

# HON 5020 Gas Pressure Regulator - MANUAL

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HON 5020 Gas Pressure Regulator  
Manual



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Pressure Regulator  
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Devtech has a large inventory of gas meters, regulators, valves, filters, strainers, gauges, and prefab meter/regulator sets.

Devtech is the exclusive distributor for Steel Blue Fabrication, LLC in the Southeast U.S. offering prefabricated meter/regulator sets and stations as well as design assistance.

Devtech is an award winning distributor for some of the top names in the gas industry such as ABB Totalflow, Balon, Cameron, Honeywell, Itron, Jomar, Parker, and YZ Systems, just to name a few.

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## **HON 5020 GAS PRESSURE REGULATOR**

Enabling Dependable Gas Operations

# Accurate & Reliable

Honeywell's HON 5020 gas pressure regulator provides accurate and reliable pressure reduction for a wide range of gas industry operations. This innovative regulator improves upon existing technologies with its precision grid plate design, versatile flow options, wide operational pressure range, and easy in-line service and maintenance capability.

## *The HON 5020 Meets Today's Rigorous Demands:*

- Reduce total cost of ownership
- Achieve greater efficiency
- Meet individual operational requirements
- Improve reliability under all conditions.



Today's natural gas industry has a growing demand for operational excellence. Pilot-operated gas regulators must provide reliable performance in applications ranging from gas distribution systems, to gas-fired power plants and processing facilities. The regulators are also employed in commercial and industrial gas service.

## **With the HON 5020 Users Benefit from:**

- Simplified design for long service life
- Small number of moving parts
- High sensitivity and accuracy
- Precise control of set outlet pressure
- Ability to handle flow rate variations
- Low maintenance requirements
- Low differential pressure requirements.



Honeywell's HON 5020 gas pressure regulator is designed for gas pressure reduction service in municipal distribution, gas transmission, and industrial power plant applications. Featuring state-of-the-art external pilot operation for safe and accurate control of outlet pressure, it sets the standard for dependable performance.

### **Precise Gas Regulation**

In fuel gas and commercial/industrial service applications, the HON 5020 regulator is used to ensure a desired reduced outlet pressure while providing the necessary flow to satisfy downstream demand. This rugged and dependable product delivers smooth and reliable operation, tight shutoff, and long life.

## **Advantages for Your Operation**

### **Low Cost of Ownership**

The HON 5020 drives down maintenance and repair costs at gas facilities. The regulator is configured for convenient in-line service, so long-term cost of ownership remains low.

### **Improved Uptime**

With the HON 5020's simplified design, failures are uncommon and it is easy to perform routine instrument repairs when needed. Sites no longer have to deal with unexpected shutdowns and interruptions of normal operation due to frequent device malfunctions.

### **Reduced Risk**

Honeywell's knowledgeable subject matter experts work with customers on all aspects of product and application planning for gas pressure regulator installations. Our certified field technicians can assist with start-up, commissioning and field service. We provide on-site technical support, as well as dependable response to your spare parts needs.





#### **Best-in-Class Features:**

- Excellent regulating accuracy even at low flow and during start-up phase
- Precise slotted grid plate design
  - Minimizes noise emissions
  - Reduced flow options available
- State-of-the-art external pilot operation
  - Reliable control of outlet pressure
- Convenient top-entry configuration
  - Reduces maintenance requirements
- Compact size
- Completely pre-mounted pilot/filter
  - Enables easy installation
- Reduced number of internal parts
  - Ensures quiet operation
- Optimized flow characteristics
  - Up to 38% higher capacity vs. best alternative technology
  - Allows for downsizing of the regulator
  - Low differential pressure requirement
- Reduced effect of extreme temperature on operation
- Integral pilot provides reliability under all conditions
  - For inlet pressure up to 1480 psi (102 barg)
  - For outlet pressure up to 580 psi (40 barg)
- Less downtime due to high stability and functionality
- Simple in-line maintenance
- Optional metal foam silencer
  - Reduces noise up to 20db(A).



# Make the Right Choice

Honeywell offers industry-leading gas control, measurement, and analysis equipment to gas utilities and other users around the world. We have expertise along the entire gas supply chain, with products and systems that enable you to exercise full control over your regulating and measuring needs.

## Advantages for Your Operation

Honeywell is recognized for long-term reliability and performance, lowest total cost of ownership and installation, and outstanding technical training, field support and customer service.

Today, no other regulator manufacturer offers more products and services for the gas industry than Honeywell. With the most complete line of gas regulators and global service and support capabilities, we have the products you need, ready for immediate delivery.

## Formulas

C <sub>g</sub> (imperial)	KG (EN 334 metric)
a) For sub-critical flow (sine function reaches 90 deg): $Q_{scfh} = \sqrt{\frac{520}{GT}} * C_g * p_u * \sin \left[ \frac{3417}{C_l} \sqrt{\frac{p_u - p_d}{p_u}} \right] \text{ deg}$	a) For sub-critical flow ( $p_u - p_d \leq 0.5 * p_u$ ): $Q = K_G * \sqrt{(p_u * (p_u - p_d))}$
b) For critical flow (sine function equals unity): $Q_{scfh} = \sqrt{\frac{520}{GT}} * C_g * p_u$	b) For critical flow ( $p_u - p_d > 0.5 * p_u$ ): $Q = K_G * \frac{p_u}{2}$

	Symbols	Imperial Units/ Factors	Metric Units/ Factors	Comment
Flow Volume	Q	ft <sup>3</sup> /h	m <sup>3</sup> /h	
Inlet-Pressure	p <sub>u</sub>	psia	bara	Absolute
Outlet-Pressure	p <sub>d</sub>	psia	bara	Absolute
Temperature	T	°Rankine	Kelvin	Kelvin=°Celsius + 273.15 °Rankine =°Fahrenheit + 459.67
Density	d	relative density to air [dimensionless]		
Body shape factor	C <sub>1</sub>			
Flow coefficient	C <sub>g</sub>	flow coefficient at 520°Ra and density d=1		
Flow coefficient	K <sub>G</sub> (DIN EN 334)	flow coefficient at 288.15K and density d=0.64		
<b>Type of Gas</b>	<b>d</b>			
air	1			
natural gas (EU)	0.64			
natural gas (US)	0.61			
propane	1.53			
butane	2.00			
nitrogen	0.97			
oxygen	1.14			
carbon dioxide	1.52			

Wherever you are, you can count on Honeywell's commitment to product quality, reliability, safety and performance.

## Technical Specifications

Service Conditions		
Maximum Inlet	Up to 102 bar	Up to 1480 psi
Maximum Inlet	3 bar	43 psi
Pilot	Max Inlet	Outlet Range
HON 600	25 bar 363 psi	0.015 to 8.0 bar 0.22 to 116 psi
HON 625	25 bar 363 psi	0.02 to 5.0 bar 0.3 to 73 psi
HON 630	100 bar 1450 psi	0.03 to 90 bar 0.4 to 1305 psi
HON 630-1 (one stage)	100 bar 1450 psi	0.03 to 90 bar 0.4 to 1305 psi
HON 640a*)	100 bar 1450 psi	0.5 to 90 bar 7 to 1305 psi
S60	100 bar 1450 psi	0.2 to 62 bar 30 to 900 psi
Min. Operating Differential	0.5 bar recommended > 1.5 bar (4 bar for DN25)	7 psi recommended > 22 psi (58 psi for 1")
Max. Operating Differential	Class 150: 19 bar	275 psi
	Class 300: 51 bar	725 psi
	Class 600: 70 bar	1015 psi
Temperature Range Min/ Max	-29°C to 66°C -40°C to 79°C Temperature class II according to EN 334	-20°F to 150°F -40°F to 175°F
Certification	CSA B51-0.9, ASME section VIII, etc. CE registration acc to PED, EN 334 depending on pilot version	
Accuracy Class AC	Up to AC 1	
Lock-up Pressure Class SG	Up to SG 5	
Trim Plates	25%, 50%, 75%, 100%	
Noise reduction	Up to 20 dB(a)	

\*) CRN certified

Sizes	DN25/1", DN50/2", DN80/3", DN100/4", DN150/6"
Flanges to:	ANSI B16.5 - class 150/300/600 EN 1759/1 - class 150/300/600 EN1092-1 - PN16, PN25, PN40

Capacity*)			
Size	Metric Units	Imperial Units	Body Shape Factor
	KG (DIN EN334)	C <sub>g</sub>	C <sub>1</sub>
DN25/1"	450	500	34
DN50/2"	1,800	2000	34
DN80/3"	4,690	5200	34
DN100/4"	7,900	8770	34
DN150/6"	16,400	18200	34
Trim plates	Maximum Capacity: 100%, 75%, 50%, 25%		

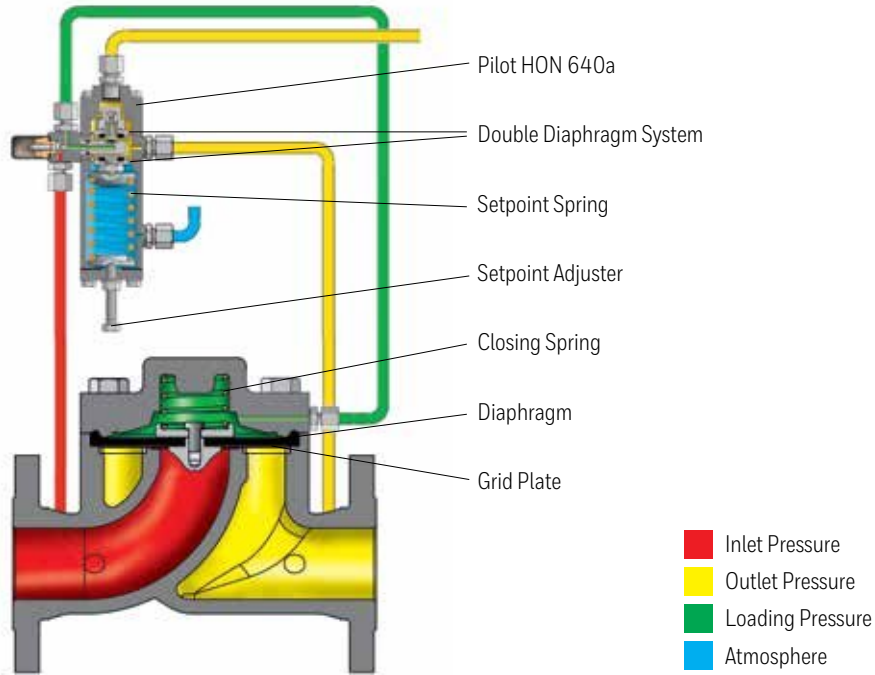
\*) with (optional) internal silencer and depending on pressure differences, capacity can be reduced by several percentages

## Materials of Construction and Dimensions

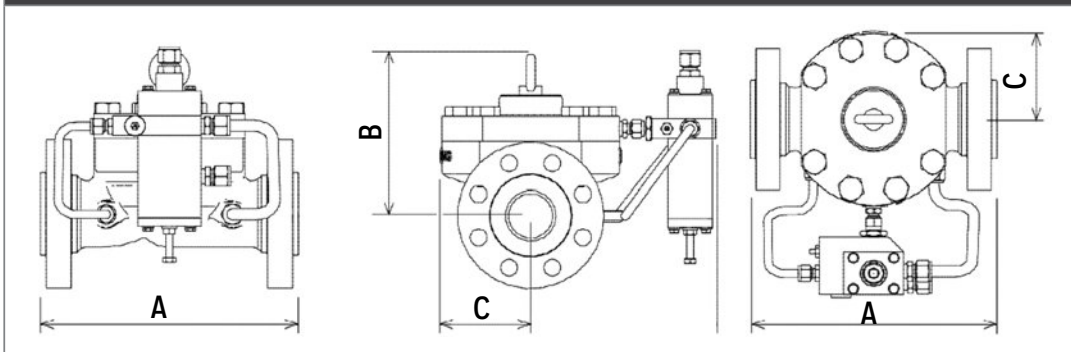
Materials of Construction*)	
Main Regulator	
Body	Cast Steel: ASTM-A352 Grade LCC
Top Cover	Carbon Steel Plate
Grid Plate	Stainless Steel
Main Spring	Stainless Steel/Carbon Spring Steel
Top Diaphragm Plate	Stainless Steel
Bottom Diaphragm Plate	Stainless Steel
Diaphragm	Nitrile/ECO
Seals	Nitrile or Viton
Connection Pipes	Steel or Stainless Steel
Pilots—HON 600/625/630/635/638/640a/642/S60	
Housing	Aluminum or brass
Diaphragm	Nitrile
Seals	Nitrile or Viton or Buna

\*) NACE compliant versions available on customer request.

## Sectional Drawing



### Dimensions and Weights



Size	Flange	A = Face-to-face Length (mm)	B		C		Weight*)		
			(inch)	(mm)	(inch)	(mm)	(kg)	(lbs)	
DN25/1"	CL150/PN16	184	7.24	164	6.46	72	2.83	14	30
	CL300/PN25/PN40	197	7.76	164	6.46	72	2.83	15	33
	CL600	210	8.27	164	6.46	72	2.83	15	34
DN50/2"	CL150/PN16	254	10.00	190	7.48	83	3.27	22	48
	CL300/PN25/PN40	267	10.51	190	7.48	83	3.27	24	53
	CL600	286	11.26	190	7.48	83	3.27	29	64
DN80/3"	CL150/PN16	298	11.73	240	9.45	100	3.94	43	96
	CL300/PN25/PN40	317	12.48	240	9.45	100	3.94	48	106
	CL600	337	13.27	240	9.45	100	3.94	67	149
DN100/4"	CL150/PN16	352	13.86	270	10.63	145	5.71	69	151
	CL300/PN25/PN40	368	14.49	270	10.63	145	5.71	77	170
	CL600	394	15.51	270	10.63	145	5.71	93	205
DN150/6"	CL150/PN16	451	17.76	301	11.85	192	7.56	130	287
	CL300/PN25/PN40	473	18.62	297	11.69	192	7.56	147	324
	CL600	508	20.00	302	11.89	201	7.91	193	426

\*) weights given are for system including pilot HON600, for systems with other pilots can be slightly deviate



**For more information**

To learn more about Honeywell's  
Advanced Gas Solutions, visit  
[www.honeywellprocess.com](http://www.honeywellprocess.com) or contact  
your Honeywell account manager.

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