TRITECH, Triaxial Load Frames

Standard
BS 1377:8 /ASTM D2850, D4767 / NF P94 070, P94 074

WF 10026

Tritech triaxial load frame 10 kN cap.
230-110 V, 50-60 Hz, 1 ph.

WF 10056

Tritech triaxial load frame 50 kN cap.
230-110 V, 50-60 Hz, 1 ph.

WF 10076

Tritech triaxial load frame 100 kN cap.
230-110 V, 50-60 Hz, 1 ph.

General description

The Tritech range of triaxial load frames has been designed to be used as part of a computer-controlled triaxial system or as a stand-alone unit. The RS 232 interface enables the Tritech to be used with any computer.
The control buttons on the front panel provide fast/slow, up/down and stop commands for platen movement. A waterproof membrane seals the panel and digital display from water and dust.
A rapid approach facility is provided to reduce set-up time. The automatic datum facility returns the Tritech to previous settings when switched on and micro switches prevent platen over travel.
The load frame is of rigid chromed steel twin column construction, for rigidity at high loads. All external parts are either stove enamel painted or chrome plated for corrosion protection. The loading platen is made from stainless steel.

WF 10056 with accessories

Tritech, Triaxial load frames (continued)

Technical specifications

Models	*WF 10026* **10 kN cap.**	*WF 10056* **50 kN cap.**	*WF 10076* **100 kN cap.**
Maximum sample size	75 mm dia.	105 mm dia.	150 mm dia.
Minimum speed	0.00001 mm per minute	0.00001 mm per minute	0.00001 mm per minute
Maximum speed	9.99999 mm per minute	9.99999 mm per minute	9.99999 mm per minute
Maximum load	10 kN	50 kN	100 kN
Minimum vertical clearance	440 mm	335 mm	390 mm
Maximum vertical clearance	880 mm	1000 mm	1040 mm
Horizontal clearance	278 mm	364 mm	550 mm
Platen diameter	158 mm	158 mm	158 mm
Platen travel	70 mm	100 mm	100 mm
Dimensions (HxWxD)	1240x363x320 mm	1460x503x380 mm	1700x703x503 mm
Power (W)	300	600	680

A stand is available for the 100 kN load frame.

Main features

- ***RS 232 control interface***
- ***Digital control***
- ***Speed range 0.00001 to 9.99999 mm per minute***
- ***Rapid approach facility***
- ***Audible alarm at limit of travel***
- ***All steel construction, stainless steel platen***
- ***The quality of the design has eliminated all vibrations that can affect the specimen under test***

The Tritech machines are versatile, compact and easy to use bench mounted load frames. They can be used for a variety of test procedures from simple uniaxial to the more sophisticated effective stress triaxial tests. The Tritech 10 unit provides a high quality testing capability at low loads.

WF 10026 with accessories

WF 10076 with accessories

Triaxial cells

WF Triaxial cells for specimens up to 150 mm dia.

All cells are fitted as standard with 5 no volume change valves, built-in ram clamp, dial gauge or transducer supports and large easy to use clamp control handles. The length of the chamber is suitable for submersible load cells.
In addition WF provides a service to adapt cells to accommodate special testing requirements.

Triaxial cells

Code	WF 10201	WF 10751	WF 11001	WF 11144
Nominal size (Ø mm)	38	70	100	150
Max. specimen size (Ø mm)	35-50	38-71	50-105	100-150
Max. working pressure (kPa)	2000	3400	2000	2000
Max. height (mm)	410	500	564	650
Diameter (mm)*	350	400	440	500
Weight (kg)	7	15	21	40

* Including valves

General specifications

- Light alloy construction, stainless steel ram and O ring seal
- Built-in cell ram clamp
- Includes pillar and anvil for strain dial gauge or transducer
- Five on/off no-volume change valves fitted as standard
- Sample sizes between 35 mm and 150 mm dia.
- Standard length chamber accepts submersible load cells
- Rapid assembly design
- Cells are designed to accommodate a specimen with a length twice its diameter

Conversion sets

The sets listed are used to test smaller sample sizes in the 70 mm, 100 mm and 150 mm triaxial cells. Each set consists of a pedestal, top cap and drainage lead.

WF 11121

Conversion set for testing 38 mm samples in WF 10751 70 mm triaxial cell

WF 11122

Conversion set for testing 1.4 in. samples in WF 10751 70 mm triaxial cell

WF 11125

Conversion set for testing 50 mm samples in WF 10751 70 mm triaxial cell

WF 11136

Conversion set for testing 50 mm samples in WF 11001 100 mm triaxial cell

WF 11138

Conversion set for testing 2.8 in. samples in WF 11001 100 mm triaxial cell

WF 11139

Conversion set for testing 70 mm samples in WF 11001 100 mm triaxial cell

WF 11140

Conversion set for testing 100 mm samples in WF 11144 150 mm triaxial cell

Important note. *The Advanced Triaxial Cells with wire outlets for transducers are shown on page 42.*

Main features

- ***Banded cell*** *For extra protection when using compressed air systems*
- ***2000 kPa and 3400 kPa working pressure*** *3400 kPa on 70 mm cell*

- ***Separate cell chamber clamping*** *Prevents over stressing chamber. Ensures correct alignment.*

WF 10201 *WF 10751* *WF 11001*

Triaxial cells accessories (Part No.)

Cell type	Sample size	Pedestal	Top cap(1)	Base disc	Pair of porous disc	Membrane(2)	O ring(2)
WF 10201	1.4 in.	*WF 10230*	*WF 10310*	*WF 10370*	*WF 10550*	*WF 10490*	*WF 10520*
	35 mm	*WF 10231*	*WF 10311*	*WF 10371*	*WF 10551*	*WF 10490*	*WF 10520*
	38 mm	*WF 10240*	*WF 10320*	*WF 10380*	*WF 10560*	*WF 10500*	*WF 10530*
	50 mm	*WF 10251*	*WF 10331*	*WF 10391*	*WF 10571*	*WF 10510*	*WF 10540*
WF 10751	2.8 in.	*WF 10776*	*WF 10761*	*WF 10771*	*WF 10841*	*WF 10821*	*WF 10831*
	70 mm	*WF 10777*	*WF 10762*	*WF 10772*	*WF 10842*	*WF 10821*	*WF 10831*
WF 11001	100 mm	*WF 11033*	*WF 11011*	*WF 11021*	*WF 11111*	*WF 11091*	*WF 11100*
	105 mm	*WF 11034*	*WF 11012*	*WF 11022*	*WF 11112*	*WF 11091*	*WF 11100*
WF 11144	150 mm	*WF 11166*	*WF 11151*	*WF 11161*	*WF 11231*	*WF 11221*	*WF 11240*

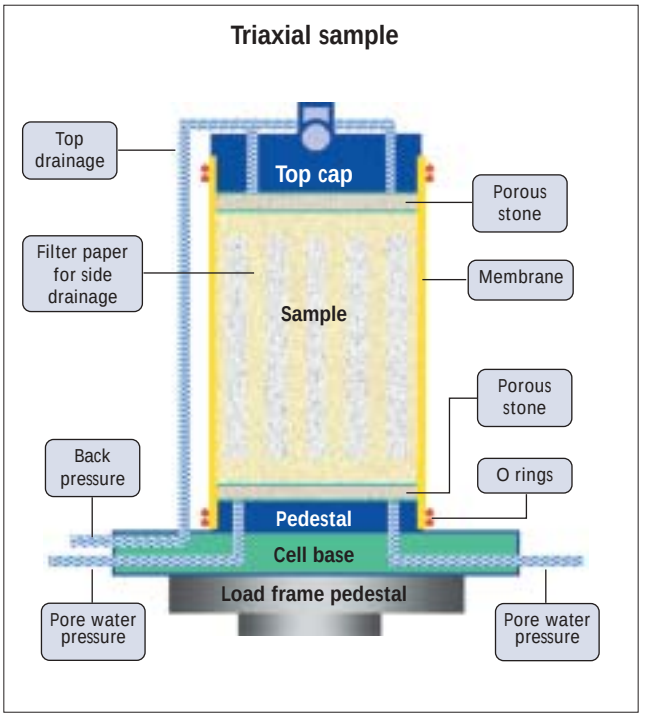
(1) Including drainage leads
(2) Pack of 10

Sample accessories (Part No.)

Cell type	Sample size	Suction device	O ring placing tool	Three part split former	Two part split mould	Filter drains	Hand samplers
WF 10201	1.4 in.	*WF 10460*	*WF 10542*	*WF 10400*	*WF 10430*	*WF 10669*	*WF 10627*
	35 mm	*WF 10460*	*WF 10542*	*WF 10401*	*WF 10431*	*WF 10669*	*WF 10622*
	38 mm	*WF 10460*	*WF 10542*	*WF 10410*	*WF 10440*	*WF 10670*	*WF 10623*
	50 mm	*WF 10480*	*WF 10544*	*WF 10421*	*WF 10451*	*WF 10671*	*WF 10624*
WF 10751	2.8 in.	*WF 10810*	*WF 10545*	*WF 10801*	*WF 10792*	*WF 10866*	*WF 10628*
	70 mm	*WF 10810*	*WF 10545*	*WF 10802*	*WF 10793*	*WF 10866*	*WF 10625*
WF 11001	100 mm	*WF 11080*	*WF 10546*	*WF 11052*	*WF 11053*	*WF 11044*	*WF 10626*
	105 mm	*WF 11081*	*WF 10547*	-	*WF 11054*	*WF 11044*	*WF 10629*
WF 11144	150 mm	*WF 11210*	*WF 10548*	*WF 11191*	-	*WF 11242*	-

Triaxial cell accessories

WF 10623



Geotechnical: Triaxial

Accessories for triaxial frames

Load rings

Models	Max load capacity kN						
	1	2	5	10	20	30	50
Code	WF 14110	WF 14130	WF 14180	WF 14200	WF 14220	WF 14260	WF 14270

The load rings can be fitted with transducer for electronic measurement as follows:

WF 17005

Linear potentiometric transducer 10 mm travel

WF 17083

Mounting bracket for potentiometric transducer

Load ring with transducer and mounting bracket

Load rings

Load measurement inside the triaxial cell

Wykeham Farrance internal load cells have been designed to work inside the triaxial cell. They have a low hysteresis and very good linearity together with a substantial over load safety feature.

WF 17104 Submersible load cell fitted with a ram for a triaxial cell

Technical specifications

Overload capacity: 200%
Rated output: 2 mV/V
Excitation voltage: 10 V DC
Non-linearity: ± 0.05% full scale
Hysteresis: 0.05% full scale
Deflection at full load: 0.05 mm
Maximum side force without effect: 50% full scale
Compensated temperature range: 0 to 50°C
Thermal zero and sensitivity shift: 0.02% full scale/°C max.
Cable length: 2 metres
Diameter: 75 mm
Height excluding ram or stub: 50 mm
Weight excluding ram or stub: 850 g

Submersible load cells fitted with rams of 15.5 mm dia. to suit triaxial cell WF 10201

Part number	Capacity kN	Capacity kgf
WF 17091	1.0	100
WF 17104	5.0	500
WF 17108	10.0	1000

Submersible load cells fitted with rams of 25.0 mm dia. to suit triaxial cells WF 10751, WF 11001, and WF 11144

Part number	Capacity kN	Capacity kgf
WF 17092	1.0	100
WF 17105	5.0	500
WF 17109	10.0	1000
WF 17117	25.0	2500

Accessories for triaxial frames

Axial strain measurement

WF 14580
Dial gauge 50x0.01 mm
58 mm dia. clockwise rotation

Weight approx.: 200 g

Axial displacement transducers, mounting brackets

WF 17006
Axial displacement potentiometric transducer, 25 mm travel

WF 17007
Axial displacement potentiometric transducer, 50 mm travel

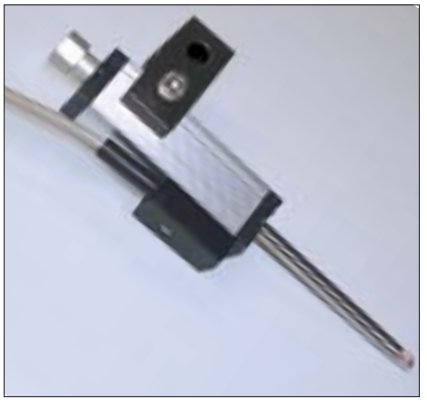
WF 17056
Mounting bracket for WF 10201 triaxial cell, 15.5 mm dia. ram

WF 17057
Mounting bracket for WF 10751, 11001, 11144 triaxial cells, 25 mm dia. ram

WF 17082
Mounting block for potentiometric transducers

Note:
Each displacement transducer must be completed with WF 17082 mounting block and WF 17056 (or WF 17057) to be connected to the triaxial cell ram.

Dial gauge fitted to the load ring



WF 17006 with WF 17082

Axial displacement transduce fitted on triaxial cell with mounting bracket WF 17057 and mounting block WF 17082

Triaxial cell fitted with submersible load cell