



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

Submitted By: DIV20

Address: B57

Contact: DON BANNON

Manufacturer / Model: RAME-HART / 100-01-31C

Description: CHECK FIXTURE

Serial No: 12

Asset No: 013057

Procedure: PIN AND PLUG GAGES - 1 JUNE 2006

Work Order: 303075510

Date Issued: Jul 24, 2007

Calibration Date: Jul 24, 2007

***Calibration Due:** Jul 24, 2008

Calibration Location: Bldg. 64

Environment: Temp. 69.0°F Hum. 39 %RH

****Data Type:** FOUND-LEFT

DivID/Location: 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/NC SL 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. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

Remarks: None

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
010782	3CF29	STARRETT	SPCS (GRADE 0.5	GAGE BLOCK SET, MASTER GRADE 0.5	May 30, 08
010835	LMV-2012	PRATT & WHITNEY	LAB MASTER UNIV	SUPERMICROMETER	Jun 20, 08

Reviewed by: () wgh () srk () jrg () blt () pwc

Metrology Technician

m:\a2la1.rpt Rev date August 15, 2005

Measurements by: Joe Greagrey

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303075510	Mfr:	Rame-Hart	Technician:	JRG
Asset No:	013057	Model:	100-01-31C	Cal Date:	24-Jul-07
Serial No:	12	Type:	Check Fixture		
Remarks:	Tolerance per customer				

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left	
Diameter	mm	mm	mm	mm	mm	Result	
Front	0 °	4.000	4.008	0.008	0.009	0.00028	Pass
	90 °	4.000	4.008	0.008	0.009	0.00028	Pass
Middle	0 °	4.000	4.008	0.008	0.009	0.00028	Pass
	90 °	4.000	4.007	0.007	0.009	0.00028	Pass
Back	0 °	4.000	4.007	0.007	0.009	0.00028	Pass
	90 °	4.000	4.007	0.007	0.009	0.00028	Pass
Sphere	0 °	4.000	3.993	-0.007	0.009	0.00028	Pass
	90 °	4.000	3.992	-0.008	0.009	0.00028	Pass
	180 °	4.000	3.991	-0.009	0.009	0.00028	Pass
	270 °	4.000	3.991	-0.009	0.009	0.00028	Pass

END OF REPORT