

# Differential Pressure Gauge

## with vertical diaphragm/measuring membrane

DiPsPH

### Application

Differential pressure gauges model DiPsPH are suitable for positive, negative and differential pressure measurements in the field of industrial measurement technology. Typical applications are differential pressure measurement between flow and return flow in heating systems, monitoring of filters, aerators and compressors. Different materials are available for the measuring unit and the measuring chambers. With this, the instruments are adjustable for various demands.

### Construction and Measuring Principle

A robust, insensitive membrane measuring system, from 10 bar onwards a diaphragm measuring system, is provided as measuring cell. In rest position, the forces acting on the measuring membrane/diaphragm are balanced on both sides. With the pressure or differential pressure to be measured, a one-sided force is produced, which shifts the measuring membrane/diaphragm in one direction up to the balance of the elastic forces. In case of overload, the measuring membrane/diaphragm supports itself against metallic installation surfaces. A centrally arranged plunger transfers the motion of the measuring membrane/diaphragm to the movement.

### Nominal Case Size

100 mm (4")

### Accuracy Class (DIN EN 837-3)

Class 2.5

### Pressure Range (DIN EN 837-3)

0 – 400 mbar to 0 – 25 bar

### Max. Static Operating Pressure

Pressure range  $\leq 400$  mbar: 6 bar

Pressure range 0.6 bar: 10 bar

Pressure range 1 bar: 16 bar

Pressure range  $\geq 1.6$  bar: 25 bar

### Overrange Protection

One-sided, both-sided and reciprocal overrange protected up to 25 bar and vacuum protected

### Temperature Resistance

Ambient temperature:  $-10$  °C to  $+70$  °C ( $+14$  °F to  $+158$  °F)

Medium temperature:  $+70$  °C ( $+158$  °F) max.

### Temperature Influence

According to DIN EN 837-3, the additional error can be up to 0.8 % per 10 °C deviation from the standard temperature  $+20$  °C.

### Degree of Protection (EN 60529/IEC 529)

IP54

### Standard Version

#### Wetted Parts

Pressurised chambers: aluminum, painted black

With connections: 2 x female thread G  $\frac{1}{4}$

Sealings: NBR

Diaphragm: < 10 bar measuring membrane NBR  
> 16 bar diaphragm Duratherm

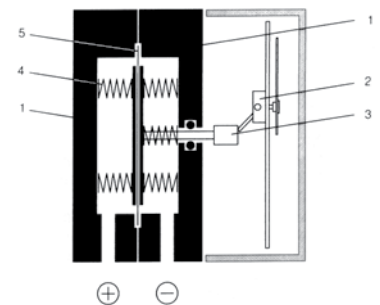
Inner parts: stainless steel 301 (1.4310) and stainless steel 303 (1.4305)



### Functional Diagram

(Measuring unit with measuring membrane)

1. Pressure chamber
2. Movement
3. Plunger
4. Resilient elements
5. Measuring membrane



+ = higher pressure  
- = lower pressure

### Cover Plate

Polycarbonate (Makrolon)

### Movement

Brass

### Zero Point Adjustment

Front

### Dial

Aluminum white, scale black

### Pointer

Aluminum black

### Mounting

3 brackets for wall mounting

### Position of Installation

Any

### Options, Special Versions and Ordering Information

See page 2

### Accessory

- Front flange assembly **Er** for panel mounting, installation ring  $\varnothing 132$  mm (5.2") steel black (standard) or stainless steel (option), with mounting spacers and fixing screws
- Manifold and shut-off valve made of stainless steel 316Ti (1.4571), 3-spindle (type 15) or 4-spindle (type 16), the valve block case (wetted) is optionally available in the versions brass, stainless steel 304 (1.4301) and aluminum



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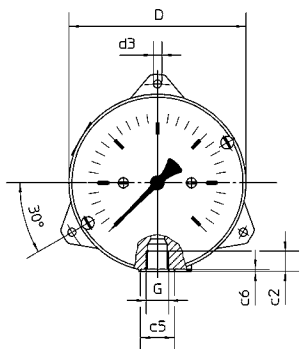
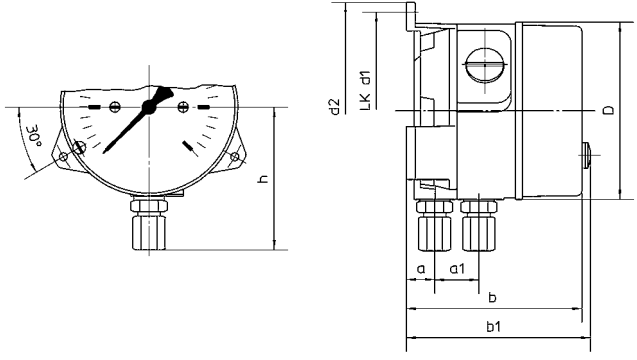
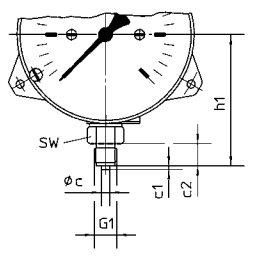
Manometerstraße 5 • D – 46487 Wesel-Ginderich  
Tel.: +49 2803 9130 – 0 • Fax: +49 2803 1035  
www.armaturenba.com • mail@armaturenba.com

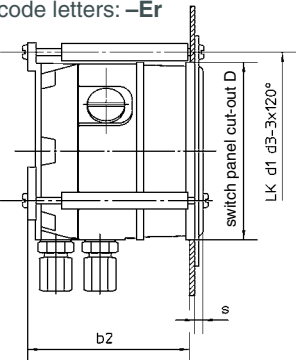
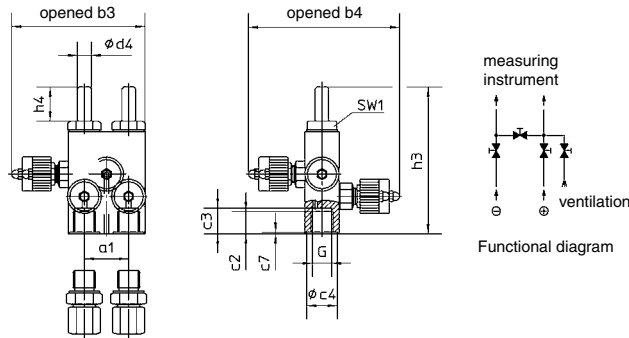
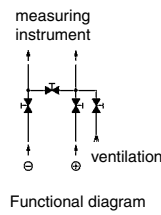
Subsidiary Company, Sales and Export East

**MANOTHERM Beierfeld GmbH**

Am Gewerbepark 9 • D – 08344 Grünhain-Beierfeld  
Tel.: +49 3774 58 – 0 • Fax: +49 3774 58 – 545  
www.manotherm.com • mail@manotherm.com

**5401**  
07/17

Standard Version	Options	
<p>Bottom connections parallel one behind the other, 3 mounting brackets for wall mounting code letter <b>-W</b></p> 	<p>Connection cutting ring fitting</p> 	<p>Connection G 1/4 B</p> 

Accessory (standard)	Accessory (optional)	
<p>front flange assembly with installation ring for switch panel mounting, code letters: <b>-Er</b></p> 	<p>shut-off valve and manifold here: 4-spindle type 16 (suitable for cutting ring fitting 8 mm (0.31"))</p>  <p>measuring instrument ventilation Functional diagram</p> 	

Dimensional Data (mm/inch) and Weight (kg/lb)																	
NCS	a	a1	b	b1	b2	b3	b4	c	c1	c2	c3	c4	c5	c6	c7	D	d1
100	16.5	26	103	105	98	78	90	5	3	13	15	18 ±0.2	21	0.8	1	104	116
4"	0.65	1.02	4.06	4.13	3.86	3.07	3.54	0.2	0.12	0.51	0.59	0.71	0.83	0.03	0.04	4.09	4.57

Dimensional Data (mm/inch) and Weight (kg/lb)														
NCS	d2	d3	d4	G	G1	h	h1	h3	h4	s	SW	SW1	Weight (approx.)	
100	127	4.8	8	G 1/4 female	G 1/4 B	82	77	86	20	5	19	17	1.2	2.65
4"	5	0.19	0.31	1/4" female	1/4" BSP	3.23	3.03	3.39	0.79	0.2	0.75	0.67		

- Options and Special Versions (Upon Request)**
- Connections G 1/4 B brass or stainless steel 303 (1.4305); cutting ring fittings
    - made of steel or 316Ti (1.4571) for 6, 8, 10 or 12 mm (0.24, 0.31, 0.39 or 0.47") tube
    - made of brass for 6, 8 or 10 mm (0.24, 0.31 or 0.47") tube
  - Membrane and sealing (pressure ranges ≤ 10 bar) Viton
  - Sealing Viton for diaphragm Duratherm
  - Pressurised chamber made of aluminum HART COAT, or stainless steel 303 (1.4305)
  - With integrated pressure switch, see data sheet 5495
  - Other pressure ranges and special scales upon request

- Ordering Information (Model Construction)**
- Please specify in your order:
- Basic model/  
nominal case size: **DiPsPH 100**
- Code letters for  
type of mounting:
  - **W** (wall mounting = standard)
  - **Er** (with installation ring for panel mounting, see Accessory)
- Pressure range:  
Specifics: according to DIN EN 837, e.g. **0 - 4 bar**  
see Special Versions, especially the information on connections if not standard
- Examples:**
- DiPsPH 100 - W, 0 - 6 bar
  - DiPsPH 100 - Er, 0 - 2.5 bar, cutting ring fitting made of steel for Ø 8 mm