

ACONS Pro – Motorised Automatic Consolidation System

Related Standards

British	BS EN ISO 17892-5 : 2017 ; BS1377-5 : 1990 : (Clause 3)
American	ASTM D2435-04, ASTM D2435-11
Australian	AS1289.6.6.1 : 1998
French	XP P94-090-1

Features

- Includes 15 kN Load cell
- USB or Ethernet Interface for PC control
- Integrated 7" Touchscreen Colour Display for Standalone use without PC Control if required
- On-board data logging (16 GB standard), able to store thousands of Tests, each with thousands of data points
- Data export to PC for manipulation
- Accepts consolidation cells from 50 mm to 100 mm
- High Speed sensor conversion (24 bit, up to 5000 samples/sec)
- Up to 3 input channels (1 x digital* & 2 x analogue)
- Built-in live data table and graphs
- Built-in Auto engaging function with definable engage value
- Built-in auto protection for sensor limits
- Multiple ACONS Pro2s can be controlled from single PC

* for logging only, not closed-loop control



ACONS Pro Motorised Automatic Consolidation System

Our new ACONS Pro Motorised Automatic Consolidation System uses a stepper motor, so that a compressed air supply is not required.

It is of compact design with a small footprint meaning bulky and heavy weights are now a thing of the past.

Specifications

Sample Dia. (mm)	35	38	50	60	2.5"	70	75	100	
Maximum	15590	13226	7639	5035	4736	3897	3395	1910	Stress (kPa)
Maximum Frame Capacity	15 kN								
Resolution	0.1 N								
Accuracy	0.15% FRO								
Adjustable Disp. Rate	0-10.0000 mm/min								
Fast Approach Speed	40.000 mm/min								
Connectivity	USB or Ethernet								
Power Supply	DC Adaptor (Output 24VDC, Input 90-240V, 50/60Hz, 1ph.)								
Dimensions (W x D x H)	280 mm x 320 mm x 640 mm								
Weight	31.6 kg Nominal								

ACONS Pro (High Load) – Motorised Automatic Consolidation System

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Our new ACONS Pro (High Load) Motorised Automatic Consolidation System is a more powerful version of the ACONS Pro2 System. - but with the same facilities

Different Features for High Load System

- Larger and Stronger Frame
- Includes 50 kN Load cell

Advanced Features for both Systems

With additional components, both System Frames are capable of:

- **Constant Rate of Strain testing**
- **Soil Water Characteristic (SD-SWCC Testing)**
- **Triaxial Testing**



ACONS Pro2(High Load) Motorised Automatic Consolidation System

ACONS Pro High Load Specifications

Sample Height	20 mm								
Sample Dia. (mm)	35	38	50	60	2.5"	70	75	100	
Maximum	51975	44087	25471	17684	15788	12994	11317	6362	Stress (kPa)
Maximum Frame Capacity	50 kN								
Resolution	0.1 N								
Accuracy	0.15% FRO								
Adjustable Disp. Rate	0-10.0000 mm/min								
Connectivity	USB or Ethernet								
Power Supply	DC Adaptor (Output 24VDC, Input 90-240V, 50/60Hz, 1ph.)								
Dimensions (W x D x H)	320 mm x 400 mm x 770 mm								
Weight	68 kg Nominal (frame)								

ACONS Pro System Configurations

Consolidation Cells

ACONS Pro Frames (Please select one)

VJT0650M-P	ACONS Pro Motorised Automatic Consolidation Frame (15 kN)
VJT0650M-PHL	ACONS Pro (High Capacity) Motorised Automatic Consolidation Frame (50 kN)

Displacement Transducers (Please select one)

VJT0271	LSCT Displacement Transducer, 25 mm X 0.001 mm with 2 metre cable & Plug
VJT0110-MIT	Digital Dial Gauge, 25 mm X 0.001 mm with 2 metre cable & Plug

LSCT Transducer Bracket is included as standard (but if replacement is required)

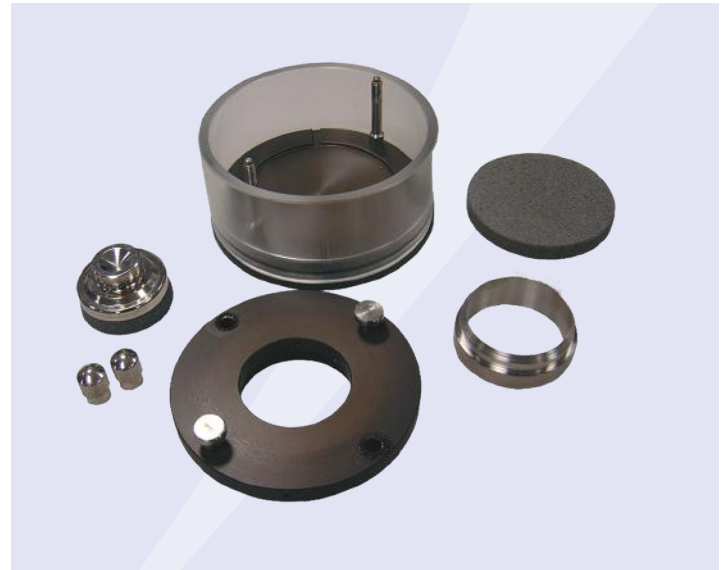
VJT0284AC	Transducer Bracket for LSCT transducer (15 kN)
VJT0284AC-HL	Transducer Bracket for LSCT transducer (50 kN)

Clisp Studio Software Required

VJT-csODO	Clisp Studio Oedometer Software
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Consolidation Cells Required

Consolidation Cells listed below



Our fixed ring cells are made from corrosion-resistant material and are capable of performing both fixed and floating ring tests. The soil sample is placed on the lower porous disc with the cutter ring surrounding it.

The cell ring clamps down the cutter ring & the pressure pad (with the upper porous disc attached to it) is placed over the sample. The whole of this assembly is enclosed within a Perspex cylinder. The floating ring cell may require different lower porous discs, please contact VJ Tech for further information on floating ring accessories.

Cell Accessories

Sample Diameter*	38 mm	50 mm	60 mm	2.5"	70 mm	75 mm	100 mm
Complete Cell	VJT0655-38	VJT0655	VJT0655-60	VJT0660	VJT0651	VJT0665	VJT0665-100
Perforated Loading Cap**	MET1621-P	MET1606-P	MET1620-P	MET1610-P	MET1604-P	MET1608-P	MET1614-P
Upper Porous Disc	VJT0655-38UP	VJT0656	VJT0655-60UP	VJT0661	VJT0652	VJT0666	VJT0667-100U
Lower Porous Disc	VJT0655-38LP	VJT0657	VJT0655-60LP	VJT0662	VJT0653	VJT0667	VJT0667-100
Cutting Ring	VJT0655-38CR	VJT0658	VJT0655-60CR	VJT0663	VJT0654	VJT0668	VJT0665-100-C
Calibration Disc	VJT0655-38CD	VJT0659	VJT0655-60CD	VJT0664	VJT0649	VJT0669	VJT0669-100
Sintered Bronze Porous Disc	VJT0655-38SB	VJT0657-SB	VJT0655-60SB	VJT0662-SB	VJT0662-SB	VJT0662-SB	VJT0653-SB

* 35 mm accessories available on request

** Porous Stone not included

VJT-csODO: Clisp Studio Oedometer Software

Features common to both Systems

- User defined loading & unloading increments
- Automatic loading (subject to software)
- On screen measurement of T50 & T90 values
- Live Tabular display of logged and calculated data
- Live Graphical display of logged and calculated data
- User defined views/graphs/tables
- Standard predefined presentation reports
- Export of data to Excel and test export & import
- Customised reports (at additional cost)

csODO Live Data & Results

The screenshot displays the 'Live Data' window with the following parameters:

- Specimens: 1 | Vert Stress: Loading 01: 20 (l) | Lock
- Measured Parameters:**
 - Settlement Input L_{IP} : 11.263 (mm)
 - Vertical Stress σ'_i : 20.0 (kPa)
 - Load Input F_{IP} : -7 (N)
 - Total Test Time T_t : 48:48:32 (h.m.s)
- Test Status:**
 - Time t : 04:15:17 (h.m.s)
 - Total Change in Height ΔH_i : -7.085 (mm)
 - Stage Change in Height ΔH_i : -7.085 (mm)
 - Void Ratio e_f : 2.163
 - Consolidation C_v : 100.6 (m²/year)
 - Compressibility m_v : 0.003 (MPa⁻¹)

The 'Test Results' window shows a graph of Vertical Strain (%) vs Time (log min) with a consolidation point at 1.4 min (0.969 %). Below the graph is a table of results:

Moisture	Summary	Results	Notes
Compression Index	C_c	0.401	
Swelling Index	C_s	0.239	
Compr. Stiff Index	S_c	2.494	
Swell Stiff Index	S_s	4.186	
Yield Stress	σ'_p	0	(kPa)



ACONS Pro "7" Touchscreen Colour Display Control Screen

csODO Summary Reports

The report includes the following sections:

- Sample Details:** Depth, Description, Type, Sample Preparation, Initial Height (H), Initial Diameter (D), Initial Weight (W₀), Bulk Density (ρ_b), Particle Density (ρ_s).
- Initial Conditions:** Settlement Input (L_{IP}), Initial Moisture (e_i%), Initial Dry Density (ρ_d), Initial Void Ratio (e_i), Initial Degree of Saturation (S_i), Initial Swelling (S_S).
- Final Conditions:** Final Moisture (e_f%), Dry Density (ρ_d), Voids Ratio (e_f), Degree of Saturation (S_r), Height Settlement (ΔL_s), Compression Index (C_c), Compr. Stiff Index (S_c), Swelling Index (C_s), Swell Stiff Index (S_s), Yield Stress (σ'_p).
- Notes:** A section for additional observations.
- Graphs:** Oedometer Vertical Stress Report showing plots for Void Ratio, Settlement Ratio, Consolidation, and Compressibility against Vertical Stress.
- Footer:** VJ Tech logo, Site Reference, Jobfile, Client, Operator, Test Method, Test Name, Site Reference, Client, Operator, Test Date, Sample, Borehole, and Approval status.