

Application

Examples of basic applications (Applications of pressure transmitter conform to micro pressure gage and differential pressure switch)

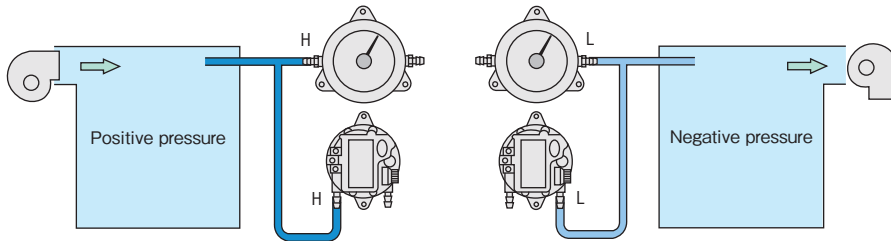
Static pressure measurement

In case of static air

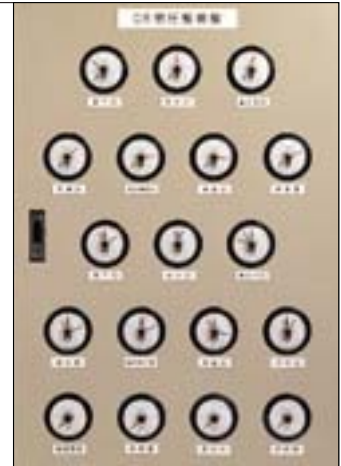
In door pressure monitoring and outgoing alarm

• Example application of clean room

• Example application of nuclear relationship



(Filters are omitted in the figures.)



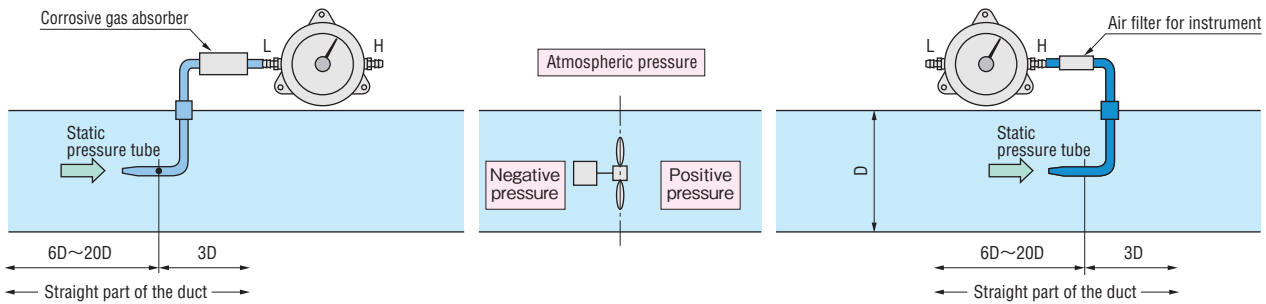
Clean room pressure monitoring panel

In case of flowing air

Pressure monitoring and output alarm in a draft and ventilation system and so on.

(Example in which a corrosive gas absorber is installed)

(Example in which an instrument air filter is installed)



Because the air flow is usually turbulent flow and that makes it difficult to read the gage pointer or causes the measurement error. Therefore, be sure to install the static pressure tube along the straight duct section of the required length.

The static pressure inside the duct turns positive and negative before and behind the fan. Be careful with the H, L polarities of the port connectings of the gage or switch when connecting them.

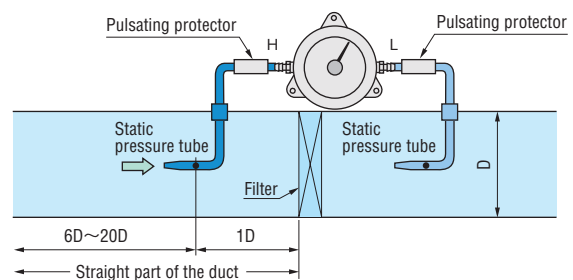
Measurement of pressure loss

Monitoring clogging of an air filter and output alarm

Example of a general air conditioning system

By installation the static pressure tube before and after an air filter to measure the pressure loss at the filter, and then the degree of filter clogging can be detected. Generally, the max. ranges from 300 Pa. to 1000 Pa. are used. (in case of using gages)

(Example which a pulsating protector is installed)



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Combination of Manosys

Accessories

Application Cautions for use Maintenance

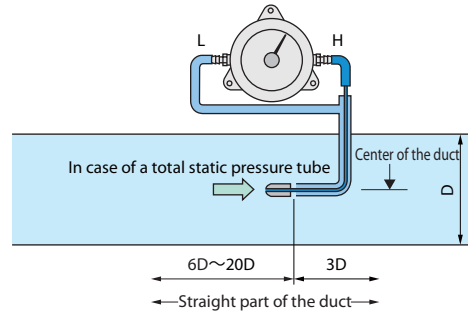
Examples of basic applications (Applications of pressure transmitter conform to micro pressure gage and differential pressure switch)

Air velocity - air volume measurement

Monitoring air velocity and volume, outputting alarm in a draft and ventilation system and so on

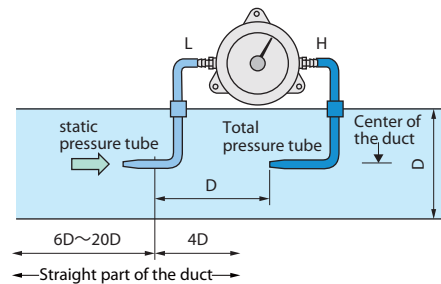
In case of a total static pressure tube (pitot tube)

A air velocity higher than 2 m / s can be determined by installing a total static pressure tube, measuring dynamic pressure with it, and calculating using the formula (refer to p.89).if the max. air velocity at the center of the duct is determined, the approximate air volume is calculated using the formula: (Max. air velocity × Duct cross sectional area × 0.9)



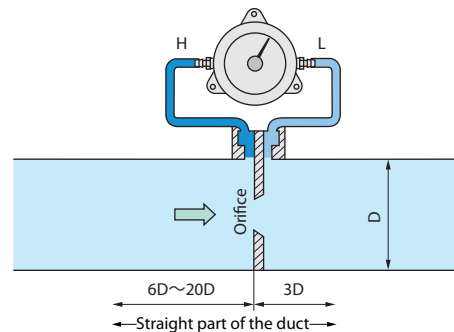
In case of a static pressure tube and total pressure tube

When an approximate flow rate or volume needs to be measured easily at a low cost, a static pressure tube and a total pressure tube are used as shown in the right figure. A total static pressure tube and an orifice are expensive.



In case of an orifice

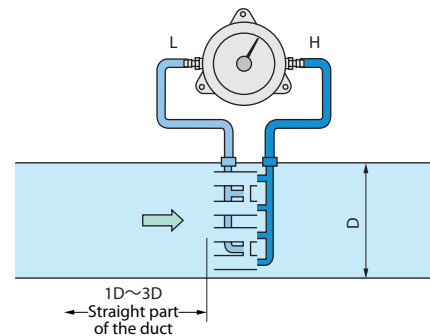
An orifice is called a instrument having a shape of disk with a round opening at the center, and is installed in a duct line to restrict the air velocity through it. The air velocity increases and the static pressure decreases by restricting the flow line. The differential pressure before and behind the orifice is then be measured and calculated to determine the air volume.



In case of a multi-pitot tube

Multi-pitot tube

The cross section of the duct is divided into segments at a constant rate and one pitot tube is installed at the center of each segment. The total pressure and static pressure of each pitot tube is collected to obtain the average total pressure and static pressure. Each pitot tube is equipped with a cylindrical flow rectifier tube to eliminate the influence of turbulent flow.



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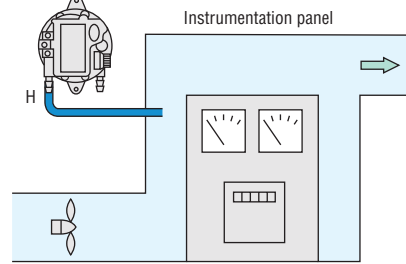
Examples of basic applications (Applications of pressure transmitter conform to micro pressure gage and differential pressure switch)

Measurement of static pressure

Still air

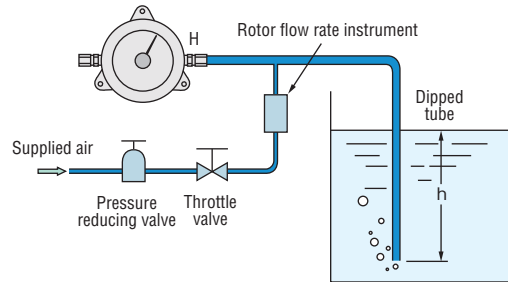
For internal pressure explosion-proof apparatus

When a measuring instrument is used in explosive atmosphere, turned on electricity after fresh air is supplied for a certain time until the inner pressure reaches the legally required pressure. The installation of the pressure detector is essential.



Liquid level gage (air purge type)

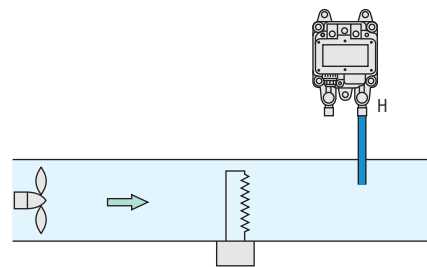
A tube dipped in a reservoir discharges a small amount of air from the end located at the reservoir bottom. The pressure of the tube is given by the calculation: (Liquid level × Specific density of liquid). Therefore, the liquid level can be determined if the specific density of the liquid is known.



Flowing air

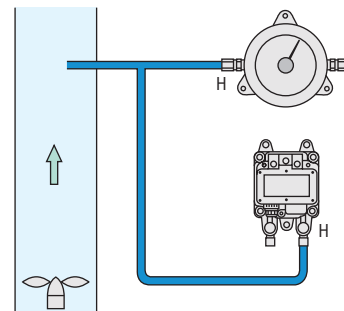
For protection of electric fire heater burn-out

If the fan of an electric air heater and so on stops while turning on electricity, the heater temperature sharply rises and the heater blowout. In such case of the micro differential pressure switch is activated, it quickly stopping the entire system to prevent the burn-out.



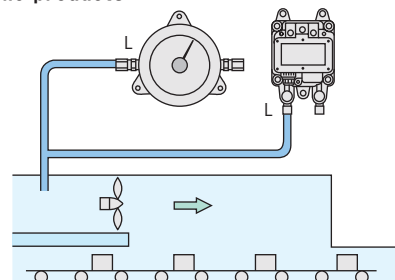
For monitoring flue gases and air supplied to a burner

An incomplete combustion due to insufficient exhaust, or a combustion shut-off due to the failure of an air blower is detected by the micro differential pressure switch, which then output alarm.



For air flow rate control of drying ovens and tunnel kiln for ceramic products

The micro differential pressure switch monitors that the hot air flow keeps in the best condition. If the switch detects any unusual condition of air flow, it output alarm or stops the hot air and shuts down the system.



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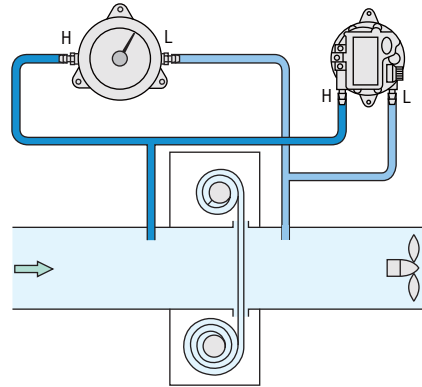
Examples of typical applications Examples of basic applications

(Applications of pressure transmitter conform to micro pressure gage and differential pressure switch)

Measurement of pressure loss

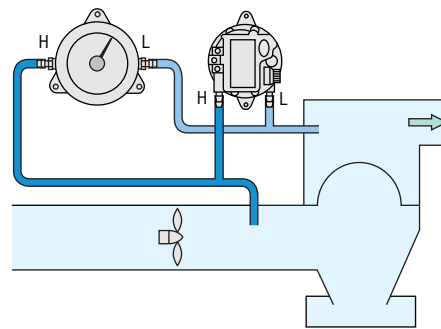
For triggering the drive signal of an automatic roll filter

When a clogged filter decreases air weight flow rate, the micro differential pressure switches detects it and send a filter winding motor to reload new filter.



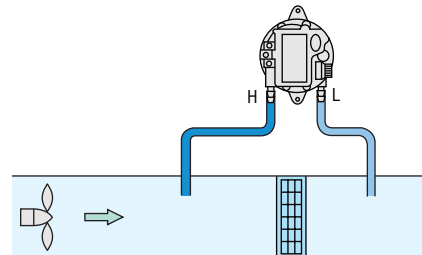
For using in a dust collector with a bag filter

According to the extent of the bag filter clogging or the cycle, the micro differential pressure switch detects the amount of collected dust and operates aeration equipment to clean a bag filter.



For detecting a defrost directive of a cooling coil

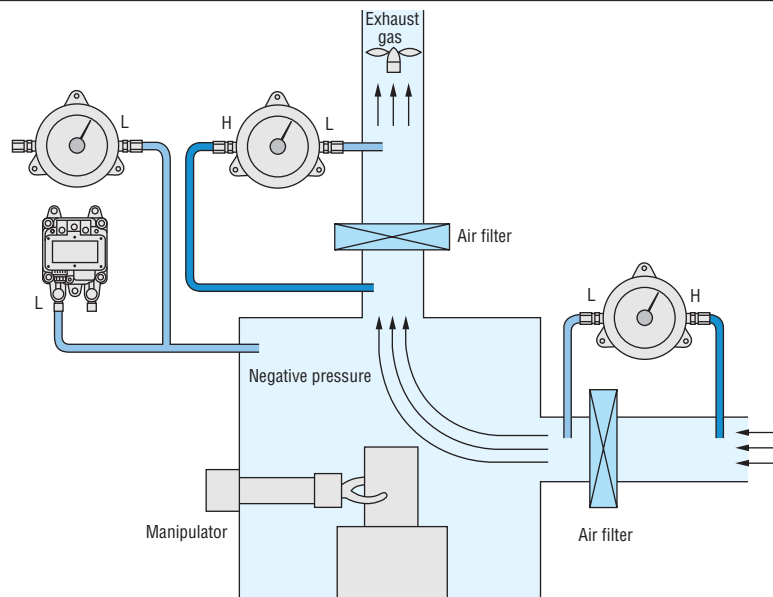
Running an air conditioner causes frost on the cooling coil and reduces its performance. The micro differential pressure switch detects the amount of frost and send a defrost directive.



Measurement of static pressure and pressure loss

For using in a glove box

The internal pressure of a glove box can be controlled while objects inside the box are handled with a manipulator. (The figure indicates an example in which negative pressure is created inside the box to prevent leaks from the inside.)



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Product Warranty

Warranty Period

This product warranty is valid for one year from the date of delivery to a place specified by an ordering party who has transacted directly with Yamamoto Electric Works Co., Ltd.

Coverage

If a product breaks down due to a reason for which we are responsible during the warranty period and you return the product to us, we will either repair or replace the product free of charge.

This warranty does not cover:

- (1) Usage of the product under any inappropriate conditions or environment contrary to what is described in our product catalog, specifications or manual.
Handling or usage of the product other than as described in our product catalog, specifications or manual.
- (2) Breakdown due to a reason other than a fault within our product.
- (3) Any product that has been modified or repaired by a party other than us.
- (4) Any breakdown due to a reason that was not foreseeable based on scientific and technical standards applied at the time of shipment.
- (5) Any breakdown due to a reason not attributable to us such as a natural calamity or other disaster.

These terms of warranty represent our entire liability with respect to the product, and we shall have no liability for any other loss arising in connection with a breakdown of the product.

*This product warranty is only valid within Japan.

This document is a translation from the original Japanese version, and the original Japanese version has priority over this translation.

Be sure to refer to the original Japanese for the details of this warranty.



Caution

The Japanese original document shall always take precedence over the translated versions.

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