



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 400-15 / 500-7 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 three 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.



Mod. APOLLO CS DN 80-100 PN 16

This non-freezing pillar fire hydrant model, equipped with apparent outlets, is supplied with a column and a base entirely manufactured in stainless steel, to be installed in case of aggressive environments and whenever the design specs would prefer such material. Available with various heights of the underground column the hydrant features a winged shaped obturator, anti-water hammer and anti-vibrations, allowing 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.

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)

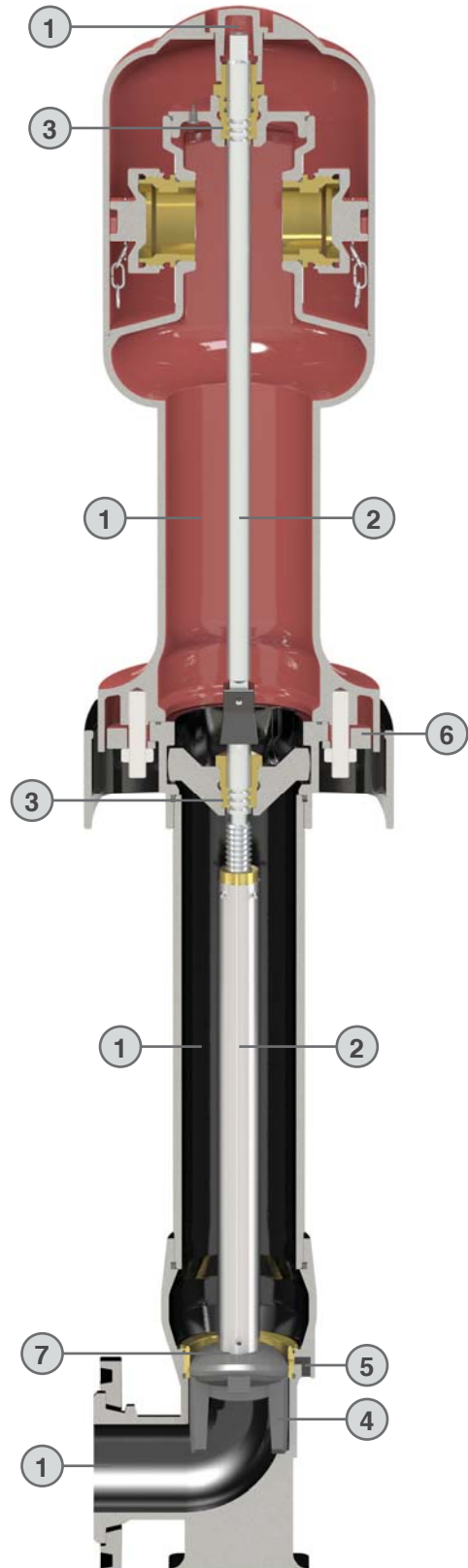
5. Anti-freezing drainage hole

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.





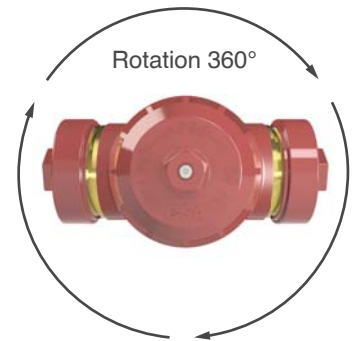
In harmony with the environment

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.

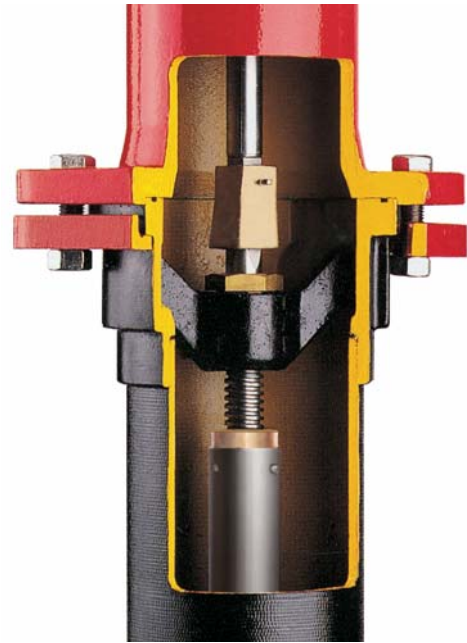
The full orientability reduces the time required for the installation and any extra costs.



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.

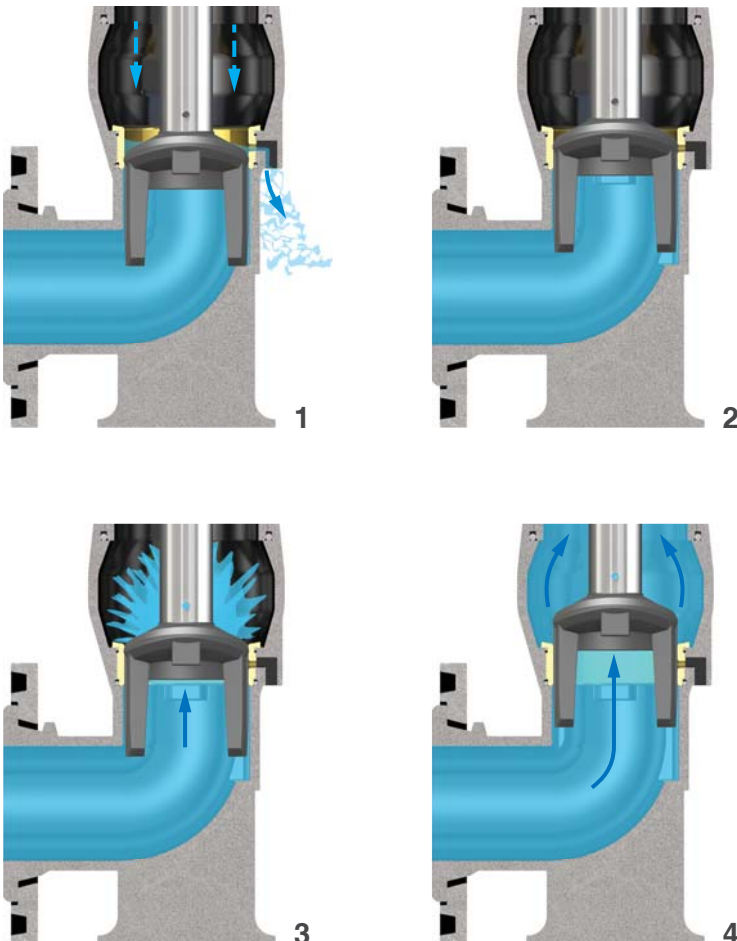
This design allows:

- 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 events and/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 manoeuvres 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

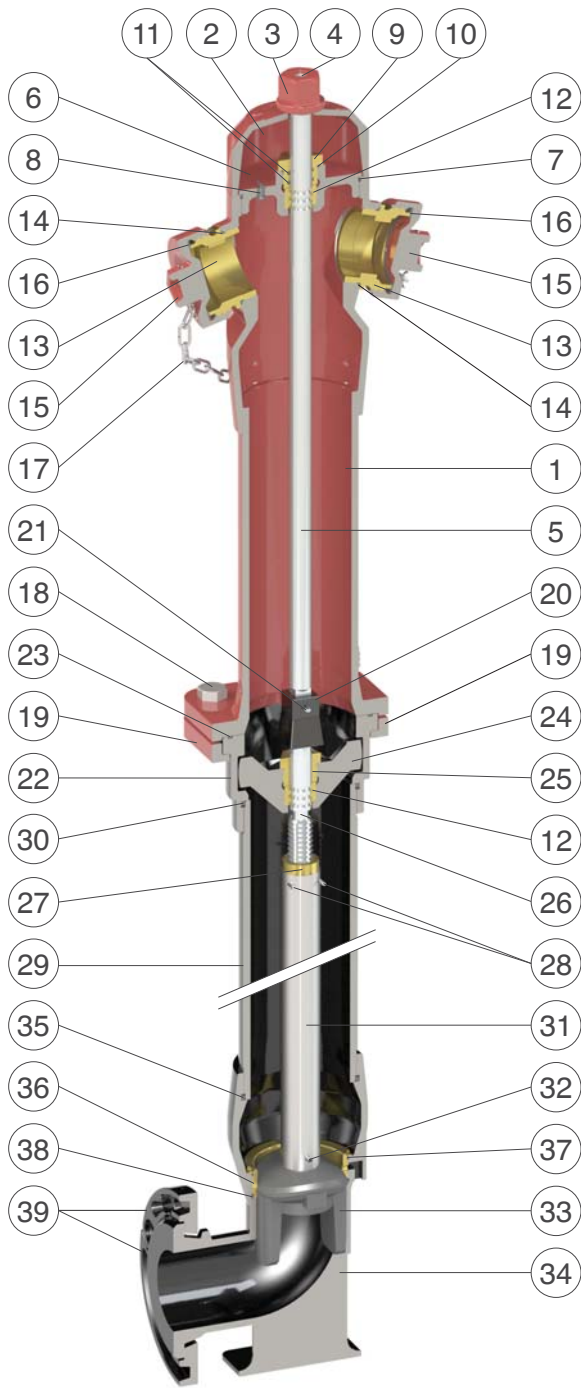
The CSA pillar fire hydrant Mod. Apollo RP is composed of an upper body and an underground part, entirely made in ductile cast iron and stainless steel, joined together by a breakable system activated in case of impact of a vehicle. Designed in keeping with the applicable European standards this model 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 500/7 PN 16 bar rated, red RAL 3000 polyester powder coated for the maximum resistance to UVA exposure.
- Underground part 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.

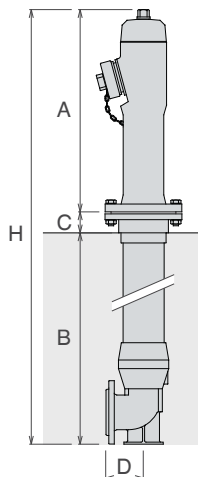
Technical details



N.	Component	Material
1	Body	GJS 500-7
2	Cap	GJS 500-7
3	Operating nut	GJS 500-7
4	Screw	stainless steel
5	Stem	stainless steel
6	Guiding bonnet	GJS 500-7
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 500-7
16	Plane gaskets	EPDM
17	Chains	stainless steel
18	Screws and nuts	stainless steel
19	Breakable semi-flanges	GS 20
20	Connection sleeve	GJS 500-7
21	Cotter pin	stainless steel
22	Driving box	GJS 500-7
23	O-ring gasket	NBR
24	Equipped stem holder	GJS 500-7
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 500-7 NBR/EPDM coated
34	Duck foot bend	GJS 500-7
35	O-ring gasket	NBR
36	Sealing ring	bronze
37	O-ring gasket	NBR
38	O-ring gasket	NBR
39	Adjustable flanges	GJS 500-7

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		690			1445			49
RP 80A		800			1555			52
RP 80B	705	1010	50	130	1765	2Ø70	DN 80	56
RP 80C		1240			1995			60
RP 80D		1440			2195			63
RP 100X		690			1490			65
RP 100A		790			1590	2Ø70		70
RP 100B	750	1030	50	180	1830	+	DN 100	76
RP 100C		1230			2030	1Ø100		81
RP 100D		1430			2230			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

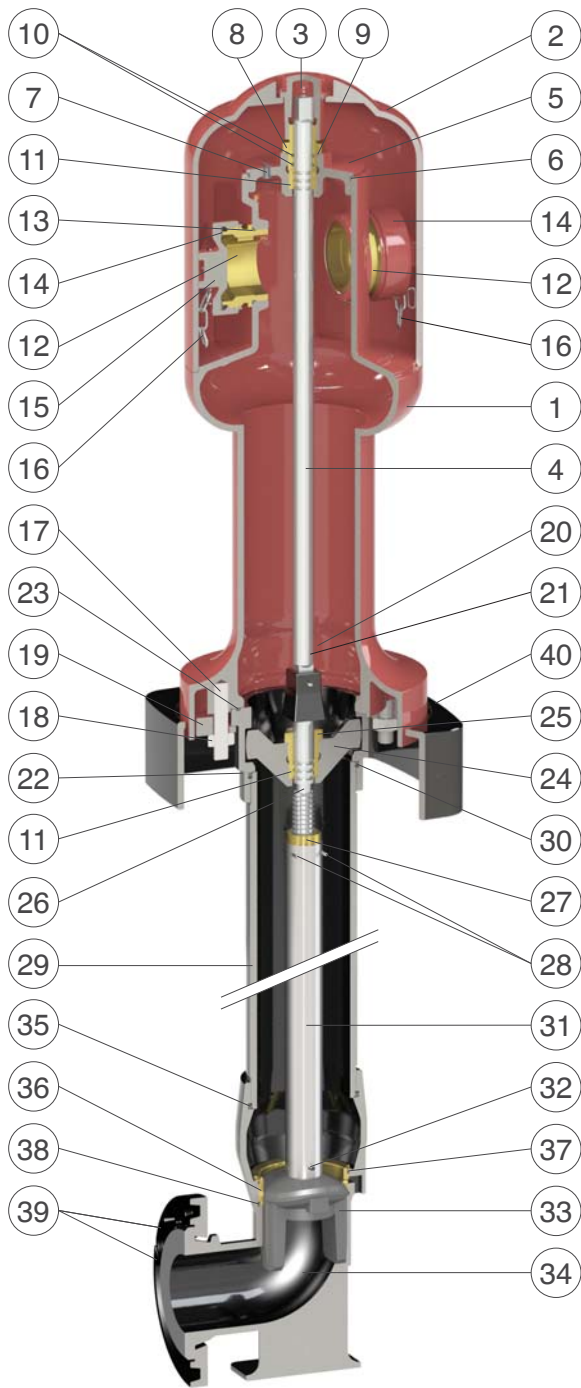
The CSA pillar fire hydrant Mod. Apollo RPC is composed of an upper body and an underground part, entirely made in ductile cast iron and stainless steel, joined together by a breakable system activated in case of impact of a vehicle. Designed in keeping with the applicable European standards this model 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 500/7 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.

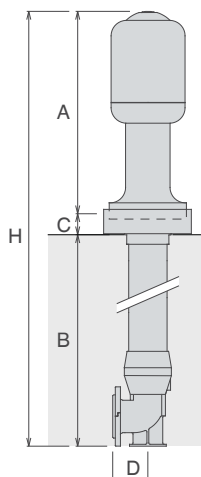
Technical details



N.	Component	Material
1	Body	GJS 500-7
2	Hood	GJS 500-7
3	Hood sealing nut	GJS 500-7
4	Stem	stainless steel
5	Guiding bonnet	GJS 500-7
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 500-7
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 500-7
21	Cotter pin	stainless steel
22	Driving box	GJS 500-7
23	O-ring gasket	NBR
24	Equipped stem holder	GJS 500-7
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 500-7 NBR/EPDM coated
34	Duck foot bend	GJS 500-7
35	O-ring gasket	NBR
36	Sealing ring	bronze
37	O-ring gasket	NBR
38	O-ring gasket	NBR
39	Adjustable flanges	GJS 500-7
40	Adjusting baseboard	GJS 500-7

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		690			1475			63
RPC 80A		800			1585			67
RPC 80B	735	1010	50	130	1795	2Ø70	DN 80	69
RPC 80C		1240			2025			73
RPC 80D		1440			2225			76
RPC 100X		690			1515			84
RPC 100A		790			1615	2Ø70		89
RPC 100B	775	1030	50	180	1855	+	DN 100	95
RPC 100C		1230			2055	1Ø100		100
RPC 100D		1430			2255			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

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 CS in stainless steel

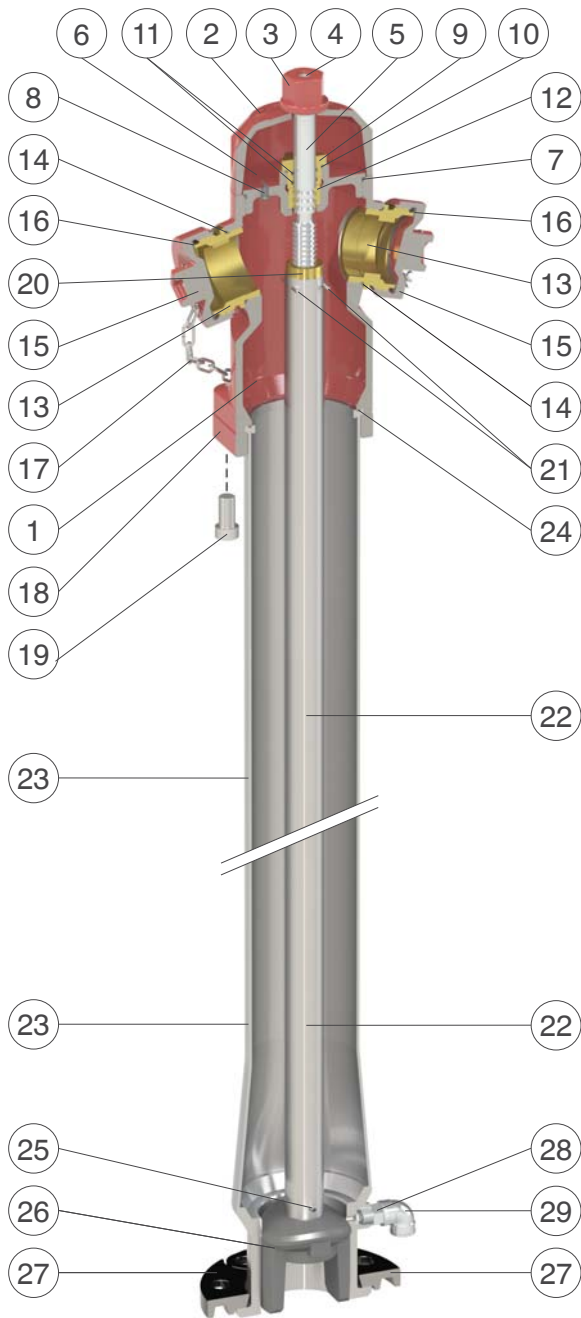
The CSA pillar fire hydrant Mod. Apollo CS is composed of a barrel and base entirely made in stainless steel coming to an upper body in ductile cast iron. Designed in keeping with the applicable European standards this model includes an exclusive anti-leakage and surge prevention vibration proof obturator, housed inside the duck foot bend supplied as a standard with the hydrant.



Technical features and benefits

- Upper body in ductile cast iron GJS 500/7 PN 16 bar rated, painted with red RAL 3000 polyester powder coated for the maximum resistance to UVA exposure.
- Barrel, internals and base entirely manufactured in stainless steel for the maximum resistance against corrosion and for installation in presence of aggressive environments.
- Anti-freezing device.
- Nuts and bolts in stainless steel.
- Internals in stainless steel to maximize resistance to corrosion, increase 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 base in stainless steel, supplied as a standard with vertical connection and designed to reduce head loss and avoid damages, also in case of stones and debris coming through the hydrant.
- The operating female screw pinned directly to the stand pipe for the highest mechanical resistance and safety.

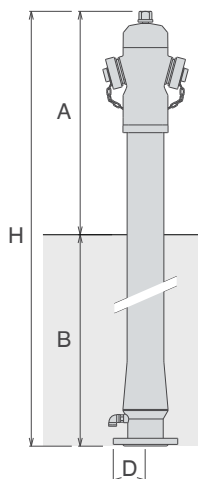
Technical details



N.	Component	Material
1	Body	GJS 500-7
2	Cap	GJS 500-7
3	Operating nut	GJS 500-7
4	Screw	stainless steel
5	Operating stem	stainless steel
6	Guiding bonnet	GJS 500-7
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 500-7
16	Plane gaskets	EPDM
17	Chains	stainless steel
18	Setting flanges	GJS 500-7
19	Screws	stainless steel
20	Female screw	bronze
21	Pins	stainless steel
22	Stand pipe	stainless steel
23	Barrel and base	stainless steel
24	O-ring gasket	NBR
25	Cotter pin	stainless steel
26	Obturator	GJS 500-7 NBR/EPDM coated
27	Adjustable flanges	GJS 500-7
28	Nipple	stainless steel
29	Threaded bend	stainless steel

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

Model	A mm	B mm	D mm	H mm	Fittings number and DN	Flanges	Wt. Kg
CS-I 80A		800		1535			37
CS-I 80B		1010		1745			38
CS-I 80C	735	1240	100	1975	2Ø70	DN 80	40
CS-I 80D		1440		2175			42
CS-I 100A		790		1565			53
CS-I 100B		1030		1805	2Ø70		58
CS-I 100C	775	1230	110	2005	+ 1Ø100	DN 100	60
CS-I 100D		1430		2205			62



Working conditions

Treated water maximum 70°C.

Pressure testing

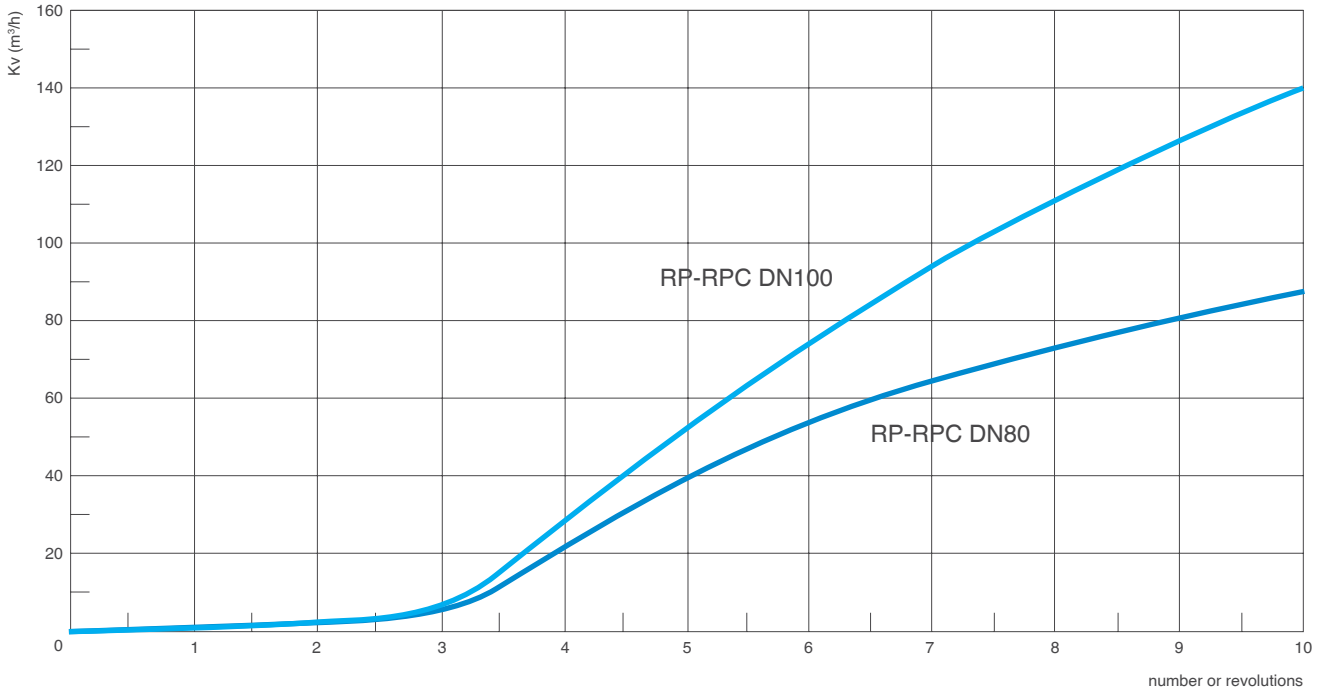
Test of mechanical resistance with obturator fully open at 25 bar and with obturator fully closed at 20 bar.

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.

Flow rate curve

The following chart is showing the variation of the Kv, expressed in m³/h, versus number of revolutions required to open the hydrant for models RP-RPC DN 80 and 100 mm. The results are considering a draw off from a UNI 70 fitting for DN 80 and UNI 100 fitting for DN 100.



Accessories



The **S regulating bend** has been designed to allow a complete rototranslation for the proper alignment of the hydrant connection with the lead from the water main line.

Entirely built in ductile cast iron, black or blue epoxy painted, and fully orientable with a centre to centre distance of 500 mm, the CSA S regulating bend allows for the proper installation with a dramatic reduction of costs. Flanges in accordance with EN 1092-2.

DN mm	A mm	B mm	PN bar	Weight Kg
80	500	350	16	12
100	500	350	16	16

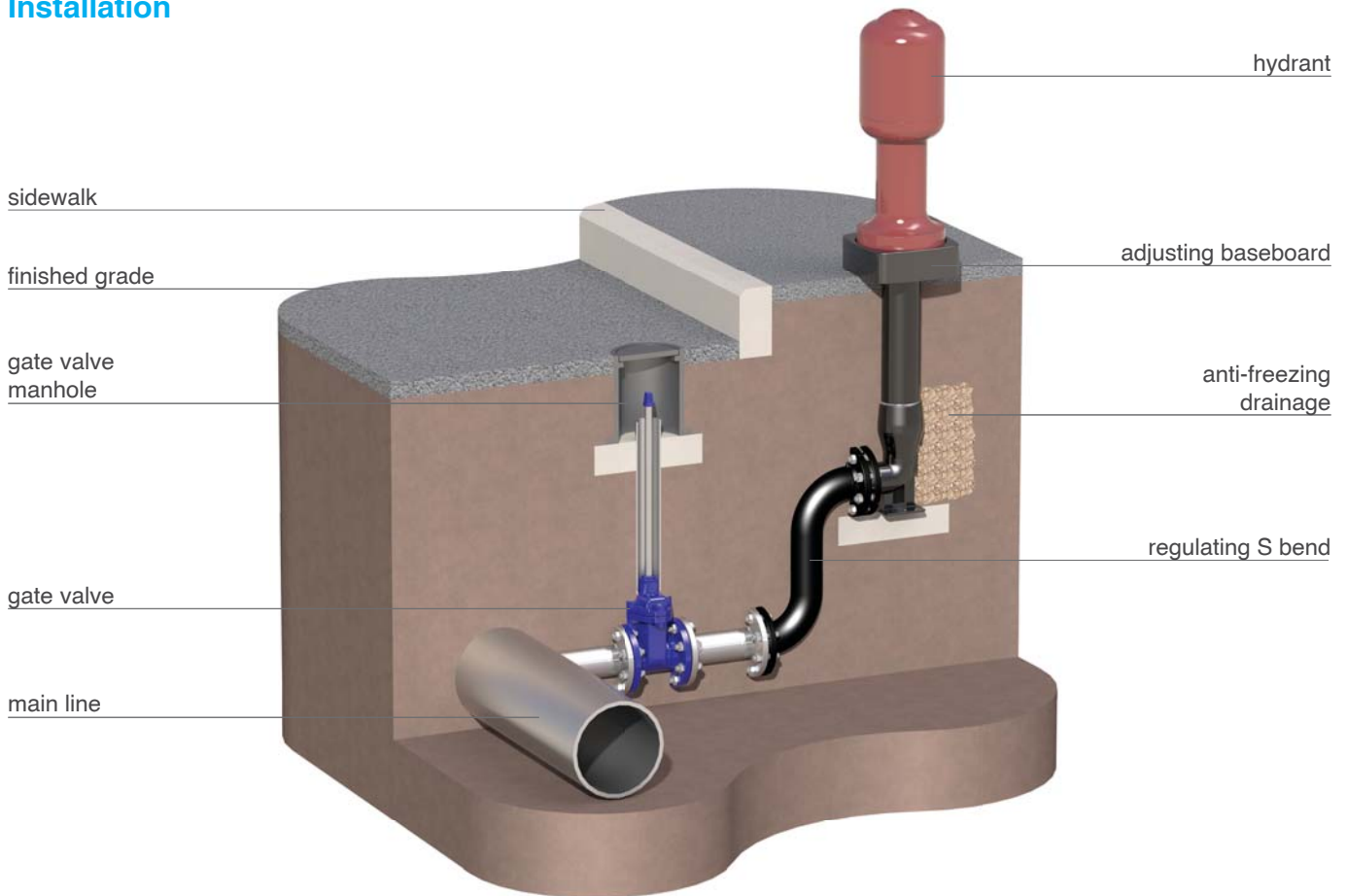


Duckfoot bend. Angle pattern ductile cast iron foot bend black epoxy or blue epoxy painted. Flanges in accordance with EN 1092-2.



Operating key. Supplied with the connections in conformity with applicable EN standards this tool, entirely manufactured in stainless steel and ductile cast iron and equipped with a square and pentagonal coupling, it allows the use of CSA pillar and underground fire hydrants.

Installation



Inspect the hydrant prior to installation in order to check for damage during shipment.

In the event that storage is necessary please contact CSA and inspect just before installation.

Before installing the hydrant clean up pipes, gate valves, fittings from debris and sands, remove any foreign matter that could enter the hydrant and affect its performance during operation.



Warning: Hydrants should not be use as tool for flushing pipes, in such case the rubber coating of the obturator would be likely to be torn or scratched by stones, pebbles and foreign material with possible leakage.

- An isolation device must be installed on the hydrant lead between the hydrant and the water main to permit maintenance and emergency shut-off purposes.
- Set the hydrant using a solid footing such as stone slabs or a concrete base, in order to prevent settling and strain on the hydrant connection and consequently the water main.
- The anti-freezing drain hole should be surrounded by stones, or pouring directly to the sewage line. Failing in doing so and leaving it buried will prevent it from operating properly.



Warning: with models equipped breakable systems make sure to allow at least 5 cm distance between the end of the underground part and the ground line, for the adequate performance of the safety device in case of impact of a vehicle.

Maintenance

CSA hydrants do not require frequent maintenance, nevertheless we recommend to follow the instruction provided with operation and installation manuals and technical advises explained in this catalogue.

Users are invited to check the proper functioning by opening and closing the hydrant at least 3 times per year.



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