



CC-2634

TRUE COPY

CERTIFICATE OF CALIBRATION



Godrej & Boyce Mfg. Co. Ltd.
Calibration Services, Plant 18 B, 1st Floor
Pirojshanagar, Vikhroli
Mumbai - 400079
Dir.: +91-22-67965914-48

FR-QT-21
Certificate No : M-231124-01-1 Date of Issue : 14-Dec-23
Date of Calibration : 4 & 5-Dec-23 Recom. Due Date : ---
Customer Details : NATIONAL CENTRE FOR QUALITY CALIBRATION
4 ABHISHREE CORPORATE PARK, NR SWAGAT BUNGALOWS BRTSISKCON
AMBLIROAD AMBLI AHMEDABAD-380001. Gujarat India
Details of Under Calibration Instrument:
Description : Dead Weight Tester (Hydraulic) ID No : NCQC/M-121
Range : 1 to 1000 bar Serial No : T15H111
Make : Yantrika Accuracy : ± 0.015 % rdg
Model No : REW307HB0/1 Location : Pressure Lab
Details of Standard Used:
Name Sr.No. / ID No. Valid upto Traceability
Piston Gauge (Hydraulic) 1814 / LQM669 21-Dec-27 Fluke USA
Piston Gauge (Hydraulic) 1819 / LQM668 20-Dec-27 Fluke USA
Mass Set 2781 / LQM715 18-Jan-24 Godrej, Mumbai
Work Instruction No : WI-PS-03 Reference Standard : OIML R110 1994 (E), EURAMET cg-3, Vr 1.0
Environmental Details : Temperature : 23.2°C Relative Humidity : 59 % RH
Discipline : Mechanical Group : Pressure and Vacuum
Remarks
1. The reported Expanded Uncertainty is calculated at 95.45 % C.L with coverage factor k= 2
2. Pressure conversion : 1 bar = 100000 Pa
3. DWT was calibrated at our Local gravity g = 9.786137 m/sec²
4. Our Reference Standard Uncertainty is ±(46 ppm + 100Pa) for 50 to 1750 bar & ±(20 ppm + 16 Pa) for 3.5 TO 70 bar
5. The standard corrected pressure corresponds to standard acceleration due to gravity g =9.788451 m/sec²
6. Refer Certificate No M-231204-5-1 dated- 04-12-2023 for mass values.
AUTHORIZED SIGNATORY : A Kulkarni
DESIGNATION : ASSO. MANAGER
CALIBRATED BY : Lab Engineer : B.H.Kumbhar
ULR Number : CC263423000049175F



Validity unknown

Digitally signed by D S M S GODREJ AND BOYCE MFG CO LTD
Date: 2023.12.14 13:03:05:30
Reason: Calibration Certificate
Location: Mumbai



Godrej & Boyce Mfg. Co. Ltd.

Regd. Office: Pirojshanagar, L.B.S. Marg, Vikhroli, Mumbai - 400 079.T.:+91-22-67961700/1800 W:www.godrej.com
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NCQC System Certificate No. 62

NCQC
Valid up to 04-11-2028
Reviewed [Signature]



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Certificate No : M-231124-01-1

ULR No: CC263423000049175

**Calibration Results**

Low Pressure Range : 1 to 50 bar

S.No.	Weights Combination used (Sr. No.) C=1 bar	Nominal Pressure bar	Observed Pressure bar	Error bar	Uncertainty on observed Pressure ( $\pm$ ) % rdg
1	C(LP),11,12,14	4	4.000320	0.000320	0.011
2	C(LP),2,11,12,13,14	10	10.000944	0.000944	
3	C(LP),2,3,4,11,12,13,14	20	20.00082	0.00082	
4	C(LP),2,3,4,5,6,11,12,13,14	30	29.99912	-0.00088	
5	C(LP),2,3,4,5,6,7,8,11,12,13, 14	40	39.99821	-0.00179	
6	C(LP),2,3,4,5,6,7,8,9,10,11,1 2,13,14	50	49.99616	-0.00384	

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Certificate No : M-231124-01-1

ULR No : CC2634230000491 75F

**Calibration Results**

**Low Pressure Range**

The Effective Area of this piston-cylinder has been determined by Crossfloat comparison with reference standard

The Value of the Effective area of this piston-cylinder at 23°C and null pressure is

$$A_0 = 7.84873E-05 \text{ m}^2$$

$$\text{Effective Area Uncertainty} = \pm 90 \text{ ppm}$$



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Certificate No : M-231124-01-1

ULR No : CC263423000049175F

**Calibration Results**

High Pressure Range : 20 to 1000 bar

S.No.	Weights Combination used (Sr. No.) C=20 bar	Nominal Pressure bar	Observed Pressure bar	Error bar	Uncertainty on observed pressure (±) % rdg
1	C(HP),11,15,16,21,22	50	50.06934	0.06934	0.011
2	C(HP),11,12,13,14	100	100.0302	0.0302	
3	C(HP),2,3,4,11,12,13,14	400	399.9489	-0.0511	
4	C(HP),2,3,4,5,6,11,12,13,14	600	599.9168	-0.0832	
5	C(HP),2,3,4,5,6,7,8,11,12,14, 13	800	799.8845	-0.1155	
6	C(HP),2,3,4,5,6,7,8,9,10,11,1 2,13,14	1000	999.8132	-0.1868	

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Certificate No : M-231124-01-1

ULR No : CC263423000049175E

**Calibration Results**

**High Pressure Range**

The Effective Area of this piston-cylinder has been determined by Crossfloat comparison with reference standard

The Value of the Effective area of this piston-cylinder at 23°C and null pressure is

$$A_0 = 3.9258E-06 \text{ m}^2$$

$$\text{Effective Area Uncertainty} = \pm 90 \text{ ppm}$$

Distorsion Coefficient of this piston -cylinder is

$$(l) = -6.25639E-07 \text{ /Mpa}$$

$$\text{Distorsion Coefficient Uncertainty} = -6.25639E-08 \text{ /Mpa}$$



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Remarks:

1. Equipment used for calibration were calibrated & traceable to National & International Standards.
2. This report refers only to particular item (s) submitted for calibration.
3. Godrej Calibration Services is not liable for any change in calibration data & performance specifications on account of malfunctioning of Standards / Instruments / Equipment covered by this report due to damage caused to it after issuance of this report.
4. The calibration results reported are valid at the time of and under the stated conditions of the measurements.
5. The Certificate should not be reproduced except in full without the prior permission from Godrej Calibration Service.
6. Satisfactory calibration report in no ways implies that the equipment calibrated is approved by NABL.
7. All precautions have been taken for any error or omission while calibrating the instruments and issuing this certificate. However Godrej Calibration Services shall not be liable for any loss or liability that may arise to any party in this regards.
8. Calibration of this Dead Weight Tester done by any accredited laboratories is meant for scientific and industrial purpose only. However, if used for commercial trading, additional recognition/ approval shall be complied as required by Dept. of Legal metrology, Regulatory bodies, etc.

----- End of Certificate -----

*Godrej*

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