

Size range: 2" - 12"



Profit gate valves type FNRSL are resilient seated gate valves with flanged ends and a non-rising stem, that provides 100% net passage. Typically used in fire protection systems as a manual operated isolation valve.

### Characteristics

- Indoor & outdoor use.
- Suitable for use in vertical and horizontal piping.
- Anti-corrosion protection: high grade polyester powder coating, meets or exceed AWWA C550 standards.
- Meets or exceeds the requirements of NFPA24 standard.
- Dimension comply with EN 558/series3, ANSI/ASME B16.10.
- Installation between flange types EN1092-PN16.  
Available on request: ANSI B16.1 Class 125/ASME B16.42, class 150.
- The cast iron body has a ductile iron wedge with vulcanised rubber lining.  
Equipped with an triple O-ring stem seal to be secured from leakage.
- The Profit NRSL valves 2½" - 12" are available on request with handwheel or top cap operated.
- The Profit NRSL valves 4" - 12" are available with a top cap to fit Profit indicator post type WINPO and VINPO.  
Both these valves act as a external visual indicator with a protected window of open or closed position of the NRS valve.

### Working pressure

2,07 MPa / 20,7 bar / 300 psi.

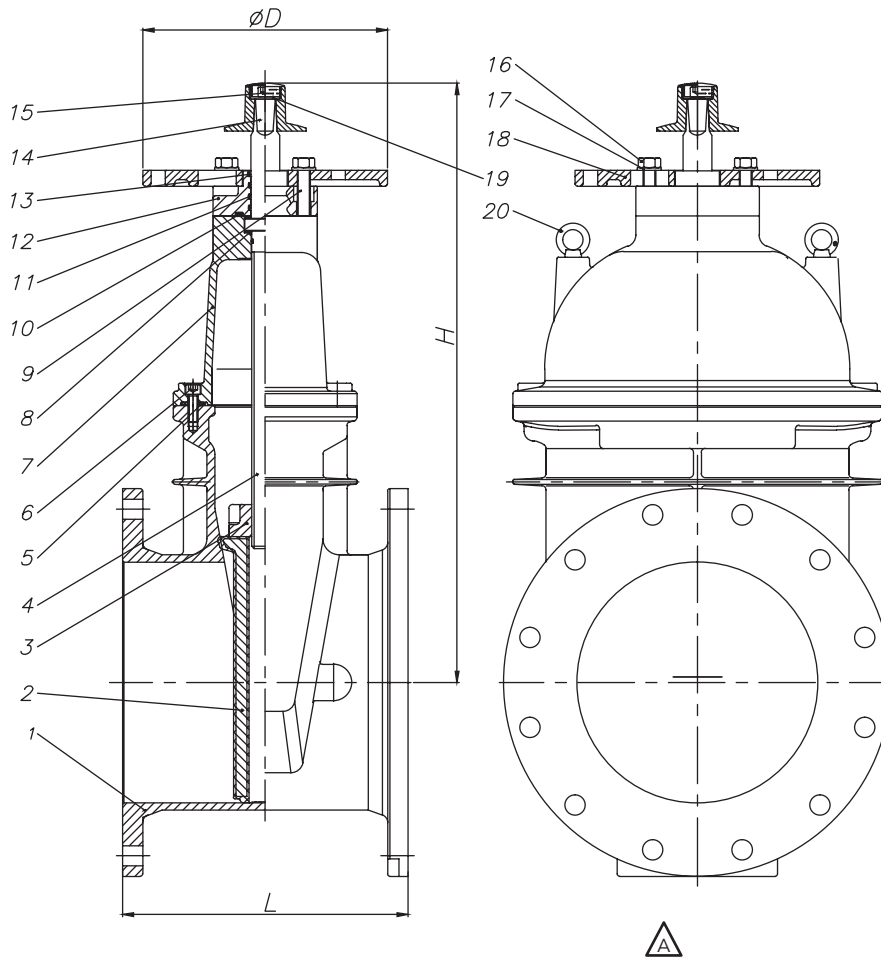
### Approvals

- FM approved to FM standard 1120 & 1130.
- UL 262 listed.

### Working temperature

+1°C to +60°C.

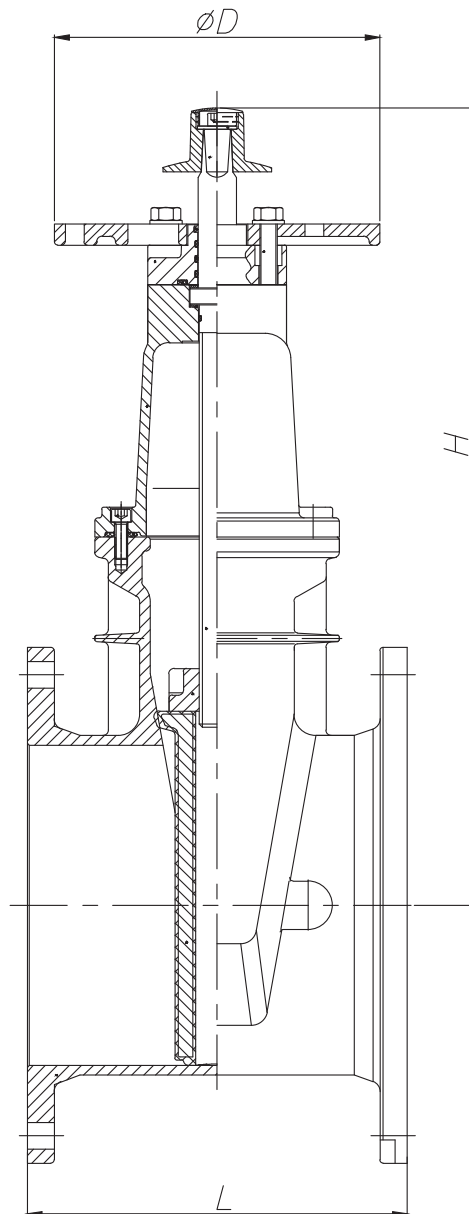
**Material specifications**



N°	Component	Specification	European standard	ASTM standard
1	Body	Ductile iron	EN-GJS-450-10	A536 Grade 65-45-12
2	Wedge	Ductile iron, EPDM fully encapsulated		
3	Wedge nut	Bronze	/	B148 C95200
4	Stem	Stainless steel	X5 Cr Ni 1810	A276 Type 304
5	Gasket	Rubber	EPDM	D2000 EPDM
6	Screw	Carbon steel	ISO 898-1/4-6	A307 Grade B
7	Bonnet	Ductile iron	EN-GJS-450-10	A536 Grade 65-45-12
8	Washer	Brass	/	B124 C37700
9	Bolt	Stainless steel	X5 Cr Ni 1810	F593 Grade 304
10	O-ring	Rubber	NBR	D2000 NBR
11	O-ring	Rubber	NBR	D2000 NBR
12	Gland	Ductile iron	EN-GJS-450-10	A536 Grade 65-45-12
13	Seal ring	Rubber	NBR	D2000 NBR
14	Operating nut	Ductile iron	EN-GJS-450-10	A536 Grade 65-45-12
15	Screw	Stainless steel	X5 Cr Ni 1810	F593 Grade 304
16	Nut	Stainless steel	1.4401	A4
17	Washer	Stainless steel	X5 Cr Ni 1810	A276 Type 304
18	Post flange	Ductile iron	EN-GJS-450-10	A536 Grade 65-45-12
19	Washer	Stainless steel	X5 Cr Ni 1810	A276 Type 304
20	Eye bolt	Carbon steel	ISO 898-1/4-6	A307 Grade B

**Dimensions**

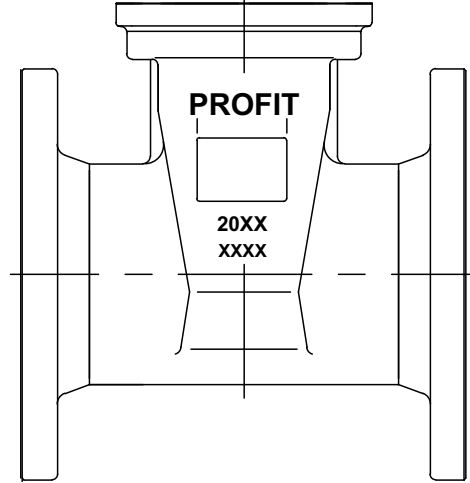
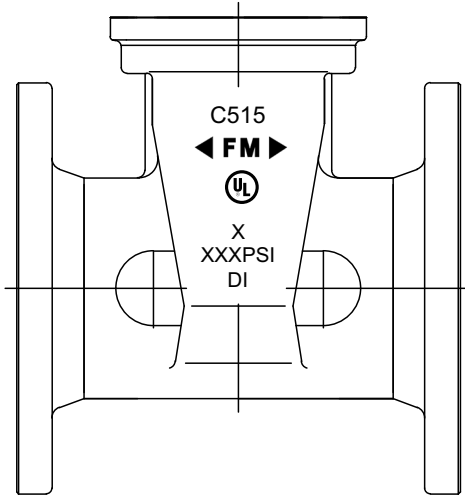
Dimensions (mm/inch)										
Size	inch	2"	2½"	3"	4"	5"	6"	8"	10"	12"
	mm	DN50	DN65	D80	DN100	DN125	DN150	DN200	DN250	DN300
<b>L1</b>	mm/inch	178 / 7,0	191 / 7,5	203 / 8,0	229 / 9,0	254 / 10,0	267 / 11,5	292 / 11,5	330 / 13,0	356 / 14,0
<b>H</b>	mm/inch	277 / 10,9	295 / 11,6	336 / 13,2	361 / 14,2	432 / 17,0	472 / 18,6	570 / 22,4	665 / 26,2	747 / 29,4
<b>D</b>	mm/inch	305 / 12,0	305 / 12,0	305 / 12,0	305 / 12,0	305 / 12,0	305 / 12,0	305 / 12,0	305 / 12,0	305 / 12,0
<b>Weight (kg)</b>	kg	13	16	22	28	38	45	66	103	140



**Marking**

**Body:**

*Please note that FNRSL2-IP is not UL listed.*



**Marking plate:**

*Please note that FNRSL2-IP is not UL listed.*



**Performances**

**Cv/Kv-values:**

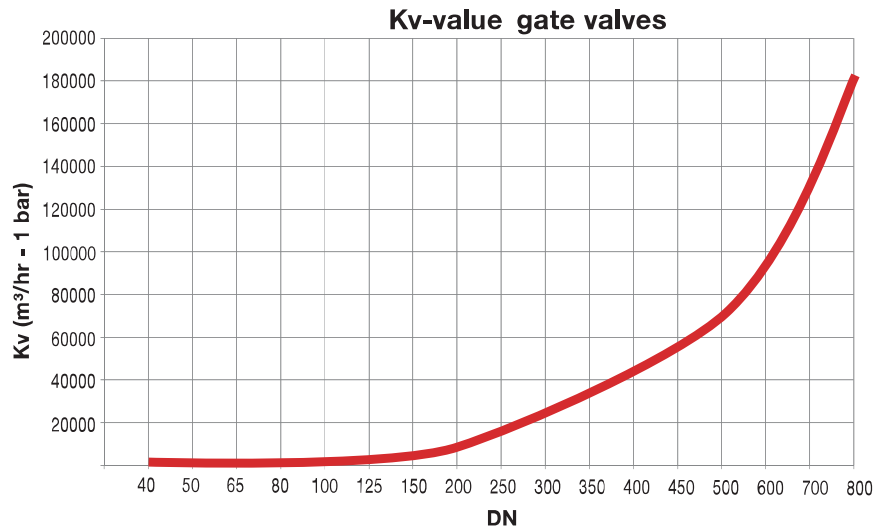
Definition / formulas:

**Kv-Value:** actual flow of water (m<sup>3</sup>/hr) creating pressure loss of 1 bar.

Pressure loss coefficient **Zeta (K) value:** ratio of static and dynamic pressure loss.

Pressure loss coefficient,  
**Zeta (K-value) = Diff pressure / (500 X V<sup>2</sup>)**  
Diff pressure (Pa)  
V: water flow velocity (m/sec)  
Actual diff pressure (bar) = (Q/Kv)<sup>2</sup>

**Zeta values:**  
DN 40-125: 0,06  
DN 150-250: 0,04  
DN 300-800: 0,02



Flow velocity (m/sec)	Q m3/h					
	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300
1.0	28.3	44.2	63.6	113.1	176.7	254.5
1.5	42.4	66.3	95.4	169.6	265.1	381.7
2.0	56.5	88.4	127.2	226.2	353.4	508.9
2.5	70.7	110.4	159.0	282.7	441.8	636.2
3.0	84.8	132.5	190.9	339.3	530.1	763.4
3.5	99.0	154.6	222.7	395.8	618.5	890.6
4.0	113.1	176.7	254.5	452.4	706.9	1,017.9
4.5	127.2	198.8	286.3	508.9	795.2	1,145.1
5.0	141.4	220.9	318.1	565.5	883.6	1,272.3

Opening %	CV/KV											
	DN 100		DN 125		DN 150		DN 200		DN 250		DN 300	
	cv	kv	cv	kv	cv	kv	cv	kv	cv	kv	cv	kv
10%	75	64	143	122	158	135	343	293	448	383	583	498
20%	186	159	278	238	319	273	642	549	904	773	1290.5	1103
									1459	1247	2015	1722
									2187	1869	2952	2523
									3195	2731	4006	3424
									6230	5325	8286	7082
									16842	14395	29844	25508

**Certifications**

Size		FM	UL
DN	NPS		
DN 50	2"	Up to 2,07 MPa / 20,7 bar / 300 psi	<i>not UL listed</i>
DN 65	2½"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 80	3"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 100	4"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 125	5"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 150	6"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 200	8"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 250	10"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi
DN 300	12"	Up to 2,07 MPa / 20,7 bar / 300 psi	Up to 2,07 MPa / 20,7 bar / 300 psi



**Storage and handling**

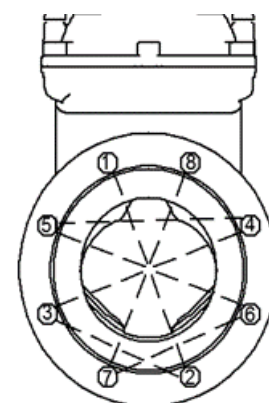
- Each valve should be unloaded carefully, it should not be dropped.  
Never lift valves by the stem, operating nut or handwheel.
- The valves should be inspected at the time of receipt for damage in shipment.  
The initial inspection should verify compliance with valves specifications.
- The gate valves should be stored in a manner that protects them from the environment, preferably indoors.  
When stored outside, protect the valves from weather conditions and avoid accumulation of water, dirt, or debris.
- The valves should be stored with the wedges in the nearly closed position to prevent unnecessary compression of the rubber compound.
- Valves stored outside should be stored with the wedges in the vertical position. If the valves are stored in the horizontal or flat position, rainwater may accumulate in the valve cavity, then freeze and crack the castings.



## Installation

- Valves must be provided with adequate support. Adjoining pipework must be supported and aligned to avoid the influence of pipeline strains on the valve body, which would cause stress and impair its performance. Valves should not be used to correct the misaligned piping. Heavy valves may need independent support or anchorage.
- Gate valves may be installed in:
  - a) Horizontal pipework with stem vertical.
  - b) Vertical pipework with stem horizontal.
- The valve should not be installed in horizontal pipework with the stem horizontal because shut off performance may be impaired.
- To prolong the valve life, we recommend to install the valve not closer than 5-6 x DN when installed downstream near a fitting (bends and tees).
- Prior to installation, a check of the identification plate and body marking must be made to ensure that the correct valve is being installed.
- Inspect the valve before installing: all special packaging material must be removed. Valve end protectors should only be permanently removed immediately before installation. The valve interior should be inspected through the end ports to determine whether it is clean and free from foreign matter. Open and close the valve to ensure that it operates properly.
- For replacements: all pipes need to be depressurized and purged before starting the installation.
- Personnel for the installation must be qualified for the task.
  
- Installation of the valve:
  1. Check that the dimensions (or standard) of the mating flanges match up with the flange-drilling of the valve.
  2. Check that the available length between the piping flanges matches the total length of the valve (+2 x gasket thickness).
  3. Verify that there are two gaskets available to install in between the flanges on both sides. Check the pressure/temperature rating of the gaskets. Check availability of correct bolts & nuts to complete both flange-connections.
  4. The mating flange (both valve and pipework flanges) should be checked for correct gasket contact face, surface finish and condition. If a condition is found which might cause leakage, no attempt to assemble should be made until the condition has been corrected.
  5. Suitable lubricant on bolt threads should be used. Tighten the bolts and nuts in the crossover method shown in Fig. C, to assemble the pipe and valve evenly and prevent stress on the joints.
  
- Operation of the valve:
  1. The valve is opened by turning the operating nut or indicator post counter clockwise rotation.
  2. The valve is closed by turning the operating nut or indicator post clockwise rotation.
  3. Turn the valve fully open before filling and pressurizing the system.

Fig. C



**Notes**

When the valve is closed at a temperature higher than 60°C and then cooled, the wedge may become tight in the valve and prove difficult to open.

Conversely, a valve closed at room temperature can be difficult to open if there is an increase in fluid temperature up to 80°C causing a linear expansion of the stem, which tightens the wedge further into the body seats.

The valve should only be used in the open or closed position. The gate valves are not intended to be used for regulating or throttling services.

**GENERAL INFO**

- Installers should be trained or experienced to install and understand the product.
- Read and understand all technical datasheets and installation instructions before attempting to install, remove or adjust any Profit piping products.
- Depressurise and drain the sprinkler installation system before attempting to install, remove or adjust any Profit piping products.
- Never work on piping systems that are pressurised and / or filled with water.
- Piping Logistics reserves the right to change specifications, designs and / or standard equipment without notice and without incurring in any obligations.
- Use the necessary Personal Protection Equipment (PPE) to avoid personal injury (helmet, safety shoes and goggles, Profit gloves).



**Failure to follow these instructions could result in death or serious injury and property damage.**

**We advise to always store our products in closed and dry environments, the products do not need any specific maintenance once installed on an aboveground sprinkler installation.**

**REVISION TABLE**

Date	△	Notes
24/06/2024	A	Page 2 - Addition of the European standards.
25/06/2024	B	Page 1 - The approvals have been added.