



SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834



Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Cost Center / Customer: DIV20 / DON BANNON

Mail Stop: B51

Manufacturer/Model: OHAUS / TS400D

Description: BALANCE

Serial Number: 2883

Asset Number: 002345

Procedure: BALANCES & SCALES - 1 DEC 06

Work Order: 303095291

Date Issued: 30-Jun-2010

Date Calibrated: 30-Jun-2010

*** Date Due :** 30-Dec-2010

**** Results:** FOUND-LEFT

Temperature: 72.5 °F

Humidity: 70 %RH

Barometer: 14.24 psia

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: None

Standards Used

<u>Asset #</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>Cal Date</u>	<u>Due Date</u>
001704	RICE LAKE	1 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001705	RICE LAKE	2 g	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001706	RICE LAKE	2 g	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001707	RICE LAKE	5 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001708	RICE LAKE	10 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001709	RICE LAKE	20 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001710	RICE LAKE	20 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001711	RICE LAKE	50 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001712	RICE LAKE	100 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001713	RICE LAKE	200 G	WEIGHT, CLASS 1	4-Aug-2009	4-Aug-2010
001714	RICE LAKE	200 G	WEIGHT, CLASS S	4-Aug-2009	4-Aug-2010

Walt Hill

Laboratory Manager

Carlos Mendoza

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303095291	Mfr:	Ohaus	Technician:	com
Asset No:	002345	Model:	TS400D	Type Data:	Found-left
Serial No:	2883	Type:	Balance	Cal Date:	30-Jun-10
Remarks:					

Function/Range	Applied	TI Reading	Difference	± Limit		Result	% Limit
Corner Load	grams	grams	grams	grams			
Front	400	400.00	0.00	0.02		Pass	0%
Rear		400.00	0.00			Pass	0%
Left		400.00	0.00			Pass	0%
Right		400.00	0.00			Pass	0%
Repeatability							
40 gram Range							
1	40	40.001					
2		40.001					
3		40.001					
4		40.001					
5		40.001					
6		40.001					
7		40.001					
8		40.001					
9		40.001					
10		40.001					
Std Deviation		0.0000		0.002		Pass	0%
400 gram Range							
1	200	200.01					
2		200.01					
3		200.01					
4		200.01					
5		200.01					
6		200.01					
7		200.01					
8		200.01					
9		200.01					
10		200.01					
Std Deviation		0.0000		0.014		Pass	0%
40 gram Range							
Function/Range	Applied	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
Linearity	grams	grams	grams	grams	grams		
	0	0.000	0.000	0.002	0.0012	Pass	0%
	4	3.999	-0.001			Pass	50%
	8	7.999	-0.001			Pass	50%
	12	11.999	-0.001			Pass	50%
	16	16.000	0.000			Pass	0%
	20	20.000	0.000	0.002	0.0012	Pass	0%
	24	24.001	0.001			Pass	50%

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Measurement Report

Work Order:	303095291	Mfr:	Ohaus	Technician:	com
Asset No:	002345	Model:	TS400D	Type Data:	Found-left
Serial No:	2883	Type:	Balance	Cal Date:	30-Jun-10

Function/Range	Applied	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
40 gram Range	grams	grams	grams	grams	grams		
Linearity (cont.)	28	28.000	0.000	0.002	0.0012	Pass	0%
	32	32.000	0.000			Pass	0%
	36	36.001	0.001			Pass	50%
	40	40.001	0.001			Pass	50%
Linearity	0	0.000	0.000	0.002	0.0012	Pass	0%
400 gram Range	40	39.999	-0.001			Pass	50%
	80	80.00	0.00	0.02	0.012	Pass	0%
	120	120.00	0.00			Pass	0%
	160	160.00	0.00			Pass	0%
	200	200.00	0.00			Pass	0%
	240	240.00	0.00			Pass	0%
	280	280.00	0.00			Pass	0%
	320	320.00	0.00			Pass	0%
	360	360.00	0.00			Pass	0%
	400	400.00	0.00			Pass	0%

END OF REPORT