



SERIES DRH15

Dome Regulators (DN15)



YOUR CREATIVE ENGINEERING PARTNER

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Series DRH15 provides a fully configurable Dome Regulator product offering performance and a complete solution, optimised for your application.

This solution eliminates applications engineering for our clients together with non-added value components like adaptors, couplings, pipe, etc as all components bolt directly to one another.

These high quality regulators offer fast, accurate pressure control. Performance can be improved using our high accuracy pilot regulator and external sensing functions – see product selection notes.

HIGHLIGHTS

- > No client engineering required to set-up all functions delivered in one assembly.
- > Dynamic Piloting offers improved delivery pressure accuracy.
- > External Feedback further improves delivery pressure accuracy.
- > Fail Safe In-field repairs made easy with fully tested replacement assemblies for main valve seat, filters and pilot regulators.
- > Inlet Filters protect the pilot & dome regulator along with downstream components.

IDEAL USES

- > Any Critical Pressure Reduction Application.
- > Test Systems including those requiring a fast response during start up and shut down.
- > H2/CNG/Biomethane Systems (in conjunction with our Slam Shut Valves for full pressure safety on flammable gas systems).
- > Trailer Decanting (especially where high flow is required, even at low trailer pressure).
- > HP Air Systems (Maritime, Industrial).



DRH15 – DOME FILTER REGULATOR

IN:
420
barg
(6000 psig)

OUT:
0-250
barg
(0-3625 psig)

Cv
0-2

Features and Specifications

1. Piloting Options

- > Closed Dome charged via a needle valve block (used for applications where pressure control is less critical).
- > SRH6 High Pressure Pilot Regulator (as shown) provides improved performance dynamic piloting over a wide range of control pressures.
- > SRL15 High Pressure Pilot Regulator provides excellent pressure control accuracy for delivery performance below 20 barg.

2. Inlet/Outlet Flange Adaptors

Available in ISO G(BSPP), NPT, Weld Stub/Socket to suit your pipe or a DIN/ASME flange (bolted to the main regulator).

Note: See Hale Hamilton's fully welded regulator Data Sheet for a fully welded flanged body solution.

3. Inlet Filter

Critical for preventing contamination from damaging the valve seat. The T design ensures easy servicing. The element is stainless steel 316L and withstanding high differential pressures.

4. External Feedback Options

- > Via connection to pilot regulator (high sensitivity option).
- > Via connection direct to main regulator (improved performance & higher flow)

5. Large Diaphragm

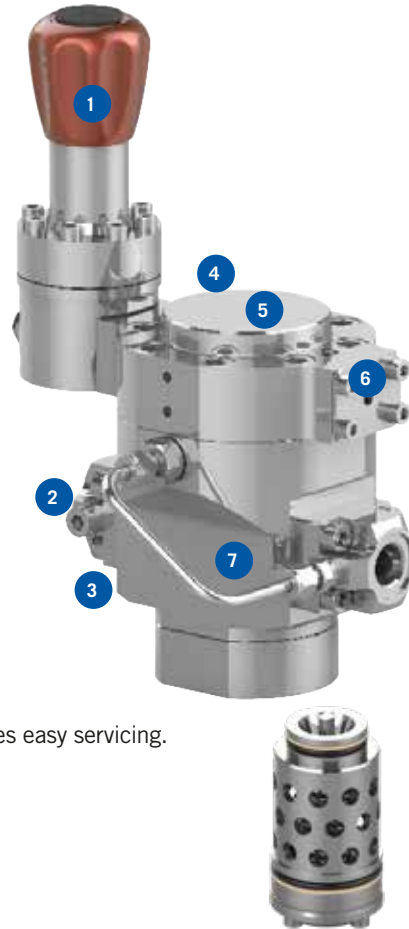
Provides a high degree of sensitivity for excellent pressure control and high degree of stability under large pressure drops.

6. Easy Servicing

The entire seat assembly can be replaced with a factory acceptance tested seat cartridge eliminating uncertainty regarding the effectiveness of an in-field repair.

7. Seat Assemblies

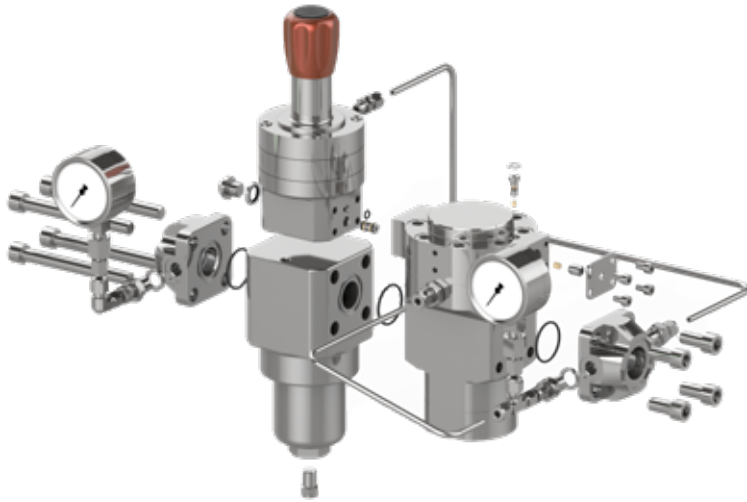
All seat options are supplied in interchangeable, fully tested seat assemblies allowing the user to change flow capacity as required.



Product Specification Data

| Series D(F)R | D(F)RH15 |
|--|--|
| Inlet Pressure | 420 barg (6000 psig) |
| Regulator Cv | 0.8, 2.0 |
| Outlet Pressure (Dome Regulator Rating) | 250 barg (3625 psig) |
| Pilot Regulator Setting Ranges (SRH6) | 0 - 250 barg (0 - 3625 psig) 0 - 150 barg (0 - 2175 psig) 0 - 100 barg (0 - 1450 psig) 0 - 25 barg (0 - 363 psig) |
| Pilot Regulator Setting Ranges (SRL15) | 0 - 20 barg (0 - 290 psig) 0 - 10 barg (0 - 145 psig) |
| Filtration (microns) | 10 & 20 |
| Service Temperature Range (HNBR – Standard Option) | -40°C to +80°C |
| Service Temperature Range (FPM) | -20°C to +150°C |
| Service Temperature Range (EPDM) | -20°C to +150°C |
| Seat and Outboard Leakage (standard) | Bubble Tight |
| Body / Dome Material | Stainless Steel 316L |
| He Mass Spec Leak Test, Seat / Outboard (Option at Extra Cost) | He leak testing available at additional costs. Please contact sales@halehamilton.com for additional information. |

Features and Specifications



| Required Information |
|--|
| When placing an enquiry, please advise the following: |
| > Inlet Pressure Range |
| > Outlet Pressure Range |
| > Flow Rate Range |
| > Fluid Temperature Range |
| > Ambient Temperature Range |
| > Fluid Type |
| > Connections Required (if threaded or flanges) or Pipes Sizes and Material (if welded connections required) |
| > Application Details – Tell us what you're trying to achieve. |
| > Gauge Required (yes/no) |
| > Filter Required 'recommended' (yes/no) |
| > Any Special Requirements (materials, etc) |
| We will respond with a quotation and sizing assessment including default flow for safety valve sizing |



SRH6 - Pilot Regulator

- > Control Range:
(0 – 250 barg/0 – 3625 psig)
- > Dynamic Piloting provides a stable outlet pressure, irrespective of ambient temperature changes.



SRL15 – High Accuracy Pilot Regulator

- > Control Range:
(0 – 20 barg/0 – 290 psig)
- > High Accuracy
- > Dynamic Piloting
- > External Sensing provides almost zero droop in outlet pressure across flow range.

| Feature | Considerations |
|--|---|
| Regulator Size (DN) and Seat Size | > Consult HH sales for optimal set-up for your process conditions. The questions in the 'Required Information' section will make it easier for HH to specify the optimal solution. > Consult HH sales for default flow (failure flow) rates required to size downstream safety valves. |
| Filter | Fitting a filter direct to the regulator is a fail safe way of ensuring the regulator will continue to work well, regardless of how clean the upstream system is. Most new installations have some level of contamination regardless of how well the pipes have been flushed. Particularly for high inlet pressure applications, filters are a must. |
| Needle Valve Block for Dome Charging | This feature allows the dome to be charged internally within the regulator. The expected performance is illustrated later in this Data Sheet (see 'Selecting The Right Piloting Option' section). This is a good option where accuracy and adjustability are not a priority for regulator selection. |
| SRH6 – High Pressure Pilot Regulator | The SRH6 (Spring Regulator, High Pressure, DN6 - 1/4"), used with dynamic piloting, provides an easy way to set & adjust set pressure. It ensures delivery pressure is stable regardless of variations in ambient temperature. It mounts direct to the Dome regulator minimising leak paths and ensuring the client avoids the applications engineering usually required to attach a pilot regulator. |
| SRL15 – High Accuracy, Low Pressure Pilot Regulator. | The SRL15 (Spring Regulator, Low Pressure, DN6) is used in applications where delivery pressure accuracy is critical. This feature is often used with external sensing where the regulator takes feedback for the piping downstream of the regulator and drives the main dome regulator to deliver less droop under flow (i.e. a pressure very close to the original set pressure). |
| Gauges (in/out) | All flange adaptors (inlet and outlet) have a pressure tapping allowing the connection of a centre back gauge. |
| Pipe Fittings (Inlet/Outlet) | The D(F)R Series comes with flanges installed to suit your installation. The interface on the flange can be threaded, a weld stub or a DIN/ASME flange. In all cases for this range, the flange bolts to the regulator body and seals on an o-ring. |
| Fully Welded ASME/ DIN Flanged Assemblies | Versions of our Tee Filters and DR Series Regulators with DIN/AMSE flanges welded to the body are detailed on page six. |
| Special Features | Special features such as alternative materials, non-standard pipe interfaces, alternative temperature ranges, etc. can be provided. Please contact ' sales@halehamilton.com ' |

Typical Configurations



DRH15 - Regulator (Closed Dome)

- > Inlet 420 barg (6000 psig)
- > Outlet Range:
(0 – 250 barg/0 – 3625 psig)
- > Outlet pressure set by charging dome via needle valves
- > Connection via threaded adaptors



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- > Connection via weld stub adaptors



DRH15 - Regulator (Piloted SRH6)

- > Inlet 420 barg (6000 psig)
- > High Pressure Pilot
(0 – 250 barg/0 – 3625 psig)
- > Dynamic Piloting provides improved delivery pressure
- > Connection via threaded adaptors



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(0 – 250 barg/0 – 3625 psig)
- > Dynamic Piloting provides improved delivery pressure
- > Connection via weld stub adaptors



DRH15 Piloted with External Sensing

- > Inlet 420 barg (6000 psig)
- > High Pressure Pilot
(0 – 250 barg/0 – 3625 psig)
- > Dynamic Piloting with feedback provides improved delivery pressure



DRH15 - Regulator (Piloted SRL15)

- > Inlet 420 barg (6000 psig)
- > High Pressure Pilot
(0 – 20 barg/0 – 290 psig)
- > Dynamic Piloting provides improved delivery pressure
- > Connection via threaded adaptors



DRH15 - Regulator (Piloted SRL15)

- > Inlet 420 barg (6000 psig)
- > High Pressure Pilot
(0 – 20 barg/0 – 290 psig)
- > Dynamic Piloting provides improved deliver pressure
- > Connection via weld stub adaptors



DRH15 - Piloted with External Sensing

- > Inlet 420 barg (6000 psig)
- > High Pressure Pilot
(0 – 20 barg/0 – 290 psig)
- > Dynamic Piloting with feedback to Pilot Regulator provides the most accurate delivery pressure with significantly reduced droop



DRH15 - Piloted with Gauges

- > Dynamic Piloting for stable set pressure (gas flows through dome to outlet)
- > High Pressure Pilot
(0 – 250 barg/0 – 3625 psig)
- > Gauges can be mounted to measure pressure across the inlet, outlet or both

Enquiries and Orders

Your DRH15 Pressure Control Assembly can be selected in full using the ordering system set out below.

Alternatively, you can contact Hale Hamilton sales at (sales@halehamilton.com) with information on fluid type, pressures, flow rates, fluid temperatures and the application (i.e. tell us what you're trying to achieve).

Our Sales Team will be happy to help you.

Standard options highlighted in 'bold' will be associated with our shortest lead time.



'D' **'F'** **'RH'** **'15'** **'1'** **'1'** **'2'** **'10'** **'H'** **'K'**

| Type | Filter | Pressure Category | Series (Nominal Size) | Port Type (Inlet) | Port Type (Outlet) | CV | Micron Rating | Elastomer Type | DRH, SR Seat Material | Loading Option | External Feedback | Inlet Gauge | Outlet Gauge | Special Cleaning | Special Feature |
|-----------|------------------|-------------------------------|-----------------------|---|---|-----------|------------------|-------------------|-----------------------|---|-----------------------------------|--------------------------------|--------------------------------|--------------------|---|
| Mandatory | Omit If Not Used | Mandatory | Mandatory | Mandatory | Mandatory | Mandatory | Omit If Not Used | Mandatory | Mandatory | Mandatory | Omit If Not Used | Mandatory | Mandatory | Omit If Not Used | Omit If Not Used |
| 'D' | 'F' - Filter | RH - High Pressure (420 barg) | '15'-(1/2" / DN15) | '1' - ISO G | '1' - ISO G | '1' - 0.8 | '10' - 10 Micron | 'H' - HNBR | 'K' - PCTFE | 'N' - Needle Valve Block | 'P' - Feedback to Pilot Regulator | 'X' - None | 'X' - None | 1 Commercial Clean | 'XX' Special Features (alternative materials, etc. New codes allocated on client request. |
| | | | | '2' - NPT | '2' - NPT | '2' - 2 | '20' - 20 Micron | 'F' - FKM (Viton) | 'P' - PEEK | '1' - Pilot Regulator, SRH6 0-22 barg | 'B' - Sensed from Regulator Body | '1' - 0-50 barg (0-725 psig) | '1' - 0-5 barg (0-73 psig) | 2 Special Clean* | |
| | | | | 'WXX' - Weld Stub. Please refer to table on page 6 for code | 'WXX' - Weld Stub. Please refer to table on page 6 for code | | | 'E' - EPDM | | '2' - Pilot Regulator, SRH6 0-105 barg | | '2' - 0-100 barg (0-1450 psig) | '2' - 0-10 barg (0-145 psig) | | |
| | | | | 'EXX' - EN Flange. Please specify type required | 'EXX' - EN Flange. Please specify type required | | | | | '3' - Pilot Regulator, SRH6 0-135 barg | | '3' - 0-200 barg (0-2900 psig) | '3' - 0-20 barg (0-290 psig) | | |
| | | | | 'AXX' - ASME Flange. Please specify type required | 'AXX' - ASME Flange. Please specify type required | | | | | '4' - Pilot Regulator, SRH6 0-250 barg | | '4' - 0-400 barg (0-5800 psig) | '4' - 0-50 barg (0-725 psig) | | |
| | | | | | | | | | | '5' - Pilot Regulator - High Sensitiity, SRL15 0-9 barg | | '5' - 0-500 barg (0-7250 psig) | '5' - 0-100 barg (0-1450 psig) | | |
| | | | | | | | | | | '6' - Pilot Regulator - High Sensitivity, SRL15 0-20 barg | | | '6' - 0-200 barg (0-2900 psig) | | |
| | | | | | | | | | | | | | '7' - 0-400 barg (0-5800 psig) | | |

*Please contact us for any special clean requirments

Stub Weld Flange Connections

Flange Options for DR15 Types

| Code | Inlet Pipe | Code | Outlet Pipe |
|------|----------------------|------|----------------------|
| W01 | DN15 (1/2") Sch5 | W01 | DN15 (1/2") Sch5 |
| W02 | DN15 (1/2") Sch10 | W02 | DN15 (1/2") Sch10 |
| W03 | DN15 (1/2") Sch40 | W03 | DN15 (1/2") Sch40 |
| W04 | DN15 (1/2") Sch80 | W04 | DN15 (1/2") Sch80 |
| W05 | DN15 (1/2") Sch160 | W05 | DN15 (1/2") Sch160 |
| W06 | DN20 (3/4") Sch5 | W06 | DN20 (3/4") Sch5 |
| W07 | DN20 (3/4") Sch10 | W07 | DN20 (3/4") Sch10 |
| W08 | DN20 (3/4") Sch40 | W08 | DN20 (3/4") Sch40 |
| W09 | DN20 (3/4") Sch80 | W09 | DN20 (3/4") Sch80 |
| W10 | DN20 (3/4") Sch160 | W10 | DN20 (3/4") Sch160 |
| W11 | DN25 (1") Sch5 | W11 | DN25 (1") Sch5 |
| W12 | DN25 (1") Sch10 | W12 | DN25 (1") Sch10 |
| W13 | DN25 (1") Sch40 | W13 | DN25 (1") Sch40 |
| W14 | DN25 (1") Sch80 | W14 | DN25 (1") Sch80 |
| W15 | DN25 (1") Sch160 | W15 | DN25 (1") Sch160 |
| W16 | DN25 (1") SchXXS | W16 | DN25 (1") SchXXS |
| W17 | DN32 (1 1/4") Sch5 | W17 | DN32 (1 1/4") Sch5 |
| W18 | DN32 (1 1/4") Sch10 | W18 | DN32 (1 1/4") Sch10 |
| W19 | DN32 (1 1/4") Sch40 | W19 | DN32 (1 1/4") Sch40 |
| W20 | DN32 (1 1/4") Sch80 | W20 | DN32 (1 1/4") Sch80 |
| W21 | DN32 (1 1/4") Sch160 | W21 | DN32 (1 1/4") Sch160 |
| W22 | DN32 (1 1/4") SchXXS | W22 | DN32 (1 1/4") SchXXS |
| | | W23 | DN40 (1 1/2") Sch5 |
| | | W24 | DN40 (1 1/2") Sch10 |
| | | W25 | DN40 (1 1/2") Sch40 |
| | | W26 | DN40 (1 1/2") Sch80 |
| | | W27 | DN40 (1 1/2") Sch160 |
| | | W28 | DN40 (1 1/2") SchXXS |
| | | W29 | DN50 (2") Sch5 |
| | | W30 | DN50 (2") Sch10 |
| | | W31 | DN50 (2") Sch40 |
| | | W32 | DN50 (2") Sch80 |
| | | W33 | DN50 (2") Sch160 |
| | | W34 | DN50 (2") SchXXS |

Note:

> Fit External Feedback to the DR40 for pipe sizes above DN40 (1 1/2") for optimal performance (20 barg max).



Note:

> External Feedback is recommended for delivery pressures <20 barg.
 > External Feedback reduces droop as flow increases (see page 7).

Selecting the Right Piloting Option

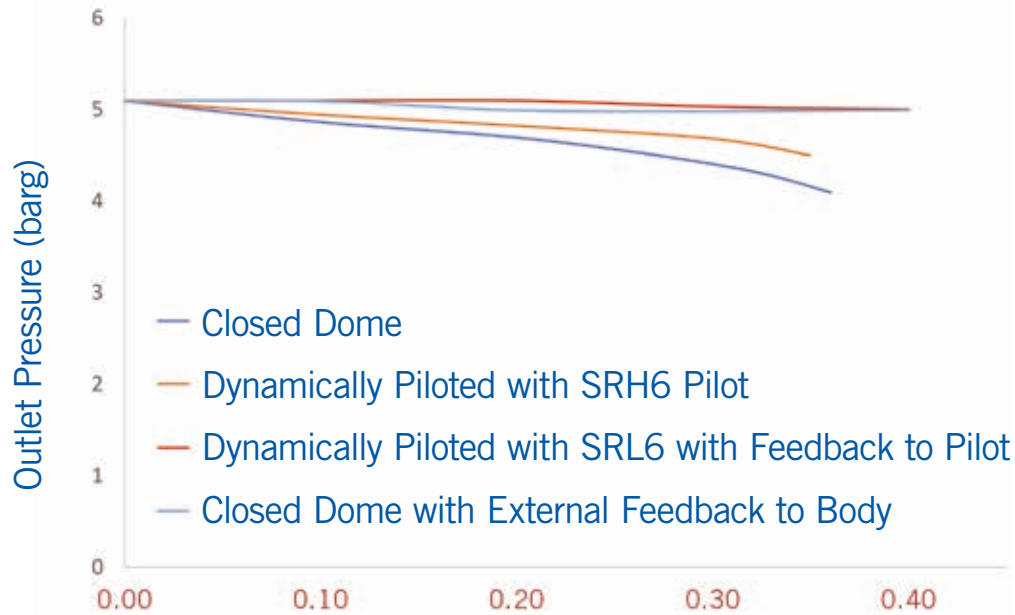
The configuration selected has an impact on the function and performance of the filter regulator assembly.

A Closed Dome (loaded with a needle valve block) will provide reliable pressure control.

Piloting with the SRH6 Pilot Regulator will reduce droop whilst improving delivery pressure stability and ease of pressure adjustment.

Piloting with the SRL15 Pilot Regulator (20 barg max) will improve accuracy of pressure setting and control. Note: Only the SRL15 High Accuracy Regulator offers external feedback to the pilot.

Connecting External Sensing will almost eliminate droop providing a dead stable delivery pressure to the application. Note: Closed Dome and SRH6 Pilot Regulator options can only feedback to the Main Regulator. Feedback is recommended up to outlet pressures of 20 barg.



Note:

> The above graph shows example flow curves for similar applications with each piloting option.



Closed Dome

- > Dome loaded via needle valves connected to the inlet supply
- > Used where high pressure control accuracy over flow range is not required
- > Without external feedback, this option displays the largest droop, per the graph
- > If external feedback is connected, the droop will connect to a flat line, per the graph



Dynamically Piloted

- > Pilot Regulator loads dome under constant flow for improved accuracy and ease of pressure adjustment
- > Pressure setting not influenced by changes in ambient temperature



Dynamically Piloted with the SRH6 with feedback to main regulator

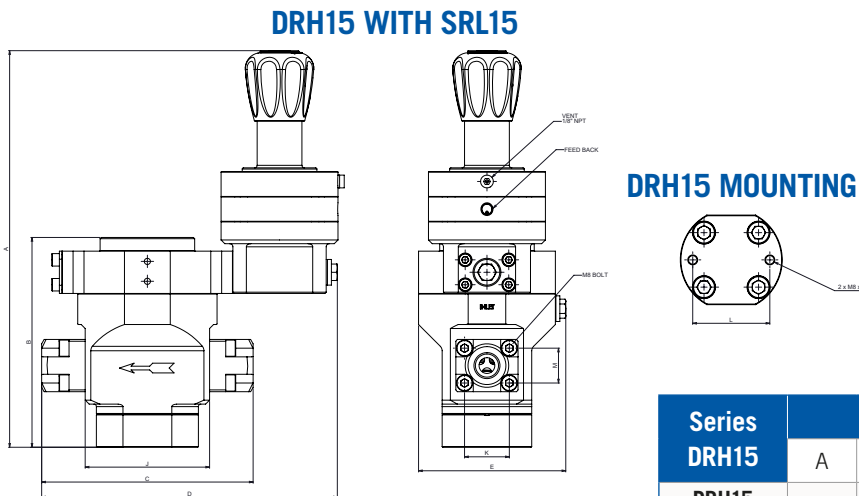
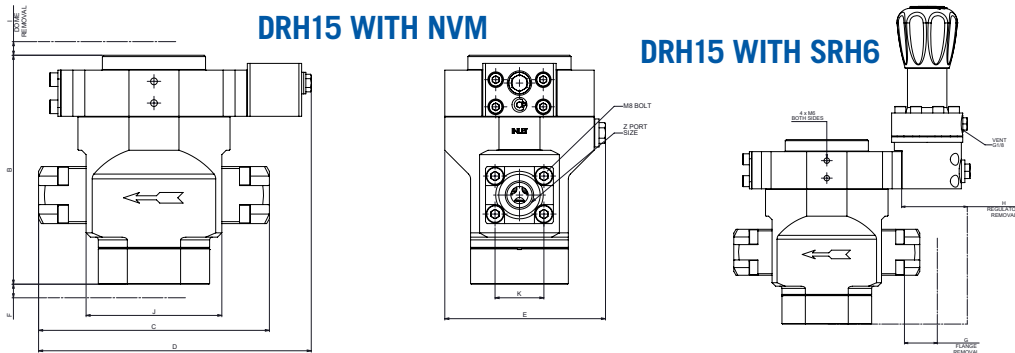
- > Pilot Regulator loads dome under constant flow for improved accuracy and ease of pressure adjustment
- > Feedback from outlet reduces droop to almost zero, per the graph curves for Closed Dome and SRL15 Pilots



Dynamically Piloted with external feedback to the SRL15 Pilot Regulator

- > High Accuracy Pilot Regulator provides excellent control pressure accuracy
- > Feedback from outlet reduces droop to almost zero

Installation Dimensions



| Series | Dimensions | | | | | | | | | Z - Port Size | | Weight |
|-----------------------------|------------|-----|-----|-----|-----|----|----|----|----|---------------|------------|--------|
| | A | B | C | D | E | F | G | H | I | Inlet | Outlet | |
| DRH/DRL25 With NVM | - | 197 | 175 | 199 | 118 | 70 | 70 | 50 | 30 | G 1" | G 1" | 12 |
| DRH/DRL40 With NVM | - | 236 | 238 | 259 | 178 | 90 | 70 | 50 | 40 | G 1 - 1/2" | G 1 - 1/2" | 29 |
| DRH/DRL25 With SRH6 | 317 | 197 | 175 | 218 | 118 | 70 | 70 | 50 | 30 | G 1" | G 1" | 14 |
| DRH/DRL40 With SRH6 | 351 | 236 | 238 | 278 | 178 | 90 | 70 | 50 | 40 | G 1 - 1/2" | G 1 - 1/2" | 31 |
| DRH/DRL40 With SRH15 | 386 | 236 | 238 | 300 | 178 | 70 | 70 | 50 | 40 | G 1 - 1/2" | G 1 - 1/2" | 33 |

| Series | Dimensions | | | | | | | | | | | | | Z - Port Size | | Weight |
|-------------------------|------------|-----|-----|-----|-----|----|----|----|----|-----|----|----|----|---------------|--------|--------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | Inlet | Outlet | |
| DRH15 WITH NVM | - | 169 | 170 | 201 | 118 | 70 | 70 | 50 | 30 | 100 | 36 | 62 | 28 | G 1/2" | G 1/2" | 11 |
| DRH15 WITH SRH6 | 291 | 169 | 170 | 216 | 118 | 70 | 70 | 50 | 30 | 100 | 36 | 62 | 28 | G 1/2" | G 1/2" | 12.5 |
| DRH15 WITH SRL15 | 319 | 169 | 170 | 238 | 118 | 70 | 70 | 50 | 40 | 100 | 36 | 62 | 28 | G 1/2" | G 1/2" | 15 |

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