Weld Force Calibration--Typical Uses

Tech Note 102

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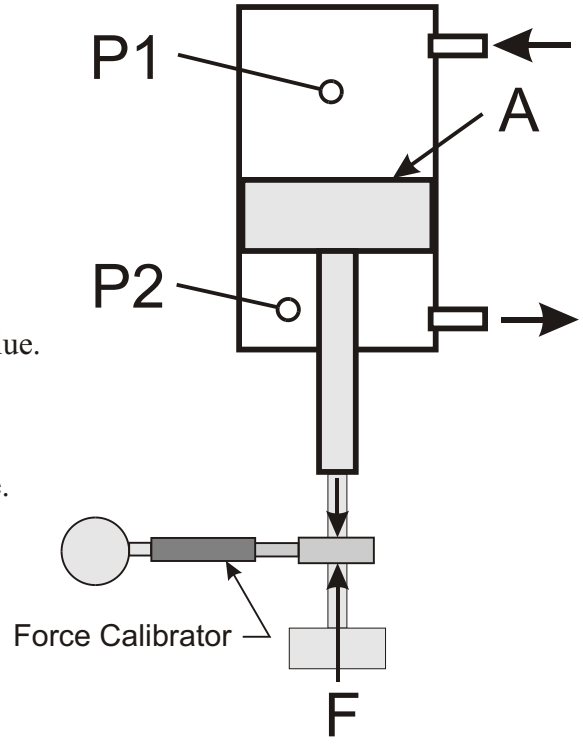
Initial Process Validation

1. Determine acceptable force range for weld.
2. Insert WP9000 Force Calibrator between electrodes.
3. Turn off current.
4. Fire solenoid manually to ensure weld tips stay in contact with Calibrator.
5. Adjust pressure regulator to obtain desired force.
6. Release pressure.
7. Set WP9000 to peak (or MAX) mode and zero the value.
8. Insert WP9000 between electrodes.
9. Initiate weld (w/ current off).
10. Check MAX force and perform this several times.
11. Readjust regulator if required to achieve desired force.

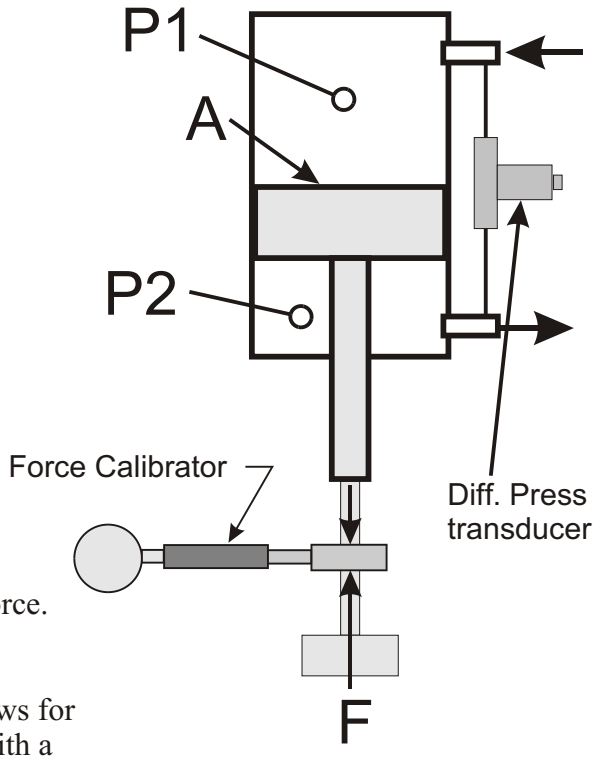


Periodic Process Revalidation

1. Check for worn cylinder seals creating air leakage.
2. Detect excessive cylinder friction due to loss of lubricant.
3. Detect faulty pressure regulator.
4. Detect low air flow due to "starved" air supply.
5. Detect operator "tweaking" of air regulator.

Calibrate Welding Load Cells or Pressure Transducers

1. Use WP9000 to calibrate machine-mounted load cell.
   -- Install load cell and instrument
   -- Insert WP9000 between electrodes
   -- Apply force to system manually
   -- Read force level from WP9000 and adjust gain or "SPAN" to achieve correct meter output.
   -- Recheck "ZERO" under no-load condition
2. Use WP9000 to calibrate machine-mounted pressure transducer.
   -- Install pressure transducer and meter
   -- Insert WP9000 between electrodes
   -- Apply force to system manually
   -- Read force level from WP9000 and adjust gain or "SPAN" to achieve correct meter output in pounds force.
   -- Recheck "ZERO" under no-load condition.



Note: This method of calibrating pressure transducers allows for the direct conversion of pressure to force. It is best used with a differential pressure transducer that measures the pressure difference from the top and bottom of the cyclinder.

$$F = (P1 - P2) \times A$$