

# ISE/N Automatic valve for petroleum products



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## ISE/N Automatic valve for petroleum products

One of the main features of the **ISE/N** automatic valve is that it uses the pressure of the fluid passing through it, to perform the functions which it has been designed for. The valve shutter is driven by the movement of the diaphragm, actuated through the energy of the process.

### Operation

The valve operation is obtained by 2 Ex (24 VDC/115-230 VAC) solenoid valves one of them normally opened (NO) and one normally closed (NC). Typically the valve would be situated just downstream of the meter on tank truck loading terminals or transfer pipelines of petroleum or chemicals.

### Functions

The valve control circuit may be configured in different ways in order to get several function, with the same kind of valves, as follows:

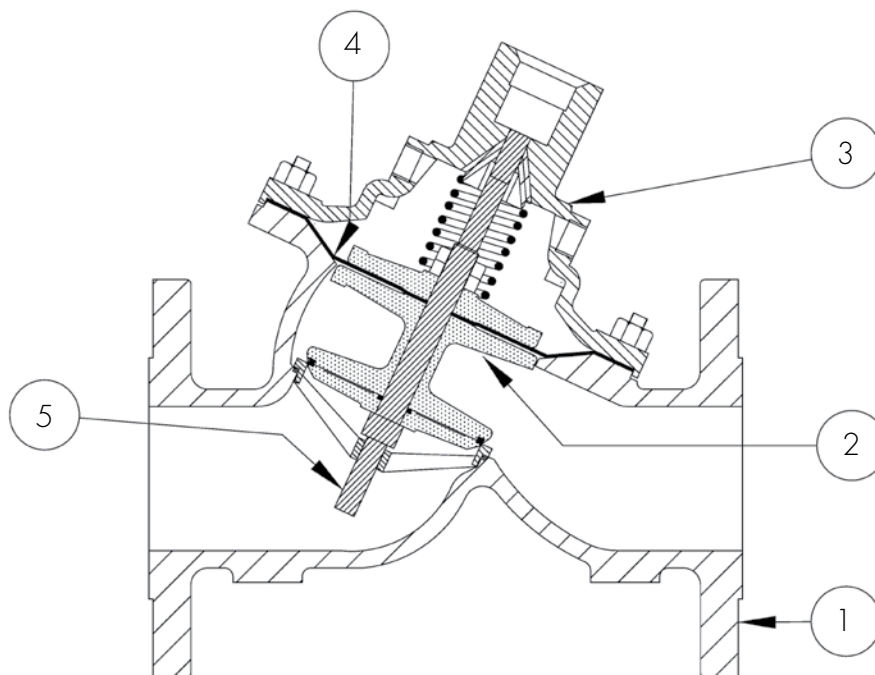
- » non return identified by (R)
- » flow limiting identified by (L)
- » 1 or 2 step closure/opening identified by (1S or 2S)
- » Multistep closure/opening

On request:

- » driven by pneumatic solenoid valves

### Base valve

- 1) Body
- 2) Retain disk
- 3) Cover
- 4) Diaphragm
- 5) Shaft



### 2SLR version

Automatic valve ISE/N 2SLR is regulated through two solenoid valves by a electronic counter (or by a mechanical counter with electrical micro-switches for preset functionality).

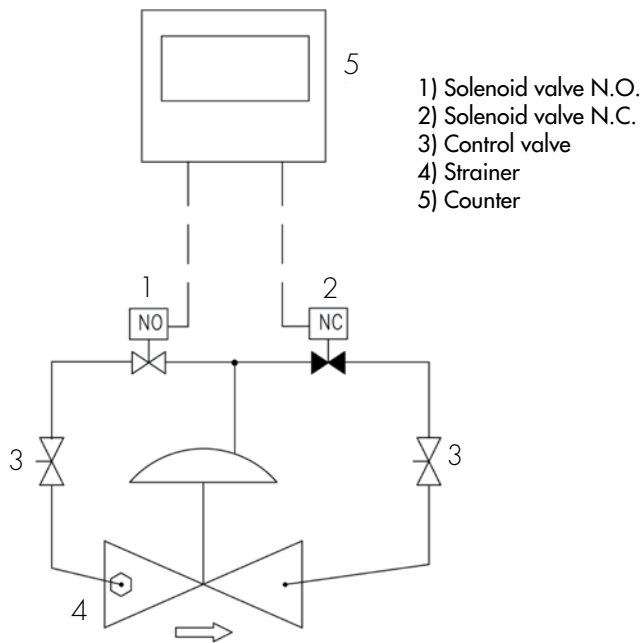
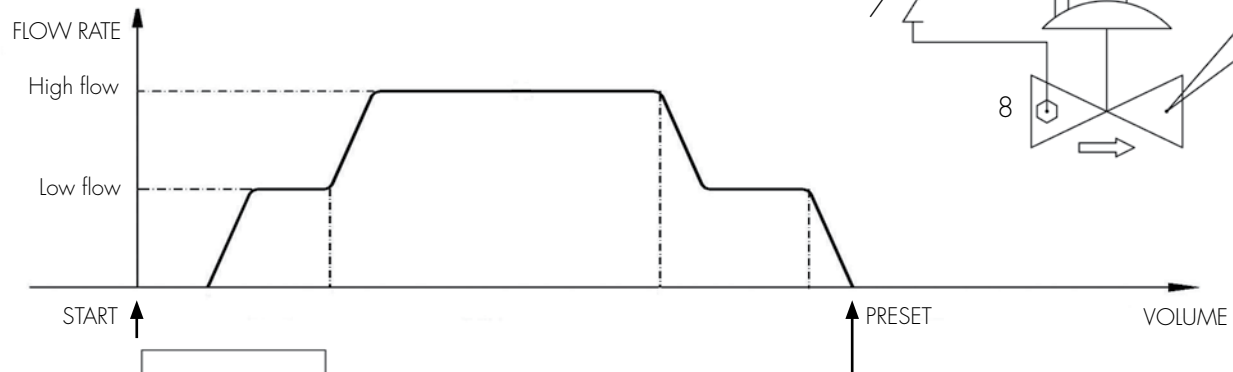
When solenoids valve (NO) and (NC) are both de-energised all flow is diverted to the upper part of the diaphragm causing rapid closing of the seal.

When both solenoids are energised, the valve is completely opened. The maximum opening can be governed by the pressure reducing valve screw (3).

When solenoid valve (NO) is de-energised, and (NC) is energised the valve automatically reduces its flow to the low flow value can be regulated by a stem valve(6).

Control valve (4) allows for changes in velocity to switch from high rate to low rate flow. A strainer (8) filters product before it enters pilot circuits.

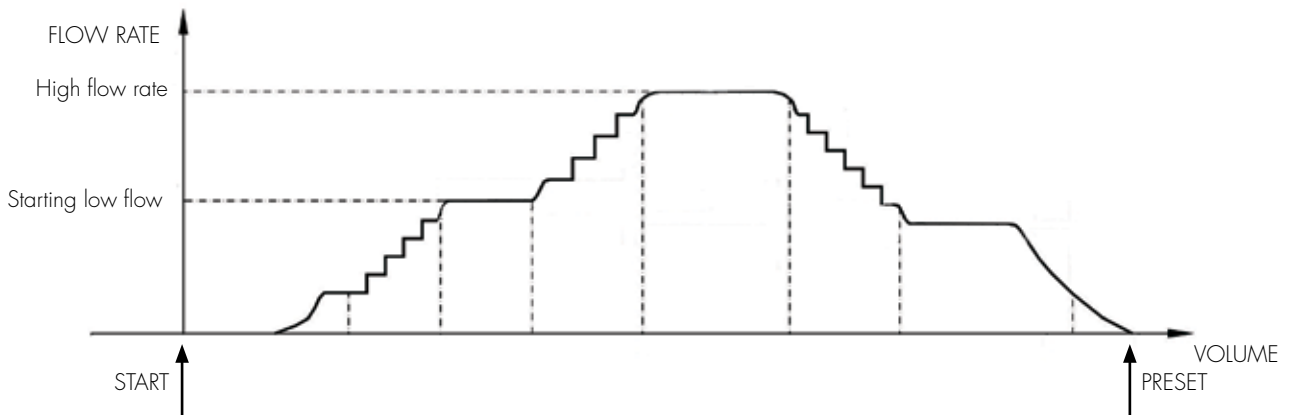
Typical functional diagram of 2SLR valve



### Multistep version

The ISE/N Multistep is a diaphragm automatic valve, controlled by two solenoid valves. The electronic flow computer drives the opening or closing of the solenoid valves causing a step by step opening or closing of the diaphragm. By modifying the frequency and height of the pulses generated by the flow computer, flow rate regulation is obtained.

Typical functional diagram of Multistep valve

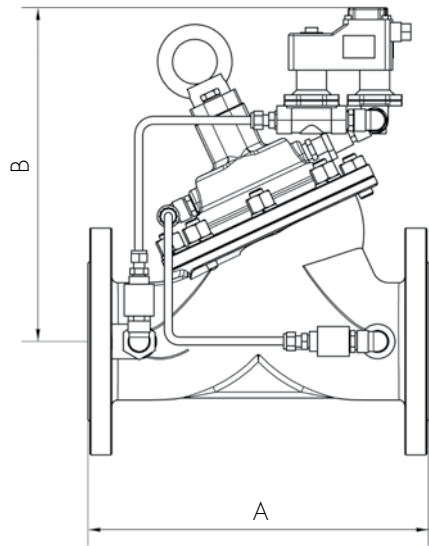
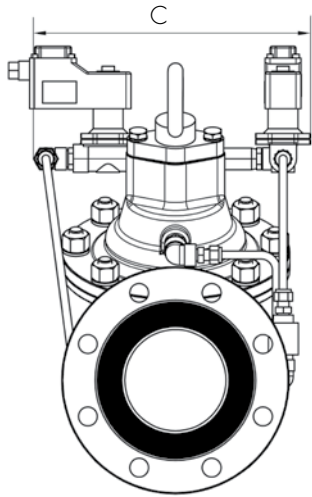


## Technical specifications

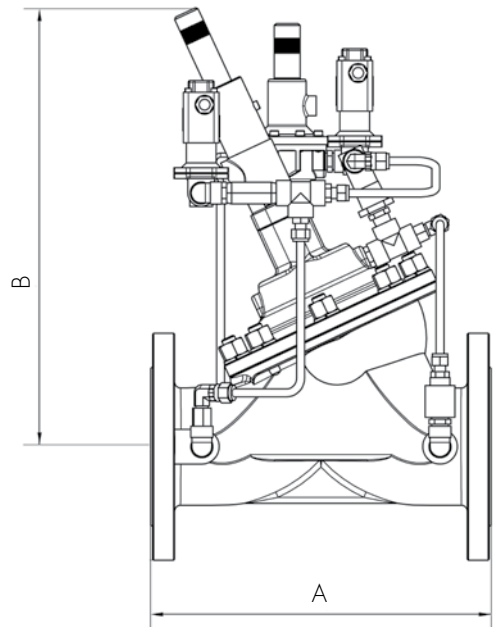
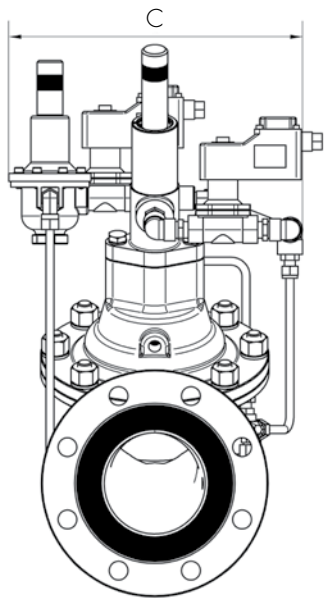
	STANDARD		ON REQUEST
	ISE/N 2SLR	ISE/N MULTISTEP	2SLR/MULTISTEP
<b>EU Directives compliance</b>			
PED (dir. 97/23/CE)	Compliant directive 97/23/CE, with risk category depending on the measured liquid		
ATEX (dir. 94/9/CE)	Non electrical equipment, compliant directive 94/9/CE		
<b>Working conditions</b>			
Diameters:	3" and 4"	3" and 4"	
Viscosity range:	≤76 cSt	≤76 cSt	76÷300 cSt on request
Working pressure:	1.000 KPa max	1.000 KPa max	
Min. differential pressure:	50kPa	50kPa	
Max. differential pressure:	1.000 KPa	1.000 KPa	
Working temperature:	[-10; +50] °C	[-10; +50] °C	Higher and lower available upon request
Max flow rate:	3": 1600 l/min 4": 2600 l/min	3": 1600 l/min 4": 2600 l/min	
<b>Construction</b>			
Body:	Carbon steel	Carbon steel	
Cover:	Carbon steel	Carbon steel	
Internal parts:	Stainless Steel	Stainless Steel	
Fittings:	Carbon steel with corrosion prevention treatment	Stainless Steel	
Gaskets:	Nitrile	Nitrile	Viton
Diaphragm:	NBR	NBR	Viton
Pilots:	Bronze/Brass	/	Stainless Steel
Piping:	Stainless Steel	Stainless Steel	Brass
Other materials in contact with liquid:	Brass/ tropicalized carbon steel	Brass/tropicalized carbon steel	
Flanges:	ANSI150 RF	ANSI150 RF	
Solenoid valves:	230 VAC 50 Hz Ex	230 VAC 50 Hz Ex	24 VDC /115 VAC
Solenoid valve material:	Brass	Brass	Stainless Steel



## Multistep



## 2SRL

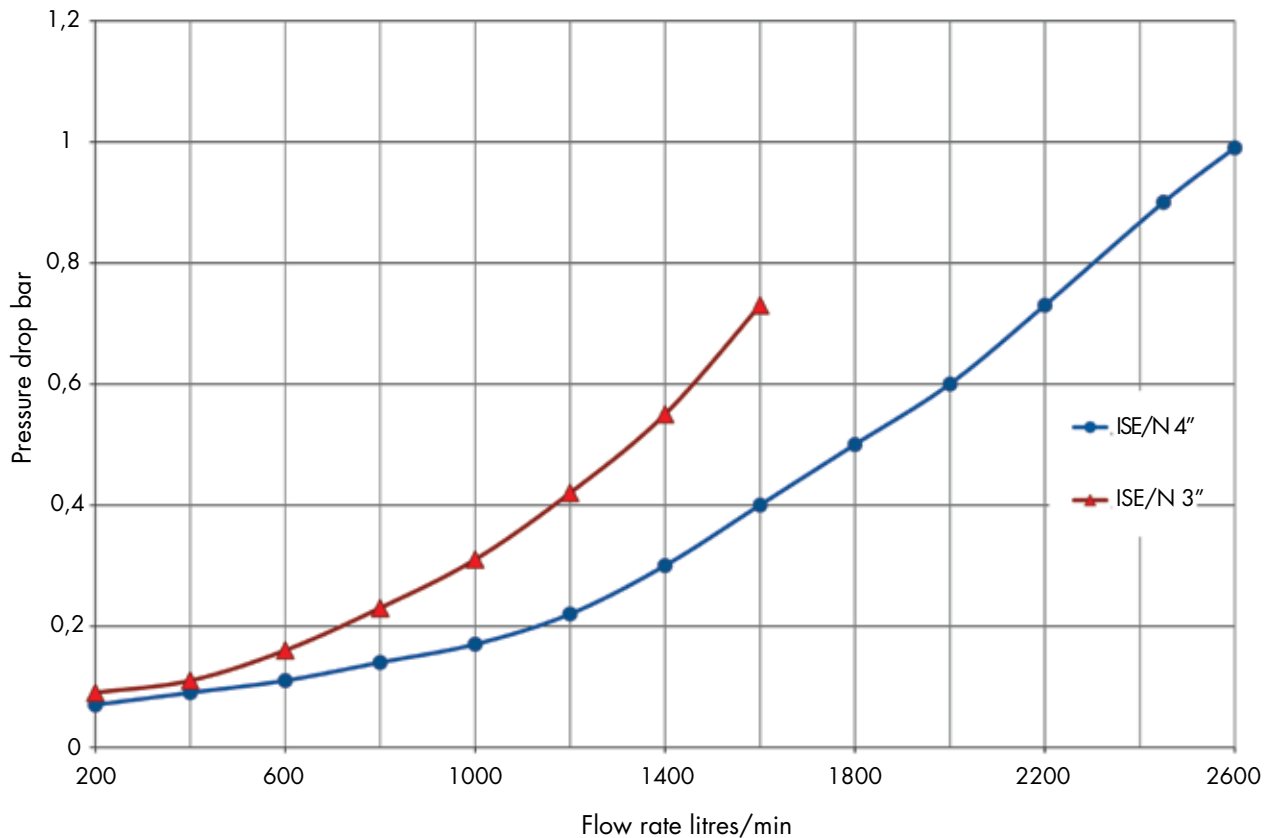


Dimensions	Multistep			2 SLR			Weight
	A	B	C	A	B	C	
<b>Nominal diameter</b>							
<b>3"</b>	305 mm	315 mm	290 mm	305 mm	405 mm	207 mm	30 Kg
<b>4"</b>	343 mm	345 mm	300 mm	343 mm	445 mm	300 mm	50 Kg



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## Diagram pressure drop



Fulid test: Viscosity 5 cSt and density 820 kg/m<sup>3</sup> at 15°C.  
The valve is not flow limiting.

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