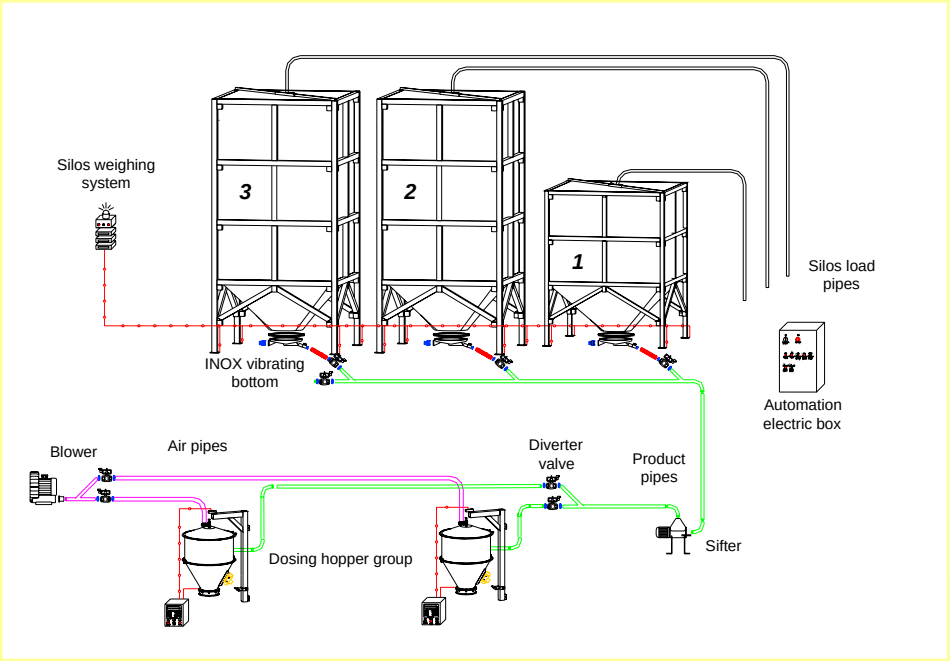
Federico Giuliani

Automatic feedstock storage and dosing

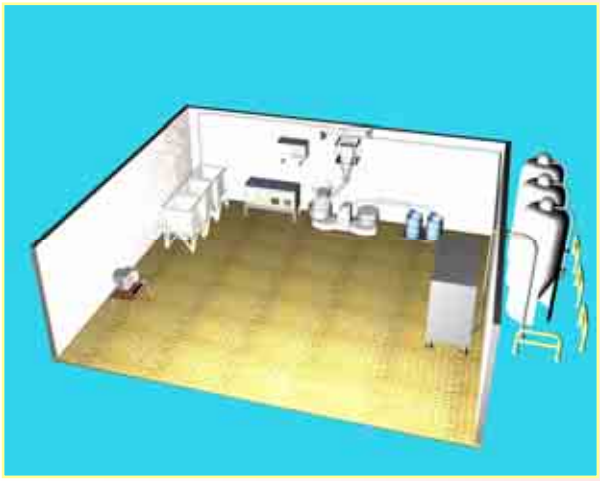
Advantages in the use of FG plants



A storage system inside your factory makes you save money, time and work

Your materials are our point of departure

The change from the restocking through sacks to an automatic storage system is a fundamental step for a firm that wants to evolve and grow



Accurate planning of the spaces

Planning with care Your storage system we can point out some solutions:
√ for the best efficiency of the plant
√ for a greater economy of exercise
√ to reduce the costs of purchase and use
√ to reduce the energetic consumption

Installations anywhere

We plan with care the disposition of the components of our plants to exploit at the most the spaces and to make the work the most efficient possible.

The Federico Giuliani has personalized solutions for resolving every problem.

Our plants increase your productivity

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Fit for dusts and granules transport

The factory that operate in the food, pharmaceutical and chemical sector know the advantages of the pneumatic transport of the product.

Best product quality

The possibility to set automatic recipes and the precision of the dosing system guarantees a constant quality product;

the insertion of sifters in line or to the unload allows to filter the product and hold back extraneous bodies;

the possibility to check the supplies allows a continuous monitoring of the product present inside the silos.

In-line sifter

Microprocessor balance

Transport speed

Our transport lines allow the product to reach speed up to 20 m/sec also on long distances with courses up to 40 quintal/hours increasing the productivity of Your firm.

Safety and economy

The pneumatic transport of the product avoids the shedding of dust inside the work environment. Besides the operators don't have to manually enliven the sacks and can work in a more silent environment.

All the components of a FG plant are CE certified

CE

Installation with product dosing from more stations

Electronic automation

Reliability and operational continuity

Our plants are designed to guarantee elevated performances. Thanks to the use of first quality materials we reduce the risks of lock production. Despite the complete automation of the dosing system our plants need little maintenance.

Plants and components realized

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Piadina production in Rimini

Plant for the plastic material working in Romagna

We design and build customizable plants

Automatic storage and dosing plant for the plastic packing production

Piadina production in Romagna

Mixer –dosing of bran and flour for pasta production in the centre of Italy Foligno (PG)

Oven products production

Jam production in the north of Italy Lovero (SO)

Glassfibre silos PVRF®

The glass-fibre silos ***FG*** are built according to the most modern technologies, using material composite by a matrix of unsaturated polyesters resins and continuous thread fibres of glass

The glass-fibre silos ***FG*** are ideal for the outside storage of alimentary dusts.

Glass-fibre silos ø3 meters h 12 meters, 70m^3 capacity installed to a manufacturing firm of carbonated drinks.

40 flour tons storage in 3 glass-fibre silos with weighing system installed to Cepagatti (PE).

Glass-fibre silos capacity 50 quintals of flour installed to Jesi

The FG glass-fibre silos can be insulated to prevent the condenses formation inside and fluidized to avoid the compaction of the product and therefore to make the spillage of the product better.

ø silo (m) / Capacità (m^3)	1,90	2,20	2,50	2,95
	H Altezza (m)			
2	2,89	--	--	--
3	3,25	3,24	--	--
4	3,60	3,50	--	--
5	3,95	3,77	3,34	--
6	4,30	4,03	3,54	--
7	4,66	4,29	3,74	--
8	5,00	4,56	3,95	4,14
9	5,36	4,82	4,15	4,29
10	5,72	5,08	4,35	4,43
11	6,07	5,34	4,56	4,58
12	6,42	5,61	4,76	4,73
13	6,77	5,87	4,97	4,87
14	7,13	6,13	5,17	5,02
15	7,48	6,40	5,37	5,16
16	7,83	6,66	5,58	5,31
17	8,18	6,92	5,78	5,46
18	8,54	7,19	5,98	5,60
19	8,89	7,45	6,19	5,75
20	9,24	7,71	6,39	5,90
25	11,00	9,03	7,41	6,63
30	12,77	10,34	8,43	7,36
40	16,30	12,97	10,47	8,82
50	19,82	15,60	12,50	10,28
60	--	18,23	14,54	11,75
70	--	--	16,58	13,21
80	--	--	18,61	14,67
90	--	--	--	16,14
100	--	--	--	17,60

Chart of the dimensions of some ***FG*** glass-fibre silos

The FG glass-fibre PVRF® silos can also be provided with:

- ***» insulation anti-condenses***
- ***» load cells weighing system***
- ***» level gauges***
- ***» anti-overload security system***

The FG glass-fibre PVRF silos are built with raw materials included in the list of the D.M. 21.03.97 and D.L.180 21/01/92 with heat treatment of post-polimerization at high temperature as described in the enclosure II of the D.M. of 21/03/73

Trevira® fabric silos

The ***FG*** Trevira® silos are constituted by galvanized or painted carbon steel frame that contains a big sack in Trevira® fabric at high tenacity sustained by the frame through opportune suspenderses in Trevira® sewn on the same sack..

22 flour tons storage system in 3 silos in Trevira® fabric installed to Este (PD).

20 flour tons storage system in 3 silos in Trevira® fabric installed in Siena.

Thanks to the possibility to realize custom frames and sacks the FG Trevira® silos offer the possibility to exploit at the most the spaces inside the places.

CAPACITA' SILOS IN TESSUTO TREVIRA		[m3]		[Q.li]			
Base [metri]	Altezza [metri]						
	2,0		2,5		3		4	
1.40x1.40	2,4	14	3,0	18	3,9	23	4,7	28
1.60x1.60	3,0	18	4,0	24	5,0	30	6,0	36
1.60x2.00	3,5	21	4,7	28	6,0	34	7,5	45
2.00x2.00	4,4	26	6,0	36	7,7	46	9,4	56
2.40x2.00	--	--	7,0	42	9,0	54	11,0	66
2.50x2.50	--	--	9,0	54	11,7	70	14,4	86
3.00x3.00	--	--	12,0	72	15,5	93	19,5	117
3.20x2.80	--	--	11,4	68	16,0	96	20,0	120
3.20x3.20	--	--	13,0	78	17,5	105	22,0	132
3.80x3.80	--	--	--	--	22,5	135	29,0	174

Indicative chart of the dimensions of some FG Trevira® silos

93 flour quintals storage system for frozen pizza production.

The ***FG*** Trevira® silos are the best for the storage of products as flour, bran, starches, sugars and alimentary dusts in general, as well as dusts and grained of plastic nature.

The FG Trevira® silos are normally used both for small plants and for great alimentary firms, in fact they have a range of capacity from 2 to 70 m^3 (12 to 420 flour quintals).

155 tons of bran storage system for the production of cous cous in 4 silos in Trevira® fabric.

INOX vibrating bottom

The FG Trevira® silos are provided with vibrating bottom in inox steel that facilitates the spillage of product by the silos allowing the suit emptying of the sack.

FG Trevira® silos can also be provided with:

- ***» load cells weighing system***
- ***» level gauges***
- ***» inspection window***
- ***» anti-overload security system***

The storage in Trevira® fabric silos is in specification of UE normaes according to the Italian Law

D.M. 21.03.73 e D.M. 26.04.93

“Foodgrade specification of food packaging”

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Metal Silos

Aluminum alloy and inox steel silos

Inox steel AISI304 silos for the storage of 270 quintals of plastic dusts

Aluminum alloy or inox steel silos for alimentary dusts storage inside or outside the production room.

Metal silos with fluidized bed

Silos built with modular system based on sectional panels able to cover a range of capacity from 1 to 60m^3.

The spillage of the product is facilitated putting in vibration the bottom of the silos or through a “fluidized bed”, by a air flow that decompact the product situated in the fund of the silos.

The FG metal silos can be provided with:

- ***load cells weighing system***
- ***level gauges***
- ***anti-overload security system***
- ***fluidized bed***

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CE

Metal silos with fluidized bed installed to Mantova

Unload big-bags station

The unload big-bag station is like “another silos”
very comfortable for all the products that the weekly quantities used don't justify the installation of a silos: integral flours,biological, semi-processed materials… sugar can economically be inserted in the line of feeding of the dosing system.

Unload big bag station for the sugar's automation installed to Lovere (SO) in a manufacturing firm of jam.

The FG unload big bag station consists in a telescopic carbon steel frame galvanized or painted or in AISI 304 - 316 that can contain big bags of all dimensions. A vibrating bottom totally made in inox steel carries the product to the mechanic or pneumatic transport system.

Particular of the vibrating bottom and of the transport of the sugar through flexible screw conveyor

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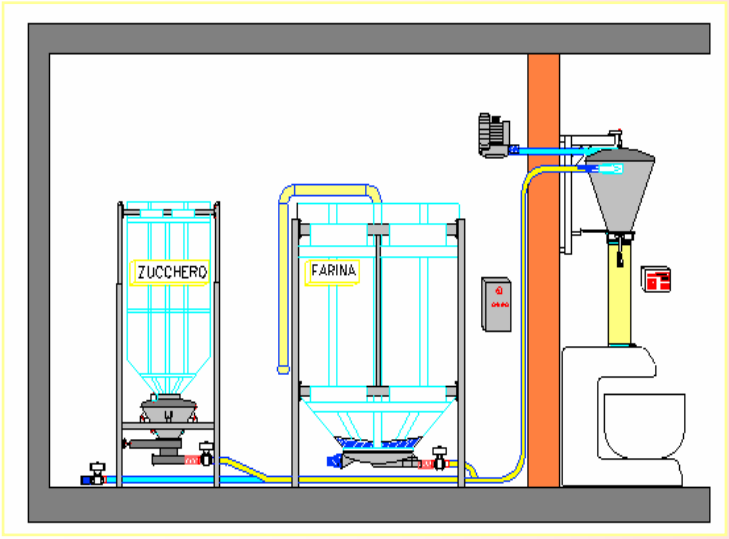
The FG big bag unload stations are perfectly integrate in the mechanics or pneumatic transport line and can be provided with weighing system for a complete automation of the product dosing.

It is finally possible to insert in the automatic recipe also the products that still today you have manually managed!!!



The unloading big bag station can also be provided with:

»***load cells weighing system***

»***level gauges***

Dosing-weighing systems

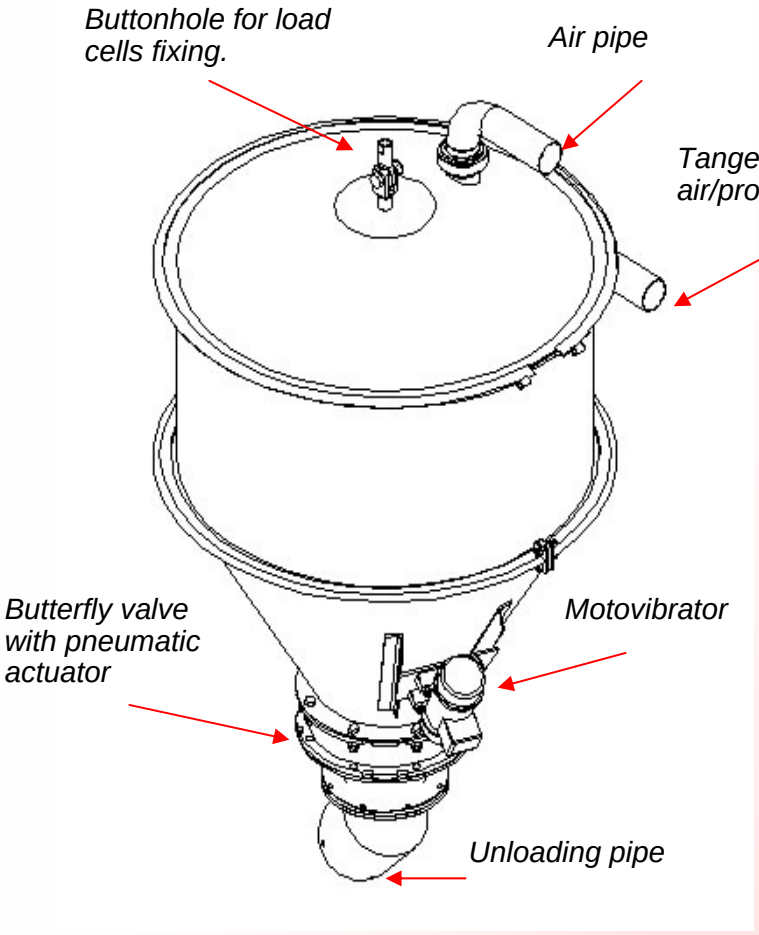
The dosing of product stored in the silos happens through one or more weighing hoppers.

It is a fundamental component because it allows the product weighing with a 0,03% precision on the full scale of the system:

In mix of 300kg there are a maximum error of 100 grams!

Weighing hopper applications

Once weighed the flour is unloaded in a mixer-machine, another transport for continuous lines of production etc; the weighing hopper can be inserted to any other system.



Weighing hopper scheme

Standard weighing hopper dimensions:

60 kg	***ø842 H 900***
100 kg	***ø842 H 1150***
150 kg	***ø842 H 1300***
200 kg	***ø842 H 1550***

Operation principle

The air-product mixture tangentially enters inside the weighing hopper with a speed of around 20 m/sec, than is put in rotation by the trunk-conic form; the product fall down on the bottom while the air escapes through the filtering cloth set under the hopper hat.

This system avoids the turbolences formation allowing an elevated precision in the product weighing.

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The weighing hopper can also be provided with:

- ***» electro-pneumatic unloading system***
- ***» electric or pneumatic vibrator***
- ***» inox unloading pipe***

Electronic weighers

The brain of the FG plants are the electronic weighers that guarantee the complete automation of the product transport.

The electronics can be simple commands to manually manage a single silos, inserting time by time the quantity of the product you need or real microprocessors that can manage more silos,planning recipes that are directly composed in the weighing hopper, management of supplies, consumptions and more.

For big plants composed by more weighing hoppers Federico Giuliani can automatically manage the line of production through a personal computer connected to the single electronics of command.

The automation control and the product consumptions by software is simple and intuitive thanks also to a graphic support.

1 silos electronic command

3 silos electronic command

Electronics for the management of 12 silos and planning of 50 recipes

Silos weighing systems

All the FG silos can be provided with a weighing system: the silos is installed on a series of load cells connected to a microprocessor.

Compression and shear load cells

An instant indication of the content weight stored in the silos allows:

to check the indeed loaded quantity of product on the silos thanks to the function “net weight”;

to calculate the consumptions for every flour type;

to install a safety load system if the silos is loaded more than the due;

never remain without flour thanks to of the minimum level indicators.

The silos weighing system is composed by four fundamental components:

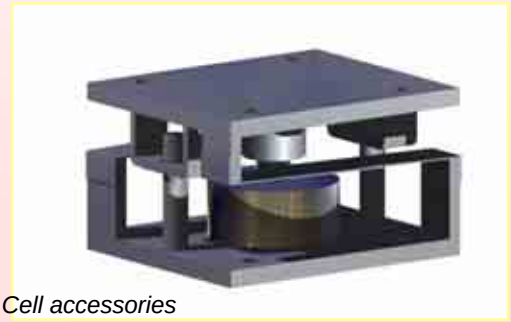
-***Weight distribution loom*** in galvanized or painted carbon steel; it uniformly distributes the weight of the silos on the cell accessories.

Glass-fiber silos weighing loom

-***Cells accessories*** completely realized in INOX steel are 3 or 4 according to the weighing system; they contain the load cells and annul the side components reducing at the most the errors in weight reading.

-***Load cells*** completely realized in INOX steel, protection rating IP 68; they are the weight variations sensitive organs and send an electric signal to the weighing system microprocessors.

Load cell



Cell accessories

-***Weighing box*** contains the displays of weight visualization, the microprocessors, the bright signals and acustic alarms, net weight switch, emergency mushroom buttons and other according to the type of automation of the plant.

-***Pinch valve (OPTIONAL)*** electro-pneumatic command prevents overloads closing the load pipe when the silos is full.

Weighing box

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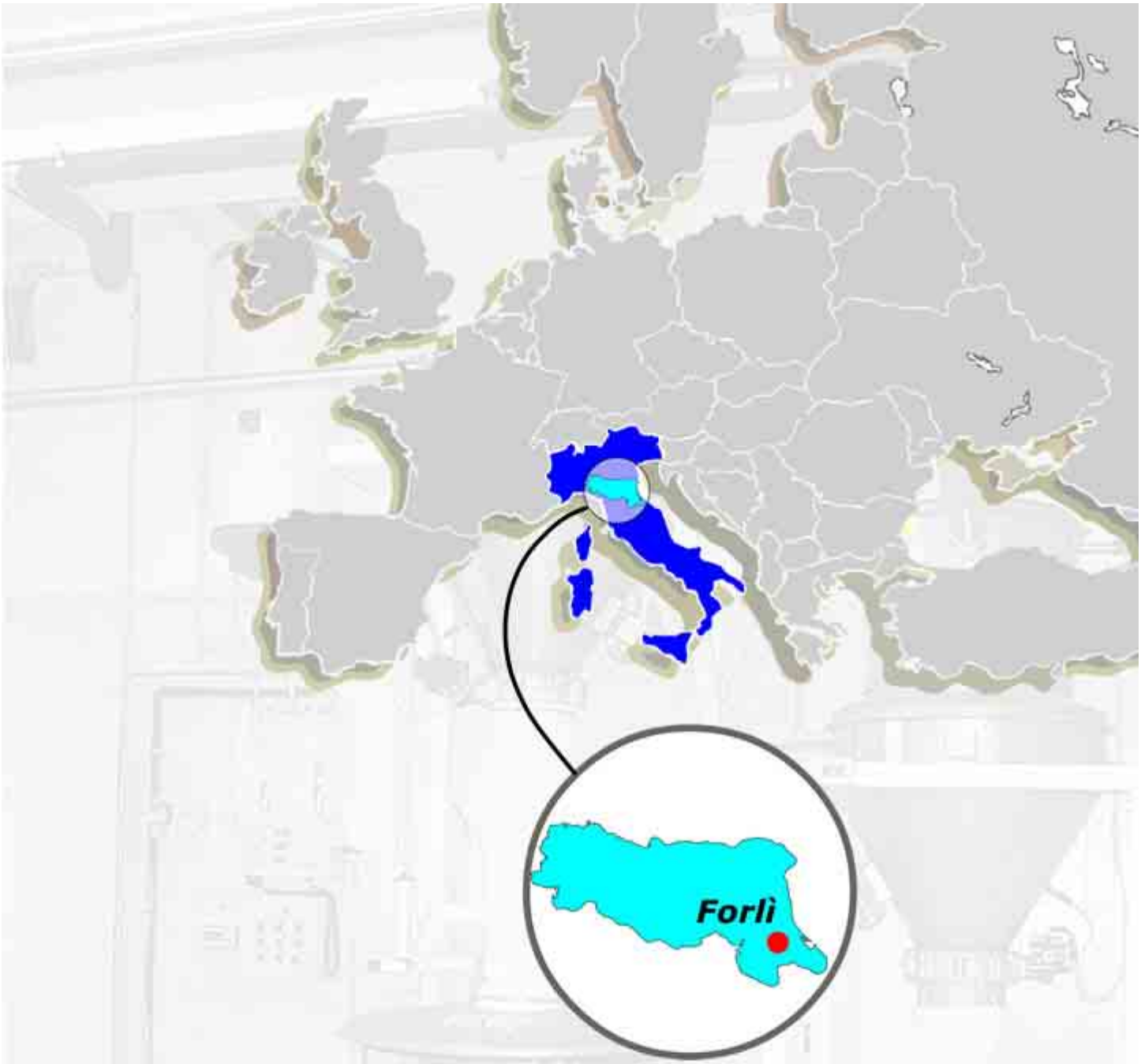
Pinch valve



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