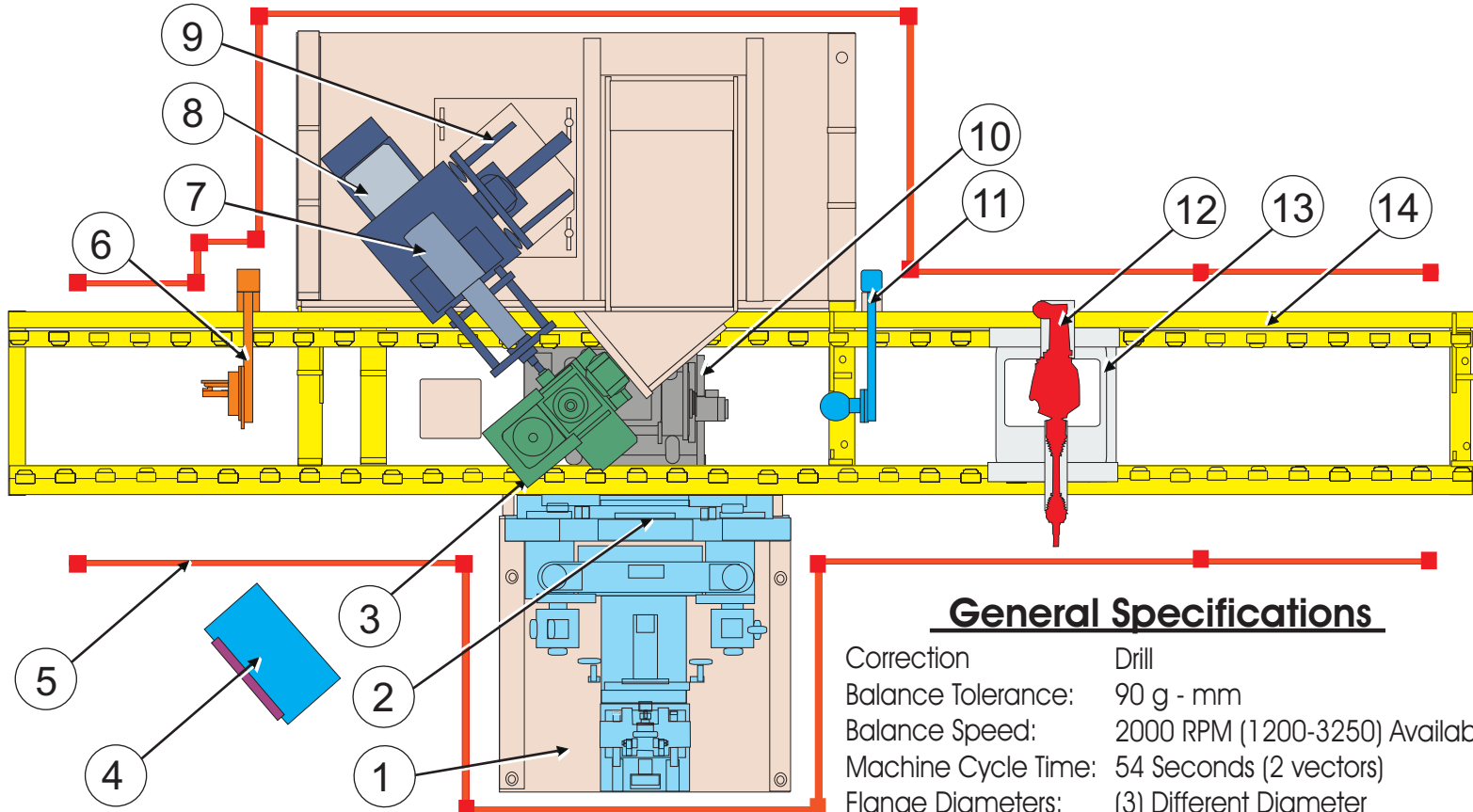


STR BALANCER

MPBalance Engineering
Leadership in Balancing

Front Differential MACHINE



General Specifications

Correction	Drill
Balance Tolerance:	90 g - mm
Balance Speed:	2000 RPM (1200-3250) Available
Machine Cycle Time:	54 Seconds (2 vectors)
Flange Diameters:	(3) Different Diameter
Differential Housings:	(2) Different Housings

MACHINE FEATURES

MACHINE OPTIONS:

- 1 **Output Shaft Spindle Slide**
- 2 **Output Shaft Spindle**
- 3 **Slave Shaft and Spindle**
- 4 **CBI-HMI Control Panel**
- 5 **Machine Guarding**
- 6 **Unbalance Paint Marker**
- 7 **Drill Quill Unit (Servo)**
- 8 **Drill Motor**
- 9 **Drill Vertical Positioner**
- 10 **Pallet Elevator**
- 11 **Companion Flange Position Camera**
- 12 **Part/Axle**
- 13 **Axle Pallet**
- 14 **Conveyor**

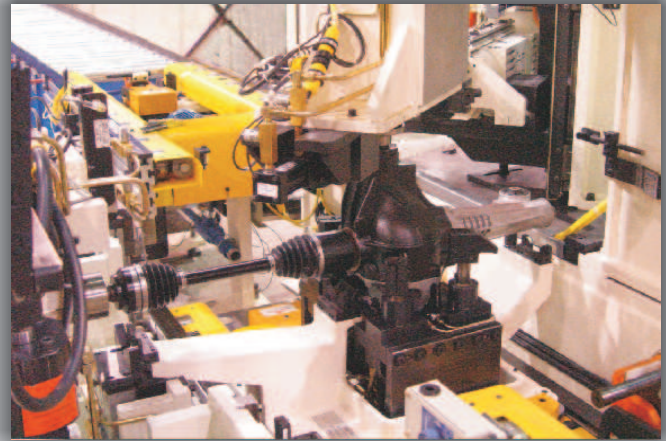
- Palletized Part Handling
- Vehicle NVH analysis for characterizing of driveshaft performance
- Auto-Accommodation of multiple flange styles and differential housings
- Communication with plant wide information systems
- Data Storage and Printout

- OutPut Shaft Sub-System
- RF Tag Read / Write
- Vision System-Flange Orientation
- Correction Methods (Weight Addition/Removal)
- Training
- Marking of Residual Unbalance
- Statistical Package (CBI Based)

Balance Engineering
1731 Thorncroft, Troy MI 48084
Telephone (248) 643-2800
Fax (248) 643-2888
www.balanceengineering.com

Differential BALANCER

Class - STR MACHINE



The Balance Engineering Differential Balancer receives palletized axles from a conveyor that is loaded by robots. The conveyor moves the axles toward the balance machine.

The companion flange orientation camera reads the flange's drive shaft position. The CBI 2000 signals the balance spindle servomotor drive to index the slave shaft to the same angle as the companion flange. The axle and pallet moves to the center of the balance station where the elevator lowers the axle and pallet onto the balance cradle. The slave shaft spindle (oriented to the companion flange) lowers and engages the drives holes and pilot in the companion flange.

The output shaft spindle clamps into the output shaft. The slave shaft spindle will rotate and the CBI 2000 will measure the unbalance in the differential as an assembly. Using the calculated correction data of the CBI 2000 measurement and indication system, a correction is performed automatically using a drill.

The drill removes the unbalance weight from the companion flange edge. The CBI 2000 takes a second (audit) unbalance reading to ensure the part is balanced within tolerance. The part is elevated and positioned under a yellow paint part marker that marks the unbalance high point of the axle for future unbalance matching with the driveshaft.

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