

# CALSER CORPORATION

302 N. Belt East, Swansea, IL 62226

(618) 277-0329

## TESTING MACHINE CALIBRATION DATA AND REPORT

**Report #:**  
**Page 1 of 2**

**VN# 8594-001**

<b>Customer</b>	University of Arkansas		
<b>Location</b>	Civil Engineering		
	Fayetteville, AR 72701		
<b>Manufacturer</b>	Forney	<b>Model</b>	F-400F-LC1
<b>Serial No.</b>	95037	<b>Capacity</b>	400,000 lbf
<b>Resolution</b>	10 lbf / DIV		
<b>Customer Asset No.</b>	231709		
<b>Auxiliary Equipment:</b>	w/ Admet GB2 Digital R/O #GB2-107721-2		
	w/ Dynisco P/T		

Date of Service	<u>12/17/13</u>
Customer Order No.	<u>Verbal</u>
Order Date	<u>12/11/13</u>
Temp.	<u>59° F</u>
Date Last Done	<u>11/20/12</u>
Method of Verification	Set the Force

[illegible]

**Notes:**

\*CALIBRATION EQUIPMENT

Calibration in accordance with ASTM E4-10,  
and Calser Corporation Procedure # 1-01, Rev 1.

All verification equipment-including dead weights, proving rings, load cells, etc, is calibrated and traceable to the latest procedures stipulated by the National Institute of Standards and Technology (NIST) and ASTM E74-06. All equipment is traceable under guidelines set forth in ISO/IEC 17025 . All instrument readings have been corrected for temperature where necessary.

## ACCURACY SUMMARY

### Verification Equipment

Reactor Components			Formation Equipment			
Capacity Range	Loading Range	Max. Error	Manufacturer and Serial #	* L/C	Range and uncertainty	Verification Agency and Date
<b>Run 1</b>						
400,000lbf Range	5,000 - 400,000	0.32 %	Interface	6C	112.40 - 10,000 lbf	Morehouse
			426017A		0.281 lbf	11/06/12
			Morehouse	17	6,813.57 - 100,000 lbf	Morehouse
<b>Run 2</b>			C-8160 (LO)		17.034 lbf	02/08/12
400,000lbf Range	5,000 - 400,000	0.40 %	Strainsense	14	110,926.77 - 1,000,000 lbf	Morehouse
			870815A		277.317 lbf	07/27/12

**Calibration Technician** T.R. Gagen

**This report shall not be copied except in its entirety  
without express written approval of Calser Corp.**

TESTING MACHINE CERTIFICATE OF CALIBRATION

Owner : University of Arkansas  
Location : Civil Engineering  
Fayetteville, AR 72701

Report # : VN# 8594-001  
Page : 2 of 2

Date of Service: 12/17/13

Manufacturer: Forney Model: F-400F-LC1

Serial No. : 95037 Capacity: 400,000 lbf

Auxillary Equip: w/ Admet GB2 Digital R/O #GB2-107721-2  
w/ Dynisco P/T

This is to certify that the testing machine listed above has been calibrated by Calser Corporation personnel.  
The method of verification and listed data are in accordance with ASTM E 4-10.  
Accuracy of all calibration devices is traceable to the National Institute of Standards and Technology (NIST)  
and all calculations have been corrected for temperature where applicable.

Capacity Range	Loading Range	Max. Error
<b>Run 1</b>		
400,000lbf Range	5,000 - 400,000	0.32 %
<b>Run 2</b>		
400,000lbf Range	5,000 - 400,000	0.40 %

VERIFICATION EQUIPMENT

Manufacturer & Serial #	Load Cell #	Range & Uncertainty	Verification Agency & Date	Digital Serial #
Interface 426017A	6C	112.40 - 10,000 lbf 0.281 lbf	Morehouse 11/06/12	GB-9911092
Morehouse C-8160 (LO)	17	6,813.57 - 100,000 lbf 17.034 lbf	Morehouse 02/08/12	GBC-0905061
Strainsense 870815A	14	110,926.77 - 1,000,000 lbf 277.317 lbf	Morehouse 07/27/12	GBC-0702261

This certificate is issued as a statement of the fact that on the above date the listed testing machine has an accuracy as indicated. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the testing machine will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, and adjustments if required, was performed and reported by "Calser Corporation" since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the testing machine and hereby expressly disclaims any and all liability for damage or loss sustained by all parties arising or resulting from the deterioration, obsolescence, malfunction or substandard performance of said testing machine; which shall remain the sole responsibility of the machine's regular custodian, owner, and/or user. This certificate shall not be reproduced except in full, without the written approval of Calser Corporation.

CALSER CORPORATION

Quality Control Director

  
Thomas R. Gagen

## TESTING MACHINE CALIBRATION DATA AND REPORT

Report #:

VN# 8594-002

Page 1 of 2

Customer University of Arkansas  
 Location Civil Engineering  
 Fayetteville, AR 72701  
 Manufacturer TMI Model CM-5000GB2  
 Serial No. 100317 Capacity 500,000 lbf  
 Resolution 10 lbf / DIV  
 Customer Asset No. 264440  
 Auxiliary Equipment: w/ Admet GB2 Digital R/O #GB2-1004302  
 w/ Dynisco P/T #04-08-10323273

Date of Service 12/17/13  
 Customer Order No. Verbal  
 Order Date 12/11/13  
 Temperature 59° F  
 Date Last Done 11/20/12  
 Method of Verification Set the Force

Applied Force	*	Indicated Force	Error	%	*	Indicated Force	Error	%	*	Indicated Force	Error	%
Run #1		Run #1	"As Found" Condition			Run #2	"As Left" Condition			Run #3	"As Left" Condition	
500,000lbf Range	*	10lbf / DIV			*				*			
0	6C	0	0	0.00	6C	0	0	0.00	6C	0	0	0.00
5,000	6C	4,960	-40	0.80	6C	4,980	-20	0.40	6C	4,990	-10	0.20
10,000	17	9,930	-70	0.70	17	9,970	-30	0.30	17	9,980	-20	0.20
25,000	17	24,820	-180	0.72	17	24,940	-60	0.24	17	24,930	-70	0.28
50,000	17	49,610	-390	0.78	17	49,890	-110	0.22	17	49,880	-120	0.24
75,000	17	74,630	-370	0.49	17	74,900	-100	0.13	17	74,870	-130	0.17
100,000	17	99,670	-330	0.33	17	99,890	-110	0.11	17	99,900	-100	0.10
150,000	14	149,690	-310	0.21	14	149,940	-60	0.04	14	149,990	-10	0.01
200,000	14	199,620	-380	0.19	14	199,940	-60	0.03	14	199,970	-30	0.02
250,000	14	249,500	-500	0.20	14	249,930	-70	0.03	14	249,970	-30	0.01
300,000	14	299,400	-600	0.20	14	299,890	-110	0.04	14	299,930	-70	0.02
350,000	14	349,300	-700	0.20	14	350,030	30	0.01	14	350,050	50	0.01
400,000	14	399,320	-680	0.17	14	400,080	80	0.02	14	400,090	90	0.02
450,000	14	449,300	-700	0.16	14	450,170	170	0.04	14	450,140	140	0.03
500,000	14	499,280	-720	0.14	14	500,240	240	0.05	14	500,190	190	0.04
0	14	0	-10	0.00	14	0	-20	0.00	14	0	-10	0.00

## \*CALIBRATION EQUIPMENT

## Notes:

Calibration in accordance with ASTM E4-10,  
 and Calser Corporation Procedure # 1-01, Rev 1.

All verification equipment-including dead weights, proving rings, load cells, etc, is  
 calibrated and traceable to the latest procedures stipulated by the National Institute of  
 Standards and Technology (NIST) and ASTM E74-06. All equipment is traceable under  
 guidelines set forth in ISO/IEC 17025. All instrument readings have been corrected for  
 temperature where necessary.

## ACCURACY SUMMARY

Capacity Range	Loading Range	Max. Error
<b>Run 1</b>		
500,000lbf Range	5,000 - 500,000	0.80 %
<b>Run 2</b>		
500,000lbf Range	5,000 - 500,000	0.40 %
<b>Run 3</b>		
500,000lbf Range	5,000 - 500,000	0.28 %

## VERIFICATION EQUIPMENT

Manufacturer & Serial #	* L/C	Class A Range (in LBs) and Uncertainty (LBF)	Agency & Date
Interface	6C	112.40 - 10,000 lbf	Morehouse
426017A		0.281 lbf	11/06/12
Morehouse	17	6,813.57 - 100,000 lbf	Morehouse
C-8160 (LO)		17.034 lbf	02/08/12
Strainsense	14	110,926.77 - 1,000,000 lbf	Morehouse
870815A		277.317 lbf	07/27/12

Calibration Technician T.R. Gagen

This report shall not be copied except in its entirety  
 without express written approval of Calser Corp.

## TESTING MACHINE CERTIFICATE OF CALIBRATION

Owner : University of Arkansas  
 Location : Civil Engineering  
 Fayetteville, AR 72701

Report # : VN# 8594-002

Page : 2 of 2

Manufacturer: TMI Model: CM-5000GB2

Date of Service: 12/17/13

Serial No. : 100317 Capacity: 500,000 lbf

Auxillary Equip : w/ Admet GB2 Digital R/O #GB2-1004302  
 w/ Dynisco P/T #04-08-10323273

This is to certify that the testing machine listed above has been calibrated by Calser Corporation personnel.

The method of verification and listed data are in accordance with ASTM E 4-10.

Accuracy of all calibration devices is traceable to the National Institute of Standards and Technology (NIST)  
 and all calculations have been corrected for temperature where applicable.

Capacity Range	Loading Range	Max. Error
<b>Run 1</b> 500,000lbf Range	5,000 - 500,000	0.80 %
<b>Run 2</b> 500,000lbf Range	5,000 - 500,000	0.40 %
<b>Run 3</b> 500,000lbf Range	5,000 - 500,000	0.28 %

## Verification Equipment Used:

Manufacturer & Serial #	Load Cell #	Range & Uncertainty	Verification Agency & Date	Digital Serial #
Interface 426017A	6C	112.40 - 10,000 lbf 0.281 lbf	Morehouse 11/06/12	GB-9911092
Morehouse C-8160 (LO)	17	6,813.57 - 100,000 lbf 17.034 lbf	Morehouse 02/08/12	GBC-0905061
Strainsense 870815A	14	110,926.77 - 1,000,000 lbf 277.317 lbf	Morehouse 07/27/12	GBC-0702261

This certificate is issued as a statement of the fact that on the above date the listed testing machine has an accuracy as indicated. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the testing machine will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, and adjustments if required, was performed and reported by "Calser Corporation" since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the testing machine and hereby expressly disclaims any and all liability for damage or loss sustained by all parties arising or resulting from the deterioration, obsolescence, malfunction or substandard performance of said testing machine; which shall remain the sole responsibility of the machine's regular custodian, owner, and/or user. This certificate shall not be reproduced except in full, without the written approval of Calser Corporation.

CALSER CORPORATION

Quality Control Director



Thomas R. Gagen