

Machine Spec

Mass Centering Machine 823LAMM



Work piece weight	:5 - 20kg
Work piece length	:250 - 530mm
Diameter of counter	:MAX.180mm
Clamp diameter	:MAX.100mm
Cycle time	:36-sec.
Accuracy of Measurement	:0.015mm
Measurement speed	:450 min ⁻¹
Pneumatic pressure	:0.3 - 0.6MPa
Noise	:MAX.80 dBA
Total weight	:13,000kg

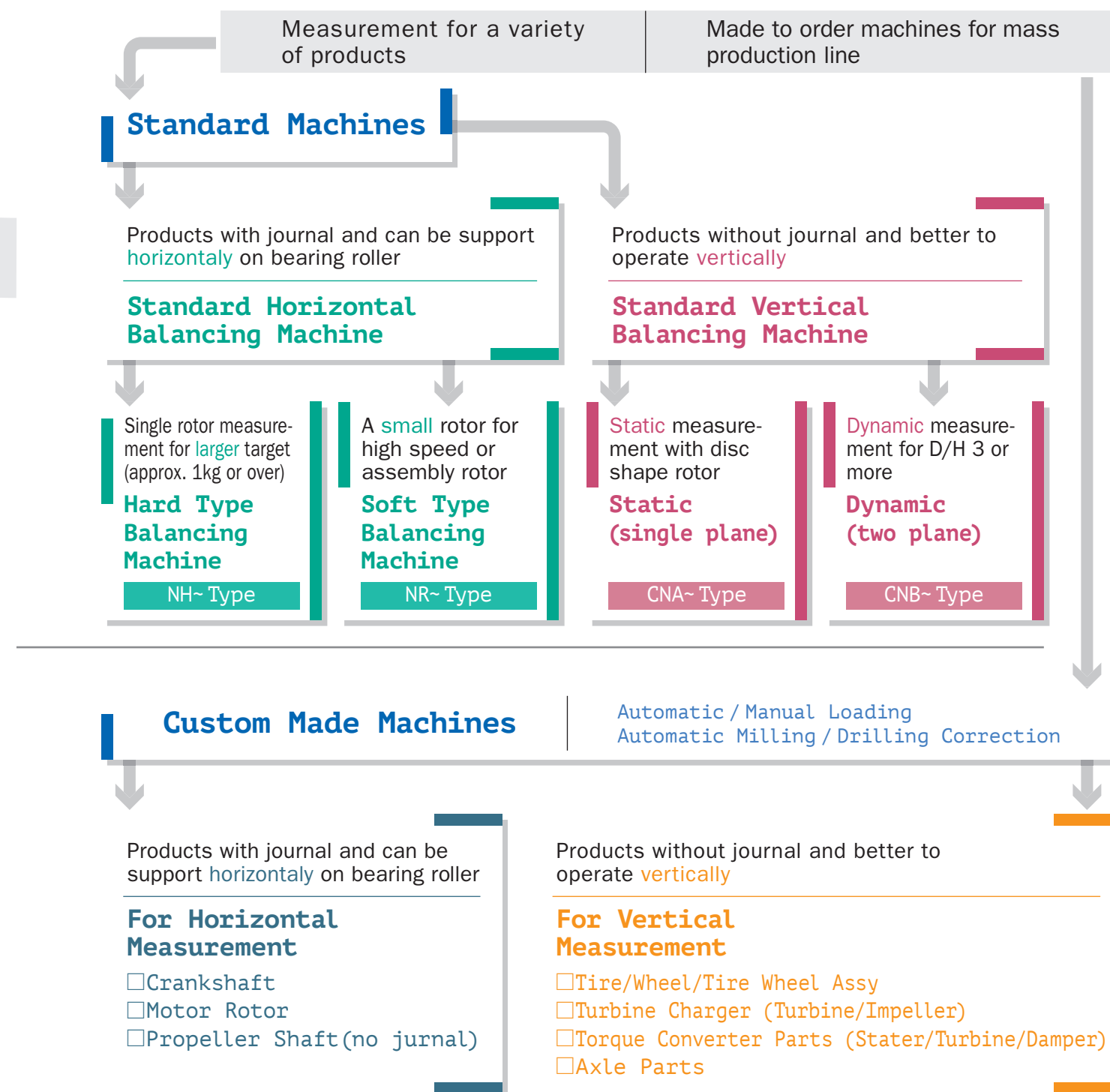
Final Balancing Machine 821/823LAMC



Work piece weight	:5 - 20kg
Work piece length	:250 - 530mm
Diameter of counter	:MAX.180mm
Clamp diameter	:45 - 65mm
Cycle time	:50 -sec.
Accuracy of Measurement	:1 - 2gcm
Measurement speed	:450 min ⁻¹
Pneumatic pressure	:0.3 - 0.6MPa
Noise	:MAX.80 dBA
Total weight	:8,000kg

* The above specifications may vary depending on the processing contents and work. In addition, even beyond the scope of the above, you might be able to support. For more information, please feel free to contact us. Contacts are provided in the following pages.

Flowchart for Machine Selection



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* The latest information are shown on our website.
Contents in this catalogue may be modified without notice for product improvement. 2016.10



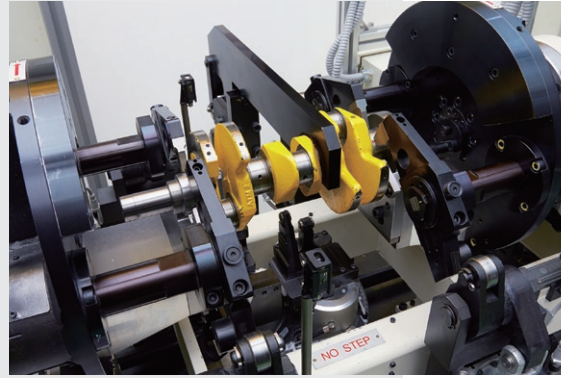
Mass Centering Machine

823LAMM 821 / 823LAMC

Mass Centering Machine 823LAMB

The latest light weight crankshaft production has become difficult to simultaneously maintain the weight while balancing. In order to satisfy both aspects the measurement of the mass center of the crankshaft and processing should be based on the center of mass. With our mass centering 823LAMB we make this processing possible. It consists of measuring station and processing station. It is compatible with direct 3/4 cylinder crankshafts and easily changeable. Additional option is also available.

Measuring Station



The measurement unit selects necessary correction data based on the car model data of the loaded crankshaft. Optional manual setting is also available. Crankshaft is fixed at both ends and rotated to measure the eccentricity of the mass center. The measured data are sent to the processing station to centerdrill each end of the crankshaft. When the difference between the geometric center and mass center eccentricity amount is over the set amount it is determined as unacceptable.

Center Hole Processing Station



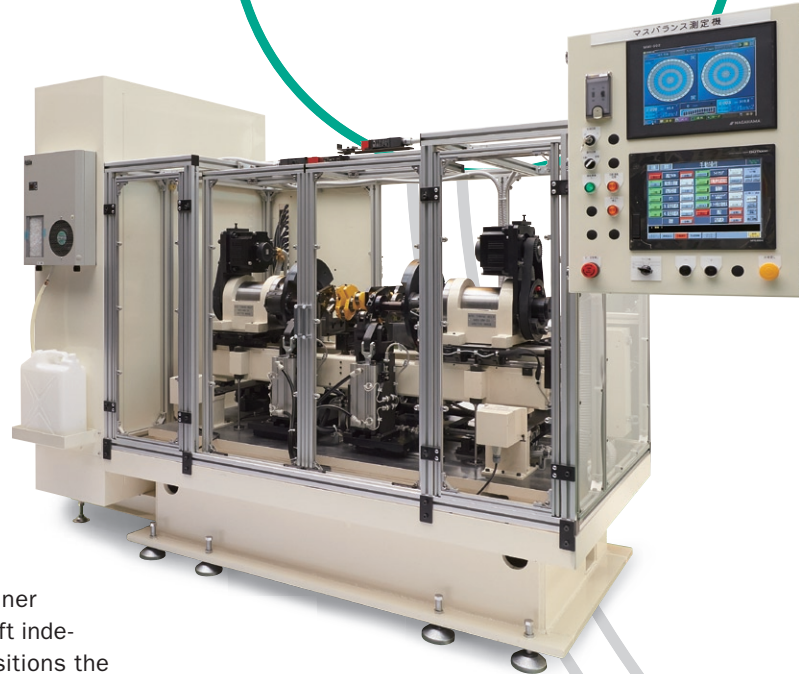
The processing station clamps the crankshaft in the same manner as the measuring station and positions each end of the crankshaft independently. The drill units are fixed and aligned. This method positions the crankshaft using the data sent from the measuring station to optimize the benefit of mass centering while keeping both center holes aligned.



Measuring Unit MMi-902MS

The system has a color TFT display and measurement unit. Setting is done using the touch panel. Setting for each model is displayed including the corrected amount based on the final balance data, bias feedback, and measurement history. Any problem causing an abnormal operation can be remedied with the solution shown on the display.

Mass Centering



Processing such as
Machining, Polishing,
Heat Treating

Our balancing technology will support your crankshaft manufacturing line.

Recent progress in lighter weight and improved quality of engines has brought about reconsiderations in crankshaft balancing. Reduced weight of crankshaft itself causes the counterweight to be smaller. As a result unbalance correction must be minimized.

Our new Mass Centering Machine will improve your manufacturing process.

Centering Performance, compared to Geometric Centering



● By positioning each end of the crankshaft while center drilling, both center holes will be aligned. This reduces problems when performing following processes which employ chucking on centers.

Manufacturing Line Processing Quality, Bias



● By optimizing biases, balancing process efficiency and quality is improved.

Material Quality and Composition



● Mass centering reduces the material removal (drilling) required for final balancing, thereby maintaining the designed mass distribution.

New Features

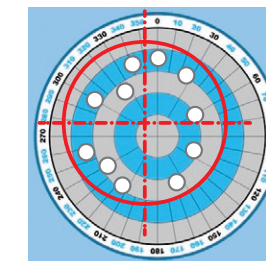
Direct 3 and 4 cylinder crankshaft exchange using step change

Fully covered processing section confines the chips produced by center drilling

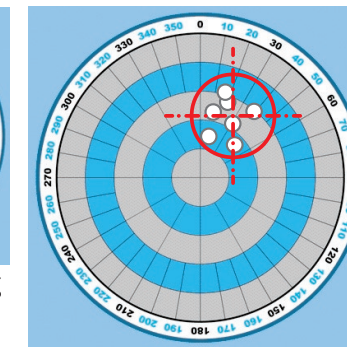
Flexible positioning of each part type using the main loader

Additional options available for basic surface processing

Mass centering not only minimizes both the amount of correction and the final residual unbalance as shown below, it also insures correction fits within the range of the counterweight correction area.



Geometric Centering



Mass Centering

Bias

Final Balancing Machine 821/823LAMC

Recent engine production line requires flexibility to meet the rapidly changing products. 821/823 LAMC was developed to meet the needs for flexible response. The system requires very little space, fully automatic measurement, correction and check and possible plan-free layout on the assembly line.



Final Balancing



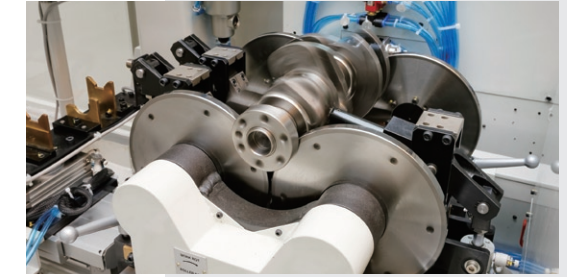
Measuring Unit MMi-902C

Microprocessor measurement unit is made up of color TFT display with the computer and measurement unit. Setting is done by touch panel. Data file for each car model, bias data change, measurement data history are shown. Any problem causing an abnormal operation can be remedied with the solution shown on the display.

Special Features of 821LAMC/823LAMC

821LAMC uses friction drive for mainly direct 3 or 4 cylinder crankshaft assembly lines. 823LAMC uses hook drive for mainly V6 cylinder crankshaft assembly lines.

Measuring Station



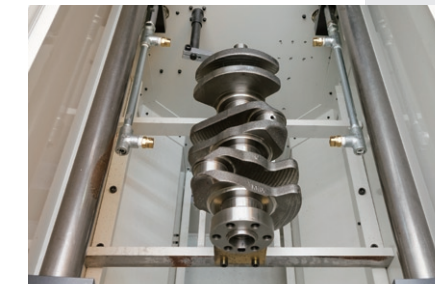
The crankshaft is transferred by an in-machine loader to the measuring station. When loaded the crankshaft is driven automatically to measure the unbalance during processing. The residual unbalance after correction is measured and pass/fail status is determined. (Shown above is 821LAMC friction drive.)

Correction Station



At the correction station one axis drilling unit is operated with NC control to correct the unbalance. The depth of drilling is determined at the measuring station. With our new technology chucking force is dramatically reduced to where the hydraulic system is no longer necessary.

Air Blow Station



The crankshaft is transferred by the in-machine loader to the air blow-off station to remove any coolant from the drilling operation.