



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: B57

Manufacturer/Model: OHAUS / TS400D

Description: BALANCE

Serial Number: 2883

Asset Number: 002345

Procedure: BALANCES & SCALES - 1 DEC 06

Work Order: 303102019

Date Issued: 15-Jun-2011

Date Calibrated: 15-Jun-2011

*** Date Due :** 15-Dec-2011

**** Results:** FOUND-LEFT

Temperature: 74.8 °F

Humidity: 49 %RH

Barometer: N/A

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: Unit displayed <8.2 ERR> error. Cleared error and verified. Error did not effect calibration.

Standards Used

<u>Asset #</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>Cal Date</u>	<u>Due Date</u>
010442	RICE LAKE	1 mg-100 g	WEIGHT SET, CLASS 1	1-Jun-2011	1-Jun-2012
011236	RICE LAKE	200 G	WEIGHT, CLASS 1	1-Feb-2011	1-Feb-2012
011237	RICE LAKE	200 G	WEIGHT, CLASS 1	1-Feb-2011	1-Feb-2012

Walt Hill

Laboratory Manager

m:\A2LA OCT_08.rpt

Mark Romero

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303102019	Mfr:	Ohaus	Technician:	Mark Romero
Asset No:	002345	Model:	TS400D	Type Data:	Found-left
Serial No:	2883	Type:	Balance	Cal Date:	15-Jun-11
Remarks: Unit displayed <8.2 ERR> error. Cleared error and verified. Error did not effect calibration.					

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	40.000				
2		40.000				
3		40.000				
4		40.000				
5		40.000				
6		40.000				
7		40.000				
8		40.000				
9		40.000				
10		40.000				
Std Deviation		0.0000		0.002	Pass	0%

400 gram Range

1	200	200.00				
2		200.00				
3		200.00				
4		200.00				
5		200.00				
6		200.00				
7		200.00				
8		200.00				
9		200.00				
10		200.00				
Std Deviation		0.000		0.014	Pass	0%

Function/Range	Applied	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
Direct Weighing	grams	grams	grams	grams	grams		
40 gram Range	0	0.000	0.000	0.002	0.0012	Pass	0%
	4	4.001	0.001			Pass	50%
	8	8.001	0.001			Pass	50%
	12	12.000	0.000			Pass	0%
	16	16.000	0.000			Pass	0%
	20	20.000	0.000			Pass	0%
	24	24.001	0.001			Pass	50%

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Measurement Report

Work Order:	303102019	Mfr:	Ohaus	Technician:	Mark Romero
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Serial No:	2883	Type:	Balance	Cal Date:	15-Jun-11

Function/Range	Applied	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
Direct Weighing (<i>cont</i>)	grams	grams	grams	grams	grams		
40 gram Range	28	28.001	0.001	0.002	0.0012	Pass	50%
	32	32.000	0.000			Pass	0%
	36	36.000	0.000			Pass	0%
	40	40.000	0.000			Pass	0%
Direct Weighing	0	0.000	0.000	0.002	0.0012	Pass	0%
400 gram Range	40	40.000	0.000			Pass	0%
	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