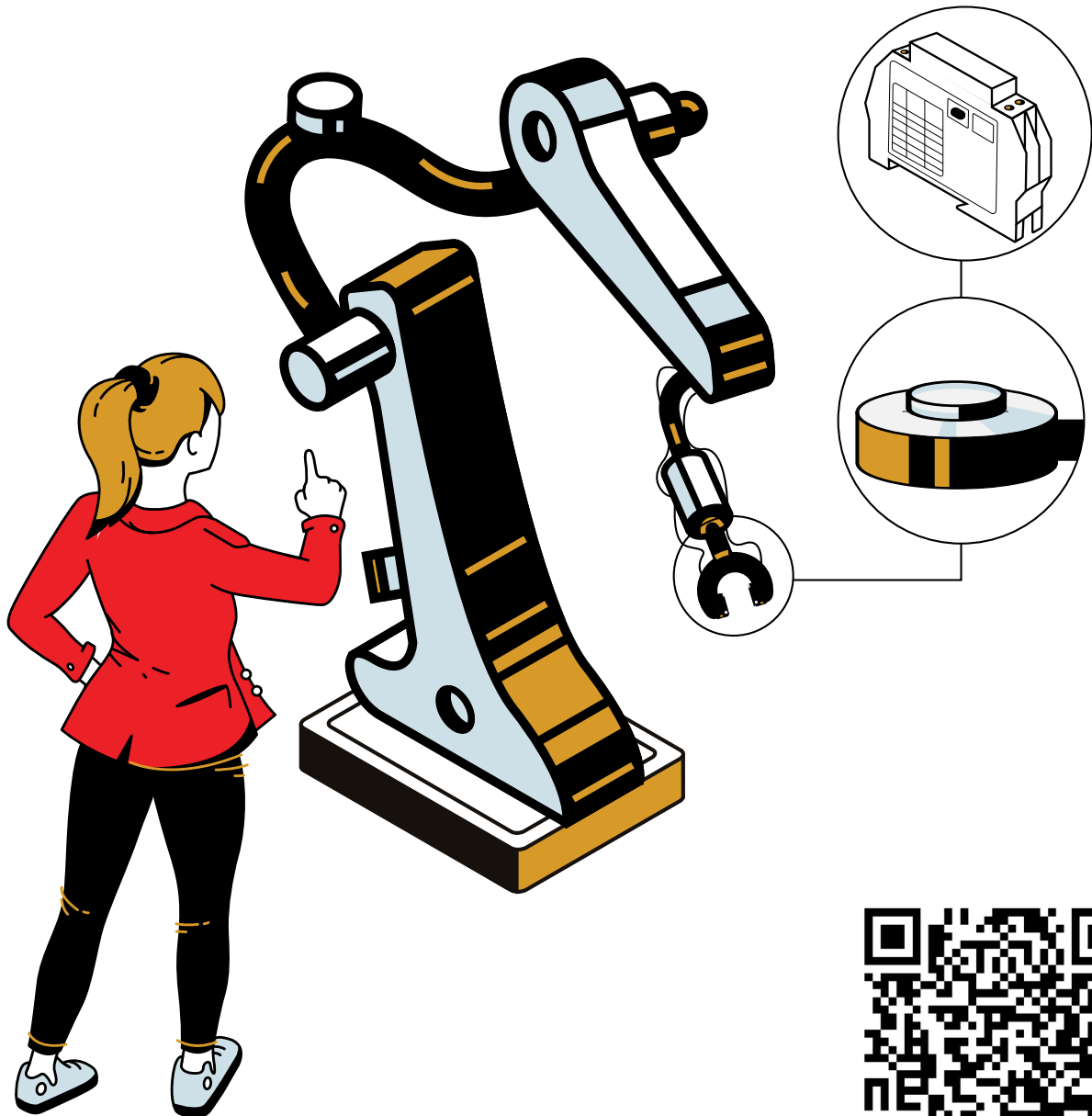


Interface

Manufacturing Solutions



Manufacturing Solutions v1.0



Manufacturing Solutions

Interface works with a large range of manufacturers and equipment makers to improve quality and productivity by supplying high-performance measurement solutions. From using miniature load cells to apply the exact force needed to press a brand identity onto a fragile consumable, to using multi-axis sensors for verifying performance data when making intricately machined parts, Interface products are commonplace in manufacturing and production.



Built for Manufacturing

Interface products are used in all types of manufacturing facilities and operations. Force measurement is integral to advanced manufacturing systems, production lines, packaging, and product testing. Interface sensors are utilized in testing and monitoring various machines, from presses to lifting equipment, to ensure accuracy and repeatability from assembly to distribution.

We understand manufacturing test and measurement applications. Our load cells, torque transducers and instrumentation are used on the line, for monitoring equipment, advancing automation, as well as modernizing machines that are used to expedite productivity and improve processes.

Interface engineers design custom OEM solutions that can easily integrate directly into products, machines and tools used in manufacturing. Our products are ideal for makers who require direct installation to monitor weight, force, or torque in a part of a final good.

Industry Leading Quality

Interface is celebrated for meeting and exceeding the quality needs for our customers. Our products are built in accordance with A2LA, International Standard ISO/IEC 17025:2005, and ANSI/NCSL Z540-1-1994. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system.

Every part we make is calibrated and tested before we ship it to our customer. It is our relentless commitment to quality and accuracy. It's our way to ensure you get the best in precision sensor technologies.



Solution Capabilities

- Sensors utilized to measure force, weight or torque
- Digital and advanced instrumentation for accurate and reliable data
- Certified sensors for safety requirements and quality
- Environmentally sealed products
- Wireless telemetry system components for all types of environmental conditions
- Vast inventory of sensors and instrumentation for fast delivery
- Custom solutions designed to your exact requirements for safety equipment

Manufacturing Solutions

Interface works with manufacturers and equipment makers to improve quality and productivity with measurement solutions.

Force measurement is integral to advanced manufacturing systems, especially when it comes to how sensor technology is used in production lines. Force sensors are utilized in both testing and monitoring of machines, tools and equipment. Sensor data is valuable for automation, maintenance, safety monitoring and to improve overall functionality of machines and equipment used through the manufacturing production line.

APPLICATIONS AND SOLUTIONS

Manufacturing equipment and processes that utilize Interface products:

Presses	Robotics and Automation	Assembly Lines
Torque Wrenches	Tension Testing Machines	Weighing Systems
Scales	Heavy Machinery	Lifts and Moving Equipment
Conveyor Belts	Bottlers and Mixers	Packaging Equipment
Sorting and Picking Devices	Fatigue Testing	Stress Testing
Assembly Machines	Factory Vehicles	Retrofitting Machinery

Metal Press Cutting Machine

An Interface customer needs to test the amount of force it takes to cut through different metal thicknesses on their metal press cutting machine. They want to ensure their metal press cutting machine is working properly, and also its maximum limits. Interface suggests installing their 3-Axis Multi-Axis Sensor Load Cell underneath the plate where pieces of metal are placed to be cut, or punched holes in. When connected to the BX8-HD44 BlueDAQ Series Data Acquisition System, the force results of different metals being cut will be displayed, graphed, and recorded on a PC. An analog output can connect to the machines PLC to monitor overload.

Cobot Safety Programming

Collaborative robots, also known as cobots, provide manufacturing operations in the industrial packaging industry a means to increase efficiency and safety. A manufacture turned to Interface for a solution that would eliminate protective cages or fences but provide safety testing of the collaborative production automation to ensure humans and robots can work alongside each other. The first step is to use four 3-Axis Force Load Cells (creating one 6-Axis Force Plate) installed between two metal plates at the base of the cobot. Interface suggests installing a 6-Axis force plate under the cobot, and also two ConvexBT Load Button Load Cells in the pincher of the cobot. If a human were to knock into the cobot, or have a limb stuck in the pincher, the cobot would sense the amount of force measured from the load cells and can stop immediately.

Press Load Monitoring

Press forming is a method to deform different materials. A force measurement solution is required to monitor the forces being applied by the press forming machine to ensure quality control and traceability during the production process. For large press forming machines, Interface recommends our 1000 High Capacity Fatigue-Rated LowProfile™ Load Cell. When the material is placed under the punch plate to form a shape, the force applied is measured by the load cell. The force results are sent to the INF-USB3 Universal Serial Bus Single Channel PC Interface Module, to view, graph and log on the customer's PC with provided software.

HIGHLIGHT: Material Tensile Testing

Customer Need / Challenge

The durability of materials used in manufacturing any product requires accurate testing. A customer wants to conduct a tensile force test on different samples and materials until failure. Materials include plastic, steel, or woven fabric. They want to measure tensile strength, yield strength, and yield stress.

Interface Solution

Interface's 1200 Standard Precision LowProfile™ Load Cell is installed into the customer's test frame. The tensile test is conducted, and force results captured by the load cell and extensometer are synced through the SI-USB4 4 Channel USB Interface Module. The results can be displayed on a computer with supplied software.

Results

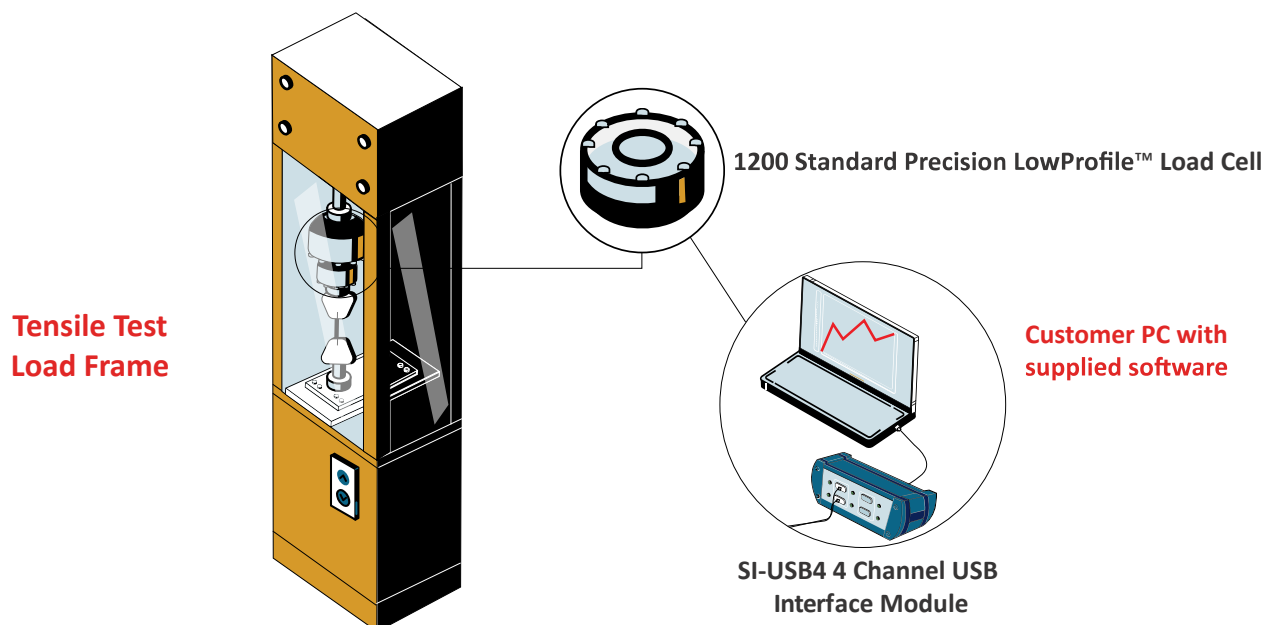
With Interface's force products, the customer was able to determine the tensile strength, yield strength, and yield stress of a variety of different materials.

Materials

- 1200 Standard Precision LowProfile™ Load Cell
- SI-USB4 4 Channel USB Interface Module with supplied software
- Extensometer (optional)
- Grips
- Tensile test load frame and computer

How it Works

The 1200 Standard Precision LowProfile™ Load Cell is installed into the customer's tensile test load frame. Different samples are tested and the force data is collected. The SI-USB4 has two, three, and four channels, so data from the extensometer can also be captured and synced together. The data collection is captured by the SI-USB4 4 Channel USB Interface Module and displayed on a computer with the supplied software.



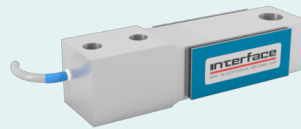
Product Examples for Manufacturing



2400 Standard Stainless Steel Low Capacity Load Cell
100 lbf to 5K lbf
0.44 kN to 22 kN



3200 Precision Stainless Steel Load Cell
2.5 lbf to 100K lbf
12.5 kN to 445 kN



SSB Sealed Beam Load Cell
50 lbf to 10K lbf
222 N to 44.48 kN



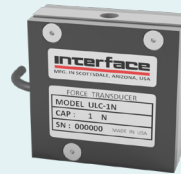
ConvexBT Load Button Load Cell
5 lbf to 1,000 lbf
22.24 N to 4.44 kN



MB Miniature Beam Load Cell
5 lbf to 250 lbf
0.02 kN to 1.25 kN



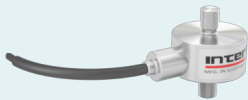
SML Low Height S-Type Load Cell
5 lbf to 2,000 lbf
22 N to 9 kN



ULC Ultra Low Capacity Load Cell
0.02 lbf to 0.45 lbf
0.1 N to 2 N



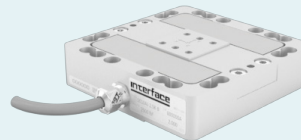
SuperSC S-Type Miniature Load Cell
25 lbf to 1000 lbf
100 N to 5 kN



WMC Miniature Sealed Stainless Steel Load Cell
5 lbf to 500 lbf
22 N to 2,200 N



SSM or SSM2 Sealed S-Type Load Cell
50 lbf to 10K lbf
200 N to 50 kN



3AXX 3-Axis Force Load Cell
Force: 4.5 lbf to 112K lbf
Force: 10 N to 500 kN



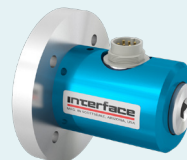
6A Series 6-Axis Standard Capacity Load Cells
Force: 11.2 to 22.5K lbf
Torque: 8.85 to 88.5K lb-in
Force: 50 to 100K N
Torque: 1 to 10K Nm



1516 2-Axial Torsion Load Cell
100 lbf, 50 lbf-in
444.9 N to 5.6 Nm



TS17 Hex Drive Style Reaction Torque Transducer
1.7 lbf-in to 177 lbf-in
0.2 Nm to 445 kN



TS15 Female Square Drive to Flange Style Reaction Torque Transducer
17.7 lbf-in to 44.3K lbf-in
2 Nm to 5K Nm



MRT2P Miniature Overload Protected Flange Style Reaction Torque Transducer
17.7 lbf-in to 17.7 lbf-in
0.2 Nm to 2 Nm



WTS-BS-1-HS Wireless Display for Single Transmitters
Simple operation
Connection to single transmitter module



WTS-BS-6 Wireless Telemetry Dongle Base Station
Compact & Portable Logging
Fast Configuration
500m Wireless Range



WTS-BS-4 Wireless Base Station with USB Interface
Up to 800 m (2,625 ft) range
Simple plug & play USB
Configure & calibrate the WTS range



BTS-AM-1 Bluetooth Telemetry System
"AA" Battery Powered Bluetooth
Strain Gage Transmitter

Interface Solutions for Robots in Manufacturing

One of the most significant trends in advancing manufacturing is the use of robotics for smart factory automation. These types of machines are designed and coded to perform a variety of mundane and repetitive tasks on a manufacturing line or within an industrial facility. This allows humans to utilize their skills to work on more complex and productive tasks.

To ensure supreme accuracy, force measurement sensors are being used to improve processes as well as for design robotic systems that monitor performance data in real time. Force measurement sensors help manufacturers optimize the activities and tasks assigned to automated functions.

Popular types of robots used in advanced manufacturing environments using Interface load cells and our force measurement solutions include:

Articulated – Often used in assembly, these robots have rotary joints to allow for a range of motion. Sensors such as mini or load button load cells are used in the testing and actual embedded in the joints to measure force and pressure.

Gantry – These robots have three linear joints that move in different axes. The X, Y, Z measurements are often tested with multi-axis load cells as this type of robot requires precision accuracy.

Cylindrical – This type of single robotic arm moves up and down, often stabilized by a cylindrical rod. They often are used in assemblies, welding, and handling of materials. These are tested with load cells for their ability to articulate the movement with exactness.

Interface products are playing a big role in manufacturing automation, especially in the design and development of robotics that use measurement in performance. They are used in manufacturing equipment, tools and systems used to make vehicles, consumer goods, pharmaceuticals, medical devices, heavy machinery, lifting devices, and weighing equipment.

Ready to get started?

Whether you are looking for a uniquely designed precision load cell, torque transducer, multi-axis sensor, or miniature load cell, Interface has the capability and capacity to deliver single products for testing and high volume components to embed into robots or manufactured goods.

It's never too early to start the conversations on how Interface can provide you a uniquely designed, reliable, accurate sensor technology that fits your exact requirements. Contact us today and let us know what you have in mind. We are ready to help.

Manufacturing Solutions

- 2-Axial Torsion
- Low Capacity Load Cells
- Column Load Cells
- Compression Only
- Hex Drive Style Transducers
- Square Drive Style Torque
- Flange Style Torque Transducers
- Sealed Load Cells
- Rod End Load Cells
- Load Button Load Cells
- Overload Protected Load Cells
- Load Washers
- Beam Type Mini Load Cells
- S-Type Load Cells
- LowProfile Load Cells
- Multi-Axis Sensors
- Instrumentation
- Accessories
- Calibration Grade Equipment

If you know what you need and are ready to talk to our application engineers, email or call today!

To learn more about manufacturing solutions provided, call 480-948-5555.

Interface is the world's trusted leader in technology, design and manufacturing of force measurement solutions. Our clients include a "who's who" of the aerospace, automotive and vehicle, medical device, energy, industrial manufacturing, test and measurement industries.

Interface engineers around the world are empowered to create high-level tools and solutions that deliver consistent, high quality performance. These products include load cells, torque transducers, multi-axis sensors, wireless telemetry, instrumentation and calibration equipment.

Interface, Inc., was founded in 1968 and is a US-based, woman-owned technology manufacturing company headquartered in Scottsdale, Arizona.