

SIPCON



SPRING
GENIE

ENSURE ZERO REJECTION

with SIPCON Dimensional Measuring solutions
for Spring Industry



Questions

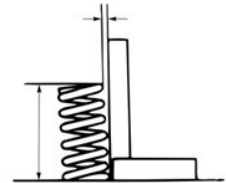
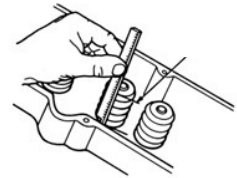
Cost of spring lot rejection can cost in lakhs?

Critical spring failures in automotive, aerospace and medical industry can lead to losses which cannot be calculated in terms of money?

A carefully designed spring can save you money without effecting performance?

Majority of spring failures can be attributed to human factors at the production site – Measurement or Part setup.....?

One wrong batch can effect your lifetime relationship with your customer??



36 SPRING DIMENSION PARAMETERS

COILS

- 1.1 Auto No., coil counter
- 1.2 Total No. of coils
- 1.3 No. Of Active coils

ANGLE & RADIUS

- 2.1 Free Angle
- 2.2 Grinding Angle
- 2.3 Helix Angle
- 2.4 Angle between coils
- 2.5 Bending Angle
- 2.6 Bending radius

DIAMETERS

- 3.1 Mean Coil Diameter (D)
- 3.2 OD
- 3.3 ID
- 3.4 Wire Diameter(Coil Width)

PITCH

- 4.1 Spring Pitch
- 4.2 Pitch between coils
- 4.3 Pitch variation
- 4.4 Inter-coil gap
- 4.5 Diameter and Height. Each Coil
- 4.6 Pitch Gap

SPRING FACTOR

- 5.1 Spring Rate
- 5.2 Stress S
- 5.3 Spring Index (w) (D/d)
- 5.4 Slenderness Ratio (FL/D)

HEIGHT / LENGTH

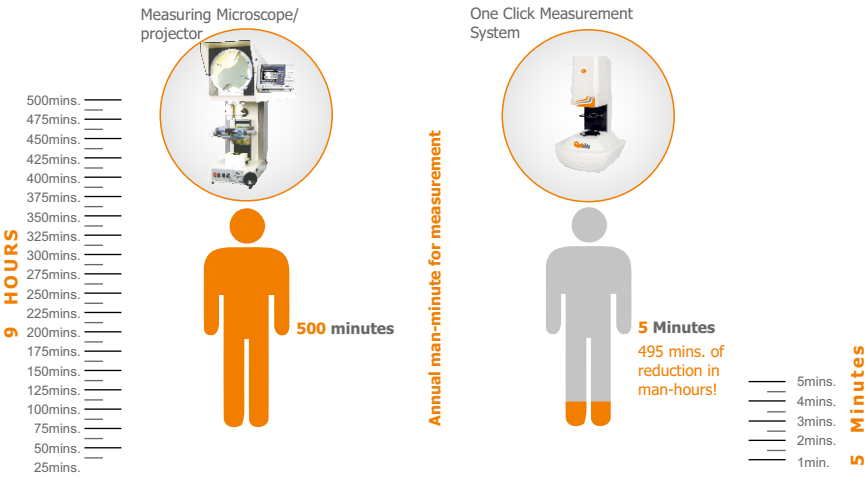
- 6.1 Free length overall (FLOA)
- 6.2 Free length inside the hooks (FLISH)
- 6.3 Solid Height (LS) /solid length
- 6.4 Compressed Height/Closed height
- 6.5 Height

OTHER PARAMETERS

- 7.1 Squareness/ Perpendicularity E2
- 7.2 Parallelism E1
- 7.3 Thickness of Last Coil
- 7.4 Spring Concentricity on the last coil
- 7.5 Flatness
- 7.6 Wire end thickness
- 7.7 Profile tolerance

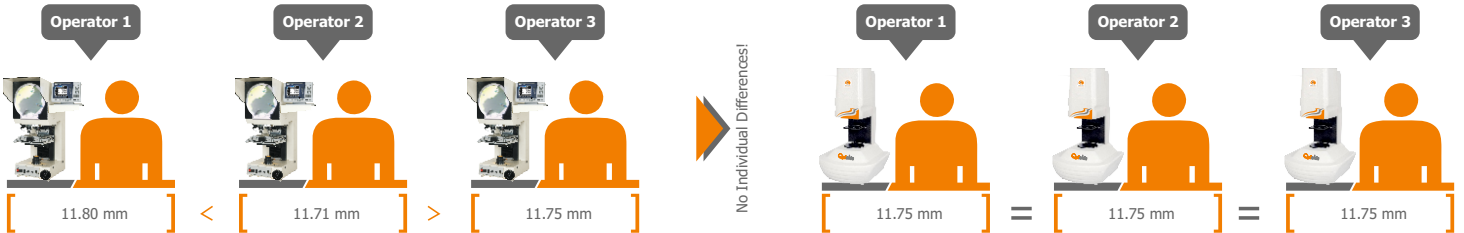
REDUCED MEASUREMENT TIME

The Fastest **One Click Automatic Optical Inspection System** available on earth. **Highly Robust** & easy to use for **Multiple Part Inspections** With built in Highly Accurate **Telecentric** Lens System. Completes the inspection **within seconds** which otherwise would have taken **hours** on conventional measuring systems.



— ? mm —

Different results among different operators...

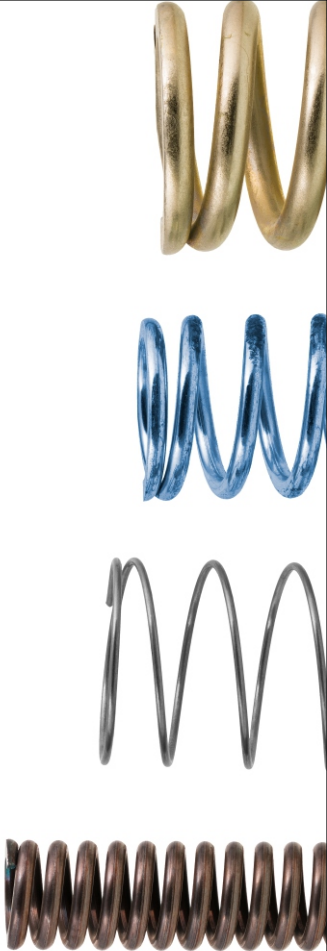


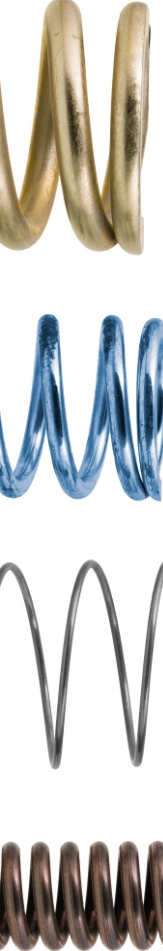
PROBLEMS WITH TRADITIONAL MEASUREMENT SYSTEMS

- Operator to Operator Variation
- Point-by-Point measurement takes time
- Setup Time is high
- Skilled Operator Required
- Wrong data entry by Operators

ADVANTAGES OF PART QUICKIE

- No operator to operator variation
- Immediate results within seconds
- Automatic Report Generation
- No skill required





ADVANTAGES SPRING GENIE

The Automatic Optical Inspection System results in improved quality of both incoming components and final parts. The reduced time results in overall cost efficiency and thereby reducing the requirement of additional manpower.

No Cross Hair Probing Error

No Reporting Error

No Orientation Error

No Alignment Error

No Focussing Error

No Point Selection Error

No Edge Selection Error

No Location Error

No Measurement Error



SPRING GENIE

The Fastest **One Click**

Automatic Optical Inspection System available on earth.

Highly Robust & easy to use for **Multiple Part Inspections**

With built in Highly Accurate **Telecentric** Lens System.

No need to align or focus the part before measurement

Multiple Dimensions measured in one click

Sub-pixel image processing gives accurate results irrespective of burrs

Calibrated from N.P.L. traceable masters from Graticute U.K.



PART-GENIE
(VERTICAL)

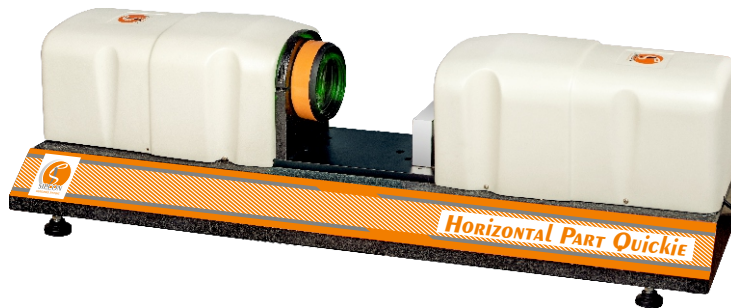
Customizable report generation with color coded pass and fail

Measure Multiple parts to increase the throughput

Enclosed Structure to protect the lens & the light

Zero operator to operator variation

In-built Statistical Process control, Trend analysis & histograms



PART-GENIE
(HORIZONTAL)



TECHNICAL SPECIFICATIONS

Model	SVI-PQ-16	SVI-PQ-36	SVI-PQ-64	SVI-PQ-80	SVI-PQ-120	SVI-PQ-144
Field of View (W X H)	16x13mm	34x29mm	61x51mm	80x60mm	120x90mm	144x110mm
No. of Cameras	1					
Camera	5MP Industrial Camera			12MP Industrial Camera		
Accuracy	±3µm			±5µm		
Repeatability	±2µm			±3µm		
Least Count	0.1µm					
Illumination-Surface (optional)	LED					
Illumination-Countour	LED					
Focusing Range (Optional)	30mm					
Power Supply	110/220V @ 50Hz ±5%					
Machine Weight	25Kgs to 50 Kgs					
Interface	USB/Ethernet					
Optional Hardware	Laptop with WIN7/8/10 operating system					
Base Platform & Column	Metal					
Auto Alignment	360° Compensation					
Operating Temp. Range	Ambient to 30°C					
Max. Measurement Point	10,000					
Batch Programming	Optional					
Touch Screen Monitor	Optional					
Table	Optional				N.A. (Floor Standing)	
Software Features						
Element Tools	Point / Line / Circle / Arc / Distance / Angle					
GD&T	Parallelism / Perpendicularity / Concentricity / Eccentricity / Ovality / Straightness					
Edge Detection	Autotools / Auto Edge Detection					
Application Tools	Pitch Measurement / Thickness Measurement / Width Measurement					
Thread Analysis	Minor Diameter / Major Diameter / Pitch / Thread Angle					
Manual Measurement	Yes					
Coordinate System Configuration	Yes					
Batch Configuration of Tolerance	Yes					
Element List Editing	Yes					
Colour Measurement System	Yes					
CAD Interface	DXF Overlay					
Measurement of Images	Yes					

Note: Customized sizes are available from 8mm diameter to 150mm diameter. Dual Camera mode also available

DUAL SPRING GENIE

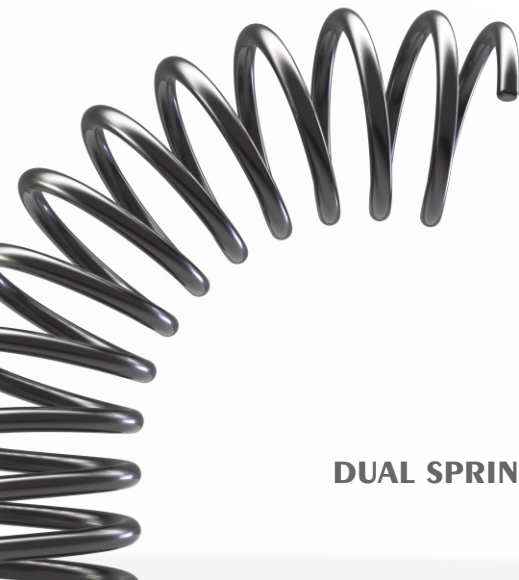
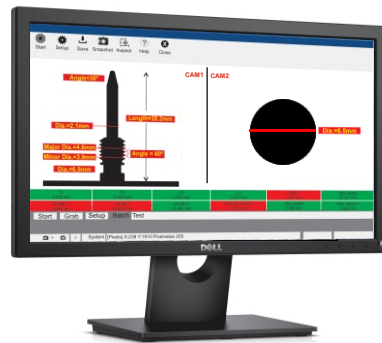
The Fastest **One Click** Automatic Optical Inspection System available on earth. **Highly Robust** & easy to use for **Multiple Part Inspections** With built in Highly Accurate **Telecentric** Lens System.



SPRING GENIE
(HORIZONTAL)



SPRING GENIE
(VERTICAL)



DUAL SPRING GENIE

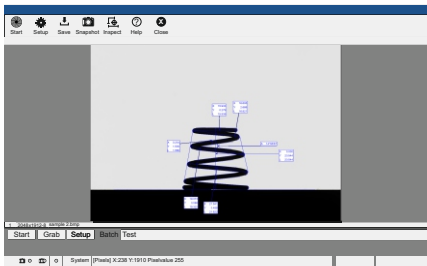
TECHNICAL SPECIFICATIONS

Model	SVI-DPQ-16	SVI-DPQ-36	SVI-DPQ-64	SVI-DPQ-80	SVI-DPQ-120	SVI-DPQ-144
Field of View (WxH) Cam1	16x13mm	34x29mm	61x51mm	80x60mm	120x90mm	144x110mm
Field of View (WxH) Cam2	16x13mm	34x29mm	61x51mm	80x60mm	120x90mm	144x110mm
No. of Cameras	2					
Camera	5MP Industrial Camera			12MP Industrial Camera		
Accuracy	±3µm			±5µm		
Repeatability	±2µm			±3µm		
Least Count	0.1µm					
Illumination-Surface (optional)	LED					
Illumination-Countour	LED					
Focusing Range (Optional)	30mm					
Power Supply	110/220V @ 50Hz ±5%					
Machine Weight	25Kgs to 50 Kgs					
Interface	USB/Ethernet					
Optional Hardware	Laptop with WIN7/8/10 operating system					
Base Platform & Column	Metal					
Auto Alignment	360° Compensation					
Operating Temp. Range	Ambient to 30°C					
Max. Measurement Point	10,000					
Batch Programming	Optional					
Touch Screen Monitor	Optional					
Table	Optional				N.A. (Floor Standing)	
Software Features						
Element Tools	Point / Line / Circle / Arc / Distance / Angle					
GD&T	Parallelism / Perpendicularity / Concentricity / Eccentricity / Ovality / Straightness					
Edge Detection	Autotools / Auto Edge Detection					
Application Tools	Pitch Measurement / Thickness Measurement / Width Measurement					
Thread Analysis	Minor Diameter / Major Diameter / Pitch / Thread Angle					
Manual Measurement	Yes					
Coordinate System Configuration	Yes					
Batch Configuration of Tolerance	Yes					
Element List Editing	Yes					
Colour Measurement System	Yes					
CAD Interface	DXF Overlay					
Measurement of Images	Yes					

Note: Customized sizes are available from 8mm diameter to 150mm diameter. Dual Camera mode also available

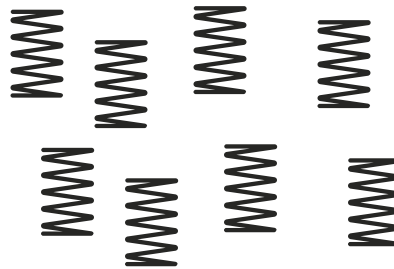
MEASURING-SOFTWARE

SOFTWARE DESKTOP



Comprehensive Software Desktop with all the measuring functions just a click away. Simultaneously with the measurement you will have the result display of the measurement in front of you on the software desktop.

AUTO ALIGNMENT



The location and the orientation of the path are automatically adjusted. There is no need of manual alignment or preparation of any jig or fixture to start the measurement.

TOLERANCE TYPES

Supports more than 10 types of tolerance settings with display in color coded pass and fail output. If there's a part or feature that doesn't measure up, you will know it immediately. All out of tolerance features displayed in red.

LOCATION

- Bidirectional
- True position
- Concentricity

SIZE

- Length
- Radius
- Angle
- Width
- Diameter

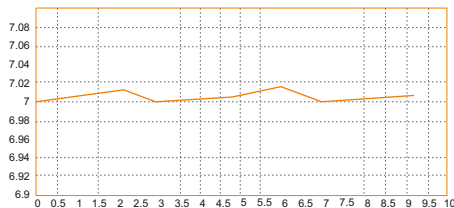
FORM

- Straightness
- Roundness

ORIENTATION

- Parallelism
- Perpendicularity

INTEGRATED SPC



Inbuilt Trend Monitoring and Statistical Evaluation of any measured quantity is a prominent feature of the software.

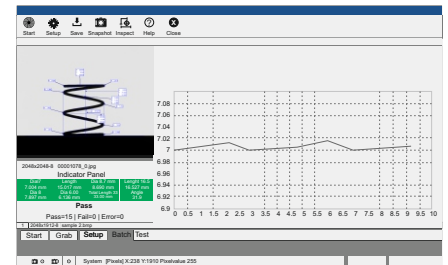
REPORT GENERATION

Part Details		Operator Details	
Part Name	SPR	Operator Name	Prakash
Part No.	8875	Operator ID	12
Customer Name	SMITH	Customer reference	
Address			

Tr.	Operator & Date	Diameter & Tolerance	Diameter & Tolerance	Diameter & Tolerance	Length & Tolerance	Length & Tolerance
1	8880	6.982	7.012	6.980	16.094	16.094
2	7.000	6.977	6.997	6.978	16.070	16.070
3	1.000	6.972	7.000	6.978	16.068	16.068
4	1.000	6.990	7.000	6.978	16.070	16.070
5	7.000	6.987	7.001	6.978	16.070	16.070
6	1.000	6.972	6.997	6.978	16.068	16.068
7	1.000	6.977	7.000	6.978	16.068	16.068
8	7.000	6.989	7.001	6.978	16.070	16.070
9	7.000	6.988	7.001	6.978	16.070	16.070
10	7.000	6.977	6.997	6.978	16.070	16.070

Fully customizable report format with color coded Pass /Fail. Confirm to your ISO specifications and send data directly to an ASCII, Excel or any SPC program.

EASY TO DO PROGRAMMING



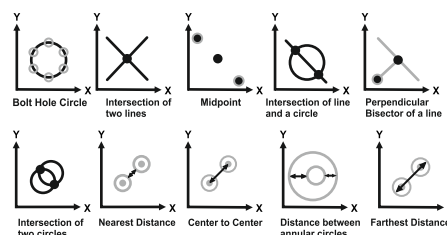
The software provides the flexibility to make new programs for new parts which are not part of standard software menu. The new software can be easily linked to the data management module for generating reports according to the any latest standard.

DEVIATION ANALYSIS



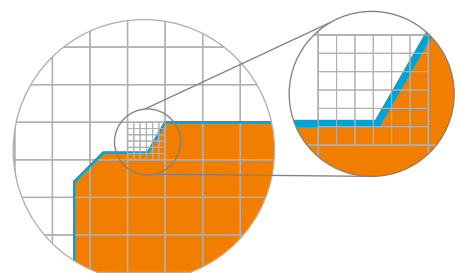
An advance feature to analyze each of the 1000 points on the sample helps in understanding the variation in detail.

CONSTRUCTION CAPABILITIES



Construction of mid-lines, bolt hole circle, mid-points, intersection of two lines etc. All 2D construction are possible in this software

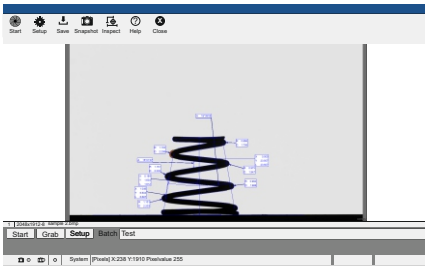
1/100 PIXEL IMAGE PROCESSING



With Sub-pixel Image Processing you can measure by one hundredth or less of a pixel of the light receiving element.

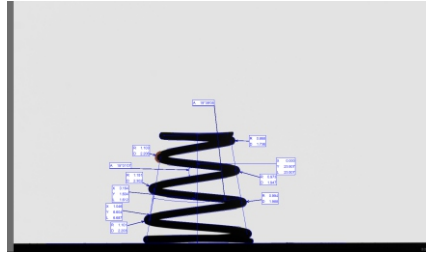
MEASURING-SOFTWARE

DXF OVERLAY (CAD INTERFACE)



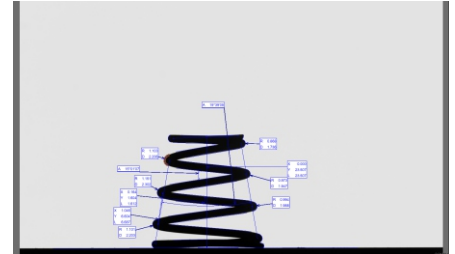
The new DXF file import system allows for the display of DXF file as an overlay on the live video image. Translate and rotate of your DXF import for fit against the video image.

RESULTS ON IMAGE



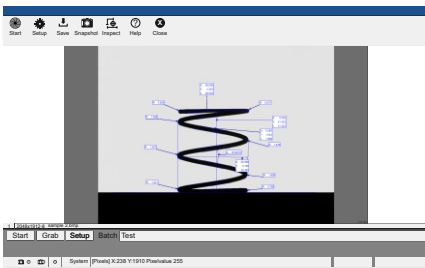
The graphical representation displays the results of measurement on the image which simplifies the process of identification of the measurements done.

THREAD ANALYSIS



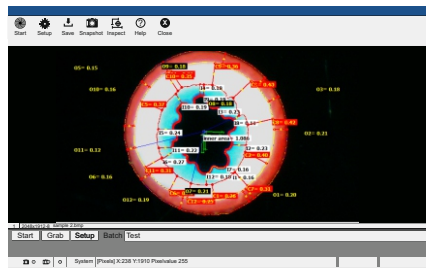
Our Software is capable of thread measurements. It can measure most important elements like: major diameter, minor diameter, effective diameter, pitch diameter, pitch, thread angles.

BATCH PROGRAMMING



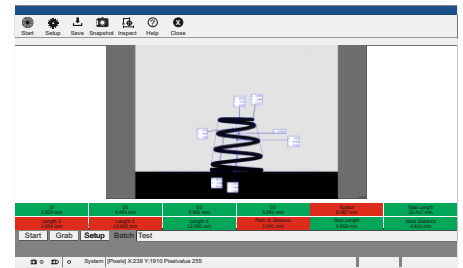
Inbuilt Trend Monitoring and Statistical Evaluation of any measured quantity is a prominent feature of the software.

COLOUR MEASUREMENT



Our software is capable for different types of colour measurements, colour percentage and colour analysing.

COLOR CODED TOLERANCE



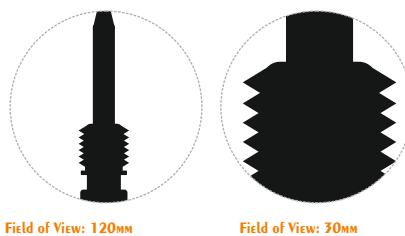
The software provides the result output in a colour coded format on the result bar. The red and green display helps easy identification of pass and fail features.

COMPATIBILITY WITH PNEUMATIC CONTROL



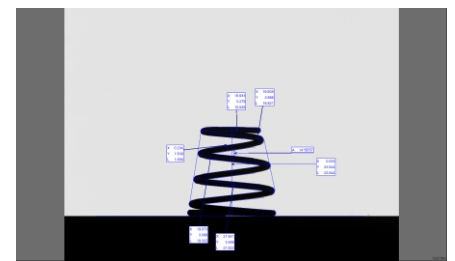
Our software is compatible with Pneumatic control system, air control system and bin etc. with help of RS232 interface.

DUAL CAMERA



The dual camera option helps in doing precise measurements in large field of view system resulting in high accuracy and repeatability along with more area for measurement.

PROFILE TOLERANCE



Profile deviation analysis is another important feature of the software with which you can find out the deviation in the actual part with the standard drawing.

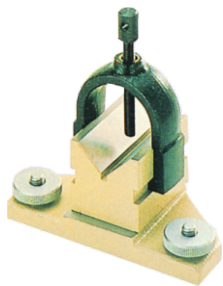
ACCESSORIES



Touch Screen Monitor



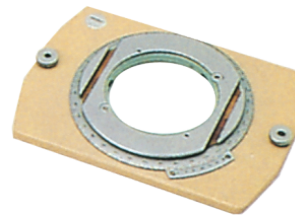
Foot Switch



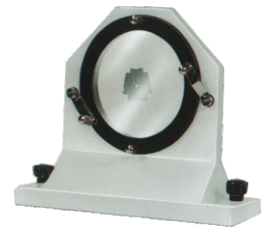
V Block



Center Holding Device



Rotary Table



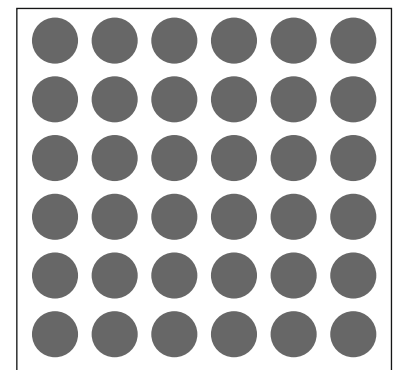
Vertical Holding Device



Pass Fail Bin System



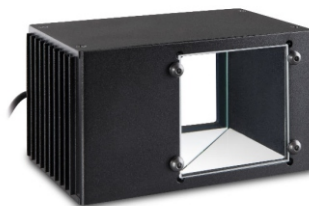
Air Gun



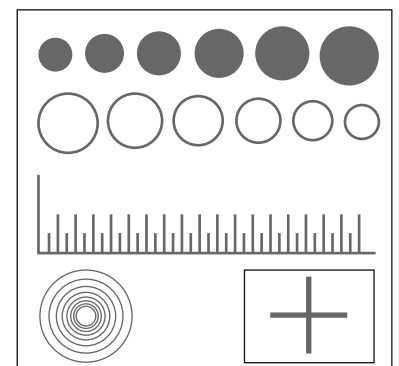
Calibration Master: Grid



Top Light



Co-Axial Illuminators



Calibration Master : Universal

