

1mm to 25mm stroke
0.1um repeatability
0.1% linearity



High Precision HBT probe

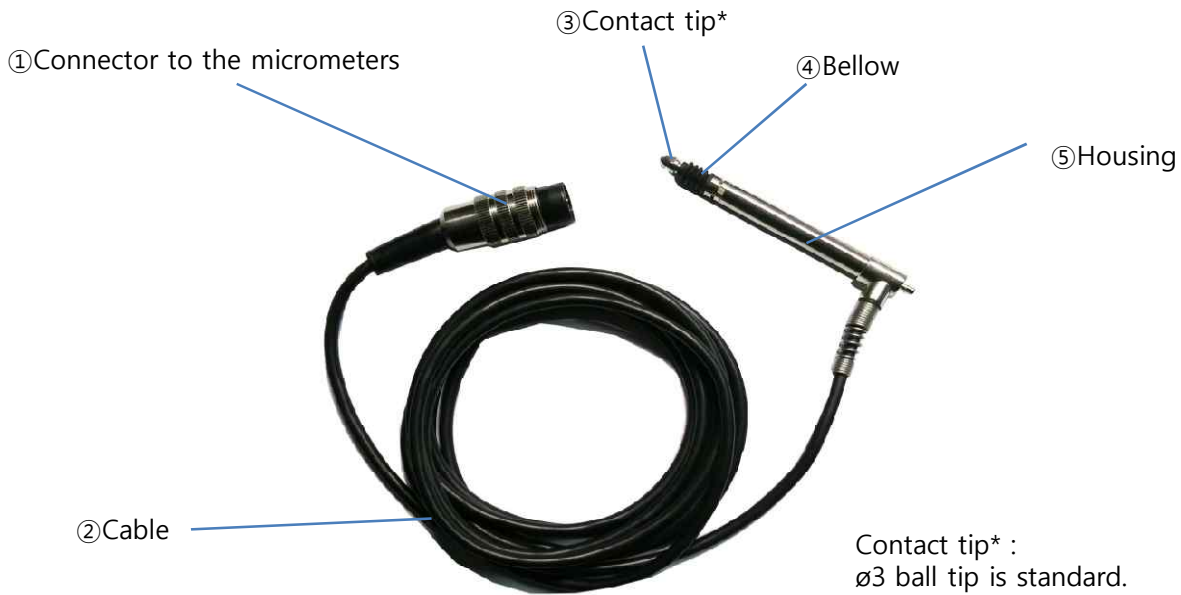
DP series

User's Guide

The contents of this manual could be different and it can be changed without notice.
Please use this good after reading the manual thoroughly.

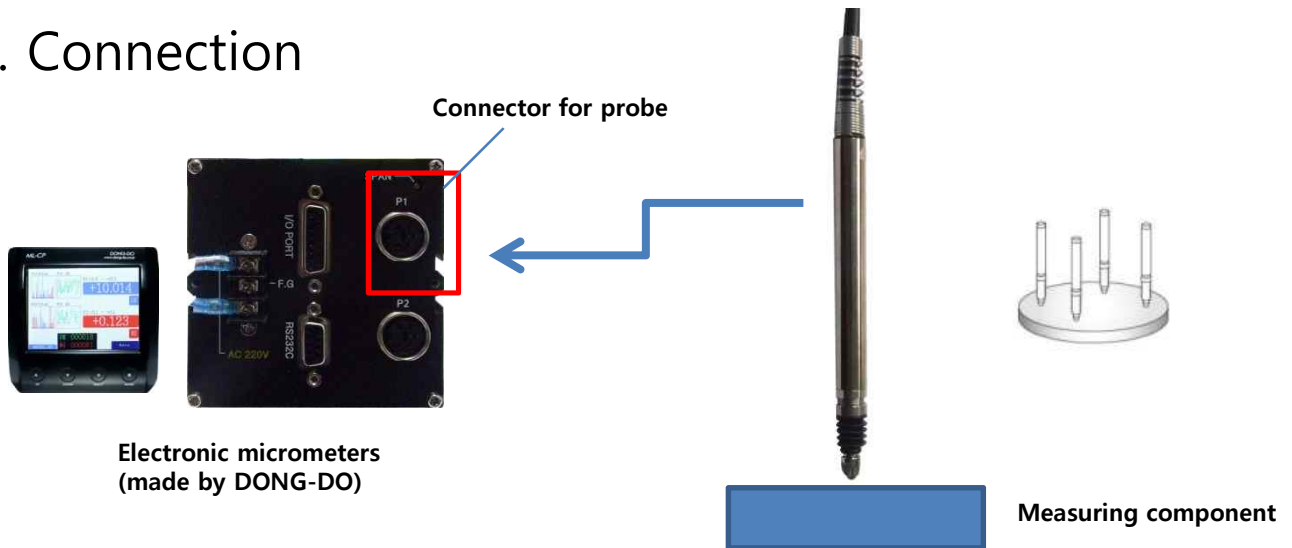
Product features & composition

1. Features



Contact tip* :
ø3 ball tip is standard.
Can be changed to various kinds tips
depends on the measuring purpose.

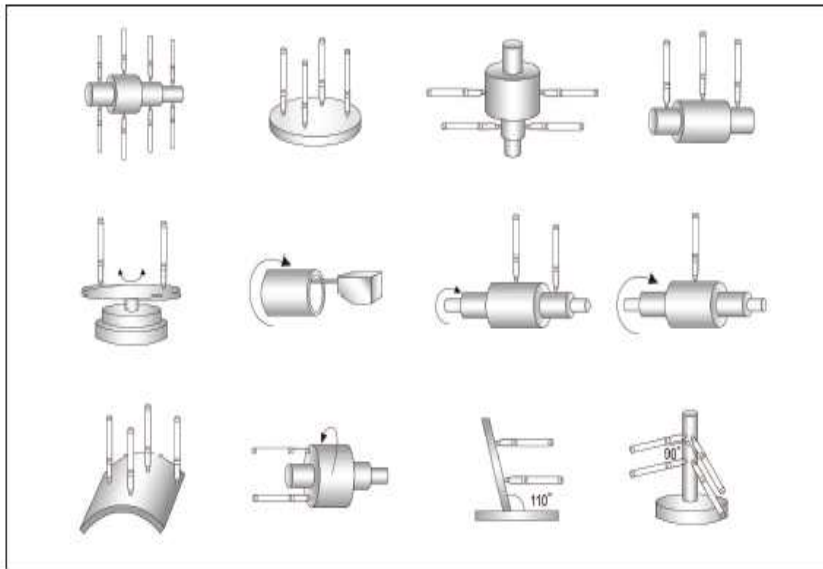
2. Connection



*Probes are always used with Electronic micrometers.
Elec. Micrometers converts the probe signal to the real value.

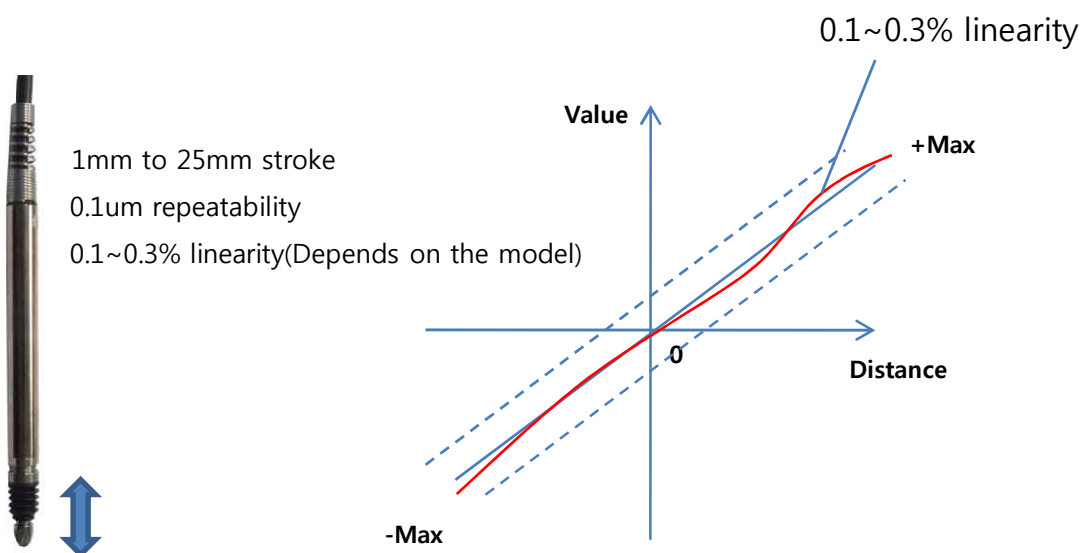
Used Area

3. Where to use



Probes are used to measure height, flatness, diameters, runout, angles, etc.
The values are calculated in electronic microteters.

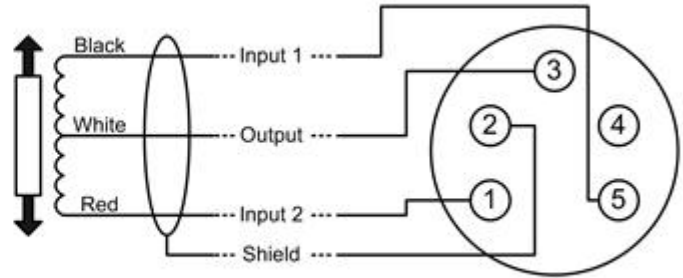
4. Signal output



Specification

- DP-S1, S2, S2M, S4, 10, 15 are the same(Just strokes are different)

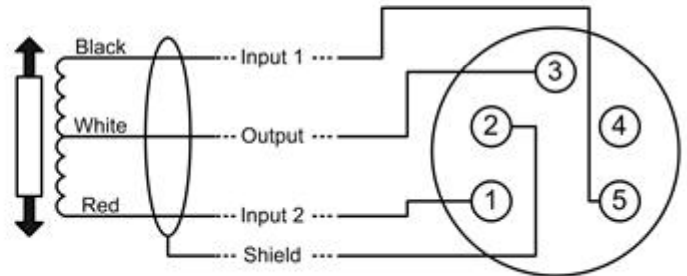
Moving Stroke(mm)	4.95
Measuring Range(mm)	4
Repeatabilty($\mu\text{m}, \pm 1\text{mm}$)	0.1
Linearity Error($\%, \pm 1\text{mm}$)	0.3
Force at Electrical Zero(g)	4~90
Guiding System	Ball Bearing
Operating Temperature($^{\circ}\text{C}$)	0~40
Cable Length(m)	2.2
Outside Diameter	8.0
Calibration Frequency(kHz) with 1.5V(rms)	13



< Connection Details >

- DP-25 (Frequency and stroke are different from other modes)

Moving Stroke(mm)	26mm
Measuring Range(mm)	25mm
Repeatabilty($\mu\text{m}, \pm 4\text{mm}$)	1
Linearity Error($\%, \pm 4\text{mm}$)	0.3
Force at Electrical Zero(g)	180~200
Guiding System	Ball Bearing
Operating Temperature($^{\circ}\text{C}$)	0~40
Cable Length(m)	3
Outside Diameter(mm)	15
Calibration Frequency(kHz) 1.5V(rms)/4.3V _{peak-to-peak}	16



< Connection Details >

Models

Various measuring distance: $\pm 0.5\text{mm}$ to $\pm 12.5\text{mm}$

High resolution

High repeatability and linearity

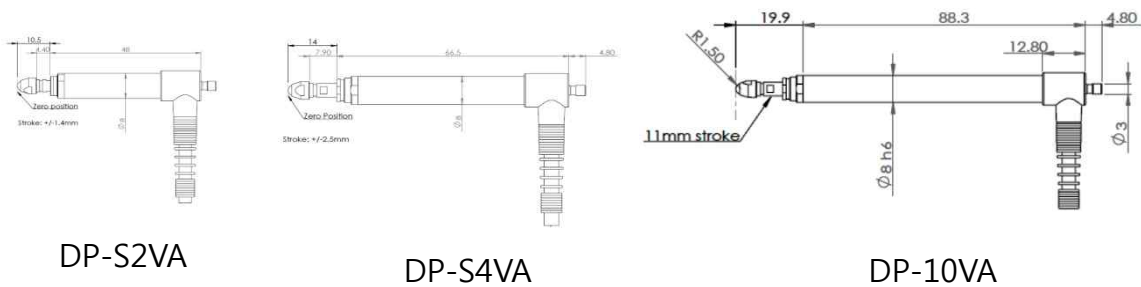
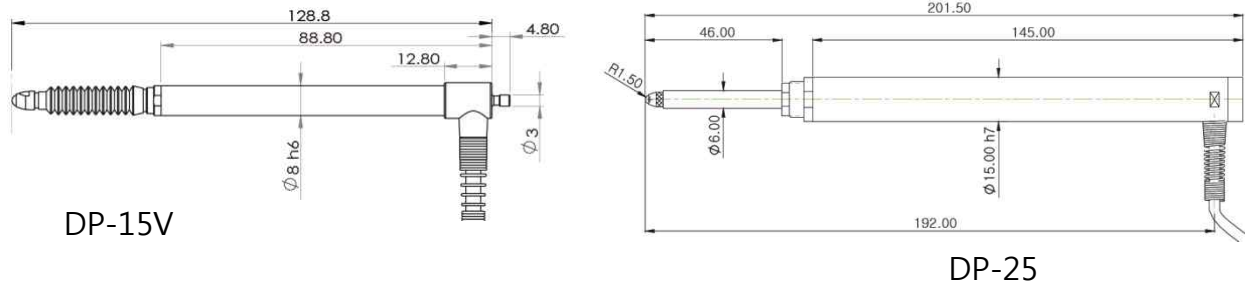
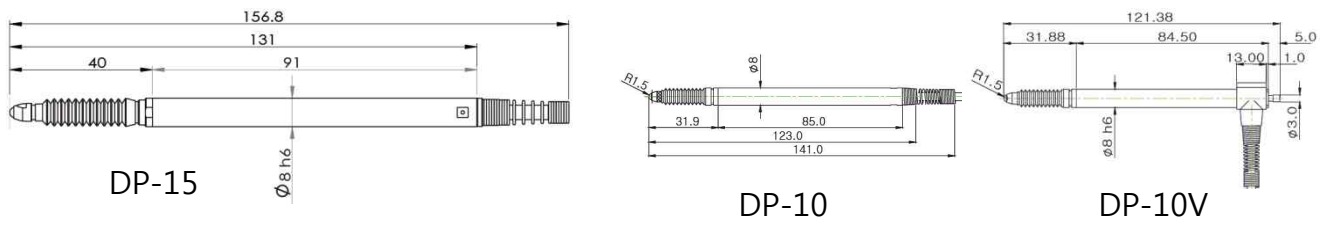
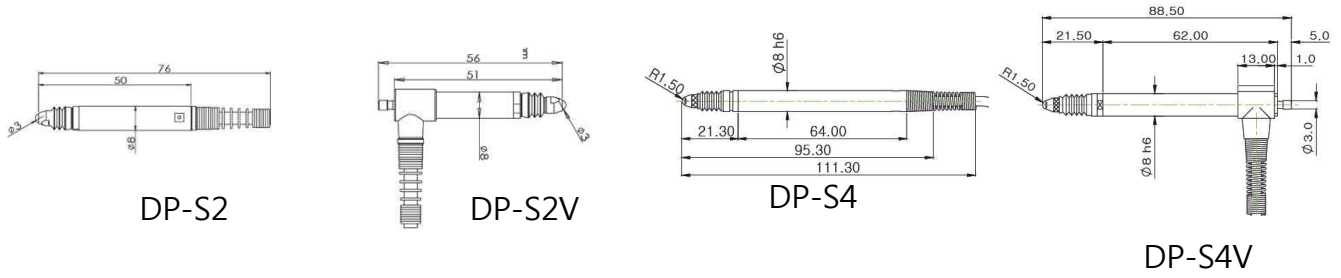
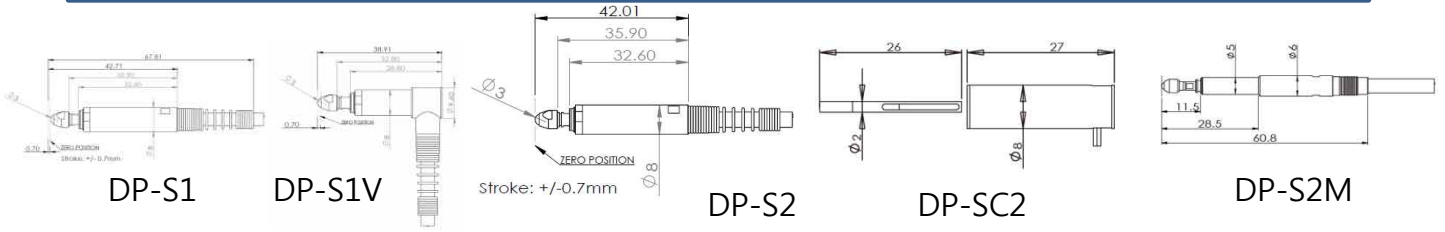
DP-S1/S2M/SC2/S2/S4/10/25 – HBT type(Half Bridge Type)

Model	DP-S1	DP-S1V	DP-S2M	DP-SC2	DP-S2	DP-S2V	DP-S4	DP-S4V	DP-10	DP-10V	DP-15	DP-15V	DP-25
Plunger retraction	Standard		Standard	None	Standard	Vacuum	Standard	Vacuum	Standard	Vacuum	Standard	Vacuum	Standard
Stroke range	1.4mm		2.4mm	-	2.8mm		4.95mm		10.45mm		15.5mm	15.5mm	26mm
Measuring range	$\pm 0.5\text{mm}$		$\pm 0.5\text{mm}$	$\pm 1\text{mm}$	$\pm 1\text{mm}$		$\pm 2\text{mm}$		$\pm 4\text{mm}$		$\pm 7\text{mm}$	$\pm 7\text{mm}$	$\pm 12.5\text{mm}$
Repeatability	0.1 μm		1 μm	0.1 μm	0.1 μm		0.1 μm		0.5 μm		1.0 μm	1.0 μm	1.0 μm
Non-linearity	0.1%(at the $\pm 0.5\text{mm}$)		0.15%(at the $\pm 0.5\text{mm}$)	0.1%(at the $\pm 0.5\text{mm}$)	0.1%(at the $\pm 0.5\text{mm}$)		0.1%(at the $\pm 1.0\text{mm}$)		0.1%(at the $\pm 3.0\text{mm}$)		0.3%(at the $\pm 5.0\text{mm}$)	0.3%(at the $\pm 5.0\text{mm}$)	0.3%(at the $\pm 8.0\text{mm}$)
Measuring Force	48g		48g	-	48g	48g	4~90g		30~80g		30~80g	30~80g	180g
*Cable length	2.2m								3m				
External Diameter	$\varnothing 8\text{mm}$		$\varnothing 6\text{mm}$	$\varnothing 8\text{mm}$								$\varnothing 15\text{mm}$	
Mass (except cable unit)	Approx. 11g		Approx. 7g	Approx. 10g	Approx. 13g	Approx. 18g	Approx. 17g	Approx. 22g	Approx. 20g	Approx. 26g	Approx. 25g	Approx. 31g	Approx. 145g
Operating temp.	0~40°C												

DP-S2VA/S4VA/S10VA – HBT type(Half Bridge Type)

Model	DP-S2VA	DP-S2VAB	DP-S4VA	DP-S4VAB	DP-10VA	DP-10VAB
Plunger retraction	Pneumatic	Pneumatic	Pneumatic	Pneumatic	Pneumatic	Pneumatic
Stroke range	2.8mm	2.8mm	4.95mm	4.95mm	10.45mm	10.45mm
Measuring range	$\pm 1\text{mm}$	$\pm 1\text{mm}$	$\pm 2\text{mm}$	$\pm 2\text{mm}$	$\pm 4\text{mm}$	$\pm 4\text{mm}$
Repeatability	0.1 μm	0.1 μm	0.1 μm	0.1 μm	0.5 μm	0.5 μm
Non-linearity	0.1%(at the $\pm 0.5\text{mm}$)	0.1%(at the $\pm 0.5\text{mm}$)	0.1%(at the $\pm 1.0\text{mm}$)	0.1%(at the $\pm 1.0\text{mm}$)	0.1%(at the $\pm 3.0\text{mm}$)	0.1%(at the $\pm 3.0\text{mm}$)
Air pressure (Force)	0.7 – 1.5 bar (0.5~1.0 N)	0.3 – 0.4 bar (0.4~0.5 N)	0.7 – 1.5 bar (0.5~1.0 N)	0.4 – 0.5 bar (0.4~0.5 N)	0.7 – 1.5 bar (0.5~1.0 N)	
*Cable length	2.2m				3m	
External Diameter	$\varnothing 8\text{mm}$					
Mass (except cable unit)		Approx. 23g		Approx. 28g		Approx. 31g
Operating temp.	0~40°C					

Dimension



Caution

1. DP series HBT probes are used with electronic micrometers made in DONG-DO ELECTRONICS CO., LTD. If it is used with others' amps, please check with the technical person.
2. Probes are very sensitive product which can measure in micrometer scale. So, should be used in a stable condition of temperature, humidity, vibration.
3. Probes are weak at an impact. Please control soft when it is installed on your system. And recommended to use ø8-10 bush which is supplied with all probes.
4. No magnet should be around probes. It will be a cause of probe damage.
5. All of probes has one year warranty.
6. No warranty when the damages are from users fault.
7. Over 50 million measuring cycles are tested. But it's totally related with the conditions to use.

DONG-DO



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