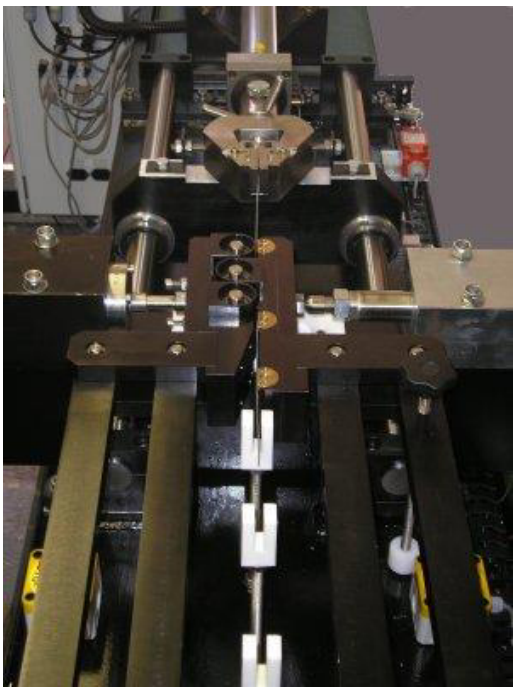
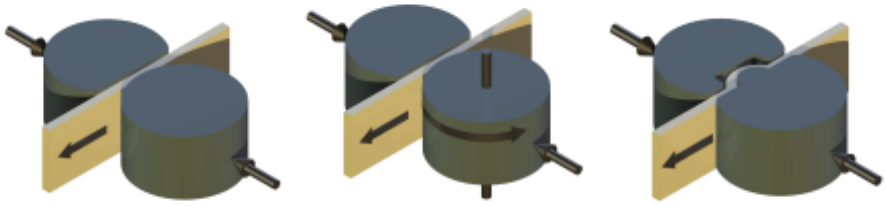
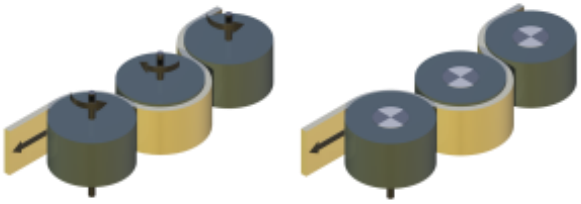
DN 33 DRAW STRIP/DRAW BEAD TESTER







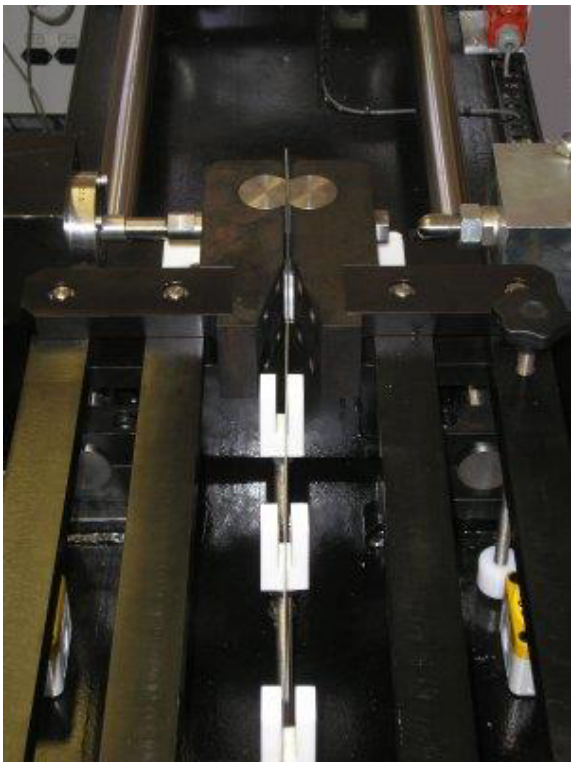
Description

The DN 33 Draw Strip/Draw Bead Tester comprises a long stroke electro mechanical ball screw actuator mounted horizontally on a steel bed plate in line with a tooling fixture. The actuator has an integral LVDT for displacement measurement and is controlled by means of a standard a.c. vector drive with encoder feedback.

The tooling fixture comprises two articulated arms, each carrying one half of a draw tool. The arms are connected to a fixed point on the machine bed-plate by means of a force transducer, in such a way as to measure the combined drawing force on the arms. The clamping force on

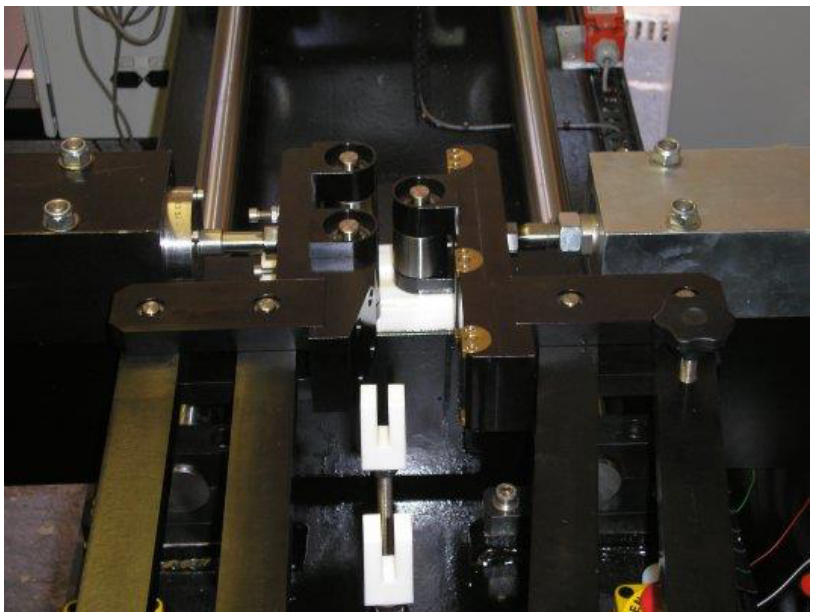
the draw tool is by means of a hydraulic cylinder with force transducer feedback and controlled by means of a proportional control valve.

The standard specimen is a long strip of material of up to 25 mm width, which is connected to the actuator by means of standard mechanical grips.



A variety of different tools may be used, providing a range of different sliding contacts including flat on flat area contact, cylinder on flat line contact and draw bead contact. In all these configurations, the friction force measured is the combined force on both surfaces. An alternative cylinder on flat line contact configuration is available in which the cylindrical tool is replaced by a roller, allowing sliding on one surface and rolling on the other.

A roller bead test assembly is also available in which the rollers may either be unclamped and allowed to roll freely, thus generating only the deformation force, or clamped, thus generating combined deformation and sliding friction force.



Control and Data Acquisition

Control and data acquisition is provided by means of Phoenix Tribology's standard COMPEND 2020 control and data acquisition system in conjunction with a 16 bit Data Translation control and data acquisition card. The maximum data acquisition rate typically used is 2 kHz.

DN 33 DRAW STRIP/DRAW BEAD TESTER

Technical Specifications

Drawing Speed:	200 to 2,000mm/min
Speed Resolution:	+/- 1% of maximum speed
Maximum Clamping Force:	1 kN to 68 kN
Clamping Force Load Cell:	100 kN
Maximum Pulling Force:	54.8 kN (18.4 kN for a lifetime of 2500 km)
Drawing Force Load Cell:	100 kN
Maximum Drawing Length:	400 mm
Maximum Strip Size:	525 mm x 70 mm
Tool Size:	35 mm x 45 mm (typical)
Tool Finish:	0.05 - 0.02 microns Ra
Contact Conditions:	Flat on Flat Cylinder on Flat (sliding) Cylinder on Flat (rolling) Draw Bead Fixed Bead/Roller Bead
VDA Standard Flat on Flat:	Length 145 mm x Width 70 mm
Additional Features:	Strip Heating - Ceramic Tool Heating - Cartridge Thermocouples x 2 Pyrometers x 2
Actuator:	Electro-thrust Ballscrew with a.c. Servo Motor
Clamping Force:	Hydraulic Ram
Power Pack:	2 l/min at 210 bar
Interface:	USB Serial Link Interface Module
Software:	COMPEND 2000

Automatically Controlled Parameters

Drawing Speed
Specimen Load

Measured Parameters

Drawing Speed

	Specimen Load Drawing Friction Force Drawing Displacement

Services

Electricity:	220/240V, single phase, 50 Hz, 7.5 kW 110/120 V, single phase, 60 Hz, 7.5 kW

Installation

Floor-standing:	900 mm wide x 600 mm deep x 1,200 mm high, 250 kg
Control cabinet:	530 mm x 800 mm x 300 mm high, 20 kg