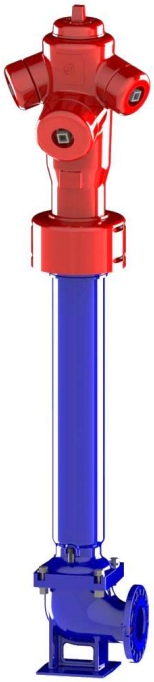
USER'S MANUAL

OF OVERGROUND HYDRANT

Cat. no. 87xx
DN80, DN100 and DN150



The user's non-compliance with the guidelines and provisions in this operating and maintenance manual relieves the producer of any obligations and warranties.
Due to the continuous development of the company, we reserve the right for modifications of and design changes to the presented product.

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1. TECHNICAL DESCRIPTION

1.1 PRODUCT FEATURES

The subject of this user's manual is**:**
The overground hydrant with double closing, a protection in the case of breakage with the following features:
- with automatic drainage at the moment of cutting off the medium
- with double closing in the form of a ball valve
- with a valve head (a closing unit) vulcanised in 100% with elastomer
- the ability to rotate the upper body with caps from 0º to 360º

1.2 FINAL USE

The overground hydrants TYPE 8700 with double closing, and a protection in the case of breakage are designed for fire and water supply systems and enable to intake clean, chemically inert water that is free from solid contamination for fire-fighting purposes.

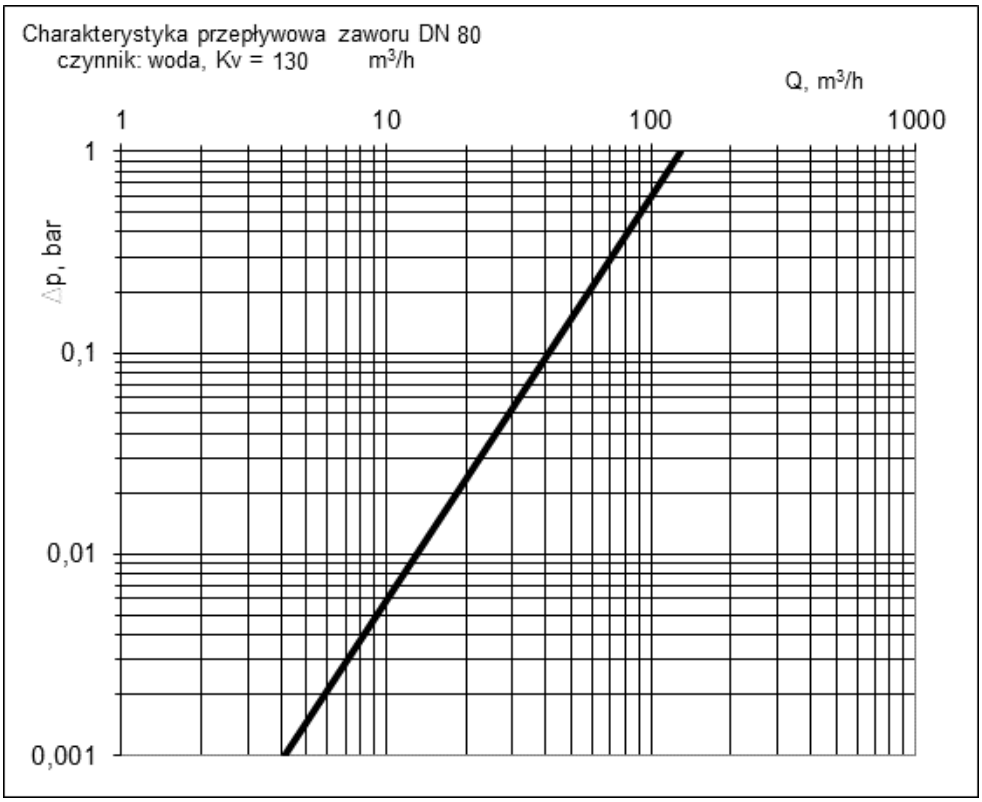
1.3 TECHNICAL CHARACTERISTICS

All the hydrants made by JAFAR undergo leak tests and tests of the operation functionality before shipment. They are delivered in a ready to-assemble state.
The scope of applicable diameters (dimensions): DN100 and DN150 [mm].
Drive torque of closing the hydrant:

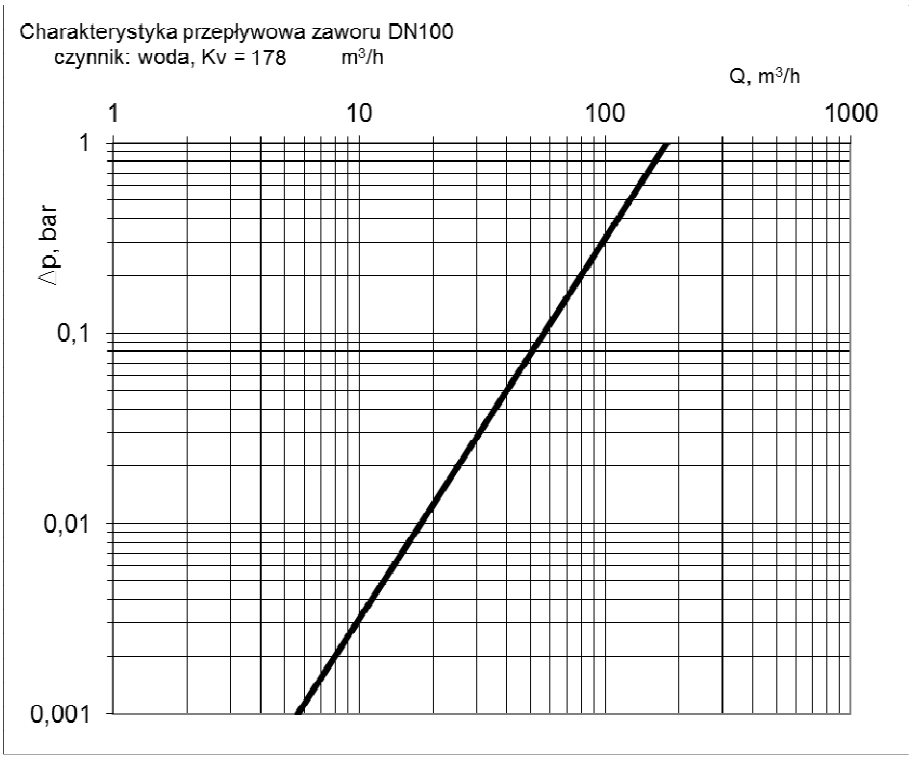
DN [mm]	80	100	150
Nm	25	25	30

Maximum permitted closing torque may not exceed 80 Nm.
Hydrant control – in the basic execution, the direction of closing the hydrant is clockwise (to the right).

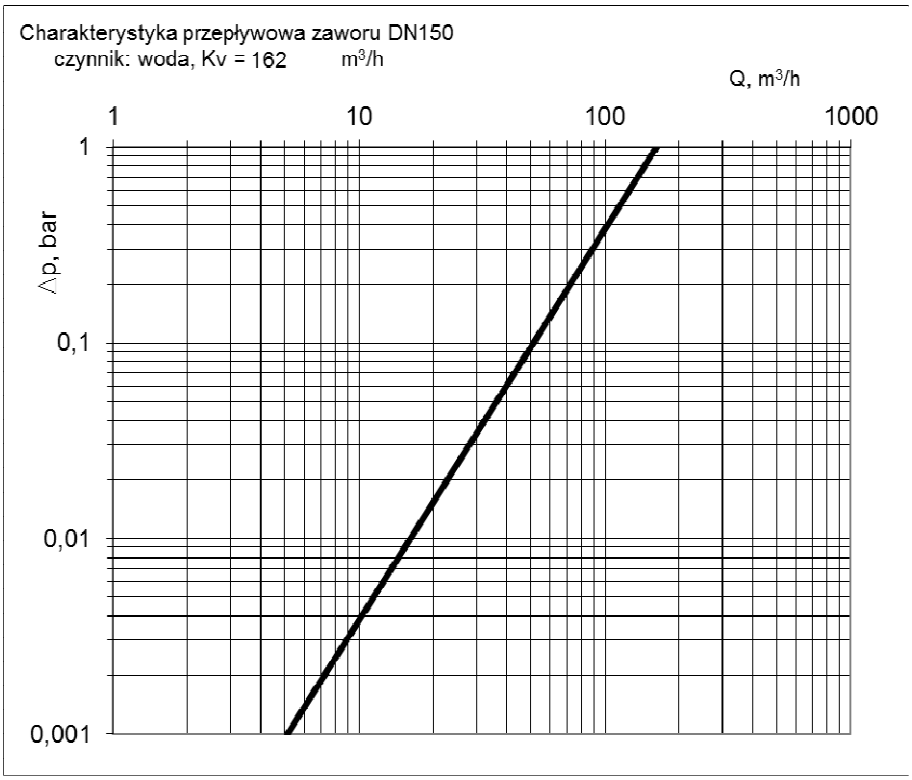
Hydrant performance for 1x65 caps



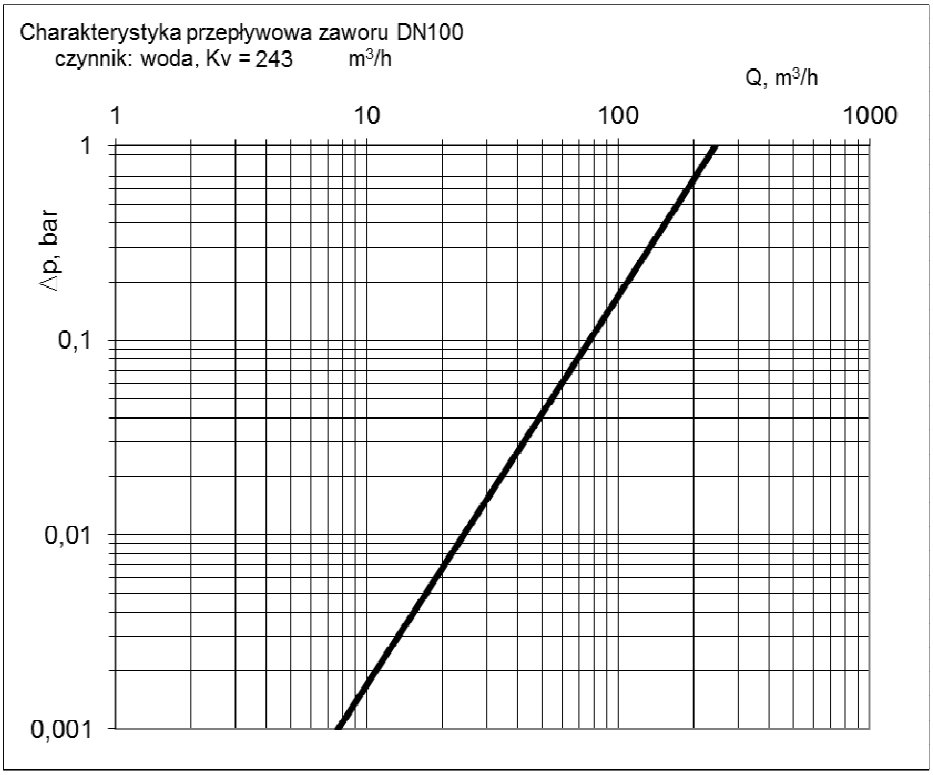
Hydrant performance for 2x65 caps



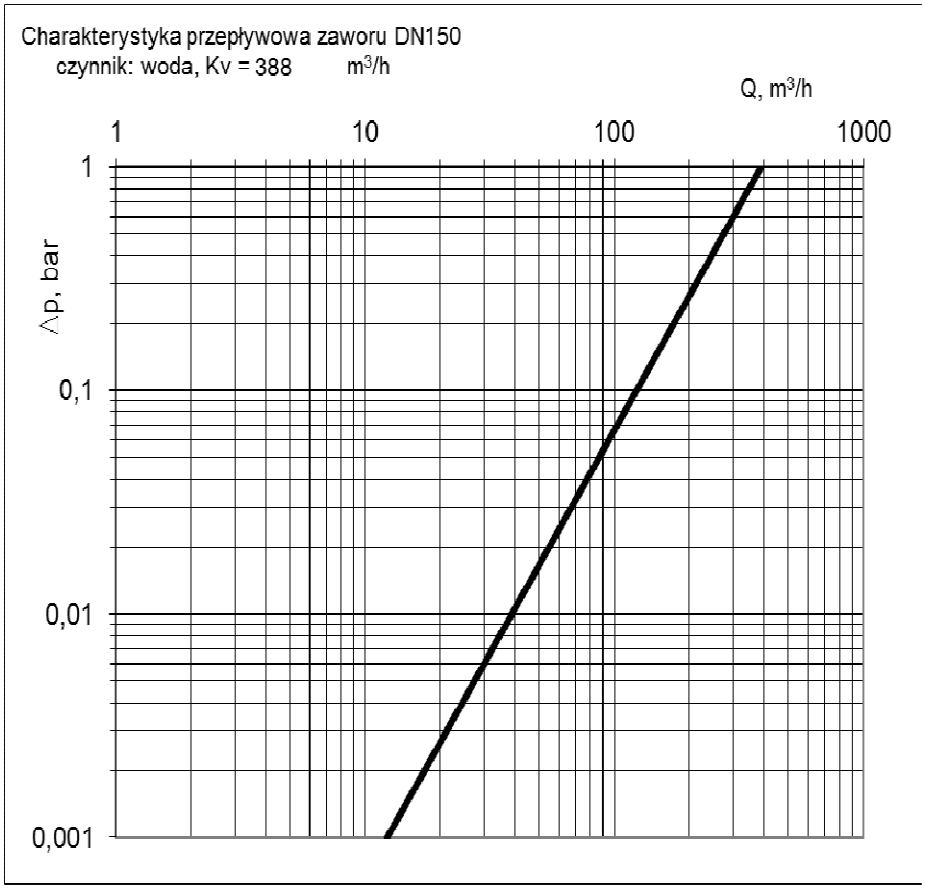
Hydrant performance for a 1x65 cap



Hydrant performance for a 1x100 cap



Hydrant performance for 2x100 caps



2. DESIGN

2.1 HYDRANT DESIGN DESCRIPTION

The overground hydrants are column-shaped. Through the column interior, water may be drawn from the pipeline. It has the head with caps allowing for attaching fire hoses (discharge hoses). In the lower part of the hydrant, there is a cast iron valve chamber containing a valve head, which is a closing component, and a draining device. The bottom chamber body is connected with a valve chamber of the ball (a non-return ball valve) finished with a connecting flange allowing to attach the hydrant on the pipeline. The upper part of the hydrant is the cast iron body with outlet holes provided with the caps. The upper body also has a drive element at the end of the stem, through which the rotary movement is transferred to the hydrant valve head through a spacer tube. The upper body of the overground hydrant protected against fracture is connected with the underground part with specially thinned screws. This combination allows to break the hydrant without its damage and outflow of water. While the special flanges allow to rotate the overground part of the hydrant by any angle (from 0° to 360°). Inside, within the connection of the overground part of the hydrant with the underground one, there is a special spindle joint. The rotary stem is mounted in a throttle plug sealed with rubber o-rings. The rotation direction at closing the hydrant is clockwise. While rotating the stem, the valve head is moved and the flow is opened. The valve head closes the drain trap's outlet hole while moving. In the case of closing the hydrant, the valve head sinks into the seat, then the remaining water is discharged in the hydrant column through the drip drain valve.
In this hydrant type, it is possible to replace the internal mechanism of hydrant closing without cutting power supply thanks to the presence of the ball valve.

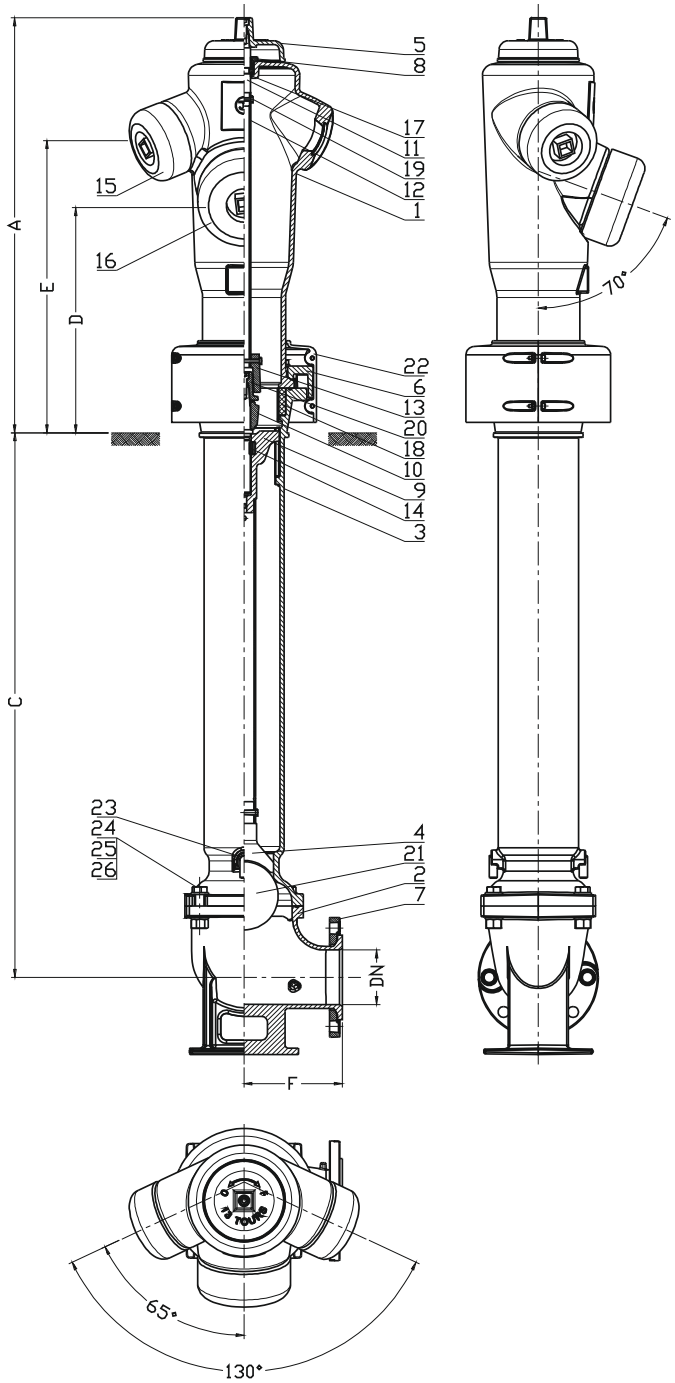
2.2 MATERIALS

The list of basic materials used in constructing of the overground hydrant TYPE 8700 DN80, DN100 and 150 is given in the table

Item	Part name	Material	Standard
1	Main body	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
2	Duckfoot bend	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
3	Column	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
4	Valve head	Cast iron EN-GJS 400-15 EN-GJS 500-7 EPDM rubber	EN 1563:2012 ISO 1629:2005
5	Hood	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
6	Break ring	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
7	Loose flange	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
8	Gland seal	Brass	EN 1982:2010
9	Nut casing	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
10	Propeller	Brass	EN 1982:2010
11	Stem	Stainless steel 1.4021	EN 10088-1: 2014
12	Spindle	Stainless steel 1.4301	EN 10088-1: 2014

13	Coupling	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
14	Nut	Brass	EN 1982:2010
15	B cap	AlSi aluminium alloy	EN 1706: 2011
16	A cap	AlSi aluminium alloy	EN 1706: 2011
17	O-ring	EPDM rubber	ISO 1629
18	Lock	AlSi aluminium alloy	EN 1706: 2011
19	Screw	Stainless steel	EN ISO 4017
20	Bottom hood	Cast iron EN-GJS 400-15 EN-GJS 500-7	EN 1563: 2012
21	Ball	Cellular polypropylene or AlSi aluminium alloy / EPDM rubber	EN 1706:2011 ISO 1629:2005
22	Break cover	PP polypropylene	EN ISO 1873-1: 2000
23	Drainage system	PP polypropylene	EN ISO 1873-1: 2000
24	Screw	Stainless steel A2	EN ISO 4017
25	Nut	Stainless steel A4	ISO 4032
26	Washer	Stainless steel A2	EN ISO 7091

2.3 DN80, DN100 and DN150 DIMENSIONS



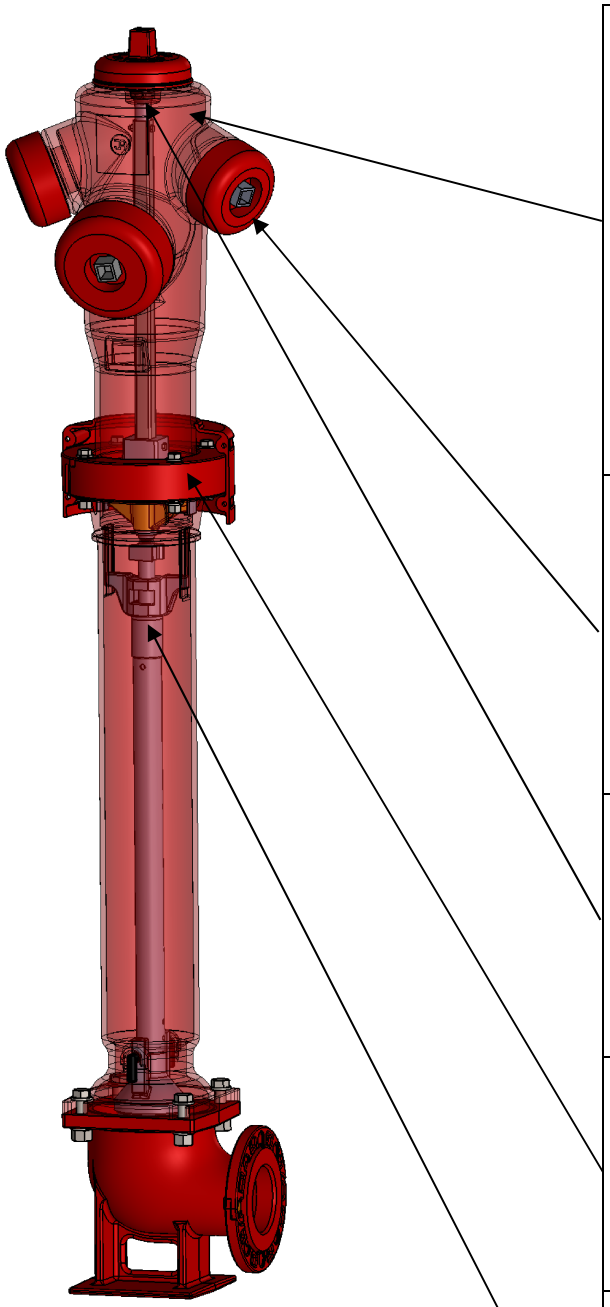
DN	H	C	A	E	D	I	G	F	Weight	Connection		
[mm]									[kg]	40	65	100
80	1900	1000	760	540	440	785	148	180	96	x2	x1	-
	2100	1200				985			103	x2	x1	-
	1900	1000		-	440	785	148	180	96	-	x1	-
	2100	1200				985			103	-	x1	-
100	1900	1000		540	440	785	148	180	96	-	x2	x1
	2100	1200				985			103	-	x2	x1
150	1900	1000		430	540	785	190	195	120	-	x1	x2
	2100	1200				985			128	-	x1	x2

2.4 LIST OF DN80, DN100 and DN150 SPARE PARTS

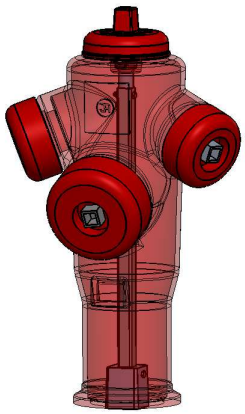
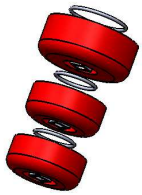
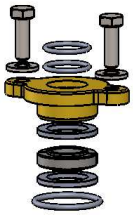
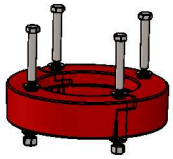
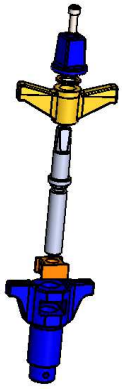
Item	Part name	Material	Standard	Quantity
1	DN100 vulcanised valve hood	Cast iron EN-GJS 400-15 EN-GJS 500-7 EPDM rubber	EN 1563:2012 ISO 1629:2005	1
2	Gland seal	Brass	EN 1982:2010	1
3	Upper stem	Stainless steel 1.4021	EN 10088-1: 2014	1
4	Stem half ring	Stainless steel 1.4021	EN 10088-1: 2014	2
5	Stem washer	M63	92/H-87025	3
6	Breaking zone stem	Stainless steel 1.4021	EN 10088-1: 2014	1
7	Cap lock	AlSi aluminium alloy	EN 1706: 2011	2
8	Special screw M12x90	Stainless steel	EN ISO 1873-1: 2000	4
9	Stem washer	M63	92/H-87025	1
10	Stem nut	Brass	EN 1982:2010	1
11	Hydrant cap 65	AlSi	EN 1706: 2011	2
12	Hydrant cap 100	AlSi	EN 1706: 2011	1
13	Cap cover 65 with an air vent	AlSi	EN 1706: 2011	1
14	Cap cover 65	AlSi	EN 1706: 2011	1
15	Cap cover 100	AlSi	EN 1706: 2011	1
16	O-ring 23.3x2.4	EPDM	ISO 1629:2005	3
17	O-ring 35.2x3	EPDM	ISO 1629:2005	1
18	O-ring 70x5	EPDM	ISO 1629:2005	2
19	O-ring 100x5	EPDM	ISO 1629:2005	1
20	O-ring 165x5	EPDM	ISO 1629:2005	1
21	O-ring 190x5	EPDM	ISO 1629:2005	1
22	O-ring 2050x5	EPDM	ISO 1629:2005	1
23	O-ring 260x5	EPDM	ISO 1629:2005	1
24	Screw M6x40	Stainless steel A2	EN ISO 4017	1
25	Screw M8x25	Stainless steel A2	EN ISO4762	1
26	Screw M10x30	Stainless steel A2	EN ISO4762	1

27	Screw M8x25	Stainless steel A2	EN ISO 4017	2
28	Screw M8x55	Stainless steel A2	EN ISO 4017	3
29	Washer 8.4	Stainless steel A2	EN ISO 7091	2
30	Washer 13	Stainless steel A2	EN ISO 7091	8
31	Nut M6	Stainless steel A4	EN ISO 4032	1
32	Nut M8	Stainless steel A4	EN ISO 4032	3
33	Nut M12	Stainless steel A4	EN ISO 4032	4

2.5 SERVICE PACKAGE FOR DN80, DN100 and DN150



1	Complete upper body package
2	Caps and covers package
3	Gland seal sealing kit
4	Breaking zone package
5	Drive unit

1	
2	
3	
4	
5	

2.6 ORDER PRINCIPLES

The overground hydrants are included in the fire and water supply fittings. In the order, the following should be given:
- product catalogue number
- nominal diameter
- assembly depth
- other requirements if agreed with the producer

2.7 STANDARDISATION

The overground hydrants type 8700 are made in accordance with: NF EN 14384, NF S 61-213/CN.
The connection caps made in accordance with NF E 29-572.
The connection flange made in accordance with EN 1092-2.

2.8 MARKING

The overhead hydrants made in accordance with NF EN14384, having the NF unit mark placed on the front wall of the upper body.
In addition, the following marks are on the identification sticker:
- nominal diameter
- nominal pressure
- the type of body material
- the JAFAR producer's trademark
- EN 1074-6
- CE mark
- production date
- factory no.
- catalogue no.
- hydrant type due to breaking zone (A, C)
- bar code

3. ANTI-CORROSION PROTECTION

All internal and external cast iron surfaces and column pipes are protected with electrostatically applied epoxy paint with the thickness of at least 250µm according to GSK RAL requirements. The paint is certified to come into contact with foodstuffs.
Note! In case of mechanical damage to the product's anti-corrosion coating, it is unconditionally imperative to protect the faulty surface with the producer's renovation paint.
The external part of the hydrant exposed to sunlight is covered with a layer of UV-resistant paint.
All the fasteners, such as screws, nuts, and washers are made of stainless steel.

4. INSTALLING HYDRANT

The overground hydrant type TYPE 8700 can be mounted in underground pipelines so that the closing and drainage chamber is below the freezing zone. The hydrant is installed using a loose connection flange. In order to connect the hydrant flange with the pipeline network, the screws protected against corrosion, which must be tightened evenly in accordance with the torque specified for a given screw strength class, must be used. The hydrant is equipped with special flanges allowing to rotate the upper part by any degree (from 0^o to 360^o). The special bolts connecting the lower part to the overground one, if loosened for rotation, should be tightened with the maximum torque of 35 Nm. During mounting, take care that the executed installation does nor expose the hydrant to bending and tensile stresses resulting from loading them with mass of the unsupported pipeline. Any works related to disassembling hydrant components may cause loss of their tightness.

When proceeding to mounting, correctly prepare the foundation surfaces and check the depth of the excavation. For the hydrant 8700, the breaking zone place should be above the ground level as indicated on the column. The hydrant is mounted into a S-type flange (cat. no. 9270) or directly into the pipeline flange. It is recommended to mount a shut-off valve in front of the hydrant in order to ensure that the hydrant can be replaced without having to shut down the pipeline section or, in the event of the hydrant failure, to close the water outflow.
After the hydrant is place in the excavation place, prepare the water drainage from the drainage. For this purpose, it is recommended to use the drain trap shield (cat. no. 8870). The drain trap cover should be placed on the hydrant column at the drainage outlet points and subsequently sprinkle with draining ballast. If there is a drain system near the hydrant, apply a 1/2” inch hose at the ends of the drainage outlets and discharge the outlet to the drain. The draining ballast should be used underneath and over the drain trap cover.
Note! At the temperature below 0°C, the lack of hydrant drainage results in its damage.

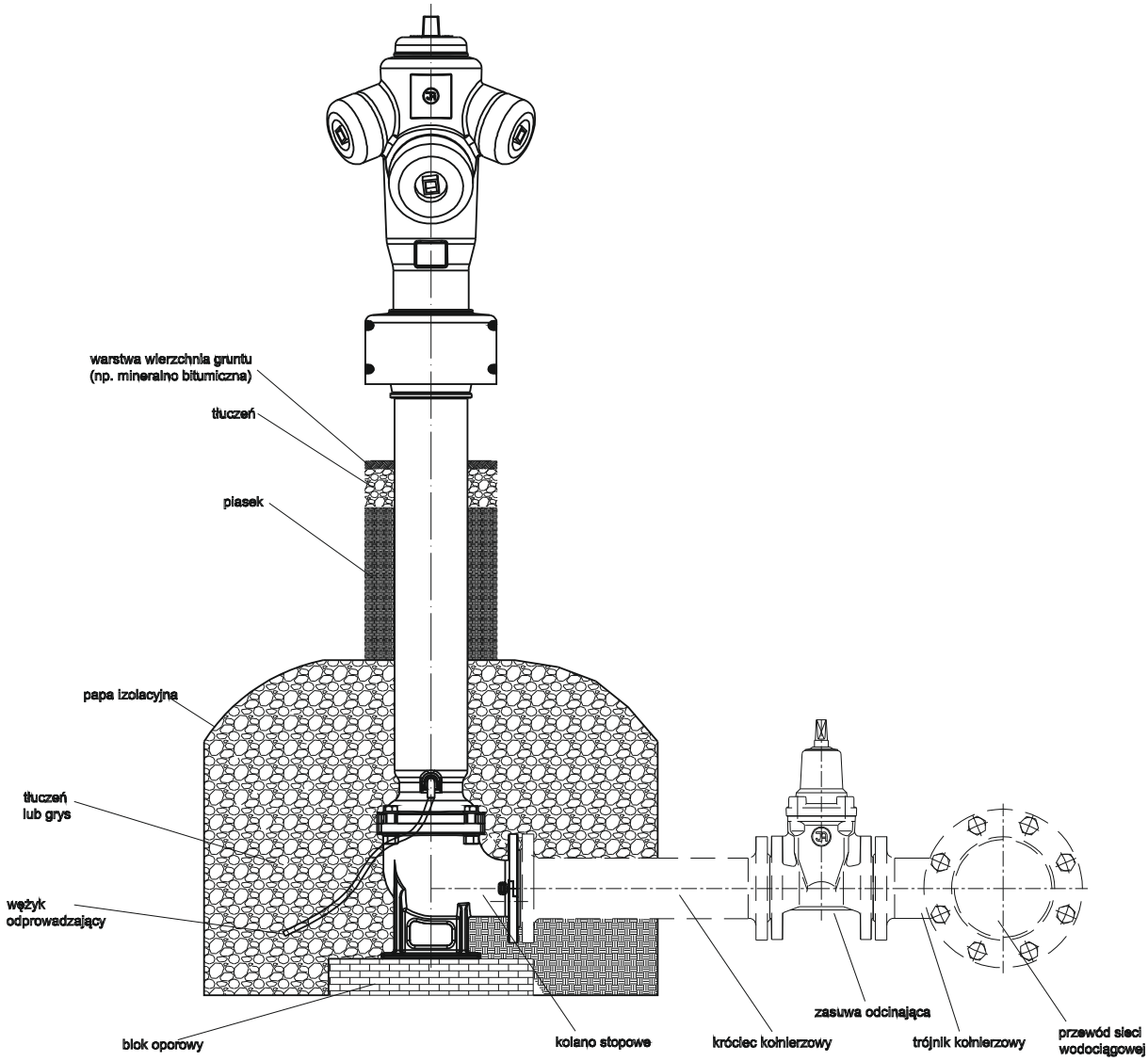


Fig. 1. Hydrant mounting
Warstwa wierzchnia gruntu (np. mineralno-bitumiczna) – ground surface layer (e.g., mineral and bituminous)
Tłuczeń – crushed stone
Piasek – sand
Papa izolacyjna – waterproof sheathing
Tłuczeń lub grys – crushed stone or grit
Wężyk odprowadzający – drainage hose
Blok oporowy – support
Kolano stopowe – duckfoot bend
Króciec kołnierzowy – flanged filler neck
Zasuwa odcinająca – shut-off valve
Trójnik kołnierzowy – flanged T-piece
Przewód sieci wodociągowej – water supply and distribution network pipe

5. OPERATION

The external hydrants are devices intended to draw water for fire-fighting purposes and to draw potable water. The detailed requirements are set out in the regulations specifying the needs for the water for fire-fighting purposes. The above diagram (fig.1) shows an example manner of mounting the overground hydrant, which depends to a large extent on the adopted principles resulting from local climatic and geological conditions.

After proper mounting of the hydrant, the following steps must be taken to draw water in the configuration with the valve:
Start-up:
1. open the shut-off valve
2. open the hydrant
Closing:
3. close the hydrant
4. close the shut-off valve

Note! It is unacceptable to open this type of hydrant when the shut-off valve is closed, as the valve head, while moving downwards, must be able to push the water column in the opposite direction to the flow direction in the first phase of movement. Otherwise, the hydrant actuating mechanism may be damaged.

Note! The hydrant must be over steered at least once a year.
When over steering, the following must be checked:
- closing tightness
- drainage correctness
- fluent operation; the hydrant must open and close smoothly, without resistance
- assess the protective coating visually

Medium working temperature from +1°C to 50°C

Exceeding the fittings operation's limit parameters may cause its damage, which excludes the producer's liability within guarantee scope.