Application Note 003e

FIT®/0... - FIT®/5...

Construction and application conditions

I2125-1.1 en

HBM

Content

1 Introduction

The FIT® family, consisting of the FIT®/0...; FIT®/1...; FIT®/4... and FIT®/5... , is designed for various application areas. The different application conditions must be taken into consideration during selection.

FIT®/0...: Degree of protection IP67, without housing, plug connection

FIT®/1...: Degree of protection IP55, stainless steel housing, labyrinth ventilation, fixed mounted cable (horizontal)

FIT®/4...: Degree of protection IP66, stainless steel housing, venting hose, fixed mount. cable (vertical)

FIT®/5...: Degree of protection IP68, stainless steel housing, integr. overload protection, plug connection

2 Construction

2.1 FIT®/0…

The FIT®/0... is an aluminum load cell with integrated electronics. It is optionally available with digital control inputs and outputs. It has the degree of protection IP67. The connection is horizontal, facing backwards, via connectors (company Binder) which, in connected condition, also have the degree of protection IP67.

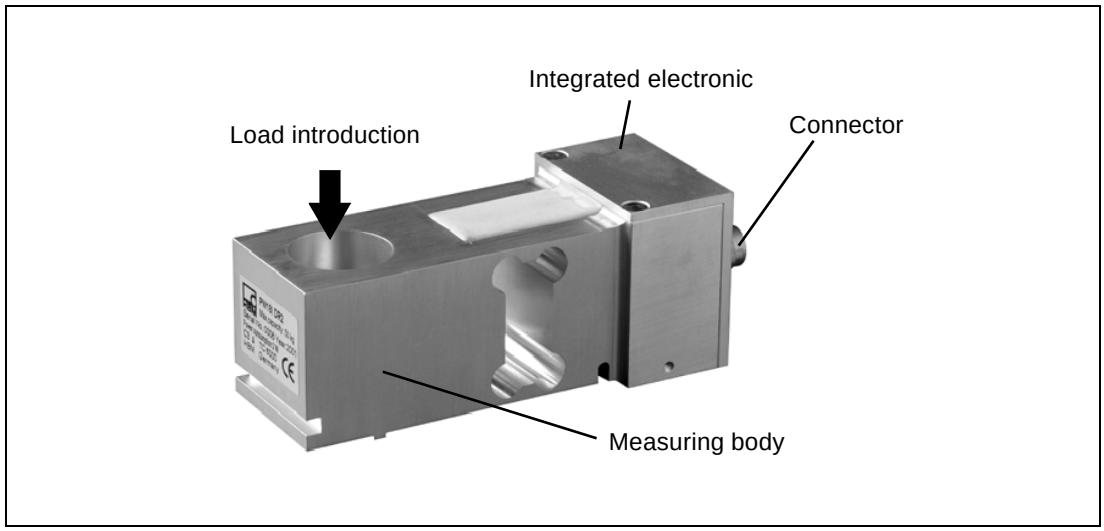

Fig. 1: FIT®/0..., Aluminum load cell with integral electronic

The application areas for the FIT®/0... are all those areas where media (e.g. detergents) that could attack the aluminum or the synthetic material (silicone) are not used.

2.2 FIT®/1…

In the FIT®/1... version, the aluminum measuring body is protected by a laser-welded stainless steel enclosure. The force application parts are sealed off by a silicone bellows coupling. The connection cables are fixed mounted on the FIT®/1.... The cable output is horizontal, facing backwards. The FIT®/1... has a labyrinth ventilation system positioned in the load application part. This ensures that the measurement signal is not affected by any changes in air pressure. The transducer is therefore not hermetically sealed. The degree of protection is **IP55**.

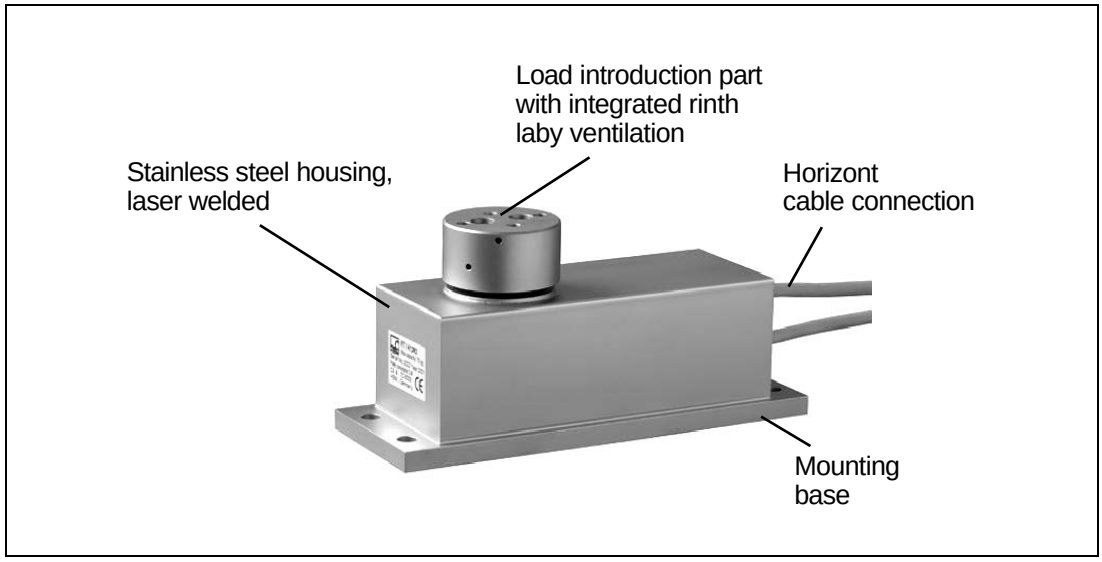

Fig. 2: FIT®/1..., Load cell with stainless steel housing

The FIT®/1... is used where rough ambient conditions prevail or where frequent cleaning processes are required (e.g. checkweigher, fruit sorting machinery). This configuration is however not usually suitable for so-called "wash down" applications or in systems where permanently high humidity (>80 % RH) is prevalent. Under unfavorable conditions (high humidity, rapid temperature fluctuations), moisture can collect in the enclosure. This can lead to measurement errors and even to the failure of the FIT®/1....

2.3 FIT®/4…

In the FIT®/4... version, the cable output is positioned horizontally downwards through the base plate. The transducer is fully sealed from above with a silicone bellow. The force application part does not contain a labyrinth ventilation system. The transducer is fully watertight from above. The metrologically necessary pressure compensation is implemented with a venting tube fed through the base plate. The transducer is not hermetically sealed. The degree of protection is IP**66**.

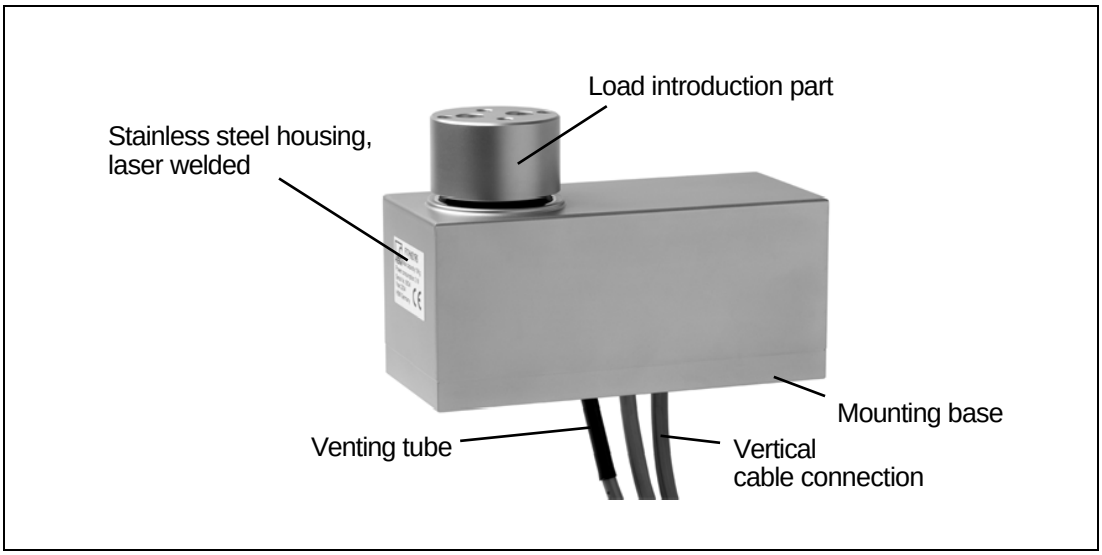

Fig. 3: FIT®/4..., Load cell with venting tube facing downwards

The FIT®/4... is specially designed for "wash down" applications (e.g. filling systems and fruit sorters with high cleaning requirements). This design can also be used under high humidity loads, when the venting tube is fed in from a dry area of the system. In applications with intensive cleaning processes, the venting tube can also be connected to a ring circuit (when several FIT®/4... load cells are used) with integrated water separator.

The venting tube must not be shortened.

2.4 FIT®/5…

The FIT®/5... is completely hermetically sealed. It consists of a measuring body, produced from corrosion–resistant stainless steel, and integrated electronics. The application area and electronics are sealed off with laser-welded panels. The FIT®/5... has integrated overload stops in the vertical direction. The degree of protection is **IP68**. Two downward-facing couplings are attached for the connection of the FIT®/5.... If a Lumberg [1)] cable with the appropriate connector is used, this connection will also have IP68 degree of protection.

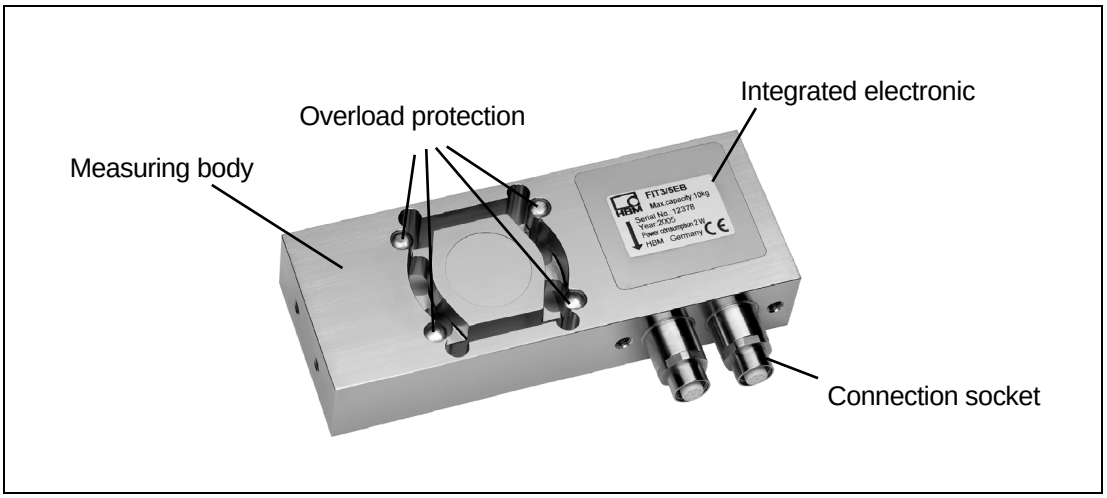

Fig. 4: FIT®/5..., hermetically sealed with connector output facing downwards

This design is developed for particularly rough ambient conditions. It can be used both in "wash down" applications and in systems with high humidity. It must be noted that the FIT®/5... has 4 overload gaps 0.3 mm wide, which are located inside the measuring body.

The stainless steel used is essentially corrosion resistant; however, corrosion cannot be fully excluded if chlorine-based media are used.

1) The standard HBM cable is only suitable for commissioning when using CANOpen or DeviceNet interface. To install a CANOpen or DeviceNet bus mode, a cable with a characteristic impedance of 120 Ω should be used.

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