

# Model 119B Diaphragm-Type Force Transducers

## Description

Model 119B is a diaphragm-type force transducer which is designed to measure either tension or compression force. To do this, the 119B transducer has two threads at its top and bottom, respectively, which provide connections when this transducer is installed for application.

The diaphragm-type design enables the 119B transducers to have higher resistance to eccentric loading, compared to the S-type force transducers.

In order to be easily integrated into an existing system, the 119B features a compact structure. In consideration of outdoor application, this 119B transducer possesses a fully welded structure which makes it suitable for environment protection up to IP67.

Thanks to advanced strain gauge technology from BCM SENSOR, the 119B force transducers can deliver stable measuring results of precision up to 0.5%fs.

On request, the 119B transducer can be integrated with a TEDS (transducer electronic data sheet) chip inside its housing, by which it can be easily re-calibrated on site without using conventional calibration facility.



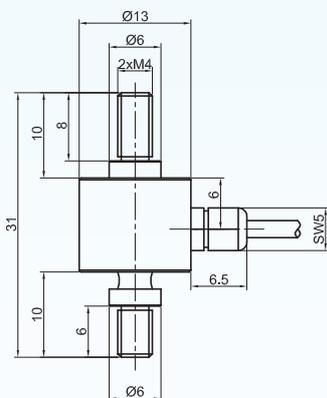
## Features

- environment protection: up to IP67
- convenient installation
- TEDS available on request
- accuracy up to 0.5%fs
- compact design

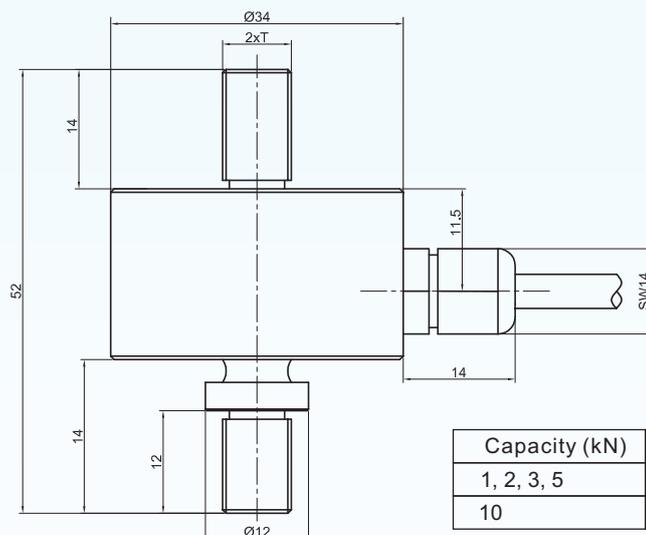
## Applications

- force measurement or monitoring in process control
- automotive components and systems
- material test

## Dimensions



Dimensions of Capacities: 50N, ..., 500N



Dimensions of Capacities: 1kN, ..., 10kN

Capacity (kN)	T
1, 2, 3, 5	M8x1.25
10	M12x1.75

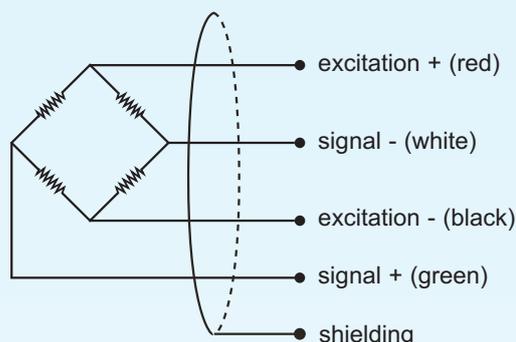
Note: All dimensions are in mm.

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## Diaphragm-Type Force Transducers

### Electrical Connection



### Technical Data

Parameters	Units	Specifications		Notes
capacity	N	50, 100, 200, 300, 500	1000, 2000, 3000, 5000, 10000	
safe load limit	%fs	150	150	1
ultimate overload	%fs	200	200	
output sensitivity at fs	mV/V	≥0.9	≥1.8	
zero unbalance	%fs	≤±2	≤±2	
accuracy	%fs	±1	±0.5	2
creep error (30min)	%fs	≤±0.1		
excitation (constant voltage source)	Vdc	5, ..., 10		
max. excitation voltage	Vdc	15		
input resistance	Ω	350±10		
output resistance	Ω	350±5		
insulation resistance	MΩ	≥ 5000 @100Vdc		
storage temp. range	°C	-35 ~ +80		
operating temp. range	°C	-20 ~ +80		
compensated temp. range	°C	-10 ~ +60		
temp. coefficient of sensitivity	%fs/°C	≤±0.005		3
temp. coefficient of zero	%fs/°C	≤±0.005		3
body material		17-4PH stainless steel		
sealing		welded		
mechanical interface		refer to its dimensions		
electrical interface		Φ2mm, 4-core shielded, PVC jacket, 0.5m cable length		
environment protection		IP66 (standard), IP67		
unit weight (without cable)	g	~50, ..., 200 according to capacity		

Notes: 1. "fs" refers to full scale pressure.

2. Accuracy =  $\sqrt{\text{non-linearity}^2 + \text{hysteresis}^2 + \text{repeatability}^2}$ .

3. Calculated as a rate of output change between -10°C and +60°C, and normalized by the output at room temperature (25°C).

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### Ordering Information

<b>position (pos.) 1: model</b>								
119B								
<b>pos. 2: capacities</b>								
50N		300N		1kN		5kN		
100N		500N		2kN		10kN		
200N				3kN				
<b>pos. 3: output sensitivity</b>								
0.9mV/V: in case of capacity 50N, ..., 500N								
1.8mV/V: in case of capacity 1kN, ..., 5kN								
<b>pos. 4: accuracy</b>								
1%fs: in case of capacity 50N, ..., 500N								
0.5%fs: in case of capacity 1kN, ..., 5kN								
<b>pos. 5: bridge resistance</b>								
350Ω								
<b>pos. 6: mechanical interface</b>								
M4: in case of capacity 50N, ..., 500N								
M8: in case of capacity 1kN, ..., 5kN								
M12: in case of capacity 10kN								
<b>pos. 7: electrical interface</b>								
2/4/PVC/0.5 = Φ2mm, 4-core shielded, PVC, cable length = 0.5m(#)								
(#): Cable length can be customized on request.								
<b>pos. 8: environment protection</b>								
IP66 (standard)				IP67				
<b>pos. 9: customized specifications</b>								
“(*)” is necessary only if any customized specification is required, otherwise it is neglectable.								
<b>pos.1</b>	<b>pos. 2</b>	<b>pos. 3</b>	<b>pos. 4</b>	<b>pos. 5</b>	<b>pos. 6</b>	<b>pos. 7</b>	<b>pos. 8</b>	<b>pos. 9</b>

### Examples of Ordering Code

- standard transducer:  
119B-500N-0.9mV/V-1%fs-350Ω-M4-2/4/PVC/0.5-IP66

The listed dimensions, specifications and ordering information are subject to change without prior notice.

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