

Vibrac prices are as follows (all prices are per unit as of 1/15/03):

[Model 1501 Motorized Torqo \(Lower Torque 10-70 oz-in\)](#) - \$8,550.00

[Model 1502 Motorized Torqo \(Standard Torque 10-70 in-lb\)](#) - \$7,960.00

[Model 1550 Motorized Torqo \(Heavy Duty Torque 100-200 in-lb\)](#) - \$9,750.00

General Accessories

- EPSN - [Serial Printer \(Add Paper Rolls \\$2.00 ea. & Ribbon Cartridges \\$9.00 ea.\)](#) - \$550.00
- 1605 - [Child Resistant Closure Adapter](#) - \$2,375.00
- MS - [Multi-Speed Option](#) - \$2,300.00
- MRPC - Moisture Resistant Protective Cover - \$145.00
- 106 - Mobile Torqo Cart - \$1,075.00
- KLS - [Key Lock Switch \(not available for Model 1500 Torqo\)](#) - \$250.00

Calibration Verification and Maintenance

- 1507 - [Field Calibration Kit](#) - \$1,000.00
- 19777 - [Calibration Weights](#) - \$825.00
- 1612SM - [Torqo Gold Bottle, Small 1 to 6 in-lb](#) - \$1,075.00
- 1612SD - [Torqo Gold Bottle, Standard 7 to 17 in-lb](#) - \$975.00
- 1612LG - [Torqo Gold Bottle, Large 18 to 35 in-lb](#) - \$1,950.00

Container Tooling

- 1506 - [Vertical Bottle Clamping Fixture](#) - \$1,425.00
- 1614 - [Universal Vice, Post Style](#) - \$950.00
- SRJ - [Special Rectangular Jaws Set for 1614 Vice](#) - \$350.00
- SCJ - [Special Curved Jaws Set for 1614 Vice](#) - \$390.00
- TFP - Torqo Fixture Plate (application specific) - \$750.00
- BHP - Bottle Holding Plate (application specific) - \$975.00

Closure Tooling

- 1606 - [Compressed Ring Cap Chuck](#) - \$525.00
- 19978 - [Molded Cap Chuck](#) - \$325.00
- 23378 - [Chuck, Twist Off Crown](#) - \$675.00
- EDM - [Special Machined Chucks](#) - \$650.00
- EDM-28 - [Chuck Assembly, 28 mm/120 Serration Beverage Cap](#) - \$675.00
- EDM-38 - [Chuck Assembly, 38 mm/80 Serrations Beverage Cap](#) - \$675.00
- UDC - Uni-Directional Chuck for Roll-On Cap (specify diameter) - \$825.00
- 1613 - Chuck Indexer - \$775.00

Regarding the tooling, we usually request that sample containers and caps be provided so that we can verify that they are properly secure during testing. The motorized testing systems are extremely accurate and reliable (no manual influences on torque readouts). Note: The proper tooling must be used to secure the container and cap...this will eliminate slippage which will invalidate torque measurement data.

Cap Torque Testing Systems

1502 Series Motorized Torqo (Standard Torque)

The torque ranges and accuracies that are listed in the following table are all inclusive. That is, any measurement performed will be within the 0.5% of full-scale specification.

The resolution of all Torqo models is 0.1%

<i>Model Number</i>	<i>Max. Torque Measurement</i>	<i>Accuracy +/- % Full Scale</i>	<i>Resolution</i>
1502-10	10 in-lb	0.5	.01 in-lb
1502-20	20 in-lb	0.5	.02 in-lb
1502-30	30 in-lb	0.5	.03 in-lb
1502-40	40 in-lb	0.5	.04 in-lb
1502-50	50 in-lb	0.5	.05 in-lb
1502-70	70 in-lb	0.5	.07 in-lb



Selecting the Correct Model

It is important to select the model where most of the testing will fall within the mid-range of the device (i.e., between 25% and 75% of the torque capacity). This will result in the greatest accuracy and repeatability of the measurements.

1501 Series Motorized Torqo (Lower Torque)

The torque ranges and accuracies that are listed in the following table are all inclusive. That is, any measurement performed will be within the *0.5% of full-scale* specification.

The resolution of all Torqo models is 0.1%.

<i>Model Number</i>	<i>Max. Torque Measurement</i>	<i>Accuracy +/- % Full Scale</i>	<i>Resolution</i>
1501-10	10 oz-in	0.5	.01 oz-in
1501-20	20 oz-in	0.5	.02 oz-in
1501-30	30 oz-in	0.5	.03 oz-in
1501-40	40 oz-in	0.5	.04 oz-in
1501-50	50 oz-in	0.5	.05 oz-in
1501-70	70 oz-in	0.5	.07 oz-in
1501-100	100 oz-in	0.5	.10 oz-in
1501-200	200 oz-in	0.5	.20 oz-in

1550 Series Motorized Torqo (Heavy Duty Torque)

The torque ranges and accuracies that are listed in the following table are all inclusive. That is, any measurement performed will be within the *0.5% of full-scale* specification.

<i>Model Number</i>	<i>Max. Torque Measurement</i>	<i>Accuracy +/- % Full Scale</i>	<i>Resolution</i>
1550-100	100 in-lb	0.5	.10 in-lb
1550-200	200 in-lb	0.5	.20 in-lb



Child Resistant Closure Adapter (1605)

The Model 1605 Child Resistant Closure Adapter enables the TORQO[®] to be used for measuring the removal torque on the CR type cap that requires a down force to be opened.

This option consists of a mechanism and gauge to allow for setting the down force on the closure.

An air supply with the ability to provide a minimum of 60 PSI is required for this option. Both an air filter and an adjustable air regulator are contained in this kit and permanently mounted to the drive cover. The regulator is used to set the down force that is applied during a test.

The installation of this option on a TORQO does not affect in any way its use on conventional bottles. When not in use the down force foot pivots to the rear.



Multi-Speed Option (MS)

The multi-speed option adds a selector switch on the rear panel of drive tower. This option was designed specifically for testing bottle caps with tamper evident bands. The increased speed of the drive provides for a cleaner tear of the material that connects the band to the cap.

This option may also be used for performing more rapid testing. However one must be careful, when using the system in this manner, to make sure that the increased speed is not distorting the measurements.

The Speed Selector Switch enables the user to select the following four speeds.

Position 1: 1 RPM

Position 2: 2 RPM

Position 3: 4 RPM

Position 4: 6 RPM

When a speed other than 1 RPM is selected, it will be used in all the Test Modes with the exception of the Removal & Incremental Mode. The Removal & Incremental Mode is an industry standard and cannot be changed, and this test is always performed at 1 RPM.

When a high speed is selected, the system will drive at the selected speed for the first 75% of a closing cycle and then automatically revert to 1 RPM for the remaining 25% of the cycle.



Key Lock Switch (KLS)

not available for Model 1500 Torqo

The key lock option adds a key actuated switch on the rear panel of drive tower.

This option was designed to prevent the inadvertent altering of the Torqo setup



Vertical Bottle Clamping Fixture (1506)

The Model 1506 Vertical Bottle Clamping Fixture is a quick acting bottle holding device that can be easily adjusted to accommodate from 10 oz. to 3 liter bottles.

This fixture can be used for many different bottles outside of the beverage industry.

The clamp mechanism is vertically adjustable and actuated by an over center type clamp. A urethane clamping ring is provided for securing the bottle without causing any cosmetic damage to the exterior of the bottle.

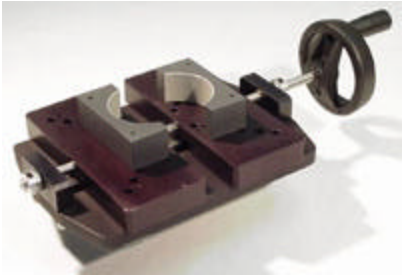
Made entirely from corrosion-resisting materials, this device can be fully submerged in hot soapy water for cleaning.



Universal Vice, Post Style (1614)



Special Rectangular Jaws Set for 1614 Vice (SRJ)



Special Curved Jaws Set for 1614 Vice (SCJ)



Molded Cap Chuck (19978)

This type of chuck is used when a cap has relatively coarse serration or some other outstanding feature that may be used as a driving point. A molded chuck can usually be shipped in less than 5 working days from receipt of samples. (3 samples required)



Special Machined Chucks (EDM)

Chuck Assembly, 28 mm/120 Serration Beverage Cap (EDM-28)

Chuck Assembly, 38 mm/80 Serrations Beverage Cap (EDM-38)



Chuck, Twist Off Crown (23378)

This chuck is used in applications where Twist Off Crowns are being used. This type of cap is most frequently found in the beer and wine industries. Crown chucks are normally shipped from stock.



Compressed Ring Cap Chuck (1606)

The model 1606 Compressed Ring Cap Chuck is used for gripping primarily smooth sided caps. However this chuck may also be used on a finely serrated cap or an non-uniformly serrated cap. In the beverage industry this chuck is used on aluminum roll on caps and lug caps, while in the pharmaceutical industry this device is used on steel continuous thread type caps. A compression ring chuck can be easily converted from one cap diameter to another by merely changing two or three parts. 18 mm to 53 mm caps can be accommodated in this chucking system. An EDM style chuck is frequently used for gripping finely serrated caps with serrations that are greater than .006 inches deep but less than .030 inches deep. These chucks are made from 303 stainless steel to insure long life and prevent corrosion. This type of cap is frequently found in the beverage industry on bottles like Coca-Cola, Pepsi-Cola, etc. Chucks are available for many different manufacturers' caps and therefore one should consult the factory for additional information before ordering.



Field Calibration Kit (1507)

With a 1507 Calibration Kit, the accuracy of your TORQO[®] can be verified or a complete on-site calibration can be performed by the user.

Contained in this kit is a precision Calibration Disk (C-19935), a ball bearing load support assembly (D-19777) and the necessary hardware to use this kit.

The weights required for performing a calibration are not included in the kit but may be purchased from Vibrac[®]. They are sold as a separate item because they will vary with the torque capacity of the TORQO and in some cases the user may already have suitable weights. When the weights are purchased from Vibrac[®] NIST Traceability certification is provided.

The Calibration Disk is manufactured to a tolerance that will insure an accuracy of +/- .02%. In addition, a certificate insuring the traceability of these dimensions to NIST is supplied.



Calibration Weights (19777)

The weights required for performing a calibration are not included in the calibration kit. They are sold as a separate item because they will vary with the torque capacity of the TORQO and in some cases the user may already have suitable weights. When the weights are purchased from Vibrac® NIST Traceability certification is provided.



Torqo Gold Bottle (1612)

Torqo Gold Bottle, Small 1 to 6 in-lb (1612SM)

Torqo Gold Bottle, Standard 7 to 17 in-lb (1612SD)

Torqo Gold Bottle, Large 18 to 35 in-lb (1612LG)

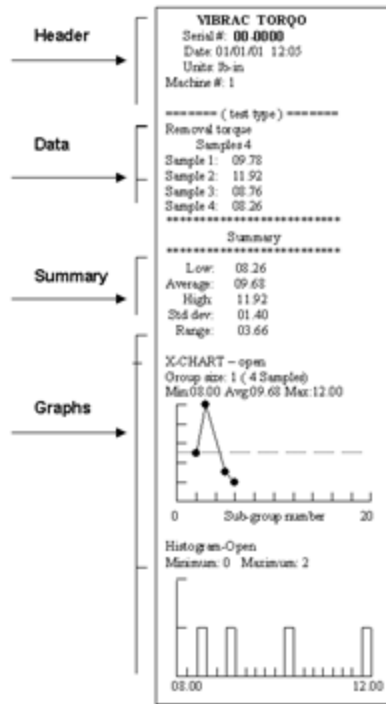
The Model 1612 Gold Bottle is used to verify the operational repeatability of the Model 1500 series TORQO. This bottle is constructed with high energy permanent magnets and is pre-set at the factory to a customer specified torque value of between 1 to 35 inch pounds. Each Gold Bottle is labeled with its exact torque rating and repeats to an accuracy of +/- 0.2 inch pounds.

Since the cap torque of this bottle is the torque produced by the permanent magnets, the value will always be the same.

Therefore, when tested on the TORQO, the measured value will always be the same unless something has changed within the TORQO itself. The user is thus able to quickly check the TORQO

without having to go through the calibration procedure.

The Gold Bottle is provided with a 28mm to 43mm cap to match the customer's chuck. Vibrac® can also provide the bottle with any customer supplied cap at a nominal additional cost.



Serial Printer (EPSN)

Plus Paper Rolls & Ribbon Cartridges
 The following list of printed reports can be obtained

Numerical Summary Graphical Charts, Machine List of

from the Torqo.
 Header Information
 Test Data
 Data
 Data - X-Charts, R-
 Histograms Current
 Configuration
 Currently Used Machine Numbers
 Configuration and Calibration Data

Sample Printout

The sample printout to the right depicts the major features of a printed report.