GTS30V achieves the longest travel range, highest speed and best accuracy and repeatability compared to other platform vertical stages.

**Anti-Creep Crossed Roller Bearings**
The optimum bearing contact found in the ultra-quiet, anti-creep, crossed roller bearings reduce the measurement noise and eliminate measurement variation, thus allowing for outstanding trajectory and precise, ripple-free motion.

**High Efficiency Drive Train**
A folded DC motor with a precision ground, low-friction lead screw delivers ultra-smooth motion even at high loads. A reduction belt between the motor and the lead screw increases the available output torque and reduces servo sensitivity, ensuring 100 nm MIM.

**Direct Position Feedback**
Precision position feedback is supplied by a linear scale encoder, which contributes to sub-micron MIM and makes the GTS30V less susceptible to hysteresis. The direct read encoder system is impervious to position drift caused by motion-induced heating of the lead screw for improved accuracy and repeatability.

**Plug and Play - ESP Compatible**
The GTS30V is an ESP-compatible stage. When connected to a Newport controller, it is quickly recognized and its operating parameters are configured without the need for user input. This Plug and Play feature is not only transparent to the use, but it also ensures the safe operation of the stage.

### Design Details
- **Base Material**: High-strength 7075 Aluminum
- **Bearings**: Anti-creep crossed roller bearings
- **Drive Mechanism**: Precision ground lead screw, gravity preloaded nut
- **Drive Screw Pitch**: 1 mm
- **Feedback**: Linear steel scale, 20 µm signal period, 0.05 µm resolution, RS-422 differential output
- **Limit Switches**: Optical
- **Origin**: Optical, located 5 mm from lower position travel limit
- **Drive**: Type DC Servo
- **Cable Length**: 3 m (included)

**Manual Knob**
The manual knob is convenient when the power is off and when quick and coarse adjustment is needed.
GTS30V High-Precision Vertical Linear Stage

Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Range (mm)</td>
<td>30 (-5/+25 from origin)</td>
</tr>
<tr>
<td>Minimum Incremental Motion (µm)</td>
<td>0.1</td>
</tr>
<tr>
<td>Bi-directional Repeatability, Typical</td>
<td>±0.07 (± 0.10)</td>
</tr>
<tr>
<td>Accuracy, Typical, Guaranteed (µm)</td>
<td>±0.37 (±0.75)</td>
</tr>
<tr>
<td>Maximum Speed (mm/s)</td>
<td>10</td>
</tr>
<tr>
<td>Straightness, Flatness (µm)</td>
<td>1.5 or ± 0.75</td>
</tr>
<tr>
<td>Pitch, Typical, Guaranteed (µrad)</td>
<td>±20 (±25)</td>
</tr>
<tr>
<td>Roll, Typical, Guaranteed (µrad)</td>
<td>±12 (±25)</td>
</tr>
<tr>
<td>MTBF (h)</td>
<td>20,000 hours at 25% load and with a 30% duty cycle</td>
</tr>
</tbody>
</table>

1) For the definition of Typical and Guaranteed specifications see “Motion Basics Terminology & Standards” Tutorial at www.newport.com
2) To obtain arcsec units, divide µrad value by 4.8.

Ordering Information

<table>
<thead>
<tr>
<th>Stages</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Precision Vertical Stage, 30 mm Travel</td>
<td>GTS30V</td>
</tr>
</tbody>
</table>

Recommended Controllers/Drivers

- 1- to 8-axis universal high-performance motion controller/driver
  XPS-D
- Universal digital driver card for stepper, DC and direct motors
  XPS-DRV11
- 1- to 4-axis universal high-performance motion controller/driver
  XPS-RL
- PWM drive module for DC brush and stepper motors, 3 A/43 V max.
  XPS-DRV01
- 1- to 3-axis motion controller/driver
  ESP301
- Single-axis DC motor controller/driver
  SMC100CC

Dimensions

Load Characteristics and Stiffness

- Cz, Normal centered load capacity
  40 N
- Kax, Compliance in roll
  40 µrad/Nm
- Kay, Compliance in pitch
  40 µrad/Nm
- Kaz, Compliance in yaw
  25 µrad/Nm
- Q, Off-center load (N)
  \( Q \leq \frac{Cz}{1 + D/30} \) and \( D_{MAX} = 100 \text{ mm} \)

Where \( D \) = Cantilever distance (mm)

DIMENSIONS IN INCHES (AND MILLIMETERS)