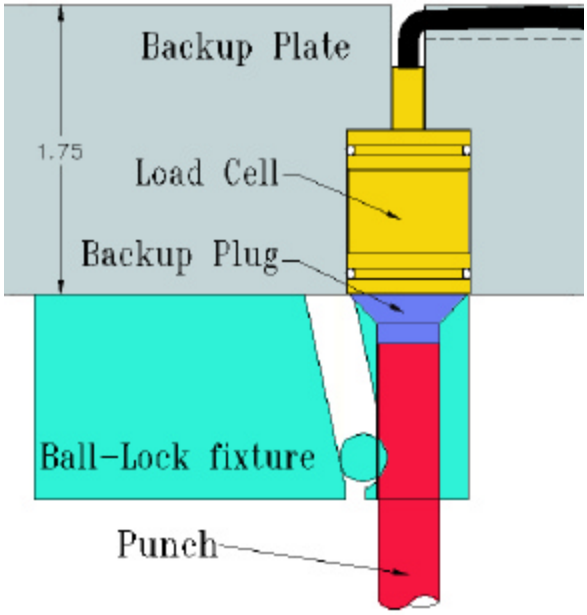
A Problem Solver Application Bulletin

Monitoring Ball-Lock Style Punch Condition/Wear

The **Signature Technologies SA-2000 "SAM"** module, and **Signature Technologies "SamView™"** software package can be used to monitor the force profiles of punches and forming tools using the special **Signature Technologies Ball-Lock Sized Load Cells** to instrument the tooling.

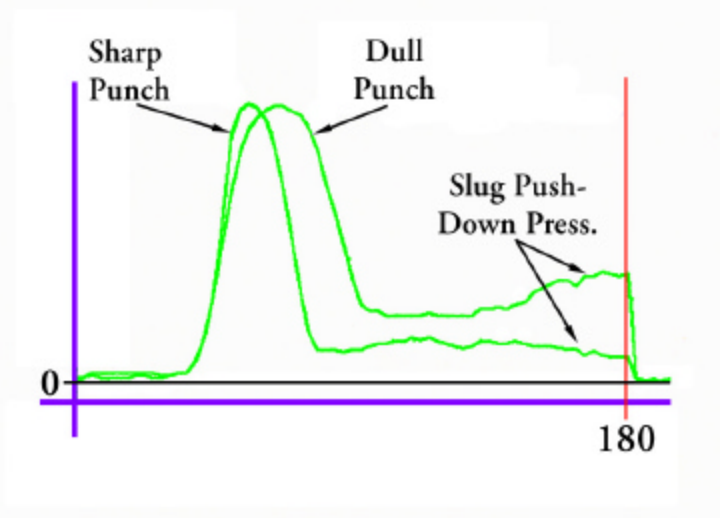
The system works by placing a load cell behind the punch, and converting the punch force to an electrical signal that the **SAM™** module uses to display the force profile of the tool. The Load cell no way alters the easy replacement feature of the Ball-Lock fixture, and requires only a counterbored recess under the punch holder for the load cell to install in, AND a hole for the load cell cable to exit through.



The Load cell is sized to match all the common sized fixtures, and calibrated to withstand the loading of the full range of punches normally used with them. NO 150% overload limit either customary with most conventional load cells - The ST load cells are capable of withstanding significant overloads as would be expected in stamping "mishaps".

The measurement can either be calibrated, or comparative depending on the application. Calibrated measurements will give the Tool Force in the user's selection of units, and with the use of the Signature Technologies "FeatureView™" software the user can generate a calibrated "Work" measurement that is sensitive to tool wear in many cases.

Multiple sensors can be used if multiple assembly operations are performed simultaneously. The **SAM™** module can handle inputs in groups of 8 up to 56 total points.



Signature Technologies can supply a wide variety of solutions to various manufacturing process problems dealing with measurement, verification of properties, tool condition, and machine health. We can also "close the loop" by performing process adjustments in response to specific variations in force, location, or shape of the work piece, as well as more simple controls which can track and reject specific parts which don't meet specific quality criteria.

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