

SERIES DR & DFR

Dome Regulators & Filter Dome Regulators 1" & 1 1/2" (DN25, DN40)

Series D(F)R provides a fully configurable Dome Regulator/ Dome Filter 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.

For Over-Pressure Protection solutions, see our Slam Shut Valve range. This offers high integrity, fast acting shut off for mission critical applications.

Highlights

- > No client engineering required to set-up all functions delivered in one assembly.
- > Inlet Filter protects pilot, main regulator and downstream components.
- > 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.

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).



IN:
420
barg
(6000 psig)

OUT:
0 – 250
barg
(0 – 3625 psig)



Cv
0 – 12

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Features and Specifications

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

External Feedback Options

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

Large Diaphragm

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

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.

Seat Assemblies

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

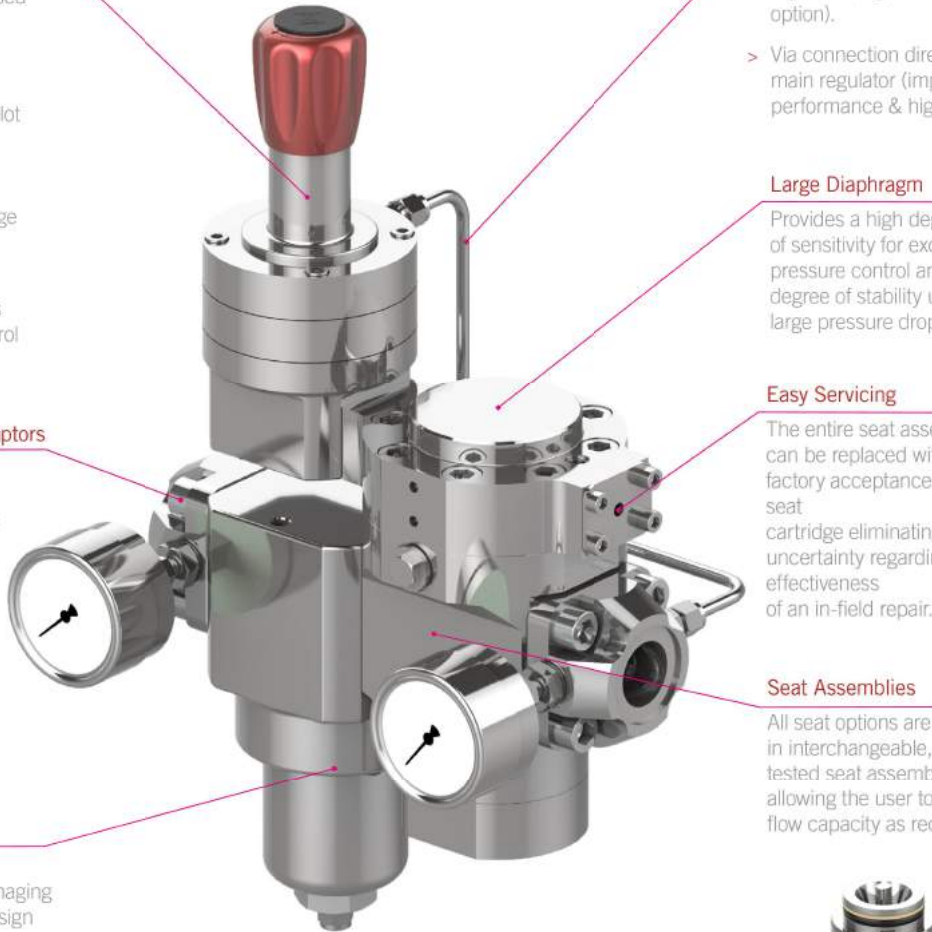
Inlet/Outlet Flange Adaptors

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

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.



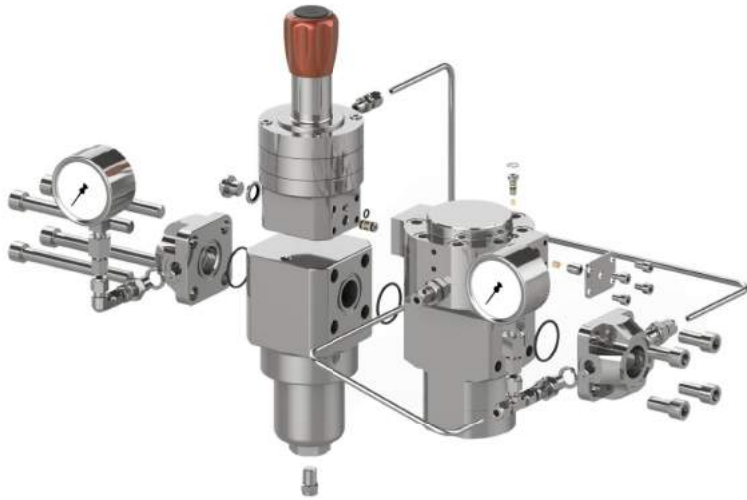
Product Specification Data

Series D(F)R	D(F)RH25	D(F)RH40
Inlet Pressure	420 barg (6000 psig)	
Seat Sizes	1/4", 3/8", 1/2" (6mm, 10mm, 13mm)	3/4", 1" (20mm, 25mm)
Regulator Cv	2, 3, 4, 5	9, 12
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 (SRL6)	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	

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Features and Specifications



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.

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

Feature	Considerations
Regulator Size (DN) and Seat Size	<ul style="list-style-type: none"> > 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...
Special Features	Special features such as alternative materials, non-standard pipe interfaces, alternative temperature ranges, etc. can be provided. Please contact 'sales@halehamilton.com'

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Typical Configurations



DR25 - 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



DFR25 – Filter Regulator (Closed Dome)

- > Inlet 420 barg (6000 psig)
- > Outlet Pressure Range
(0 – 250 barg/0 – 3625 psig)
- > Filter Protects Dome Regulator Seat
- > Outlet pressure set via needle valves



DR25 - Regulator (Piloted)

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



DFR25 – Filter Regulator (Piloted)

- > Inlet 420 barg (6000 psig),
- > High Pressure Pilot
(0 – 250 barg/0 – 3625 psig)
- > Filter Protects Pilot & Dome Regulator Seats
- > Dynamic Piloting provides improved delivery pressure



DR25 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



DFR25 Piloted with filter and Gauges

- > Inlet 420 barg (6000 psig),
- > High Pressure Pilot
(0 – 250 barg/0 – 3625 psig)
- > Filter Protects Pilot & Main Regulator Seats
- > Dynamic Piloting provides improved delivery pressure
- > Inlet & Outlet pressure indication Regulator Seats



DFR25 Piloted with 2" Sch40 Weld Stub Connector (See Enquiries and Orders)

- > 1" Inlet 420 barg (6000 psig),
- > High Pressure Pilot
(0 – 250 barg/0 – 3625 psig)
- > Filter Protects Pilot & Dome Regulator Seats
- > Dynamic Piloting with feedback to body provides improved delivery pressure with significantly reduced droop



DR40 Piloted with 3" Sch10 Weld Stub Connector (See Enquiries and Orders)

- > 1.5" Inlet 420 barg (6000 psig),
- > High Pressure Pilot
(0 – 20 barg/0 – 290 psig)
- > High Accuracy Pilot provides excellent pressure control
- > Dynamic Piloting with feedback to Pilot Regulator provides the most accurate delivery pressure with significantly reduced droop

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Enquiries and Orders

Your DR/DFR Pressure Control Assemblies 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'** **'25'** **'1'** **'1'** **'4'** **'10'** **'H'** **'K'**

Type	Filter	Pressure Category	Series (Nominal Size)	Port Type (Inlet)	Port Type (Outlet)	Seat Size	Micron Rating	Elastomer Type	DRH, SR Seat Material	Loading Option	External Feedback	Inlet Gauge	Outlet Gauge	Special	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)	'25' - (1" / DN25)	'1' - ISO G	'1' - S10 G	'2' - 8.5 mm (0.33")	'10' - 10 Micron	'H' - HNBR	'K' - PCTFE	'N' - Needle Valve Block	'P' - Feedback to Pilot Regulator	'X' - None	'X' - None	'1' Oxygen Clean	'XX' Special Features (alternative materials, etc. New codes allocated on client request.
			'40' - (1 1/2" / DN40)	'2' - NPT	'2' - NPT	'4' - 11 mm (0.44")	'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' Breathing Air Service	
				'X' - No Flange or Non-Threaded Flange (See below)	'X' - No Flange or Non-Threaded Flange (See below)	'6' - 14 mm (0.54")		'E' - EPDM		'2' - Pilot Regulator, SRH6 0-105 barg		'2' - 0-100 barg (0-1450 psig)	'2' - 0-10 barg (0-145 psig)		
				'WXX' - Weld Stub. Please refer to table on page 6 for code	'WXX' - Weld Stub. Please refer to table on page 6 for code	'12' - 19 mm (0.73")				'3' - Pilot Regulator, SRH6 0-135 barg		'3' - 0-200 barg (0-2900 psig)	'3' - 0-20 barg (0-290 psig)		
				'EXX' - DIN Flange. Please specify type required	'EXX' - DIN Flange. Please specify type required	'16' - 22 mm (0.86")				'4' - Pilot Regulator, SRH6 0-250 barg		'4' - 0-400 barg (0-5800 psig)	'4' - 0-50 barg (0-725 psig)		
				'AXX' - ASME Flange. Please specify type required	'AXX' - ASME Flange. Please specify type required					'5' - Pilot Regulator - High Sensitivity, 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)		
										'X' - without loading feature fitted (internal orders only)			'7' - 0-400 barg (0-5800 psig)		

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Stub Weld Flange Connections

Flange Options for DR25 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 DR25 for pipe sizes above DN25 (1") for optimal performance (20 barg max).



Flange Options for DR40 Types

Code	Inlet Pipe	Code	Outlet Pipe
W01	DN32 (1 1/4") Sch5	W01	DN32 (1 1/4") Sch5
W02	DN32 (1 1/4") Sch10	W02	DN32 (1 1/4") Sch10
W03	DN32 (1 1/4") Sch40	W03	DN32 (1 1/4") Sch40
W04	DN32 (1 1/4") Sch80	W04	DN32 (1 1/4") Sch80
W05	DN32 (1 1/4") Sch160	W05	DN32 (1 1/4") Sch160
W06	DN32 (1 1/4") SchXXS	W06	DN32 (1 1/4") SchXXS
W07	DN40 (1 1/2") Sch5	W07	DN40 (1 1/2") Sch5
W08	DN40 (1 1/2") Sch10	W08	DN40 (1 1/2") Sch10
W09	DN40 (1 1/2") Sch40	W09	DN40 (1 1/2") Sch40
W10	DN40 (1 1/2") Sch80	W10	DN40 (1 1/2") Sch80
W11	DN40 (1 1/2") Sch160	W11	DN40 (1 1/2") Sch160
W12	DN40 (1 1/2") SchXXS	W12	DN40 (1 1/2") SchXXS
W13	DN50 (2") Sch5	W13	DN50 (2") Sch5
W14	DN50 (2") Sch10	W14	DN50 (2") Sch10
W15	DN50 (2") Sch40	W15	DN50 (2") Sch40
W16	DN50 (2") Sch80	W16	DN50 (2") Sch80
W17	DN50 (2") Sch160	W17	DN50 (2") Sch160
W18	DN50 (2") SchXXS	W18	DN50 (2") SchXXS
W19	DN65 (2 1/2") Sch5		
W20	DN65 (2 1/2") Sch10		
W21	DN65 (2 1/2") Sch40		
W22	DN65 (2 1/2") Sch80		
W23	DN65 (2 1/2") Sch160		
W24	DN65 (2 1/2") SchXXS		
W25	DN80 (3") Sch5		
W26	DN80 (3") Sch10		
W27	DN80 (3") Sch40		
W28	DN80 (3") Sch80		
W29	DN80 (3") Sch160		
W30	DN80 (3") 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).

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Selecting the Right Piloting Option

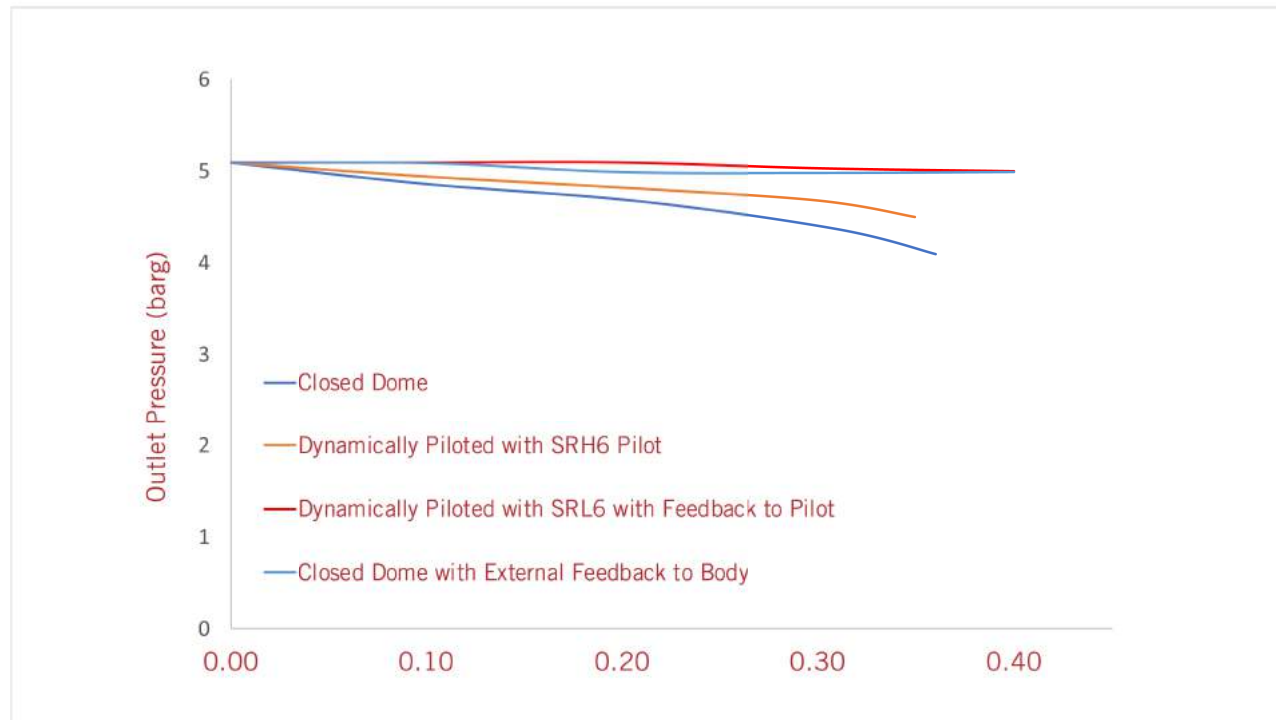
The configuration selected has an impact on the function and performance of the filter regulator assembly.

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.



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



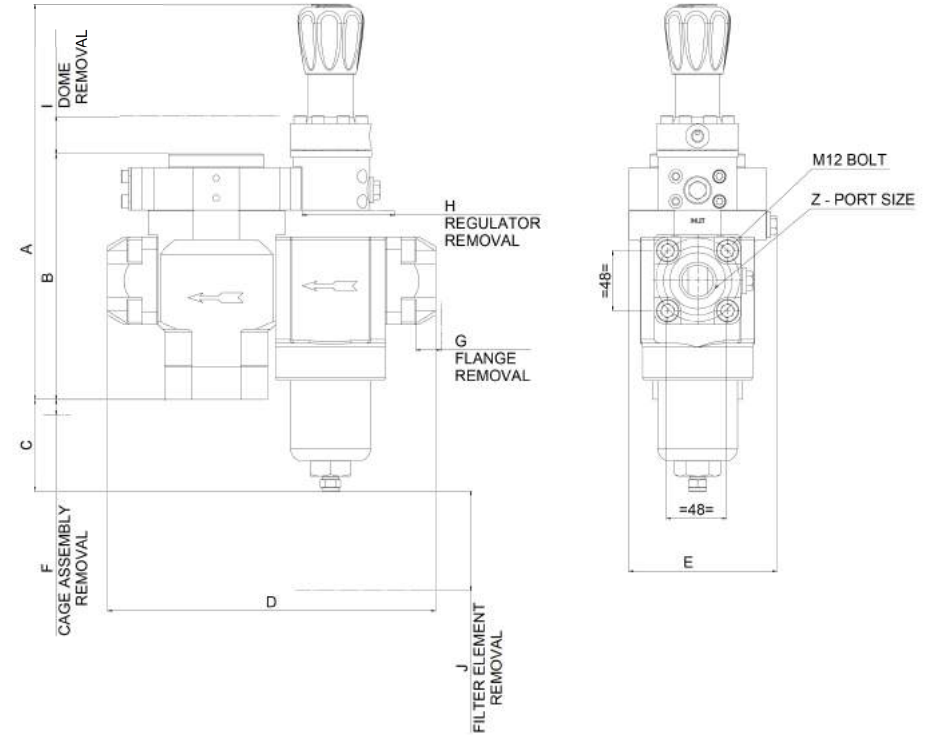
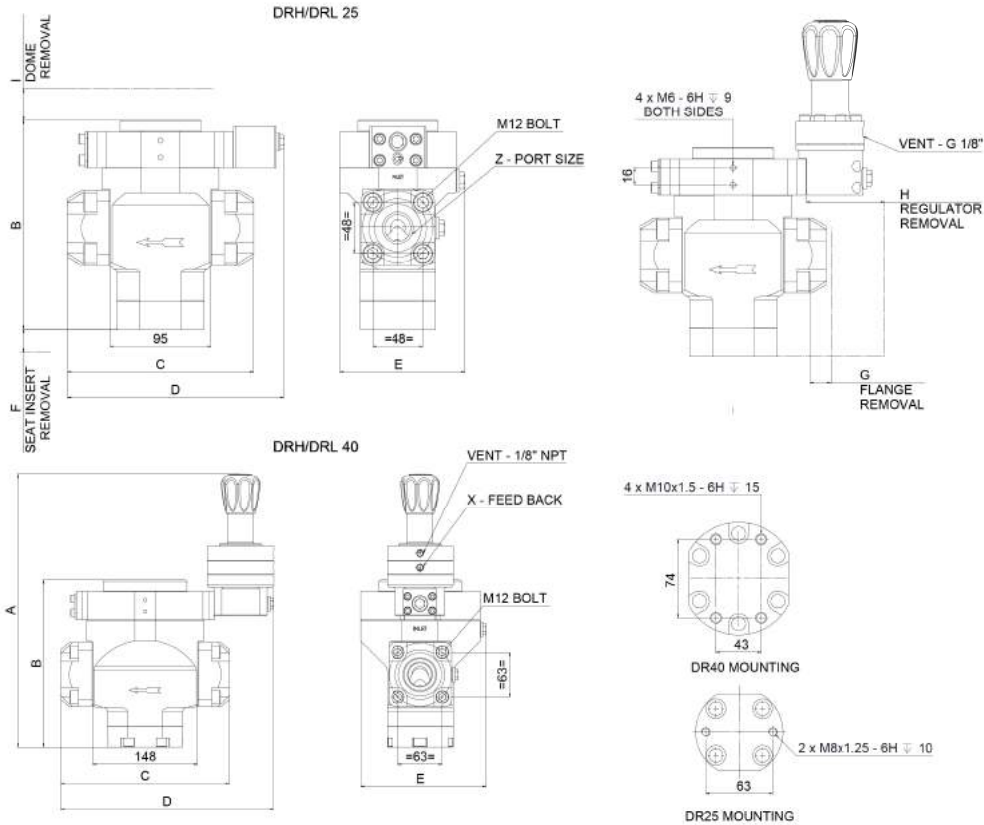
Dynamically Piloted with external feedback to the SRL15 Pilot Regulator

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

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Installation Dimensions



Series	Dimensions										Z - Port Size		kg
	A	B	C	D	E	F	G	H	I	Inlet	Outlet		
DR25/40													
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		kg
	A	B	C	D	E	F	G	H	I	J	Inlet	Outlet	
DFR25/40													
DFRH/DFRL25 With SHR6	317	197	74	263	118	70	70	50	30	100	G 1"	G 1"	21
DFRH/DFRL40 With SHR6	351	236	170	278	178	90	70	50	40	190	G 1 - 1/2"	G 1 - 1/2"	49
DFRH/DFRL40 With SHR15	386	236	170	300	178	90	70	50	40	190	G 1 - 1/2"	G 1 - 1/2"	51