.



Keep your spindle clean and free from grease and oil build up with our **Spindle Cleaning Kits**. Available in 30, 40, 45 and 50 tapers.



Our **Taper Shank Test Fixture** is used to check for toolholder distortion.



Spindle Restoration Kits restore the taper finish without damage to the original taper. Available in 30, 40, 45 and 50 tapers.