

## Integral Pilot-Operated, Dome-Loaded Pressure-Reducing Regulators—RD(H)20 and RD(H)25 Series

### Features

- Balanced poppet design
- Diaphragm sensing
- Integral pilot regulator with dynamic regulation
- Dome-to-outlet pressure ratio approximately 1:1
- Large dome for improved stability

### Options

- External feedback (EF) for improved performance
  - EF to main regulator limited by standard outlet pressure range
  - EF to pilot regulator limited to 290 psig (20.0 bar)
- NACE MR0175/ISO 15156-compliant models
- Special cleaning to ASTM G93 Level C



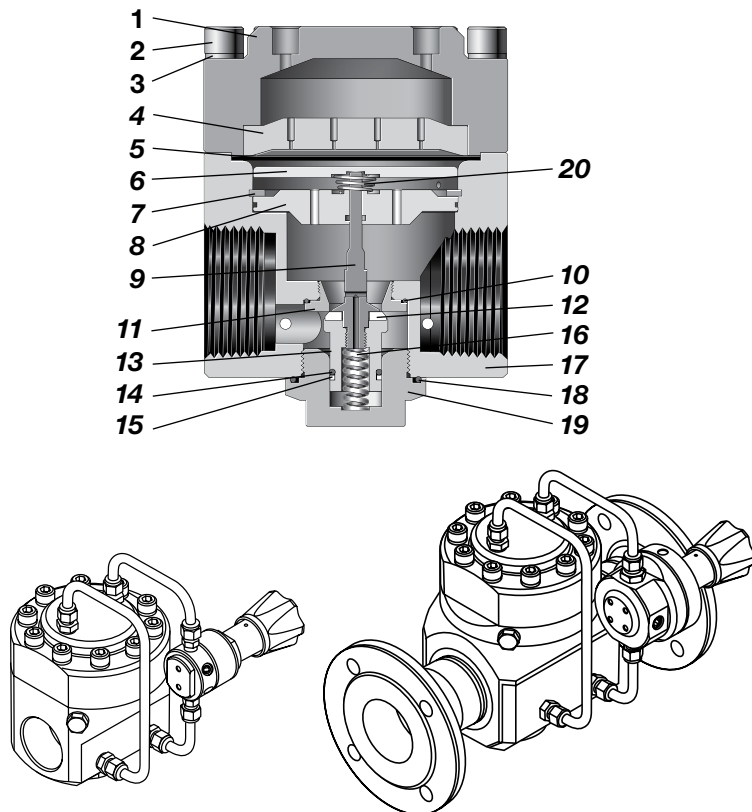
### Technical Data

Series	Maximum Inlet Pressure psig (bar)	Maximum Outlet Control Pressure psig (bar)	Sensing Type	Temperature Range °F (C°)	Flow Coefficient (C <sub>v</sub> )	Seat Diameter in. (mm)	Inlet and Outlet Connections	Gauge / Dome Connection	Weight (Without Flanges) lb (kg)
RD20 RDH20	RD: 1015 (70.0) (507 [35.0] with LRS4 pilot regulator) RDH: 5800 (400)	RD: 1015 (70.0) RDH: 2900 (200)	Diaphragm	-4 to 176 (-20 to 80) See <b>Pressure-Temperature Ratings</b> , page 32.	13	0.98 (25.0)	2 in. NPT, ISO/BSP parallel thread, EN or ASME flange	Use P1 gauge connection of pilot regulator. Dome: 1/4 in. ISO/BSP parallel thread	44 (20)
RD25 RDH25	RD: 1015 (70.0) RDH: 4060 (280)				21	1.25 (32.0)	2 1/2 in. EN or ASME flange		88 (40)

See pages 50 and 50 for RD(H)20 flow data.

### Materials of Construction

RDH20 Series Regulator with Hard Seat Seal



Component	Material / Specification
1 Dome	316L SS / A479 or EN10088
2 Cap screw	A4-80
3 Washer	A4
4 Dome plate	316L SS / A479 or EN10088
5 Diaphragm	EPDM, FKM, or nitrile
6 Diaphragm plate	316L SS / A479 or EN10088
7 Retaining ring	Commercial stainless steel
8 Body plate	316L SS / A479 or EN10088
9 Poppet	
10 O-ring	EPDM, FKM, or nitrile
11 Seat	316L SS / A479 or EN10088
12 Seat seal	RD EPDM, FKM, or nitrile
	RDH PCTFE or PEEK
13 Poppet housing	316L SS / A479 or EN10088
14 O-ring	EPDM, FKM, or nitrile
15 Backup ring	PTFE
16 Poppet spring	302 SS / A240
17 Body	316L SS / A479 or EN10088
18 Plug O-ring	EPDM, FKM, or nitrile
19 Body plug	316L SS / A479 or EN10088
20 Conical spring (RDH20 only)	302 SS / A240

Wetted lubricants: *Silicone-based and synthetic hydrocarbon-based*

Wetted components listed in *italics*.  
Gauge plugs (not shown): 431 SS / A276.

RDH20 with RS2 Pilot Regulator

RD25 with LRS4 Pilot Regulator

### Flow Data

The graphs illustrate the change or “droop” in outlet pressures as the flow rate increases. For more flow curve information, contact your authorized Swagelok representative.

### RD20 Series

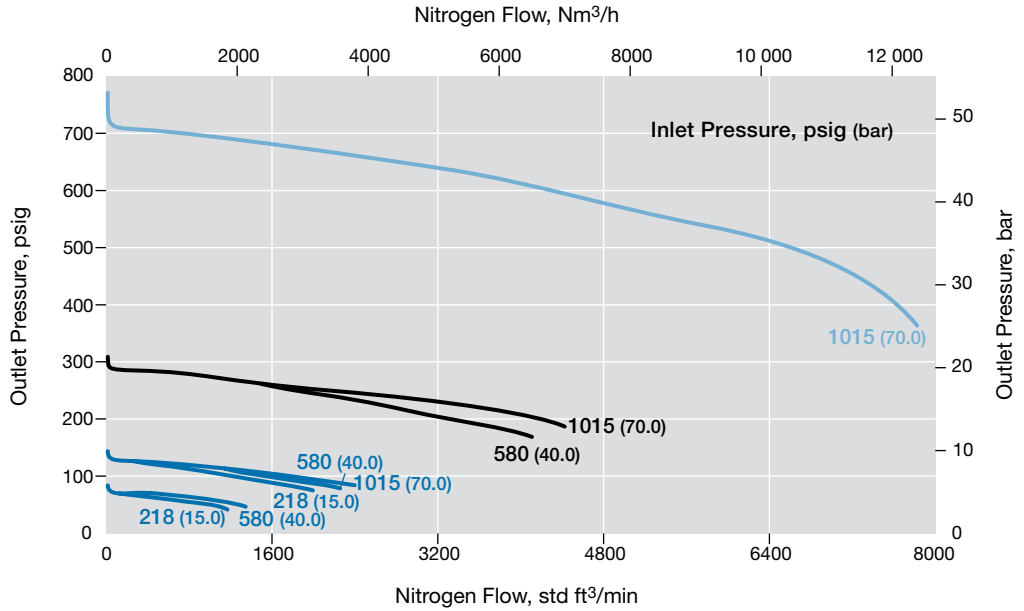
**Flow Coefficient: 13**

**Maximum Inlet Pressure: 1015 psig (70.0 bar)**

**Outlet Pressure Control Range: 0 to 1015 psig (0 to 70.0 bar)**

**Pressure Control Range**

- 0 to 130 psig (0 to 9.0 bar)
- 0 to 290 psig (0 to 20.0 bar)
- 0 to 1015 psig (0 to 70.0 bar)



### RDH20 Series

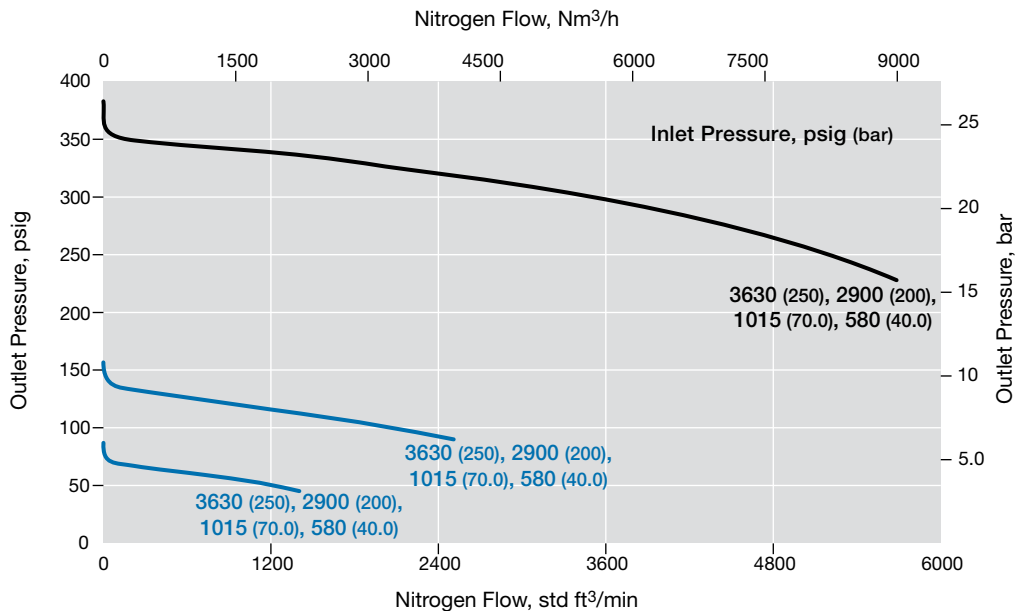
**Flow Coefficient: 13**

**Maximum Inlet Pressure: 5800 psig (400 bar)**

**Outlet Pressure Control Range: 0 to 362 psig (0 to 25.0 bar)**

**Pressure Control Range**

- 0 to 145 psig (0 to 10.0 bar)
- 0 to 362 psig (0 to 25.0 bar)



### Flow Data

The graphs illustrate the change or “droop” in outlet pressures as the flow rate increases. For more flow curve information, contact your authorized Swagelok representative.

### RDH20 Series

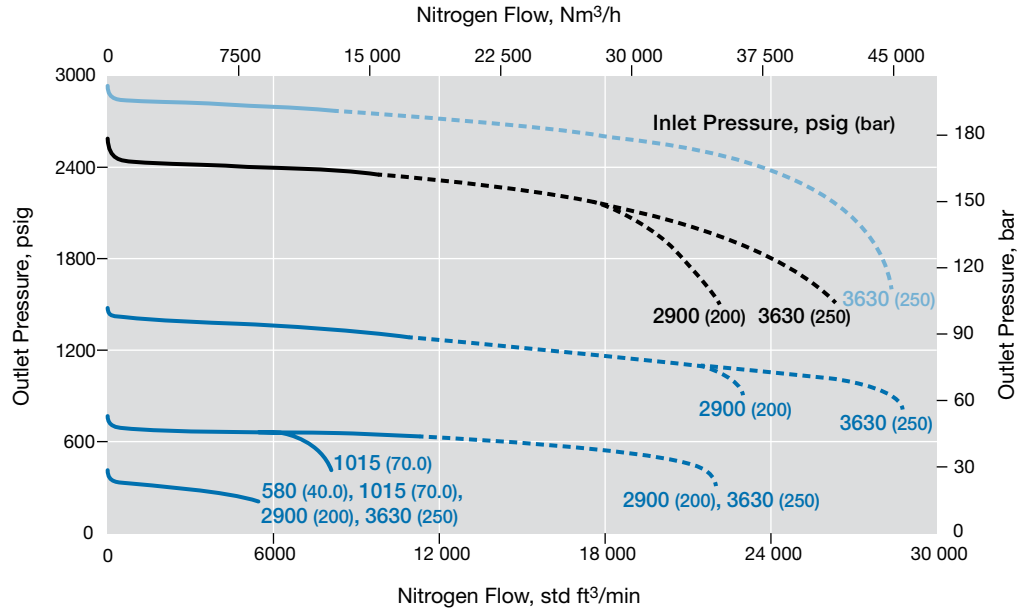
**Flow Coefficient: 13**

**Maximum Inlet Pressure: 5800 psig (400 bar)**

**Outlet Pressure Control Range: 0 to 2900 psig (0 to 200 bar)**

#### Pressure Control Range

- 0 to 1450 psig (0 to 100 bar)
- - - 0 to 1450 psig (0 to 100 bar), calculated
- 0 to 2537 psig (0 to 175 bar)
- - - 0 to 2537 psig (0 to 175 bar), calculated
- 0 to 2900 psig (0 to 200 bar)
- - - 0 to 2900 psig (0 to 200 bar), calculated



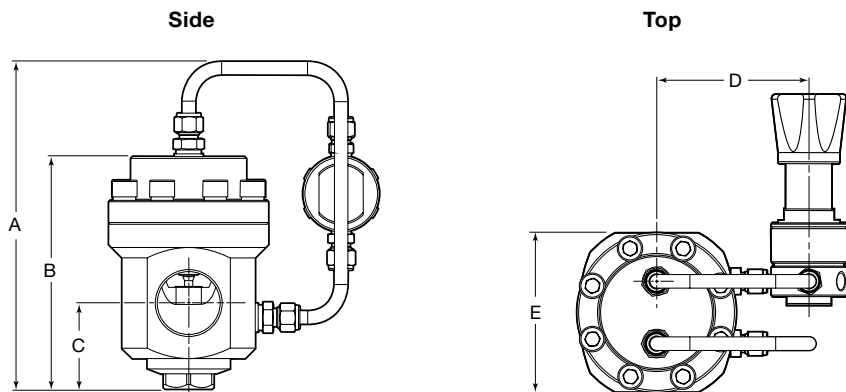
### RDH25 Series

For flow curve information, contact your authorized Swagelok representative.

## Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change.

Series	End Connection Size	Dimensions, in. (mm)				
		A	B	C	D	E
RD(H)20	2 in.	9.33 (237)	7.28 (185)	2.44 (62.0)	4.33 (110)	5.51 (140)
RD(H)25	2 1/2 in.	11.8 (300)	9.25 (235)	3.42 (87.0)	4.92 (125)	6.69 (170)



Shown with RS2 series pilot regulator.

## Ordering Information

Build an RD(H)20 and RD(H)25 series regulator ordering number by combining the designators in the sequence shown below.

**1 2 3 4 5 6 7 8 9 10 11**  
**RD FA 20 A 1 - 02 - 0 - V V V - EF**

### 1 Series

**RD** = 1015 psig (70.0 bar) maximum inlet pressure (507 psig [35.0 bar] with pilot regulator, options **0**, **1**, or **2**)

**RDH** = 5800 psig (400 bar) maximum inlet pressure (RDH20); 4060 psig (280 bar) maximum inlet pressure (RDH25)

### 2 Inlet / Outlet

**B** = Female ISO/BSP parallel thread<sup>①</sup>

**N** = Female NPT<sup>①</sup>

**FA** = ASME B16.5 flange

**FD** = EN 1092 (DIN) flange

<sup>①</sup> RD(H)20 only.

### 3 Size

**20** = 2 in. / DN50

**25** = 2 1/2 in. / DN65

### 4 Pressure Class

Omit designator if flanges are not ordered.

**A** = ASME class 150

**B** = ASME class 300

**C** = ASME class 600

**E** = ASME class 1500

**F** = ASME class 2500

**M** = DN class PN16

**N** = DN class PN40

### 5 Flange Facing

Omit designator if flanges are not ordered.

**1** = Raised face smooth

**3** = RTJ

### 6 Body Material

**02** = 316L SS

### 7 Pilot Regulator Options

#### Pressure Control Range

**X** = No pilot regulator, optional

*RD series with LRS4 series pilot regulator*

**0** = 0 to 43 psig (0 to 3.0 bar)

**1** = 0 to 130 psig (0 to 9.0 bar)

**2** = 0 to 290 psig (0 to 20.0 bar)

*RD series with RS2 series pilot regulator*

**3** = 0 to 1015 psig (0 to 70.0 bar)

*RDH series with RS2 series pilot regulator*

**4** = 0 to 145 psig (0 to 10.0 bar)

**5** = 0 to 362 psig (0 to 25.0 bar)

**6** = 0 to 1450 psig (0 to 100 bar)

**7** = 0 to 2537 psig (0 to 175 bar)

**8** = 0 to 2900 psig (0 to 200 bar)

### 8 Seal Material

**V** = Fluorocarbon FKM

**N** = Nitrile

**E** = EPDM

### 9 Diaphragm Material

**V** = Fluorocarbon FKM

**N** = Nitrile

**E** = EPDM

### 10 Seat Seal Material

*RD series*

**V** = Fluorocarbon FKM

**N** = Nitrile

**E** = EPDM

*RDH series*

**K** = PCTFE

**P** = PEEK

### 11 Options

**EF** = External feedback to main regulator

**EFP** = External feedback to pilot regulator, limited to 290 psig (20.0 bar)

**N** = NACE MR0175/ISO 15156

**G93** = ASTM G93 Level C-cleaned