

# Leaded ROL® 400

FOR QFP, SO, SOIC, SOJ, SOP, PLCC, TSOP, AND SOT APPLICATIONS

## Your Solution for Analog / Mixed Signal Testing Precision Measurements

The *Leaded ROL® 400* utilizes Johnstech's patented ROL® technology, widely-known for its excellent electrical performance and proven mechanical reliability. The *Leaded ROL® 400* Contactor is ideally suited for high-volume testing of Analog and Mixed Signal devices, and is offered in two Contact configurations developed specifically for the unique challenges and different device platings.

### Contacts

Gold-Plated  
XL-2

### Device Platings

Matte Tin (Sn) & Tin-Based  
Nickel Palladium Gold (NiPdAu)

## Characterization

Johnstech Contactors are unsurpassed for Manual Device Evaluation, Lab Testing, Prototyping and Characterization.

- **Designed to test to 5+ GHz.**
- **Reliable and repeatable results**
- **Lab performance correlates to Production Test Floor**
- **Robust Manual Actuator life of 10K+ insertions**

## Production Test

The "rolling contact" design of the *Leaded ROL® 400* Contactor is especially well-suited to Production Test providing:

- **Consistent Contact Resistance**
- **Optimized Electrical Performance**
- **Higher First Pass Yields**
- **Less Frequent Cleaning**
- **Longer MTBA (Mean Time Between Assists)**
- **Prolonged Load Board Life**
- **Footprint Compatible with Leaded Series 4mm**
- **Simplified Maintenance & Rebuilding**
- **Improved OEE (Overall Equipment Efficiency)**
- **Lower Overall COT (Cost of Test)**



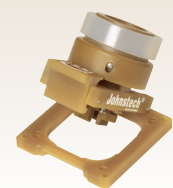
Gold-Plated  
Contact Profile



Low-Force XL-2  
Contact Profile



ZMA  
Z-Axis  
Manual Actuator



VMA  
Vertical  
Manual Actuator

**Johnstech®**

SMART. CONNECTED. GLOBAL.



# Leaded ROL<sup>®</sup> 400

| Electrical Specifications                                   | Matte Tin Configuration            | NiPdAu Configuration               |
|---|------------------------------------|------------------------------------|
| Electrical Length (compressed height):                      | 3.60 mm                            | 3.54 mm                            |
| Inductance:   | Self: 0.47 nH<br>Mutual: 0.21 nH   | Self: 0.69 nH<br>Mutual: 0.26 nH   |
| Capacitance:  | Ground: 0.42 pF<br>Mutual: 0.34 pF | Ground: 0.45 pF<br>Mutual: 0.28 pF |
| S <sub>21</sub> Insertion Loss (GSG):                       | -1dB @ 5.4 GHz                     | -1dB @ 5.8 GHz                     |
| S <sub>11</sub> Return Loss (GSG):                          | -20dB @ 1.2 GHz                    | -20dB @ 1.2 GHz                    |
| S <sub>41</sub> Crosstalk (GSSG):                           | -20dB @ 3.8 GHz                    | -20dB @ 6.4 GHz                    |
| Average CRES:   | <30 mΩ                             | <20 mΩ                             |
| Current Carrying Capability*:<br>(Duty cycle 100%, 50%, 1%) | 4.9A, 9.0A, 14.3A                  | 3.4A, 6.4A, 15.8A                  |
| Current Leakage:  | <1pA @ 10V                         |                                    |
| Nearest Decoupling Area:                                    | 1.80 mm                            |                                    |

| Mechanical Specifications       | Matte Tin Configuration   | NiPdAu Configuration |
|---------------------------------|---|----------------------|
| Physical Compressed Height:     | 2.79 mm   |                      |
| Contact Life (# of insertions): | Elastomers = 300,000<br>Contacts = 500,000+<br>Housing = 2,000,000+ |                      |
| Contact Compliance:             | 0.23 mm   |                      |
| Contact Force (per contact):    | 60 grams  | 40 grams             |
| Contact Tip Coplanarity:        | 0.05 mm   |                      |
| Temperature:                    | -40°C to 155°C  |                      |
| Housing Material:               | Torlon <sup>®</sup> 5030  |                      |
| Contacts Material:              | BeCuNiAu  | XL-2                 |

Results for 0.5mm pitch configurations. Specifications provided here are based on internal testing at Johnstech, customer production sites, and third party electrical testing. Actual individual results may vary based on a wide range of variables including: handler/contacter/load board interface, handler plunge depth and velocity, device presentation, alignment plate condition, package plating characteristics, test floor conditions, maintenance activities, mounting/fastening techniques, non-coplanarity from site to site, non-coplanar docking, and temperature extremes.

\* Test conditions: 300 msec pulse, 20°C temperature rise.

## Manual Actuator

VMA (Vertical Manual Actuator)  
ZMA (Z-Axis Manual Actuator)

## Housing Options

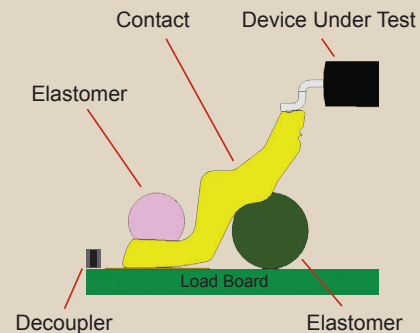
Housings are offered in standard handler specific sizes with custom sizes also available

## Contact Options

Gold-Plated or Low Force XL-2  
Pitches from 0.50mm – 1.27mm

## Methodology

Matte Tin configuration shown.



## Johnstech Services and Contact Information

### Johnstech Services/Resource Options

Test Floor Technical Support - Worldwide Field Service Offices; First-Pass Yield Enhancement; Performance Audits; Customized Training and Applications Engineering. Online Tech Support at [www.johnstech.com/support](http://www.johnstech.com/support)

### Engineering Services

Mobile RF Modeling, Wafer Level Thermal Analysis, Die Shrink Test Planning, Test Signal Integrity Optimization, Test Cell Integration, and Probe Card PCB Evaluation.

### Website ([www.johnstech.com](http://www.johnstech.com))

Product, Test, Industry Support Information; Downloadable, Product Spec Sheets; Maintenance and Inspection Guides; Tech Papers and Application Notes.

**Johnstech<sup>®</sup>**

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