

Interface

FORCE MEASUREMENT SOLUTIONS.

Installation & User Manual

Interface Force Verification Frame IFVF



IFVF Installation & User Manual

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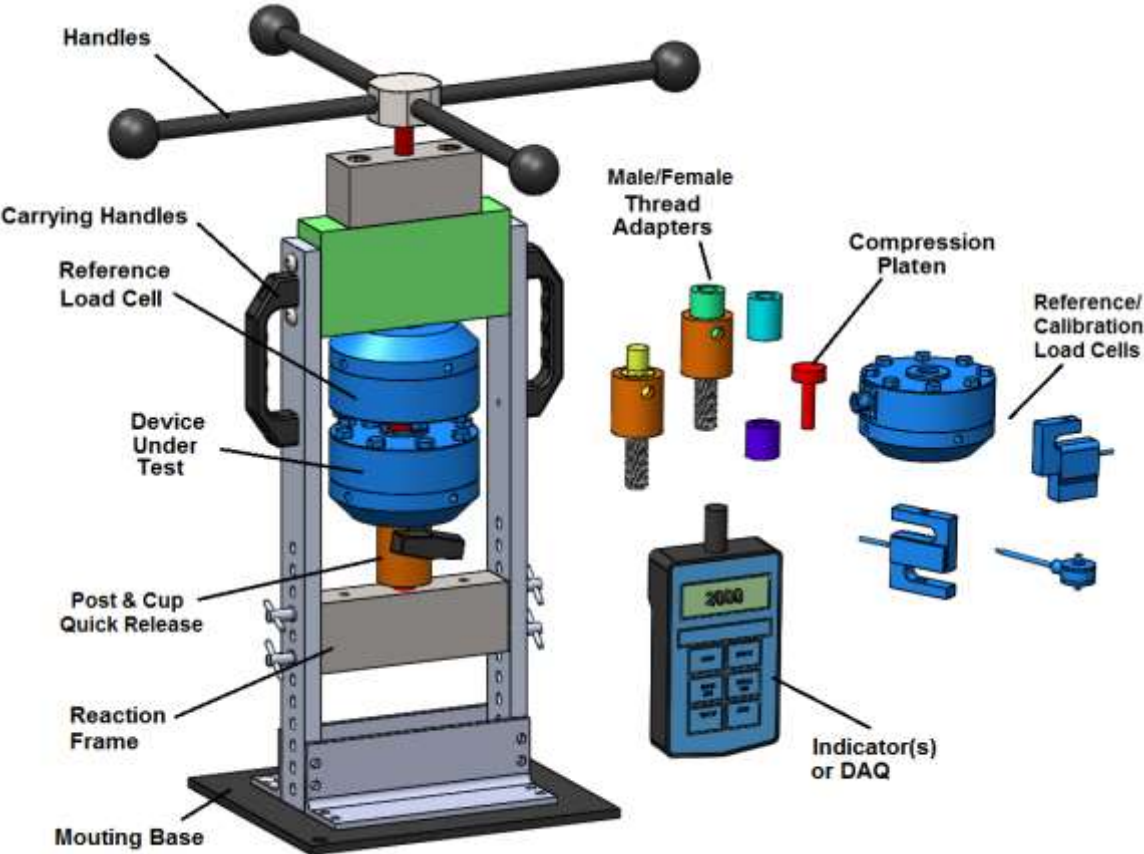
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1. Introduction

Equipment Description

The Interface Force Verification Frame (IFVF), referred to as the “SYSTEM” in the following pages, is a portable high force capacity frame with accessories designed to apply tension and compression forces to load cells with high resolution and accuracy. The system features a portable reaction frame, manual actuator, thread/adaptor accessories, and optional force sensor(s) and instrumentation. The hardware can be used to verify operation of a device under test or calibrate relative to a second reference load cell.

The system includes certain base components and others are chosen separately by the customer to best suit their testing needs. The base components have been designed by Interface to work together simply requiring minimal effort to implement.



IFVF Base Components

Component	Description
IFVF SYSTEM	Components used to create and control both tension and compression forces up to 5,000lbf. Features reaction frame, manual turn force actuator, mounting base, and carrying handles. Features 5/8-18 male thread loading interface.
Compression Platen	Component used to react compression forces. Features smooth loading surface and 5/8-18 male height adjustment threads.
Post/Cup Adapter	Components used to impart tension forces. Features male 5/8-18 male threads, post/cup mating features, and quick release pin.

Customer Selected Components

Component	Description
Reference Load Cell	Component used to measure the level of force being created by the manual turn actuator as contained within the reaction frame.
Force Readout	Component used to display the level of force being created within the reaction frame.
Device Under Test	Component being force loaded within reaction frame.
Power Cables	Components used to provide power to the load cell and force indicator.
Adapter Hardware	Components used to adapt between different thread sizes and configurations. Interface can quote and supply as needed.

Note: Interface can quote and supply any of these components as needed.

Theory of Operation

Turning the SYSTEM handles clockwise imparts a linear compression movement of ~ 0.006 " per turn. Turning the SYSTEM handles counter-clockwise imparts a linear tension movement of ~ 0.006 " per turn. The exact level of deflection changes based on what load cell and/or device under test is present.

The forces being created are contained and reacted through the structural frame. The Reference Load Cell reads the force level being created and is equal in magnitude to Device Under Test force levels. The SYSTEM can be used to verify operation of a device under test or calibrate relative to a second reference load cell.

General Specifications

Parameter	Specification
Force Rating	+/-5,000lbf Tension and Compression
Force Actuation	0.006" per turn, High Resolution
Handle Diameter	16in, Ball Knob Manual Turn, 1" total linear travel dimension "A". Reference Figure 1, below.
Size	8.0" x 9.5" x 20.5"
Mounting Base	8.0" x 9.5", 2x .38" Thru Holes for Mounting Bolts
Weight	Under 20lbs

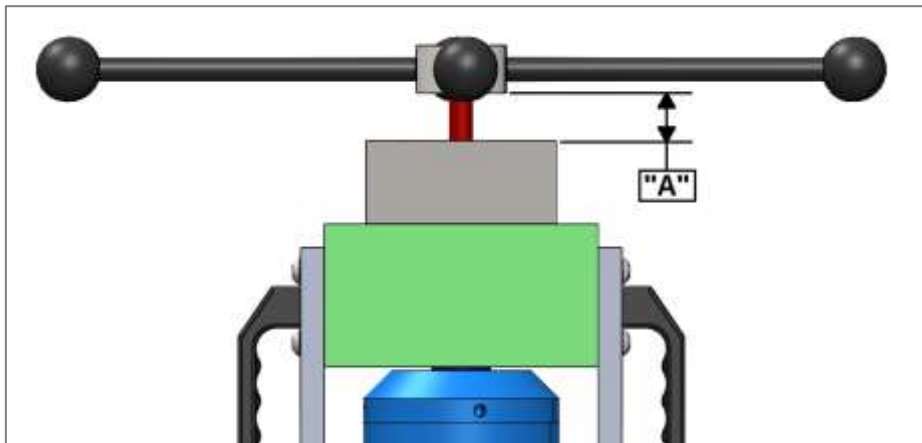


Figure 1: Force Actuator Positioning

2. Warnings

General

It is very important that you study the following safety information as in order to avoid a potentially hazardous situation or equipment damage.

1. Do not allow personnel to operate the SYSTEM who are not experienced or trained in its use.
2. Keep fingers and hands free of potential pinch points of the SYSTEM. Be aware of operating conditions at all times.
3. Never let dimension "A" exceed 1inch. Damage to the internal members of the SYSTEM can occur if exceeding this value.
4. Do not exceed the SYSTEM force capacity of 3000lbf by more than 10%.
5. Replace, remove and install hardware adapters only when SYSTEM is unloaded of all levels of force.

3. System Operation

Setup

1. Clamp or bolt the SYSTEM base to a sturdy surface. Ensure that turning handles can freely rotate and are not obstructed.
2. Install desired hardware adapters needed for use.
 - a. Compression: Compression Platen
 - b. Tension: Tension Post/Cup
3. Position the bottom horizontal reaction frame member as needed by removing and re-installing T-pins on the two vertical side rails. Do NOT remove T-pins while any force is being generated within the reaction frame.
4. Install load cell(s) within reaction frame per manufacturer guidelines.
5. Connect load cell wiring to indicators to display force values per manufacturer guidelines.

Operation

1. Compression

- a. Position force actuator so that dimension "A" is approximately 0.50"-0.75". Reference Figure 1.
- b. Manually rotate compression platen until contact is made between loading surfaces. Observe force increase/changes on electronic display.
(Between 0 and 30lbs loading may be somewhat non-linear as threaded connections engage unevenly.)
- c. Rotate handles clockwise to increase compression magnitude.
- d. Rotate handles counter-clockwise to decrease compression magnitude.

2. Tension

- a. Position force actuator so that dimension "A" is approximately 0.25"-0.50". Reference Figure 1.
- b. Thread the Post of the Post/Cup Adapter into the load cell or Device Under Test. Next, vertically position the Cup of the Post/Cup Adapter to best align it to the Post. Using the Force Actuator turn handles, fine

position the concentricity of the Post and Cup and then cross pin the two features together.

- c. Rotate handles counter-clockwise to increase tension magnitude.
- d. Rotate handles clockwise to decrease tension magnitude.

Maintenance

The system is designed to operate with minimal maintenance requirements. However, periodic maintenance should be performed to ensure trouble free operation.

1. Daily

- Ensure handles turn smoothly and do not bind during movements.

2. Weekly

- Wipe down any surfaces that appear dirty.

3. Monthly

- Inspect all moving joints for signs of wear/damage.
- Verify all fastener hardware is torqued and not loose.

4. Yearly

- Contact Interface and schedule a service inspection. We recommend an annual inspection to verify alignment, proper lubrication, and general operation.

4. Technical Support

If you cannot find answers to your technical questions from the above sections, you can use the Internet, e-mail, or telephone to contact Interface for assistance.

www.interfaceforce.com: The website provides contact information.

E-Mail: contact@interfaceforce.com

Telephone: 480-948-5555

Before you contact Interface

Interface can help you more efficiently if you have the following information available when you contact us for support.

- Description of problem
- How long and how often has the problem occurred?
- Troubleshooting attempts taken thus far

Be prepared to Troubleshoot

- Call from a telephone close to the system so that you can implement suggestions made over the phone.
- Write down any specific instructions and relevant information provided during the support.

After you Contact Us

- Interface logs and tracks all technical support inquiries to ensure that you receive assistance for your problem or request. If you have questions about the status of your problem or have additional information to report, please contact Interface again.

5. Warranty

Warranty

All instruments from Interface Inc., ('Interface') are warranted against defective material and workmanship for a period of (1) one year from the date of dispatch. If the 'Interface' product you purchase appears to have a defect in material or workmanship or fails during normal use within the period, please contact your Distributor, who will assist you in resolving the problem. If it is necessary to return the product to 'Interface' please include a note stating name, company, address, phone number and a detailed description of the problem. Also, please indicate if it is a warranty repair. The sender is responsible for shipping charges, freight insurance and proper packaging to prevent breakage in transit. 'Interface' warranty does not apply to defects resulting from action of the buyer such as mishandling, improper interfacing, operation outside of design limits, improper repair or unauthorised modification. No other warranties are expressed or implied. 'Interface' specifically disclaims any implied warranties of merchantability or fitness for a specific purpose. The remedies outlined above are the buyer's only remedies. 'Interface' will not be liable for direct, indirect, special, incidental or consequential damages whether based on the contract, tort or other legal theory. Any corrective maintenance required after the warranty period should be performed by 'Interface' approved personnel only.

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