



# LEADED ROL<sup>®</sup> 400

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

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

The *Leaded ROL<sup>®</sup> 400* utilizes Johnstech's patented ROL<sup>®</sup> technology, widely-known for its excellent electrical performance and proven mechanical reliability. The *Leaded ROL<sup>®</sup> 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	Device Platings
Gold-Plated XL-2	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**

FEATURES & BENEFITS (0.5 Pitch)	
<b>FREQUENCY</b>	5.4GHz Matte Tin; 5.8GHz NiPdAu
<b>PITCH</b>	≥ 0.4mm
<b>TEMPERATURE</b>	-40°C to 155°C
<b>CURRENT CARRY CAPABILITY @ 100%</b>	4.9A Matte Tin; 3.4A NiPdAu

## Production Test

The "rolling contact" design of the *Leaded ROL<sup>®</sup> 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)**



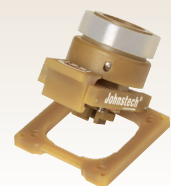
Gold-Plated  
Contact Profile  
Matte Tin  
Configuration



Low-Force XL-2  
Contact Profile  
NiPdAu  
Configuration



DL-VCMA Plus™  
Double-Latch Vertically  
Compliant Manual  
Actuator



SL-VCMA  
Single-Latch Vertically  
Compliant Manual  
Actuator



# 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 Mutual: 0.21 nH	Self: 0.69 nH Mutual: 0.26 nH
Capacitance:	Ground: 0.42 pF Mutual: 0.34 pF	Ground: 0.45 pF 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 mOhms	<20 mOhms
Current Carrying Capability*: (Duty cycle 100%, 50%, 1%)	4.9A, 9.0A, 14.3A	3.4A, 6.4A, 15.8A
RMS Current Carrying Capability**: (Duty cycle 100%, 50%, 1%)	4.9A, 6.9A, 49.0A	3.4A, 4.8A, 33.7A
Current Leakage:	<1pA @ 10V	
Nearest Decoupling Area:	1.80 mm	

NOTE: Specifications for 0.5mm pitch configurations shown here. These specifications are based on a combination of internal and third-party measured testing.

\* Test conditions: 300 msec pulse, 20°C temperature rise. Higher currents allowed for higher temperature rises.

\*\* RMS current carrying capacity for pulsed applications. Values based on measured steady state current capacity, standardized to 1 Hz test cycle, 20°C temperature rise. Higher currents allowed for higher temperature rises.

## 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

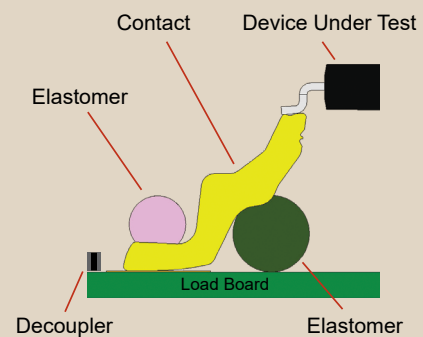
Gold-Plated or Low Force XL-2  
Pitches from 0.50mm – 1.27mm

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

\*\*\* Contact, elastomer, and housing life values are TYPICAL based on Johnstech internal testing. Actual production life will vary based on a wide range of variables including: handler, Contactor, and load board interface; handler plunge depth and velocity; device presentation; alignment plate condition; package plating material and characteristics; test floor conditions; maintenance activities; mounting/fastening techniques; site-to-site coplanarity; docking coplanarity; and temperature extremes.

## Methodology

Matte Tin configuration shown.



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