

Norval

Medium - Low Pressure Gas Regulator



TECHNICAL BROCHURE

Pietro Fiorentini USA Inc.

606 Park Drive | Weirton, WV 26062, United States of America | +1 304 232 9115
fio.westvirginia@fiorentini.com

Pietro Fiorentini S.p.A.

Via E.Fermi, 8/10 | 36057 Arcugnano, Italy | +39 0444 968 511
sales@fiorentini.com

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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



Localized technical support

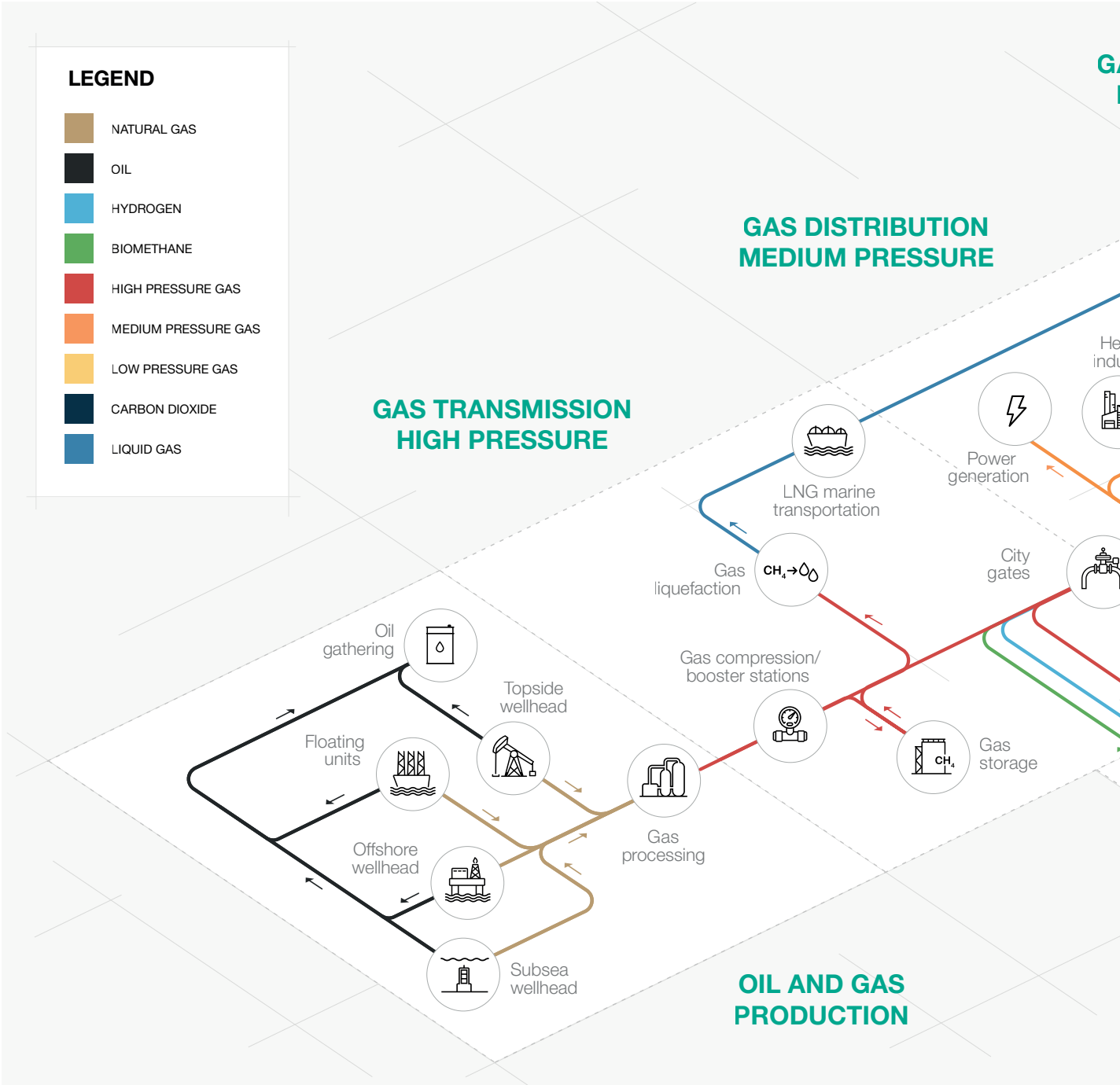


Experience since 1940



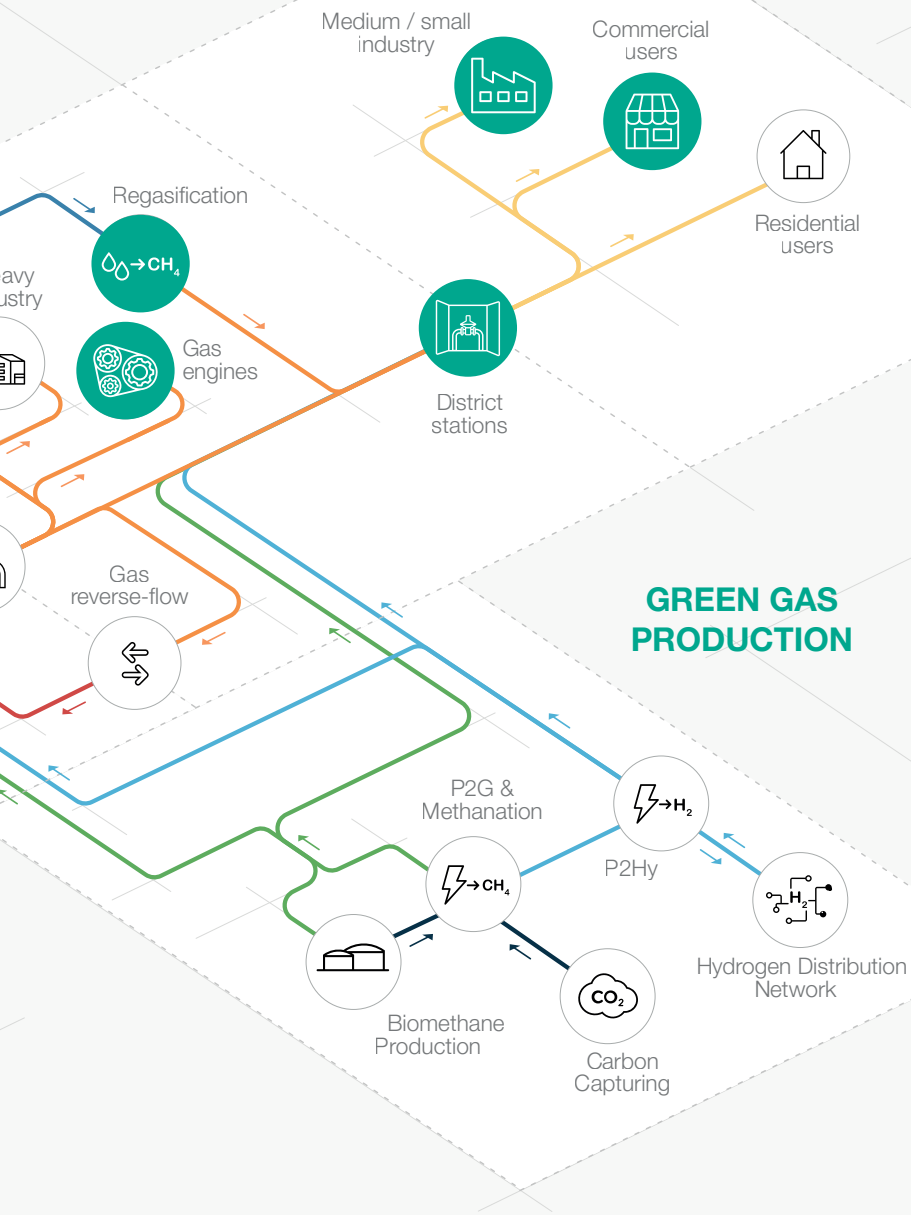
Operating in over 100 countries

Area of Application



 Green icon indicates the application where this product is suitable for

AS DISTRIBUTION LOW PRESSURE





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.

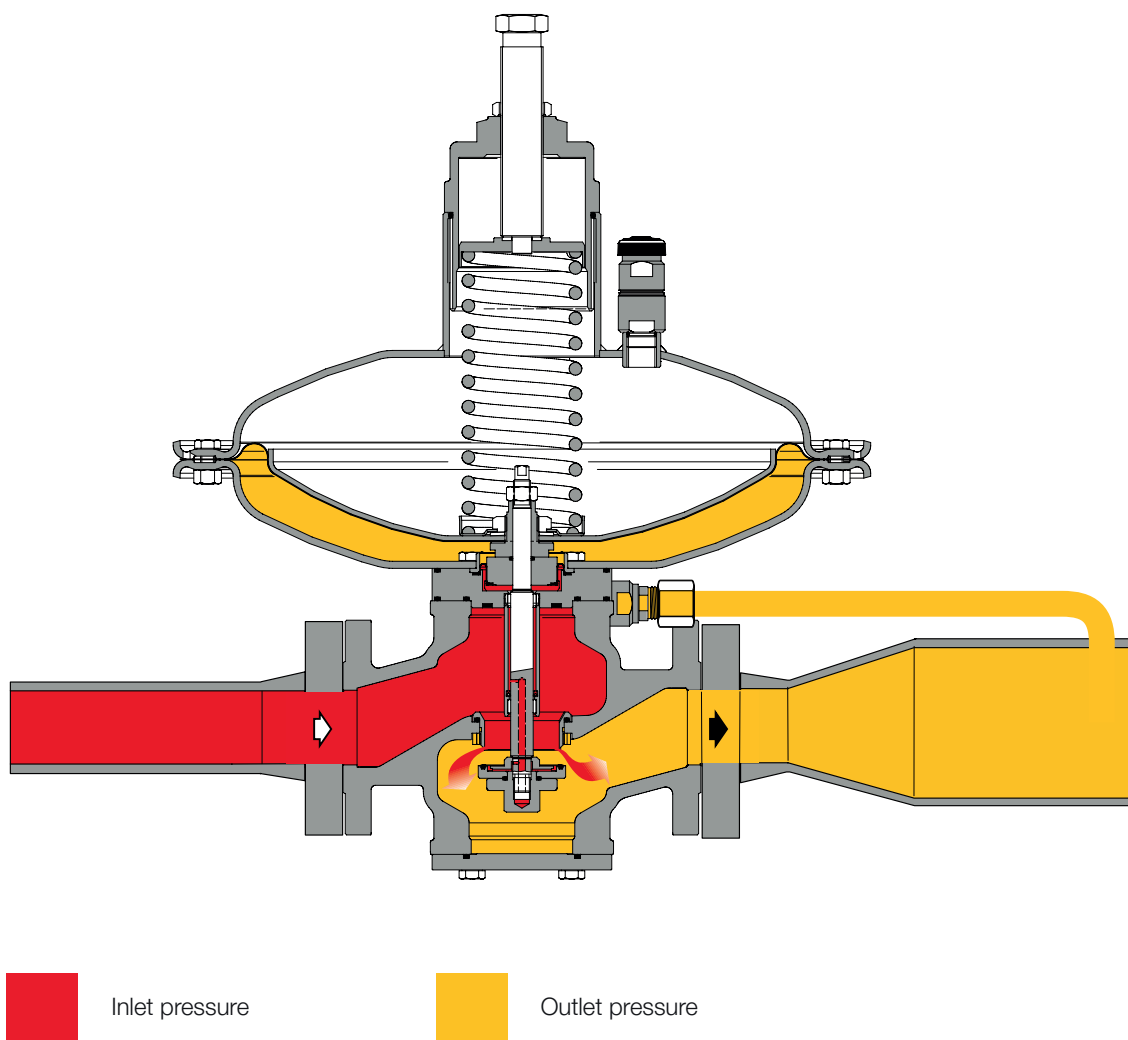


Figure 1 Norval

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 is a pressure regulator where delivery pressure accuracy is not affected by the fluctuation of the inlet pressure and flow during its operation.

Therefore, a balanced 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 retrofitting either slam shut valve SN, ER monitor attachment or silencer.

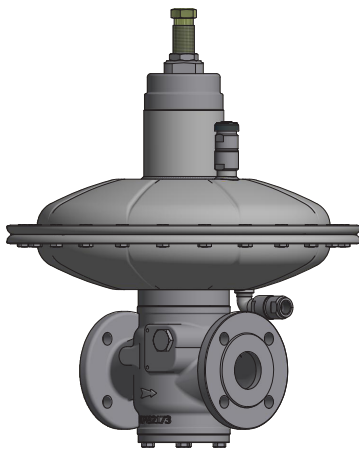


Figure 2 Norval

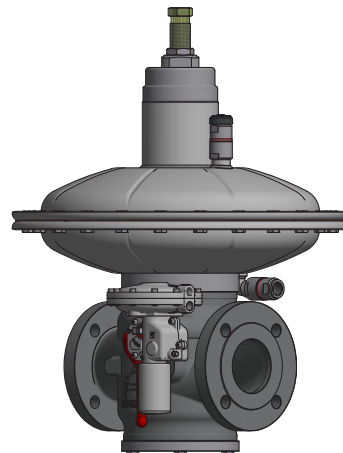


Figure 3 Norval with SN slam shut valve



Norval competitive advantages



Compact and simple design



High accuracy



Fail Open plug and seat regulator



Balanced type



Top Entry



Easy maintenance



Built-in accessories



Biomethane compatible and 20% Hydrogen blending compatible. Higher blending available on request

Features

Features	Values
Design pressure* (PS ¹ / DP ²)	up to 1.89 Mpa up to 275 psig
Ambient temperature* (TS ¹)**	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 _{umax} ¹)	<ul style="list-style-type: none"> for DN up to 3": from 0.01 MPa to 1.89 MPa from 1.45 psig to 275 psig for DN 4", 6" and 8": from 0.01 MPa to 0.86 MPa from 1.45 psig to 125 psig
Range of downstream pressure (Wd ¹)	<ul style="list-style-type: none"> for DN up to 4": from 0.8 kPa to 0.44 MPa from 3.2"w.c. to 63.8 psig for DN 6" and 8": from 1.2 kPa to 0.18 MPa from 4.82"w.c. to 26 psig
Available accessories	SN Slam shut, silencer, ER monitor attachment
Minimum operating differential pressure (Δp _{min} ¹)	10 kPa 40"w.c.
Accuracy class (AC ¹)	up to 5 up to 1% absolute (depending on working conditions)
Lock-up pressure class (SG ¹)	up to 10 (depending on working conditions)
Nominal size (DN ^{1,2})	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

(¹) according to EN334 standard

(²) 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.

(**) NOTE: Stated temperature range is the operating range for which the equipment's mechanical resistance and leakage rate are guaranteed. Some body materials, if multiple choices are available, may not be suitable for all the available versions shown.

(***) NOTE: Stated temperature range is the range for which the equipment's full performance, including accuracy and lock-up are guaranteed. Some body materials, if multiple choices are available, may not be suitable for all the available versions shown.

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 die stamped carbon steel From diameter 658 mm to 817 mm aluminum
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	psig	MPa	psig
PN16 Steel body	1.60	232	1.89	275
PN16 cast iron body	1.60	232	1.89	275
#150 steel body	1.89	275	1.89	275
#150 ductile iron body	1.70	246	1.89	275

Table 3 Design pressure for regulator's body and slam shut

Design pressure (PS according to EN334)

Parts	Control head											
	375TR		375		495		630		658		817	
	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig
Cover	1.60	232	1.60	232	1.60	232	1.00	145	0.10	14	0.10	14
Diaphragm for bodies DN 1" - 2"	0.90	130	0.55	79	0.03	4	-	-	-	-	-	-
Diaphragm for bodies DN 2"1/2 - 4"	0.90	130	0.55	79	0.11	15	0.03	4	-	-	-	-
Diaphragm for bodies DN 6" - 8"	-	-	-	-	0.37	54	0.15	21	0.10	14	0.03	4
Max Diaphragm Δp for bodies DN 1" - 2"	0.60	87	0.15	21	0.02	2	-	-	-	-	-	-
Max Diaphragm Δp for bodies DN 2"1/2 - 4"	0.60	87	0.37	54	0.07	10	0.02	2	-	-	-	-
Max Diaphragm Δp for bodies DN 6" - 8"	-	-	-	-	0.25	36	0.10	14	0.06	9	0.02	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	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	
WITHOUT CE MARKING	PN16 loose regulator DN < 4" (all body materials)	1.60	232	1.60	232	1.60	232	1.60	232	-	-	-	-
	#150 steel body loose regulator DN < 4"	1.89	275	1.89	275	1.89	275	1.89	275	-	-	-	-
	#150 ductile iron body loose regulator DN < 4"	1.70	246	1.70	246	1.70	246	1.70	246	-	-	-	-
	PN16/#150 regulator DN < 4" (all body materials) + SSV	1.89	275	1.89	275	1.89	275	1.89	275	-	-	-	-
	PN16/#150 regulator DN ≥ 4" (all body materials)	0.86	125	0.86	125	0.86	125	0.86	125	0.86	125	0.86	125
	PN16/#150 regulator DN ≥ 4" (all body materials) + SSV	0.86	125	0.86	125	0.86	125	0.86	125	0.86	125	0.86	125

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	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig
WITH CE MARKING	PN16/#150 loose regulator DN < 4" (all body materials)	1.60	232	1.60	232	1.60	232	1.00	145	-	-	-	-
	PN16/#150 loose regulator DN < 4" (all body materials) + SSV	1.60	232	1.60	232	1.60	232	1.00	145	-	-	-	-
	PN16/#150 loose regulator DN >=4" (all body materials)	0.80	116	0.80	116	0.80	116	0.80	116	0.10	14	0.10	14
	PN16/#150 loose regulator DN >=4" (all body materials) + SSV	0.80	116	0.80	116	0.80	116	0.80	116	0.80	116	0.80	116

Table 6 MAOP Maximum Allowable Operating Pressure with CE marking

Springs ranges and control heads

Control heads pressure ranges									
	[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"	Spring Table web link
mm	kPa "w.c.	kPa "w.c.	kPa "w.c.	kPa "w.c.	kPa "w.c.	kPa "w.c.	kPa "w.c.	kPa "w.c.	
d. 817	-	-	-	-	-	-	1.2 - 7.9 4.8 - 31.7	1.2 - 7.9 4.8 - 31.7	TT 891
d. 658	-	-	-	-	-	-	7.5 - 40.5 30.1 - 162.6	7.5 - 40.5 30.1 - 162.6	TT 891
d. 630	-	-	-	1.0 - 8.0 4.0 - 32.1	1.0 - 8.0 4.0 - 32.1	1.2 - 8.0 4.8 - 32.1	22 - 65 88.3 - 260.9	22 - 65 88.3 - 260.9	TT 891
mm	kPa psig	kPa psig	kPa psig	kPa psig	kPa psig	kPa psig	kPa psig	kPa psig	Spring Table web link
d. 495	1.6 - 8.3 0.2 - 1.2	1.6 - 8.3 0.2 - 1.2	1.6 - 8.3 0.2 - 1.2	8 - 53 1.2 - 7.7	8 - 53 1.2 - 7.7	8 - 53 1.2 - 7.7	39 - 180 5.7 - 26.1	39 - 180 5.7 - 26.1	TT 891
d. 375	8 - 110 1.2 - 15.9	8 - 110 1.2 - 15.9	8 - 110 1.2 - 15.9	47 - 280 6.8 - 40.6	47 - 280 6.8 - 40.6	47 - 280 6.8 - 40.6	-	-	TT 891
d. 375/ TR	90 - 440 13.1 - 63.8	90 - 440 13.1 - 63.8	90 - 440 13.1 - 63.8	90 - 440 13.1 - 63.8	90 - 440 13.1 - 63.8	90 - 440 13.1 - 63.8	-	-	TT 891

Table 7 Settings table

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





NORVAL T.375 1" - 2"

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2702755	White	6.5	300	85	1.1	1.6
US2702975	Yellow	7	300	85	1.6	2.3
US2703175	Orange	7.5	300	85	2.3	3.0
US2703360	Red	8	300	85	3.0	3.8
US2703525	Green	8.5	300	85	3.8	4.8
US2703745	Black	9	300	85	4.8	5.8
US2703895	Blue	9.5	300	85	5.8	6.9
US2704062	Brown	10	300	85	6.9	10.1
US2704400	Light Blue	11	300	85	10.1	13.0
US2704515	White/Yellow	11.5	300	85	13.0	15.9

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 8 TT 891 - NORVAL T.375 1" - 2" setting springs

NORVAL T.375 1" - 2" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2702755	White	6.5	300	85	1.1	1.6
US2702975	Yellow	7	300	85	1.6	2.3
US2703175	Orange	7.5	300	85	2.3	3.0
US2703360	Red	8	300	85	3.0	3.8
US2703525	Green	8.5	300	85	3.8	4.8
US2703745	Black	9	300	85	4.8	5.8
US2703895	Blue	9.5	300	85	5.8	6.9
US2704062	Brown	10	300	85	6.9	10.1
US2704400	Light Blue	11	300	85	10.1	15.2

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 9 TT 891 - NORVAL T.375 1" - 2" (UPSIDE-DOWN) setting springs

NORVAL T.375 2-1/2" - 4"

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2704062	Brown	10	300	85	6.8	10.1
US2704400	Light Blue	11	300	85	10.1	13.0
US2704615	Blue	12	260	85	13.0	18.8
US2704820	Violet	13	260	85	18.8	25.3
US2705010	Light Blue	15	260	85	25.3	40.6

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 10 TT 891 - NORVAL T.375 2-1/2" - 4" setting springs

NORVAL T.375TR 1" - 4"

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2704390	Green	11	260	85	13.0	21.7
US2704615	Blue	12	260	85	21.7	31.9
US2704820	Violet	13	260	85	31.9	44.9
US2705010	Light Blue	15	260	85	44.9	63.8

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 11 TT 891 - NORVAL T.375 2-1/2" - 4" setting springs

NORVAL T.375TR 1" - 4" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2704390	Green	11	260	85	13.0	21.7
US2704615	Blue	12	260	85	21.7	31.9
US2704820	Violet	13	260	85	31.9	44.9
US2705010	Light Blue	15	260	85	44.9	63.8

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 12 TT 891 - NORVAL T.375TR 1" - 4" (UPSIDE-DOWN) setting springs

NORVAL T.495 1" - 2"

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2701966	Red	4.8	350	85	5.5	8.3
US2702205	Green	5	350	85	8.3	11.1
US2702385	Black	5.5	350	85	11.1	13.9
US2702565	Blue	6	350	85	13.9	16.6
US2702755	White	6.5	300	85	16.6	22.2
US2702975	Yellow	7	300	85	22.2	33.2

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 13 TT 891 - NORVAL T.495 1" - 2" setting springs

NORVAL T.495 DN 3" WH=20±85 MBAR

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2702385	Black	5.5	350	85	5.5	8.3
US2702755	White	6.5	300	85	8.3	16.6
US2702975	Yellow	7	300	85	16.6	33.2

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 14 TT 891 - NORVAL T.495 DN 3" WH=20±85 mbar setting springs



NORVAL T.495 1" - 2" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2701966	Red	4.8	350	85	3.0	4.2
US2702205	Green	5	350	85	4.2	5.5
US2702385	Black	5.5	350	85	5.5	8.3
US2702565	Blue	6	350	85	8.3	11.1
US2702755	White	6.5	300	85	11.1	16.6
US2702975	Yellow	7	300	85	16.6	24.9
US2703175	Orange	7.5	300	85	24.9	36.0

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 15 TT 891 - NORVAL T.495 1" - 2" (UPSIDE-DOWN) setting springs

NORVAL T.495 2-1/2" - 4"

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2703175	Orange	7.5	300	85	1.1	1.5
US2703360	Red	8	300	85	1.5	1.8
US2703525	Green	8.5	300	85	1.8	2.3
US2703745	Black	9	300	85	2.3	2.9
US2703895	Blue	9.5	300	85	2.9	3.6
US2704062	Brown	10	300	85	3.6	4.6
US2704400	Light Blue	11	300	85	4.6	6.2
US2704515	White/Yellow	11.5	300	85	6.2	7.6

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 16 TT 891 - NORVAL T.495 2-1/2" - 4" setting springs

NORVAL T.495 2-1/2" - 4" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2703360	Red	8	300	85	1.1	1.6
US2703525	Green	8.5	300	85	1.6	2.1
US2703745	Black	9	300	85	2.1	2.6
US2703895	Blue	9.5	300	85	2.6	3.3
US2704062	Brown	10	300	85	3.3	4.3
US2704400	Light Blue	11	300	85	4.3	7.2

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 17 TT 891 - NORVAL T.495 2-1/2" - 4" (UPSIDE-DOWN) setting springs

NORVAL T.495 6" - 8"

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2704670	White/Yellow	12	400	100	5.6	7.5
US2704108	Violet	10	400	100	7.5	9.0
US2703720	White	9	400	65		
US2704440	Light Blue	11	400	100	9.0	10.6
US2703720	White	9	400	65		
US2704670	White/Yellow	12	400	100	10.6	13.3
US2703720	White	9	400	65		
US2704670	White/Yellow	12	400	100	13.3	18.8
US2704210	Red	10.5	400	65		
US2704985	White/Blue	14	400	100	18.8	26.1
US2704210	Red	10.5	400	65		

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 18 TT 891 - NORVAL T.495 6" - 8" setting springs

NORVAL T.630 2-1/2" - 3"

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2701863	Brown	4.5	350	85	2.8	5.5
US2702205	Green	5	350	85	5.5	6.6
US2702385	Black	5.5	350	85	6.6	8.3
US2702755	White	6.5	300	85	8.3	11.1
US2702975	Yellow	7	300	85	11.1	16.6
US2703175	Orange	7.5	300	85	16.6	22.2
US2703360	Red	8	300	85	22.2	30.5

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 19 TT 891 - NORVAL T.630 2-1/2" - 3" setting springs

NORVAL T.630 2-1/2" - 3" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2702205	Green	5	350	85	2.8	5.5
US2702565	Blue	6	350	85	5.5	6.6
US2702755	White	6.5	300	85	6.6	8.3
US2702975	Yellow	7	300	85	8.3	13.9
US2703175	Orange	7.5	300	85	13.9	19.4
US2703360	Red	8	300	85	19.4	24.9
US2703525	Green	8.5	300	85	24.9	36.0

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 20 TT 891 - NORVAL T.630 2-1/2" - 3" (UPSIDE-DOWN) setting springs



NORVAL T.630 4"

Spring part number	Spring color	d	Lo	De	Spring range (w.c)	
					Min.	Max.
US2701863	Brown	4.5	350	85	2.8	5.5
US2701966	Red	4.8	350	85	5.5	6.6
US2702385	Black	5.5	350	85	6.6	8.3
US2702755	White	6.5	300	85	8.3	11.1
US2702975	Yellow	7	300	85	11.1	19.4
US2703175	Orange	7.5	300	85	19.4	22.2
US2703360	Red	8	300	85	22.2	30.5

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 21 TT 891 - NORVAL T.630 4" setting springs

NORVAL T.630 4" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2702205	Green	5	350	85	2.8	4.2
US2702385	Black	5.5	350	85	4.2	5.5
US2702755	White	6.5	300	85	5.5	8.3
US2702975	Yellow	7	300	85	8.3	13.9
US2703175	Orange	7.5	300	85	13.9	19.4
US2703360	Red	8	300	85	19.4	24.9
US2703525	Green	8.5	300	85	24.9	36.0

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 22 TT 891 - NORVAL T.630 4" (UPSIDE-DOWN) setting springs

NORVAL T.495 6" - 8"

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2704670	White/Yellow	12	400	100	3.1	4.2
US2704108	Violet	10	400	100	4.2	5.0
US2703720	White	9	400	65		
US2704440	Light Blue	11	400	100	5.0	5.8
US2703720	White	9	400	65		
US2704670	White/Yellow	12	400	100	5.8	7.4
US2703720	White	9	400	65		
US2704670	White/Yellow	12	400	100	7.4	9.4
US2704210	Red	10.5	400	65		

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 23 TT 891 - NORVAL T.495 6" - 8" setting springs

NORVAL T.630 6" - 8" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (psig)	
					Min.	Max.
US2704670	Violet	10	400	100	1.0	1.4
US2704108	Light Blue	11	400	100	1.4	2.1
US2703720	White/Yellow	12	400	100	2.1	2.9
US2704440	Violet	10	400	100	2.9	3.7
US2703720	White	9	400	65		
US2704670	Light Blue	11	400	100	3.7	4.4
US2703720	White	9	400	65		
US2704670	White/Yellow	12	400	100	4.4	5.8
US2704210	White	9	400	65		

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 24 TT 891 - NORVAL T.630 6" - 8" (UPSIDE-DOWN) setting springs

NORVAL T.817 6" - 8"

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2702599	White	6	400	100	2.8	5.5
US2702790	Yellow	6.5	400	100	5.5	6.6
US2703015	Orange	7	400	100	6.6	8.3
US2703199	Red	7.5	400	100	8.3	10.0
US2703380	Green	8	400	100	10.0	11.1
US2703560	Black	8.5	400	100	11.1	13.9
US2703827	Blue	9	400	100	13.9	16.6
US2703930	Brown	9.5	400	100	16.6	22.2

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 25 TT 891 - NORVAL T.817 6" - 8" setting springs

NORVAL T.817 6" - 8" (UPSIDE-DOWN)

Spring part number	Spring color	d	Lo	De	Spring range (w.c.)	
					Min.	Max.
US2703380	Green	8	400	100	2.8	2.8
US2703560	Black	8.5	400	100	5.5	8.3
US2703827	Blue	9	400	100	8.3	11.1
US2703930	Brown	9.5	400	100	11.1	16.6
US2704108	Violet	10	400	100	16.6	27.7
US2704440	Light Blue	11	400	100	27.7	36.0

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 26 TT 891 - NORVAL T.817 6" - 8" (UPSIDE-DOWN) setting springs

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 worker 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 the worker 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.

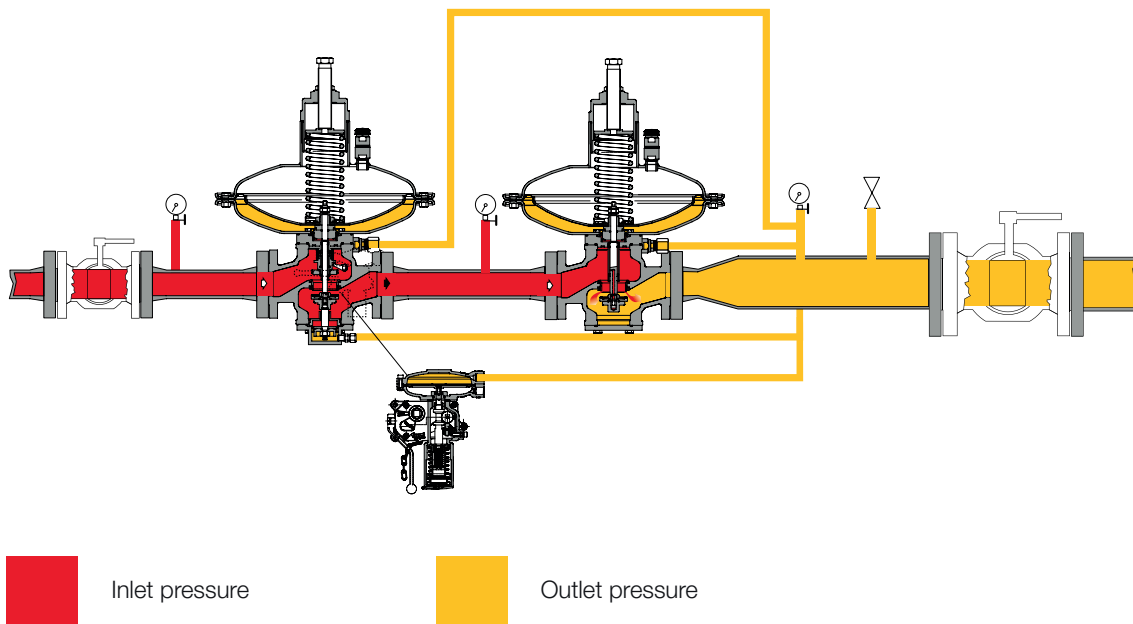


Figure 4 Norval in-line monitor

ER Monitor attachment

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

Typically the inline monitor is normally in the wide open position; therefore, in this specific condition, the fully balanced pressure regulator is actually unbalanced.

The ER monitor attachment compensate this condition, by balancing the monitor while in its 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 a worker to an inline monitor.



Balanced type

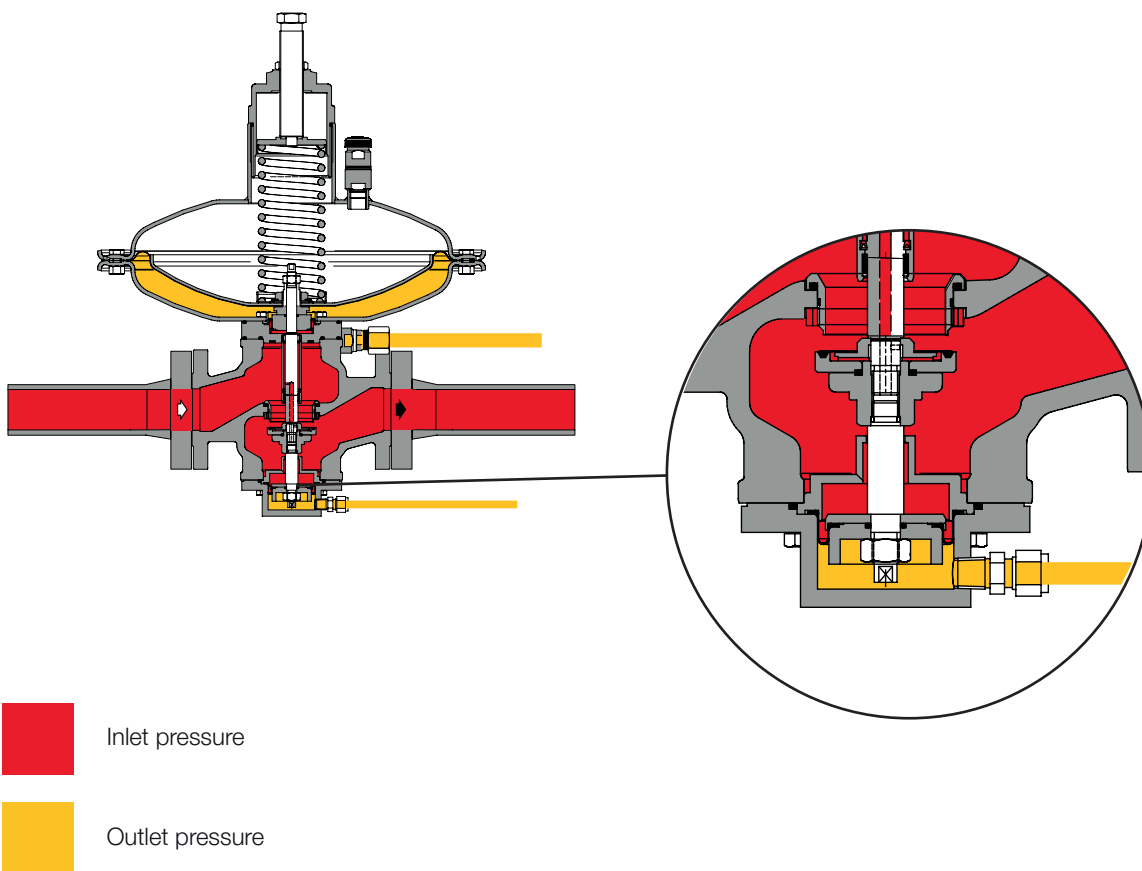


Figure 5 Norval with ER attachment

Silencer

Whenever certain noise limit is desired, a silencer reduces the noise level (dBA) substantially.

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

The high efficiency rely on 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 in the same manner as standard version.

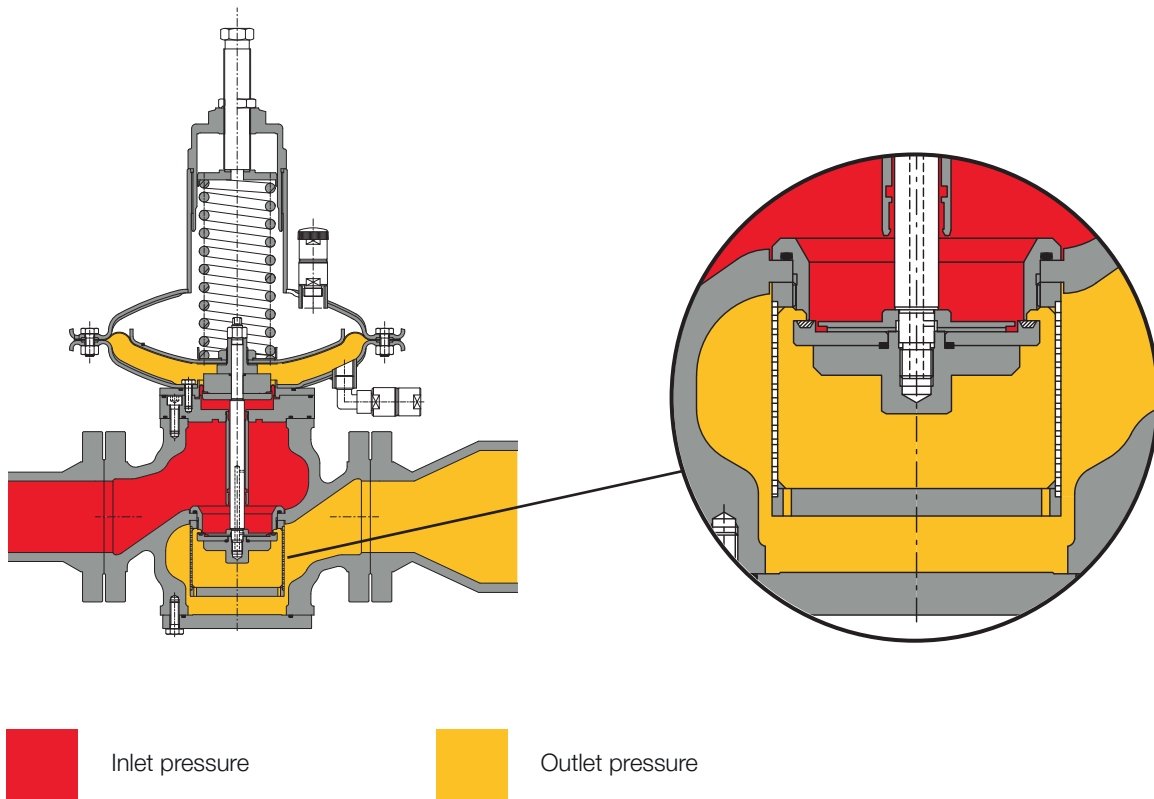


Figure 6 Norval with silencer









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:

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

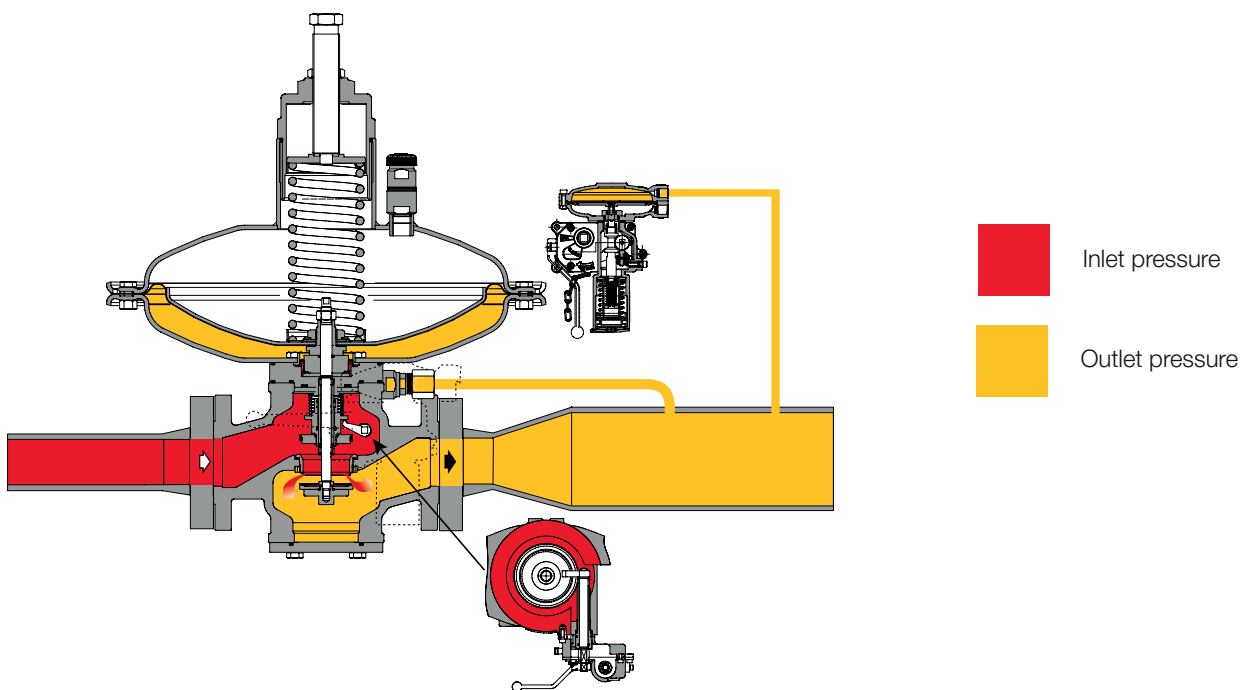


Figure 7 Norval with SN

Medium - Low Pressure Gas Regulator



Pressure switch types and ranges					
SSV Type	Model	Operation	Range Wh		Spring Table web link
			kPa	"w.c."	
SN	91	OPSO	2.5 - 110	10.0 - 442.6	TT 1381
		UPSO	1 - 90	4.0 - 361.3	
SN (Upside-down)	91	OPSO	2.5 - 110	10.0 - 442.6	TT 1381
		UPSO	1 - 90	4.0 - 361.3	
SSV Type	Model	Operation	Range Wh		Spring Table web link
			MPa	psig	
SN	92	OPSO	0.07 - 0.5	10.1 - 72.5	TT 1381
		UPSO	0.025 - 0.301	3.6 - 43.6	

Table 27 Settings table

SN-91 (NORVAL/SCN) "MAX PRESSURE"							
Spring part number	Spring colour	d	Lo	De	Spring range (psi)		
					Min.	Max.	
US2700680	Brown	2.3	60	35	0.3	0.5	
US2700830	Red/Black	2.5	60	35	0.5	1.0	
US2700920	White/Yellow	2.8	60	35	1.0	1.3	
US2701040	White/Orange	3	60	35	1.3	2.3	
US2701260	White	3.5	60	35	2.3	4.2	
US2701530	Yellow	4	60	35	4.2	8.4	
US2701790	Yellow/Black	4.5	60	35	8.4	13.0	
US2702070	Orange	5	60	35	13.0	15.9	

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 28 TT 1381 - SN-91 (NORVAL/SCN) "MAX PRESSURE" setting springs

SN-91- SA-91 (LP) "MIN PRESSURE"							
Spring part number	Spring colour	d	Lo	De	Spring range (psi)		
					Min.	Max.	
US2700338	White	1.3	40	15	0.1	0.3	
US2700377	Yellow	1.5	40	15	0.3	0.6	
US2700464	Orange	1.7	40	15	0.6	1.3	
US2700513	Red	2	40	15	1.3	1.8	
US2700713	Green	2.3	40	15	1.8	2.9	
US2700750	Black	2.5	40	15	2.9	7.2	
US2700985	Brown	3	40	15	7.2	13.0	

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 29 TT 1381 - SN-91- SA-91 (LP) "MIN PRESSURE" setting springs

SN-91(NORVAL/SCN UP-DOWN)- SA-91"MIN PRESSURE"							
Spring part number	Spring colour	d	Lo	De	Spring range (psi)		
					Min.	Max.	
US2700338	White	1.3	40	15	0.1	0.2	
US2700377	Yellow	1.5	40	15	0.3	0.5	
US2700464	Orange	1.7	40	15	0.5	1.3	
US2700513	Red	2	40	15	1.3	1.8	
US2700713	Green	2.3	40	15	1.8	2.9	
US2700750	Black	2.5	40	15	2.9	7.2	
US2700985	Brown	3	40	15	7.2	13.0	

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 30 TT 1381 - SN-91 (NORVAL/SCN UP-DOWN)- SA-91"MIN PRESSURE" setting springs

SN-92 - SA-92 "MAX PRESSURE"

Spring part number	Spring colour	d	Lo	De	Spring range (psi)	
					Min.	Max.
US2701260	White	3.5	60	35	10.1	14.6
US2701530	Yellow	4	60	35	14.6	28.4
US2701790	Yellow/Black	4.5	60	35	28.4	46.4
US2702070	Orange	5	60	35	46.4	54.3
US2702280	White/Red	5.5	60	35	54.4	72.5

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 31 TT 1381 - SN-92 - SA-92 "MAX PRESSURE" setting springs

SN-92 - SA-92 "MIN PRESSURE"

Spring part number	Spring colour	d	Lo	De	Spring range (psi)	
					Min.	Max.
US2700513	Red	2	40	15	3.6	5.8
US2700713	Green	2.3	40	15	5.8	9.0
US2700750	Black	2.5	40	15	9.0	22.4
US2700985	Brown	3	40	15	22.4	43.6

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 32 TT 1381 - SN-92 - SA-92 "MIN PRESSURE" setting springs

SA-93 "MAX PRESSURE"

Spring part number	Spring colour	d	Lo	De	Spring range (psi)	
					Min.	Max.
US2701530	Yellow	4	60	35	43.5	62.3
US2701790	Yellow/Black	4.5	60	35	62.3	101.5
US2702070	Orange	5	60	35	101.5	123.2
US2702280	White/Red	5.5	60	35	123.2	192.8

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 33 TT 1381 - SA-93 "MAX PRESSURE" setting springs

SA-93 "MIN PRESSURE"

Spring part number	Spring colour	d	Lo	De	Spring range (psi)	
					Min.	Max.
US2700713	Green	2.3	40	15	11.6	20.3
US2700750	Black	2.5	40	15	20.3	56.5
US2700985	Brown	3	40	15	56.5	111.6

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 34 TT 1381 - SA-93 "MIN PRESSURE" setting springs



SN-91 - SA-91 (LP) "MAX PRESSURE"

Spring part number	Spring colour	d	Lo	De	Spring range (psi)	
					Min.	Max.
US2700680	Brown	2.3	60	35	0.2	0.6
US2700830	Red/Black	2.5	60	35	0.6	1.1
US2700920	White/Yellow	2.8	60	35	1.1	1.4
US2701040	White/Orange	3	60	35	1.4	2.4
US2701260	White	3.5	60	35	2.4	4.3
US2701530	Yellow	4	60	35	4.3	8.4
US2701790	Yellow/Black	4.5	60	35	8.4	13.0
US2702070	Orange	5	60	35	13.0	15.9

d = Wire Diameter (mm) **Lo** = Spring Length (mm) **De** = External Diameter (mm)

Table 35 TT 1381 - SN-91 - SA-91 (LP) "MAX PRESSURE" setting springs

Norval HC version

The Norval HC (High Capacity) version is designed to handle a higher capacity compared to the standard one.

This version has the same functional elements as the standard one, except:

- Regulator seat
- Flow deflector

This version is available for size 2" (DN50) d.495 mm with ductile iron body and maximum inlet pressure of 1.7 MPa | 245 psig only.

All Norval's accessories are available, except the silencer.

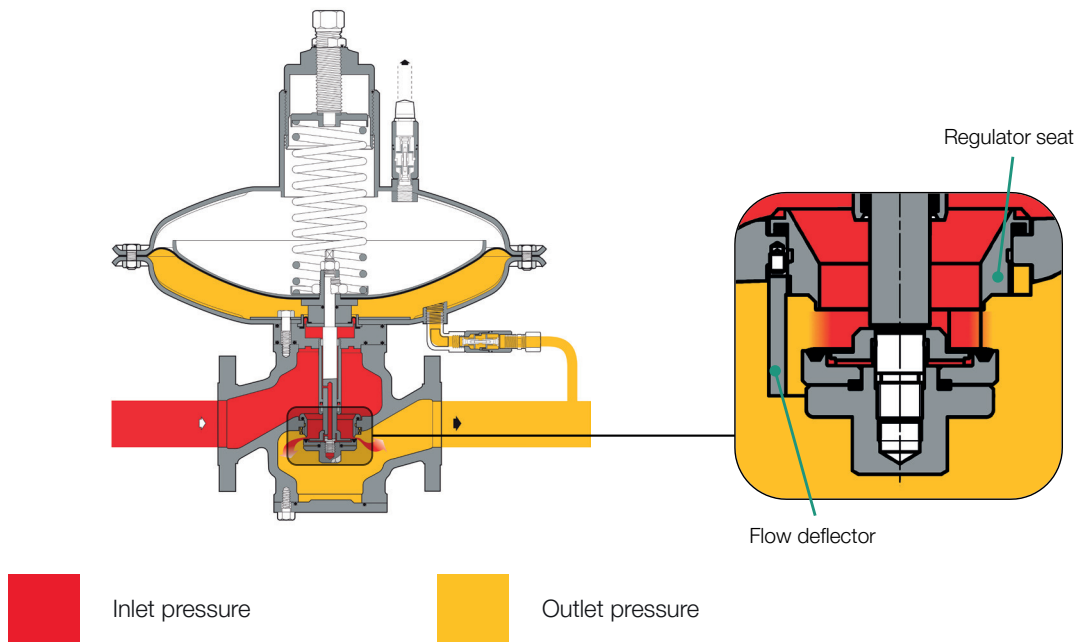


Figure 8 Norval HC with details

Gas flow

Standard version with frontal SSV

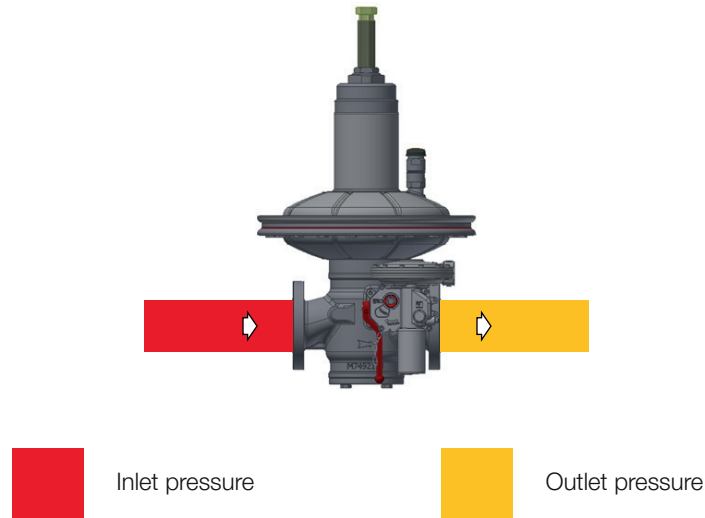
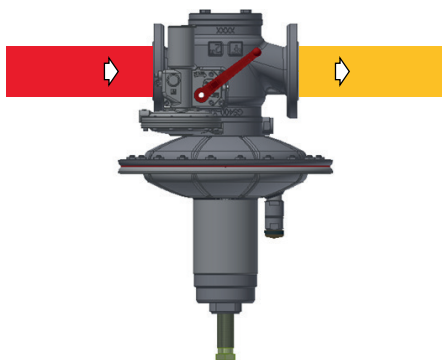


Figure 9 Norval standard version gas flow

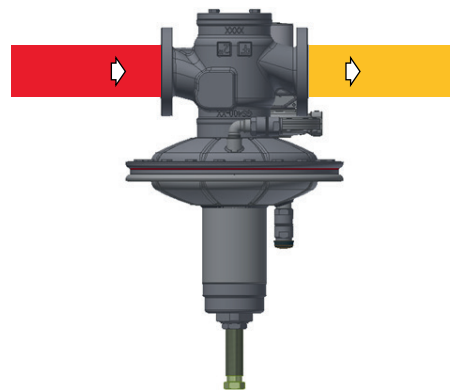
Upside down version

For 2" - 3" - 4" - 6" sizes



Inlet pressure

For 1" - 1 1/2" - 2 1/2" - 8" sizes



Outlet pressure

Figure 10 Norval standard version gas flow upside down



Right to left gas flow version

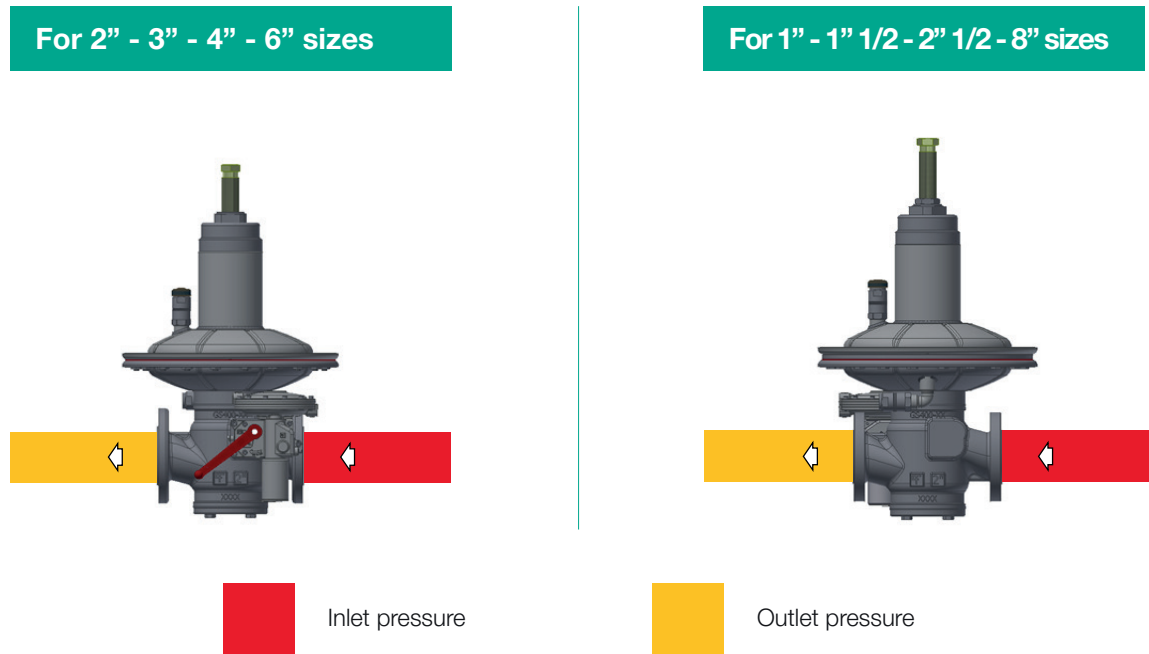


Figure 11 Norval version right to left gas flow

Right to left gas flow version upside down

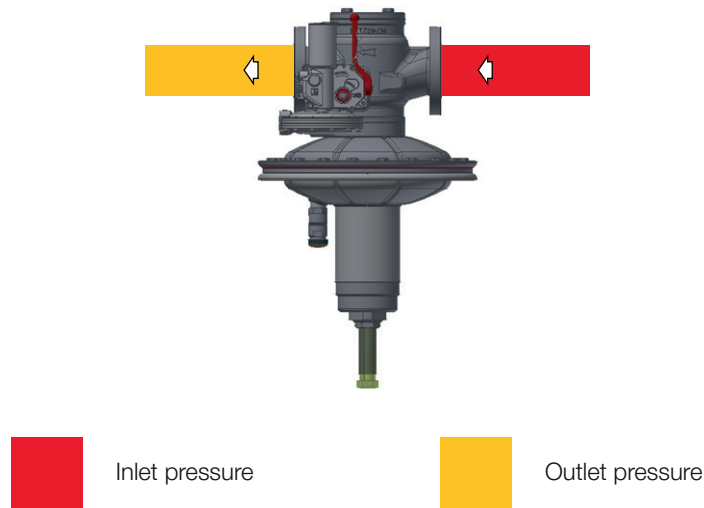


Figure 12 Upside down Norval version right to left gas flow

Weights and Dimensions

Norval with or without silencer

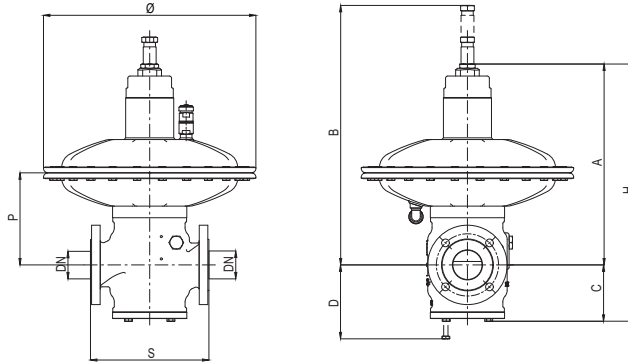


Figure 13 Norval dimensions

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 38.6"	1290 50.8"
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 36 Weights and dimensions

Norval + SN with or without silencer

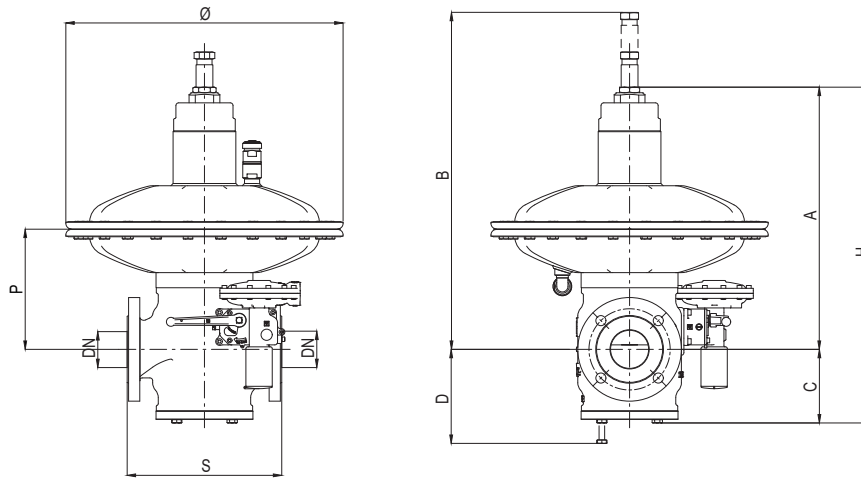


Figure 14 Norval + SN dimensions

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	[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 38.6"	1290 50.8"	
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	Kg lbs
ANSI150/PN 16	48 106	53 117	55 121	82 181	97 214	126 278	211 465	296 653	

Table 37 Weights and dimensions

Norval + ER attachment

with or without silencer

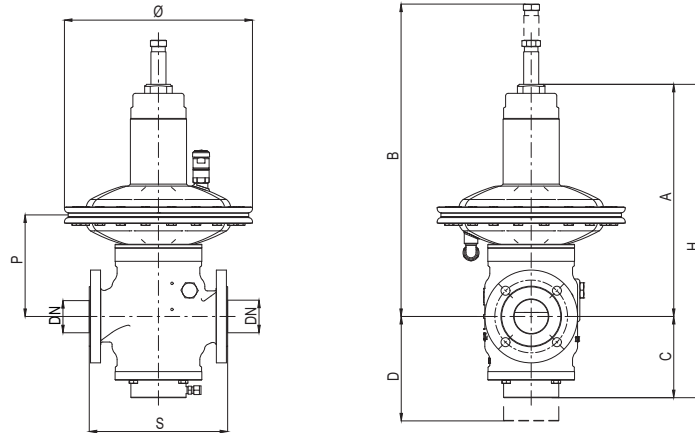


Figure 15 Norval + ER attachment dimensions

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 30.6"
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 38 Weights and dimensions

Norval + SN + ER attachment

with or without silencer

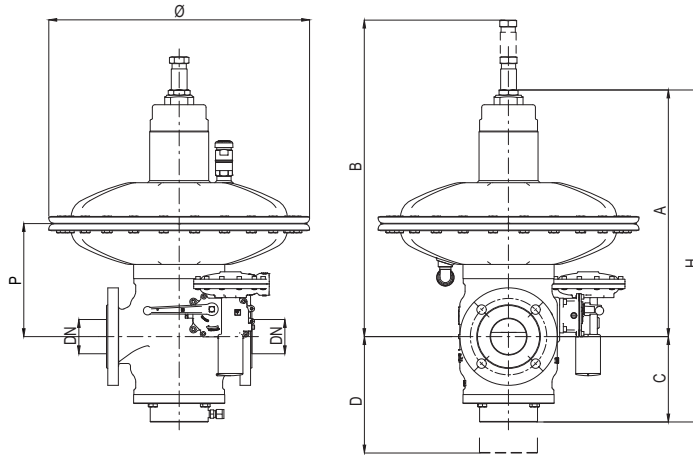


Figure 16 Norval + SN + ER attachment dimensions

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"
Tubing 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 39 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 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

REMARK: For safety relief valve sizing it is required to use the Cg values of this table regardless the accessories installed on the regulator. As per EN334 Cg value acceptance criteria these values may vary up to 10% which we recommend considering during the sizing process.

Table 40 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 41)
T = gas temperature (°C)

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

S = relative density (refer to Table 41)
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 41 Correction Factor Fc

Flow rate conversion
Stm ³ /h x 0.94795 = Nm ³ /h

Nm³/h reference conditions T= 0 °C; P= 1 barg
 Stm³/h reference conditions T= 15 °C; P= 1 barg

Table 42 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 = gas speed in m/s
 Q = gas flow rate in Stm³/h
 DN = nominal size of regular in mm
 Pd = outlet pressure in barg

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

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 1.7 kPa | 7" w.c up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		5 kPa 20 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	105	3800	105	3800	100	3600	-	-	-	-
34.5	5	175	6200	175	6200	175	6200	170	6100	160	5700
103.5	15	255	9100	255	9100	260	9200	320	11400	320	11400
207	30	300	10600	295	10500	285	10100	450	15900	475	16800
413.5	60	310	11000	305	10800	295	10500	480	17000	540	19100
862	125	355	12600	355	12600	365	12900	510	18100	610	21600
1723.5	250	570	20200	570	20200	565	20000	600	21200	705	24900

CG = 331 K1= 106.78

Table 43 Norval flow rate with outlet pressure from 1.7 kPa | 7" w.c up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		5 kPa 20 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	110	3900	110	3900	115	4100	-	-	-	-
34.5	5	220	7800	220	7800	220	7800	210	7500	230	8200
103.5	15	345	12200	345	12200	345	12200	360	12800	410	14500
207	30	470	16600	470	16600	470	16600	500	17700	550	19500
413.5	60	480	17000	480	17000	485	17200	555	19600	600	21200
862	125	525	18600	530	18800	585	20700	690	24400	710	25100
1723.5	250	640	22700	650	23000	725	25700	810	28700	860	30400

CG = 331 K1= 106.78

Table 44 Norval flow rate with outlet pressure from 1.7 kPa | 7" w.c up to 7 kPa | 28" w.c.



Norval - DN 1" d.375 mm

from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		34.5 kPa 5 psig		68.9 kPa 10 psig		103.4 kPa 15 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	160	5700	145	5200	-	-	-	-	-	-
103.5	15	320	11400	320	11400	295	10500	225	8000	-	-
207	30	475	16800	450	15900	510	18100	475	16800	430	15200
413.5	60	535	18900	500	17700	685	24200	825	29200	820	29000
862	125	605	21400	580	20500	880	31100	1165	41200	1325	46800
1723.5	250	700	24800	705	24900	935	33100	1180	41700	1430	50600

CG = 331 K1= 106.78

Table 45 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		34.5 kPa 5 psig		68.9 kPa 10 psig		103.4 kPa 15 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	230	8200	165	5900	-	-	-	-	-	-
103.5	15	405	14400	360	12800	355	12600	305	10800	-	-
207	30	545	19300	595	21100	625	22100	575	20400	585	20700
413.5	60	595	21100	695	24600	860	30400	1005	35500	1025	36200
862	125	705	24900	850	30100	1005	35500	1465	51800	1605	56700
1723.5	250	855	30200	1000	35400	1155	40800	1470	52000	1770	62600

CG = 331 K1= 106.78

Table 46 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

Norval - DN 1" d.375/TR mm

from 90 kPa | 13 psig up to 440 kPa | 63.8 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	430	15200	385	13600	260	9200	-	-	-	-
413.5	60	820	29000	825	29200	790	27900	770	27200	-	-
862	125	1325	46800	1500	53000	1545	54600	1580	55800	1505	53200
1723.5	250	1430	50600	1645	58100	2000	70700	2120	74900	2855	100900

CG = 331 K1= 106.78

Table 47 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	585	20700	560	19800	420	14900	-	-	-	-
413.5	60	1025	36200	1025	36200	1025	36200	1020	36100	-	-
862	125	1605	56700	1650	58300	1650	58300	1680	59400	2125	75100
1723.5	250	1770	62600	2070	73200	2435	86000	2555	90300	3275	115700

CG = 331 K1= 106.78

Table 48 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig



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

from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		5 kPa 20" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	270	9600	270	9600	255	9100	-	-	-	-
34.5	5	450	15900	450	15900	430	15200	430	15200	415	14700
103.5	15	655	23200	665	23500	675	23900	815	28800	815	28800
207	30	800	28300	800	28300	775	27400	1150	40700	1200	42400
413.5	60	845	29900	855	30200	840	29700	1200	42400	1300	46000
862	125	925	32700	940	33200	960	34000	1305	46100	1520	53700
1723.5	250	1490	52700	1485	52500	1460	51600	1655	58500	1910	67500

CG = 848 K1= 106.78

Table 49 Norval flow rate with outlet pressure from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		5 kPa 20" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	280	9900	280	9900	280	9900	-	-	-	-
34.5	5	530	18800	530	18800	530	18800	495	17500	515	18200
103.5	15	870	30800	870	30800	870	30800	870	30800	905	32000
207	30	1200	42400	1200	42400	1200	42400	1205	42600	1300	46000
413.5	60	1250	44200	1250	44200	1255	44400	1410	49800	1400	49500
862	125	1290	45600	1310	46300	1405	49700	1765	62400	1615	57100
1723.5	250	1655	58500	1680	59400	1785	63100	2010	71000	2090	73900

CG = 848 K1= 106.78

Table 50 Norval flow rate with outlet pressure from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

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

from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		34.5 kPa 5 psig		68.9 kPa 10 psig		103.4 kPa 15 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	415	14700	375	13300	-	-	-	-	-	-
103.5	15	815	28800	820	29000	745	26400	560	19800	-	-
207	30	1200	42400	1205	42600	1285	45400	1160	41000	1100	38900
413.5	60	1300	46000	1465	51800	1830	64700	2045	72300	2055	72600
862	125	1520	53700	1710	60400	2150	76000	2935	103700	3310	116900
1723.5	250	1900	67100	1965	69400	2395	84600	3030	107100	3615	127700

CG = 848 K1= 106.78

Table 51 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		34.5 kPa 5 psig		68.9 kPa 10 psig		103.4 kPa 15 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	515	18200	405	14400	-	-	-	-	-	-
103.5	15	900	31800	845	29900	865	30600	735	26000	-	-
207	30	1290	45600	1485	52500	1550	54800	1545	54600	1380	48800
413.5	60	1400	49500	1665	58800	2065	73000	2695	95200	2640	93300
862	125	1630	57600	1960	69300	2450	86600	3800	134200	4285	151400
1723.5	250	2085	73700	2430	85900	2895	102300	3775	133400	4535	160200

CG = 848 K1= 106.78

Table 52 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig



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

from 103 kPa | 15 psig up to 414 kPa | 60 psig
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	1100	38900	955	33800	665	23500	-	-	-	-
413.5	60	2055	72600	2050	72400	1995	70500	1955	69100	-	-
862	125	3310	116900	3635	128400	3775	133400	3820	135000	3765	133000
1723.5	250	3615	127700	4235	149600	4985	176100	5310	187600	7205	254500

CG = 848 K1= 106.78

Table 53 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	1380	48800	1350	47700	1140	40300	-	-	-	-
413.5	60	2640	93300	2690	95000	2760	97500	2760	97500	-	-
862	125	4285	151400	4330	153000	4330	153000	4365	154200	5635	199000
1723.5	250	4535	160200	5270	186200	5635	199000	5800	204900	8845	312400

CG = 848 K1= 106.78

Table 54 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval - DN 2" d.495 mm

from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		5 kPa 20 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	440	15600	435	15400	410	14500	-	-	-	-
34.5	5	725	25700	725	25700	715	25300	695	24600	685	24200
103.5	15	1015	35900	1020	36100	1055	37300	1335	47200	1335	47200
207	30	1200	42400	1200	42400	1210	42800	1880	66400	2005	70900
413.5	60	1205	42600	1205	42600	1205	42600	1965	69400	2295	81100
862	125	1505	53200	1505	53200	1505	53200	2080	73500	2510	88700
1723.5	250	2350	83000	2350	83000	2350	83000	2745	97000	2955	104400

CG = 1360 K1= 106.78

Table 55 Norval flow rate with outlet pressure from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		5 kPa 20 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	450	15900	450	15900	460	16300	-	-	-	-
34.5	5	880	31100	885	31300	900	31800	940	33200	935	33100
103.5	15	1425	50400	1435	50700	1500	53000	1710	60400	1725	61000
207	30	1955	69100	1945	68700	2100	74200	2505	88500	2520	89000
413.5	60	2005	70900	2005	70900	2200	77700	2800	98900	3200	113100
862	125	2080	73500	2125	75100	2460	86900	2820	99600	3500	123700
1723.5	250	2680	94700	2710	95800	2935	103700	3250	114800	3690	130400

CG = 1360 K1= 106.78

Table 56 Norval flow rate with outlet pressure from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.



Norval HC - DN 2" d.495 mm

from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval HC flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		5 kPa 20" w.c.		7 kPa 28" w.c.	
kPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	360	12800	360	12800	355	12600	-	-	-	-
34.5	5	655	23200	660	23400	665	23500	665	23500	665	23500
103.5	15	1220	43100	1245	44000	1305	46100	1325	46800	1325	46800
207	30	1905	67300	1950	68900	2025	71600	2025	71600	2025	71600
413.5	60	2690	95000	2750	97200	2865	101200	2885	101900	2900	102500
862	125	2705	95600	2775	98000	2895	102300	2905	102600	3530	124700
1690	245	2760	97500	2820	99600	3000	106000	3080	108800	3440	121500

CG = 1360 K1= 106.78

Table 57 Norval HC flow rate with outlet pressure from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

Norval HC flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		5 kPa 20" w.c.		7 kPa 28" w.c.	
kPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	410	14500	405	14400	390	13800	-	-	-	-
34.5	5	695	24600	695	24600	695	24600	695	24600	695	24600
103.5	15	1335	47200	1335	47200	1335	47200	1335	47200	1335	47200
207	30	2125	75100	2130	75300	2135	75400	2135	75400	2145	75800
413.5	60	2995	105800	3050	107800	3215	113600	3290	116200	3490	123300
862	125	3160	111600	3265	115400	3465	122400	3500	123700	3695	130500
1690	245	3240	114500	3330	117600	3560	125800	3640	128600	3740	132100

CG = 1360 K1= 106.78

Table 58 Norval HC flow rate with outlet pressure from 1.7 kPa | 7" w.c. up to 7 kPa | 28" w.c.

Norval - DN 2" d.375 mm

from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		34.5 kPa 5 psig		68.9 kPa 10 psig		103.4 kPa 15 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	685	24200	605	21400	-	-	-	-	-	-
103.5	15	1335	47200	1285	45400	1210	42800	920	32500	-	-
207	30	2005	70900	1890	66800	2055	72600	1980	70000	1795	63400
413.5	60	2285	80700	2045	72300	3040	107400	3450	121900	3470	122600
862	125	2500	88300	2200	77700	3465	122400	4745	167600	5550	196000
1723.5	250	2940	103900	2920	103200	3755	132700	4715	166600	5700	201300

CG = 1360 K1= 106.78

Table 59 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		34.5 kPa 5 psig		68.9 kPa 10 psig		103.4 kPa 15 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	935	33100	655	23200	-	-	-	-	-	-
103.5	15	1725	61000	1485	52500	1545	54600	1395	49300	-	-
207	30	2515	88900	2565	90600	2720	96100	2705	95600	2800	98900
413.5	60	3140	110900	2850	100700	3645	128800	5005	176800	4925	174000
862	125	3460	122200	3200	113100	3940	139200	5935	209600	7070	249700
1723.5	250	3660	129300	3855	136200	4640	163900	5895	208200	7065	249500

CG = 1360 K1= 106.78

Table 60 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 103.4 kPa | 15 psig



Norval - DN 2" d.375/TR mm

from 103 kPa | 15 psig up to 440 kPa | 63.8 psig
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	1795	63400	1595	56400	1080	38200	-	-	-	-
413.5	60	3470	122600	3475	122800	3355	118500	3280	115900	-	-
862	125	5550	196000	6200	219000	6445	227700	6545	231200	6245	220600
1723.5	250	5700	201300	6580	232400	8005	282700	8515	300800	12040	425200

CG = 1360 K1= 106.78

Table 61 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 440 kPa | 63.8 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	2800	98900	2425	85700	1775	62700	-	-	-	-
413.5	60	4925	174000	5200	183700	4750	167800	4510	159300	-	-
862	125	7070	249700	7770	274400	8115	286600	8535	301500	10570	373300
1723.5	250	7065	249500	8275	292300	10000	353200	10640	375800	14580	514900

CG = 1360 K1= 106.78

Table 62 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 440 kPa | 63.8 psig

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

from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.2 kPa 5 " w.c.		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	715	25300	715	25300	710	25100	680	24100	-	-
34.5	5	1190	42100	1190	42100	1190	42100	1190	42100	1135	40100
103.5	15	1810	64000	1810	64000	1810	64000	1860	65700	2150	76000
207	30	2100	74200	2100	74200	2100	74200	2150	76000	3200	113100
413.5	60	2195	77600	2195	77600	2195	77600	2245	79300	3395	119900
862	125	2410	85200	2410	85200	2420	85500	2505	88500	3825	135100
1723.5	250	2700	95400	2700	95400	2910	102800	3765	133000	4315	152400

CG = 2240 K1= 106.78

Table 63 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.2 kPa 5 " w.c.		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	760	26900	760	26900	755	26700	715	25300	-	-
34.5	5	1290	45600	1290	45600	1280	45300	1240	43800	1190	42100
103.5	15	2345	82900	2345	82900	2345	82900	2345	82900	2300	81300
207	30	3195	112900	3195	112900	3280	115900	3620	127900	3620	127900
413.5	60	3295	116400	3295	116400	3815	134800	5890	208100	5905	208600
862	125	6045	213500	6045	213500	6055	213900	6115	216000	6340	223900
1723.5	250	5465	193000	5465	193000	5580	197100	6075	214600	6295	222400

CG = 2240 K1= 106.78

Table 64 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.



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

from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		34.5 kPa 5 psig		48.3 kPa 7 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	1135	40100	1005	35500	775	27400	-	-	-	-
103.5	15	2155	76200	2140	75600	2135	75400	2040	72100	1895	67000
207	30	3200	113100	3000	106000	3025	106900	3185	112500	3245	114600
413.5	60	3385	119600	3205	113200	4015	141800	4585	162000	5680	200600
862	125	3805	134400	3750	132500	5000	176600	5500	194300	6980	246500
1723.5	250	4305	152100	4525	159800	5645	199400	6285	222000	6935	245000

CG = 2240 K1= 106.78

Table 65 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		34.5 kPa 5 psig		48.3 kPa 7 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	1190	42100	1060	37500	-	-	-	-	-	-
103.5	15	2300	81300	2260	79900	2240	79200	2115	74700	1975	69800
207	30	3620	127900	3620	127900	3620	127900	3620	127900	3570	126100
413.5	60	5905	208600	5940	209800	5960	210500	6015	212500	6035	213200
862	125	6335	223800	6765	239000	7175	253400	7990	282200	8820	311500
1723.5	250	6290	222200	6720	237400	7125	251700	7935	280300	8760	309400

CG = 2240 K1= 106.78

Table 66 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

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

from 48 kPa | 7 psig up to 207 kPa | 30 psig
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		48 kPa 7 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		207 kPa 30 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	1895	67000	1560	55100	-	-	-	-	-	-
207	30	3245	114600	3225	113900	3005	106200	2635	93100	-	-
413.5	60	5680	200600	5665	200100	5300	187200	5590	197500	5340	188600
862	125	6980	246500	7480	264200	8535	301500	9355	330400	10425	368200
1723.5	250	6935	245000	7940	280400	9450	333800	10325	364700	12220	431600

CG = 2240 K1= 106.78

Table 67 Norval flow rate with outlet pressure from 48 kPa | 7 psig up to 207 kPa | 30 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		48 kPa 7 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		207 kPa 30 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	1975	69800	1620	57300	-	-	-	-	-	-
207	30	3570	126100	3430	121200	3165	111800	2750	97200	-	-
413.5	60	6035	213200	6035	213200	6040	213400	6040	213400	5595	197600
862	125	8820	311500	10015	353700	10985	388000	11250	397300	11260	397700
1723.5	250	8760	309400	9945	351300	11955	422200	13965	493200	17955	634100

CG = 2240 K1= 106.78

Table 68 Norval flow rate with outlet pressure from 48 kPa | 7 psig up to 207 kPa | 30 psig



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

from 103 kPa | 15 psig up to 414 kPa | 60 psig
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	3005	106200	2635	93100	1790	63300	-	-	-	-
413.5	60	5300	187200	5590	197500	5445	192300	5340	188600	-	-
862	125	8535	301500	9355	330400	10040	354600	10425	368200	9570	338000
1723.5	250	9450	333800	10325	364700	11575	408800	12220	431600	18180	642100

CG = 1360 K1= 106.78

Table 69 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	3165	111800	2750	97200	1960	69300	-	-	-	-
413.5	60	6040	213400	6040	213400	5755	203300	5595	197600	-	-
862	125	10985	388000	11250	397300	11255	397500	11260	397700	10880	384300
1723.5	250	11955	422200	13965	493200	16895	596700	17955	634100	21215	749300

CG = 1360 K1= 106.78

Table 70 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval - DN 3" d.630 mm

from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		1.2 kPa 5 " w.c.		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	1090	38500	1090	38500	1080	38200	1020	36100	-	-
34.5	5	1835	64900	1835	64900	1825	64500	1785	63100	1680	59400
103.5	15	2950	104200	2950	104200	2970	104900	3065	108300	3275	115700
207	30	4985	176100	4985	176100	4985	176100	4985	176100	4890	172700
413.5	60	4975	175700	4975	175700	4975	175700	4975	175700	5095	180000
862	125	2975	105100	2975	105100	3340	118000	4875	172200	5680	200600
1723.5	250	2955	104400	2955	104400	3485	123100	5615	198300	6045	213500

CG = 3395 K1= 106.78

Table 71 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		1.2 kPa 5 " w.c.		1.7 kPa 7 " w.c.		2.2 kPa 9 " w.c.		3.5 kPa 14 " w.c.		7 kPa 28 " w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	1160	41000	1160	41000	1145	40500	1065	37700	-	-
34.5	5	1890	66800	1890	66800	1890	66800	1880	66400	1785	63100
103.5	15	3560	125800	3560	125800	3545	125200	3495	123500	3475	122800
207	30	5360	189300	5360	189300	5365	189500	5425	191600	5455	192700
413.5	60	7530	266000	7530	266000	7440	262800	7985	282000	8905	314500
862	125	9115	321900	9115	321900	9135	322600	9260	327100	9610	339400
1723.5	250	9050	319600	9050	319600	9070	320400	9200	324900	9545	337100

CG = 3395 K1= 106.78

Table 72 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.



Norval - DN 3" d.495 mm

from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		34.5 kPa 5 psig		48.3 kPa 7 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	1680	59400	1520	53700	1240	43800	-	-	-	-
103.5	15	3275	115700	3065	108300	3255	115000	3095	109300	2870	101400
207	30	4870	172000	4790	169200	5130	181200	5225	184600	5105	180300
413.5	60	5075	179300	6035	213200	7405	261600	7685	271400	8560	302300
862	125	5630	198900	6310	222900	8670	306200	9650	340800	10605	374600
1723.5	250	6010	212300	6910	244100	8610	304100	9580	338400	10530	371900

CG = 3395 K1= 106.78

Table 73 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		34.5 kPa 5 psig		48.3 kPa 7 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	1785	63100	1605	56700	-	-	-	-	-	-
103.5	15	3475	122800	3430	121200	3365	118900	3200	113100	2975	105100
207	30	5455	192700	5480	193600	5445	192300	5460	192900	5380	190000
413.5	60	8905	314500	8465	299000	8555	302200	8955	316300	9075	320500
862	125	9600	339100	10205	360400	10860	383600	11615	410200	12795	451900
1723.5	250	9535	336800	10135	358000	10785	380900	12015	424400	13260	468300

CG = 3395 K1= 106.78

Table 74 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

Norval - DN 3" d.375 mm

from 48 kPa | 7 psig up to 207 kPa | 30 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		48 kPa 7 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		207 kPa 30 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	2870	101400	2360	83400	-	-	-	-	-	-
207	30	5105	180300	4775	168700	4335	153100	4010	141700	-	-
413.5	60	8560	302300	8040	284000	7830	276600	8345	294800	8185	289100
862	125	10605	374600	11115	392600	12600	445000	13460	475400	15930	562600
1723.5	250	10530	371900	11990	423500	14485	511600	14185	501000	20285	716400

CG = 3395 K1= 106.78

Table 75 Norval flow rate with outlet pressure from 48 kPa | 7 psig up to 207 kPa | 30 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		48 kPa 7 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		207 kPa 30 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	2975	105100	2465	87100	-	-	-	-	-	-
207	30	5380	190000	5195	183500	4800	169600	4155	146800	-	-
413.5	60	9075	320500	9145	323000	9150	323200	9155	323400	8465	299000
862	125	12795	451900	14750	520900	16650	588000	17045	602000	17085	603400
1723.5	250	13260	468300	15120	534000	18130	640300	21195	748500	27275	963300

CG = 3395 K1= 106.78

Table 76 Norval flow rate with outlet pressure from 48 kPa | 7 psig up to 207 kPa | 30 psig



Norval - DN 3" d.375/TR mm

from 103 kPa | 15 psig up to 414 kPa | 60 psig
flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	4335	153100	4010	141700	2710	95800	-	-	-	-
413.5	60	7830	276600	8345	294800	8310	293500	8185	289100	-	-
862	125	12600	445000	13460	475400	15195	536700	15930	562600	15805	558200
1723.5	250	14485	511600	14185	501000	18720	661100	20285	716400	25905	914900

CG = 3395 K1= 106.78

Table 77 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	4800	169600	4155	146800	3005	106200	-	-	-	-
413.5	60	9150	323200	9155	323400	8705	307500	8465	299000	-	-
862	125	16650	588000	17045	602000	17080	603200	17085	603400	16430	580300
1723.5	250	18130	640300	21195	748500	25665	906400	27275	963300	32175	1136300

CG = 3395 K1= 106.78

Table 78 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval - DN 4" d.630 mm

from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.2 kPa 5" w.c.		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	1635	57800	1615	57100	1600	56600	1550	54800	-	-
34.5	5	2740	96800	2700	95400	2680	94700	2680	94700	2580	91200
69	10	3765	133000	3850	136000	3905	138000	3855	136200	3805	134400
103.5	15	4530	160000	4565	161300	4585	162000	4575	161600	4800	169600
207	30	6990	246900	7005	247400	7010	247600	6735	237900	7045	248800
413.5	60	7295	257700	7710	272300	7955	281000	6970	246200	8950	316100
689.5	100	7275	257000	7690	271600	7935	280300	7090	250400	8930	315400

CG = 5100 K1= 106.78

Table 79 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.2 kPa 5" w.c.		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	1680	59400	1680	59400	1680	59400	1630	57600	-	-
34.5	5	2780	98200	2780	98200	2780	98200	2780	98200	2670	94300
69	10	4080	144100	4080	144100	4080	144100	4080	144100	4055	143300
103.5	15	4900	173100	4900	173100	4900	173100	4900	173100	4900	173100
207	30	7045	248800	7045	248800	7045	248800	7045	248800	7045	248800
413.5	60	9090	321100	9090	321100	9075	320500	9020	318600	9020	318600
689.5	100	11175	394700	11175	394700	11100	392000	10810	381800	10810	381800

CG = 5100 K1= 106.78

Table 80 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.



Norval - DN 4" d.495 mm

from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		34.5 kPa 5 psig		48.3 kPa 7 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	2580	91200	2230	78800	1730	61100	-	-	-	-
69	10	3805	134400	3640	128600	3480	122900	3195	112900	2365	83600
103.5	15	4785	169000	4595	162300	4875	172200	4550	160700	4205	148500
207	30	7045	248800	7005	247400	7075	249900	6925	244600	7530	266000
413.5	60	8950	316100	7785	275000	8950	316100	8400	296700	9635	340300
689.5	100	8930	315400	8490	299900	10295	363600	9745	344200	11505	406300

CG = 5100 K1= 106.78

Table 81 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		34.5 kPa 5 psig		48.3 kPa 7 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	2670	94300	2255	79700	-	-	-	-	-	-
69	10	4055	143300	3680	130000	3495	123500	3330	117600	2905	102600
103.5	15	4900	173100	4910	173400	4915	173600	4840	171000	4495	158800
207	30	7045	248800	7045	248800	7050	249000	7250	256100	7690	271600
413.5	60	9020	318600	9020	318600	9020	318600	9210	325300	9845	347700
689.5	100	10810	381800	10810	381800	10810	381800	10915	385500	12065	426100

CG = 5100 K1= 106.78

Table 82 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 48.3 kPa | 7 psig

Norval - DN 4" d.375 mm

from 48 kPa | 7 psig up to 207 kPa | 30 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		48 kPa 7 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		207 kPa 30 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	2365	83600	-	-	-	-	-	-	-	-
103.5	15	4205	148500	3350	118400	-	-	-	-	-	-
207	30	7530	266000	7195	254100	7320	258600	5560	196400	-	-
413.5	60	9635	340300	9400	332000	11855	418700	11455	404600	11975	422900
689.5	100	11505	406300	12975	458300	15440	545300	16870	595800	18175	641900

CG = 5100 K1= 106.78

Table 83 Norval flow rate with outlet pressure from 48 kPa | 7 psig up to 207 kPa | 30 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		48 kPa 7 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		207 kPa 30 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	2905	102600	-	-	-	-	-	-	-	-
103.5	15	4495	158800	3660	129300	-	-	-	-	-	-
207	30	7690	271600	7705	272100	7960	281200	6265	221300	-	-
413.5	60	9845	347700	10185	359700	11855	418700	12710	448900	12655	447000
689.5	100	12065	426100	14180	500800	15775	557100	17730	626200	18800	664000

CG = 5100 K1= 106.78

Table 84 Norval flow rate with outlet pressure from 48 kPa | 7 psig up to 207 kPa | 30 psig



Norval - DN 4" d.375/TR mm

from 103 kPa | 15 psig up to 414 kPa | 60 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	7320	258600	5560	196400	3475	122800	-	-	-	-
413.5	60	11855	418700	11455	404600	12365	436700	11975	422900	-	-
689.5	100	15440	545300	16870	595800	19220	678800	18175	641900	16500	582700

CG = 5100 K1= 106.78

Table 85 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig		207 kPa 30 psig		414 kPa 60 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	-	-	-	-	-	-	-	-	-	-
103.5	15	-	-	-	-	-	-	-	-	-	-
207	30	7960	281200	6265	221300	4445	157000	-	-	-	-
413.5	60	11855	418700	12710	448900	13150	464400	12655	447000	-	-
689.5	100	15775	557100	17730	626200	19665	694500	18800	664000	18275	645400

CG = 5100 K1= 106.78

Table 86 Norval flow rate with outlet pressure from 103 kPa | 15 psig up to 414 kPa | 60 psig

Norval - DN 6" d.817 mm

from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		1.2 kPa 5" w.c.		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	3400	120100	3400	120100	3370	119100	3180	112400	-	-
34.5	5	5725	202200	5725	202200	5690	201000	5570	196800	5240	185100
69	10	7570	267400	7570	267400	7710	272300	8160	288200	8005	282700
103.5	15	9205	325100	9205	325100	9275	327600	9560	337700	10225	361100
207	30	15560	549500	15560	549500	15560	549500	15560	549500	15270	539300
413.5	60	15525	548300	15525	548300	15525	548300	15525	548300	15900	561600
689.5	100	12715	449100	12715	449100	13270	468700	15485	546900	17140	605300

CG = 10600 K1= 106.78

Table 87 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		1.2 kPa 5" w.c.		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	3620	127900	3620	127900	3575	126300	3325	117500	-	-
34.5	5	5895	208200	5895	208200	5890	208100	5870	207300	5570	196800
69	10	8665	306100	8665	306100	8650	305500	8590	303400	8555	302200
103.5	15	11115	392600	11115	392600	11065	390800	10915	385500	10850	383200
207	30	16730	590900	16730	590900	16750	591600	16925	597800	17030	601500
413.5	60	23500	829900	23500	829900	23225	820200	24930	880400	27805	982000
689.5	100	27120	957800	27125	958000	27285	963600	28530	1007600	30040	1060900

CG = 10600 K1= 106.78

Table 88 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.



Norval - DN 6" d.658 mm

from 6.9 kPa | 1 psig up to 34.5 kPa | 5 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		27.6 kPa 4 psig		34.5 kPa 5 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	5240	185100	4740	167400	3860	136400	-	-	-	-
69	10	8010	282900	7540	266300	7305	258000	6995	247100	6550	231400
103.5	15	10225	361100	9560	337700	10165	359000	9950	351400	9655	341000
207	30	15210	537200	14950	528000	16010	565400	16410	579600	16305	575900
413.5	60	15835	559300	18835	665200	23110	816200	23145	817400	24000	847600
689.5	100	17020	601100	19430	686200	25840	912600	26750	944700	28690	1013200

CG = 10600 K1 = 106.78

Table 89 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 34.5 kPa | 5 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		27.6 kPa 4 psig		34.5 kPa 5 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	5570	196800	5005	176800	-	-	-	-	-	-
69	10	8555	302200	8305	293300	7855	277400	7455	263300	6890	243400
103.5	15	10850	383200	10710	378300	10495	370700	10280	363100	9990	352800
207	30	17030	601500	17105	604100	17045	602000	17040	601800	17040	601800
413.5	60	27805	982000	26585	938900	28360	1001600	28390	1002600	28460	1005100
689.5	100	30010	1059800	31900	1126600	33960	1199300	35885	1267300	37575	1327000

CG = 10600 K1 = 106.78

Table 90 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 34.5 kPa | 5 psig

Norval - DN 6" d.630 mm

from 21 kPa | 3 psig up to 62 kPa | 9 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		21 kPa 3 psig		28 kPa 4 psig		34 kPa 5 psig		48 kPa 7 psig		62 kPa 9 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	3860	136400	-	-	-	-	-	-	-	-
69	10	7305	258000	6995	247100	6550	231400	5685	200800	-	-
103.5	15	10165	359000	9950	351400	9655	341000	8965	316600	7945	280600
207	30	16010	565400	16410	579600	16305	575900	15940	563000	15370	542800
413.5	60	23110	816200	23145	817400	24000	847600	26725	943800	26220	926000
689.5	100	25840	912600	26750	944700	28690	1013200	32935	1163100	33410	1179900

CG = 10600 K1= 106.78

Table 91 Norval flow rate with outlet pressure from 21 kPa | 3 psig up to 62 kPa | 9 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		21 kPa 3 psig		28 kPa 4 psig		34 kPa 5 psig		48 kPa 7 psig		62 kPa 9 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	7855	277400	7455	263300	6890	243400	7860	277600	-	-
103.5	15	10495	370700	10280	363100	9990	352800	10415	367900	11090	391700
207	30	17045	602000	17040	601800	17040	601800	17110	604300	17140	605300
413.5	60	28360	1001600	28390	1002600	28460	1005100	28550	1008300	28555	1008500
689.5	100	33960	1199300	35885	1267300	37575	1327000	40080	1415500	41830	1477300

CG = 10600 K1= 106.78

Table 92 Norval flow rate with outlet pressure from 21 kPa | 3 psig up to 62 kPa | 9 psig



Norval - DN 6" d.495 mm

from 34 kPa | 5 psig up to 172 kPa | 25 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		34 kPa 5 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	6550	231400	-	-	-	-	-	-	-	-
103.5	15	9655	341000	7355	259800	-	-	-	-	-	-
207	30	16305	575900	14910	526600	13535	478000	12510	441800	7930	280100
413.5	60	24000	847600	25090	886100	24440	863100	26050	920000	26140	923200
689.5	100	28690	1013200	32900	1161900	33600	1186600	38880	1373100	39575	1397600

CG = 10600 K1 = 106.78

Table 93 Norval flow rate with outlet pressure from 34 kPa | 5 psig up to 172 kPa | 25 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		34 kPa 5 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	6890	243400	-	-	-	-	-	-	-	-
103.5	15	9990	352800	11155	394000	-	-	-	-	-	-
207	30	17040	601800	17120	604600	17045	602000	17110	604300	14330	506100
413.5	60	28460	1005100	28555	1008500	28565	1008800	28580	1009300	28245	997500
689.5	100	37575	1327000	42705	1508200	43745	1544900	43765	1545600	43675	1542400

CG = 10600 K1 = 106.78

Table 94 Norval flow rate with outlet pressure from 34 kPa | 5 psig up to 172 kPa | 25 psig

Norval - DN 8" d.817 mm

from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		1.2 kPa 5" w.c.		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	5325	188100	5325	188100	5275	186300	4980	175900	-	-
34.5	5	8960	316500	8960	316500	8915	314900	8720	308000	8205	289800
69	10	11850	418500	11850	418500	12075	426500	12780	451400	12535	442700
103.5	15	14415	509100	14415	509100	14525	513000	14970	528700	16010	565400
207	30	24365	860500	24365	860500	24365	860500	24365	860500	23910	844400
413.5	60	24310	858600	24310	858600	24310	858600	24315	858700	24900	879400
689.5	100	19910	703200	19910	703200	20775	733700	24250	856400	26840	947900

CG = 16600 K1= 106.78

Table 95 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		1.2 kPa 5" w.c.		1.7 kPa 7" w.c.		2.2 kPa 9" w.c.		3.5 kPa 14" w.c.		7 kPa 28" w.c.	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	5670	200300	5670	200300	5600	197800	5205	183900	-	-
34.5	5	9230	326000	9230	326000	9225	325800	9195	324800	8720	308000
69	10	13570	479300	13570	479300	13545	478400	13455	475200	13395	473100
103.5	15	17410	614900	17410	614900	17325	611900	17090	603600	16990	600000
207	30	26195	925100	26195	925100	26225	926200	26505	936100	26670	941900
413.5	60	36800	1299600	36800	1299600	36370	1284400	39040	1378700	43545	1537800
689.5	100	42475	1500000	42475	1500000	42730	1509000	44675	1577700	47045	1661400

CG = 16600 K1= 106.78

Table 96 Norval flow rate with outlet pressure from 1.2 kPa | 5" w.c. up to 7 kPa | 28" w.c.



Norval - DN 8" d.658 mm

from 6.9 kPa | 1 psig up to 34.5 kPa | 5 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		27.6 kPa 4 psig		34.5 kPa 5 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	8205	289800	7425	262300	6045	213500	-	-	-	-
69	10	12540	442900	11805	416900	11440	404100	10955	386900	10260	362400
103.5	15	16010	565400	14970	528700	15915	562100	15580	550300	15120	534000
207	30	23815	841100	23410	826800	25075	885600	25700	907600	25530	901600
413.5	60	24800	875900	29495	1041700	36195	1278300	36240	1279900	37580	1327200
689.5	100	26655	941400	30430	1074700	40470	1429200	41890	1479400	44930	1586700

CG = 16600 K1 = 106.78

Table 97 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 34.5 kPa | 5 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		6.9 kPa 1 psig		13.8 kPa 2 psig		20.7 kPa 3 psig		27.6 kPa 4 psig		34.5 kPa 5 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	8720	308000	7840	276900	-	-	-	-	-	-
69	10	13395	473100	13005	459300	12300	434400	11675	412300	10785	380900
103.5	15	16990	600000	16765	592100	16435	580400	16100	568600	15645	552500
207	30	26670	941900	26785	946000	26690	942600	26685	942400	26685	942400
413.5	60	43540	1537700	41630	1470200	44410	1568400	44460	1570100	44565	1573800
689.5	100	46995	1659700	49960	1764400	53180	1878100	56195	1984600	58845	2078100

CG = 16600 K1 = 106.78

Table 98 Norval flow rate with outlet pressure from 6.9 kPa | 1 psig up to 34.5 kPa | 5 psig

Norval - DN 8" d.630 mm

from 21 kPa | 3 psig up to 62 kPa | 9 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)

Inlet pressure		Outlet pressure									
		21 kPa 3 psig		28 kPa 4 psig		34 kPa 5 psig		48 kPa 7 psig		62 kPa 9 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	6045	213500	-	-	-	-	-	-	-	-
69	10	11440	404100	10955	386900	10260	362400	11745	414800	-	-
103.5	15	15915	562100	15580	550300	15120	534000	15745	556100	16660	588400
207	30	25075	885600	25700	907600	25530	901600	25435	898300	25170	888900
413.5	60	36195	1278300	36240	1279900	37580	1327200	41850	1478000	41060	1450100
689.5	100	40470	1429200	41890	1479400	44930	1586700	51580	1821600	52320	1847700

CG = 16600 K1= 106.78

Table 99 Norval flow rate with outlet pressure from 21 kPa | 3 psig up to 62 kPa | 9 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)

Inlet pressure		Outlet pressure									
		21 kPa 3 psig		28 kPa 4 psig		34 kPa 5 psig		48 kPa 7 psig		62 kPa 9 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	12300	434400	11675	412300	10785	380900	12310	434800	-	-
103.5	15	16435	580400	16100	568600	15645	552500	16310	576000	17365	613300
207	30	26690	942600	26685	942400	26685	942400	26795	946300	26840	947900
413.5	60	44410	1568400	44460	1570100	44565	1573800	44705	1578800	44715	1579100
689.5	100	53180	1878100	56195	1984600	58845	2078100	62765	2216600	65505	2313300

CG = 16600 K1= 106.78

Table 100 Norval flow rate with outlet pressure from 21 kPa | 3 psig up to 62 kPa | 9 psig



Norval - DN 8" d.495 mm

from 34 kPa | 5 psig up to 172 kPa | 25 psig

flow capacity table

Norval flow rate (Accuracy 10% ; AC10 according to EN334)											
Inlet pressure		Outlet pressure									
		34 kPa 5 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	10260	362400	-	-	-	-	-	-	-	-
103.5	15	15120	534000	16680	589100	-	-	-	-	-	-
207	30	25530	901600	24650	870600	24175	853800	25795	911000	16775	592500
413.5	60	37580	1327200	39295	1387700	38275	1351700	40800	1440900	40250	1421500
689.5	100	44930	1586700	51520	1819500	52615	1858100	60890	2150400	61850	2184300

CG = 16600 K1= 106.78

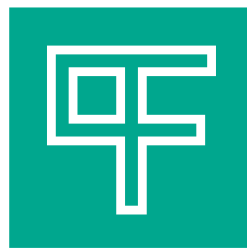
Table 101 Norval flow rate with outlet pressure from 34 kPa | 5 psig up to 172 kPa | 25 psig

Norval flow rate (Accuracy 20% ; AC20 according to EN334)											
Inlet pressure		Outlet pressure									
		34 kPa 5 psig		69 kPa 10 psig		103 kPa 15 psig		138 kPa 20 psig		172 kPa 25 psig	
KPa	psig	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh	Stm ³ /h	Scfh
14	2	-	-	-	-	-	-	-	-	-	-
34.5	5	-	-	-	-	-	-	-	-	-	-
69	10	10785	380900	-	-	-	-	-	-	-	-
103.5	15	15645	552500	17465	616800	-	-	-	-	-	-
207	30	26685	942400	26810	946800	26695	942800	26790	946100	22845	806800
413.5	60	44565	1573800	44720	1579300	44735	1579900	44755	1580600	44335	1565700
689.5	100	58845	2078100	66880	2361900	68510	2419500	68535	2420300	68270	2411000

CG = 16600 K1= 106.78

Table 102 Norval flow rate with outlet pressure from 34 kPa | 5 psig up to 172 kPa | 25 psig





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