

Servo-Hydraulic Load Frames

Standards

EN 12697-25*, EN 12697-26*, EN 12697-24*
ASTM D4123*, ASTM D3497*

* Using the suitable testing module

Applications

For determining the rheologic properties of bituminous mixtures with tension, compression and dynamic loading.

Introduction

Hydraulic machines excel at high forces and outperform pneumatics in displacement control. With more compliant specimens, there is sufficient oil flow to adequately utilise the dynamic range of a hydraulic servo-valve.

They are offered in two sizes, 25 and 100 kN capacity. All are ideally suited to a multitude of advanced materials testing applications.

- Highest quality materials and durable surface finishes ensure long service life
- Precision machined components for total accuracy
- Mechanised crosshead adjustment and clamping on all models

A virtually limitless range of testing accessories is available, including transducers, grips, compression platens, bending jigs and environmental chambers are available as standard and specialised items can be custom fabricated, inexpensively and quickly to satisfy your requirements.

General description

The frame consists essentially of:

- Hydraulic actuator with low-cost, replaceable, low-friction seals rated to 50×10^6 cycles
- Servo-valve mounted on the hydraulic actuator for improved response
- Internal displacement transducer coupled with the servo-actuator for precise displacement measurement and control and enhanced reliability
- Crosshead made from high-grade 6061 aluminium ensuring optimum stiffness with low mass
- Columns made from high-grade steel to ensure superior rigidity, and hard-chrome plated for corrosion resistance and long-life
- Hydraulic crosshead clamping featured on all models for operator convenience and safety
- Choose from a wide range of standard grips, compression platens and bending jigs, or discuss your requirements with our specialised design team
- Precision, fatigue-rated load cell
- Mechanised crosshead height adjustment, electrically driven for UTM-25 and hydraulic lift cylinders for UTM-100.



77-B3210, UTM-100 servo-hydraulic system with accessory and PC

Main features

- Rigid 2-column load frame
- Double acting servo-hydraulic actuator
- High performance servo-valve allows sinusoidal loading frequencies beyond 70 Hz
- Motorised adjustable lower crosshead with automatic hydraulic clamping

- Adjustable high/low hydraulic pressure control
- Jigs available to suit a range of applications
- Optional temperature controlled chamber



UTM-25 frame of the 77-B3202 servo-hydraulic system

Specifications

LOAD FRAME	UTM-25	UTM-100
Size	1850x580x600 mm (hxdxw)	2350x1275x990 mm (hxdxw)
Weight	130 kg	450 kg
Load capacity	25 kN static, 20 kN dynamic	100 kN
Between columns	450 mm	590 mm
Vertical space	800 mm	1000 mm
Stroke	50 mm	100 mm

HYDRAULIC POWER SUPPLY	UTM-25	UTM-100
Size	810x400x700 mm (hxdxw)	1040x810x610 mm (hxdxw)
Weight	75 kg (without oil)	120 kg (without oil)
Flow rate	5 litres/min	20 litres/min
High pressure	160 bar	210 bar
Low pressure	2 to 160 bar (adjustable)	10 to 160 bar (adjustable)
Mains power	208/230 V, 50 Hz; 2.6 kW	380-415 V, 50/60 Hz, 3 ph. or 220 V, 60 Hz; 7.5 kW
Noise level	less than 70 db at 2 m	less than 70 db at 2 m

Ordering information

■ **77-B3202**

UTM-25, Servo-hydraulic testing system 25 kN capacity, complete with testing frame, 1-axis control unit, hydraulic power pack and load cell. 230 V, 50 Hz, 1 ph.

■ **77-B3210**

UTM-100, Servo-hydraulic testing system 100 kN capacity, complete with testing frame, 1-axis control unit, hydraulic power pack and load cell. 380-220 V, 50-60 Hz, 3 ph.

Accessories

Asphalt testing modules

(for more information see page 12)

77-B3010 Complete asphalt testing kit, including Indirect Tensile and Permanent Deformation jigs for 100 and 150 mm specimens, two 10 mm PD LVDTs, two 0.1 mm IT LVDTs and temperature kit

77-B3031 Asphalt proving ring for routine check of load cell and deformation transducers

77-B3032 100 mm diameter PVC specimen

77-B3033 150 mm diameter PVC specimen

77-B3017 Indirect tensile jig loading plate verification kit

77-B3034 Torque screwdriver

77-B3282 UTM-25 Environmental chamber, -10°C to + 60°C. 230 V, 50 Hz

77-B3292 UTM-100 Environmental chamber, -10°C to + 60°C. 230 V, 50 Hz

77-B3071 PVC dummy beam

77-B3080 Beam fatigue module

77-B3016 Temperature measuring kit

Unbound materials testing modules

77-B3050 AASHTO TP46/T307 Unbound materials testing kit, complete with 150/100 mm triaxial cell, pneumatic reservoir with servo-valve, pressure transducer, two 10 mm LVDTs with mounting kit, control unit additional module

77-B3060 AASHTO TP46/T307 Unbound materials testing kit, complete with 100 mm triaxial cell, pneumatic reservoir with servo-valve, pressure transducer, two 10 mm LVDTs with mounting kit, control unit additional module



77-B3031