

## **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

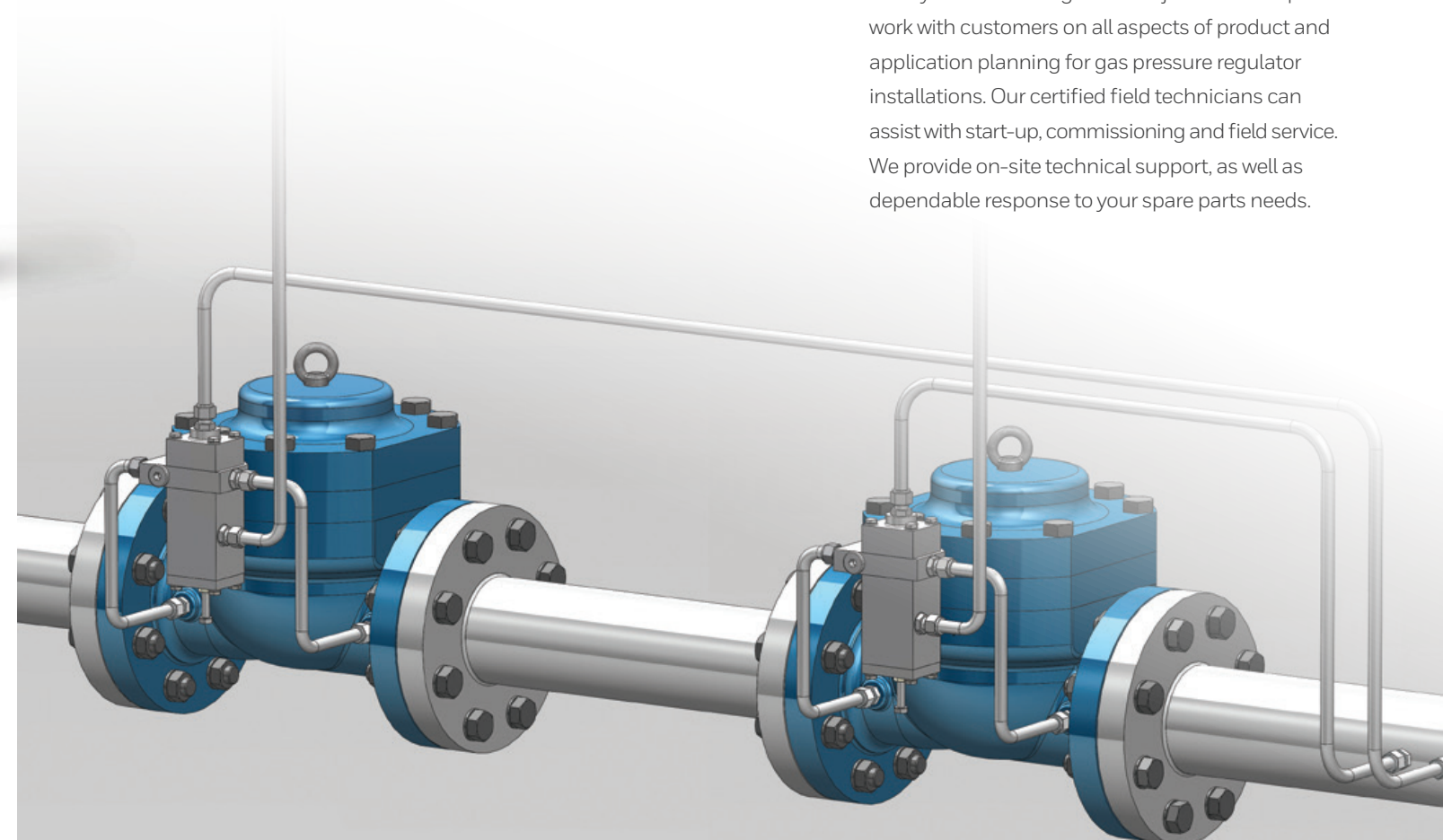
The HON 5020 drives down maintenance and repair costs at gas facilities. The regulator is configured for convenient in-line service, so long-term cost of ownership remains low.

### 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): $Q_{scfh} = \sqrt{\frac{520}{GT}} * C_g * p_u * \sin\left[\frac{3417}{C_i} \sqrt{\frac{p_u - p_d}{p_u}}\right] \text{deg}$	a) For sub-critical flow (pu-pd) ≤ 0.5* pu: $Q = K_G * \sqrt{(p_d * (p_u - p_d))}$
b) For critical flow (sine function equals unity): $Q_{scfh} = \sqrt{\frac{520}{GT}} * C_g * p_u$	b) For critical flow (pu-pd) > 0.5* pu: $Q = K_G * \frac{p_u}{2}$

	Symbols	Imperial Units/ Factors	Metric Units/ Factors	Comment
Flow Volume	Q	ft³/h	m³/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		
Type of Gas	d			
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			

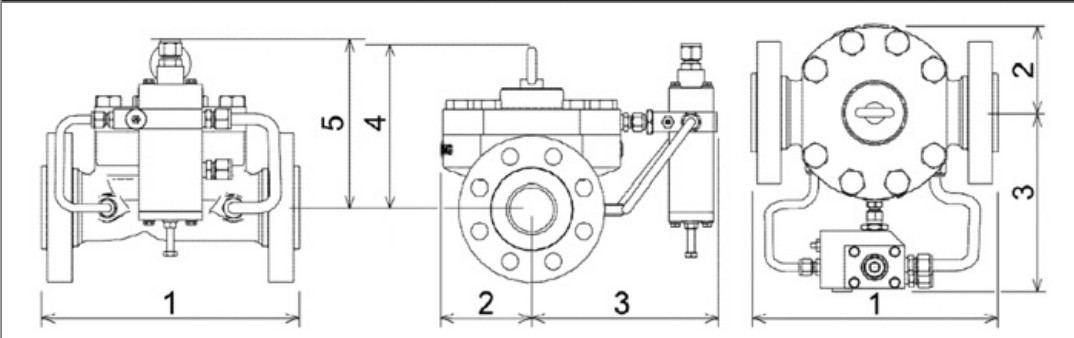
Wherever you are, you can count on Honeywell’s commitment to product quality, reliability, safety and performance.

Technical Specifications

Service Conditions					
Maximum Inlet Pressure	Up to 102 bar	Up to 1480 psi			
Minimum Inlet Pressure	3 bar	43 psi psia			
Outlet Pressure Range	HON 640a pilot				
	0.5 to 40 bar	7 to 580 psi			
	HON 600 Pilot				
	LP 0.015 to 0.5 bar MP 0.14 to 4 bar HP 0.7 to 8.0 bar	0.22 to 7 psi 2 to 58 psi 10 to 116 psi			
Min. Operating Differential	0.5 bar (4 bar for DN25)	7 psi (58 psi for 1")			
Max. Operating Differential	Class 150: 19 bar Class 300: 51 bar Class 600: 70 bar	275 psi 725 psi 1015 psi			
Temperature Range Min/max Temperature	-29°C to +66°C -40°C to +79°C	-20°F to +150°F -40°F to +175°F			
Specification	CSA B51-09, ASME Section VIII-1, ASME Section VIII-2; CE registration acc. to PED				
Accuracy Class AC	Up to AC 2.5				
Lock-up Pressure Class SG	Up to SG 10				
Size Range					
	Flanges to:	Max. Inlet Pressure			
1" (DN25)	ANSI B16.5 – class 150/300/600	285/740/1480 psi (19/51/102 bar)			
2" (DN50)	ANSI B16.5 – class 150/300/600	285/740/1480 psi (19/51/102 bar)			
3" (DN80)	ANSI B16.5 – class 150/300/600	285/740/1480 psi (19/51/102 bar)			
4" (DN100)	ANSI B16.5 – class 150/300/600	285/740/1480 psi (19/51/102 bar)			
6" (DN150)	ANSI B16.5 – class 150/300/600	285/740/1480 psi (19/51/102 bar)			
Capacity					
	Metric Units		Imperial Units		Body Shape Factor
	K <sub>G</sub> (DIN EN 334)*	C <sub>g</sub> (DIN EN 334)*	C <sub>g</sub> *	Capacity with Silencer	C <sub>1</sub>
1"	500	450	500	95%	34
2"	1800	1600	2000	95%	34
3"	4500	4200	5200	75%	34
4"	9500	8600	10700	75%	34
6"	14000	12600	18000	75%	34

**\*Standard Conditions**  
K<sub>G</sub> (DIN EN 334): pressure in bar (abs.); temperature 288.15° Kelvin; relative density d = 0.64 (natural gas EU); flow value in m³/h.  
C<sub>g</sub> (DIN EN 334): pressure in bar (abs.); temperature 288.15° Kelvin; relative density d = 0.64 (natural gas EU); flow value in m³/h.  
C<sub>g</sub>: pressure in psi (abs.); temperature 520° Rankine; relative density d = 1 (air); flow value in ft³/h.

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		Aluminum											
Bottom Diaphragm Plate		Aluminum											
Diaphragm		Nitrile/ECO											
Seals		Nitrile											
Connection Pipes		Stainless Steel											
Pilot—HON 640a													
Housing		Aluminum											
Diaphragm		Nitrile											
Seals		Nitrile											
Pilot—HON 600													
Housing		Aluminum											
Diaphragm		Nitrile											
Seals		Nitrile											
Dimensions and Weights													
													
Size	Class	1		2		3		4		5		Weight	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg
1" (DN 25)	150	7.24	184	2.83	72	5.95	151	6.46	164	6.54	166	29.8	13.7
	300	7.76	197	2.83	72	6.93	176	6.46	164	6.54	166	32.8	14.9
	600	8.27	210	2.83	72	6.93	176	6.46	164	6.54	166	33.6	15.4
2" (DN 50)	150	10	254	3.23	82	7.32	186	7.17	182	7.32	186	47.6	21.6
	300	10.51	267	3.23	82	7.32	186	7.17	182	7.32	186	52.9	24
	600	11.26	286	3.98	101	8.03	204	7.17	182	6.54	166	63.5	28.8
3" (DN 80)	150	11.73	298	4.80	122	8.58	218	8.70	221	7.80	198	95.7	43.4
	300	12.48	317	4.80	122	9.06	230	8.70	221	7.80	198	105.8	48
	600	13.27	337	5	127	9.06	230	8.70	221	7.80	198	148.6	67.4
4" (DN 100)	150	13.86	352	5.71	145	9.84	250	10.04	255	8.98	228	151	68.5
	300	14.49	368	5.71	145	9.84	250	10.04	255	8.98	228	170	77.1
	600	15.51	394	5.71	145	9.84	250	10.04	255	8.98	228	205	93
6" (DN 150)	150	17.76	451	7.56	192	11.61	295	11.85	301	10.59	269	286.6	130
	300	18.62	473	7.56	192	11.97	304	11.69	297	10.59	269	324.1	147
	600	20	508	7.91	201	11.97	304	11.89	302	10.59	269	425.5	193

#### 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.

#### Honeywell Process Solutions

1250 West Sam Houston Parkway South  
Houston, TX 77042

Phone: 1-602-293-1866 Option 4

Osterholzstrasse 45, 23123

Kassel, Germany

Phone: +49 (0) 561 5007000

Emaar Business Park, Building 2

Sheikh Zayed Road, PO Box 232362

Dubai, United Arab Emirates

Phone: +971 4 4505800

1st Floor, Block B, No. 10, Jalan Bersaru 13/4

46200, Petaling Jaya Selangor DE, Malaysia

Phone: +603 7626 5700

A1 Building, C&W Industry Zone

No. 14, Jiuxianqiao Rd., Chaoyang District

Beijing, P.R. China 100015

Phone: +86 10-56696001

[www.honeywellprocess.com](http://www.honeywellprocess.com)



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