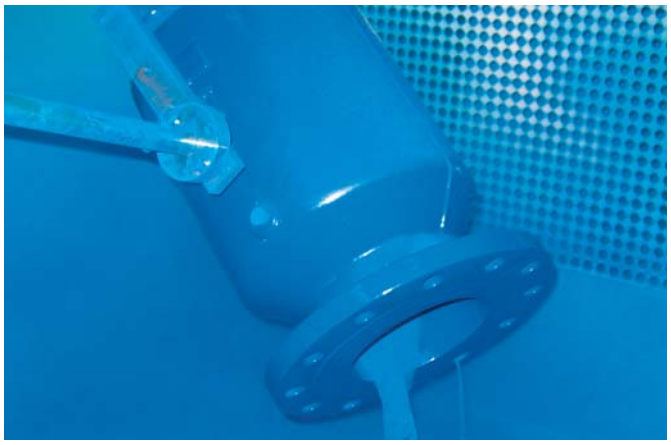
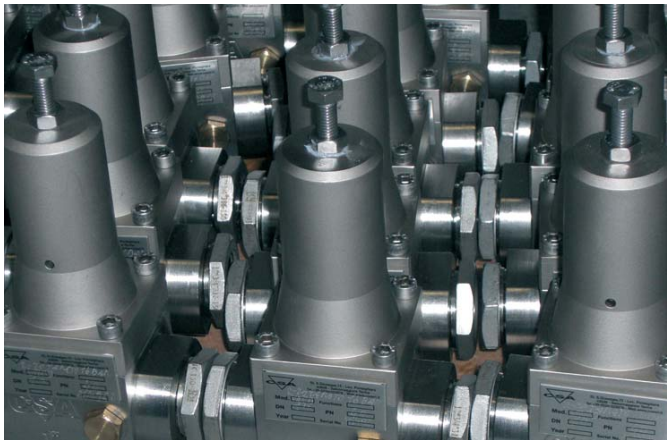
Pillar fire hydrant Apollo series

The company was founded in 1987 by transforming the former CSA, which was a trading company dealing with pipes and valves for water networks, into a manufacturing company, through the research and realization of pillar fire hydrants. Since then many other products have been added.
The history of our company is characterised by years of technical and commercial research, which have enabled us to offer a complete range of valves designed for controlling, regulating and protecting the pipelines under pressure in both waterworks and sewage lines as well as fire hydrants.
Our many industrial patents and innovative technical solutions, together with modern and attractive style of design, have made it possible to differentiate our products from those offered by competitors and have allowed us to become a point of reference in our sector.
Flexibility and reliability have been the key points of CSA's rapid growth over the last few years. We are perfectly aware that we are managing the world's most precious resource and, motivated by this responsibility and the commitment towards our customers, we have dedicated ourselves to constantly improving our products, placing them at the highest levels of quality.

Quality

In the manufacturing business today, quality is the fundamental requirement for achieving and maintaining a growing market share.
For this reason we have always aimed at developing a synergy between the various sectors of the company and thus ensuring:
-quick and precise answers;
-evaluation of data received and immediate response;
-rigorous control of incoming and outgoing products.
Since 1998 CSA is certified according to regulation ISO 9001 by RINA (Italian Naval Registry) recently converted into ISO 9001/2008.





During the research and realisation of new products, CSA has always focused his efforts on:
- Listening to the customer's needs and finding the best solution both at the design and operational phases.
- Guiding our R&D department to develop ranges of modern, reliable and complementary products.
- Adopting production techniques that, even while complying with the severest quality standards, would allow us to reduce delivery times.
- Guaranteeing complete technical support for our customers and prompt after-sales assistance.

This philosophy characterizes us not only as a valve manufacturer but also as a reliable partner whom you can always depend on for consulting and solutions.

The production cycle, aimed at the constant improvement of our products and complete customer satisfaction, ensures predetermined margins of tolerance by establishing production standards, which guarantee that the semi-finished products reach the next production stage with the required specifications.

All our valves are made of ductile cast iron GJS 450-10 in absolute compliance with European standards, and are suitable for PN 25-40 bar.

The manufacturing process is carried out exclusively by means of numerically controlled lathes, mills, and horizontal machining units. Subsequent step-by-step controls are based on strict quality procedures.

Painting, pre-treated by sand blasting grade SA 2.5, is carried out inside a fluidized bed containing epoxy powder, which guarantees maximum surface protection. All our products are tested under water pressure and certified.

Pillar fire hydrant Apollo series

The CSA pillar fire hydrant Apollo series, designed in conformity with the applicable European standards, is composed of two models entirely manufactured in ductile cast iron and stainless steel with technical features to reach the highest standards in product safety and quality. Their design, production process and performances contribute to create a reliable product proudly made in Italy.

Mod. APOLLO RP DN 80-100 PN 16

This non-freezing pillar fire hydrant model, equipped with apparent outlets, is supplied with up to 6 different heights of the underground column including the duck foot bend. Thanks to a breaking system, acting on the connection between the upper body and the lower barrel, the risk of severe damages and pressure loss for the water distribution system is avoided in case of sudden impact by a vehicle. The winged shaped obturator, anti-water hammer and anti-vibrations, allows the water discharge through the anti-freezing hole only when the hydrant is fully closed reducing leakage and water loss unavoidable by using different technologies such as flat shutters.

Mod. APOLLO RPC DN 80-100 PN 16

This non-freezing pillar fire hydrant model, equipped with protecting hood manufactured in ductile cast iron, is supplied with up to 6 different heights of the underground column including the duck foot bend. Thanks to a breaking system, acting on the connection between the upper body and the lower barrel, the risk of severe damages and pressure losses for the water distribution system is avoided in case of sudden impact by a vehicle. The winged shaped obturator, anti-water hammer and anti-vibrations, allows the water discharge through the anti-freezing hole only when the hydrant is fully closed avoiding leakage, otherwise unavoidable by using different technologies such as flat shutters. The hood will prevent tampering reducing at the same time environmental impact, by means of its modern and pleasant design.

Technical features

1. Overall painting
To guarantee the best resistance against corrosion and in compliance with potable water requirements all CSA hydrants are subject to internal and external painting, more precisely black or blue RAL 5005 epoxy powders for the underground barrel and red polyester RAL 3000 for the upper body (above ground).

2. Internal components in stainless steel
All internals are manufactured in stainless steel and protected from contact with the ductile iron by means of components in bronze and brass.

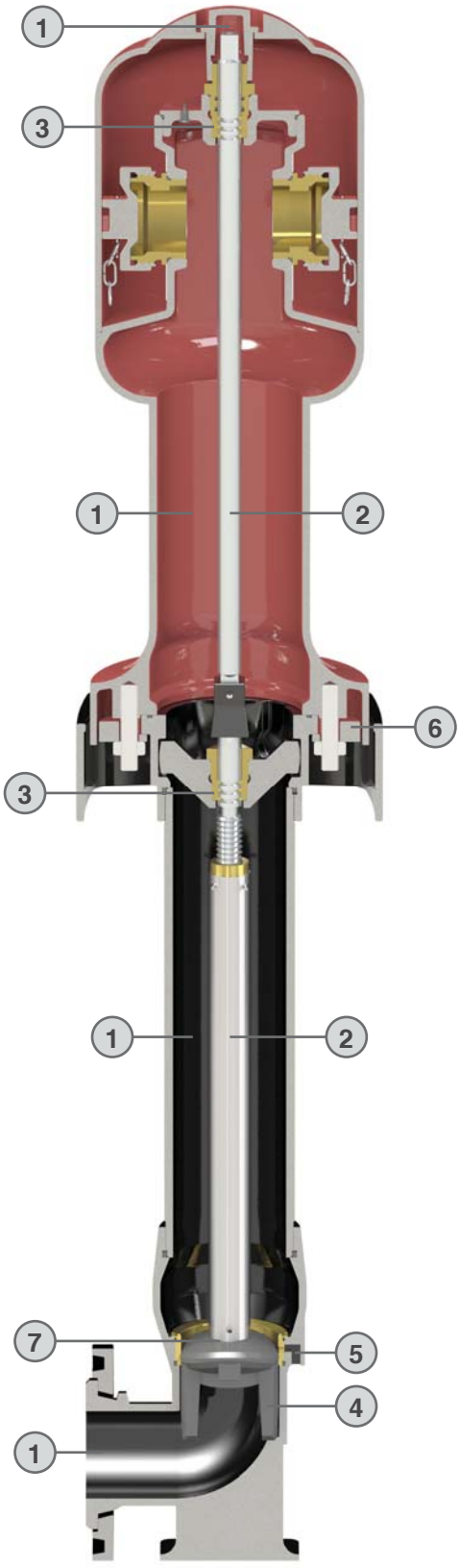
3. Anti-friction technology
All components involved in the movement and rotation are designed to reduce friction and interferences as much as possible, in addition to innovative technical solutions, in order to reduce torque and excessive wearing.

4. Obturator anti-water hammer and anti-vibration (see page 7)

5. Anti-freezing drainage hole
In case of low temperatures with risk of frost it is necessary to allow the complete drainage of the hydrant once the closed position has been reached. CSA manufactures all hydrants with anti-freezing drainage hole obtained on the sealing ring, onto which the rubber coating of the obturator is acting, embedded inside the base either supplied with a duck foot bend or vertical connection.

6. Breaking system (see page 6)

7. Safety system of the obturator
The water tightness on CSA hydrants is obtained by the compression of the rubber coating of the obturator, made in ductile cast iron, against the sealing ring housed inside the lower base either supplied as a duck foot bend or vertical connection. This solution avoids excessive wearing and frequent maintenance, as well as reducing the torque necessary for the complete closure. Should the latter be excessive, an innovative construction detail will prevent under any circumstances any possible damage to the obturator mobile block.

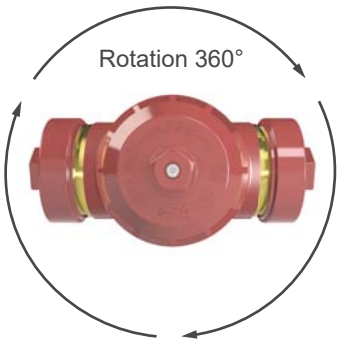


In harmony with the environment

Created by a famous architect, specialized in environmental impact assessment, CSA hydrants stand out for their appearance, shape and modern design integrating perfectly with the surrounding be it a park, historical downtown or simply a street. Supplied either with protecting hood or apparent outlets, they all include an anti-freezing device and safety breaking system.

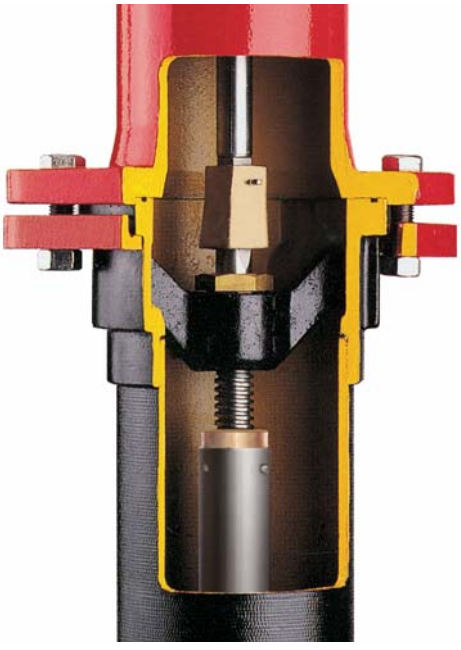
360° Orientability

All the CSA pillar fire hydrants are 360° orientable, thanks to the special coupling system with cylindrical seat between the upper body and the underground column.
The full orientability reduces the time required for the installation and any extra costs.



Breaking system

Pillar fire hydrants are most of the time located on sidewalks, parking areas, and places subject to vehicle traffic and accessible to the fire brigade trucks and law enforcement. The risk of collision with the hydrant is therefore always possible and sometimes unavoidable. The CSA breaking system is equipped on the RP models with apparent outlets, and RPC models with protecting hood. Designed to act both as a connection between the upper body and the underground column and as a safety breakable device in case of impact, by means of a sacrificial flange breaking in predetermined points, the system will break under the traction force as consequence of the momentum created between the buried barrel and the upper body during the impact. To this end we highlight the importance of leaving at least 5 cm distance between the ground level and the breaking system itself. Failing in doing so will prevent the upper part from falling over.
Thanks to the effect of the breaking system, in the event of an accident, the car or the vehicle hitting against hit won't suffer severe damages, the hydrant will remain fully closed without leakage and pressure variations for the water distribution system. Simply replacing the connection flange and, if required, the o-ring between it, will enable a full recovery of the hydrant without extra costs.



Breaking system spare parts RP and RPC:
2 breakable semi-flanges, 4 bolts, 1 gasket

Obturator

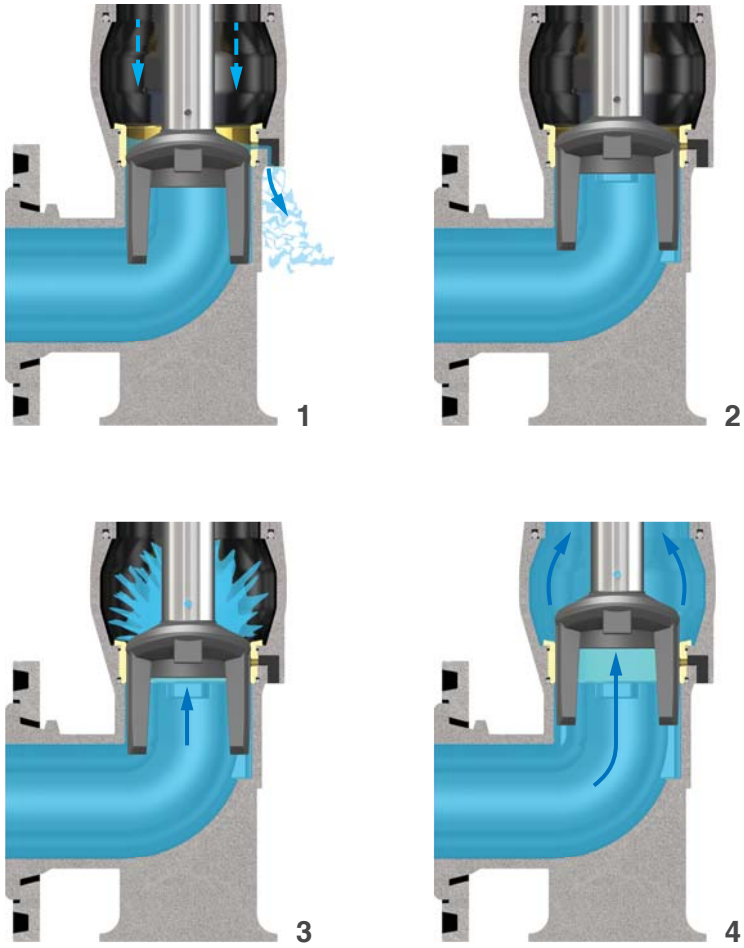
The CSA obturator, manufactured in ductile cast iron fully coated with NBR vulcanized or EPDM, is a winged shaped cone performing a perfect water tightness by means of the compression of its cylindrical part against the sealing ring housed inside the base of the hydrant, either duck foot bend or vertical connection. The coating is applied on three different layers where the one in the middle closes the anti-freezing drainage hole, while the two remaining will prevent any kind of vibration.

This design allows:

- a water tightness in presence of high pressure values, even higher than 25 bar;
- the absence of any kind of interference with foreign materials that can enter the hydrant;
- a gradual variation of low and pressure during opening and closing, preventing unwanted water hammer event sand/or sudden drop in pressure.

Water leakage and loss reduction. The winged shaped obturator will avoid, under any circumstances, to put in communication the drainage anti-freezing hole with the upstream pressure, which is happening all the time during the usage of the hydrant and the manoeuvers with flat disks and technologies not equivalent to CSA. When that occurs huge amounts of water are wasted through concealed water loss.

Operating principle



1. Obturator to the fully closed position. Perfect water tightness with the drainage anti-freezing hole fully open. Water trapped inside the pillar fire hydrant pours out of the drainage hole avoiding possible damages caused by frost.

2. Obturator to the initial opening phase. Perfect water tightness. The drainage hole is closed before putting the upstream pressure in communication with the hydrant.

3. Obturator to the intermediate opening phase. Flow rate increasing gradually. The drainage hole is always closed as the obturator is progressing upwards.

4. Obturator to the fully open position. Flow rate through the hydrant and to the outlets has reached the maximum value, the drainage anti-freezing hole is always closed. Absence of vibrations thanks to the winged shaped obturator.

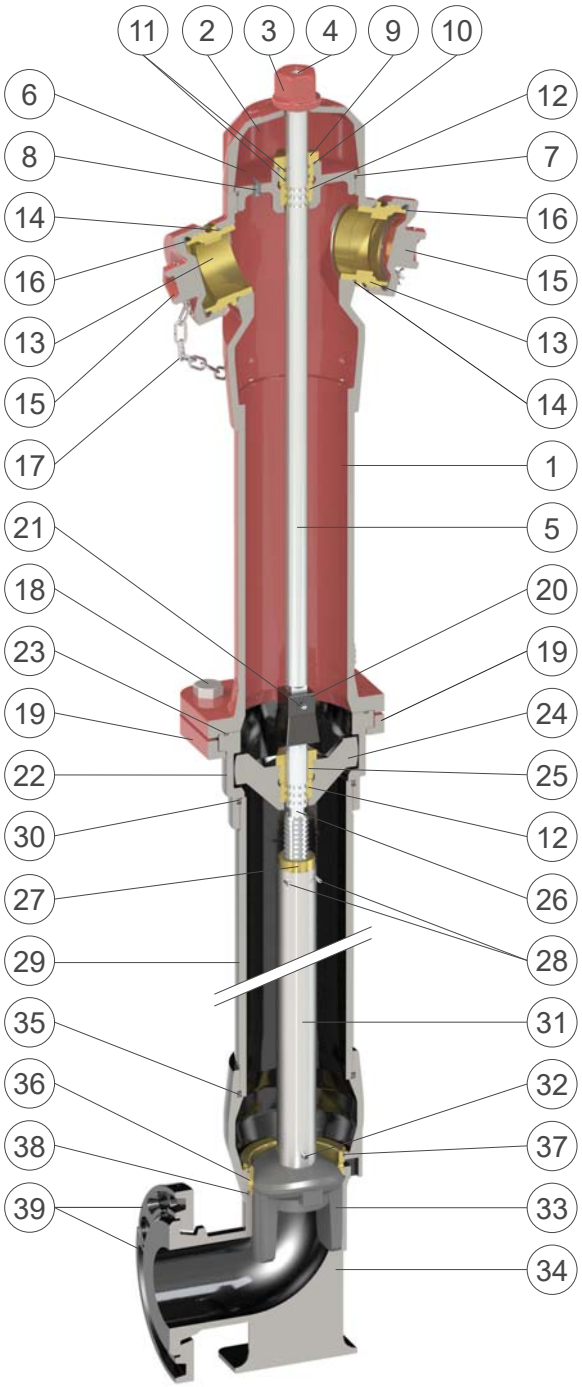
Pillar fire hydrant
Mod. Apollo RP

The CSA pillar fire hydrant Mod. Apollo RP is composed of an upper body and an underground part, entirely made in ductile cast iron and stainless steel, joined together by a breakable system activated in case of impact of a vehicle. Designed in keeping with the applicable European standards this model features apparent outlets and an exclusive anti-leakage and surge prevention vibration proof obturator, housed inside the duck foot bend supplied as a standard with the hydrant.

Technical features and benefits

- Upper body in ductile cast iron GJS 450-10 PN 16 bar rated, red RAL 3000 polyester powder coated for the maximum resistance to UVA exposure.
- Undergroundpart composed of duck foot bend, barrel, driving box, adjustable flanges entirely made in ductile cast iron black or blue epoxy paint coated.
- Exclusive CSA breaking system simple and reliable.
- Pentagonal caps machined to avoid and limit as much as possible unauthorized water consumption.
- Anti-freezing device.
- Internals in stainless steel to increase resistance to corrosion, safety and performances over time.
- Exclusive winged shaped obturator, with core in ductile cast iron NBR or EPDM coated to avoid water hammer effect during opening and closing, minimize vibrations during usage and prevent water loss through the anti-freezing hole.
- Sealing seat obtained by a ring threaded directly inside the CSA duck foot bend, supplied as a standard with the hydrant and designed to reduce head loss and avoid damages also in case of stones, debris coming through the hydrant.
- The operating female screw pinned directly to the stand pipe for the highest resistance and safety.

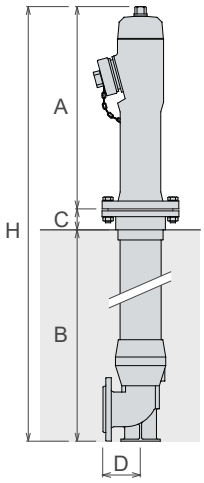
Technical details



N.	Component	Material
1	Body	GJS 450-10
2	Cap	GJS 450-10
3	Operating nut	GJS 450-10
4	Screw	stainless steel
5	Stem	stainless steel
6	Guiding bonnet	GJS 450-10
7	O-ring gasket	NBR
8	Venting valve	NBR
9	Sealing screw	brass
10	O-ring gasket	NBR
11	O-ring gaskets	NBR
12	Half sleeves	brass
13	Fittings	brass
14	O-ring gaskets	NBR
15	Caps	GJS 450-10
16	Plane gaskets	EPDM
17	Chains	stainless steel
18	Screws and nuts	stainless steel
19	Breakable semi-flanges	GS 20
20	Connection sleeve	GJS 450-10
21	Cotter pin	stainless steel
22	Driving box	GJS 450-10
23	O-ring gasket	NBR
24	Equipped stem holder	GJS 450-10
25	Setting screw	brass
26	Operating stem	stainless steel
27	Female screw	bronze
28	Pins	stainless steel
29	Barrel	steel
30	O-ring gasket	NBR
31	Stand pipe	galvanized steel
32	Cotter pin	stainless steel
33	Obturator	GJS 450-10 NBR/EPDM coated
34	Duck foot bend	GJS 450-10
35	O-ring gasket	NBR
36	Sealing ring	bronze
37	O-ring gasket	NBR
38	O-ring gasket	NBR
39	Adjustable flanges	GJS 450-10

The list of materials and components is subject to changes without notice.

Model	A mm	B mm	C mm	D mm	H mm	Fittings number and DN	Flanges	Wt. Kg
RP 80X		764			1494			52
RP 80A		914			1644			52
RP 80B	682	1064	50	130	1794	2Ø70	DN 80	56
RP 80C		1314			2044			60
RP 80D		1514			2244			63
RP 100X		710			1468	2Ø70		70
RP 100A		860			1618	2Ø70		70
RP 100B	682	1010	50	130	1768	+	DN 100	76
RP 100C		1250			2008	1Ø100		81
RP 100D		1430			2188			86



Working conditions
Treated water maximum 70°C.

Pressure testing
Test of mechanical resistance with obturator fully open at 25 bar and with obturator fully closed at 20 bar.

Standard
Designed in compliance with EN 1074/6 and EN 14339.
Flanges according to EN 1092/2.
Polyester painting red RAL 3000 and epoxy black. Variations on the flanges and painting available on request.

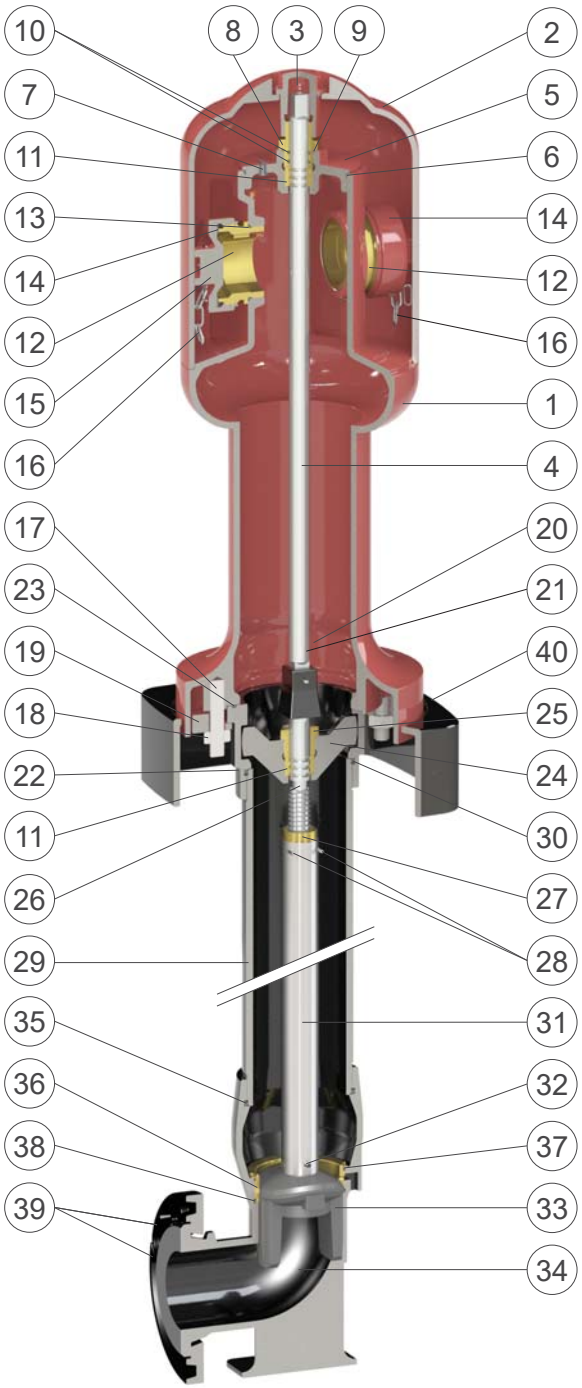
Pillar fire hydrant
Mod. Apollo RPC

The CSA pillar fire hydrant Mod. Apollo RPC is composed of an upper body and an underground part, entirely made in ductile cast iron and stainless steel, joined together by a breakable system activated in case of impact of a vehicle. Designed in keeping with the applicable European standards this model includes a protecting hood to avoid unauthorized water consumptions and an exclusive anti-leakage and surge prevention vibration proof obturator, housed inside the duck foot bend supplied as a standard with the hydrant.

Technical features and benefits

- Upper body in ductile cast iron GJS 450-10 PN 16 bar rated, painted with red RAL 3000 polyester powder coated for the maximum resistance to UVA exposure.
- Protecting hood in ductile cast iron designed to minimize the environmental impact.
- Underground part composed of duck foot bend, barrel, driving box, adjustable flanges entirely made in ductile cast iron black or blue epoxy powder coated.
- Exclusive CSA breaking system simple and reliable.
- Anti-freezing device.
- Nuts and bolts in stainless steel.
- Internals in stainless steel to maximize resistance to corrosion, safety and performances over time.
- Exclusive winged shaped obturator, with core in ductile cast iron NBR or EPDM coated to avoid water hammer effect during opening and closing, minimize vibrations during usage and prevent leakage.
- Sealing seat obtained by a ring threaded directly inside the CSA duck foot bend, supplied as a standard with the hydrant and designed to reduce head loss and avoid damages also in case of stones, debris coming through the hydrant.
- The operating female screw pinned directly to the stand pipe for the highest resistance and safety.

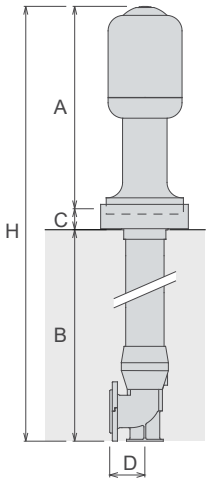
Technical details



N.	Component	Material
1	Body	GJS 450-10
2	Hood	GJS 450-10
3	Hood sealing nut	GJS 450-10
4	Stem	stainless steel
5	Guiding bonnet	GJS 450-10
6	O-ring gasket	NBR
7	Venting valve	NBR
8	Sealing screw	brass
9	O-ring gasket	NBR
10	O-ring gaskets	NBR
11	Half sleeves	brass
12	Fittings	brass
13	O-ring gaskets	NBR
14	Caps	GJS 450-10
15	Plane gaskets	EPDM
16	Chains	stainless steel
17	Studs	stainless steel
18	Nuts	stainless steel
19	Breakable semi flanges	GS 20
20	Connection sleeve	GJS 450-10
21	Cotter pin	stainless steel
22	Driving box	GJS 450-10
23	O-ring gasket	NBR
24	Equipped stem holder	GJS 450-10
25	Setting screw	brass
26	Operating stem	stainless steel
27	Female screw	bronze
28	Pins	stainless steel
29	Barrel	steel/ductile cast iron
30	O-ring gasket	NBR
31	Stand pipe	stainless steel
32	Cotter pin	stainless steel
33	Obturator	GJS 450-10 NBR/EPDM coated
34	Duck foot bend	GJS 450-10
35	O-ring gasket	NBR
36	Sealing ring	bronze
37	O-ring gasket	NBR
38	O-ring gasket	NBR
39	Adjustable flanges	GJS 450-10
40	Adjusting baseboard	GJS 450-10

The list of materials and components is subject to changes without notice.

Model	A mm	B mm	C mm	D mm	H mm	Fittings number and DN	Flanges	Wt. Kg
RPC 80X		715			1469			67
RPC 80A		865			1619			67
RPC 80B	678	1015	50	130	1769	2Ø70	DN 80	69
RPC 80C		1255			2009			73
RPC 80D		1435			2189			76
RPC 100X		719			1494	2Ø70		89
RPC 100A		869			1644	2Ø70		89
RPC 100B	680	1019	50	130	1794	+	DN 100	95
RPC 100C		1269			2044	1Ø100		100
RPC 100D		1469			2244			105



Working conditions
Treated water maximum 70°C.

Pressure testing
Test of mechanical resistance with obturator fully open at 25 bar and with obturator fully closed at 20 bar.

Standard
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Flanges according to EN 1092/2.
Polyester painting red RAL 3000 and epoxy black. Variations on the flanges and painting available on request.

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