

**mespack**  
packaging machinery

# FLOWMETER DOSING SYSTEM INSTRUCTIONS MANUAL

**MESPACK**  
**PACKAGING MACHINES**

C/ Mar Adriático 18, Poligono Industrial La Torre del Rector

08130 Santa Perpetua (BCN) Spain

Tel. 34 902 18 05 20 - Fax 34 902 18 07 86

[info@mespack.com](mailto:info@mespack.com)

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## Model

### Liquid dosing system serie FM:

Dosing system model

*FM-2*

Dosing system number

*842.052*

Machine model

*H-180 FE)*

Serial number

*182.037*

Date of delivery

*FEBRUARY 2010*

Client

*PROFIL (POLAND)*

#### **IMPORTANT:**

For technical consults or for the ordering of spare-parts, we kindly ask you to indicate the serial number of the machine, as indicated above, which corresponds with the serial number as marked on the plate on the left lateral part of the machine. This will make the ordering of spare-parts, as well as any technical consult a lot faster and precise.

## **CE declaration of conformity**

We:

MESPACK

C/ Mar Adriático 18, Polígono industrial La Torre del Rector

08130 Santa Perpetua

Barcelona (Spain)

Declare that:

The dosing system bought together with the new generation machine MS-18, H-150, H-180, H-210, H-260, H-320 or H-360 corresponds with the following European standards:

\*Standard 2006/42 (after 98/37/CEE).

\*Standard 89/109/CEE related to all materials that are in direct contact with the product to be dosed.

\*Low tension standard 93/68/CEE

\*Electro-magnetic compatibility standard 2004/108 (after 89/336/CEE).

\*Standard UNE-EN 60204-1 for electrical equipment of Industrial machinery

Santa Perpetua, 2009

Signed and stamped:

## **General data**

The way to proceed according to this manual is independent of the type of dosing system FM acquired by the client. The possible regulations and groups remain to have the same function. The only difference between one FM and another is in the number of nozzles, which only depends on the model of machine acquired by the client.

Liquid and paste dosing system by magnetic inductive measuring.

The liquid dosing system FM is a new generation dosing system. This system is of a very advanced technology and very accurate.

The dosing systems of the FM serie work by two physical and electrical concepts:

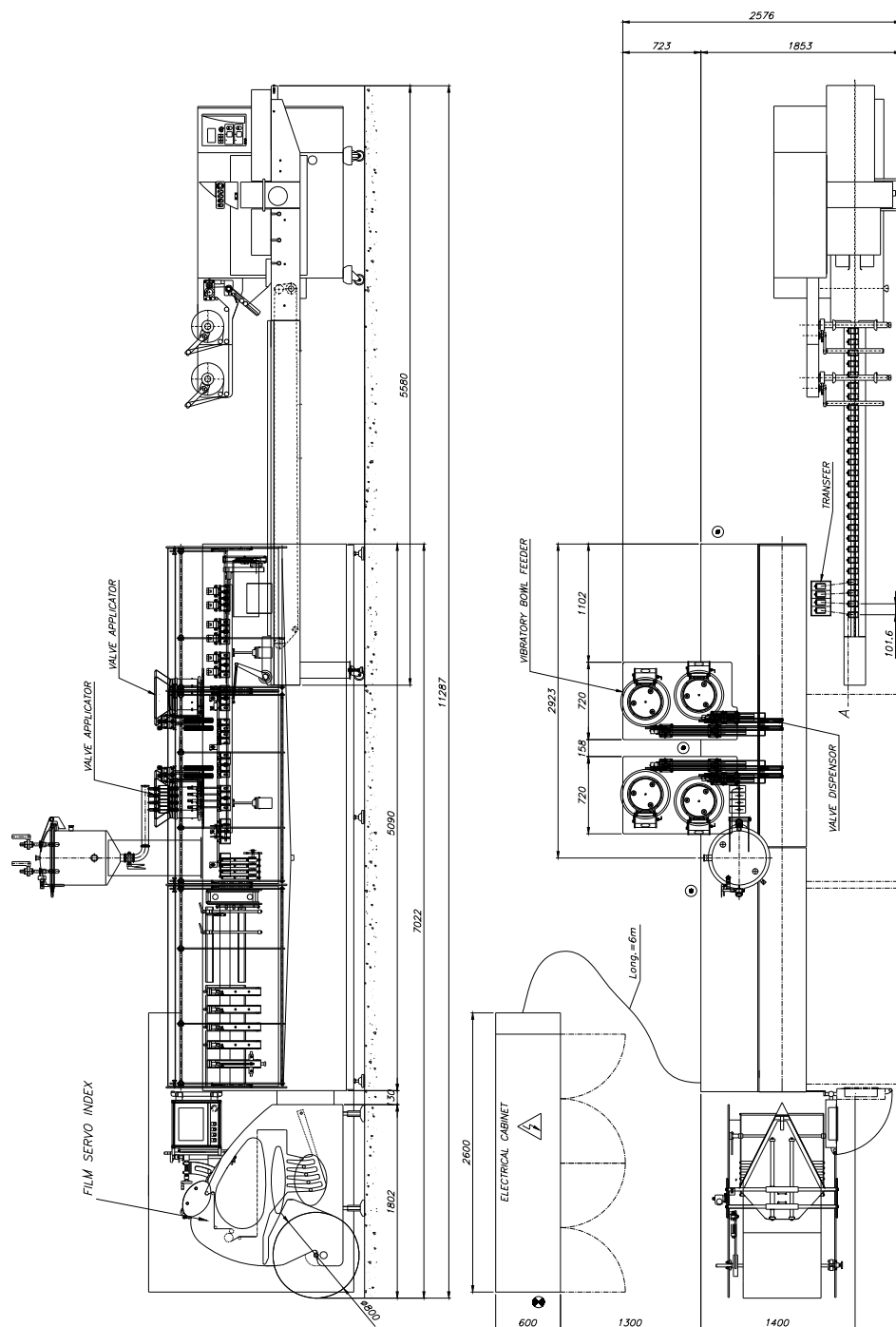
The first uses gravity, which attracts all solids or liquids depending on the barometrical hight. This barometrical hight can be changed forcing the liquid by means of air pressure or nitrogene (depending on the needs of the client), controlled in a completely hermetically closed hopper. In other words: depending on the viscosity, density and production, a pressure should be added to the hopper.

The second uses the electrical conductivity of the liquids, to control the quantity that passes through a pipe in a certain amount of time.

The liquid and pastes dosing system FM can consist of 2, 3 or 4 nozzles, depending on the model of the machine.

## Layouts

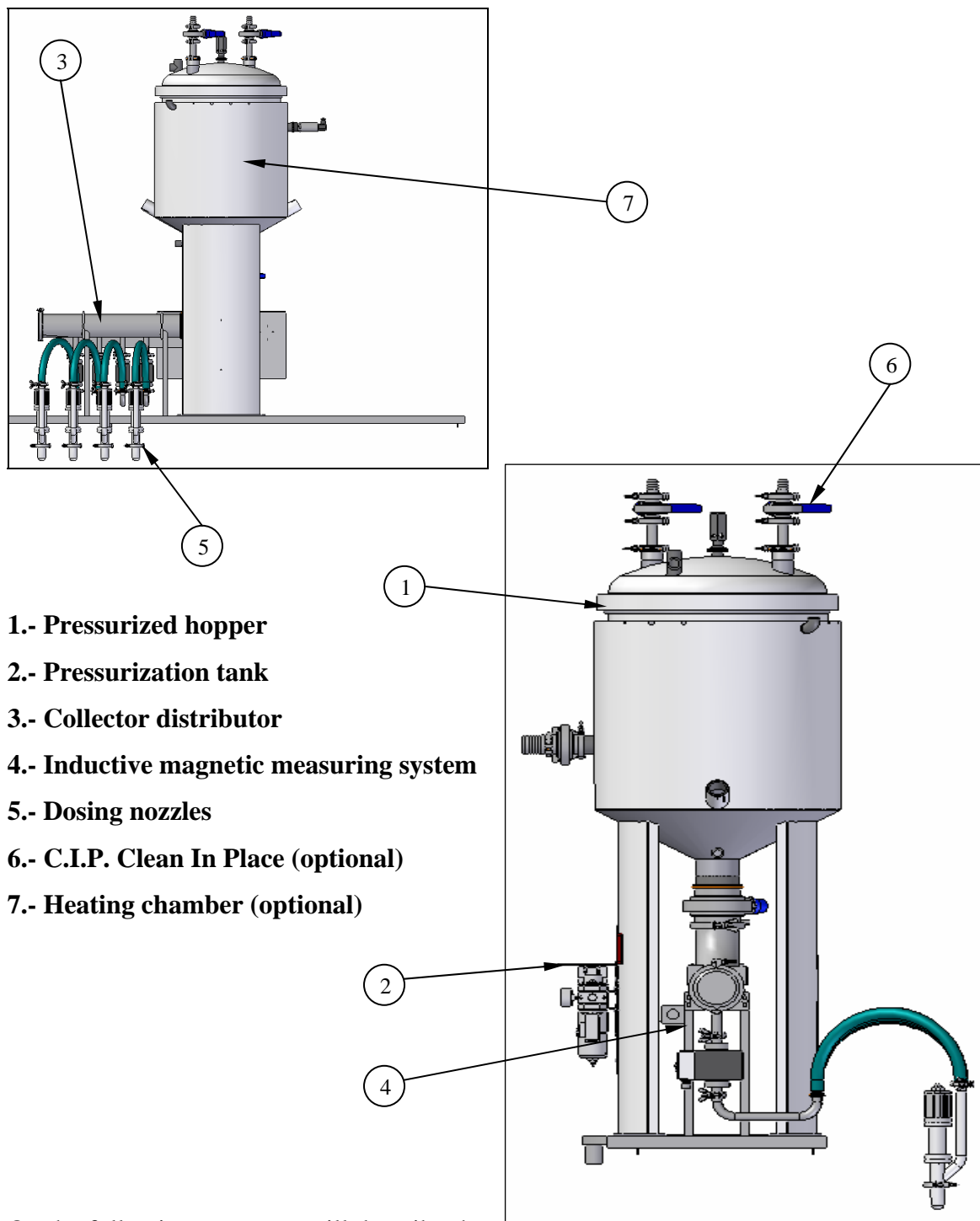
Drawing nr 1



## Description

Distribution of groups of the dosing system FM:

*Drawing nr 2*



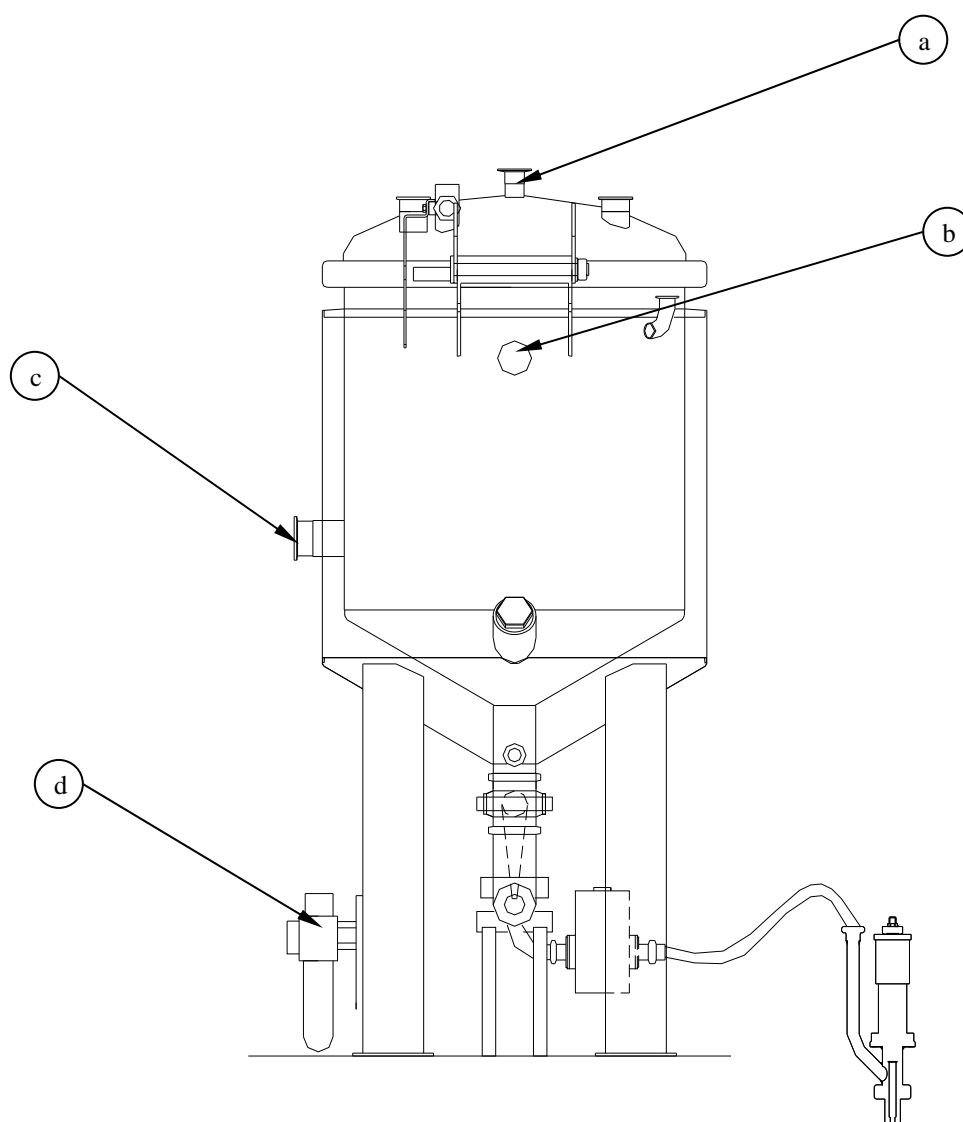
On the following pages we will describe the

different groups the FM dosing system is composed of:

### **1. Pressurized hopper:**

The hopper of the liquid dosing system FM, is completely liquid- and air tight and is manufactured in AISI-316-L stainless steel. With a normal working pressure of 4 bars bmaximum and a testing pressure of 6,5 bars.

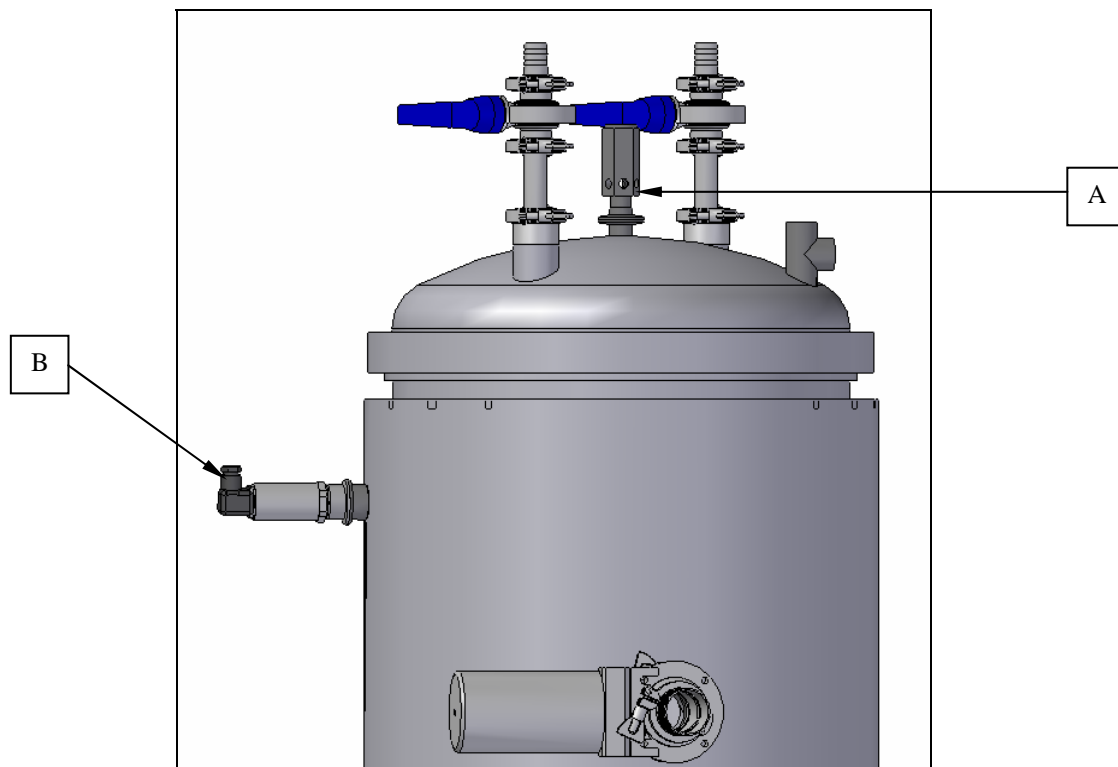
Drawing nr 3



The deposit of the dosing system FM consists of 4 elemental parts, as marked in the layout on the last page.

- a. Security valve “A”, measured at 4 bars. This valve achieves to maintain the adequate pressure inside the hopper.

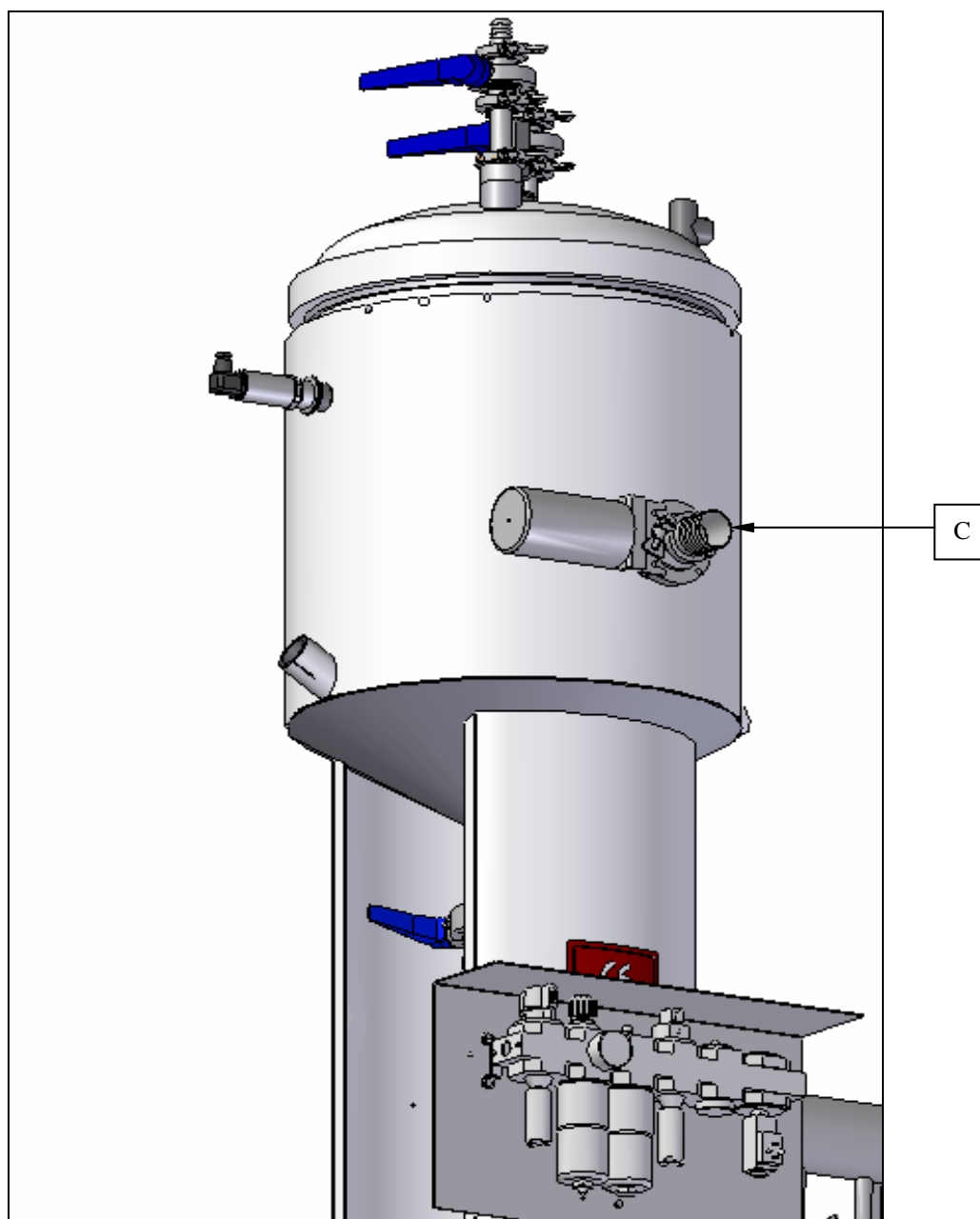
*Drawing nr 4*



- b. Inductive level detector “B” to control the constant level inside the hopper (Photo 1).
- c. Feeding valve, for the automatic feeding of the hopper; with pneumatic activation. It is necessary to have in mind that the pump that should feed the hopper should be able to work at a minimum pressure of 5 bars. It is also important to activate the switch “LEVEL DETECTOR” before starting the machine. From the control panel, from where the feeding valve is opened, the pump is started. All the rest of the feeding process will be automatic.

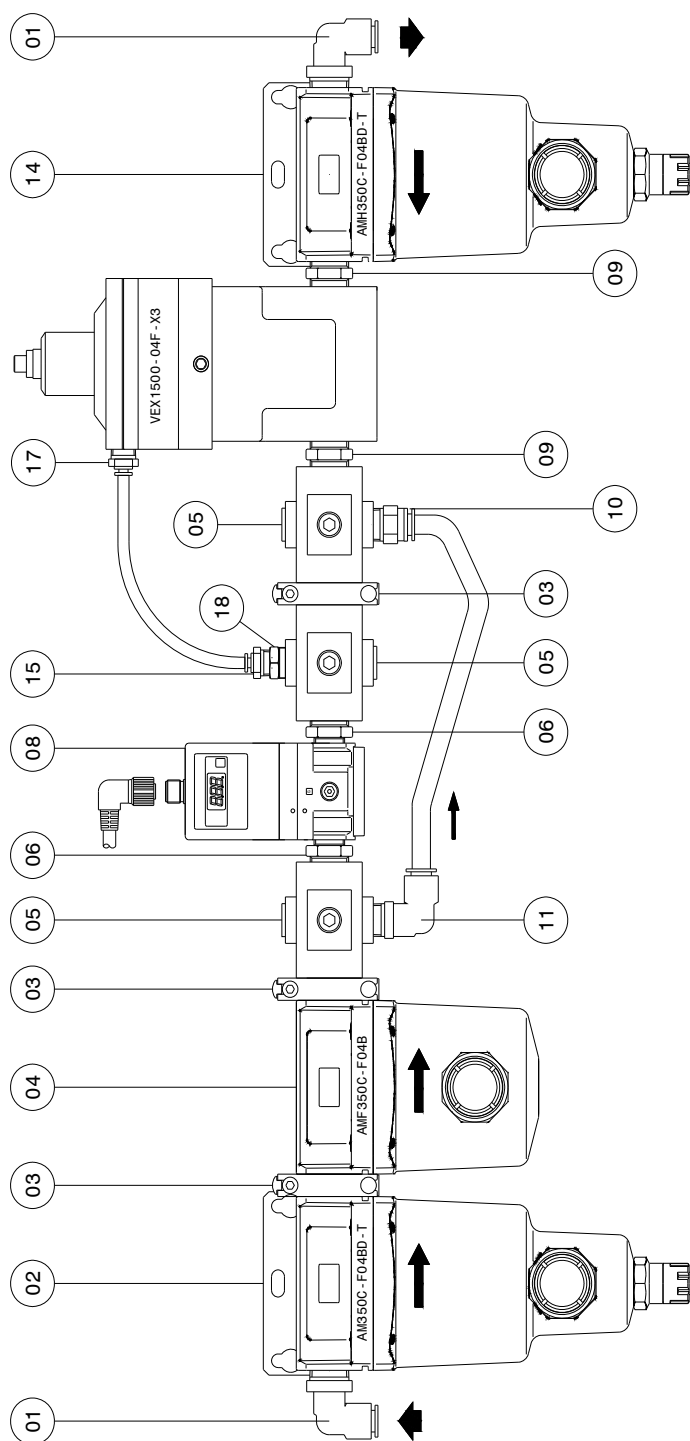
- d. Registrating manometer, to indicate the real pressure inside the pressurized hopper.

*Drawing nr 5*



## 2. Pressurization tank

Drawing nr 6



**EXECUTION:** PRESSURIZATION TANK

**REFERENCE:** B1301-01<sup>a</sup>-CG03

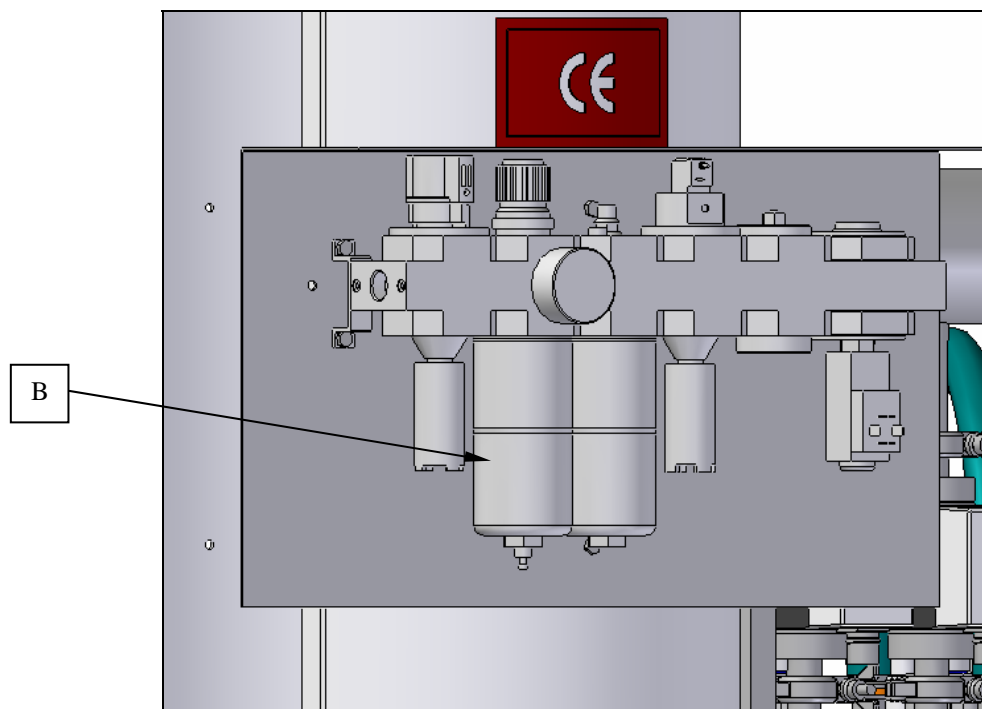
List of SMC material as used for the mounting of the above mentioned tank:

N°	REFERENCE	Cant.
01	KPL12-04	2
02	AM350C-F04BD-T	1
03	Y400	3
04	AMF350C-F04	1
05	Y44-F03 S/p Q2M00359-P002	3
06	SA012 3/8 1/2	2
07	P398010-13	1
08	ITV2050-01F3BN2-Q	1
09	SA012 1/2 1/2	2
10	KPH10-03	1
11	KPL10-03	1
13	VEX1500-04F-X3	1
14	AMH350C-F04BD-T	1
15	KPH04-02	1
17	KPH04-01	1
18	SA015 3/8 1/4	1

In case of needing a new pressurization tank or one or some of the parts as detailed in the list, the reference of the tank should be mentioned as well as the reference of the demanded element.

**Pressurization tank:**

Drawing nr 7

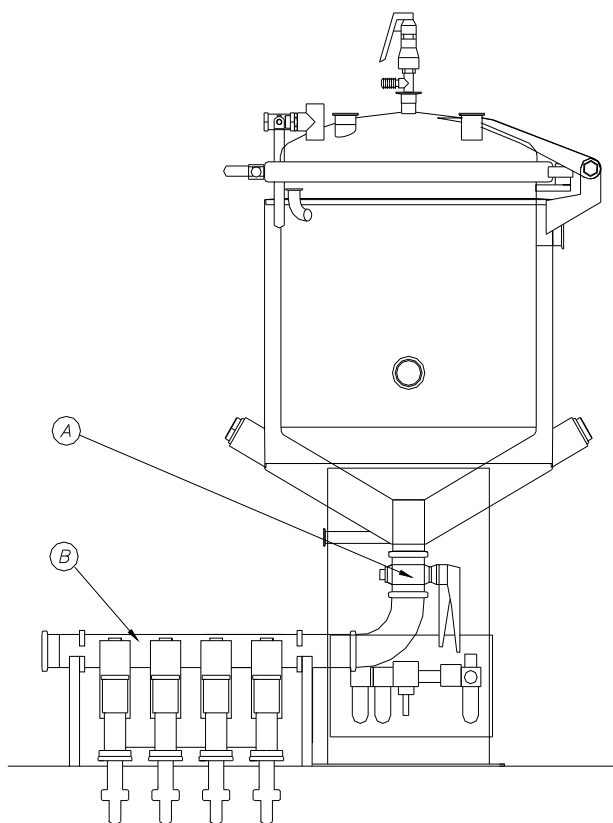


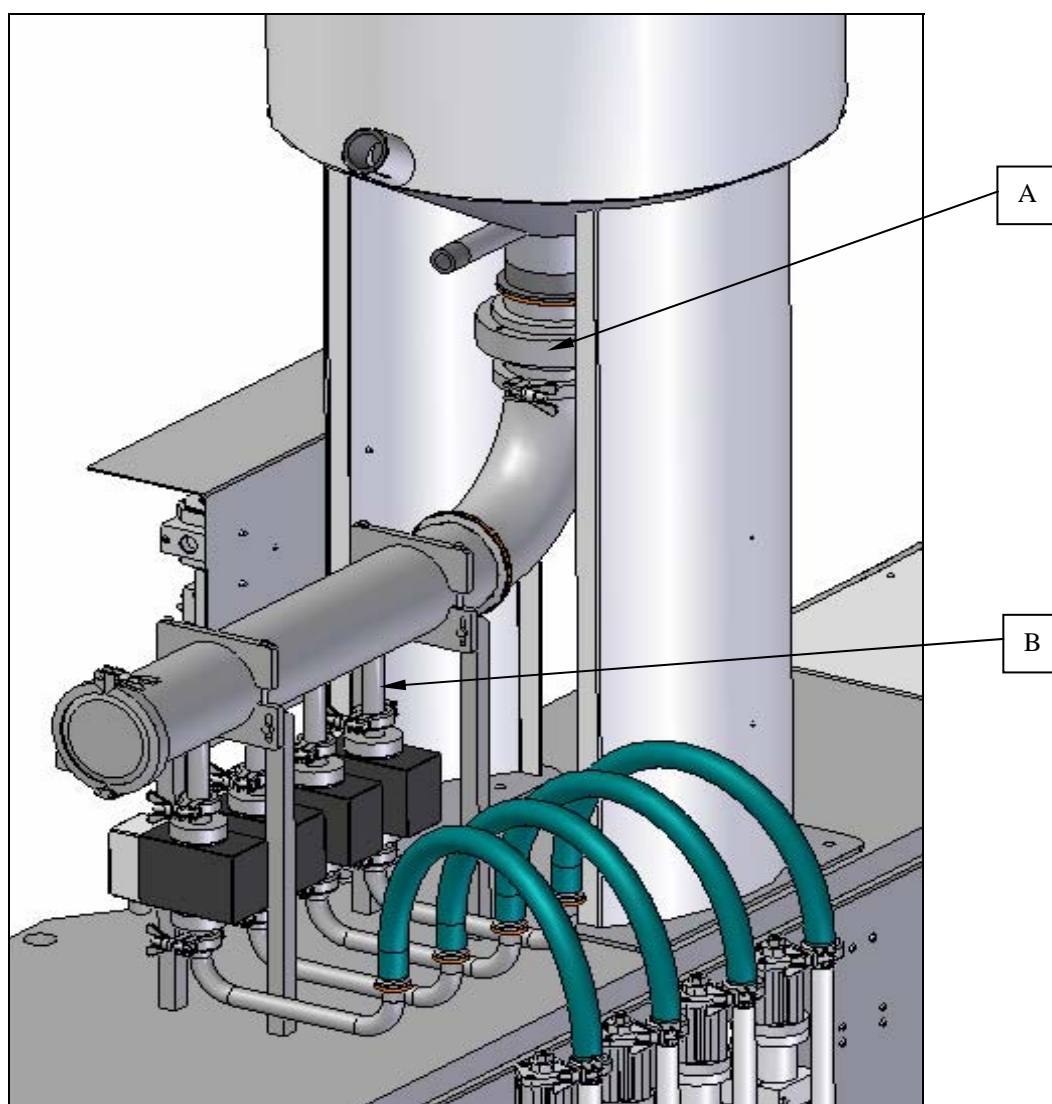
### 3. Collector distributor

The dosing system can be equipped with various dosing nozzles.. (1, 2, 3 or 4, depending on the quantity to be dosed and if the machine is simplex or duplex).

The system consists of a closing valve “A” and an exit collector which lugs are of the type clamp DN-20 “B”.

*Drawing nr 8*



**Collector distributor:***Drawing nr. 9*

A) Closing valve

B) Collector distributor

#### 4. Inductive magnetic measuring system

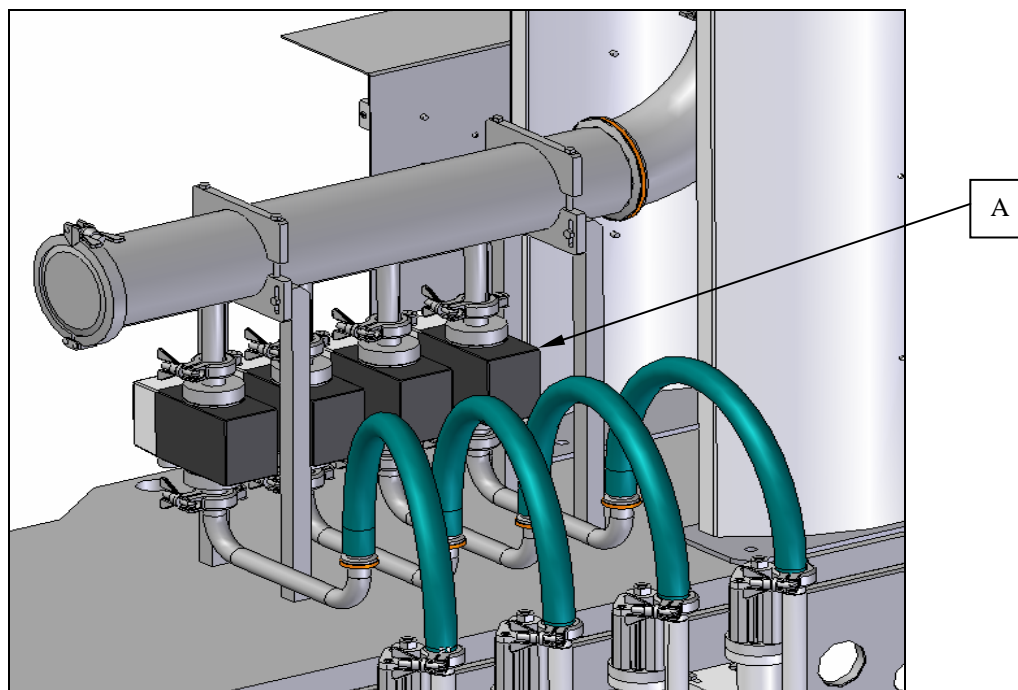
This group is in charge of controlling the quantity of liquid that should be dosed in each station. It's principal of measuring is based on the inductive norm Faraday, which may be used for the dosing of almost any type of liquid with electric conductivity.

The group is equipped with an inductive magnetic measuring system "A" for each nozzle.

Characteristics of the inductive magnetic measuring system:

- Standard deviation  $\pm 1\%$
- Viscosity allowance 1 until 10.000 cps ( no limits are known).
- Minimum conductivity aprox.  $\pm 1\mu / \text{cm}^2$  (distilled water).
- Minimum and maximum temperature  $-20^{\circ}\text{C} +140^{\circ}\text{C}$ .

*Drawing nr 10*

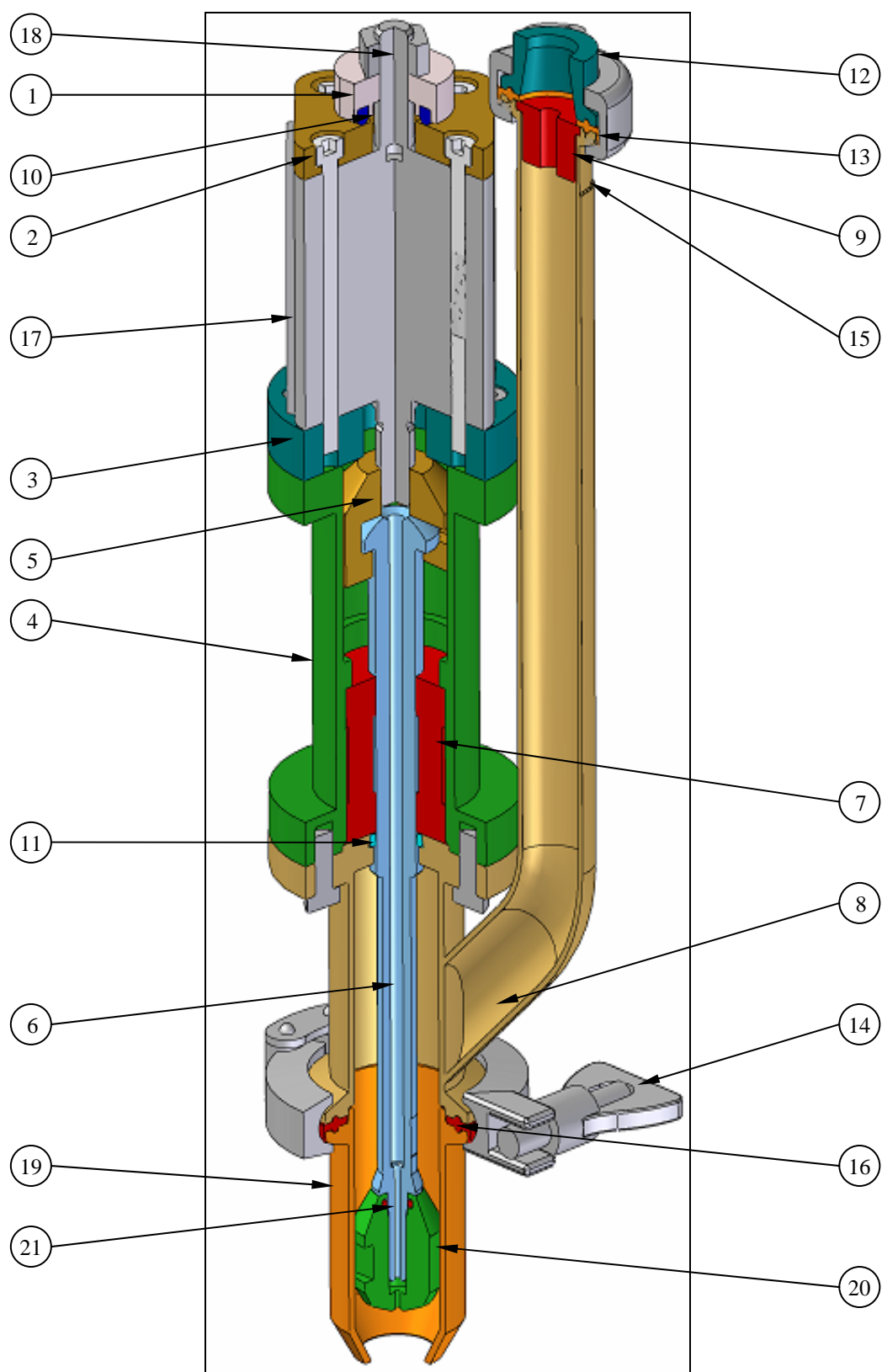


## **5. Dosing nozzles**

The dosing nozzles are in charge of filling the pouches once they have been produced. According to the characteristics of the product to be dosed, the nozzles can be of different sizes.

The dosing nozzles consist of the following parts:

Drawing n° 11



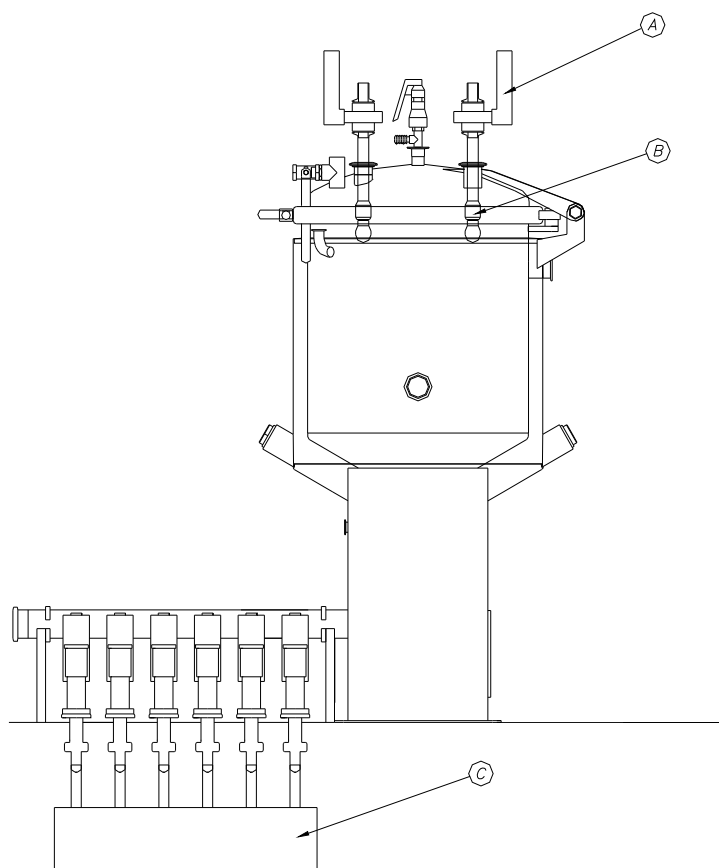
## 6. C.I.P.

This group is to realise the cleaning of the pressurized hopper, the collector / distributor and the dosing nozzles.

The C.I.P. consists of the following parts:

- a) **Butterfly valves of manual activation.**
- b) **Rotating ball valve for the cleaning of the hopper.**
- c) **Outlet collector**

*Drawing nr 14*



NUMBER	REFERENCE	QUANT.	DESCRIPTION
1	CM.15.01.070	1	Hose clamp DN-1
2	CM.15.01.069	1	Clamp DN-1
3	CM.15.01.068	1	Lug joint clamp DN-1
4	CM.15.01.071	1	Butterfly valve clamp DN-1
5	CM.15.01.068	1	Lug joint clamp DN-1
6	CM.15.01.067	1	Welded bushing clamp DN-1
7	CM.15.01.069	1	Clamp DN-1
8	CM.15.01.007	1	Clamp DN-2
9	CM.15.01.065	1	Blind bushing clamp DN-2
10	CM.15.01.064	1	Lug joint clamp DN-2
11	CM.15.01.063	1	Rotating ball valve

Drawing nr 15

