



# Precision Linear Transducers, Conductive Plastic, up to 450 mm



### FEATURES

- Measurement range 25 mm to 450 mm
- High accuracy  $\pm 1\%$  down to  $\pm 0.025\%$
- Essentially infinite resolution
- Long life
- Sealed on request
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

The 34 L is a compact, accurate and adaptable motion transducer for both industrial and military markets.

### QUICK REFERENCE DATA

|                  |                                       |
|------------------|---------------------------------------|
| Sensor type      | LINEAR, conductive plastic            |
| Output type      | Wires                                 |
| Market appliance | Professional                          |
| Dimensions       | L x 19 mm dia. (with L = TET + 63 mm) |

### ELECTRICAL SPECIFICATIONS

|  |  |
|--|--|
| Theoretical electrical travel (TET = E) in increments of 25 mm | 25 mm<br>450 mm  |
| Independent linearity (over TET)<br>On request                 | $\leq \pm 1\%$ - $\leq \pm 0.1\%$<br>$\leq \pm 0.05\%$ for $E \geq 100$ mm<br>$\leq \pm 0.025\%$ for $E \geq 200$ mm |
| Actual electrical travel (AET)                                 | See table 1  |
| Ohmic values ( $R_T$ )   | From 400 $\Omega$ /cm to 2 k $\Omega$ /cm  |
| Resistance tolerance at 20 °C                                  | $\pm 20\%$   |
| Repeatability  | $\leq 0.01\%$  |
| Maximum power rating   | 0.05 W/cm at 70 °C, 0 W at 125 °C  |
| Wiper current  | Recommended: a few $\mu$ A - 1 mA max. (continuous)  |
| Load resistance  | Minimum $10^3 \times R_T$  |
| Number of tracks   | 1; on request 2  |
| Insulation resistance  | $\geq 1000$ M $\Omega$ , 500 V <sub>DC</sub>   |
| Dielectric strength  | $\geq 750$ V <sub>RMS</sub> , 50 Hz  |

### MECHANICAL SPECIFICATIONS

|                               |  |                                  |
|-------------------------------|--|----------------------------------|
| Mechanical travel             | TET + 2 mm min.                                      |                                  |
| Housing                       | Anodized aluminum                                    |                                  |
| Operating force<br>On Request | 0.35 N typical<br>(standard model)                   | 2.50 N typical<br>(sealed model) |
| Shaft (free rotation)         | Stainless steel                                      |                                  |
| Termination<br>On request     | 3 wires PTFE AWG-30 L = 300 mm<br>cable or connector |                                  |
| Wiper                         | Precious metal multifinger                           |                                  |
| Sealing                       | IP65 on request                                      |                                  |

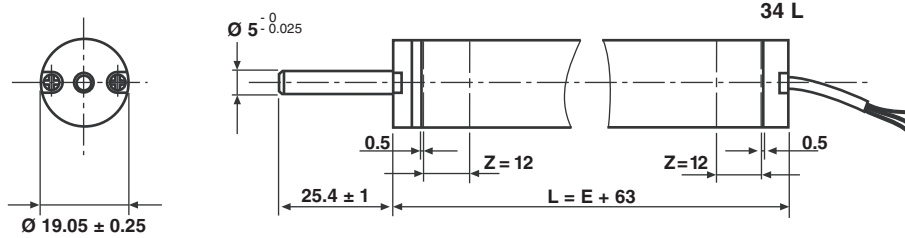
### PERFORMANCE

|                             |   |
|-----------------------------|---|
| Operating life              | 25 million cycles typical/1 Hz/T° = 20 °C $\pm$ 5 °C/80 % TET |
| Temperature range           | -55 °C to +125 °C   |
| Sine vibration on 3 axes    | 1.5 mm peak to peak or 15 g - 10 Hz - 2000 Hz                 |
| Mechanical shocks on 3 axes | 50 g - 11 ms - half sine                                      |

#### Note

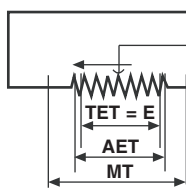
- Nothing stated herein shall be construed as a guarantee of quality or durability.

**STANDARD MODEL DIMENSIONS** in millimeters, general tolerance  $\pm 1$  mm



Z = TIGHTENING ZONE

**ELECTRICAL CONNECTIONS**



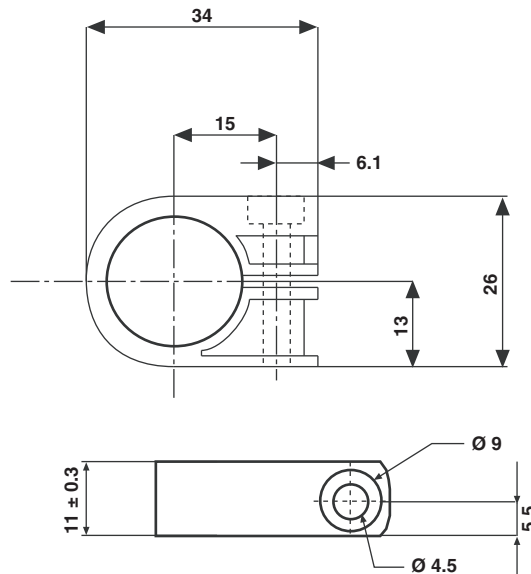
| TERMINALS    | WIRE   | CABLE |
|--------------|--------|-------|
| 3 ALIM. (+): | GREEN  | BLUE  |
| 2 WIPER:     | RED    | RED   |
| 1 ALIM. (-): | YELLOW | WHITE |

TET = THEORETICAL ELECTRICAL TRAVEL  
 AET = ACTUAL ELECTRICAL TRAVEL  
 MT = MECHANICAL TRAVEL

| TET = E          | AET      | TOL.         |
|------------------|----------|--------------|
| 25 mm to 275 mm  | E + 1 mm | $\pm 0.5$ mm |
| 300 mm to 450 mm | E + 1 mm | $\pm 0.8$ mm |

**ACCESSORIES ON REQUEST - DIMENSIONS** in millimeters, general tolerance  $\pm 3$  mm

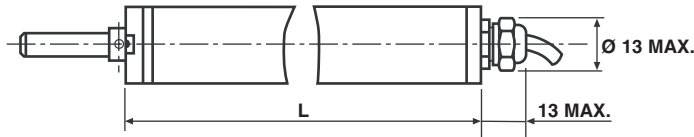
Clamp for 34L  
 Vishay Reference: CQ00051





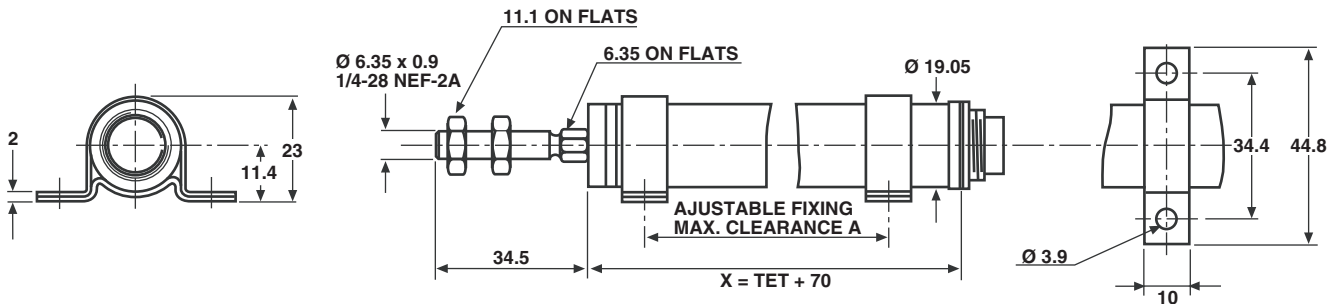
**OPTIONS - DIMENSIONS** in millimeters, general tolerance  $\pm 1$  mm

**OPTION 1: SEALED (IP65): W03280**

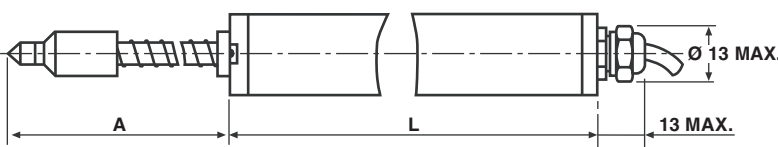


| MODEL | CODE   | L          |
|-------|--------|------------|
| 34 L  | W03280 | TET + 83.5 |

**OPTION 2: DELIVERED WITH CLAMPS AND BINDER CONNECTOR 680: W05013**

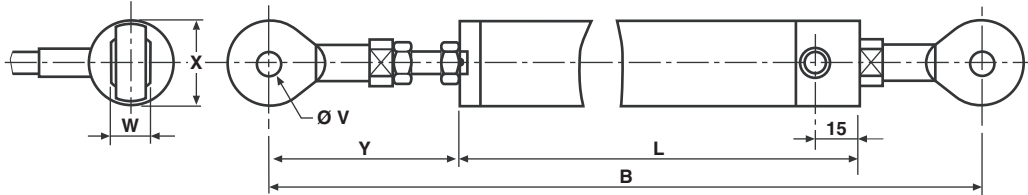


**OPTION 3: SPRING LOADED SHAFT; OUTPUT BY SHIELDED CABLE: W01744**



| MODEL | CODE   | A     | L           |
|-------|--------|-------|-------------|
| 34 L1 | W01744 | 61.4  | TET + 119.5 |
| 34 L2 | W01744 | 93.6  |             |
| 34 L3 | W01744 | 125.8 |             |
| 34 L4 | W01744 | 158   |             |

**OPTION 4: DOUBLE BALL JOINT: W03263**



| MODEL CODE           | B           | L           | Ø V | W | X  | Y      | TET        |
|----------------------|-------------|-------------|-----|---|----|--------|------------|
| 34 L W03263 L1 to L5 | TET + 151.6 | TET + 82.8  | 5   | 8 | 18 | 42 ± 2 | 25 to 125  |
| L6 to L10            | TET + 173.6 | TET + 104.8 | 5   | 8 | 18 | 42 ± 2 | 150 to 250 |
| L11 to L12           | TET + 230   | TET + 161.2 | 5   | 8 | 18 | 42 ± 2 | 275 to 300 |

**ORDERING INFORMATION/DESCRIPTION**

| REC    | 34    | L                            | 3                             | D   | 103   | W...                        | e.          |
|--------|-------|------------------------------|-------------------------------|---|---|-----------------------------|-------------|
| SERIES | MODEL | NUMBER OF TRACKS             | THEORETICAL ELECTRICAL TRAVEL | LINEARITY   | OHMIC VALUE   | MODIFICATIONS               | LEAD FINISH |
|        |       | L = 1 track<br>LL = 2 tracks | Times 25 mm                   | A: $\pm 1$ %<br>D: $\pm 0.1$ %<br>E: $\pm 0.05$ %<br>F: $\pm 0.025$ % | First 2 digits are significant numbers<br>3 <sup>rd</sup> digit indicates number of zeros | Special feature code number |             |

**SAP PART NUMBERING GUIDELINES**

| RE     | 34 L  | 3   | D         | 103         | W....            |
|--------|-------|-----|-----------|-------------|------------------|
| SERIES | MODEL | TET | LINEARITY | OHMIC VALUE | SPECIAL FEATURES |



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