

NAGMAN



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TEMPERATURE CALIBRATORS

PRODUCT SELECTION CHART

TEMPERATURE CALIBRATORS														Ranges (°C)																				
Models		-50 -25 0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200												Resolution	Accuracy	Stability	Well Dia	Immersion Depth	Page															
BASIC MODELS	350H 350H2	10°C above Ambient to 350°C												Best Buy							0.1°C	±1°C	±0.3°C ±0.4°C	25 mm	110 mm 190 mm	13								
	650H 650H2	20°C above Ambient to 650°C												Customers' Choice							0.1°C	±1.5°C	±0.5°C ±0.6°C	25 mm	110 mm 190 mm	13								
	ETC 600 ETC 600-2	50 to 600°C												Economy Model							1°C	±0.1% F.S./ ±0.15% F.S. + 1 digit	±0.5°C	25 mm	110 mm 190 mm	13								
HIGH ACCURACY TYPE DRY BLOCKS	MTC 40	-40°C from Ambient to 123°C												Sub-Zero Temperature							WITH MEASUREMENT CAPABILITY	0.1°C	±0.3°C	±0.05°C	19 mm	100 mm	9							
	MTC 350	50°C to 350°C												Low Temperature								0.1°C	±0.4°C	±0.05°C	25 mm	110 mm	9							
	MTC 650	50°C to 650°C												Medium Temperature								0.1°C	±0.6°C	±0.05°C	25 mm	110 mm	9							
	MTC 1200	300°C to 1200°C												High Temperature								1°C	±2°C	±0.5°C	26 mm	105 mm	9							
	Metcal 40	-10°C to 120°C												Axial Uniformity (40 mm): ±0.2°C. Radial Uniformity : ±0.02°C								Sub-Zero Temperature							0.01°C	±0.2°C	±0.02°C	30 mm	150 mm	11
	Metcal 650	50°C to 650°C												Axial Uniformity (40 mm): ±0.4°C. Radial Uniformity : ±0.04°C								Medium Temperature							0.01°C	±0.4°C	±0.04°C	30 mm	150 mm	11
	Metcal 1200	150°C to 1200°C												High Temperature								0.1°C	±2°C	±0.3°C	30 mm	105 mm	11							
SPECIALITY PRODUCTS	1200 HN	High Temperature Dry Block Calibrator												300°C to 1200°C							1°C	Better than ±3°C	Better than ±0.5°C	45 mm	150 mm	14								
	1500 HN	Very High Temperature Dry Block Calibrator												500°C to 1500°C							1°C	±0.5% of Span	±2°C	55 mm	250 mm	14								
	MOB 250	Micro Oil Bath - Stirred Type - Medium : Oil												20°C above Ambient to 250°C							0.1°C	±0.6°C	±0.2°C	95 mm	170 mm	15								
	FB-06S/L	Fluidized Bath - Stirred Type - Medium : Powder												20°C above Ambient to 600°C							1°C	±1.5°C	±0.5°C	155 mm 225 mm	250 mm 400mm	15								
BLACK BODY CALIBRATION SOURCE																					Resolution	Accuracy	Stability	Emissivity	Aperture	Page								
	BBSL	10°C above Ambient to 350°C												Low Temperature							INFRA RED PYROMETER CALIBRATION	±0.1°C	Within 0.5% of F.S. (Min. 1°C)	±0.5°C	0.98	25 mm	17							
	BBSM	20°C above Ambient to 600°C												Medium Temperature								1°C	Within 0.5% of F.S. (Min. 2°C)	±0.5°C	0.98	25 mm	17							
	BBSH	500°C to 1200°C												High Temperature								1°C	Within 0.5% of F.S. (Min. 3°C)	±1.5°C	0.98	25 mm	17							
	BBSD	50°C to 300°C & 250°C to 600°C												Dual Chamber Type								0.1°C 1°C	Within 0.5% of F.S. (Min. 1°C / 2°C)	±0.5°C	0.98	25 mm	17							
BBS-VH	500°C to 1300°C												Very High Temperature							1°C		Minimum 3°C	±0.5°C	0.99	25 mm	17								

PRESSURE CALIBRATORS

Series / Models



PRODUCT SELECTION CHART

	Type	Operation	Pr. Increment	Ranges	Page
PUMPS	Pneumatic	Scissor Action	Fine Adjustment Vernier	Very Low, Low & Medium	18
	Hydraulic	Scissor action	Fine Adjustment Vernier	Medium & High Pressure	19
	Type	Accuracy	Resolution	Switch Test	Page
TABLE TOP	Pneumatic	±0.05% F.S. / ±0.025% F.S.	Min. 5 digits	Max. 9V DC	25
	Hydraulic	±0.05% F.S. / ±0.025% F.S.	Min. 5 digits	Max. 9V DC	25
	Dual (Pneumatic & Hydraulic)	±0.05% F.S. / ±0.025% F.S.	Min. 5 digits	Max. 9V DC	25
HANDHELD MODELS	Pneumatic	±0.1% F.S.	Min. 4½ digits	Max. 9V DC	21
	Hydraulic	±0.1% F.S.	Min. 4½ digits	Max. 5V DC	21
	Pneumatic	±0.05% F.S. / ±0.025% F.S.	Min. 5 digits	Max. 5V DC	21
	Hydraulic	±0.05% F.S. / ±0.025% F.S.	Min. 5 digits	Max. 5V DC	21
	Pneumatic / Hydraulic	±0.05% F.S. / ±0.025% F.S.	Min. 5 digits	Max. 5V DC	23
	Type	Accuracy	Piston	Software	Page
DEAD WEIGHT TESTERS	Pneumatic	±0.05% of Reading	Single	—	31
	Pneumatic	±0.05% / ±0.025% of Rdg.	Single	Optional	31
	Hydraulic	±0.1% / ±0.05% of Rdg.	Single / Dual	Optional	29
	Hydraulic	±0.025% / ±0.015% of Rdg.	Single / Dual	For H6900 only	29
	Hydraulic	±0.025% / ±0.015% of Rdg.	Single / Dual	For H6900N only	27
	Hydraulic	±0.1% / ±0.05% / ±0.025% of Rdg.	Single / Dual	Optional	29
	Hydraulic	±0.1% / ±0.05% / ±0.025% of Rdg.	Single / Dual	Optional	29
	Type	Pressure Generation	Medium	Test Port	Page
COMPARATORS	Pneumatic	Thro' Screw RAM Pump	Air	¼" BSP(M) & 3/8" BSP (M)	33
	Hydraulic	Thro' Priming Pump	Oil / Water	½" BSP (F) Swivel	33
	Hydraulic	Thro' Screw Pump	Oil / Water	½" BSP (F) Swivel	33

Also see : Test Benches (34 & 35), Mobile Systems (36), Signal Calibrators (37), Software (38 & 39), Level Calibration System (40), Flow Meter Calibration System (41), Water Meter Calibration System (42), Gas Meter Calibration System (43), Calibration Services (44 - 46), Flow Lab (47)

UNIVERSAL DRY BLOCK TEMPERATURE CALIBRATORS



Salient Features

Precise, High Accuracy, Resolution & Stability with **Measurement Capability** for mV / V / mA, Resistance, Tc (ISA Types : J, K, R, S, N), RTD (Pt100 : IEC Standard) Signals

Ideal for Steel, Glass, Metallurgical Industries, Cement Plants, Refineries, Fertilizer Plants, Thermal Power Stations etc.

Conforms to "EL" Standards - Horizontal / Vertical Uniformity

High Temperature Model (1200°C) is available as a Unique Portable Type

- Advanced Micro-controller based Technology
- Heavy Duty Portable / Bench-top Model
- High Accuracy, Resolution & Stability
- 128 x 64 Graphic Display
- Touch Membrane Keypad
- Switch Test Contact Measurement
- Interchangeable Thermowell Inserts
- RS-232 Interface & Calibration Software

Specifications

Models	MTC 40	MTC 350
Range	-40°C from Ambient to 123°C	50°C to 350°C
Resolution	0.1°C	0.1°C
Accuracy	±0.3°C	±0.4°C
Stability	±0.05°C	±0.05°C
Well Dia	19 mm	25 mm
Immersion Depth	100 mm	110 mm
Thermowell (Interchangeable)	Single hole to suit 1/4" Probe	Single hole to suit 1/4" & 1/2" Probes
RS-232 Computer Interface	Built-in	Built-in
Calibration Management Software	MTCCal Software	MTCCal Software

Models	MTC 650	MTC 1200
Range	50°C to 650°C	300°C to 1200°C
Resolution	0.1°C	1°C
Accuracy	±0.6°C	±2°C
Stability	±0.05°C	±0.5°C
Well Dia	25 mm	26 mm
Immersion Depth	110 mm	105 mm
Thermowell	Single hole to suit 1/4" & 1/2" Probes	8 mm (Single hole)
RS-232 Computer Interface	Built-in	Built-in
Calibration Management Software	MTCCal Software	MTCCal Software

METROLOGICAL LAB STANDARD

Salient Features

High Accuracy, Resolution & Stability with **Measurement Capability** for mV / V / mA, Resistance, Tc (ISA Types : J, K, R, S, N), RTD (Pt100,Pt200,Pt500,Pt1000 : IEC Standard) Signals

Ideal for use as High Accuracy Metrological Lab Standards & quick / fast Site Calibration of RTDs / TCs / Bi-Metal Thermometers, Temperature Switches / Indicators etc. in Industrial & Marine Applications

Conforms to "EL" Standards - Horizontal / Vertical Uniformity



- Advanced Micro-controller based Technology
- Heavy Duty Portable / Bench-top Model
- High Accuracy, Resolution & Stability
- 128 x 64 Graphic Display
- Touch Membrane Keypad
- Switch Test Contact Measurement
- Multihole Thermowell Inserts
- RS-232 Interface & Calibration Software
- Count down timer (Shows when unit is stable)
- Stability Indicator

Specifications

Models	Metcal 40 NEW	Metcal 650
Range	-10°C to 120°C	50°C to 650°C
Resolution	0.01°C	0.01°C
Accuracy	±0.2°C	±0.4°C
Stability	±0.02°C	±0.04°C
Axial Uniformity (40 mm)	±0.2°C	±0.4°C
Radial Uniformity	±0.02°C	±0.04°C
Well Dia	30 mm	30 mm
Immersion Depth	150 mm	150 mm
Thermowell (Interchangeable)	Multihole to suit 2 x ¼" & 1 x ½" Probes. Other Sizes available as optional	Multihole to suit 2 x ¼" & 1 x ½" Probes. Other Sizes available as optional
RS-232 Computer Interface	Built-in	Built-in
Calibration Management Software	METCAL Software	METCAL Software

Model	Metcal 1200 NEW
Range	150°C to 1200°C
Resolution	0.1°C
Accuracy	±2°C
Stability	±0.3°C
Well Dia	30 mm
Immersion Depth	105 mm
Thermowell (Interchangeable)	Multihole to suit 2 x 8.5 mm & 1 x 6.5 mm Probes. Other Sizes available as optional
RS-232 Computer Interface	Built-in
Calibration Management Software	METCAL Software

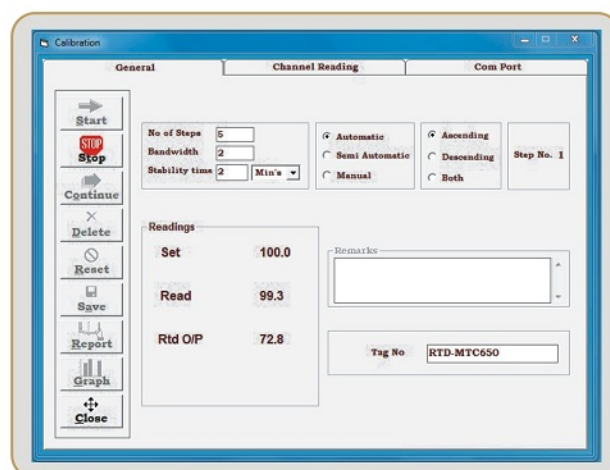
METCAL Software

The Nagman's **METCAL** Software is a powerful tool for calibration of devices in the process industries under the present day quality guidelines such as ISO 9001. The **METCAL** automates the process of calibration making them quicker & easier.

This Software has been developed with our vast experience & knowledge to perform Automatic, Semi-Automatic & Manual Calibration & Certificate Generation. This is a user friendly, simpler & easier software.

In addition, the customer can include their company logo while generating the calibration certificates.

The data storage format of **METCAL** helps the User to ascertain the performance of the instrument over a period of time and enables him/her to fix-up optimum recalibration intervals for instruments.



LOW & MEDIUM TEMPERATURE DRY BLOCK CALIBRATORS

HEAVY DUTY



350H & 650H



SUITABLE FOR
MARINE
APPLICATIONS

Meets
SOLAS IX Maintenance Regulations
&
ISM (International Safety Management)
requirements

BUDGET
SOLUTION



ETC 600

Salient Features

Ideal for quick / fast Site Calibration of RTDs / TCs / Bi-Metal Thermometers, Temperature Switches / Indicators etc. in Industrial & Marine Applications

Meets the requirements of "Safety of Life at Sea" (SOLAS IX Maintenance Regulations) & "International Safety Management" (ISM)

- Heavy Duty Portable / Bench-top Model
- Rugged Field use - for Calibration at Site
- Auto-tune PID Control
- Switch Test capability
- Fast and Reliable
- Improved Accuracy, Resolution & Stability
- Interchangeable Thermowell Inserts - Single / Multihole
- Meets "CE" Norms
- RS-232 Interface & Calibration Software (Optional)

Specifications

Models	350H *	650H *
Range	10°C above Ambient to 350°C	20°C above Ambient to 650°C
Resolution	0.1°C	0.1°C
Accuracy	±1°C	±1.5°C
Stability	±0.3°C	±0.5°C
Well Dia	25 mm	25 mm
Immersion Depth	110 mm	110 mm
Thermowell (Interchangeable)	Single hole to suit ¼" & ½" Probes	Single hole to suit ¼" & ½" Probes
RS-232 Computer Interface	Optional	Optional
Calibration Management Software	'Caltemp' Software as Optional	'Caltemp' Software as Optional

* Consult us for Models 350-H2 & 650-H2 with 190 mm Immersion Depth.

Models	ETC 600	ETC 600-2
Range	50°C to 600°C	50°C to 600°C
Resolution	1°C	1°C
Accuracy	±0.1% F.S. + 1 digit	±0.15% F.S. + 1 digit
Stability	±0.5°C	±0.5°C
Well Dia	25 mm	25 mm
Immersion Depth	110 mm	190 mm
Thermowell (Interchangeable)	Single hole to suit ¼" & ½" Probes	Single hole to suit ¼" & ½" Probes

SPECIALITY PRODUCTS

SEMI
PORTABLE



High Temperature Dry Block Calibrator

1200 HN

Ideal for Steel, Glass, Metallurgical Industries, Cement Plants, Refineries, Fertilizer Plants, Thermal Power Stations etc.

Stable High Temperature Source (1200°C) for Calibration of Multiple (upto 6) Sensors at High Temperature

Range	300°C to 1200°C
Resolution	1°C
Accuracy	Better than $\pm 3^\circ\text{C}$
Stability	Better than $\pm 0.5^\circ\text{C}$
Well Dia	45 mm
Immersion Depth	150 mm
Multihole Thermowell	4 x 7 mm + 3 x 9 mm or to suit
RS-232 Computer Interface	Optional
Calibration Management Software	'Caltemp' Software as Optional

Very High Temperature Dry Block Calibrator

1500 HN

Ideal for Steel, Glass, Ceramic, Semi-Conductor Industries etc. for Calibration of noble Metal Thermocouples Type R / S / B etc.

Fast, Stable & Accurate.

Semi-Portable with Castor Wheels

Range	500°C to 1500°C
Resolution	1°C
Accuracy	$\pm 0.5\%$ of Span *
Stability	$\pm 2^\circ\text{C}$
Ceramic Dry Block Dia	55 mm
Probe Immersion Depth	250 mm
Interchangeable Thermowells	7 mm, 11 mm, 15 mm
RS-232 Computer Interface	Provided
Calibration Management Software	'Caltemp' Software as Optional

*In Comparison Mode, much higher Accuracies can be achieved.

HEAVY
DUTY



SPECIALITY PRODUCTS

Micro Oil Bath

MOB 250

Ideal for Liquid-in-Glass Thermometers & Bi-Metal Thermometers / RTD Calibration

Site Calibration of Multiple / Multi-type / ODD Shaped Sensors (Lid / Probe holder can be designed to suit)

Range	20°C above Ambient to 250°C
Resolution	0.1°C
Accuracy	±0.6°C
Stability	±0.2°C
Working Chamber Dia	95 mm
Working Chamber Depth	170 mm
Chamber Capacity	1500 mm
Medium	Special Silicon Oil
Housing / Mounting	Bench-top



STIRRED BATH (POWDER)

Fluidized Bath

FB-06S / L

Ideal for Steel, Glass, Ceramic Semi-Conductor Industries etc. for Calibration of noble Metal Thermocouples Type R / S / B etc.

Suitable for Multiple / Multi-type odd shaped Sensors (Large Chamber Dia)

Fast, Stable & Accurate.

Semi-Portable with Castor Wheels



Range	20°C above Ambient to 600°C
Resolution	1°C
Accuracy	±1.5°C
Stability	±0.5°C
Working Chamber Dia	155 mm / 225 mm
Immersion Depth	250 mm / 400 mm
Medium	Aluminium Oxide Powder
Air Pressure*	1 to 1.5 Kg/cm ²
Air Flow	25 LPM / 45 LPM

* Dry Compressed Air required (@ 7 Bar)

BLACK BODY CALIBRATION SOURCE



Ideal for
**INFRARED PYROMETER
CALIBRATION**



Salient Features

Circuit Design, Layout & Components as per "CE" Norms

Ideal for Non-Contact Pyrometer Calibration

- Portable, Table-top / Bench-top Models
- Low, Medium, High, Very High & Dual Chamber Models
- High Emissivity, Wide Aperture
- Excellent Accuracy & Stability
- Auto-tune PID Controller
- Low Power Consumption
- Optional RS-232 Interface & Calibration Management Software

Specifications

Models	BBSL	LOW TEMPERATURE	BBSM	MEDIUM TEMPERATURE
Range	10°C above Ambient to 350°C		20°C above Ambient to 600°C	
Emissivity	0.98		0.98	
Accuracy	Within 0.5% F.S. (Min. 1°C)		Within 0.5% F.S. (Min. 2°C)	
Resolution	0.1°C		1°C	
Stability	±0.5°C		±0.5°C	
Aperture Size (Dia)	25 mm		25 mm	

Model	BBSH	HIGH TEMPERATURE	BBSD	DUAL CHAMBER MODEL
Ranges	500°C to 1200°C		50°C to 300°C (Chamber 1); 250°C to 600°C (Chamber 2)	
Emissivity	0.98		0.98	
Accuracy	Within 0.5% F.S. (Min. 3°C)		Within 0.5% F.S. (Min. 1°C) (Chamber 1); Within 0.5% F.S. (Min. 2°C) (Chamber 2),	
Resolution	1°C		0.1°C; 1°C	
Stability	±1.5°C		±0.5°C	
Aperture Size (Dia)	25 mm		25 mm	

HAND PUMPS - PNEUMATIC

- Compact, Light Weight, Hand Operated
- Combined Vacuum & Pressure Pump with Pressure / Vacuum Changeover option
- Generation (Range) of Pressure upto 2 / 10 / 25 / 35 / 40 / 60 bar & Vacuum upto 0.9 bar
- Fine Adjustment Vernier to realize upto 0.05 / 1 mbar Resolution / Sensitivity
- Very Low Leakage rate
- Flexible Nylon Hose (1 Meter) with Swivel Adaptor to connect devices under test
- Test Connection Port : 1/4" (F) BSP
- Gauge / Indicator Connection Port : 3/8" (F) BSP

**OEM
PRODUCT**



PHP 2



**PHP 10
PHP 25
PHP 35
PHP 40**



PHP 60

Salient Features

Models	PHP 2	PHP 10 / 25 / 35 / 40 / 60
Type	Very Low Pressure	Low & Medium Pressure
Ranges	-0.90 Bar Vacuum to 2 bar	-0.90 Bar Vacuum to 10 upto 60 bar
Sensitivity / resolution	0.05 mBar / 0.5 mmWC	1 mBar
Leakage Rate	Very low	Very low
Operation	Scissor action	Scissor action
Adjustment	Fine Adjustment Vernier	Fine Adjustment Vernier
Advantage	Suitable for Very Fine Increments (better than 0.5 mmWC) of Pressure with inbuilt Volume Chamber & Precise Fine Adjustment	—

HAND PUMPS - HYDRAULIC

- Compact, Light Weight, Hand Operated
- Ranges : Upto 200 / 350 / 700 / 1000 bar
- Fine Adjustment Vernier with Open / Close Release Valve for small incremental Pressure readings
- Test Connection Port : 1/4" (F) BSP
- Gauge / Indicator Connection Port : 1/4" (F) BSP (for HHP 200/350)
3/8" (F) BSP (for HHP 700/1000)
- Medium : Oil. (Water Model available as optional).
- Oil Reservoir Material : Transparent Acrylic
- Reservoir Capacity : 100 cc

**OEM
PRODUCT**



**HHP 200
HHP 350**



**HHP 700
HHP 1000**

Salient Features

Models	HHP 200 / 350	HHP 700 / 1000
Type	Medium Pressure	High Pressure
Ranges	0 to 200 / 350 bar	0 to 700 / 1000 bar
Medium	Oil (Water - optional)	Oil (Water - optional)
Cubic Capacity	100 cc	100 cc
Operation	Scissor action	Scissor action
Adjustment	Fine Adjustment Vernier	Fine Adjustment Vernier

PRESSURE CALIBRATORS - HANDHELD

Accuracy $\pm 0.1\%$ F.S.



Suitable for
MARINE
APPLICATIONS



DNV
APPROVED

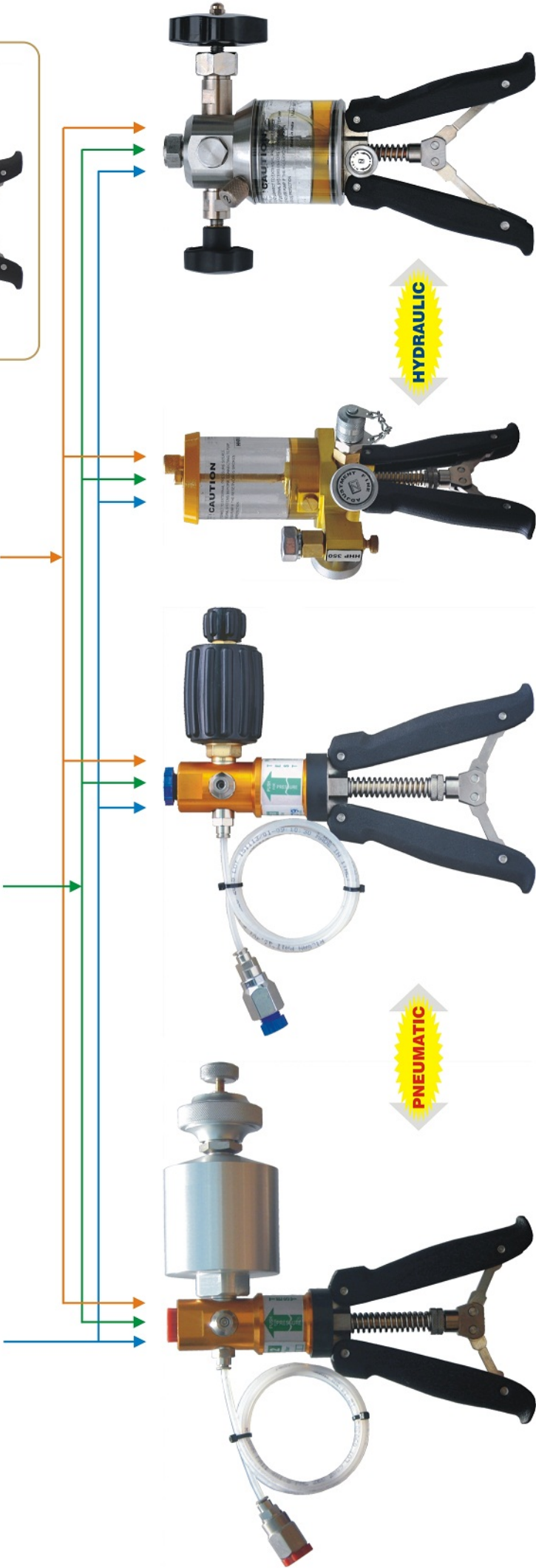
Accuracy $\pm 0.05\%$ F.S.



Accuracy $\pm 0.025\%$ F.S.



TYPICAL
PRESSURE
CALIBRATOR
MODEL



PNEUMATIC

HYDRAULIC

Range : 2 bar

Ranges upto 60 bar

Ranges upto 350 bar

Ranges upto 1000 bar

Salient Features

Ideal Lab / Site Tool for checking & Calibration of Pressure / Differential Pressure Gauges / Switches / Transmitters / Receiver Gauges / Loops etc.

- Several Models / Variants
 - Portable / Compact / Handheld
 - Low, Medium & High Accuracy Models
 - Lab, Field & Site Calibration Standards
- Pneumatic / Hydraulic Versions
- Touch Membrane Keypad
- Selectable Multiple Engineering Pressure Units
- Switch Test Capability & Zero Offset facility
- Audio & Visual Alarms for Over Pressure
- Pressure Transducer - all Media compatible with SS116
- Matching External Pneumatic / Hydraulic Hand Pump & Accessories
- Automatic Temperature Compensation (0 to 50°C) (Higher Accuracy Models)
- With / Without RS-232 Computer Interface & 'Calpress' Calibration Software

Specifications

Models	MPCE-P	PNEUMATIC	MPC-P / MPC-P+	PNEUMATIC
Ranges	-0.85 to 2 & upto 60 bar		-0.85 to 2 & upto 60 bar	
Accuracy *	±0.1% F.S.		±0.05% F.S. / ±0.025% F.S.	
Resolution	Minimum 4½ digits		Minimum 5 digits	
Display	2 Line 16 Characters LCD		2 Line 16 Characters LCD	
Engineering Units	MPa, atm, bar, kg/cm ² , mH ₂ O, psi, inHg, ftH ₂ O, kPa, inH ₂ O, mmHg, cmH ₂ O		bar, psi, kg/cm ² , kPa, MPa, mmHg, atm, mH ₂ O, inHg, ftH ₂ O, cmH ₂ O, Pa, mbar	
mA Input	0 to 25 mA DC		50 mA (Active Loop); Load Resistance : 800 Ω 25 mA (Passive Loop) (MPC-P+)	
Volt Input			0 to 30V DC	
Switch Test	Provided		Provided	
Over Pressure Alarm	105% FS (Audio / Visual)		120% FS (Audio / Visual)	
Pressure Generation	Thro' Matching Pneumatic Hand Pump with Fine Adjustment Vernier & Release Valve		Thro' Matching Pneumatic Hand Pump with Fine Adjustment Vernier & Release Valve	

Models	MPCE-H	HYDRAULIC	MPC-H / MPC-H+	HYDRAULIC
Ranges	0 to 70 upto 700 bar		0 to 70 upto 700 bar	
Accuracy *	±0.1% F.S.		±0.05% F.S. / ±0.025% F.S.	
Resolution	Minimum 4½ digits		Minimum 5 digits	
Display	2 Line 16 Characters LCD		2 Line 16 Characters LCD	
Engineering Units	MPa, atm, bar, kg/cm ² , mH ₂ O, psi, inHg, ftH ₂ O, kPa		bar, psi, kg/cm ² , kPa, MPa, atm, mH ₂ O, inHg, ftH ₂ O	
mA Input	0 to 25 mA DC		50 mA (Active Loop); Load Resistance : 800 Ω 25 mA (Passive Loop) (MPC-H+)	
Volt Input			0 to 30V DC	
Switch Test	Provided		Provided	
Over Pressure Alarm	105% FS (Audio / Visual)		120% FS (Audio / Visual)	
Pressure Generation	Thro' matching Hydraulic Hand Pump with Fine Adjustment Vernier & Release Valve		Thro' matching Hydraulic Hand Pump with Fine Adjustment Vernier & Release Valve	

PRESSURE CALIBRATORS - HANDHELD TYPE

TYPICAL MODELS

MPCE-P / MPCE-H SERIES (Accuracy : $\pm 0.1\%$ F.S.)

PNEUMATIC



Range 2 bar

PNEUMATIC



Ranges upto 60 bar

HYDRAULIC



Ranges 200/350 bar

HYDRAULIC



Ranges 700/1000 bar

MPC-P/MPC-H SERIES (Accuracy : $\pm 0.05\%$ F.S.)

PNEUMATIC



Range 2 bar

PNEUMATIC



Ranges upto 60 bar

HYDRAULIC



Ranges 200/350 bar

HYDRAULIC



Ranges 700/1000 bar

MPC-P+ / MPC-H+ SERIES (Accuracy : $\pm 0.025\%$ F.S.)

PNEUMATIC



Range 2 bar

PNEUMATIC



Ranges upto 60 bar

HYDRAULIC



Ranges 200/350 bar

HYDRAULIC



Ranges 700/1000 bar

PRESSURE CALIBRATORS - BENCH-TOP / BENCH MOUNTED

Salient Features

- Several Variants
 - Bench-top / Panel Mounted Models
 - Medium & Higher Accuracy Models
 - Lab, Field & Site Calibration Standards
- Pneumatic / Hydraulic Versions
- Large Graphic Display
- Touch Membrane Keypad
- 15 Selectable Multiple Engineering Pressure Units
- Switch Test Capability & Zero Offset facility
- Audio & Visual Alarms for Over Pressure
- Pressure Transducer - all Media compatible with SS116
- Matching External Pneumatic / Hydraulic Hand Pump & Accessories
- Automatic Temperature Compensation (0 to 50°C) (Higher Accuracy Models)
- With / Without RS-232 Computer Interface & 'Calpress' Calibration Software



Specifications

Models	MPC-B/MPC-B+	BENCH-TOP
Ranges	Pneumatic : -0.85 to 2 upto 40 bar (or) Hydraulic : 0 to 70 upto 700 bar	
Accuracy	$\pm 0.05\%$ F.S. / $\pm 0.025\%$ F.S.	
Resolution	Minimum 5 digits	
Display	Large Graphic Display	
Switch Test & Loop Supply	Provided	
	DC Current Measurement (upto 50 mA), DC Voltage Measurement (Max. 30V)	
	Matching Hand Pumps with Vernier	
	15 selectable Engineering Pressure Units	

Models	MPC-B/MPC-B+	PANEL MOUNTED
Ranges	Pneumatic : -0.85 to 2 upto 40 bar (or) Hydraulic : 0 to 70 upto 700 bar	
Accuracy	$\pm 0.05\%$ F.S. / $\pm 0.025\%$ F.S.	
Resolution	Minimum 5 digits	
Display	Large Graphic Display	
Switch Test & Loop Supply	Provided	
	DC Current Measurement (upto 50 mA), DC Voltage Measurement (Max. 30V)	
	Matching Hand Pumps with Vernier	
	15 selectable Engineering Pressure Units	

PRESSURE CALIBRATORS - PORTABLE

PPC-P
SERIES



Suitable for
MARINE
APPLICATIONS



DNV
APPROVED

Ideal for
FIELD / SITE
CALIBRATION

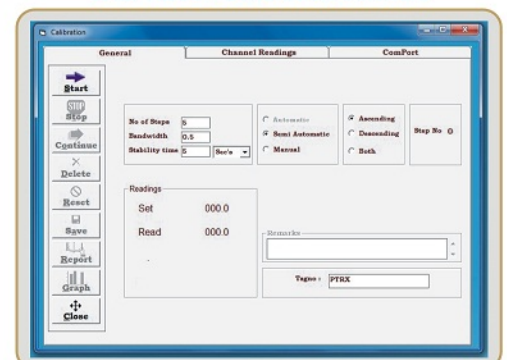
PPC-D
SERIES



PPC-H
SERIES



CALPRESS - Calibration Software



Calpress is a dedicated & cost effective Calibration Software which enables & supports Automatic / Semi-Automatic Calibration thro' our Pressure Calibrators - Handheld / Portable / Bench-top / Bench Mounted Models.

Salient Features

Ideal Lab / Site Tool for checking & Calibration of Low Ranges of Pressure / Differential Pressure Gauges / Transmitters / Indicators, Receiver Gauges, Control Valves, Pressure Transducers / Loops etc.- in Industrial & Marine Applications

- Several Models/Variants
 - Portable/Compact
 - Basic/Advanced Models with High/Very High Accuracies
 - Lab, Field & Site Calibration Standards
- Sturdy Trendy Casing
- Pneumatic / Hydraulic / Dual Types
- Large Graphic Display
- Touch Membrane Keypad
- 15 Selectable Multiple Engineering Pressure Units
- Switch Test Capability & Zero Offset facility
- Audio & Visual Alarms for Over Pressure
- Pressure Transducer - all Media compatible with SS116
- Built-in - Pneumatic / Hydraulic Hand Pump & Accessories
- Automatic Temperature Compensation (0 to 50°C) (in High Accuracy Models)
- With / Without RS-232 Computer Interface & 'Calpress' Calibration Software

Specifications

Models	PPC-P / PPC-P+ PNEUMATIC
Range	-0.85 to 2 / 7 / 10 / 20 bar
Accuracy *	±0.05% F.S. / ±0.025% F.S.
Resolution	Minimum 5 digits
Engineering Units	MPa, atm, bar, kg/cm ² , mH ₂ O, psi, inHg, ftH ₂ O, kPa, inH ₂ O, mmHg, mbar, cmH ₂ O, mmH ₂ O, Pa
Switch Test & Loop Supply	Provided
DC Current Measurement (upto 50 mA), DC Voltage Measurement (Max. 30V), Pressure generation thro' Priming Pump & Fine Adjustment Vernier, Inbuilt Battery & Charger	

Models	PPC-H / PPC-H+ HYDRAULIC
Range	0 to 200 / 400 bar
Accuracy *	±0.05% F.S. / ±0.025% F.S.
Resolution	Minimum 5 digits
Engineering Units	MPa, atm, bar, kg/cm ² , mH ₂ O, psi, inHg, ftH ₂ O, kPa, inH ₂ O, mmHg, mbar, cmH ₂ O, mmH ₂ O, Pa
Switch Test & Loop Supply	Provided
DC Current Measurement (upto 50 mA), DC Voltage Measurement (Max. 30V), Pressure generation thro' Priming Pump & Fine Adjustment Vernier, Inbuilt Battery & Charger	

Models	PPC-D / PPC-D+ DUAL
Ranges	Pneumatic : -0.85 bar Vacuum to 20 bar & Hydraulic : 0 to 400 bar
Accuracy *	±0.05% F.S. / ±0.025% F.S.
Resolution	Provided
Engineering Units	MPa, atm, bar, kg/cm ² , mH ₂ O, psi, inHg, ftH ₂ O, kPa, inH ₂ O, mmHg, mbar, cmH ₂ O, mmH ₂ O, Pa
Switch Test & Loop Supply	Provided
DC Current Measurement (upto 50 mA), DC Voltage Measurement (Max. 30V), Pressure generation thro' Priming Pump & Fine Adjustment Vernier, Inbuilt Battery & Charger	

Also available **Model : PPC-PL** with Ranges : ±2000 / ±5000 / ±8000 / 10000 mmWC; Accuracy : ±0.075% F.S.

DEAD WEIGHT TESTERS - HYDRAULIC

Bellows / Hanging Type

HIGH
PRECISION



H6600N /
H6900N Series

DWTCal Software

DWTCal

Temperature & Gravity Corrections
Master Inst Details

Tag: RG700 Model No: DDFD

SI No: DDFD Range: 0 To 700 psi

Description: PRESSURE GAUGE Accuracy: 0.1 % of FS

Manufacturer: WAKA Cer No: RGTRGRTR

Ref Tag: DWT700 Cal date: 30-05-2008

Report / Graph

SINo	Applied Pressure bar	Equivalent Pressure psi	Indicating Pressure psi	Deviation psi	Remarks
1	0	0.0000	0.0000	0.0000	PASS
2	1	14.5018	14.5000	-0.0018	PASS
3	2	29.0035	29.0000	-0.0035	PASS
4	3	43.5053	43.5051	-0.0002	PASS
5	4	58.0070	58.0000	26.9930	FAIL
6	5	72.5087	72.5086	-0.0001	PASS
7	6	87.0104	87.2972	0.2868	PASS
8	7	101.5122	101.0424	-0.4698	PASS
9	8	116.0139	116.0120	-0.0019	PASS

New Edit Save Cancel

Del Find Close

(Gauge shown above is not part of the standard equipment)

Salient Features

- Single / Dual Piston Models
- Hydraulic Models (Medium : Oil)
Available in various Accuracy levels ($\pm 0.025\%$ / $\pm 0.015\%$ / $\pm 0.01\%$ Reading)
- Traceable to International Standards
- $\pm 0.01\%$ Reading Accuracy also available - Consult us
- Pressure generation direct via Ram Screw & Priming Pump
- Adjustable Foot Knob & Spirit Level
- Calibrated to Standard Gravity (Customer specific Gravity adjustment can also be done optionally)
- Piston Calibrated thro' "Cross Floating Techniques"
- Weight Sets available in Bar, Kg/Cm², PSI Engineering Units (Other Units can be supplied on request)

Specifications

Series	H6900N
Ranges	1000 / 1100 / 1200 bar (Also available in psi or Kg/Cm ²)
Piston	Single / Dual
Accuracy	$\pm 0.015\%$ / $\pm 0.01\%$ of Reading (upto 1000 bar)
PCU	Tungsten Carbide Piston & Matching Hardened Cylinder
Weight Set	Stainless Steel (Non-Magnetic)
Test Port Connection	1/2" BSP (F) Swivel
Certification	Calibration Certificate from NABL Accredited Laboratory (as per ISO/IEC 17025:2005)
Traceability	International Standards
Software	DWTCal Software

Series	H6600N
Ranges	1000 / 1200 bar (Also available in psi or Kg/Cm ²)
Piston	Single / Dual
Accuracy	$\pm 0.025\%$ of Reading
PCU	Tungsten Carbide Piston & Matching Hardened Cylinder
Weight Set	Stainless Steel (Non-Magnetic)
Test Port Connection	1/2" BSP (F) Swivel
Certification	Calibration Certificate from NABL Accredited Laboratory (as per ISO/IEC 17025:2005)
Traceability	International Standards
Software	DWTCal Software (as Optional)

DEAD WEIGHT TESTERS - HYDRAULIC

H6900, H6600, H6000, H3000 Series

H6900
H6600



H6000
H3000



DWTCal Software

DWTCal Software Interface showing Temperature & Gravity Corrections, Master Unit Details, Readings, and Report / Graph tabs.

Master Unit Details:

- Tag: [Blank]
- Model No: QPDF
- SI No: QPDF
- Range: 0 To 700 psi
- Description: PRESSURE GAUGE
- Accuracy: 0.1 % of FS
- Manufacturer: WAKA
- Cer No: PG1717G171
- Ref Tag: DW1700
- Cal date: 00-00-2008

Readings Table:

SlNo	Applied Pressure bar	Equivalent Pressure psi	Indicating Pressure psi	Deviation psi	Remarks
1	0	0.0000	0.0000	0.0000	PASS
2	1	14.5010	14.5000	-0.0010	PASS
3	2	29.0035	29.0000	-0.0035	PASS
4	3	43.5053	43.5051	-0.0002	PASS
5	4	58.0070	55.0000	26.9930	FAIL
6	5	72.5087	72.5086	-0.0001	PASS
7	6	87.0104	87.2972	0.2868	PASS
8	7	101.5122	101.0424	-0.4698	PASS
9	8	116.0139	116.0120	-0.0019	PASS

Buttons: New, Edit, Save, Cancel, Del, Find, Close

MOTORIZED



PORTABLE



(Gauges shown above are not part of the standard equipment)

Salient Features

- Single / Dual Piston
- Hydraulic - Oil operated
- Available in various Accuracy levels ($\pm 0.1\%$ / $\pm 0.05\%$ / $\pm 0.025\%$ / $\pm 0.015\%$ Reading) - Traceable to International Standards
- $\pm 0.01\%$ Reading Accuracy also available - Consult us
- Pressure generation direct via Ram Screw & Priming Pump
- Adjustable Foot Knob & Spirit Level
- Calibrated to Standard Gravity (Customer specific Gravity adjustment can also be done optionally)
- Piston Calibrated thro' "Cross Floating Techniques"
- Weight Sets available in bar, Kg/Cm², psi Engineering Units (Other Units can be supplied on request)
- Portable & Motorized Models

Specifications

Series	H6900	H6600
Ranges	Upto 700 bar	Upto 700 bar
Piston	Single / Dual	Single / Dual
Accuracy	$\pm 0.015\%$ of Reading	$\pm 0.025\%$ of Reading
PCU	Tungsten Carbide Piston & Matching Hardened Cylinder	Tungsten Carbide Piston & Matching Hardened Cylinder
Weight Set	Stainless Steel (Non-Magnetic)	Stainless Steel (Non-Magnetic)
Test Port Connection	½" BSP (F) Swivel	½" BSP (F) Swivel
Certification	Calibration Certificate from NABL Accredited Laboratory (as per ISO/IEC 17025:2005)	Calibration Certificate from NABL Accredited Laboratory (as per ISO/IEC 17025:2005)
Traceability	International Standards	International Standards
Software	DWTCaI Software (standard)	DWTCaI Software (optional)

Series	H6000 / H3000	PORTABLE / MOTORIZED
Ranges	Upto 700 bar	Upto 700 bar
Piston	Single / Dual	Single / Dual
Accuracy	$\pm 0.05\%$ / $\pm 0.1\%$ of Reading	$\pm 0.1\%$ / $\pm 0.05\%$ / $\pm 0.025\%$ / $\pm 0.015\%$ of Reading
PCU	Hardened Special Steel Piston & Matching Cylinder	Hardened Special Steel Piston & Matching Cylinder
Weight Set	Phosphated Mild Steel / Stainless Steel	Stainless Steel (Non-Magnetic)
Test Port Connection	½" BSP (F) Swivel	½" BSP (F) Swivel
Certification	Traceable Calibration Certificate	Traceable Calibration Certificate
Traceability	International Standards	International Standards
Remarks		Inbuilt Hand Pump & Fine Adjustment Ram Screw

DEAD WEIGHT TESTERS - PNEUMATIC

P8000
P8600



COMPOUND DEAD WEIGHT TESTERS (VACUUM & PRESSURE)

P8000-SP-1/2

VACUUM



PRESSURE



(Gauges shown above are not part of the standard equipment)

Salient Features

- Single Piston
- Pneumatic - Air operated
- Available in various Accuracy levels ($\pm 0.05\%$ / $\pm 0.025\%$ Reading)
 - Traceable to International Standards
- Pressure generation direct via Ram Screw & Priming Pump
- Adjustable Foot Knob & Spirit Level
- Calibrated to Standard Gravity (Customer specific "Gravity Adjustment" can also be done optionally)
- Weight Sets available in Bar, Kg/Cm², PSI Engineering Units.
 - (Other Units can be supplied on request)
- Portable & Motorized Models

Specifications

Series	P8000	P8600
Ranges	0.5 to 35 bar *	0.5 to 35 bar *
Piston	Single	Single
Accuracy	$\pm 0.05\%$ of Reading	$\pm 0.025\%$ of Reading
PCU	Hardened Special Steel Piston & Matching Cylinder	Hardened Special Steel Piston & Matching Cylinder
Weight Set	Stainless Steel (Non-Magnetic)	Stainless Steel (Non-Magnetic)
Test Port Connection	½" BSP (F) Swivel	½" BSP (F) Swivel
Certification	Traceable Calibration Certificate	Calibration Certificate from NABL Accredited as per ISO/IEC 17025:2005 Laboratory
Traceability	International Standards	International Standards
Remarks	Inbuilt Hand Pump & Fine Adjustment Ram Screw. Air / Gas operated.	Inbuilt Hand Pump & Fine Adjustment Ram Screw. Air / Gas operated.

* External Pressure Source (for Ranges above 5 bar) to be provided by customer.

Compound Dead Weight Testers

Salient Features

- Single Piston
- Media : Air/Gas operated
- Fine Adjustment - Ram Screw Design
- Adjustable Foot Knob & Spirit Level

Specifications

Series	P8000-SP-1/2	VACUUM & PRESSURE
Ranges	-0.85 to 1 bar	
Accuracy	0.05% of reading (indicated pressure)	
PCU	Hardened Special Steel Piston & Matching Cylinder	
Weight Set	Stainless Steel (Non-Magnetic) & Aluminium Weights for Low/Initial Ranges	
Test Port Connection	½" BSP (F) Swivel	
Certification	Traceable Calibration Certificate	
Traceability	International Standards	

COMPARISON TESTERS

GCL/GCH
SERIES

HYDRAULIC



PORTABLE

HYDRAULIC



PCP
SERIES

PNEUMATIC



(Gauge / Indicator shown above are not part of the standard equipment)

Salient Features

- Compact & Easy to carry for Lab & Field use
- Budget Solutions
- Hydraulic & Pneumatic Types
- Hydraulic Ranges : 0 to 250 bar upto 1400 bar - Medium : Oil
- Pneumatic Range : -0.95 to 4 bar - Medium : Air
- Very Low Maintenance Cost
- Priming Pump with Fine Adjustment Vernier for Incremental Pressure generation
- Adjustable Foot

Specifications

Series	GCL 250 SP	GCH 700 SP	HYDRAULIC
Ranges	250 bar	700 bar	
Type	Screw Pump	Screw Pump	
Pressure generation	Priming Pump for initial pressures & Screw RAM Pump for high pressures	Priming Pump for initial pressures & Screw RAM Pump for high pressures	
Test Port Connection	1/2" BSP (F) Swivel	1/2" BSP (F) Swivel	
Medium	Oil / Water #	Oil / Water #	

Series	GCH 1000 SP	GCH 1400 SP	HYDRAULIC
Ranges	1000 bar	1400 bar	
Type	Screw Pump	Screw Pump	
Pressure generation	Priming Pump for initial pressures & Screw RAM Pump for high pressures	Priming Pump for initial pressures & Screw RAM Pump for high pressures	
Test Port Connection	1/2" BSP (F) Swivel	1/2" BSP (F) Swivel	
Medium	Oil / Water #	Oil	

Water Operated Models are available as optional.

Series	PCP Series	NEW	PNEUMATIC
Ranges	-0.95 to 4 bar		
Type	Screw Pump		
Pressure generation	Screw RAM Pump		
Test Port Connection	1/4" BSP(M) Adaptor & 3/8" BSP (M) Adaptors – 1 No. each.		
Medium	Air		

CALIBRATION TEST BENCHES / WORKSTATIONS



CORNER TYPE TEST BENCH SYSTEM

Nagman Calibration Test Benches are the ultimate **"Calibration Solutions"** for a variety of Industrial Applications. Each Test Bench is **"custom-made"** to meet specific user requirements.

Offering versatility and precision these Test Benches – complimenting scores of **Field/Site Calibrators / Test & Measuring Instruments** – are ideal for **Centralized / Site Laboratories and Workshops** in need of "Multi-Product / Multi Parameter" Testing / Calibration that meets the highest industry standards, both during periodic / routine maintenance & (or) annual shutdown periods.

A wide range / variety of Calibration / Test modules – which generally are higher in Accuracy/Stability than the Field/Site Calibrators, Test & Measuring Instruments – can be fitted in these Test Benches creating a **highly flexible system** that is both functional and easy to use. Further expansion can be achieved by adding more modules in **"Blank" Spaces** provided!

Designed Ergonomically, these Test Benches **can be used by one or more operators** & are amenable/adaptable for **"Multi-tasking"**.

In the "Climate Controlled" Central Laboratories, the variety of Modules fitted in the Test Benches perform optimally, offering Reliable Calibration/Test Results – **accepted per ISO Standards**.

Fitted Calibration modules cover **"Electrical / Electronic Signal, Temperature & Pressure"** (Measurement & Generation) Applications. General Utilities like **AC/DC Power Supplies, & Test / Measuring Calibration Instruments** like Multifunction Calibrators, DMMs, Oscilloscopes, Function / Frequency Generators, Decade Resistance Box modules – can also be fitted into the Bench. Functions are clearly defined on each module and a competent Technician will quickly master the operation of the system without Training or constant reference to Manuals.

A Complete Calibration Laboratory in **"One Integrated"** Test Bench or in **"Multiple Dedicated"** Test Benches.

Each Test Bench is **built for the end user's designated applications**, with Standard Modules capable of **Calibrating Multiple Instruments and Devices**, and add-ons or modifications to cover user-specific requirements.

Nagman Test Bench Modules – optionally – can be integrated by a common **Calibration Software** which enables perform **Manual / Semi-Automatic & Automatic Calibration Routines & Store data** for future reference.

Nagman is offering Test Benches / Calibration Work Stations (dedicated) to suit **Temperature or Pressure or Electrical / Electronic (Signal) Parameters** and/or a **"Multi-function / Multi-parameter"** Test Bench to cover all these parameters.

These Test Benches enable Test & Calibrate :

- **Pressure** : Gauges, Calibrators, Transducers, Transmitters, Indicators, Switches, Valves I/P, P/I Converters, etc. -- Both Hydraulic & Pneumatic.
- **Temperature** : Sensors, Indicators, Thermocouple and RTDs – Probes / Assemblies / Transmitters, Calibrators, Thermistors, Recorders, Switches etc.
- **Electrical/Electronic** : V/A Meters, Multimeters, AC/DC Signal Sources, Clamp Meters, Tachometers, Ohmmeters, Decade Boxes, Power Supplies, Multifunction Calibrators, Frequency / Signal Generators, Oscilloscopes, Frequency Meters, Timer Counters etc.

About **1500+ Nagman Calibration Test Benches** are being used in **Centralized Test Facilities / Laboratories (including ISO/IEC 17025 Accredited Calibration Labs)** across a Wide Spectrum of Industries around the world, providing these customers with high performance systems for the necessary applications.

Popular Industries which use our Test Bench Systems include Chemical, Petrochemical, Refineries, Power Generation (Thermal, Gas, Nuclear & Hydro), Oil & Gas, Manufacturing, Automation, Automotive, Aeronautics, Cement, Steel, Glass & other Process Industries.

Primary Standard Pressure Calibration Test Bench

SYSTEM 1100



- for Primary Level / Precision Calibration & Testing of Pneumatic, Electro-Pneumatic & Hydraulic Pressure Instruments.

Secondary Standard Pressure Calibration Test Bench

SYSTEM 3600



- for Calibration & Testing of Pneumatic, Hydraulic & Electronic Process Instruments

Electrical & Electronics Calibration Test Bench

SYSTEM 5000



- for Calibration & Testing of Electrical & Electronic Instruments and equipments including Power & Energy Meters, mV, mA, Ohm & Frequency Meters / Devices, Thermocouple & RTD Indicators / Devices and Electronic Circuits Testing

Temperature Calibration Test Bench

SYSTEM 7000



for bulk / simultaneous checking & calibration of Temperature Devices including Thermocouples, RTDs, Temperature Switches, Temperature Transmitters / Controllers / Recorders etc.

Multifunction / Multiparameter Calibration Test Bench Workstation

SYSTEM 9000



Combination of Temperature, Pressure & Electrical/Electronic parameters in a single Test Bench System. Automatic Testing & Calibration of above mentioned Measuring Instruments can be performed by integrating our powerful "Calman+" Software

Student / Teacher Trainer Systems

E3000 / E6000 / E9000 SERIES



New Generation Engineering & Industrial / Vocational Training Systems

MOBILE CALIBRATION SYSTEM / MARINE TRAINER KIT

MOBICAL SERIES

Temperature, Pressure and/or Electrical & Electronics Modules
mounted in rack, placed inside Mobile (sturdy) Trolley case, ready for use as Table-top Unit.
(Entire Rack can also be removed & placed on top of Laboratory Table)

TYPICAL CONFIGURATION OF MODULES

Electrical & Electronics

Mobical EE

- Function Generator
- 5½ digit Digital Multimeter
- Multifunction Calibrator
- Decade Resistance Box
- Variable AC & DC (Programmable) Power Supplies
- Power Supply for Unit Under Test

Pressure & Temperature

Mobical PT

- Pressure Indicator (*Various Ranges offered*)
Pneumatic : -0.85 to 2 upto 60 Bar & Hydraulic 0 to 70 upto 700 bar
- Built-in / External Hand Pumps
- Dual Dry Block Temperature Calibrators
- Range : -35 from Ambient to 123°C & 50 to 350°C
- Multifunction Calibration & Power Supply for Unit Under Test

Ideal for
SITE / FIELD
CALIBRATION



Multi-parameter Trainer

(Electrical, Electronics, Pressure & Temperature)

Mobical PTES

- Dry Block Temperature Calibrators (2 Nos.)
Range : -35 from Ambient to 123°C & 50 to 350°C
- Function Generator
- 5½ digit Digital Multimeter
- Process (Multifunction) Calibrator
- Decade Resistance Box
- Variable AC & DC Power Supply for Units Under Test
- Integrated / Interfaced with a Personal Computer & foldable Touch Screen Monitor
Calibration Management Software (*Calman Plus*) for Automatic / Semi-Automatic Test / Calibration routines; Data Collection / Storage etc.



Note : For detailed specifications of fitted Modules, refer previous pages

SIGNAL (LOOP) CALIBRATORS

Ideal for quick Loop Checking & Calibration of Transmitters, Simulation/Measurement of mV & mA.

Compact Models • Light Weight Unit with Holster • Basic Accuracy $\pm 0.02\%$ / $\pm 0.05\%$ F.S.

Thermocouple Calibrator Nagman 02



Measurement & Simulation
of
Thermocouple & Voltage

RTD Calibrator Nagman 03



Measurement & Simulation
of
RTD & Resistance

Process Meter Nagman 05+



Measurement & Simulation
of mA

Temperature Calibrator Nagman 14+



Capability to Measure & Simulate
DC Voltage, Resistance,
Thermocouple & RTD

Voltage/Milliamp Calibrator Nagman 15+



Capability to Measure & Simulate
DC Voltage, DC Current & Frequency

Dual LCD with white LED for backlight

Capability to perform Continuity Test &
provide Loop Supply (24 V) for Transmitter

Multifunction Calibrator Nagman 25



Capability to Measure & Simulate
DC Voltage, DC Current, Frequency,
Resistance, Thermocouple & RTD

Dual LCD with white LED for backlight

Capability to perform Continuity Test &
provide Loop Supply (24 V) for Transmitter

Multifunction Process Calibrator MFC 40

A 'Power Packed' Portable High Accuracy (Basic Accuracy : $\pm 0.025\%$ F.S) Instrument in a sleek & sturdy carry case, capable of Simulation & Measurement of various Process Signals including DC Voltages, DC Current, Resistance, Thermocouples & RTDs, with the capacity of In / Out Data Memory storage of 20 Values. It has 128x64 backlight Graphic Display for easy & comfortable reading.

This Process Calibrator is designed to cover maximum range in each process parameters, with highest Resolution & Accuracy.



5 digits display of Measurement & 6 digits display for Simulation

For Bulk Orders / OEM requirements write to us at support@nagman.com

CALIBRATION MANAGEMENT SOFTWARE

CALMAN *Plus*

The Nagman's **Calman *Plus*** (Calibration Management) Software is a powerful tool for calibration of devices in the process industries under the present day quality guidelines such as ISO 9000. The **Calman *Plus*** automates the process of calibration making them quicker & easier.

This Software has been developed with our experience / knowledge of the Calibration Softwares of the various reputed International Manufacturers & in the current stage of development, **Calman *Plus*** Software supports, in addition to Nagman's own range of Temperature, Pressure & Signal Calibrators, several world brand Calibrators, Test & Measuring Instruments & enables perform Semi-Automatic / Automatic Calibration & Certificate Generation. Our motto was "to develop a single Software which could communicate with diverse instruments" making Automatic Calibration user friendly, simpler & easier.

In addition to these listed Instruments, Nagman has the capability to develop Drivers for other Make / Model Calibrators / Instruments.

The **Calman *Plus*** Software Package built on Modular concept offers utmost flexibility enabling the user to choose any combination from world's leading brand Calibrators with possibility of future Add-ons (per user requirement) on Modular basis!

The unique feature of **Calman *Plus*** with ability to communicate with diverse instruments helps to save considerable cost on investment and being a single dedicated programme reduces chances for confusion / mistakes during calibration.

The historical data storage format of **Calman *Plus*** helps the User to ascertain the performance of the instrument over a period of time and enables him/her to fix-up optimum recalibration intervals for instruments.

Calman *Plus* has the capability to integrate the entire Calibration System in a Plant & uplink to the Centralized ERP System.

Features

- Capable of storing all information of Field Instruments in a single Database
- Stores individual calibration information of instruments
- Communicates with many instruments using RS-232 Serial Bus, also option available to calibration instruments without Serial Interface - Manually
- Maintains history of Calibration Records
- Calibration Reports in compliance with ISO 9000
- Printing of User Definable Calibration Reports
- Compatible with Microsoft Windows Platform
- Powerful Graphical Presentation
- All Screens in full colour / Help Screens
- Modular & Expandable
- Simultaneous Calibration of Temperature, Pressure or Electrical / Signal Calibrators

Calibration Report

Instrument Details

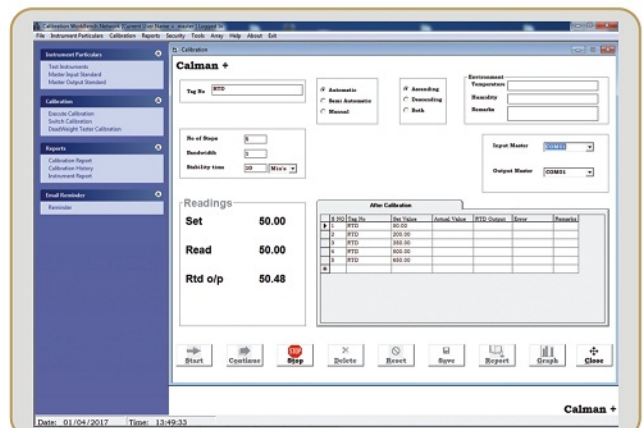
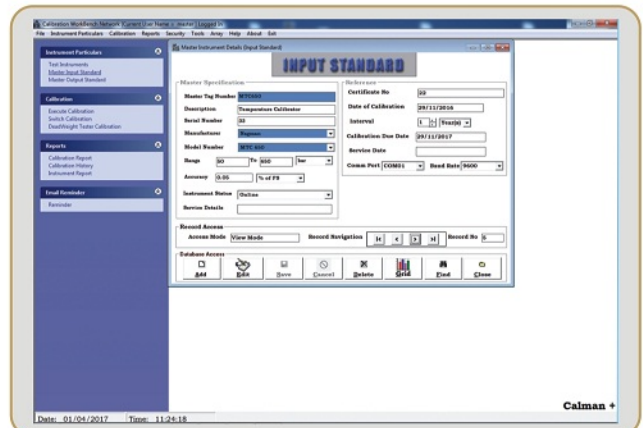
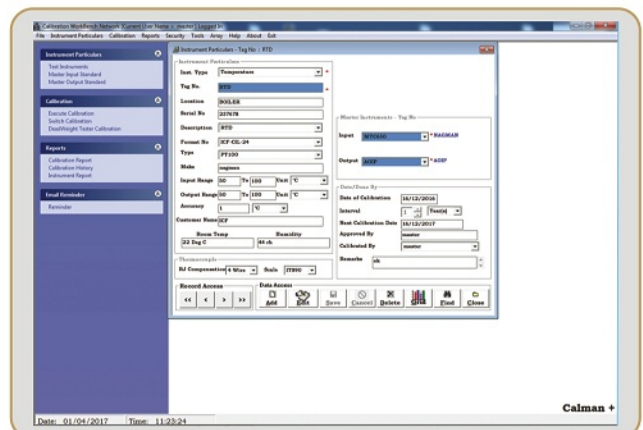
Tag No : RTD	Input Range : 50 TO 650 °C
Make : nagman	Output Range : 50 TO 650 °C
SI No : 237678	Location : BOILER
Description : RTD	Cal Date : 01/04/17
Accuracy : ± 1 °C	Due Date : 01/04/17

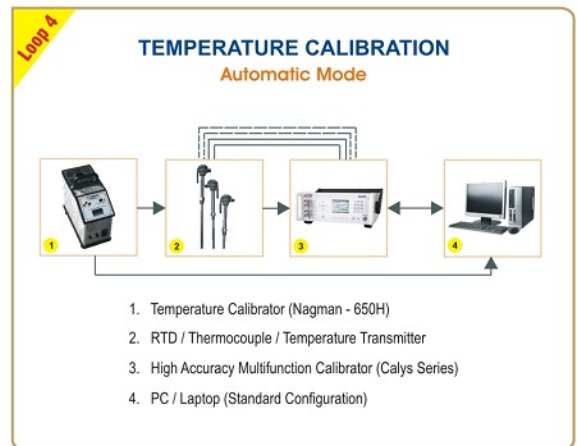
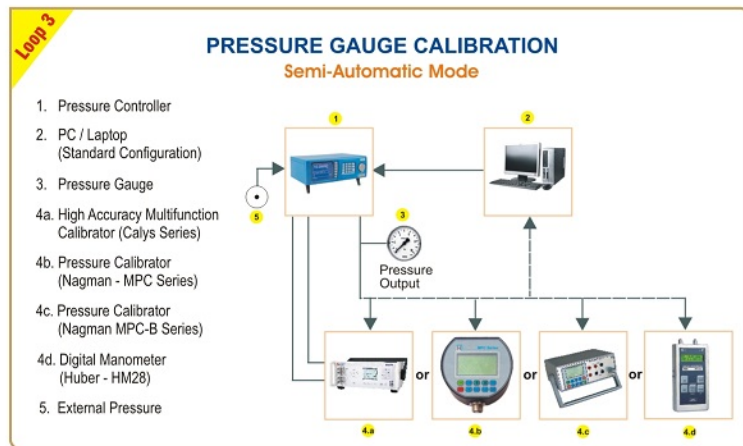
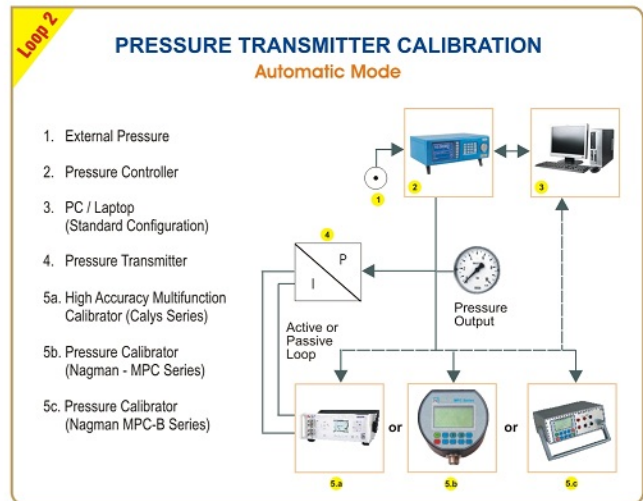
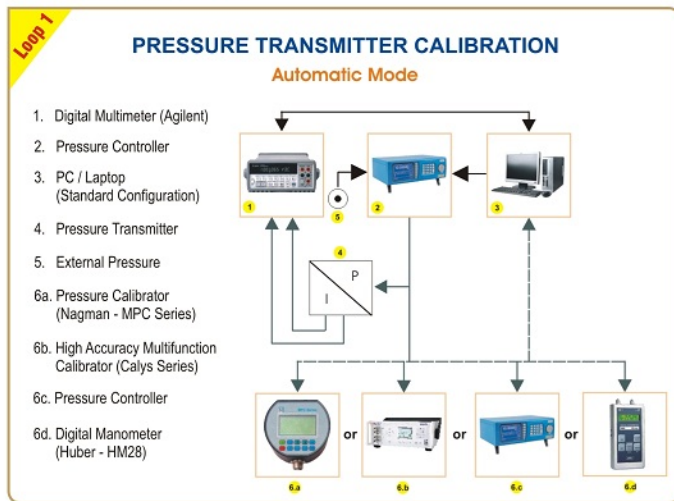
Master Details

Description	Make	SI No	Model No	Range	Accuracy	Due Date
Temperature Calibrator	Nagman	NIE/QAL/CAC/2 014-2015/P158	MTC 650	50 TO 650 °C	± 0.05 % of FS	29/11/17
TEMPERATURE CALIBRATOR	Nagman	NIE/QAL/CAC/2 014-2015/P158	MTC 650	0 TO 650 °C	± 0.05 % of FS	29/11/17

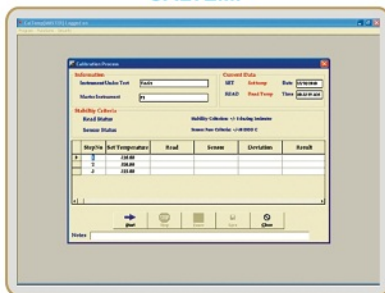
Readings

SLNo	Set Value °C	Actual Value °C	Actual Output °C	Error	Remarks
1	50.00	50.00	50.10	0.10	PASS
2	200.00	200.00	200.15	0.15	PASS
3	350.00	350.00	349.95	-0.05	PASS
4	500.00	500.00	500.02	0.02	PASS
5	650.00	650.00	650.00	0.00	PASS

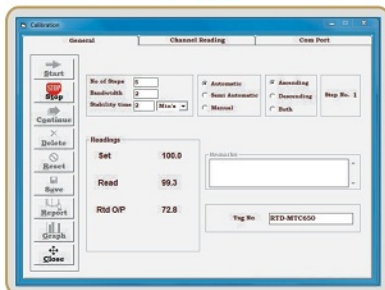




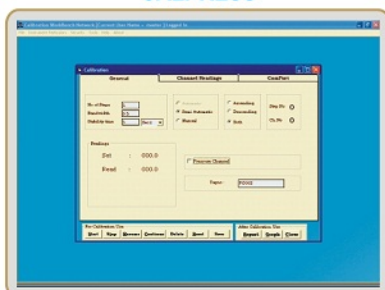
CALTEMP



MTCCal



CALPRESS



Caltemp is a dedicated simple & cost effective Temperature Calibration Software which enables & supports automatic / semi-automatic calibration thro' Nagman Dry Block Calibrators, Micro Oil Bath & Fluidized / Hot Cold Baths.

The Windows Platform based Software offers an easy method for calibrating, datalogging and managing your calibration data.

Multipoint : Upto 6 calibrations at a time are possible using the "Scanner Module" (optional). This Advance Multi-point Scanner offers a unique time saving and Automatic Solution to calibrate Multiple Temperature Sensors upto 6/8 RTD / T/C Probes etc. Simultaneously.

MTCCal is a dedicated & cost effective Calibration Software which enables & supports Automatic / Semi-Automatic & Manual Calibration thro' Nagman's Metcal 650 Calibrator. In Report Format, Customer Logo is user defined.

The Windows Platform based Software offers an easy method for calibrating, datalogging and managing your calibration data.

Calpress is a dedicated & cost effective Calibration Software which enables & supports Automatic / Semi-Automatic Calibration thro' Nagman's Pressure Calibrators - MPC & MPC-E Series.

LEVEL TEST & CALIBRATION RIG/SYSTEM

For Primary, Interface & Total Liquid Testing & Calibration of
various Types / Models of

Level Measurement (& Control) Devices

including

Float / Displacer / Radar / Capacitance / Ultrasonic / Magnetic
- both Inbuilt & External Chamber types.



Ranges / Spans : 1000 / 2000 / 3000 / 4000 mm

Zero Offset facility for Short Span UUTs

Calibration Accuracy : $\pm 0.05\%$ F.S. or better (Min. 1 mm)

Media : Water

Single Chamber (approx. 400 mm Dia) accommodates
Reference Standard (Probe) (Precise Magnetostrictive
Probe) & upto 2 UUTs (Units Under Test)

Laser Zero Datum Setter (Transmitter & Receiver) (LTR
Series)

Simple PID Control : Console, Integral with Chamber
Assembly

4 Channel Alphanumeric Display - for UUTs with Analog (4-
20 mA) output.

Feed Pump, Control Valves - Integral with Chamber
Assembly.

Chamber Material : "Stainless Steel"/Transparent Perspex
can also be offered.

Chamber top provides "Universal" Slotted Flanges (2) to
accept/mount 2 UUTs.

Reservoir provided separately, to be connected to Feed
Pump/Drain Line thro' Flexible Hose.

Chamber Assembly, Mounted on "Wheels", enhancing
"Mobility", enabling moving to "Site" locations & locking (LTR
Series).

Manual Hydraulic / Electrically Actuated lifting arrangement
(for holding Test Chamber & height adjustment) (LTR
Series)

Stand-alone Hydrostatic Pressure Test equipment (LTR
Series)

Software enabled Data Acquisition & Printing of customized
Calibration Reports

Tests possible to be conducted : Linearity, Hysteresis, Dead
Band, Repeatability, Sensitivity & Functional Tests.

Customized Designs for OEMs.

Level Test & Calibration Rig LTR Series



Typical Models Supplied to

1. Kuwait Oil Company (KOC) Kuwait.
2. H.M.E.L., Punjab, India Bhatinda Refinery
3. Power Technology Solutions, Kazakhstan

Level Calibration System - Single / Dual Chamber Types



LCS-D Series

Dual Chamber Model



PROCESS FLOW METER CALIBRATION SYSTEM

FLOCAL Series

Basic Calibration, using 0.2% Traceable Calibration Accuracy Master Flow Meter in 'Comparison' (Master/Slave) Mode (One or more Masters, based on the Flow Ranges/Sizes of UUT).

Calibration Accuracy Enhancement (Uncertainties upto 0.05%) thro' Gravimetric (Collection Chamber Mounted on Precision Weigh Scale) & or Pre-Calibrated Volume Chambers (for Low Volumes).



Typical Flow Meter Calibration System
supplied to
PICS Arabia, Kingdom of Saudi Arabia

Features

- Calibrates most types of Process Flow Meters (Turbine, Vortex, Coriolis Mass, Electro-Magnetic, Ultrasonic etc.) from 2% to 0.1% Accuracy Levels
- Water Media Calibration with **"Correction Factors" for other Liquids**
- Calibration of Multiple UUT's simultaneously
- Effortless / Ergonomic Clamping / Mounting System
 - Manual / Pneumatic / Hydraulic / Electrical Actuators
- Adjustable Flow Rate over the Span
- Masters : Electro-magnetic Flow Meters** - Calibration Accuracy 0.2% and/or Pre-Calibrated **Volume Chambers** - 5 Litres to 500 Litres
 - Calibration Accuracy 0.1% (or)
- Weighing Scales** (Load Cells) : 300 to 10000 Kg, High Resolution
- 1 or more Open Type **Diversers** to suit - in case Gravimetric / Pre-calibrated Volumetric Chambers are employed.
- Best Uncertainties (CMC) - upto 0.05%
- Storage Reservoirs to suit
- Pumps : One or more - to suit - Single/Multi-stage (with **VFD** for Flow Control) / Flow Control Valves
- Inline Temperature / Pressure Measurement

Specifications

Sizes

DN 6 upto DN 300

Flow Rates

From 1 LPM upto 25000 LPM

No. of Lines

1, 2 or 3 to suit

Calibration Campaign Time

To suit, from 30 Seconds

Display/Control Console

Flow Rate, Total Flow,
Start/Stop Timer etc.

• Test Bed - Dimensions to suit - Tubular Steel, Epoxy Coated (SS Optional)

• Wetted Parts : Non-Rusting Materials to suit (SS optional)

• Collection / Volume Chambers - Stainless Steel

• Reservoir : Preferably Underground - Capacities to suit

• Spacers / Blanks - to suit

• Flow Conditioners / Straightners - to suit

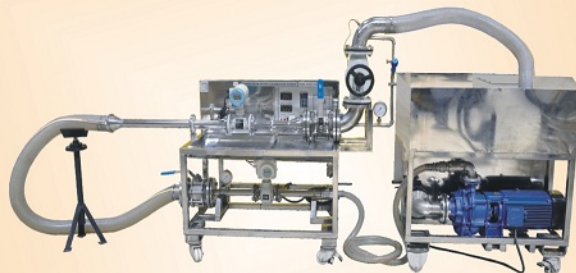
• Control Console (with 'Flocal' Software (Optional))

• Height Adjustable (Mobile) Tripod Stand to support UUTs

MOBILE FLOW METER CALIBRATION SYSTEM



SKID MOUNTED



TROLLEY MOUNTED

Compact Mobile Flow Meter Calibration Solution - for those who are limited for space & who need to 'move' the System from Site to Site for Spot Calibration - thro' 'Comparison Method' with a Pre-Calibrated Master Flow Meter

DN 6 upto DN 50/80 (Maximum Flow 1500 LPM) - System comes in 2 Types - Skid Mounted / Trolley Mounted

DN 6 upto DN 100 (Maximum Flow 2500 LPM) - System is housed in a Mobile Skid on Wheels - which can be Lifted & Placed in a Truck Chasis for Mobility & or Stationed at a chosen Site Location

Reference Masters : Electro-Magnetic Flow Meter with Calibrated Accuracy $\pm 0.2\%$

For Enhanced Accuracy : Coriolis Mass Flow Meters with $\pm 0.1\%$ Accuracy can be used as Masters

WATER METER CALIBRATION TEST BENCH

(as per ISO 4064/3 Standards)

WATCAL Series



- Different systems to suit Domestic / Industrial / Bulk Water Meters - (Mechanical, Electrical, Ultrasonic etc.).
- Calibration of Multiple Meters/Sizes : DN 10 to DN 40 to DN 300 in 1 or more lines
- Test/Calibration Methods per ISO 4064/3 Standards:
 - Gravimetric** : Collection Chamber(s) mounted on Weighing Scale(s) &
 - Volumetric** : thro' pre-calibrated Volume Chambers
- Precise flow adjustment using Rotameters / Electro-Magnetic Flow Meters
- One or more pumps to suit (with VFD / Manual Throttle for Flow Control)
- Clamping : Manual / Pneumatic / Hydraulic etc.
- Flow Rates :
 - 1 LPM to 335 LPM (for Domestic Water Meter)
 - 10 LPM to 1500 M³/Hr (for Industrial Meter)

DOMESTIC GAS METER CALIBRATION TEST BENCH

(BELL PROVER TYPE)



Suitable for Testing
4 / 6 / 8 Meters
(Single Bell Prover)



GASCAL Series

Suitable for Testing
4 / 6 / 8 Meters
(Double Bell Prover)



GASCAL-Mini

Suitable for Testing 2 Meters



- A Boon for Calibration of Domestic Gas Meters - OEMs, Hotels, Hospitals & R&D Institutions.
- Flow Rates : 0.018 to 6 M³/Hr
- Suitable for Gas Meter Sizes : G1.6, G2.5, G4, G6
- Bell Prover : Capacity 20/100/200 Litres
- Accuracy : $\pm 0.2\%$ & $\pm 0.5\%$ (Traceable to ISO/IEC 17025:2005 Accredited Lab).
- Upstream/Downstream Pressure & Temperature Measurement
- D.P. Gauges (for measurement of pressure loss) : 0 to 1.0 inH₂O (0 to 250 Pa)
- Meter Clamping : Pneumatic
- Simultaneous Calibration of multiple Meters (Provision to mount 2/4/6/8 Meters)

Consult us for higher capacity Bell Provers for Calibration of Industrial / Bulk Meters.

CENTRE FOR CALIBRATION



The **Centre for Calibration (CFC) at Chennai** is an 'Independent Profit Centre', - Unit of Nagman Instruments & Electronics (P) Ltd., a pioneer and leader in the Calibration field in India.

Having manufactured and sold over **50,000 Calibrators, 2,000 Dead Weight Tester & 1500+ Calibration Test Benches**, Nagman understands Calibration at its best and have designed the Centre to serve the diverse Calibration requirements of Large, Medium, Small Scale Industries-Effectively and Comprehensively. Our Products are **exported to 94 Countries** Worldwide.

The Centre is equipped with sophisticated Calibration Equipments both Primary & Working / Transfer Standards which are Traceable to National & International Standards. We have the **Unique Cross Float Calibration System** and **Precision Mass Balance** duly accredited by **Accreditation Body**. With our Dead Weight Tester Manufacturing capability, **total replacement of PCU & Trimming of Masses** also possible. We give your age old Dead Weight Tester a new lease of life. Facility includes **Computerized Automatic Calibration & Report generation conforming to ISO Standards**.

Our Unique Capabilities include **Calibration of Dead Weight Tester Upto 1600 bar, Temperature Calibration upto 1500°C, Black Body Calibration upto 1300°C**.

Nagman Centre for Calibration offers a wide range of **Calibration Services** covering most process parameters & serves almost every type of **Industry / Institution / Establishment**.

Nagman "**Centre for Calibration**" enjoys the unique distinction of obtaining **NABL Accreditation (as per ISO/IEC 17025:2005) in Chennai & Mumbai** and also offer **Traceable Calibration Services in Chennai, Mumbai, New Delhi, Vadodara and Visakhapatnam**.

Parameters Covered :

Thermal, Mechanical (Pressure, Mass, Volume, Torque, Density & Dimension), Electro-Technical and Fluid Flow.

Calibration Services offered

- NABL Accredited Calibration
- Lab / Site Calibration
- Annual Maintenance Contract
- Consultancy Services for Calibration Lab Setup
- Training Workshops on Calibration Management
- Calibrator Rental

Nagman "Centre for Calibration" is **staffed with qualified & well trained Team Leaders & Engineers** in **Laboratory Management, Internal Audit and Proficiency Testing**.

Nagman "Centre for Calibration" offers **Structured Training Workshops on "Calibration Management Techniques"** for Engineers & Technicians. This program is conducted periodically at our Chennai Lab & at customer places (for group Trainings) upon request. More than **500 Foreign Engineers** in addition to bunches of Industry personnel from India were trained at our Chennai Lab.

Adding feather to their crown, Nagman presently offers **Consultancy Services for Setting up Calibration Labs** (from concept to completion) & to avail Accreditation as per ISO/IEC 17025:2005 Standards. Nagman had completed a Project in India for NSIC, Chennai (Government Organization) and on overseas part, a '**Complete Project Package**' was done for MT Enterprises, Kingdom of Saudi Arabia, and few more Projects in India & abroad are in pipeline.



C-162, C-163, C-164 & C-1212

ACCREDITED BY NABL, INDIA
(AS PER ISO/IEC 17025:2005 STANDARDS)

List of Industries We Serve...

MAJOR

- Power - Thermal / Combined Cycle / Nuclear / Gas based / Co-generation
- Petrochemicals, Refineries, Oil & Gas
- Pulp & Paper, Cement & Sugar
- Metallurgical, Steel, Glass & Ceramic
- Fertilizer, Synthetics & Chemicals
- Picture Tube Manufactures
- Iron Ore Industries
- Air Craft Manufacturers
- Heavy Vessels Manufacturers

SMALL & MEDIUM

- Hospital & Clinical / Diagnostic Laboratories
- Analytical Laboratories
- Calibration Centres
- Battery Manufacturers
- Confectionaries
- Lighting / Switch Gear Industries
- Leather, Pen Manufactures
- Cold Storage Units / Bottling Plants Institutions
- Engineering Colleges / Technical
- Home Appliances
- Hotels / Sea Food Industries
- Building Promoters
- Computer / Cosmetics Manufacturers

HEAVY & MISCELLANEOUS

- Heavy Engineering / Automobile (& Ancillaries)
- Pharmaceutical / Cosmetic
- Textiles, Paint, Rubber & Cable Manufacturers
- Food Processing & Distilleries / Breweries
- Defence Establishments
- Boiler, Pressure Vessel Manufacturers
- Mobile Phone Manufacturers
- Oven & Furnace Manufacturers
- Plastic Industries
- Watch Manufacturers
- Contractors, Project Sites (Erection, Installation & Commissioning)

Our Wide Range of Services...

Lab Calibration

Including "Express" (same day) Calibration

Mobile Calibration Lab

Calibration Service at your door steps

Annual Maintenance Contracts

Periodic visits on preplanned dates

Comprehensive Calibration Job Packages

Including Mobilization of Master Standards, Manpower etc.

Consultancy Services

For setting up Calibration Lab (as per ISO/IEC 17025 Standards) & obtaining of Accreditation

Calibration Training

Structured Training on Calibration Management Techniques for Technicians, Engineers & Managers - at our Calibration Centre (Lab) or at Customer's facility

Calibrator Rentals / Lease

For the first time in India, we offer Rental Services / Lease of our Portable Calibrators, Transfer Standards, Simulators, Dead Weight Testers etc. which is a boon to Project Consultants, Executants, Erection & Commissioning Contractors

NOW AT
CHENNAI, MUMBAI, DELHI,
VADODARA & VISAKAPATNAM

What & Where We Calibrate

Parameters	List of Instruments	Calibration Facilities at			
		Chennai	Mumbai	Delhi	Vadodara & Vizag
PRESSURE					
Pressure Transmitters	Pneumatic Smart (Digital) Electronic Differential Pressure Electro-Pneumatic	✓	✓	✓	✓
Industrial Pressure Gauges	Calibrators Transfer Standards I/P, P/I Converters Transducers Indicators Recorders	✓	✓	✓	✓
Precision Pressure Gauges	Test, Standard & Master	✓	✓	✓	✓
	Switches, Regulators & Safety Valves	✓	✓	✓	✓
Manometers & Micromanometers	Single Limb U-Tube Inclined Digital BP Apparatus	✓	✓	✓	✓
Dead Weight Testers	Hydraulic & Pneumatic - any Make / Accuracy (upto 0.015%).	✓	✗	✗	✗
Masses & Weighing Balance	Weights, Balance (Electronic Weighing Scale)	✓	✓	✗	✗
SOUND	Sound Level Meter	✓	✓	✗	✗
LINEAR	Plug Gauges Cylindrical Setting Standards External Micrometer Height Gauge, Snap Gauges Measuring Pins Vernier Caliper Flush Pin Gauge Micro Meter, Dial / Bore / Lever Gauge	✓	✗	✗	✗
TEMPERATURE					
RTDs	Pt /Ni / Cu	✓	✓	✓	✓
Temperature Calibrators	Dry Blocks / Stirred Liquid / Powder Baths Relative Humidity - Chambers / Labs	✓	✓	✓	✓
Temperature Transmitters	Electronic / SMART (Digital)	✓	✓	✓	✓
Temperature Gauges / Thermocouples/Appliances	Rigid Stem/Capillary (Mercury in Steel/Vapour Pressure/ Gas Filled) Thermocouples : J, K, T, B, R, S, E, B etc.				
	Furnaces : Autoclaves, Ovens & Incubators Temperature Indicators (Analog & Digital)				
	Precision Glass Thermometers (Liquid-in-glass) Wet & Dry Thermometers	✓	✓	✓	✓
	Controllers / Recorders / Switches Sling Psychrometers Bi-Metal / Electronic Digital etc. Waters Baths, Hot Plate				
HUMIDITY	Humidity Chambers & Meters	✓	✓	✗	✗
OPTICAL	IR Thermometers, Black Body Calibration	✓	✓	✗	✗
THERMAL MAPPING & VALIDATION	Autoclaves, Ovens & Incubators, Waters Baths, Furnaces	✓	✓	✗	✗
ELECTRICAL	Ammeters / Voltmeters Digital Multimeters upto 6½ Digit T/C, RTD (Signal) Calibrators Multifunction Calibrators Frequency Indicators / Meters Digital Panel Meters, LCR Meters mV / mA Meters / Calibrators DC & AC Voltage Current Sources Resistance Bridges / Decade Boxes Temperature Indicators / Controllers Data Loggers / Oscilloscopes / Recorders Timers / Power Meters / High Voltage Testers / Probes	✓	✓	✱	✗
VOLUME	Burette, Pipette, Cylindrical Flask, Beaker, Measuring Jar, Glassware	✓	✓	✗	✗
FLOW	Viscometer, Water Meters, Flow Meters, Rotameters, Flow Cups.	✱	✱	✗	✗
OTHERS	Rotary Shakers / Tachometers Centrifuge, Laminar Flow Gauges (Contact Type) Counters / Stop Watches Medical & Clinical Equipment pH Indicators / Transmitters Conductivity Transmitters / Meters Hydrometers, Anemometer Vibration Meter & many more	✓	✱	✱	✱

✱ Please consult us

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231	Калининград (4012)72-03-81	Омск (3812)21-46-40	Сыктывкар (8212)25-95-17
Ангарск (3955)60-70-56	Калуга (4842)92-23-67	Орел (4862)44-53-42	Тамбов (4752)50-40-97
Архангельск (8182)63-90-72	Кемерово (3842)65-04-62	Оренбург (3532)37-68-04	Тверь (4822)63-31-35
Астрахань (8512)99-46-04	Киров (8332)68-02-04	Пенза (8412)22-31-16	Тольятти (8482)63-91-07
Барнаул (3852)73-04-60	Коломна (4966)23-41-49	Петрозаводск (8142)55-98-37	Томск (3822)98-41-53
Белгород (4722)40-23-64	Кострома (4942)77-07-48	Псков (8112)59-10-37	Тула (4872)33-79-87
Благовещенск (4162)22-76-07	Краснодар (861)203-40-90	Пермь (342)205-81-47	Тюмень (3452)66-21-18
Брянск (4832)59-03-52	Красноярск (391)204-63-61	Ростов-на-Дону (863)308-18-15	Ульяновск (8422)24-23-59
Владивосток (423)249-28-31	Курск (4712)77-13-04	Рязань (4912)46-61-64	Улан-Удэ (3012)59-97-51
Владикавказ (8672)28-90-48	Курган (3522)50-90-47	Самара (846)206-03-16	Уфа (347)229-48-12
Владимир (4922)49-43-18	Липецк (4742)52-20-81	Саранск (8342)22-96-24	Хабаровск (4212)92-98-04
Волгоград (844)278-03-48	Магнитогорск (3519)55-03-13	Санкт-Петербург (812)309-46-40	Чебоксары (8352)28-53-07
Вологда (8172)26-41-59	Москва (495)268-04-70	Саратов (845)249-38-78	Челябинск (351)202-03-61
Воронеж (473)204-51-73	Мурманск (8152)59-64-93	Севастополь (8692)22-31-93	Череповец (8202)49-02-64
Екатеринбург (343)384-55-89	Набережные Челны (8552)20-53-41	Симферополь (3652)67-13-56	Чита (3022)38-34-83
Иваново (4932)77-34-06	Нижний Новгород (831)429-08-12	Смоленск (4812)29-41-54	Якутск (4112)23-90-97
Ижевск (3412)26-03-58	Новокузнецк (3843)20-46-81	Сочи (862)225-72-31	Ярославль (4852)69-52-93
Иркутск (395)279-98-46	Ноябрьск (3496)41-32-12	Ставрополь (8652)20-65-13	
Казань (843)206-01-48	Новосибирск (383)227-86-73	Сургут (3462)77-98-35	
Россия +7(495)268-04-70	Киргизия +996(312)-96-26-47	Казахстан +7(7172)727-132	