

# Norval

Medium - Low Pressure Gas Regulator



**TECHNICAL BROCHURE**

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**[www.f Fiorentini.com](http://www.f Fiorentini.com)**

# Who we are

We are a global organization that specializes in designing and manufacturing technologically advanced solutions for natural gas treatment, transmission and distribution systems.

We are the ideal partner for operators in the Oil & Gas sector, with a business solutions that span the whole natural gas chain.

We are constantly evolving to meet our customers' highest expectations in terms of quality and reliability.

Our aim is to be a step ahead of the competition, with customized technologies and an after-sale service program undertaken with the highest level of professionalism.



## Pietro Fiorentini advantages



Localised technical support

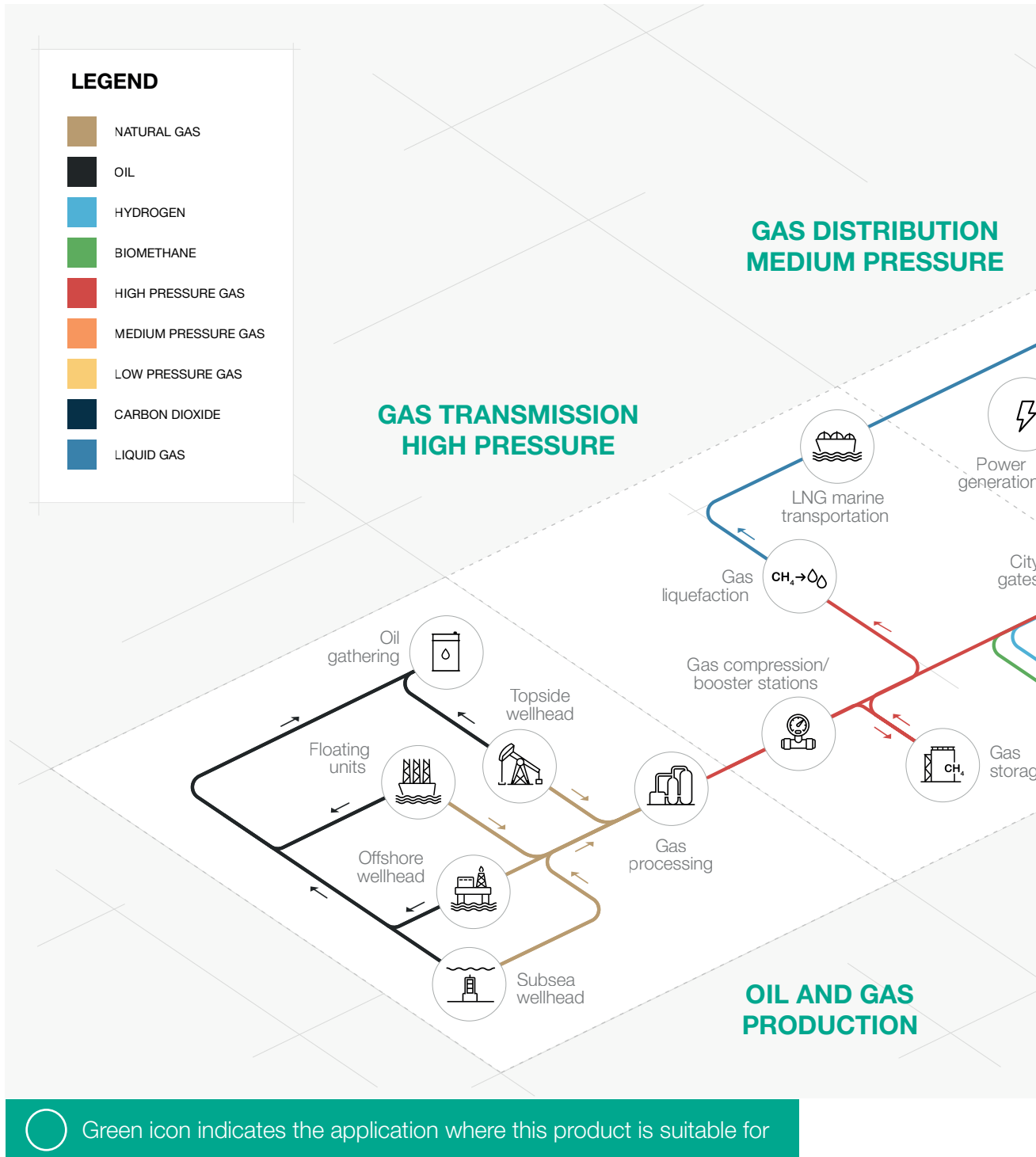


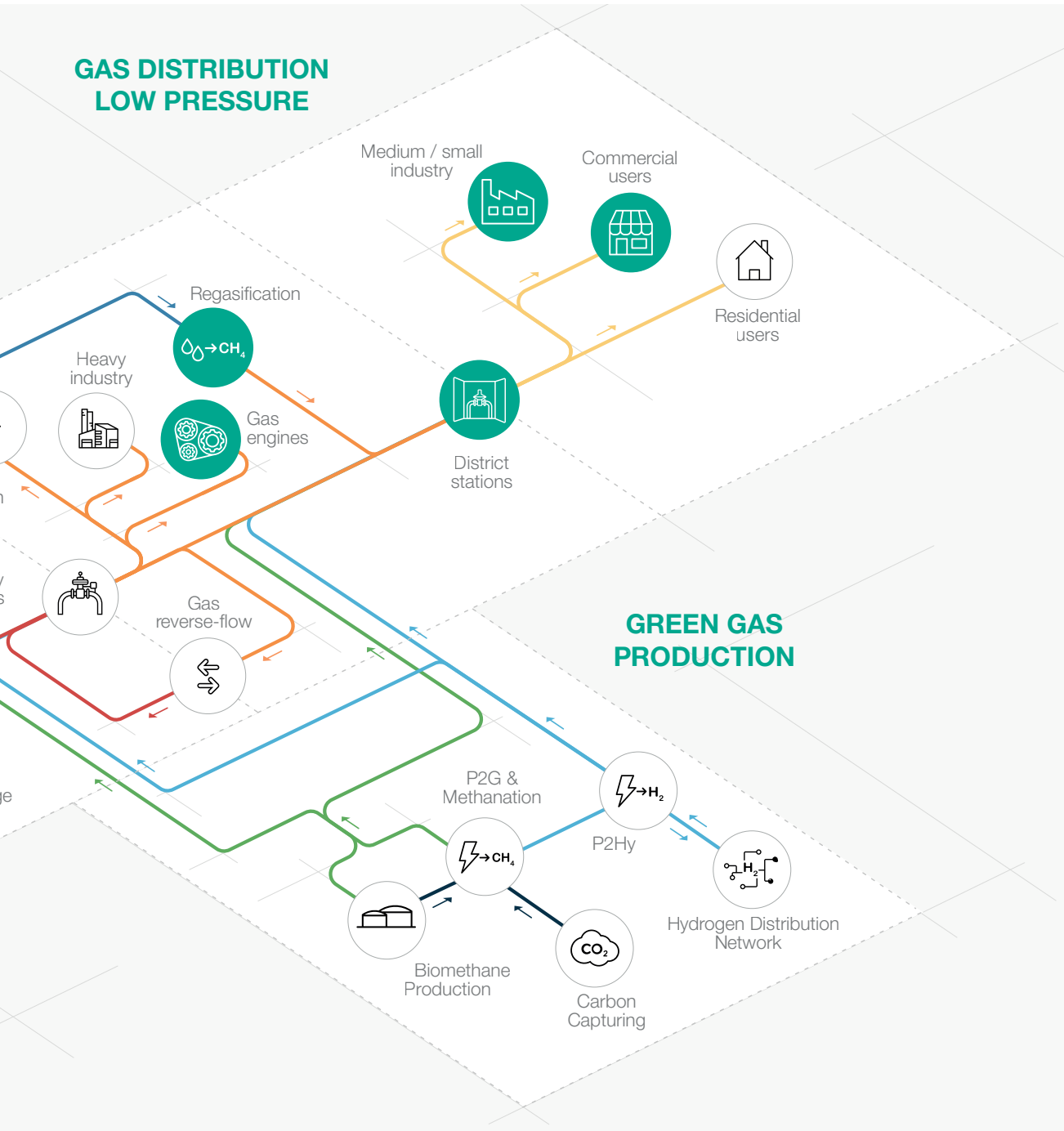
Experience since 1940



Operating in over 100 countries

# Area of Application





**Figure 1** Area of Application Map



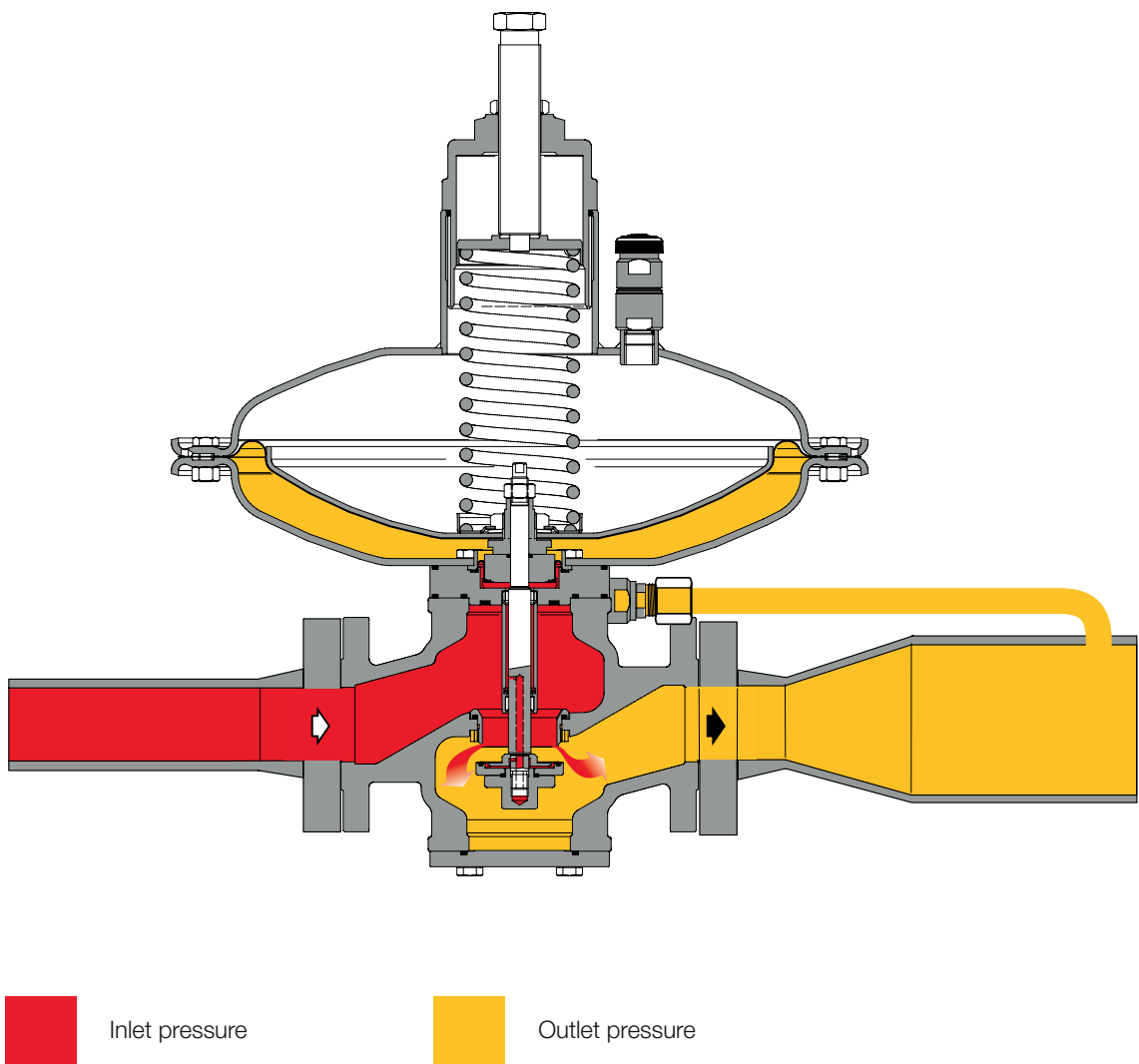
# Introduction

The **Norval** by Pietro Fiorentini is a **direct-operated** gas pressure regulator.

Suitable for use with previously filtered gaseous fluids, it is mainly used for medium and low pressure natural gas distribution networks.

It is classified as **Fail Open** according to the European Standard EN 334.

The Norval is **Hydrogen Ready** for NG-H2 blending.



**Figure 2** Norval

# Features and Calibration ranges

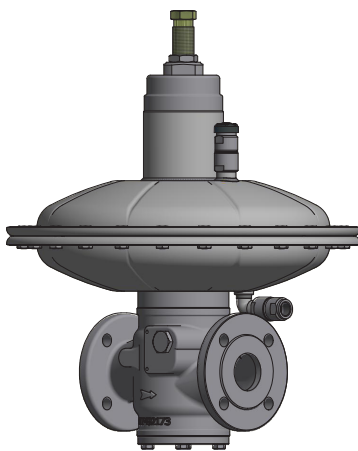
The **Norval** is a **direct-operated** device for medium pressure and low pressure with a unique **dynamic balancing system** which ensures an **outstanding turn down ratio** combined with an extremely **accurate outlet pressure control**.

A balanced pressure regulator it is a pressure regulator where delivery pressure accuracy it is not affected by the fluctuation of the inlet pressure and flow during its operation. Therefore, a balance pressure regulator can have a single orifice for all pressure and flow operating conditions.

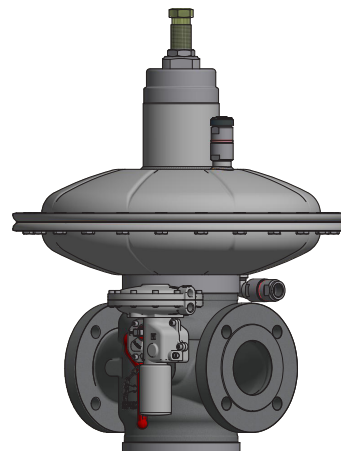
This regulator is suitable for use with previously filtered, non corrosive gases in distribution networks as well as high load industrial applications.

It is a **truly top entry design** which allows an **easy maintenance** of parts directly in the field **without removing the body from the pipework**.

The modular design of the Norval pressure regulators allows to retrofit either slam shut valve SN, ER monitor attachment or silencer.











**Figure 3** Norval



**Figure 4** Norval with SN slam shut valve



## Norval competitive advantages

- |                                                                                   |                                   |                                                                                   |                                                                                                  |
|-----------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|  | Compact and simple design         |  | Top Entry                                                                                        |
|  | High accuracy                     |  | Easy maintenance                                                                                 |
|  | Fail Open plug and seat regulator |  | In-built accessories                                                                             |
|  | Balanced type                     |  | Biomethane compatible and 20% Hydrogen blending compatible. Higher blending available on request |

## Features

Features	Values
Design pressure* (PS <sup>1</sup> / DP <sup>2</sup> )	up to 1.89 MPa up to 18.9 barg
Ambient temperature* (TS <sup>1</sup> )	from -20 °C to +60 °C from -4 °F to +140 °F
Inlet gas temperature*	from -20 °C to +60 °C from -4 °F to +140 °F
Inlet pressure (MAOP / p <sub>umax</sub> <sup>1</sup> )	<ul style="list-style-type: none"> <li>for DN up to 3": from 0.01 to 1.89 MPa   from 0.1 to 18.9 barg</li> <li>for DN 4", 6" and 8": from 0.01 to 0.8 MPa   from 0.1 to 8 barg</li> </ul>
Range of downstream pressure (Wd <sup>1</sup> )	<ul style="list-style-type: none"> <li>for DN up to 4": from 0.8 to 440 kPa   from 0.008 to 4.4 barg</li> <li>for DN 6" and 8": from 1.2 to 180 kPa   from 0.012 to 1.8 barg</li> </ul>
Available accessories	SN Slam shut, silencer, ER monitor attachment
Minimum operating differential pressure (Δp <sub>min</sub> <sup>1</sup> )	10 kPa 100 mbarg
Accuracy class (AC <sup>1</sup> )	up to 5 (depending on working conditions)
Lock-up pressure class (SG <sup>1</sup> )	up to 10 (depending on working conditions)
Nominal size (DN <sup>1,2</sup> )	DN 25   1"; DN 40   1" 1/2; DN 50   2"; DN 65   2" 1/2; DN 80   3"; DN 100   4"; DN 150   6"; DN 200   8"
Connections	Class 150 RF according to ASME B16.5 and PN16 according to ISO 7005

(<sup>1</sup>) according to EN334 standard

(<sup>2</sup>) according to ISO 23555-1 standard

(\*) NOTE: Different functional features and/or extended temperature ranges may be available on request. Stated inlet gas temperature range is the maximum for which the equipment's full performance, including accuracy is guaranteed. Product may have a different pressure or temperature ranges according to the version and/or installed accessories.

**Table 1** Features



# Materials and Approvals

Part	Material
Body	Cast steel ASTM A 216 WCB (all DN). Spheroidal ductile iron GS 400 – 18 ISO 1083 DN 150 (6") included.
Cover	From diameter 375 mm to 630 mm dye stamped carbon steel From diameter 658 mm to 817 mm Alluminium
Seat	Stainless steel
Diaphragm	Rubberized canvas (performed by hot-pressing process).
O-rings	Nitrile rubber
Compression fittings	On request

**NOTE:** The materials indicated above refer to the standard models. Different materials can be provided according to specific needs.

**Table 2** Materials

## Construction Standards and Approvals

The **Norval** regulator is designed according to the European standard EN 334.

The regulator reacts in opening (Fail Open) according to EN 334.

The product is certified according to European Directive 2014/68/EU (PED).

Leakage class: bubble tight, better than class VIII according to ANSI/FCI 70-3.



EN 334



PED-CE



# Design pressure by version

Design pressure (PS according to EN334)				
Version	Body		Slam shut	
	MPa	barg	MPa	barg
PN16 Steel body	1.60	16	1.89	18.9
PN16 cast iron body	1.60	16	1.89	18.9
#150 steel body	1.89	18.9	1.89	18.9
#150 ductile iron body	1.70	17	1.89	18.9

**Table 3** Design pressure for body and slam shut

Design pressure (PS according to EN334)												
Parts	Control head											
	375TR		375		495		630		658		817	
	MPa	barg	MPa	barg	MPa	barg	MPa	barg	MPa	barg	MPa	barg
Cover	1.60	16	1.60	16	1.60	16	1.00	10	0.10	1	0.10	1
Diaphragm for bodies DN 1" - 2"	0.90	9	0.55	5.5	0.03	0.3	-	-	-	-	-	-
Diaphragm for bodies DN 2"1/2 - 4"	0.90	9	0.55	5.5	0.11	1.1	0.03	0.3	-	-	-	-
Diaphragm for bodies DN 6" - 8"	-	-	-	-	0.37	3.75	0.15	1.5	0.10	1	0.03	0.3
Max Diaphragm Δp for bodies DN 1" - 2"	0.60	6	0.15	1.5	0.02	0.2	-	-	-	-	-	-
Max Diaphragm Δp for bodies DN 2"1/2 - 4"	0.60	6	0.37	3.75	0.07	0.75	0.02	0.2	-	-	-	-
Max Diaphragm Δp for bodies DN 6" - 8"	-	-	-	-	0.25	2.5	0.10	1	0.06	0.65	0.02	0.2

**Table 4** Design pressure for regulator's parts

# Maximum allowable operating pressure

MAOP Maximum Allowable Operating Pressure ( $p_{umax}$ according to EN334)													
Version	Control head												
	375TR		375		495		630		658		817		
	MPa	barg	MPa	barg	MPa	barg	MPa	barg	MPa	barg	MPa	barg	
WITHOUT CE MARKING	PN16 loose regulator DN < 4" (all body materials)	1.60	16	1.60	16	1.60	16	1.60	16	-	-	-	-
	#150 steel body loose regulator DN < 4"	1.89	18.9	1.89	18.9	1.89	18.9	1.89	18.9	-	-	-	-
	#150 ductile iron body loose regulator DN < 4"	1.70	17	1.70	17	1.70	17	1.70	17	-	-	-	-
	PN16/#150 regulator DN < 4" (all body materials) + SSV	1.89	18.9	1.89	18.9	1.89	18.9	1.89	18.9	-	-	-	-
	PN16/#150 regulator DN ≥ 4" (all body materials)	0.80	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	8
	PN16/#150 regulator DN ≥ 4" (all body materials) + SSV	0.80	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	8

**Table 5** MAOP Maximum Allowable Operating Pressure without CE marking

MAOP Maximum Allowable Operating Pressure ( $p_{umax}$ according to EN334)													
Version		Control head											
		375TR		375		495		630		658		817	
		MPa	barg	MPa	barg	MPa	barg	MPa	barg	MPa	barg	MPa	barg
WITH CE MARKING	PN16/#150 loose regulator DN < 4" (all body materials)	1.60	16	1.60	16	1.60	16	1.00	10	-	-	-	-
	PN16/#150 loose regulator DN < 4" (all body materials) + SSV	1.60	16	1.60	16	1.60	16	1.00	10	-	-	-	-
	PN16/#150 loose regulator DN >=4" (all body materials)	0.80	8	0.80	8	0.80	8	0.80	8	0.10	1	0.10	1
	PN16/#150 loose regulator DN >=4" (all body materials) + SSV	0.80	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	8

**Table 7** MAOP Maximum Allowable Operating Pressure with CE marking

# Springs ranges and control heads

Control heads pressure ranges									
Size (DN)	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	Spring Table web link
mm	kPa mbarg	kPa mbarg	kPa mbarg	kPa mbarg	kPa mbarg	kPa mbarg	kPa mbarg	kPa mbarg	
d. 817	-	-	-	-	-	-	1.2 - 7.9 12 - 79	1.2 - 7.9 12 - 79	<a href="#">TT 891</a>
d. 658	-	-	-	-	-	-	7.5 - 40.5 75 - 405	7.5 - 40.5 75 - 405	<a href="#">TT 891</a>
d. 630	-	-	-	1.0 - 8.0 10 - 80	1.0 - 8.0 10 - 80	1.2 - 8.0 12 - 80	22 - 65 220 - 650	22 - 65 220 - 650	<a href="#">TT 891</a>
d. 495	1.6 - 8.3 16 - 83	1.6 - 8.3 16 - 83	1.6 - 8.3 16 - 83	8 - 53 80 - 530	8 - 53 80 - 530	8 - 53 80 - 530	39 - 180 390 - 1800	39 - 180 390 - 1800	<a href="#">TT 891</a>
d. 375	8 - 110 80 - 1100	8 - 110 80 - 1100	8 - 110 80 - 1100	47 - 280 470 - 2800	47 - 280 470 - 2800	47 - 280 470 - 2800	-	-	<a href="#">TT 891</a>
d. 375/ TR	90 - 440 900 - 4400	90 - 440 900 - 4400	90 - 440 900 - 4400	90 - 440 900 - 4400	90 - 440 900 - 4400	90 - 440 900 - 4400	-	-	<a href="#">TT 891</a>

**Table 6** Settings table

General link to the calibration tables: [PRESS HERE](#) or use the QR code:





# Accessories

## For the pressure regulators:

- Position transmitter
- Silencer
- Slam shut valve
- Monitor attachment

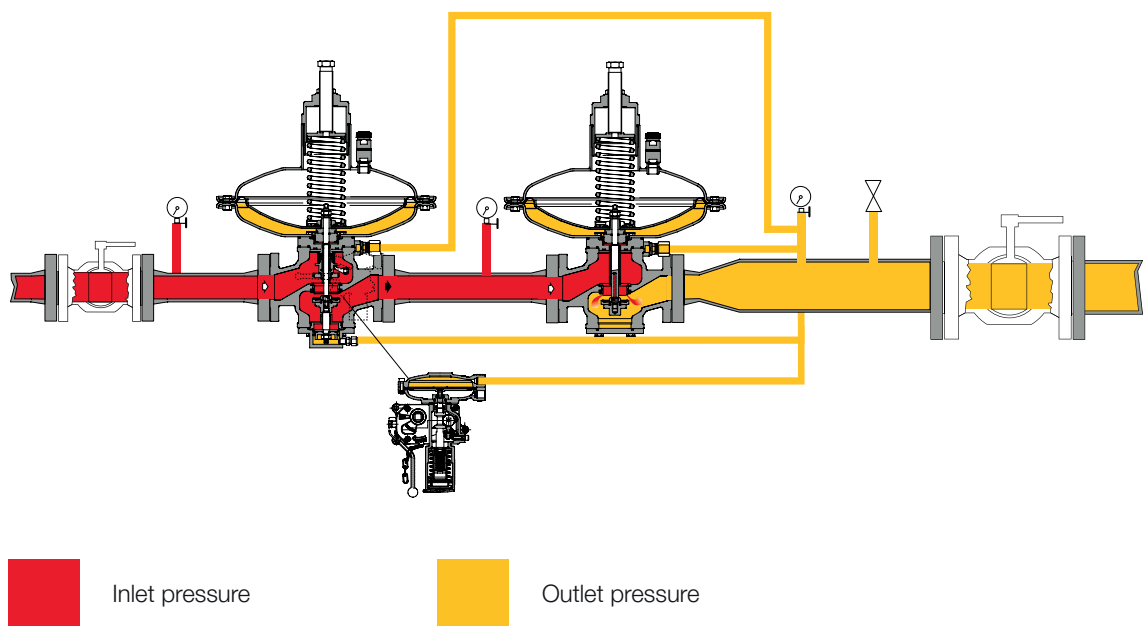
## In-line Monitor

**The in-line monitor is generally installed upstream** of the active regulator.

Although the function of the monitor regulator is different, the two regulators are virtually identical from the point of view of their mechanical components.

The only difference is that monitor is set at a higher pressure than active regulator.

The  $C_g$  coefficients of the worker regulator with an in-line monitor is the same, but during worker regulator sizing it shall be considered the differential pressure drop generated by the fully open in-line monitor. As a practice, to incorporate this effect a  $C_g$  reduction of 20% of the worker regulator can be applied.



**Figure 5** Norval inline monitor

## ER Monitor attachment

**This attachment is directly integrated** into the body of the monitor regulator.

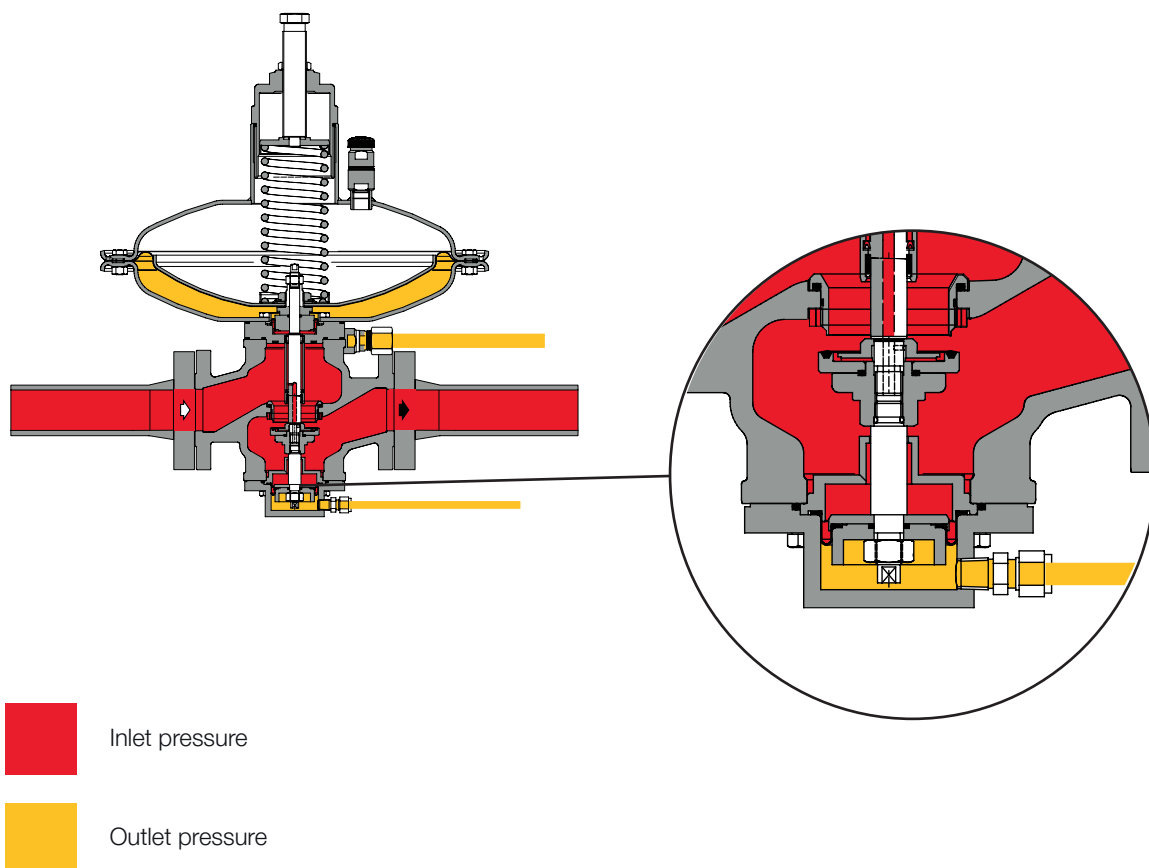
Typically inline monitor is normally in wide open position, therefore on fully balanced pressure regulator this specific condition made the regulator to be unbalanced.

The ER monitor attachment compensate this condition, balancing the monitor while in fully open position. **This attachment is strongly recommended to be installed on inline monitor.**

Another great advantage offered by the ER monitor attachment is that **it can be installed at any time**, even on an existing regulator to convert it from and active to an inline monitor.



Balanced type



**Figure 6** Norval with ER attachment



## Silencer

Whenever certain noise limit is desired, an additional silencer allows to considerably reduce the noise level (dBA).

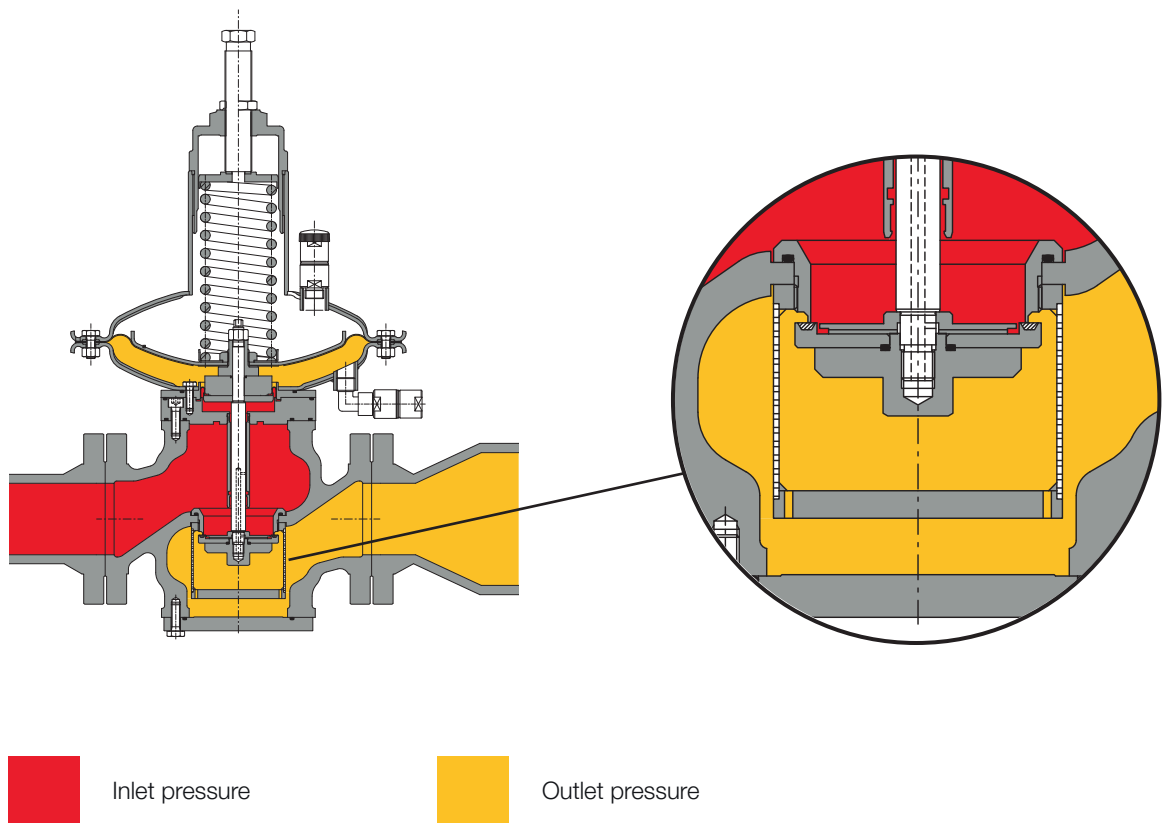
The Norval pressure regulator can be supplied with an **incorporated silencer** in either the standard version or version with incorporated slam shut or monitor regulator.

The high efficiency rely to the fact that noise absorption takes place at the same point where the noise is generated, thus preventing its propagation.

With the built-in silencer, the Cg valve coefficient is 5% lower than the corresponding version without.

Given the modular arrangement of the regulator, the silencer may be retrofitted to both standard Norval version as well as those with incorporated slam shut or monitor, **without the need to modify the main piping.**

Pressure reduction and control operate the same manner as standard version.



**Figure 7** Norval with silencer









## Slam Shut SN

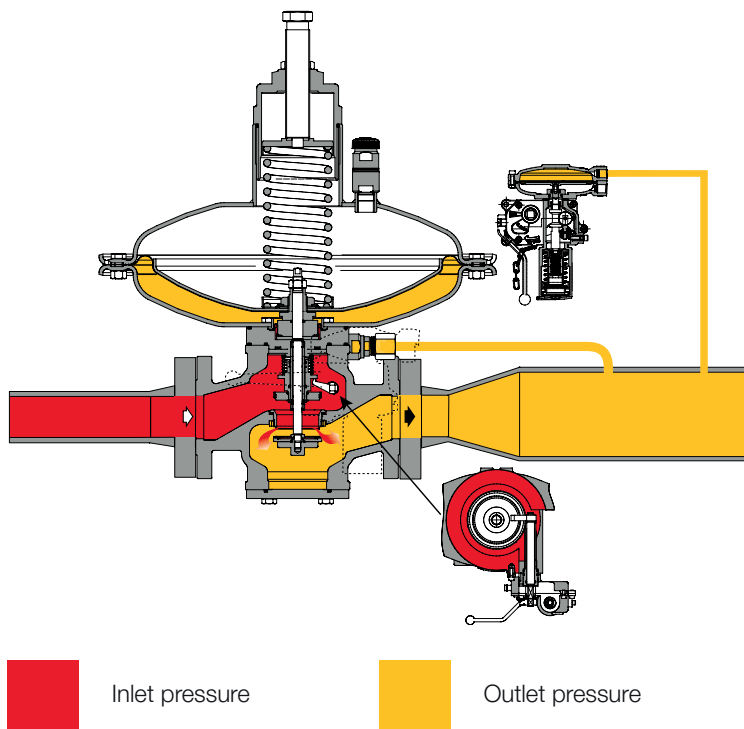
The Norval pressure regulator offers the possibility of installing an **incorporated slam shut valve** SN and this can be done either during the manufacturing process or be retrofitted in the field.

SN is available for all sizes.

With the built-in slam shut, the Cg valve coefficients is 5% lower than the corresponding version without.

The main characteristics of this device are:

- |                                                                                         |                               |                                                                                     |                        |
|-----------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------|
|  OPSO  | Over Pressure Shut-Off        |    | Compact dimensions     |
|  UPSO | Under Pressure Shut-Off       |   | Easy maintenance       |
|      | Internal by-pass              |  | Remote tripping option |
|      | Push button for tripping test |  | Limit switch option    |



**Figure 8** Norval with SN



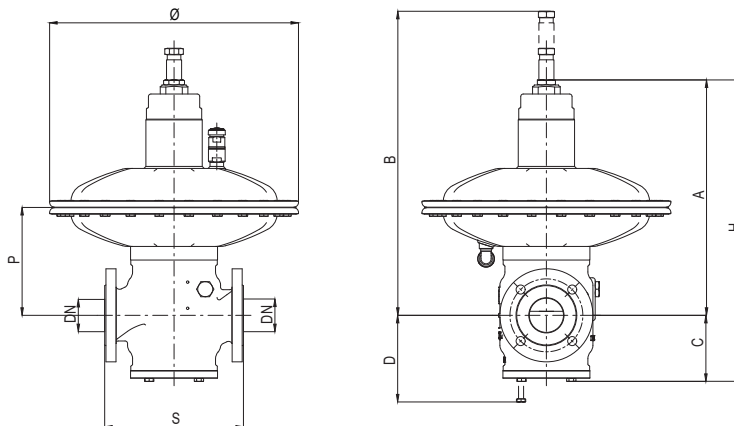
Pressure switch types and ranges					
SSV Type	Model	Operation	Range Wh		Spring Table web link
			kPa	mbarg	
SN	91	OPSO	2.5 - 110	25 - 1100	<a href="#">TT 1381</a>
		UPSO	1 - 90	10 - 900	
SN (Upside-down)	91	OPSO	2.5 - 110	25 - 1100	<a href="#">TT 1381</a>
		UPSO	1 - 90	10 - 900	
SSV Type	Model	Operation	Range Wh		Spring Table web link
			MPa	barg	
SN	92	OPSO	0.07 - 0.5	0.7 - 5	<a href="#">TT 1381</a>
		UPSO	0.025 - 0.301	0.25 - 3.01	

**Table 8** Settings table



# Weights and Dimensions

## Norval with or without silencer



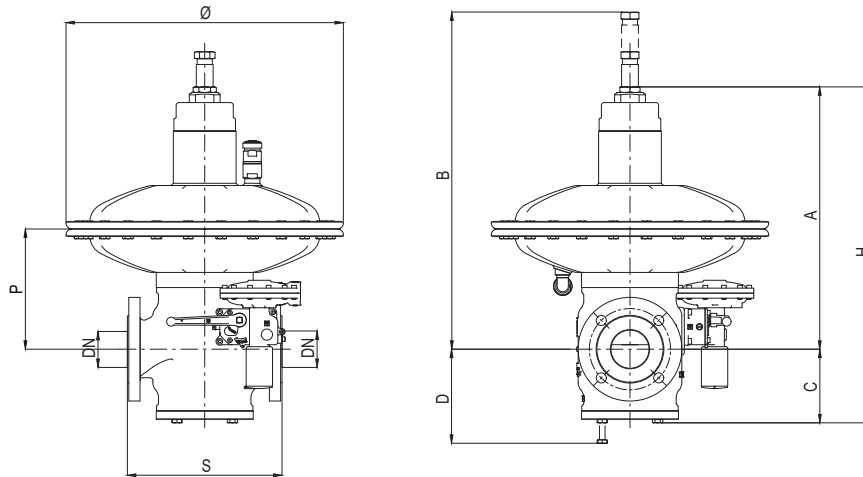
**Figure 9** Norval dimensions

Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative)								
	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches
Size (DN)	25   1"	40   1 1/2"	50   2"	65   2 1/2"	80   3"	100   4"	150   6"	200   8"
S - Ansi 150/PN 16	183   7.2"	223   8.8"	254   10"	277   10.9"	298   11.7"	352   13.9"	451   17.8"	543   21.4"
A with Ø 375TR	425   16.7"	445   17.5"	445   17.5"	465   18.3"	465   18.3"	565   22.2"	-	-
A with Ø 375	415   16.3"	435   17.1"	435   17.1"	455   17.9"	455   17.9"	555   21.8"	-	-
A with Ø 495	460   18.1"	475   18.7"	475   18.7"	500   19.7"	500   19.7"	600   23.6"	670   26.4"	770   26.4"
A with Ø 630	-	-	-	540   21.3"	540   21.3"	640   25.2"	675   26.6"	775   30.6"
A with Ø 658	-	-	-	-	-	-	720   28.3"	820   32.3"
A with Ø 817	-	-	-	-	-	-	760   29.9"	860   33.9"
B with Ø 375TR	595   23.4"	615   24.2"	615   24.2"	635   25"	635   25"	735   28.9"	-	-
B with Ø 375	585   23.0"	605   23.8"	605   23.8"	625   24.6"	625   24.6"	725   28.5"	-	-
B with Ø 495	630   24.8"	645   25.4"	645   25.4"	670   26.4"	670   26.4"	770   30.3"	840   33.1"	940   37"
B with Ø 630	-	-	-	710   27.9"	710   27.9"	810   31.9"	845   33.3"	845   33.3"
B with Ø 658	-	-	-	-	-	-	890   35"	990   39"
B with Ø 817	-	-	-	-	-	-	930   36.6"	1030   40.6"
C	100   3.94"	120   4.72"	120   4.72"	140   5.5"	140   5.5"	180   7.09"	220   8.66"	260   10.2"
D	140   5.5"	160   6.3"	160   6.3"	180   7.09"	180   7.09"	220   8.66"	260   10.2"	300   11.8"
H with Ø 375TR	525   20.7"	165   6.5"	575   22.6"	605   23.8"	505   19.9"	745   29.3"	-	-
H with Ø 375	515   20.3"	555   21.8"	555   21.8"	595   23.4"	595   23.4"	735   28.9"	-	-
H with Ø 495	560   22"	595   23.4"	595   23.4"	640   25.2"	640   25.2"	780   30.7"	890   35"	1200   47"
H with Ø 630	-	-	-	680   26.8"	680   26.8"	820   32.3"	895   35.2"	1105   43.5"
H with Ø 658	-	-	-	-	-	-	940   37"	1250   49.2"
H with Ø 817	-	-	-	-	-	-	980	1290
P with Ø 375TR	155   6.1"	170   6.7"	170   6.7"	195   7.7"	195   7.7"	280   11"	-	-
P with Ø 375	150   5.9"	165   6.5"	165   6.5"	190   7.5"	190   7.5"	275   10.8"	-	-
P with Ø 495	175   6.9"	190   7.5"	190   7.5"	210   8.3"	210   8.3"	300   11.8"	375   14.8"	475   18.7"
P with Ø 630	-	-	-	220   8.7"	220   8.7"	310   12.2"	380   15"	480   18.9"
P with Ø 658	-	-	-	-	-	-	380   15"	480   18.9"
P with Ø 817	-	-	-	-	-	-	400   15.7"	500   19.7"
Tube Connections	Øe 10 x Øi 8 (on request imperial sizing)							

Weight	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs
ANSI150/PN 16	44   97	48   106	50   110	75   165	92   203	121   267	206   454	291   641

**Table 9** Weights and dimensions

## Norval + SN with or without silencer



**Figure 10** Norval + SN dimensions

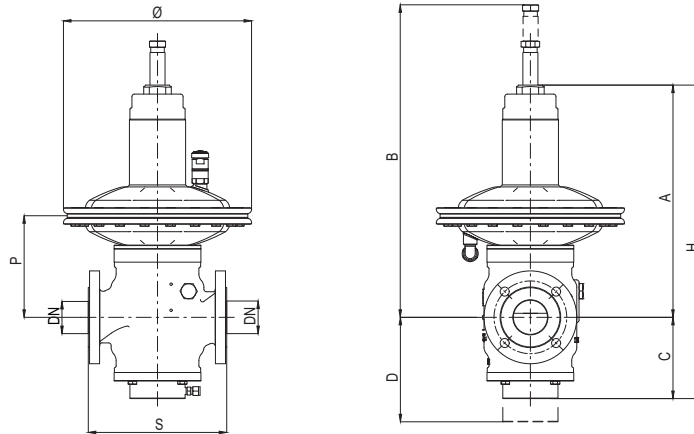
Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative)								
	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches
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S - Ansi 150/PN 16	183   7.2"	223   8.8"	254   10"	277   10.9"	298   11.7"	352   13.9"	451   17.8"	543   21.4"
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A with Ø 495	460   18.1"	475   18.7"	475   18.7"	500   19.7"	500   19.7"	600   23.6"	670   26.4"	770   26.4"
A with Ø 630	-	-	-	540   21.3"	540   21.3"	640   25.2"	675   26.6"	775   30.6"
A with Ø 658	-	-	-	-	-	-	720   28.3"	820   32.3"
A with Ø 817	-	-	-	-	-	-	760   29.9"	860   33.9"
B with Ø 375TR	595   23.4"	615   24.2"	615   24.2"	635   25"	635   25"	735   28.9"	-	-
B with Ø 375	585   23.0"	605   23.8"	605   23.8"	625   24.6"	625   24.6"	725   28.5"	-	-
B with Ø 495	630   24.8"	645   25.4"	645   25.4"	670   26.4"	670   26.4"	770   30.3"	840   33.1"	940   37"
B with Ø 630	-	-	-	710   27.9"	710   27.9"	810   31.9"	845   33.3"	845   33.3"
B with Ø 658	-	-	-	-	-	-	890   35"	990   39"
B with Ø 817	-	-	-	-	-	-	930   36.6"	1030   40.6"
C	100   3.94"	120   4.72"	120   4.72"	140   5.5"	140   5.5"	180   7.09"	220   8.66"	260   10.2"
D	140   5.5"	160   6.3"	160   6.3"	180   7.09"	180   7.09"	220   8.66"	260   10.2"	300   11.8"
H with Ø 375TR	525   20.7"	165   6.5"	575   22.6"	605   23.8"	505   19.9"	745   29.3"	-	-
H with Ø 375	515   20.3"	555   21.8"	555   21.8"	595   23.4"	595   23.4"	735   28.9"	-	-
H with Ø 495	560   22"	595   23.4"	595   23.4"	640   25.2"	640   25.2"	780   30.7"	890   35"	1200   47"
H with Ø 630	-	-	-	680   26.8"	680   26.8"	820   32.3"	895   35.2"	1105   43.5"
H with Ø 658	-	-	-	-	-	-	940   37"	1250   49.2"
H with Ø 817	-	-	-	-	-	-	980	1290
P with Ø 375TR	155   6.1"	170   6.7"	170   6.7"	195   7.7"	195   7.7"	280   11"	-	-
P with Ø 375	150   5.9"	165   6.5"	165   6.5"	190   7.5"	190   7.5"	275   10.8"	-	-
P with Ø 495	175   6.9"	190   7.5"	190   7.5"	210   8.3"	210   8.3"	300   11.8"	375   14.8"	475   18.7"
P with Ø 630	-	-	-	220   8.7"	220   8.7"	310   12.2"	380   15"	480   18.9"
P with Ø 658	-	-	-	-	-	-	380   15"	480   18.9"
P with Ø 817	-	-	-	-	-	-	400   15.7"	500   19.7"
Tube Connections	Øe 10 x Øi 8 (on request imperial sizing)							

Weight	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs
ANSI150/PN 16	48   106	53   117	55   121	82   181	97   214	126   278	211   465	296   653

**Table 10** Weights and dimensions

# Norval + ER attachment

with or without silencer



**Figure 11** Norval + ER attachment dimensions

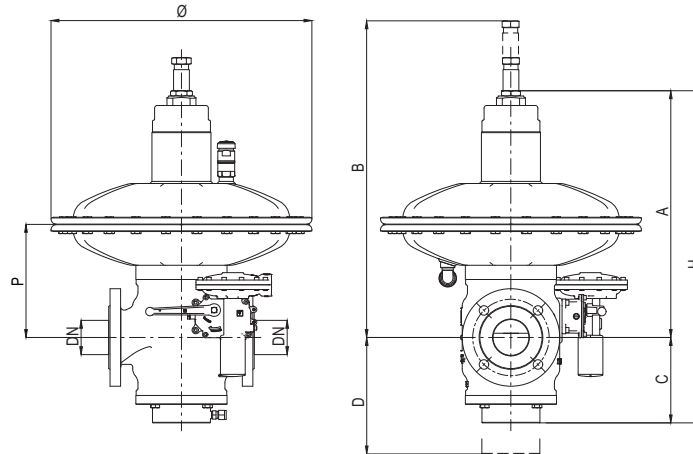
Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative)								
	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches
Size (DN)	25   1"	40   1 1/2"	50   2"	65   2 1/2"	80   3"	100   4"	150   6"	200   8"
S - Ansi 150/PN 16	183   7.2"	223   8.8"	254   10"	277   10.9"	298   11.7"	352   13.9"	451   17.8"	543   21.4"
A with Ø 375TR	425   16.7"	445   17.5"	445   17.5"	465   18.3"	465   18.3"	565   22.2"	-	-
A with Ø 375	415   16.3"	435   17.1"	435   17.1"	455   17.9"	455   17.9"	555   21.8"	-	-
A with Ø 495	460   18.1"	475   18.7"	475   18.7"	500   19.7"	500   19.7"	600   23.6"	670   26.4"	770   26.4"
A with Ø 630	-	-	-	540   21.3"	540   21.3"	640   25.2"	675   26.6"	775   30.6"
A with Ø 658	-	-	-	-	-	-	720   28.3"	820   32.3"
A with Ø 817	-	-	-	-	-	-	760   29.9"	860   33.9"
B with Ø 375TR	595   23.4"	615   24.2"	615   24.2"	635   25"	635   25"	735   28.9"	-	-
B with Ø 375	585   23.0"	605   23.8"	605   23.8"	625   24.6"	625   24.6"	725   28.5"	-	-
B with Ø 495	630   24.8"	645   25.4"	645   25.4"	670   26.4"	670   26.4"	770   30.3"	840   33.1"	940   37"
B with Ø 630	-	-	-	710   27.9"	710   27.9"	810   31.9"	845   33.3"	845   33.3"
B with Ø 658	-	-	-	-	-	-	890   35"	990   39"
B with Ø 817	-	-	-	-	-	-	930   36.6"	1030   40.6"
C	200   7.9"	220   8.66"	220   8.66"	240   9.45"	240   9.45"	280   11"	320   12.6"	360   14.2"
D	250   9.8"	270   10.6"	270   10.6"	290   11.4"	290   11.4"	330   13"	370   14.6"	410   16.1"
H with Ø 375TR	625   24.6"	665   26.2"	665   26.2"	705   27.8"	705   27.8"	845   33.3"	-	-
H with Ø 375	615   24.2"	655   25.8"	655   25.8"	695   27.4"	695   27.4"	835   33"	-	-
H with Ø 495	660   26"	695   27"	695   27"	740   29"	740   29"	880   34.6"	990   39"	1130   44.5"
H with Ø 630	-	-	-	780   30.7"	780   30.7"	920   36.2"	995   39.2"	1135   44.7"
H with Ø 658	-	-	-	-	-	-	1040   41"	1180   46.5"
H with Ø 817	-	-	-	-	-	-	1080   42.5"	1220   48"
P with Ø 375TR	155   6.1"	170   6.7"	170   6.7"	195   7.7"	195   7.7"	280   11"	-	-
P with Ø 375	150   5.9"	165   6.5"	165   6.5"	190   7.5"	190   7.5"	275   10.8"	-	-
P with Ø 495	175   6.9"	190   7.5"	190   7.5"	210   8.3"	210   8.3"	300   11.8"	375   14.8"	475   18.7"
P with Ø 630	-	-	-	220   8.7"	220   8.7"	310   12.2"	380   15"	480   18.9"
P with Ø 658	-	-	-	-	-	-	380   15"	480   18.9"
P with Ø 817	-	-	-	-	-	-	400   15.7"	500   19.7"
Tube Connections	Øe 10 x Ø 8 (on request imperial sizing)							

Weight	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs
ANSI150/PN 16	48   106	55   121	58   128	85   187	100   220	129   284	216   476	302   666

**Table 11** Weights and dimensions



## Norval + SN + ER attachment with or without silencer



**Figure 12** Norval + SN + ER attachment dimensions

Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative)								
	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches	[mm]   inches
Size (DN)	25   1"	40   1 1/2"	50   2"	65   2 1/2"	80   3"	100   4"	150   6"	200   8"
S - Ansi 150/PN 16	183   7.2"	223   8.8"	254   10"	277   10.9"	298   11.7"	352   13.9"	451   17.8"	543   21.4"
A with Ø 375TR	425   16.7"	445   17.5"	445   17.5"	465   18.3"	465   18.3"	565   22.2"	-	-
A with Ø 375	415   16.3"	435   17.1"	435   17.1"	455   17.9"	455   17.9"	555   21.8"	-	-
A with Ø 495	460   18.1"	475   18.7"	475   18.7"	500   19.7"	500   19.7"	600   23.6"	670   26.4"	770   26.4"
A with Ø 630	-	-	-	540   21.3"	540   21.3"	640   25.2"	675   26.6"	775   30.6"
A with Ø 658	-	-	-	-	-	-	720   28.3"	820   32.3"
A with Ø 817	-	-	-	-	-	-	760   29.9"	860   33.9"
B with Ø 375TR	595   23.4"	615   24.2"	615   24.2"	635   25"	635   25"	735   28.9"	-	-
B with Ø 375	585   23.0"	605   23.8"	605   23.8"	625   24.6"	625   24.6"	725   28.5"	-	-
B with Ø 495	630   24.8"	645   25.4"	645   25.4"	670   26.4"	670   26.4"	770   30.3"	840   33.1"	940   37"
B with Ø 630	-	-	-	710   27.9"	710   27.9"	810   31.9"	845   33.3"	845   33.3"
B with Ø 658	-	-	-	-	-	-	890   35"	990   39"
B with Ø 817	-	-	-	-	-	-	930   36.6"	1030   40.6"
C	200   7.9"	220   8.66"	220   8.66"	240   9.45"	240   9.45"	280   11"	320   12.6"	360   14.2"
D	250   9.8"	270   10.6"	270   10.6"	290   11.4"	290   11.4"	330   13"	370   14.6"	410   16.1"
H with Ø 375TR	625   24.6"	665   26.2"	665   26.2"	705   27.8"	705   27.8"	845   33.3"	-	-
H with Ø 375	615   24.2"	655   25.8"	655   25.8"	695   27.4"	695   27.4"	835   33"	-	-
H with Ø 495	660   26"	695   27"	695   27"	740   29"	740   29"	880   34.6"	990   39"	1130   44.5"
H with Ø 630	-	-	-	780   30.7"	780   30.7"	920   36.2"	995   39.2"	1135   44.7"
H with Ø 658	-	-	-	-	-	-	1040   41"	1180   46.5"
H with Ø 817	-	-	-	-	-	-	1080   42.5"	1220   48"
P with Ø 375TR	155   6.1"	170   6.7"	170   6.7"	195   7.7"	195   7.7"	280   11"	-	-
P with Ø 375	150   5.9"	165   6.5"	165   6.5"	190   7.5"	190   7.5"	275   10.8"	-	-
P with Ø 495	175   6.9"	190   7.5"	190   7.5"	210   8.3"	210   8.3"	300   11.8"	375   14.8"	475   18.7"
P with Ø 630	-	-	-	220   8.7"	220   8.7"	310   12.2"	380   15"	480   18.9"
P with Ø 658	-	-	-	-	-	-	380   15"	480   18.9"
P with Ø 817	-	-	-	-	-	-	400   15.7"	500   19.7"
Tube Connections	Øe 10 x Øi 8 (on request imperial sizing)							

Weight	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs	Kg   lbs
ANSI150/PN 16	53   117	60   132	63   139	90   198	105   33	134   295	221   487	307   677

**Table 12** Weights and dimensions

# Sizing and Cg

In general, the choice of a regulator is made based on the calculation of the flow rate determined by the use of formulae using the flow rate coefficients (Cg) and the form factor (K1) as indicated by the EN 334 standard.

Flow rate coefficient								
Nominal size	25	40	50	65	80	100	150	200
Inches	1"	1" 1/2	2"	2" 1/2	3"	4"	6"	8"
Cg	331	848	1360	2240	3395	5100	10600	16600
K1	106.78	106.78	106.78	106.78	106.78	106.78	106.78	106.78

**Table 13** Flow rate coefficient

For sizing [PRESS HERE](#) or use the QR code:



**Note:** In case you do not have the proper credentials to access, feel free to contact your closest Pietro Fiorentini representative.

In general the online sizing considers multiple variables as the regulator is installed in a system, enabling a better and multiperspective approach to the sizing.

For different gases, and for natural gas with a different relative density other than 0.61 (compared to air), the correction coefficients from the following formula shall be applied.

$$F_c = \sqrt{\frac{175.8}{S \times (273.16 + T)}}$$

S = relative density (refer to Table 14)  
T = gas temperature ( °C )

$$F_c = \sqrt{\frac{316.44}{S \times (459.67 + T)}}$$

S = relative density (refer to Table 14)  
T = gas temperature ( °F )



Correction Factor Fc		
Gas Type	Relative Density S	Correction Factor Fc
Air	1.00	0.78
Propane	1.53	0.63
Butane	2.00	0.55
Nitrogen	0.97	0.79
Oxygen	1.14	0.73
Carbon Dioxide	1.52	0.63

Note: the table shows the Fc correction factors valid for Gas, calculated at a temperature of 15°C and at the declared relative density.

**Table 14** Correction Factor Fc

Flow rate conversion
Stm <sup>3</sup> /h x 0.94795 = Nm <sup>3</sup> /h

Nm<sup>3</sup>/h reference conditions T= 0 °C; P= 1 barg  
 Stm<sup>3</sup>/h reference conditions T= 15 °C; P= 1 barg

**Table 15** Flow rate conversion

**CAUTION:**

In order to get optimal performance, to avoid premature erosion phenomena and to limit noise emissions, it is recommended to check the gas speed and its compliance with local practice and regulations. The gas speed at the outlet flange may be calculated by means of the following formula:

$$V = 345.92 \times \frac{Q}{DN^2} \times \frac{1 - 0.002 \times Pd}{1 + Pd}$$

$$V = 0.0498 \times \frac{Q}{DN^2} \times \frac{14.504 - 0.002 \times Pd}{14.504 + Pd}$$

V = gas speed in m/s  
 Q = gas flow rate in Stm<sup>3</sup>/h  
 DN = nominal size of regular in mm  
 Pd = outlet pressure in barg

V = gas speed in ft/s  
 Q = gas flow rate in Scfh  
 DN = nominal size of regular in inches  
 Pd = outlet pressure in psi

## Norval - DN 1" d.495 mm

from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		2 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	215	7500	210	7400	210	7400	210	7400	200	7000
0.1	1	250	8800	260	9100	310	10900	310	10900	310	10900
0.2	2	300	10500	290	10200	450	15800	470	16500	470	16500
0.4	4	310	10900	300	10500	480	16900	500	17600	600	21100
0.8	8	350	12300	360	12700	500	17600	550	19400	620	21800
1.0	10	370	13000	390	13700	540	19000	600	21100	680	24000
1.6	16	550	19400	540	19000	580	20400	650	22900	740	26100

CG = 331    K1= 106.78

**Table 16** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		2 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	280	9800	280	9800	230	8100	250	8800	270	9500
0.1	1	340	12000	340	12000	350	12300	370	13000	400	14100
0.2	2	470	16500	470	16500	500	17600	500	17600	550	19400
0.4	4	480	16900	480	16900	550	19400	550	19400	700	24700
0.8	8	520	18300	600	21100	680	24000	650	22900	880	31000
1.0	10	540	19000	650	22900	720	25400	750	26400	900	31700
1.6	16	630	22200	750	26400	800	28200	800	28200	1000	35300

CG = 331    K1= 106.78

**Table 17** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg



# Norval - DN 1" d.375 mm

from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		53 kPa 530 mbarg		76 kPa 760 mbarg		110 kPa 1100 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	200	7000	180	6300	-	-	-	-	-	-
0.1	1	310	10900	310	10900	260	9100	194	6800	-	-
0.2	2	470	16500	450	15800	480	16900	450	15800	400	14100
0.4	4	600	21100	500	17600	820	28900	800	28200	800	28200
0.8	8	620	21800	580	20400	1080	38100	1200	42300	1400	49400
1.0	10	680	24000	620	21800	1080	38100	1250	44100	1500	52900
1.6	16	740	26100	700	24700	1080	38100	1250	44100	1500	52900

CG = 331    K1= 106.78

**Table 18** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		53 kPa 530 mbarg		76 kPa 760 mbarg		110 kPa 1100 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	270	9500	180	6300	-	-	-	-	-	-
0.1	1	400	14100	340	12000	350	12300	264	9300	-	-
0.2	2	550	19400	600	21100	600	21100	540	19000	550	19400
0.4	4	700	24700	700	24700	950	33500	1000	35300	1000	35300
0.8	8	880	31000	850	30000	1300	45900	1550	54700	1600	56400
1.0	10	900	31700	900	31700	1350	47600	1550	54700	1800	63500
1.6	16	1000	35300	1020	36000	1350	47600	1550	54700	1850	52900

CG = 331    K1= 106.78

**Table 19** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg



## Norval - DN 1" d.375/TR mm

from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	200	7000	-	-	-	-	-	-	-	-
0.1	1	310	10900	-	-	-	-	-	-	-	-
0.2	2	450	15800	340	12000	-	-	-	-	-	-
0.4	4	500	17600	800	28200	700	24700	450	15800	-	-
0.8	8	540	19000	1450	51100	1450	51100	1450	51100	1350	47600
1.0	10	550	19400	1750	61700	1800	63500	1800	63500	1800	63500
1.6	16	600	21100	1750	61700	2300	81200	2700	95300	2800	98800

CG = 331    K1= 106.78

**Table 20** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	270	9500	-	-	-	-	-	-	-	-
0.1	1	400	14100	-	-	-	-	-	-	-	-
0.2	2	550	19400	540	19000	-	-	-	-	-	-
0.4	4	650	22900	1000	35300	950	33500	900	31700	-	-
0.8	8	800	28200	1600	56400	1800	63500	2000	70600	2000	70600
1.0	10	900	31700	1800	63500	2100	74100	2400	84700	2500	88200
1.6	16	980	34600	2200	77600	2700	95300	3200	112900	3300	116500

CG = 331    K1= 106.78

**Table 21** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg



# Norval - DN 1" 1/2 d.495 mm

from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

## flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		2 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	550	19400	520	18300	540	19000	520	18300	520	18300
0.1	1	650	22900	650	22900	800	28200	800	28200	800	28200
0.2	2	800	28200	750	26400	1150	40600	1200	42300	1200	42300
0.4	4	850	30000	780	27500	1200	42300	1300	45900	1500	52900
0.8	8	900	31700	900	31700	1300	45900	1500	52900	1700	60000
1.0	10	1000	35300	1000	35300	1350	47600	1600	56400	1800	63500
1.6	16	1450	51100	1400	49400	1600	56400	1800	63500	1950	68800

CG = 848    K1= 106.78

**Table 22** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		2 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	680	24000	680	24000	650	22900	650	22900	700	24700
0.1	1	850	30000	850	30000	850	30000	850	30000	900	31700
0.2	2	1200	42300	1200	42300	1200	42300	1200	42300	1400	49400
0.4	4	1250	44100	1250	44100	1400	49400	1400	49400	1600	56400
0.8	8	1300	45900	1400	49400	1750	61700	1750	61700	1900	67000
1.0	10	1300	45900	1450	51100	1850	65300	1850	65300	2000	70600
1.6	16	1600	56400	1750	61700	2000	70600	2000	70600	2100	74100

CG = 848    K1= 106.78

**Table 23** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

## Norval - DN 1" 1/2 d.375 mm

from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		53 kPa 530 mbarg		76 kPa 760 mbarg		110 kPa 1100 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	520	18300	500	17600	-	-	-	-	-	-
0.1	1	800	28200	800	28200	650	22900	484	17000	-	-
0.2	2	1200	42300	1200	42300	1200	42300	1100	38800	1050	37000
0.4	4	1500	52900	1500	52900	2000	70600	2000	70600	2000	70600
0.8	8	1700	60000	1800	63500	2700	95300	3000	105900	3500	123500
1.0	10	1800	63500	1900	67000	2800	98800	3200	112900	3700	130600
1.6	16	1950	68800	2100	74100	2800	98800	3200	112900	3800	134100

CG = 848    K1= 106.78

**Table 24** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		53 kPa 530 mbarg		76 kPa 760 mbarg		110 kPa 1100 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	700	24700	550	19400	-	-	-	-	-	-
0.1	1	900	31700	800	28200	850	30000	641	22600	-	-
0.2	2	1400	49400	1500	52900	1500	52900	1500	52900	1300	45900
0.4	4	1600	56400	1700	60000	2700	95300	2600	91800	2500	88200
0.8	8	1900	67000	2000	70600	3450	121800	4000	141200	4300	151800
1.0	10	2000	70600	2100	74100	3450	121800	4000	141200	4400	155300
1.6	16	2100	74100	2600	91800	3450	121800	4000	141200	4750	167700

CG = 848    K1= 106.78

**Table 25** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg



## Norval - DN 1" 1/2 d.375/TR mm

from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	520	18300	-	-	-	-	-	-	-	-
0.1	1	800	28200	-	-	-	-	-	-	-	-
0.2	2	1200	42300	850	30000	-	-	-	-	-	-
0.4	4	1300	45900	2000	70600	1700	60000	1150	40600	-	-
0.8	8	1300	45900	3600	127100	3600	127100	3600	127100	3400	120000
1.0	10	1300	45900	3800	134100	4400	155300	4500	158800	4500	158800
1.6	16	1500	52900	4500	158800	6500	229500	6800	240100	6800	240100

CG = 848    K1= 106.78

**Table 26** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	700	24700	-	-	-	-	-	-	-	-
0.1	1	900	31700	-	-	-	-	-	-	-	-
0.2	2	1400	49400	1300	45900	-	-	-	-	-	-
0.4	4	1500	52900	2700	95300	2700	95300	2000	70600	-	-
0.8	8	1750	61700	4300	151800	4500	158800	5500	194200	6000	211800
1.0	10	1800	63500	4500	158800	5000	176500	6500	229500	7000	247100
1.6	16	1900	67000	5500	194200	6500	229500	8000	282400	9000	317700

CG = 848    K1= 106.78

**Table 27** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

## Norval - DN 2" d.495 mm

from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		2 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	900	31700	880	31000	880	31000	870	30700	850	30000
0.1	1	1000	35300	1050	37000	1300	45900	1300	45900	1300	45900
0.2	2	1200	42300	1230	43400	1880	66300	2000	70600	2000	70600
0.4	4	1200	42300	1200	42300	1970	69500	2200	77600	2500	88200
0.8	8	1480	52200	1480	52200	2050	72300	2400	84700	2550	90000
1.0	10	1600	56400	1600	56400	2200	77600	2500	88200	2800	98800
1.6	16	2270	80100	2270	80100	2750	97100	2800	98800	3050	107600

CG = 1360    K1= 106.78

**Table 28** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		2 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1120	39500	1200	42300	1225	43200	1220	43000	1220	43000
0.1	1	1400	49400	1500	52900	1700	60000	1700	60000	1700	60000
0.2	2	1960	69200	2300	81200	2500	88200	2500	88200	2600	91800
0.4	4	2000	70600	2400	84700	2810	99200	2600	91800	3400	120000
0.8	8	2100	74100	2600	91800	2820	99500	3100	109400	3650	128800
1.0	10	2100	74100	2700	95300	2900	102300	3200	112900	3650	128800
1.6	16	2600	91800	3000	105900	3250	114700	3400	120000	3800	134100

CG = 1360    K1= 106.78

**Table 29** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg



## Norval - DN 2" d.375 mm

from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		53 kPa 530 mbarg		76 kPa 760 mbarg		110 kPa 1100 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	850	30000	800	28200	-	-	-	-	-	-
0.1	1	1300	45900	1250	44100	1050	37000	801	28200	-	-
0.2	2	2000	70600	1900	67000	2000	70600	1900	67000	1700	60000
0.4	4	2500	88200	2100	74100	3300	116500	3400	120000	3400	120000
0.8	8	2550	90000	2300	81200	4300	151800	5000	176500	6000	211800
1.0	10	2800	98800	2400	84700	4300	151800	5000	176500	6000	211800
1.6	16	3050	107600	3000	105900	4300	151800	5000	176500	6000	211800

CG = 1360    K1= 106.78

**Table 30** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		53 kPa 530 mbarg		76 kPa 760 mbarg		110 kPa 1100 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1220	43000	900	31700	-	-	-	-	-	-
0.1	1	1700	60000	1400	49400	1500	52900	1269	44800	-	-
0.2	2	2600	91800	2600	91800	2700	95300	2600	91800	2690	94900
0.4	4	3400	120000	2900	102300	4900	173000	4860	171600	4900	173000
0.8	8	3650	128800	3300	116500	5500	194200	6200	218900	7400	261200
1.0	10	3650	128800	3500	123500	5500	194200	6200	218900	7400	261200
1.6	16	3800	134100	4100	144700	5500	194200	6200	218900	7400	261200

CG = 1360    K1= 106.78

**Table 31** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 110 kPa | 1100 mbarg

## Norval - DN 2" d.375/TR mm

from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	850	30000	-	-	-	-	-	-	-	-
0.1	1	1300	45900	-	-	-	-	-	-	-	-
0.2	2	1850	65300	1400	49400	-	-	-	-	-	-
0.4	4	1850	65300	3400	120000	2900	102300	1900	67000	-	-
0.8	8	1780	62800	6100	215300	6100	215300	6200	218900	5600	197700
1.0	10	1780	62800	7000	247100	7500	264800	7500	264800	7500	264800
1.6	16	2350	82900	7000	247100	9500	335400	11500	406000	11500	406000

CG = 1360    K1= 106.78

**Table 32** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1160	40900	-	-	-	-	-	-	-	-
0.1	1	1700	60000	-	-	-	-	-	-	-	-
0.2	2	2420	85400	2300	81200	-	-	-	-	-	-
0.4	4	2670	94200	5400	190600	4200	148300	3000	105900	-	-
0.8	8	2700	95300	7700	271800	9000	317700	10000	353100	9800	346000
1.0	10	2700	95300	8500	300100	11000	388400	12000	423700	12500	441300
1.6	16	3080	108700	8800	310700	12000	423700	14000	494300	15000	529600

CG = 1360    K1= 106.78

**Table 33** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg



## Norval - DN 2" 1/2 d.630 mm

from 2.0 kPa | 20 mbarg up to 8 kPa | 80 mbarg  
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		2.0 kPa   20 mbarg		4 kPa   40 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1400	49400	1450	51100	1450	51100	1450	51100	1400	49400
0.1	1	1800	63500	1900	67000	2100	74100	2150	75900	2100	74100
0.2	2	2100	74100	2200	77600	3200	112900	3200	112900	3300	116500
0.4	4	2200	77600	2300	81200	3500	123500	3300	116500	3800	134100
0.8	8	2400	84700	2500	88200	3700	130600	3600	127100	4100	144700
1.0	10	2500	88200	2700	95300	3800	134100	3800	134100	4200	148300
1.6	16	2700	95300	3700	130600	4000	141200	4200	148300	4500	158800

CG = 2240    K1 = 106.78

**Table 34** Norval flow rate with outlet pressure from 2.0 kPa | 20 mbarg up to 8 kPa | 80 mbarg

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.0 kPa   10 mbarg		2 kPa   20 mbarg		4 kPa   40 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1550	54700	1550	54700	1500	52900	1500	52900	1500	52900
0.1	1	2300	81200	2300	81200	2300	81200	2250	79400	2250	79400
0.2	2	3200	112900	3550	125300	3550	125300	3550	125300	3550	125300
0.4	4	3300	116500	5900	208300	5900	208300	5900	208300	5900	208300
0.8	8	6100	215300	6200	218900	6300	222400	6350	224200	6450	227700
1.0	10	6100	215300	6200	218900	6300	222400	6350	224200	6450	227700
1.6	16	5800	204700	6200	218900	6300	222400	6350	224200	6450	227700

CG = 2240    K1 = 106.78

**Table 35** Norval flow rate with outlet pressure from 2.0 kPa | 20 mbarg up to 8 kPa | 80 mbarg



## Norval - DN 2" 1/2 d.495 mm

from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg		40 kPa 400 mbarg		53 kPa 530 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1400	49400	1400	49400	1400	49400	1450	51100	1450	51100
0.1	1	1800	63500	1800	63500	1800	63500	1900	67000	2100	74100
0.2	2	2100	74100	2100	74100	2100	74100	2200	77600	3200	112900
0.4	4	2200	77600	2200	77600	2200	77600	2300	81200	3500	123500
0.8	8	2400	84700	2400	84700	2400	84700	2500	88200	3700	130600
1.0	10	2500	88200	2500	88200	2700	95300	2700	95300	3800	134100
1.6	16	2700	95300	2700	95300	3700	130600	3700	130600	4000	141200

CG = 2240    K1= 106.78

**Table 36** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg		40 kPa 400 mbarg		53 kPa 530 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1550	54700	1550	54700	1550	54700	1550	54700	1500	52900
0.1	1	2300	81200	2300	81200	2300	81200	2300	81200	2300	81200
0.2	2	3200	112900	3200	112900	3550	125300	3550	125300	3550	125300
0.4	4	3300	116500	3300	116500	5900	208300	5900	208300	5900	208300
0.8	8	6100	215300	6100	215300	6150	217100	6200	218900	6300	222400
1.0	10	6100	215300	6100	215300	6150	217100	6200	218900	6300	222400
1.6	16	5800	204700	5800	204700	6150	217100	6200	218900	6300	222400

CG = 2240    K1= 106.78

**Table 37** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg



## Norval - DN 2" 1/2 d.375 mm

from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		53 kPa 530 mbarg		90 kPa 900 mbarg		150 kPa 1500 mbarg		200 kPa 2000 mbarg		260 kPa 2600 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	-	-	-	-	-	-	-	-	-	-
0.1	1	1800	63500	-	-	-	-	-	-	-	-
0.2	2	3000	105900	3000	105900	2350	82900	-	-	-	-
0.4	4	5700	201200	4700	165900	5500	194200	5200	183600	4750	167700
0.8	8	7300	257700	7000	247100	9500	335400	10000	353100	9000	317700
1.0	10	7300	257700	7500	264800	10000	353100	12000	423700	11000	388400
1.6	16	7300	257700	8600	303600	11000	388400	12000	423700	15000	529600

CG = 2240    K1= 106.78

**Table 38** Norval flow rate with outlet pressure from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		53 kPa 530 mbarg		90 kPa 900 mbarg		150 kPa 1500 mbarg		200 kPa 2000 mbarg		260 kPa 2600 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	-	-	-	-	-	-	-	-	-	-
0.1	1	1850	65300	-	-	-	-	-	-	-	-
0.2	2	3450	121800	3200	112900	2450	86500	-	-	-	-
0.4	4	5900	208300	5900	208300	5900	208300	5450	192400	4900	173000
0.8	8	9200	324800	10600	374200	10600	374200	10600	374200	10600	374200
1.0	10	9200	324800	11400	402500	13000	459000	13000	459000	13000	459000
1.6	16	9200	324800	11400	402500	14900	526100	17900	632000	20000	706200

CG = 2240    K1= 106.78

**Table 39** Norval flow rate with outlet pressure from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg

## Norval - DN 2" 1/2 d.375/TR mm

from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1400	49400	-	-	-	-	-	-	-	-
0.1	1	2100	74100	-	-	-	-	-	-	-	-
0.2	2	3000	105900	2350	82900	-	-	-	-	-	-
0.4	4	3200	112900	5500	194200	4750	167700	3100	109400	-	-
0.8	8	3400	120000	9500	335400	9000	317700	9000	317700	9000	317700
1.0	10	3600	127100	10000	353100	11000	388400	11000	388400	11000	388400
1.6	16	4000	141200	11000	388400	15000	529600	18000	635500	18000	635500

CG = 1360    K1= 106.78

**Table 40** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	1500	52900	-	-	-	-	-	-	-	-
0.1	1	2250	79400	-	-	-	-	-	-	-	-
0.2	2	3550	125300	2450	86500	-	-	-	-	-	-
0.4	4	5900	208300	5900	208300	4900	173000	3300	116500	-	-
0.8	8	6550	231200	10600	374200	10600	374200	10600	374200	9850	347800
1.0	10	6550	231200	13000	459000	13000	459000	13000	459000	13000	459000
1.6	16	6550	231200	14900	526100	20000	706200	20000	706200	20000	706200

CG = 1360    K1= 106.78

**Table 41** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg



## Norval - DN 3" d.630 mm

from 1.0 kPa | 10 mbarg up to 8 kPa | 80 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.0 kPa   10 mbarg		2 kPa   20 mbarg		4 kPa   40 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	2200	77600	2200	77600	2200	77600	2200	77600	2150	75900
0.1	1	2900	102300	3000	105900	3300	116500	3200	112900	3000	105900
0.2	2	5000	176500	5000	176500	5100	180000	4700	165900	5136	181300
0.4	4	5000	176500	5000	176500	6000	211800	4900	173000	5500	194200
0.8	8	3000	105900	5000	176500	6500	229500	5200	183600	6000	211800
1.0	10	3000	105900	5000	176500	6500	229500	5400	190600	6100	215300
1.6	16	3000	105900	5500	194200	6500	229500	5600	197700	6300	222400

CG = 3395    K1 = 106.78

**Table 42** Norval flow rate with outlet pressure from 1.0 kPa | 10 mbarg up to 8 kPa | 80 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.0 kPa   10 mbarg		2 kPa   20 mbarg		4 kPa   40 mbarg		6 kPa   60 mbarg		8 kPa   80 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	2400	84700	2300	81200	2700	95300	2250	79400	2650	93500
0.1	1	3500	123500	3450	121800	3400	120000	3400	120000	3400	120000
0.2	2	5300	187100	5350	188900	5350	188900	5350	188900	6050	213600
0.4	4	7500	264800	8900	314200	8900	314200	8900	314200	8900	314200
0.8	8	9200	324800	9400	331900	9500	335400	9600	338900	9800	346000
1.0	10	9200	324800	9400	331900	9500	335400	9600	338900	9800	346000
1.6	16	9200	324800	9400	331900	9500	335400	9600	338900	9800	346000

CG = 3395    K1 = 106.78

**Table 43** Norval flow rate with outlet pressure from 1.0 kPa | 10 mbarg up to 8 kPa | 80 mbarg

## Norval - DN 3" d.495 mm

from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg		40 kPa 400 mbarg		53 kPa 530 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	2200	77600	2200	77600	2200	77600	2200	77600	2200	77600
0.1	1	2900	102300	2900	102300	3000	105900	3000	105900	3300	116500
0.2	2	5000	176500	5000	176500	5000	176500	5000	176500	5100	180000
0.4	4	5000	176500	5000	176500	5000	176500	5000	176500	6000	211800
0.8	8	3000	105900	3000	105900	5000	176500	5000	176500	6500	229500
1.0	10	3000	105900	3000	105900	4500	158800	5000	176500	6500	229500
1.6	16	3000	105900	3000	105900	5500	194200	5500	194200	6500	229500

CG = 3395    K1= 106.78

**Table 44** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg		40 kPa 400 mbarg		53 kPa 530 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	2400	84700	2400	84700	2300	81200	2300	81200	2700	95300
0.1	1	3500	123500	3500	123500	3400	120000	3450	121800	3400	120000
0.2	2	5300	187100	5300	187100	5350	188900	5350	188900	5350	188900
0.4	4	7500	264800	7500	264800	7000	247100	8900	314200	8900	314200
0.8	8	9200	324800	9200	324800	9300	328300	9400	331900	9500	335400
1.0	10	9200	324800	9200	324800	9300	328300	9400	331900	9500	335400
1.6	16	9200	324800	9200	324800	9300	328300	9400	331900	9500	335400

CG = 3395    K1= 106.78

**Table 45** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg



## Norval - DN 3" d.375 mm

from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg  
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		53 kPa 530 mbarg		90 kPa 900 mbarg		150 kPa 1500 mbarg		200 kPa 2000 mbarg		260 kPa 2600 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	-	-	-	-	-	-	-	-	-	-
0.1	1	2700	95300	-	-	-	-	-	-	-	-
0.2	2	5000	176500	3985	140700	3600	127100	-	-	-	-
0.4	4	8700	307100	7018	247800	8200	289500	8000	282400	7200	254200
0.8	8	11000	388400	10100	356600	14000	494300	15000	529600	14000	494300
1.0	10	11000	388400	12000	423700	16000	564900	19000	670800	16000	564900
1.6	16	11000	388400	13700	483700	16000	564900	20000	706200	25000	882700

CG = 3395    K1= 106.78

**Table 46** Norval flow rate with outlet pressure from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		53 kPa 530 mbarg		90 kPa 900 mbarg		150 kPa 1500 mbarg		200 kPa 2000 mbarg		260 kPa 2600 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	-	-	-	-	-	-	-	-	-	-
0.1	1	2800	98800	-	-	-	-	-	-	-	-
0.2	2	5200	183600	4850	171200	3700	130600	-	-	-	-
0.4	4	8950	316000	8950	316000	8950	316000	8250	291300	7450	263000
0.8	8	13900	490800	16000	564900	16100	568400	16100	568400	16100	568400
1.0	10	13900	490800	17200	607300	19700	695600	19700	695600	19700	695600
1.6	16	13900	490800	17200	607300	22600	798000	27200	960400	30400	1073400

CG = 3395    K1= 106.78

**Table 47** Norval flow rate with outlet pressure from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg

## Norval - DN 3" d.375/TR mm

from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	2150	75900	-	-	-	-	-	-	-	-
0.1	1	3000	105900	-	-	-	-	-	-	-	-
0.2	2	4595	162200	3600	127100	-	-	-	-	-	-
0.4	4	5459	192700	8200	289500	7200	254200	4800	169400	-	-
0.8	8	5151	181800	14000	494300	14000	494300	15500	547300	14500	511900
1.0	10	5300	187100	16000	564900	16000	564900	19000	670800	19000	670800
1.6	16	5700	201200	16000	564900	25000	882700	25000	882700	25000	882700

CG = 3395    K1= 106.78

**Table 48** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	2600	91800	-	-	-	-	-	-	-	-
0.1	1	3400	120000	-	-	-	-	-	-	-	-
0.2	2	5550	195900	3700	130600	-	-	-	-	-	-
0.4	4	6550	231200	8950	316000	7450	263000	5000	176500	-	-
0.8	8	9900	349500	16100	568400	16100	568400	16100	568400	14900	526100
1.0	10	9900	349500	19700	695600	19700	695600	19700	695600	19700	695600
1.6	16	9900	349500	22600	798000	30400	1073400	30400	1073400	30400	1073400

CG = 3395    K1= 106.78

**Table 49** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg



## Norval - DN 4" d.630 mm

from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		2 kPa 20 mbarg		4 kPa 40 mbarg		5 kPa 50 mbarg		6 kPa 60 mbarg		8 kPa 80 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	3300	116500	3200	112900	3300	116500	3300	116500	3000	105900
0.075	0.75	4100	144700	4000	141200	4000	141200	4000	141200	3800	134100
0.1	1	4500	158800	4500	158800	4500	158800	4500	158800	4500	158800
0.2	2	7000	247100	6500	229500	7000	247100	7000	247100	7000	247100
0.4	4	8000	282400	6000	211800	9000	317700	9000	317700	8000	282400
0.6	6	8000	282400	6200	218900	9000	317700	9000	317700	8200	289500
0.8	8	8000	282400	6400	225900	9000	317700	9000	317700	9000	317700

CG = 5100    K1= 106.78

**Table 50** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		2 kPa 20 mbarg		4 kPa 40 mbarg		5 kPa 50 mbarg		6 kPa 60 mbarg		8 kPa 80 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	3400	120000	3400	120000	3400	120000	3300	116500	3300	116500
0.075	0.75	4300	151800	4300	151800	4300	151800	4300	151800	4200	148300
0.1	1	4800	169400	4800	169400	4800	169400	4800	169400	4800	169400
0.2	2	7000	247100	7000	247100	7000	247100	7000	247100	7000	247100
0.4	4	9000	317700	9000	317700	9000	317700	9000	317700	9000	317700
0.6	6	10598	374200	10000	353100	10000	353100	10000	353100	10000	353100
0.8	8	12000	423700	12000	423700	12000	423700	12000	423700	12000	423700

CG = 5100    K1= 106.78

**Table 51** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 8 kPa | 80 mbarg



## Norval - DN 4" d.495 mm

from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg		53 kPa 530 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3000	105900	2900	102300	2500	88200	2450	86500	-	-
0.075	0.75	3800	134100	3800	134100	3800	134100	3700	130600	2148	75800
0.1	1	4500	158800	4500	158800	4800	169400	4600	162400	4000	141200
0.2	2	7000	247100	7000	247100	7000	247100	6500	229500	7500	264800
0.4	4	8000	282400	7500	264800	9000	317700	8000	282400	10000	353100
0.6	6	8200	289500	8000	282400	10000	353100	9000	317700	12000	423700
0.8	8	9000	317700	9000	317700	11000	388400	10000	353100	13000	459000

CG = 5100    K1= 106.78

**Table 52** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		8 kPa 80 mbarg		15 kPa 150 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg		53 kPa 530 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3300	116500	3000	105900	2550	90000	2550	90000	-	-
0.075	0.75	4200	148300	3800	134100	3800	134100	3800	134100	2903	102500
0.1	1	4800	169400	4800	169400	4800	169400	4800	169400	4200	148300
0.2	2	7000	247100	7000	247100	7000	247100	7000	247100	7700	271800
0.4	4	9000	317700	9000	317700	9000	317700	9000	317700	10000	353100
0.6	6	10000	353100	10000	353100	10000	353100	10000	353100	12000	423700
0.8	8	12000	423700	12000	423700	12000	423700	12000	423700	14000	494300

CG = 5100    K1= 106.78

**Table 53** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 53 kPa | 530 mbarg



## Norval - DN 4" d.375 mm

from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		53 kPa 530 mbarg		90 kPa 900 mbarg		150 kPa 1500 mbarg		200 kPa 2000 mbarg		260 kPa 2600 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	-	-	-	-	-	-	-	-	-	-
0.075	0.75	2148	75800	-	-	-	-	-	-	-	-
0.1	1	4000	141200	-	-	-	-	-	-	-	-
0.2	2	7500	264800	6500	229500	4500	158800	-	-	-	-
0.4	4	10000	353100	11000	388400	12000	423700	12000	423700	8500	300100
0.6	6	12000	423700	13000	459000	18000	635500	18000	635500	14613	515900
0.8	8	13000	459000	15000	529600	21000	741500	19000	670800	20000	706200

CG = 5100    K1= 106.78

**Table 54** Norval flow rate with outlet pressure from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		53 kPa 530 mbarg		90 kPa 900 mbarg		150 kPa 1500 mbarg		200 kPa 2000 mbarg		260 kPa 2600 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	-	-	-	-	-	-	-	-	-	-
0.075	0.75	2903	102500	-	-	-	-	-	-	-	-
0.1	1	4200	148300	-	-	-	-	-	-	-	-
0.2	2	7700	271800	7300	257700	5500	194200	-	-	-	-
0.4	4	10000	353100	11000	388400	13500	476600	12500	441300	10000	353100
0.6	6	12000	423700	14000	494300	18000	635500	18000	635500	16606	586300
0.8	8	14000	494300	16100	568400	22000	776800	20000	706200	22000	776800

CG = 5100    K1= 106.78

**Table 55** Norval flow rate with outlet pressure from 53 kPa | 530 mbarg up to 260 kPa | 2600 mbarg

## Norval - DN 4" d.375/TR mm

from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3200	112900	-	-	-	-	-	-	-	-
0.075	0.75	4100	144700	-	-	-	-	-	-	-	-
0.1	1	4500	158800	-	-	-	-	-	-	-	-
0.2	2	7000	247100	4500	158800	-	-	-	-	-	-
0.4	4	9000	317700	12000	423700	8500	300100	6000	211800	-	-
0.6	6	9000	317700	18000	635500	14613	515900	15292	539900	12000	423700
0.8	8	9000	317700	21000	741500	20000	706200	22000	776800	18000	635500

CG = 5100 K1= 106.78

**Table 56** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		90 kPa 900 mbarg		150 kPa 1500 mbarg		260 kPa 2600 mbarg		350 kPa 3500 mbarg		440 kPa 4400 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3300	116500	-	-	-	-	-	-	-	-
0.075	0.75	4200	148300	-	-	-	-	-	-	-	-
0.1	1	4800	169400	-	-	-	-	-	-	-	-
0.2	2	7000	247100	5500	194200	-	-	-	-	-	-
0.4	4	9000	317700	13500	476600	10000	353100	7400	261200	-	-
0.6	6	10000	353100	18000	635500	16606	586300	17320	611500	14700	519000
0.8	8	12000	423700	22000	776800	22000	776800	24100	850900	22400	790900

CG = 5100 K1= 106.78

**Table 57** Norval flow rate with outlet pressure from 90 kPa | 900 mbarg up to 440 kPa | 4400 mbarg



## Norval - DN 6" d.817 mm

from 2 kPa | 20 mbarg up to 7 kPa | 70 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		2 kPa   20 mbarg		3 kPa   30 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		7 kPa   70 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3300	116500	3300	116500	3300	116500	3300	116500	3200	112900
0.075	0.75	4100	144700	4100	144700	4000	141200	4000	141200	4000	141200
0.1	1	4500	158800	4500	158800	4500	158800	4500	158800	4700	165900
0.2	2	7000	247100	7000	247100	7000	247100	7000	247100	7000	247100
0.4	4	8000	282400	8000	282400	9000	317700	9000	317700	9000	317700
0.6	6	8000	282400	8000	282400	9000	317700	9000	317700	9000	317700
0.8	8	8000	282400	8000	282400	9000	317700	9000	317700	9000	317700

CG = 10600    K1= 106.78

**Table 58** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 7 kPa | 70 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		2 kPa   20 mbarg		3 kPa   30 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		7 kPa   70 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3400	120000	3400	120000	3400	120000	3300	116500	3300	116500
0.075	0.75	4300	151800	4300	151800	4300	151800	4300	151800	4300	151800
0.1	1	4800	169400	4800	169400	4800	169400	4800	169400	4800	169400
0.2	2	7000	247100	7000	247100	7000	247100	7000	247100	7000	247100
0.4	4	9000	317700	9000	317700	9000	317700	9000	317700	9000	317700
0.6	6	10598	374200	10000	353100	10000	353100	10000	353100	10000	353100
0.8	8	12000	423700	12000	423700	12000	423700	12000	423700	12000	423700

CG = 10600    K1= 106.78

**Table 59** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 7 kPa | 70 mbarg

## Norval - DN 6" d.658 mm

from 8 kPa | 80 mbarg up to 30 kPa | 300 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		8 kPa 80 mbarg		9 kPa 90 mbarg		15 kPa 150 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	6713	237000	6713	237000	6244	220400	5901	208300	4996	176400
0.075	0.75	8430	297600	8430	297600	7806	275600	7806	275600	7493	264500
0.1	1	9367	330700	9367	330700	9367	330700	9991	352700	9679	341700
0.2	2	16036	566200	14347	506500	14987	529100	15611	551200	16236	573200
0.4	4	17172	606300	17044	601800	19358	683500	23105	815800	23105	815800
0.6	6	17797	628400	17538	619200	19982	705500	24978	881900	25602	904000
0.8	8	18733	661400	16083	567800	20607	727600	27163	959100	29349	1036300

CG = 10600    K1 = 106.78

**Table 60** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 30 kPa | 300 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		8 kPa 80 mbarg		9 kPa 90 mbarg		15 kPa 150 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	8274	292100	8118	286600	6557	231500	6244	220400	5308	187400
0.075	0.75	8898	314100	8898	314100	8742	308600	8430	297600	7962	281100
0.1	1	10616	374800	10616	374800	10459	369300	10304	363800	9991	352700
0.2	2	18890	667000	17328	611800	16704	589800	16704	589800	16704	589800
0.4	4	27788	981100	20451	722100	27944	986700	28100	992200	27944	986700
0.6	6	30598	1080400	30910	1091400	32471	1146500	34032	1201600	36842	1300800
0.8	8	30598	1080400	30910	1091400	32471	1146500	34032	1201600	36842	1300800

CG = 10600    K1 = 106.78

**Table 61** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 30 kPa | 300 mbarg



## Norval - DN 6" d.630 mm

from 22 kPa | 220 mbarg up to 65 kPa | 650 mbarg  
flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		22 kPa 220 mbarg		30 kPa 300 mbarg		42 kPa 420 mbarg		53 kPa 530 mbarg		60 kPa 600 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	5723	202000	4996	176400	3278	115700	-	-	-	-
0.075	0.75	7747	273500	7493	264500	6587	232500	5682	200600	5819	205400
0.1	1	9933	350700	9679	341700	9054	319600	8430	297600	7370	260200
0.2	2	15743	555800	16236	573200	15611	551200	15611	551200	14810	522900
0.4	4	23115	816100	23105	815800	24978	881900	27163	959100	25232	890900
0.6	6	25115	886800	25602	904000	31222	1102400	34345	1212700	32746	1156200
0.8	8	27613	975000	29349	1036300	32159	1135500	34345	1212700	34376	1213800

CG = 10600    K1= 106.78

**Table 62** Norval flow rate with outlet pressure from 22 kPa | 220 mbarg up to 65 kPa | 650 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		22 kPa 220 mbarg		30 kPa 300 mbarg		42 kPa 420 mbarg		53 kPa 530 mbarg		65 kPa 650 mbarg	
MPa	barg	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh	Stm³/h	Scfh
0.05	0.5	6060	213900	5308	187400	3497	123400	-	-	-	-
0.075	0.75	8340	294400	7962	281100	6796	239900	9248	326500	10037	354400
0.1	1	10247	361800	9991	352700	9367	330700	10775	380400	10906	385000
0.2	2	16712	590100	16704	589800	16704	589800	16829	594200	16810	593500
0.4	4	28082	991500	27944	986700	27944	986700	27944	986700	27970	987600
0.6	6	34611	1222100	36842	1300800	39029	1378100	39029	1378100	39065	1379300
0.8	8	34611	1222100	36842	1300800	40277	1422100	43399	1532400	46863	1654700

CG = 10600    K1= 106.78

**Table 63** Norval flow rate with outlet pressure from 22 kPa | 220 mbarg up to 65 kPa | 650 mbarg

## Norval - DN 6" d.495 mm

from 42 kPa | 420 mbarg up to 150 kPa | 1500 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		42 kPa 420 mbarg		76 kPa 760 mbarg		90 kPa 900 mbarg		120 kPa 1200 mbarg		150 kPa 1500 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3278	115700	-	-	-	-	-	-	-	-
0.075	0.75	6587	232500	-	-	-	-	-	-	-	-
0.1	1	9054	319600	6383	225300	-	-	-	-	-	-
0.2	2	15611	551200	14050	496100	12442	439300	13113	463000	11240	396800
0.4	4	24978	881900	23417	826800	21912	773700	24978	881900	25602	904000
0.6	6	31222	1102400	31222	1102400	26539	937000	37467	1322900	37467	1322900
0.8	8	32159	1135500	34345	1212700	31535	1113500	37467	1322900	43711	1543400

CG = 10600    K1 = 106.78

**Table 64** Norval flow rate with outlet pressure from 42 kPa | 420 mbarg up to 150 kPa | 1500 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		42 kPa 420 mbarg		76 kPa 760 mbarg		90 kPa 900 mbarg		120 kPa 1200 mbarg		150 kPa 1500 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	3497	123400	-	-	-	-	-	-	-	-
0.075	0.75	6796	239900	-	-	-	-	-	-	-	-
0.1	1	9367	330700	-	-	-	-	-	-	-	-
0.2	2	16704	589800	16762	591800	16756	591600	16743	591100	16755	591600
0.4	4	27944	986700	27944	986700	27944	986700	27944	986700	27944	986700
0.6	6	39029	1378100	39029	1378100	39029	1378100	39029	1378100	39029	1378100
0.8	8	40277	1422100	49956	1763900	50268	1774900	50268	1774900	50268	1774900

CG = 10600    K1 = 106.78

**Table 65** Norval flow rate with outlet pressure from 42 kPa | 420 mbarg up to 150 kPa | 1500 mbarg



## Norval - DN 8" d.817 mm

from 2 kPa | 20 mbarg up to 7 kPa | 70 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		2 kPa   20 mbarg		3 kPa   30 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		7 kPa   70 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	10757	379800	10757	379800	10757	379800	10757	379800	10513	371200
0.075	0.75	12224	431600	13691	483400	13691	483400	13202	466100	13202	466100
0.1	1	14180	500600	14669	517900	16135	569700	15647	552400	15647	552400
0.2	2	24448	863200	24448	863200	24937	880500	22981	811400	23959	845900
0.4	4	24448	863200	24448	863200	29337	1035800	23959	845900	24937	880500
0.6	6	24448	863200	24448	863200	31782	1122200	24937	880500	26404	932300
0.8	8	14669	517900	24448	863200	31782	1122200	25426	897700	27870	984000

CG = 16600    K1= 106.78

**Table 66** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 7 kPa | 70 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		2 kPa   20 mbarg		3 kPa   30 mbarg		5 kPa   50 mbarg		6 kPa   60 mbarg		7 kPa   70 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	11735	414300	11246	397000	13202	466100	11001	388400	11001	388400
0.075	0.75	14180	500600	14180	500600	14180	500600	14180	500600	14180	500600
0.1	1	17113	604200	16624	586900	16624	586900	16624	586900	16624	586900
0.2	2	25915	915000	26159	923600	26159	923600	26159	923600	26159	923600
0.4	4	36672	1294800	34227	1208500	43517	1536500	43517	1536500	43517	1536500
0.6	6	40808	1440900	43028	1519300	46452	1640200	46940	1657400	47429	1674700
0.8	8	44984	1588300	45473	1605600	46452	1640200	46940	1657400	47429	1674700

CG = 16600    K1= 106.78

**Table 67** Norval flow rate with outlet pressure from 2 kPa | 20 mbarg up to 7 kPa | 70 mbarg



## Norval - DN 8" d.658 mm

from 8 kPa | 80 mbarg up to 30 kPa | 300 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		8 kPa 80 mbarg		9 kPa 90 mbarg		15 kPa 150 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	10513	371200	10513	371200	9779	345200	9241	326200	7823	276200
0.075	0.75	13202	466100	13202	466100	12224	431600	12224	431600	11735	414300
0.1	1	14669	517900	14669	517900	14669	517900	15647	552400	15158	535200
0.2	2	25113	886700	22467	793300	23470	828700	24448	863200	25426	897700
0.4	4	26892	949500	26692	942400	30315	1070400	36183	1277600	36183	1277600
0.6	6	27870	984000	27465	969700	31293	1104900	39116	1381100	40094	1415700
0.8	8	29337	1035800	25186	889300	32271	1139400	42539	1502000	45962	1622900

CG = 16600    K1= 106.78

**Table 68** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 30 kPa | 300 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		8 kPa 80 mbarg		9 kPa 90 mbarg		15 kPa 150 mbarg		20 kPa 200 mbarg		30 kPa 300 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	12957	457500	12713	448800	10268	362500	9779	345200	8312	293400
0.075	0.75	13935	492000	13935	492000	13691	483400	13202	466100	12468	440200
0.1	1	16624	586900	16624	586900	16380	578300	16137	569700	15647	552400
0.2	2	29582	1044500	27137	958200	26159	923600	26159	923600	26159	923600
0.4	4	43517	1536500	32027	1130800	43761	1545200	44006	1553800	43761	1545200
0.6	6	47918	1691900	48406	1709200	50851	1795500	53296	1881800	57697	2037200
0.8	8	47918	1691900	48406	1709200	50851	1795500	53296	1881800	57697	2037200

CG = 16600    K1= 106.78

**Table 69** Norval flow rate with outlet pressure from 8 kPa | 80 mbarg up to 30 kPa | 300 mbarg



## Norval - DN 8" d.630 mm

from 22 kPa | 220 mbarg up to 65 kPa | 650 mbarg

### flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		22 kPa 220 mbarg		30 kPa 300 mbarg		42 kPa 420 mbarg		53 kPa 530 mbarg		65 kPa 650 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	8962	316400	7823	276200	5134	181200	-	-	-	-
0.075	0.75	12132	428300	11735	414300	10315	364200	13723	484500	14916	526600
0.1	1	15556	549200	15158	535200	14180	500600	16272	574500	16343	577000
0.2	2	24655	870500	25426	897700	24448	863200	25341	894700	24469	864000
0.4	4	36200	1278200	36183	1277600	39116	1381100	42539	1502000	39514	1395200
0.6	6	39330	1388700	40094	1415700	48895	1726400	53785	1899100	51281	1810700
0.8	8	43244	1526900	45962	1622900	50362	1778200	53785	1899100	53835	1900900

CG = 16600    K1= 106.78

**Table 70** Norval flow rate with outlet pressure from 22 kPa | 220 mbarg up to 65 kPa | 650 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
<b>Inlet pressure</b>		<b>Outlet pressure</b>									
		22 kPa 220 mbarg		30 kPa 300 mbarg		40 kPa 400 mbarg		50 kPa 500 mbarg		65 kPa 650 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	9490	335000	8312	293400	5476	193300	-	-	-	-
0.075	0.75	13061	461100	12468	440200	10946	386500	14482	511300	15719	555000
0.1	1	16046	566500	15647	552400	14669	517900	16874	595800	17080	603000
0.2	2	26171	924000	26159	923600	26159	923600	26355	930500	26325	929500
0.4	4	43978	1552800	43761	1545200	43761	1545200	43761	1545200	43802	1546600
0.6	6	54201	1913800	57697	2037200	61121	2158100	61121	2158100	61178	2160100
0.8	8	54201	1913800	57697	2037200	63075	2227100	67965	2399800	73390	2591400

CG = 16600    K1= 106.78

**Table 71** Norval flow rate with outlet pressure from 22 kPa | 220 mbarg up to 65 kPa | 650 mbarg

## Norval - DN 8" d.495 mm

from 42 kPa | 420 mbarg up to 150 kPa | 1500 mbarg

flow capacity table

<b>Norval flow rate</b> (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		42 kPa 420 mbarg		76 kPa 760 mbarg		90 kPa 900 mbarg		120 kPa 1200 mbarg		150 kPa 1500 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	5134	181200	-	-	-	-	-	-	-	-
0.075	0.75	10315	364200	-	-	-	-	-	-	-	-
0.1	1	14180	500600	16375	578200	-	-	-	-	-	-
0.2	2	24448	863200	23625	834100	21561	761300	25028	883700	25530	901400
0.4	4	39116	1381100	36672	1294800	34315	1211600	39116	1381100	40094	1415700
0.6	6	48895	1726400	48895	1726400	41561	1467500	58675	2071800	58675	2071800
0.8	8	50362	1778200	53785	1899100	49384	1743700	58675	2071800	68454	2417100

CG = 16600    K1= 106.78

**Table 72** Norval flow rate with outlet pressure from 42 kPa | 420 mbarg up to 180 kPa | 1500 mbarg

<b>Norval flow rate</b> (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		42 kPa 420 mbarg		76 kPa 760 mbarg		90 kPa 900 mbarg		120 kPa 1200 mbarg		150 kPa 1500 mbarg	
MPa	barg	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh	Stm <sup>3</sup> /h	Scfh
0.05	0.5	5476	193300	-	-	-	-	-	-	-	-
0.075	0.75	10643	375800	-	-	-	-	-	-	-	-
0.1	1	14669	517900	17233	608400	-	-	-	-	-	-
0.2	2	26159	923600	26250	926800	26241	926500	26220	925800	26239	926400
0.4	4	43761	1545200	43761	1545200	43761	1545200	43761	1545200	43761	1545200
0.6	6	61121	2158100	61121	2158100	61121	2158100	61121	2158100	61121	2158100
0.8	8	63075	2227100	78233	2762400	78722	2779600	78722	2779600	78722	2779600

CG = 16600    K1= 106.78

**Table 73** Norval flow rate with outlet pressure from 42 kPa | 420 mbarg up to 180 kPa | 1500 mbarg



# Pietro Fiorentini

**TB0020ENG**



The data are not binding. We reserve the right  
to make changes without prior notice.

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