

## RD3 – Shock and Damper Actuator – Specification Sheet

### the RD3 by CTW Automation

#### Standard features:

- 3HP AC motor with computer controlled variable speed drive
- 3K S-Beam load cell for +/- 3,000 lbf. range
- 2 Clamp cross bar
- Columns for 32.5" / test opening
- Strokes set at 0.5" – 1.0" – 2.0" spacing
  - Or Metric at 25-40-50 mm
- IR-Temperature sensor and quick release mount
- CTW Probe analysis software
- Clevis fixtures, ½" with pins and brass buttons – set
- Input power 200-240 VAC I/III phase – 24/15 A(i)
- 1-Year Support package



#### Options:

- Longer columns +12"/300mm
- 5K Pancake with 4 Clamp cross bar
- Win10 laptop set-up for the dyno
- Clevis fixtures (exchange for standard ½")
  - 3/8" or 5/16" – NC
- Range of custom and fixtures including
  - Motorcycle damper & fork
  - Bicycle
  - Extra-large ID / opening
- High voltage 380/440 VAC III phase- 9 A(i)



#### Delivery:

- Customer can opt to pick-up in Lexington, NC but then NC State tax applies
- Crate
- Shipping – to be determined
  - By ground transport in Continental US
  - International shipping is not a problem



- Optional 5K Pancake and 4 clamp cross bar



The RD3 uses CTW-Probe Analysis software to allow the user to create and run Tests of various velocities on one of three strokes to collect force data that is presented in various industry-standard graphs. The RD3 is a compact, lightweight tabletop machine that is designed to be structurally sound where loading is applied based on FEA analysis. Measurements are taken based on the line of actuation to ensure only the damper or specimen result is recorded.

### **Standard System Features:**

#### Sensors and signals:

**Displacement, Force and Temperature** via an infrared non-contacting sensor are standard. **Velocity** is derived from Displacement giving (4) channels to be used in viewing the resulting data.

- Force / load is measure via Interface 3K S-Beam design with an integrated cable to ensure accurate and repeatable results.
- Displacement is mounted on the centerline of the actuator to deliver a true sine wave on the axis of loading.
- Temperature is mounted on an easy to move, CTW custom quick clamp allowing the User to test any damper at a constant point helping to improve consistency in comparing dampers and changes.

#### Data Acquisition:

Data is collected and converted to digital output via a 16-bit, simultaneous sampling 8 channel USB card. This interface is located inside the frame of the machine for protection and seamless connection between the sensors and the card. A USB cable is supplied to complete the connection to the computer.

#### Electronics:

CTW uses a proprietary design 5 channel board (standard) to collect the sensor signals before passing them to the data card. There are options for additional channels and sensors if needed including multiple load cells and pressure sensors.

#### Strokes:

The RD3 comes standard with three (3) strokes of 0.5", 1.0" and 2.0", and the buyer can option to have metric spacing instead at 25-40-50mm, to allow the user to fit a wide variety of dampers. Strokes are changed manually by the User and can be done quickly in less than a minute start to finish. While the different strokes help accommodate different length dampers they also provide a frequency change to gather more information on any damper.



### Velocity:

Peak velocity can only be achieved on the largest stroke. It is limited by the amount of HP in the motor and for this model it is 3HP. Based on the force of the damper. Velocities as high as 39 in/sec and as low as a few tenths of an inch/sec. See graphs for more details on force and velocities.

### Columns:

Columns are 1.25" diameter and standard length provides a test opening of 32" / 810 mm from the end of the load cell stud to the top of the actuator. Longer columns can be purchased in additional 12" / 300 mm increments. This may be needed for testing motorcycle forks or other very long dampers.

### Cross bar:

The crossbar uses a two (2) clamp style to allow for quick setting and movement while providing a mechanically sound upper mount for the damper. A (4) clamp is available with a 5K pancake style load cell upgrade.

### Power input:

The RD3 runs on 200-240 VAC single (I) or three (III) phase input. There is an option to have a high voltage input allowing the machine to operate on 380-500 VAC III phase (such as Europe and Asia). This is an either-or option (not both); it must be picked at time of purchase.

\* Note – Outside of the USA, typically there is only 220 single OR 380/440 three phase.

\* Note – for peak performance, three phase (III) must be supplied.

### Software:

CTW machines are controlled using proprietary CTW Probe analysis software. This allows the User an easy to use, command driven platform to interface with the machine. While simple to use, the software is very flexible for the advanced user to go into further detail and procedures to give quick graphical and numeric data. See website for additional information.

### Training:

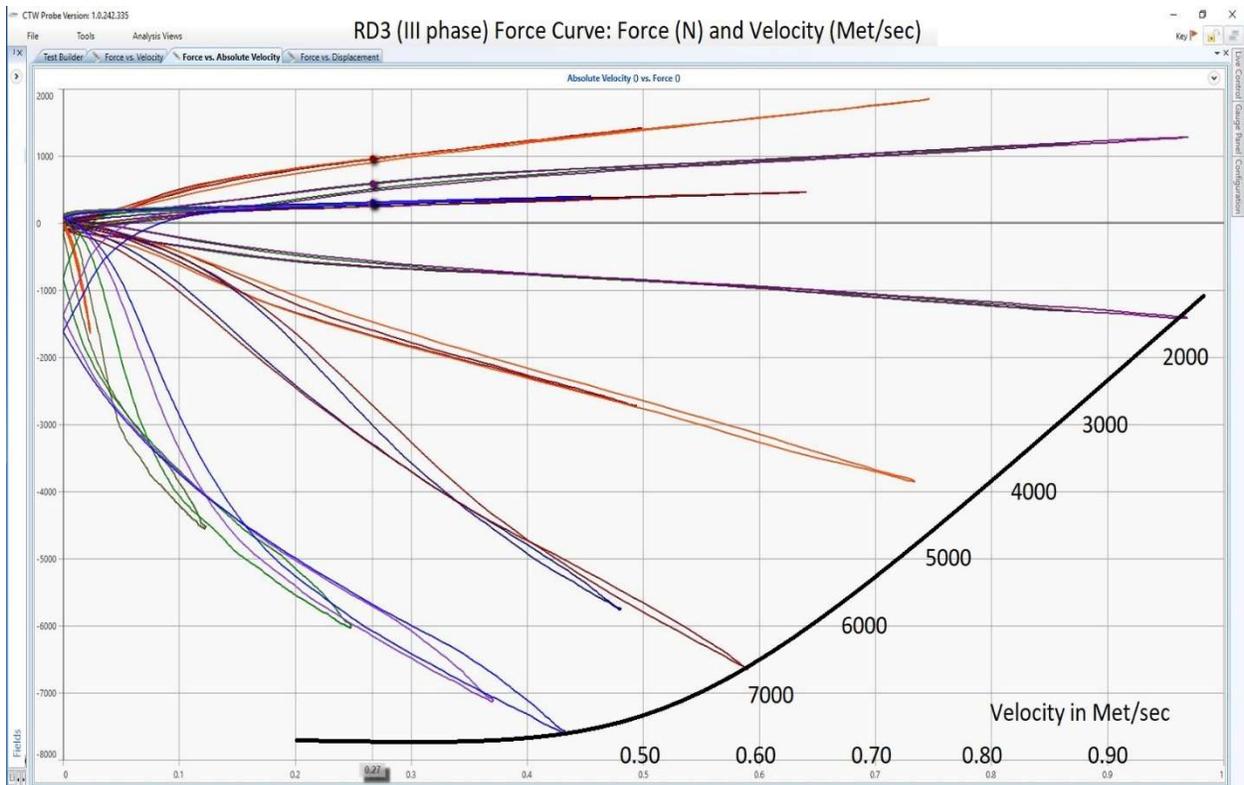
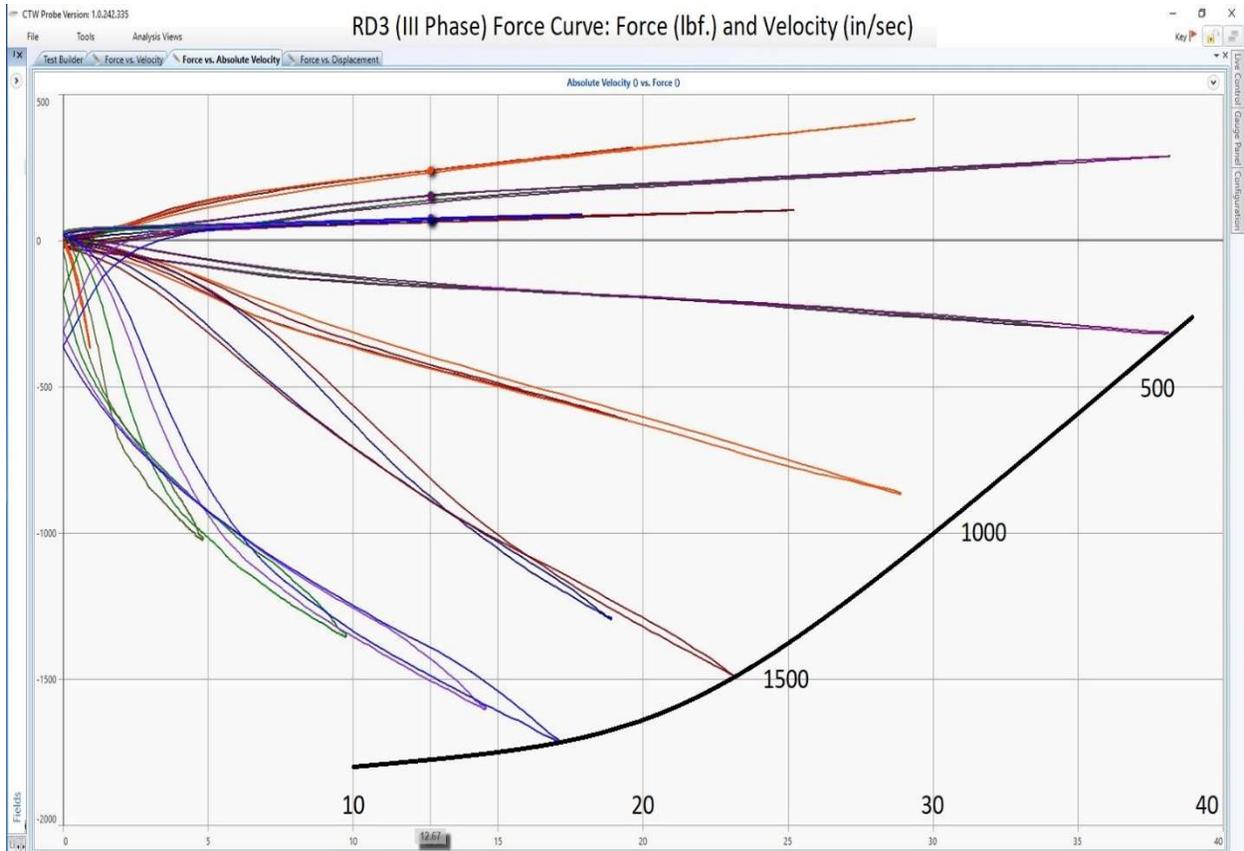
Training is not required but it is the only way to get the most out of your machine. You are welcome to come to Lexington for training or we can come to you at an additional cost. CTW also provides training videos and help on our YouTube channel.

### Support:

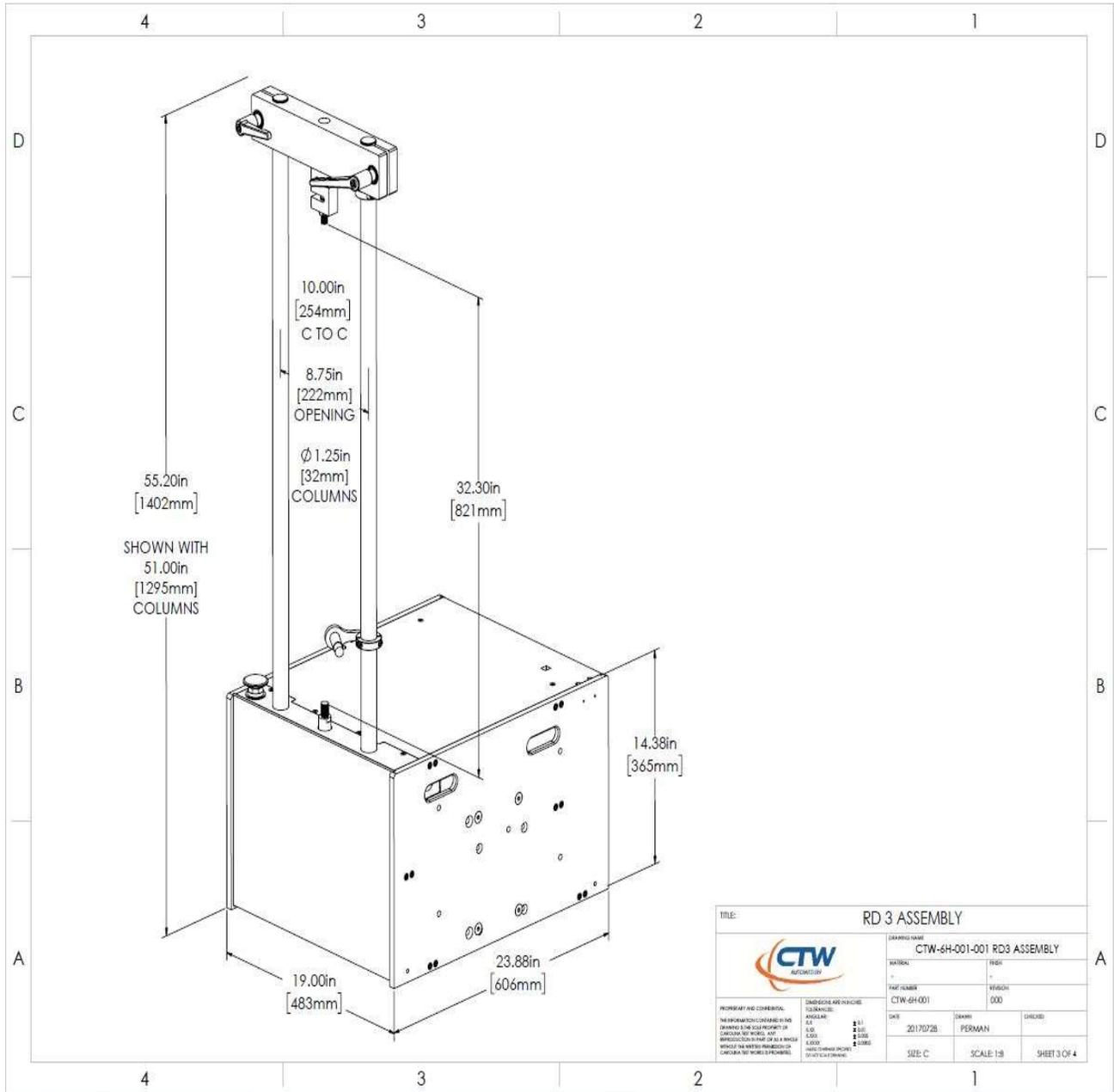
The RD3 comes with a 1 -Year phone and e-mail support contract as well as use of TeamViewer remote access ability for training and help. We want you to have every opportunity to use and get the most from the machine.

### Warranty:

The RD3 comes with a 1 -Year limited warranty on any item based on failure outside of user misuse.



Estimated Force and Velocity of the RD3 in Imperial and Metric notation



General Dimensional Outline of RD2 and RD3