

Dial Indicator 400 Series

Standard: DIN 878

MW400-02



MW400-03



MW400-04



MW400-05



MW400-06



MW400-06B



MW400-08



MW400-09



Features

- Satin-chromed body
- With tungsten carbide measuring contact
- With double dial indicator for measuring mm stroke
- Shockproof
- Micron versions are jewelled
- Adjustable scale with stop screw
- Packed in foam box

DIAL INDICATOR 400 SERIES

Code No	Range	Resolution	Diameter
MW400-01	0-1mm	0.001mm	58mm/flat
MW400-02	0-1mm	0.001mm	58mm/ear
MW400-03	0-3mm	0.01mm	42mm/ear
MW400-04	0-5mm	0.01mm	42mm/ear
MW400-05	0-10mm	0.01mm	58mm/flat
MW400-06	0-10mm	0.01mm	58mm/ear
MW400-06B	0-10mm	0.01mm	54mm/waterproof
MW400-08	0-30mm	0.01mm	58mm/ear
MW400-09	0-50mm	0.01mm	58mm/ear

Dial Indicator 401 Series

Features

Standard: ANSI B89.1.10

- Aluminium body
- With Tungsten carbide measuring tip
- Adjustable bezel with stop screw
- Tolerance indicators
- Lug back (flat back is optional)



MW401-01



MW401-02



MW401-05

DIAL INDICATOR 401 SERIES

Code No	Range	Resolution	Bezel Diameter	Stem Diameter
MW401-01	0-0.5"	0.001"	58mm/ear	3/8" spindle dia.
MW401-02	0-1.0"	0.001"	58mm/ear	3/8" spindle dia.
MW401-05	0-25mm / 1"	0.01mm / 0.001"	60mm/ear	8mm spindle dia.

Dial Indicator

Features

- Housings machined from solid brass
- Lapped stainless steel spindle and stem
- Robust design suited to workshop use
- Unbreakable Plexi-glass face
- Shockproof versions available on some models to protect indicator mechanism from hard impacts on the stem
- Water and oil proof versions available on some models (not 300 Series)



DIP-224M



DIP-302M



DIP-222M



DIP-223M



DIP-502M

METRIC: DIAL INDICATORS, PLUNGER

Code No	Measuring range	Dial graduation	One revolution of pointer	Scale reading	Bezel diameter	Stem diameter	Water proof	Shock proof	Lug back No.
DIP-402M	1mm	0.001mm	0.2mm	0-100-0	58mm	8mm h6	✗	✗	DIS842X
DIP-502M	5mm	0.01mm	0.5mm	0-50	40mm	8mm h6	✗	✗	DIS841X
DIP-504M	5mm	0.01mm	0.5mm	0-50	40mm	8mm h6	✓	✓	DIS841X
DIP-222M	10mm	0.01mm	1mm	0-100	58mm	8mm h6	✗	✗	DIS842X
DIP-223M	10mm	0.01mm	1mm	0-100	58mm	8mm h6	✗	✓	DIS848X
DIP-224M	10mm	0.01mm	1mm	0-100	61mm	8mm h6	✓	✓	DIS842X
DIP-302M	30mm	0.01mm	1mm	0-100 / 0-30	58mm	8mm h6	✗	✗	DIS842X

IMPERIAL: DIAL INDICATORS, PLUNGER

Code No	Measuring range	Dial graduation	One revolution of pointer	Scale reading	Bezel diameter	Stem diameter	Water proof	Shock proof	Lug back No.
DIP-402E	0.040"	0.0001"	0.010"	0-10	2 1/4"	0.318"	✗	✗	DIS842X
DIP-222E	0.400"	0.0005"	0.05"	0-50	2 1/4"	0.318"	✗	✗	DIS842X
DIP-223E	0.400"	0.0005"	0.05"	0-50	2 1/4"	0.318"	✗	✓	DIS842X
DIP-224E	0.400"	0.0005"	0.05"	0-50	2 1/4"	0.318"	✓	✓	DIS842X
DIP-232E	0.400"	0.001"	0.100"	0-100	2 1/4"	0.318"	✗	✗	DIS842X
DIP-233E	0.400"	0.001"	0.100"	0-100	2 1/4"	0.318"	✗	✓	DIS842X
DIP-234E	0.400"	0.001"	0.100"	0-100 / 0-10	2 1/4"	0.318"	✓	✓	DIS842X
DIP-302E	1.000"	0.001"	0.100"	0-100	2 1/4"	0.375"	✗	✗	DIS842X

Dial Test Indicator 420 Series

Features

- Automatic reversal of measuring direction
- High precision fully jewelled bearings
- Rotating dial
- Two dovetail clamps
- Carbide points



DIAL TEST INDICATOR 420 SERIES

Code No	Range	Graduation	Dial Reading	Dial Diameter	Styli Length
MW420-03	0.8mm	0.01mm	0-40-0	25mm	12mm
MW420-03I	0.030"	0.0005"	0-15-0	1"	1/2"
MW420-04	0.8mm	0.01mm	0-40-0	37mm	12mm
MW420-04I	0.030"	0.0005"	0-15-0	1 1/2"	1/2"

Dial Test Indicator 421 Series

Features

- Automatic reversal of measuring direction
- High precision fully jewelled bearings
- Rotating dial
- Two dovetail clamps
- Carbide points



DIAL TEST INDICATOR 421 SERIES

Code No	Range	Graduation	Dial Reading	Dial Diameter	Styli Length
MW421-01	0.2mm	0.002mm	0-100-0	25mm	12mm
MW421-01I	0.008"	0.0001"	0-4-0	1"	1/2"
MW421-02	0.2mm	0.002mm	0-100-0	37mm	12mm
MW421-02I	0.008"	0.0001"	0-4-0	1 1/2"	1/2"

Dial Test Indicator 422 Series

Features

- Long range - twice the range of most indicators
- Automatic reversal of measuring direction
- High precision fully jewelled bearings
- Rotating dial
- Two dovetail clamps
- Carbide points



DIAL TEST INDICATOR 422 SERIES

Code No	Range	Graduation	Dial Reading	Dial Diameter	Styli Length
MW422-01	1.6mm	0.01mm	0-40-0	37mm	12mm
MW422-01I	0.060"	0.0005"	0-15-0	1 1/2"	1/2"

Dial Test Indicator Accessories



DIAL TEST INDICATOR: ACCESSORIES

Code No	Description
MW-Z400/10	Universal Holder
MW-Z400/12	Contact point 12mm length, 1mm steel ball
MW-Z400/13	Contact point 12mm length, 2mm carbide ball
MW-Z400/14	Contact point 12mm length, 3mm carbide ball
MW-Z400/16	Contact point 1/2" length, 0.040" steel ball
MW-Z400/18	Contact point 1/2" length, 0.120" carbide ball
MW-Z400/20	Dovetail stem 4mm clamping diameter
MW-Z400/22	Dovetail stem 8mm clamping diameter

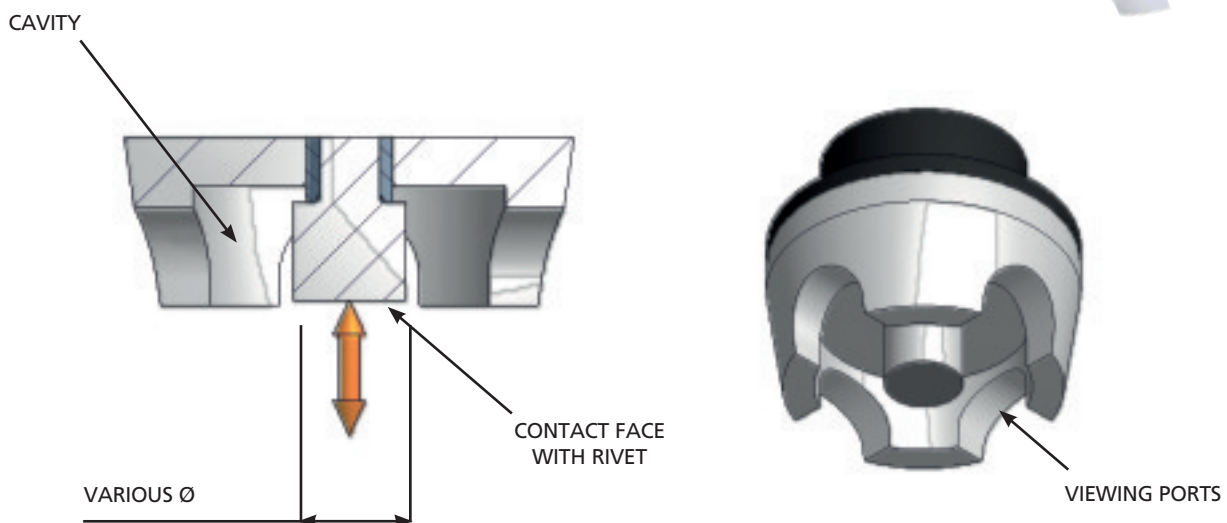
Bowers Aerospace Specials - Rivet Height Gauge

The **Bowers Rivet Height Gauge** has been specially designed to measure the height of rivets used on aircraft outer skin. If the top of the rivet is too high above or too low below the level of the rivet-hole, the streamlining of the aircraft will be affected. This wind-resistance will be magnified many times depending on the number of rivets present in the outer hull of the aircraft. The rivet-height gauge measures the height of the top of the rivet in relation to the level of the surrounding aircraft skin, enabling tolerances to be maintained and providing a valuable reference measurement to help determine the streamlining of the aircraft and the consequent effects on its aerodynamics and fuel efficiency.

Features

- Rivet diameters : 3/16", 1/4", 5/16", 3/8" available as standard
- Other rivet diameters available on request
- Digital display with mm / inch conversion and preset function
- Resolution : 0.0005" / 0.001 mm
- Repeatability +/- 0.003µm
- RS-232 data output
- Scalloped base to facilitate visual location over the rivet
- Very easy to use
- Small portable format
- Robust construction

Different diameter and contact point options are available on request



Bowers can deliver innovative and cost-effective solutions to the most demanding measurement challenge. If you have a specific requirement that you would like Bowers to assist with, please contact the Sales Team direct.

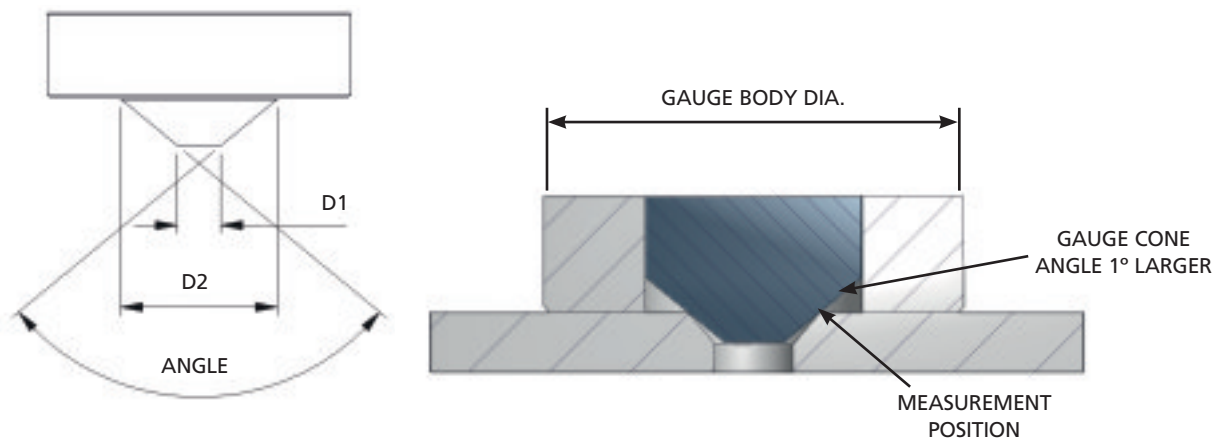
Bowers Aerospace Specials - Digital Countersink Gauge

The **Bowers Countersink Gauge** can be used to check the major diameters of countersinks in the aircraft outer skin, prior to the application of rivets. The gauge can also be used for countersink measurement in general applications within the aerospace, automotive and other related industries. The unit shown here is fitted with a Sylvac Digital Indicator with Factor function, but can also be fitted with a Sylvac Probe connected to a D80S or D100S Digital Display Unit as shown on pages 108-111.

Features

- Standard range diameter 6-16mm / 1/4-5/8"
- Switchable resolution - inch/metric true conversion
- Preset facility
- Tolerance mode
- All digital indicator features can be locked for security
- RS-232 data output
- Robust construction, hardened plunger, induction hardened body
- Standard plungers available to measure 90°, 100° and 110°
- Other angles available on request
- Setting master supplied as standard

Alternative size ranges can be manufactured to order.



DIGITAL COUNTERSINK GAUGE

Item Code No	Size Imperial	Size Metric	Cone Ø (mm)		Setting Ring Ø (mm) Conical	Case Code No
			Min	Max		
BCSG001M	3/16" - 1/2"	4.76 - 12.7	3	14	8	10-CSG
BCSG002M	1/2" - 3/4"	12.7 - 19.05	10	21	16	10-CSG
BCSG003M	3/4" - 1 1/8"	19.05 - 28.57	17	30	23	10-CSG
BCSG004M	1 1/8" - 1 1/2"	28.57 - 38.01	26	40	32	10-CSG
BCSG005M	1 1/2" - 1 7/8"	38.01 - 47.625	36	50	42	N/A
BCSG006M	1 7/8" - 2 1/4"	47.625 - 57.15	46	60	52	N/A
BCSG007M	2 1/4" - 2 5/8"	57.15 - 66.675	54	70	62	N/A

Digital Indicator 405 Series

Moore & Wright low cost digital indicator manufactured to withstand the rigours of shop floor use. Easy to use functions accessed via three buttons.

Features

- Direct Inch / Metric conversion
- 58mm dial face
- Lugback and 8mm stem mountings
- Resolution 0.01mm / 0.0005"
- Absolute / Incremental reading
- Floating Zero
- Also supplied with flatback



DIGITAL INDICATOR 405 SERIES

Code No	Range	Accuracy
MW405-04DB	0-12.7mm / 0.5"	0.02mm / 0.0008"
MW405-06DB	0-25.0mm / 1.0"	0.03mm / 0.0012"

Digital Indicator 410 Series

Moore & Wright multi function digital indicator ideal for the measurement of more complex features.

Features

- Functions include Tolerance and Min/Max
- Direct Inch / Metric conversion
- 8mm stem mounting
- Resolution 0.001mm / 0.00005"
- Absolute / Incremental reading
- Floating Zero



DIGITAL INDICATOR 410 SERIES

Code No	Range	Accuracy
MW410-02DF	0-12.7mm / 0.5"	0.008mm / 0.0003"

Sylvac S_Dial ONE Digital Indicator

The tough but accurate new S_Dial ONE indicators from Sylvac are available with measuring capacities of 12.5mm and 25mm and have an impressive repeatability specification of 0.002mm. Designed to operate within harsh measuring environments, such as in close proximity to machine tools, the S_Dial ONE boasts an IP67 rating, according to IEC 60529, rendering it resistant to the ingress of water and coolant even when fitted with a data connection cable. Manufactured from materials that are able to withstand extended shop floor use, the new S_Dial ONE can be fitted with a wide range of contact points.



Features

- Integrated, ergonomic lifting device (can be removed)
- Large LCD digital readout
- Direct metric/inch conversion
- Preset
- Zero setting
- Extended battery life of 3,300 hours
- Selection of measuring direction
- Programmable by PC
- Direct RS232, USB, Digimatic output
- Lithium CR2302 battery included



SYLVAC S_DIAL ONE DIGITAL INDICATOR

Code No	Range	Accuracy	Resolution
30-905-0121	12.5mm / 0.5"	10µm	0.01mm / 0.0005"
30-905-0131	12.5mm / 0.5"	5µm	0.001mm / 0.00005"
30-905-0141	25mm / 1.0"	10µm	0.01mm / 0.0005"
30-905-0151	25mm / 1.0"	6µm	0.001mm / 0.00005"
30-905-0161*	50mm / 2.0"	20µm	0.01mm / 0.00005"
30-905-0171*	50mm / 2.0"	8µm	0.001mm / 0.00005"
30-905-0216	Lifter for 50mm indicator		

*Lifter not included

DATA TRANSMISSION

Code No	Description
30-908-0121	Proximity data cable USB
30-926-6821	Powered Opto / USB
25-604-064	Wireless Proximity Module
25-604-013	Wireless Powered Opto Module

Sylvac 229 Digital Indicators

The unique design of the **Sylvac 229 digital indicator**, utilising a minimum of mechanical parts, enables it to measure extremely accurately throughout its long travel and also to withstand the rigours of shop-floor use. The gauges large, high visibility display combined with its many useful functions, accessed by two simple buttons, make it the indicator of choice by engineers throughout the world.



Features

- Direct Inch / Metric conversion
- Preset
- Zero setting
- Memory hold
- 2 Memories Ref I / Ref II
- Direct RS 232 output
- Bezel rotates through 270°
- Replaceable lithium battery
- Large 8.5mm digits
- Full range of accessories available
- M2.5 interchangeable contact points
- see page 100 for full range



SERIES 229 MEASURING FORCES (NEWTONS)

Measuring Ranges:	Standard	Low*	High*
12.5mm / 0.5"	0.7-0.95	0.45-0.6	1.5-1.7
25mm / 1.0"	0.6-1.1	0.4-0.9	0.9-1.8

*Denotes - made to order

ACCURACIES

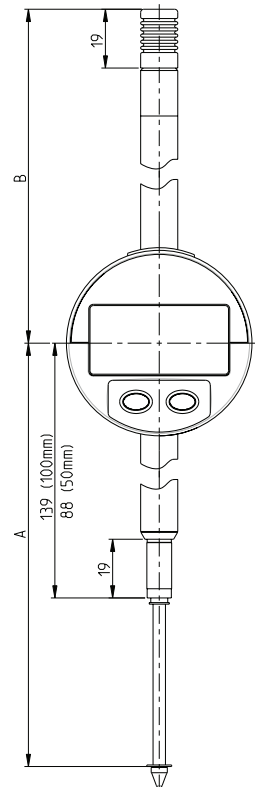
	12.5mm	25mm	50mm	100mm	150mm
Series 229. 0.01mm	20µm	20µm	20µm	20µm	30µm
Series 229. 0.001mm	5µm	5µm	8µm	9µm	9µm

SERIES 229

Code No	Range	Dimensions (mm) Resolution	A (mm)	B (mm)
30-905-1201	12.5mm / 0.5"	0.01mm / 0.0005"	66	54
30-905-1401	25mm / 1.0"	0.01mm / 0.0005"	82.5	64
30-905-1601	50mm / 2.0"	0.01mm / 0.0005"	142.5	121
30-905-1641	100mm / 4.0"	0.01mm / 0.0005"	244.5	172
30-905-1671	150mm / 6.0"	0.01mm / 0.0005"	351.5	223
30-905-1301	12.5mm / 0.5"	0.001mm / 0.00005"	66	54
30-905-1501	25mm / 1.0"	0.001mm / 0.00005"	82.5	64
30-905-1621	50mm / 2.0"	0.001mm / 0.00005"	142.5	121
30-905-1661	100mm / 4.0"	0.001mm / 0.00005"	244.5	172
30-905-1681	150mm / 6.0"	0.001mm / 0.00005"	351.5	223

DATA TRANSMISSION

Code No	Description
30-926-5521	Sylvac Opto Simplex Serial Data Cable
25-604-014	Wireless Opto Module



Sylvac S_Dial Work Digital Indicator

Features

- Robust construction
- Water and coolant resistant
- Protection rating IP67 according to IEC 60529 for protected versions, even when connected
- New technology with configurable menus via PC
- Broad choice of functions (MIN/MAX/DELTA, TOL, Factor, PRESET, AUTO OFF, etc.)
- Automatic wake-up and sleeping mode (S.I.S system)



SYLVAC S_DIAL WORK DIGITAL INDICATOR

Code No	Range	Resolution
30-805-5201	12.5mm / 0.5"	0.01mm / 0.0005"
30-805-5205	12.5mm / 0.5"	0.01mm / 0.0005"
30-805-5301	12.5mm / 0.5"	0.001mm / 0.0005"
30-805-5305	12.5mm / 0.5"	0.001mm / 0.0005"
30-805-5401	25mm / 1.0"	0.01mm / 0.0005"
30-805-5405	25mm / 1.0"	0.01mm / 0.0005"
30-805-5501	25mm / 1.0"	0.001mm / 0.0005"
30-805-5505	25mm / 1.0"	0.001mm / 0.0005"

DATA TRANSMISSION

Code No	Description
30-908-0121	Proximity data cable USB
30-926-6821	Powered Opto / USB
25-604-064	Wireless Proximity Module
25-604-013	Wireless Powered Opto Module

Sylvac IP65 Digital Mini Indicator

The new **Sylvac Digital Mini indicator** boasts a remarkable rating of IP65 making it ideal for use in harsh environments. The simple to operate instrument has an impressive list of advanced features including a large easy to read display, relative/absolute modes, preset function, metric/inch modes.



see p249 for wireless options



Features

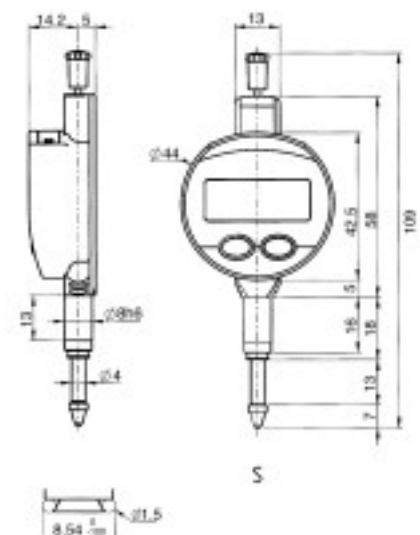
- Relative / absolute modes
- mm / inch conversion
- Accuracy: $20\mu / 0.008''$ or $5\mu / 0.0002''$
- Preset function (max 130mm)
- Repeatability (+/-2s): $5\mu\text{m} / 0.0.0002''$
- Max displacement speed: 2m / sec
- Measuring force: 0.5-0.9N
- Weight: 70g
- Battery: Lithium, 3V, CR2032
- Protection of the module according to IEC529: IP65 even with data output
- Autonomy: minimum 5000 hours in continuous use (corresponds to 2 years in output normal use/auto-off)
- Clamping: diameter 8h6 and dove-tail back
- Anvil with TC ball



SYLVAC IP65 DIGITAL MINI INDICATOR

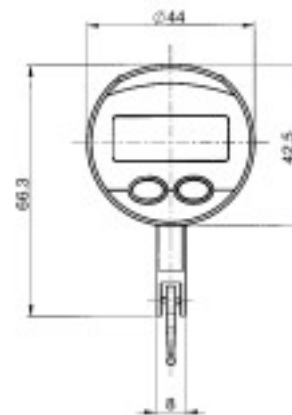
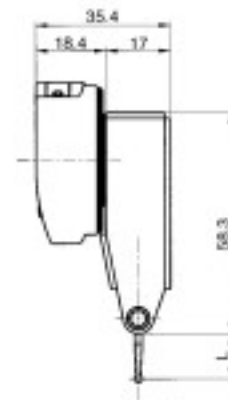
Code No	Description / Range	Resolution
30-905-4121	Mini indicator 12.5mm Top Lifter	0.01mm / 0.0005"
30-905-4125	Mini indicator 12.5mm with bellows	0.01mm / 0.0005"
30-905-4521	Mini indicator 12.5mm Top Lifter	0.001mm / 0.00005"
30-905-4525	Mini indicator 12.5mm with bellows	0.001mm / 0.00005"
30-905-4527	Mini indicator 12.5mm Top Lifter "Factor"	0.001mm / 0.00005"
30-905-4511	5mm travel analogue Top Lifter	0.001mm / 0.00005"
30-905-4515	5mm travel analogue with bellows	0.001mm / 0.00005"
30-905-4540	Vertical Display Mini indicator 5mm travel	0.001mm / 0.00005"
30-905-4516	Power Lead/Opto Serial cable	
30-926-6821	Sylvac Powered Opto Duplex USB	
25-604-013	Wireless Powered Opto Module	
30-905-4211	Lug Back	

See page 249 for data transmission options



Sylvac Test Indicator

The unique **Sylvac Quadra Test** series gives the user all of the advantages of a sturdy, conventional analogue lever indicator, with the numerous useful facilities that can only be found in a quality digital gauge.



Features

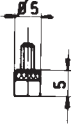
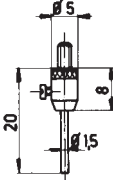
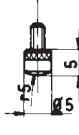
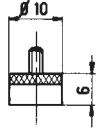
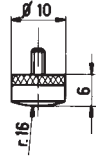
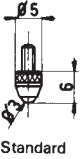
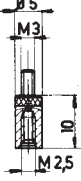

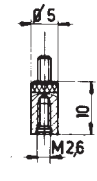
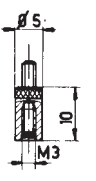
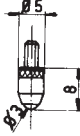
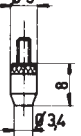
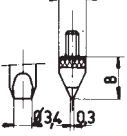
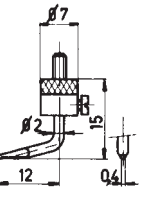
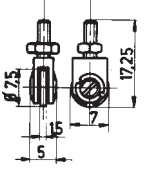
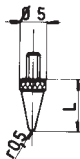

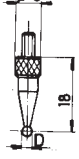
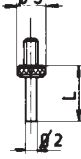
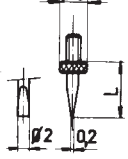
- 4 measuring modes: Min, Max, TIR, and Direct
- 4 measuring resolutions 0.01mm, 0.001mm, 0.0005", 0.00005", except 30-705-4321 (0.01 / 0.0005" only)
- mm / inch conversion
- RS-232 output
- Water, oil and coolant resistant to IP65 - IEC 529 specification
- 44mm diameter dial face, rotates through 360°
- Clear bar-graph
- Easy to read numeric digital display
- Meets or exceeds Din/ISO standards
- Available with 12.5mm or extra-long 36.5mm contact point except 30-705-4321 (12.5mm only)

SYLVAC TEST INDICATOR

Code No	Description
30-905-4321	Quadra Test Lever Indicator 12.5mm 0.8mm range
30-905-4322	Quadra Test Lever Indicator 36.5mm 0.5mm range
30-705-4321	Lever Indicator 12.5mm 0.8mm range 10 micron resolution
30-905-4516	Power Lead/Opto Serial cable
30-926-6821	Sylvac Powered Opto Duplex USB
25-604-013	Wireless Powered Opto Module

Contact Points

Bowers offers a wide selection of quality contact points to suit all analogue and digital indicators transducer probes, etc. containing standard M2.5 thread.

<p>Steel T/C</p>  <p>Code No 40-42A20 40-42A21</p>	<p>Steel T/C</p>  <p>Code No 40-42A22 40-42A23</p>	<p>Steel T/C</p>  <p>Code No 40-42A24 40-42A25</p>	<p>Steel T/C</p>  <p>Code No 40-42A26 40-42A27</p>	<p>Steel T/C</p>  <p>Code No 40-42A28 40-42A29</p>
<p>Steel T/C</p>  <p>Standard</p> <p>Code No 40-42A30 40-42A31</p>	<p>Steel T/C</p>  <p>Code No 40-42A85</p>	<p>Steel T/C</p>  <p>Code No 40-42A86</p>	<p>Steel T/C</p>  <p>Code No 40-42A87</p>	<p>Steel T/C</p>  <p>Code No 40-42A88</p>
<p>Steel T/C</p>  <p>Code No 40-42A40 40-42A41</p>	<p>Steel T/C</p>  <p>Code No 40-42A42 40-42A43</p>	<p>Steel T/C</p>  <p>Code No 40-42A44 40-42A45</p>	<p>Steel T/C</p>  <p>Code No 40-42A82</p>	<p>Steel T/C</p>  <p>Code No 40-42A83 flat 40-42A44 convex</p>
<p>Steel T/C</p>  <p>Code No 40-42A54 (5mm long) A55 - 10mm A56 - 15mm A57 - 20mm A58 - 30mm A59 - 40mm A60 - 50mm</p>	<p>Steel T/C</p>  <p>Extension</p> <p>Code No 40-42A61 (10mm long) A62 - 15mm A63 - 20mm A64 - 25mm A65 - 30mm A66 - 35mm A67 - 40mm A68 - 45mm A69 - 50mm</p>	<p>Steel T/C</p>  <p>Code No 40-42A70 (1mm dia. carbide) A71 - 2mm A72 - 3mm A73 - 4mm A74 - 5mm A75 - 6mm A76 - 7mm A77 - 8mm A78 - 9mm A79 - 10mm A80 - 11mm A81 - 12mm</p>	<p>Steel T/C</p>  <p>Code No 40-42A46 (5mm long) A47 - 10mm A48 - 15mm A49 - 20mm</p>	<p>Steel T/C</p>  <p>Code No 40-42A50 (5mm long) A51 - 10mm A52 - 15mm A53 - 20mm</p>