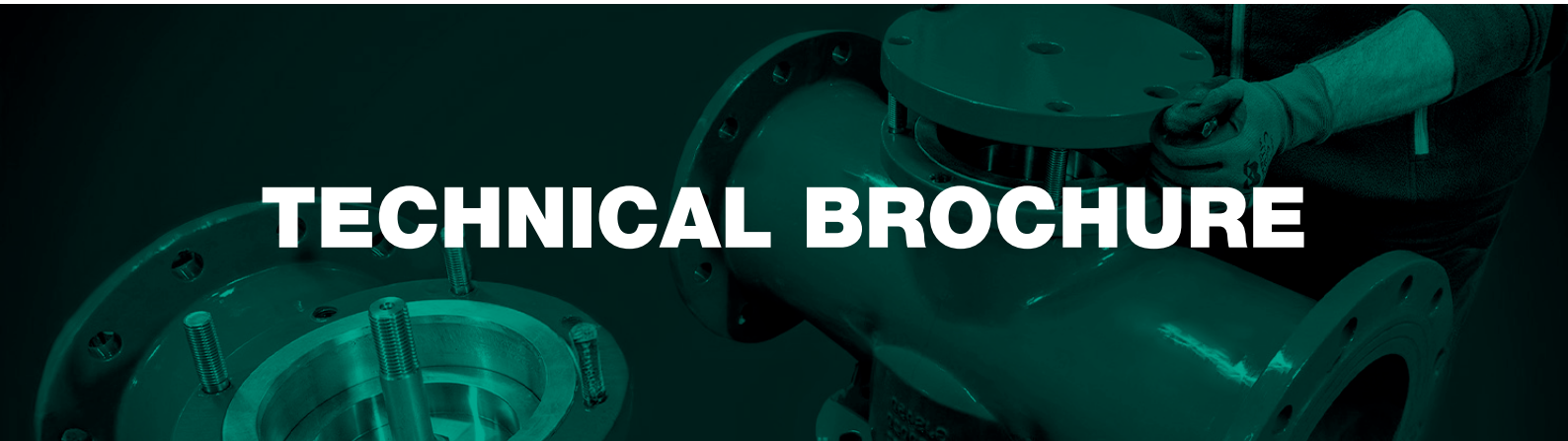
Pietro Fiorentini

PF-SAFE 247

Above-ground fire hydrants



Pietro Fiorentini S.p.A.
Via E.Fermi, 8/10 | 36057 Arcugnano, Italy | +39 0444 968 511
sales@fiorentini.com

PF-SAFE_ENG_revA

www.fiorentini.com

Above-ground fire hydrants

The PF SAFE range of above-ground hydrants, designed in accordance with current European standards, consists of models made entirely of ductile cast iron and stainless steel to achieve the highest performance standards. The technical characteristics, production process, and their modern, harmonious, and well-balanced design all contribute to a high-quality product, proudly crafted in Italy.

PF-SAFE 247

Made entirely of ductile cast iron and stainless steel, model PF-SAFE 247 stands out for its modern and compact design of the above-ground part, which is equipped with visible outlets. The underground part, complete with duckfoot bend, is available in different heights to suit various installation requirements. The predetermined breaking point system between the two hydrant sections prevents water leakage and damage to the distribution and connection network in the event of impact. The anti-water hammer and anti-vibration blocking unit is fitted with a ductile cast iron wedge with fins coated with NBR or EPDM. The frost-proof drain hole, designed to open only when the hydrant is closed, minimises the hidden leaks typical of closure systems such as plates or simple plugs.

PF-SAFE 247-S

The PF-SAFE 247-S model, made entirely of ductile cast iron and stainless steel, stands out for its aesthetics,making it a street furniture object suitable for prestigious settings. The anti-vandalism protection cap reduces the risk of tampering and misuse, while the sealing system, which can only be activated by means of a special spanner compliant with current regulations, ensures access to authorised operators and technicians only. The underground part, fitted with a duckfoot bend and available in different heights, is connected to the above-ground structure via a pre-determined break system, which protects against damage to the mains and water leakage in the event of accidental impacts. The anti-water hammer and anti-vibration blocking unit is fitted with a ductile cast iron wedge with fins coated with NBR or EPDM. The frost-proof drain hole, designed to open only when the hydrant is closed, minimises the hidden leaks typical of closure systems such as plates or simple plugs.

Technical features

1. Fully coated

To avoid the risk of internal and external corrosion, and to preserve the organoleptic qualities of water, all hydrants are coated internally and externally with powders approved for aqueduct use. For the underground part, black or RAL 5005 blue epoxy powders are used, applied with the electrostatic or fluidised bed method; for the above-ground part, however, RAL 3000 polyester is preferable, in the traditional red colour, for UVA protection.

2. Stainless steel interiors

All internal connection components between the above-ground and subsoil, up to the plug unit, are in stainless steel and protected from contact with cast iron by bronze or brass parts.

3. Anti-friction system

All moving parts are designed to minimise friction and prevent any wear, so as to preserve them over time. The product stands out for the choice of self-lubricating materials, and the use of technical devices not always visible from the outside, providing high guarantees of durability and reliability.

4. Anti-water hammer and anti-vibration plug

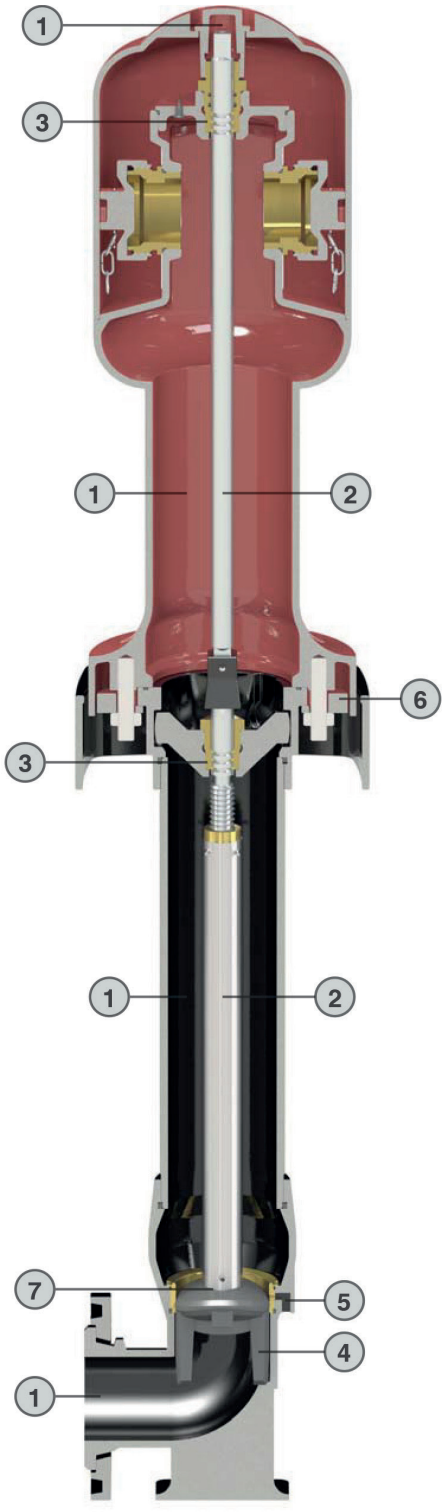
5. Automatic antifreeze drain

In case of installation in locations subject to low temperatures at risk of freezing, the regulation requires suitable materials and an automatic drain that removes any water remaining inside the hydrant once the closed position has been reached. Each hydrant is made of certified ductile cast iron and is fitted with an automatic frost-proof drain, built into the bushing on which the rubberised wedge acts to ensure the pressure seal.

6. Predetermined breaking system

7. Anti-wear and anti-breakage system of the plug

The connection between the stainless steel tube and the plug is a spring pin, also made of stainless steel. Hydrant closure is not achieved just by deforming the plate, but through controlled compression of the wedge elastomeric element on the bronze bushing. This technology ensures performance cycles and service life not achievable with other solutions, as well as reducing the force required for closure. The wedge is also shaped in such a way as to prevent damage and warping even if, due to handling errors on the part of the operators, the force applied is excessive.



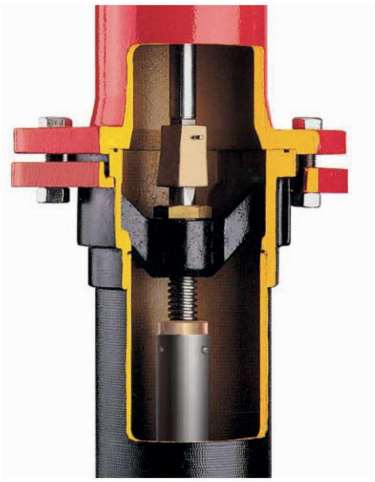
Adjustability

Pillar hydrants can be rotated by 360° thanks to the flange coupled with a cylindrical seat. This solution ensures full swivelling, making installation considerably easier: simply loosen the four fixing bolts to adjust the alignment quickly and easily.

Predetermined breaking system

Above-ground pillar hydrants are often installed on pavements, roadside verges, parking areas and generally in areas easily accessible to police and fire brigades. As a result, accidental impacts from passing vehicles are not uncommon.

To deal with this occurrence, models fitted with apparent outlets or a protective cap come with the RP predetermined-break system. This system performs a dual function: it ensures the connection between the above-ground and underground parts, and acts as an actual mechanical fuse, designed to rupture in the event of impact. It consists of cast iron semi-flanges, gaskets and bolts. In the event of an impact, it is strained until the semi-flanges break at the predetermined points. In this way, the above-ground part can tilt, rotating around the point of contact with the underground pillar, without damaging the buried part or the plugging system. The sealing gasket also remains intact, as it is housed within the buried part. It is important to remember that in order for the above-ground structure to swivel properly, the ground level must remain at least 5 cm below the upper end of the underground pillar.



Restoration kit for PF-SAFE 247 and 247-S fire hydrants breakaway semi-flanges, 4 bolts, 1 gasket

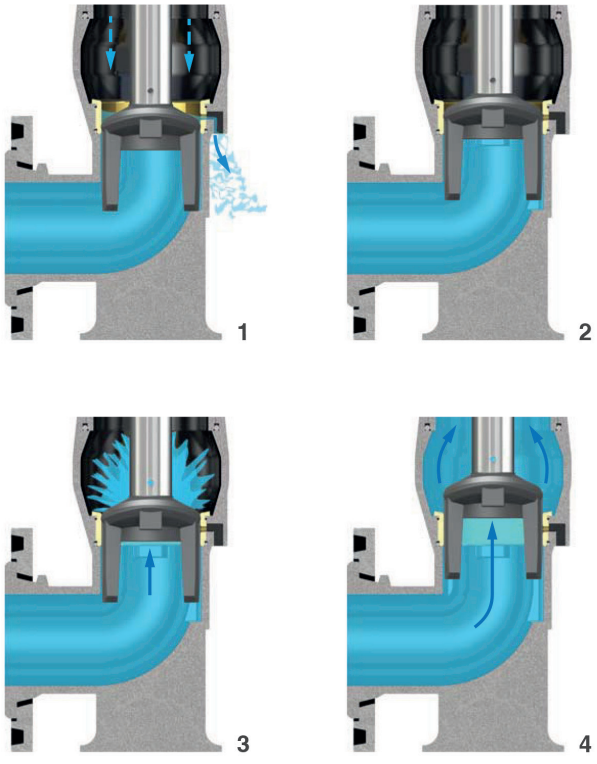
Plug

The plug system, made of ductile cast iron and fully coated with vulcanised nitrile rubber or EPDM, consists of a shaped cylinder with two side fins. During the closing movement, the elastomeric lining is compressed in a controlled manner within the sealing seat, consisting of a bronze sleeve threaded into the hydrant body or duckfoot bend.
The special rubberising of the fins, with three opposite reliefs, ensures effective closure of the drain hole by the central relief, while the side ones, in contact with the seat, eliminate vibrations.
This construction provides a number of advantages:
- reliable sealing even at pressures above 25 bar;
- elimination of interference problems with any foreign bodies in the pipeline;
- progressive flow according to opening,preventing harmful water hammers both during opening and closing.

Reduction of hidden leaks:

The finned plug system continuously prevents contact between the incoming flow and the antifreeze drain hole, unlike with flat plugs or plate closure systems, where such contact may cause hidden leaks.

Plug operation



1. Plug closed

Zero flow rate, open drain hole. The water in the hydrant escapes through the hole, preventing breakage issues caused by frost.

2. Plug opening, initial phase

Zero flow rate. The drain hole is closed by the central relief of the plug fin before pressurised water flows into the hydrant.

3. Plug opening, intermediate phase

Gradually increasing flow rate. Closed drain hole. The gradual change in flow rate is due to the special shape of the plug designed to prevent water hammer.

4. Plug fully open

Maximum flow rate, closed drain hole. Absence of vibration due to the guiding effect of the special rubberised fin reliefs.

Above-ground fire hydrants

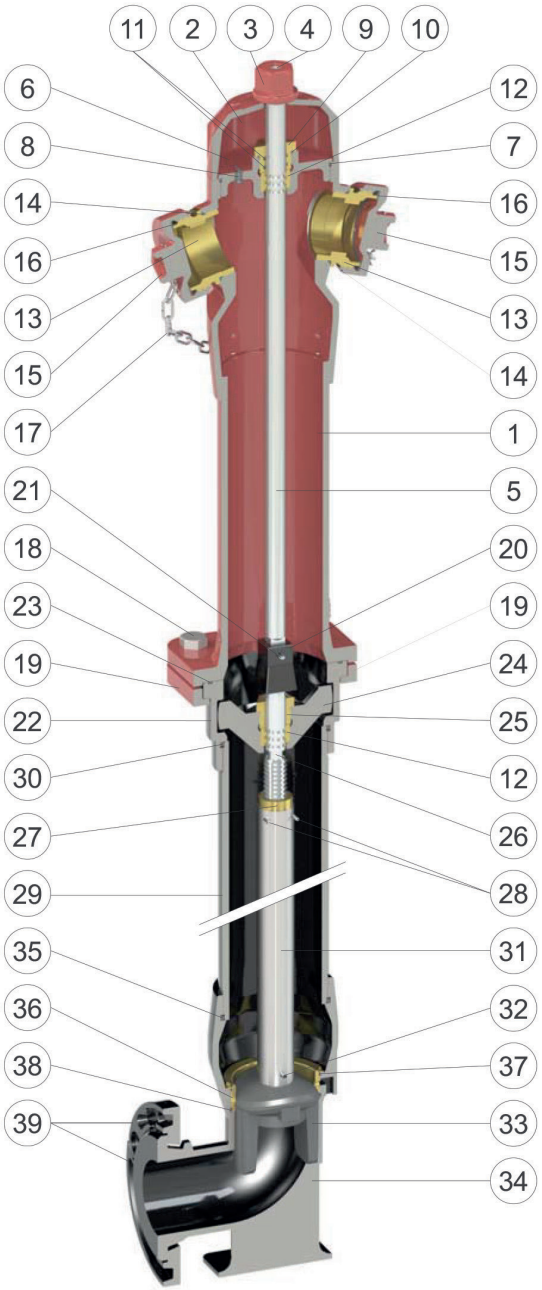
PF-SAFE 247

The PF-SAFE 247 pillar hydrant consists of an above-ground and underground part joined by a pre-determined breaking system, designed to rupture in the event of accidental impacts on the structure. In compliance with current European standards, this model with apparent outlets is available in the DN 80 version with two UNI 70 connections, and in the DN 100 version with the addition of a UNI 100 outlet. The hydrant, available in six different underground heights, is already equipped with the duckfoot bend in the standard version.

Construction features and advantages

- Upper body of GJS 450-10 class PN 16, painted with RAL 3000 red polyester powder.
- Lower part of ductile cast iron coated with RAL 5005 blue or black epoxy powder. It consists of ann operating valve, extension tube, duckfoot bend and swivelling flanges.
- Simple and reliable predetermined breaking system.
- UNI brass fittings.
- Pentagonal weather caps, smooth on the circumference, to limit vandalism.
- Stainless steel sealing nuts.
- Plug of GJS 450-10 vulcanised EPDM or NBR, cylindrical profile with guide fins, specially shaped to ensure gradual opening and closing, and avoid any water hammer problems.
- Stainless steel guide shaft and threaded rod.
- Bronze seal seat.
- Bronze holder nut crimped inside the stainless steel operating tube for greater mechanical resistance to rotation.
- Stainless steel bolts and chains.

Construction details



No.	Component	Material
1	Body	GJS 450-10
2	Cap	GJS 450-10
3	Operating cap	GJS 450-10
4	HSH screw	stainless steel
5	Operating extension	stainless steel
6	Guide cover	GJS 450-10
7	Toroidal seal	NBR
8	Toroidal seals	NBR
9	Seal screw	brass
10	Toroidal seal	NBR
11	Toroidal seals	NBR
12	Supporting half-bushes	brass
13	Screw connections	brass
14	Toroidal seals	NBR
15	Caps	GJS 450-10
16	Flat gaskets	EPDM
17	Chains	stainless steel
18	HH screws and nuts	stainless steel
19	Breakaway semi-flanges	GS 20
20	Connection sleeve	GJS 450-10

The table of materials and components is subject to change without notice.

No.	Component	Material
21	Cotter pin	stainless steel
22	Operating valve	GJS 450-10
23	Toroidal seal	NBR
24	Operating rod support	GJS 450-10
25	Clamping screw	brass
26	Manoeuvring rod	stainless steel
27	Holder nut	bronze
28	Plugs	stainless steel
29	Extension pipe	steel
30	Toroidal seal	NBR
31	Operating tube	galvanised steel
32	Cotter pin	stainless steel
33	Plug	GJS 450-10 vulcanised NBR
34	Duckfoot bend	GJS 450-10
35	Toroidal seal	NBR
36	Plug seat ring	bronze
37	Toroidal seal	NBR
38	Toroidal seal	NBR
39	Swivelling flanges	GJS 450-10

The table of materials and components is subject to change without notice.

Test

Mechanical strength test with fully open plug at 25 bar, leak test with closed plug at 20 bar.

Operating conditions

Maximum treated water	70°C

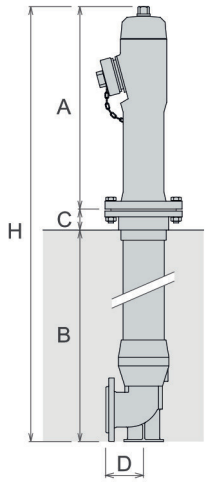
Standard

- Design compliant with EN 1074-6 and EN 14339
- Flanges with drilling compliant with EN 1092-2
- RAL 3000 red polyester paint and black epoxy paint

Changes to coating and flanges on request.

Dimensions and weights

Model	A mm	B mm	C mm	D mm	H mm	No. and DN of ports	Flange	Weight Kg
247 80A 247 80B 247 80C 247 80D	682	736 886 1036 1186	50	130	1468 1618 1768 1918	2Ø70	DN 80	52 56 60 63
247 100A 247 100B 247 100C 247 100D	682	767 917 1067 1217	50	130	1499 1649 1799 1949	2Ø70 + 1Ø100	DN 100	70 76 81 86



Above-ground fire hydrants

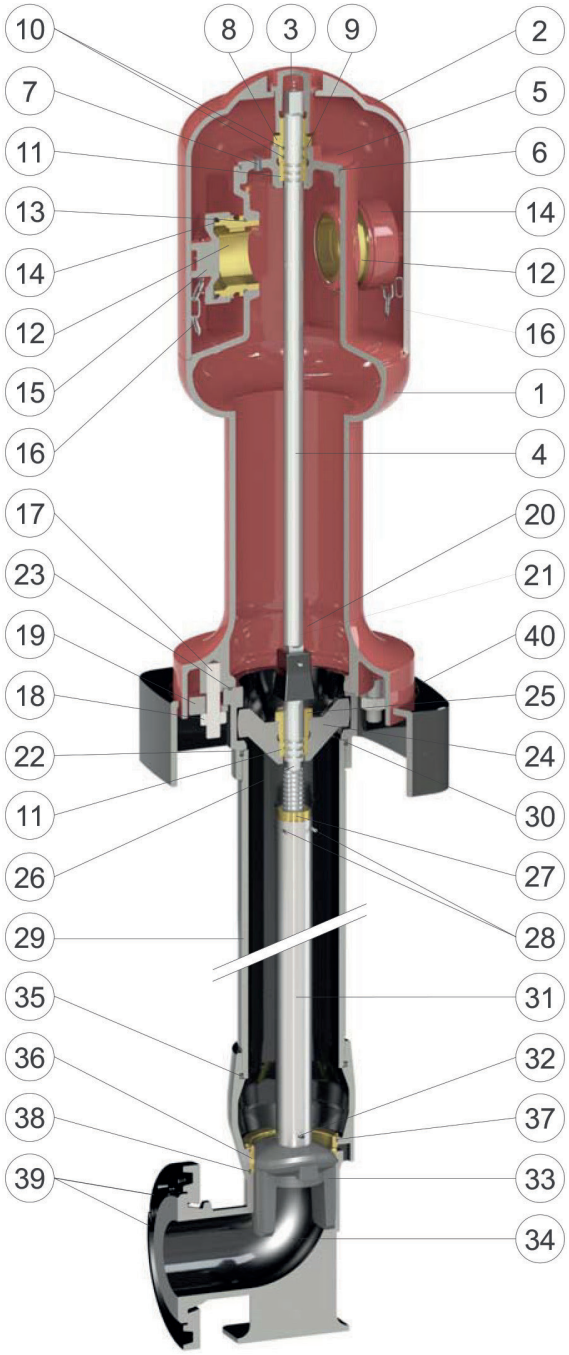
PF-SAFE 247-S

The PF-SAFE 247-S pillar hydrant consists of an above-ground part, fitted with a protective cap, and an underground part, connected by a predetermined breaking system designed to rupture in the event of accidental impact on the above-ground structure. This model complies with current European standards, has apparent outlets and is available in the DN 80 version with two UNI 70 connections, and in the DN 100 version with the addition of a UNI 100 outlet. The hydrant, available in six different underground heights, is already equipped with the duckfoot bend in the standard version. The protective cap, with its modern design, was designed to reduce visual impact as well as the risk of misuse and vandalism.

Construction features and advantages

- Upper body and protective cap of GJS 450-10 PN 16, coated with RAL 3000 red polyester powder.
- Lower part of ductile cast iron coated with RAL 5005 blue or black epoxy powder. It consists of ann operating valve, extension tube, duckfoot bend and swivelling flanges.
- Simple and reliable predetermined breaking system.
- UNI brass fittings.
- Pentagonal weather caps, smooth on the circumference, to limit vandalism.
- Stainless steel sealing nuts.
- Plug of GJS 450-10 vulcanised EPDM, cylindrical profile with guide fins, shaped to ensure gradual opening and closing, and avoid any water hammer problems.
- Stainless steel guide shaft and threaded rod.
- Bronze holder nut crimped inside the stainless steel operating tube for greater mechanical resistance to rotation.
- Stainless steel bolts and chains.

Construction details



No.	Component	Material
1	Body	GJS 450-10
2	Cap	GJS 450-10
3	Cap nut	GJS 450-10
4	Operating extension	stainless steel
5	Guide cover	GJS 450-10
6	Toroidal seal	NBR
7	Ventilation valve	NBR
8	Seal screw	brass
9	Toroidal seal	NBR
10	Toroidal seals	NBR
11	Supporting half-bushes	brass
12	Screw connections	brass
13	Toroidal seals	NBR
14	Caps	GJS 450-10
15	Flat gaskets	EPDM
16	Chains	stainless steel
17	Studs	stainless steel
18	Nuts	stainless steel
19	Breakaway semi-flanges	GS 20
20	Connection sleeve	GJS 450-10

No.	Component	Material
21	Cotter pin	stainless steel
22	Operating valve	GJS 450-10
23	Toroidal seal	NBR
24	Operating rod support GJS 450-10	GJS 450-10
25	Clamping screw	brass
26	Manoeuvring rod	stainless steel
27	Holder nut	bronze
28	Plugs	stainless steel
29	Extension pipe	steel/ductile cast iron
30	Toroidal seal	NBR
31	Operating tube	stainless steel
32	Cotter pin	stainless steel
33	Plug	GJS 450-10 vulcanised NBR
34	Duckfoot bend	GJS 450-10
35	Toroidal seal	NBR
36	Plug seat ring	bronze
37	Toroidal seal	NBR
38	Toroidal seal	NBR
39	Swivelling flanges	GJS 450-10
40	Adjustment socket	GJS 450-10

Test

Mechanical strength test with fully open plug at 25 bar, leak test with closed plug at 20 bar.

Operating conditions

Maximum treated water	70°C

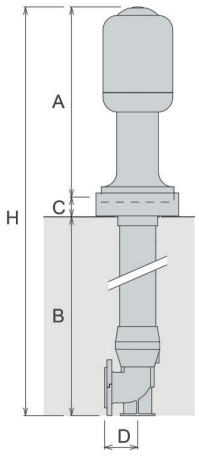
Standard

- Design compliant with EN 1074-6 and EN 14339
- Flanges with drilling compliant with EN 1092-2
- RAL 3000 red polyester paint and black epoxy paint

Changes to coating and flanges on request.

Dimensions and weights

Model	A mm	B mm	C mm	D mm	H mm	No. and DN of ports	Flange	Weight Kg
247-S 80A 247-S 80B 247-S 80C 247-S 80D	678	513 663 813 963	50	130	1281 1431 1581 1731	2Ø70	DN 80	67 69 73 76
247-S 100A 247-S 100B 247-S 100C 247-S 100D	680	673 823 973 1123	50	130	1377 1527 1677 1827	2Ø70 + 1Ø100	DN 100	89 95 100 105



Customer Centricity

Pietro Fiorentini is one of the main Italian international company with high focus on product and service quality.

The main strategy is to create a stable long-term oriented relationship, putting the customer's needs first. Lean management and thinking and customer centricity are used to improve and maintain the highest level of customer experience.

Support

One of Pietro Fiorentini's top priorities is to provide support to the client in all phases of project development, during installation, commissioning and operation. Pietro Fiorentini has developed a highly standardized intervention management system, which helps to facilitate the entire process and effectively archive all the interventions carried out, drawing on valuable information to improve the product and service. Many services are available remotely, avoiding long waiting times or expensive interventions.

Training

Pietro Fiorentini offers training services available for both experienced operators and new users. The training is composed of the theoretical and the practical parts, and is designed, selected and prepared according to the level of use and the customer's need.

Customer Relation Management (CRM)

The centrality of customer is one of the main missions and vision of Pietro Fiorentini. For this reason, Pietro Fiorentini has enhanced the customer relation management system. This enables us to track every opportunity and request from our customers into one single information point.

Sustainability

Here at Pietro Fiorentini, we believe in a world capable of improvement through technologies and solutions that can shape a more sustainable future. That is why respect for people, society and the environment form the cornerstones of our strategy.

Our commitment to the world of tomorrow

While in the past we limited ourselves to providing products, systems and services for the oil & gas sector, today we want to broaden our horizons and create technologies and solutions for a digital and sustainable world, with a particular focus on renewable energy projects to help make the most of our planet's resources and create a future in which the younger generations can grow and prosper.

The time has come to put the why we operate before the what and how we do it.

Pietro Fiorentini

TB0209ENG

PF-SAFE_ENG_revA

www.fiorentini.com