



SERIES D(F)RH50

Dome Regulator & Filter
Dome Regulator (DN50)



YOUR CREATIVE ENGINEERING PARTNER

SERIES D(F)RH50

Dome Regulator & Dome Filter Regulator (DR50)

Series D(F)RH50 provides a fully configurable Dome Regulator/ Dome Filter Regulator product offering performance optimised for your application.

This product enables pressure control solutions to be configured and provided as a fully tested solution.

For Over-Pressure Protection solutions, see our Slam Shut Valve range.

HIGHLIGHTS

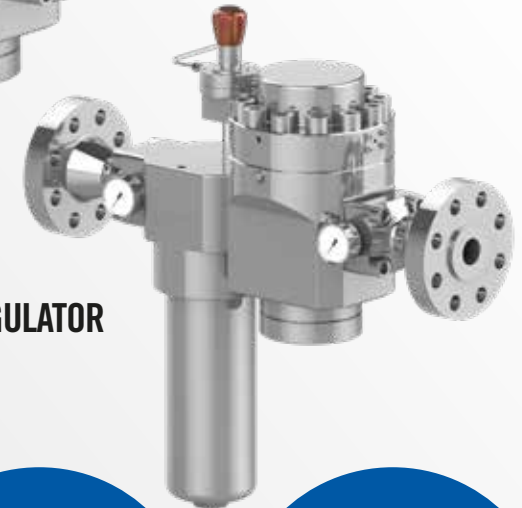
- > No client engineering required to set-up - all functions delivered in one assembly.
- > Inlet Filter protects pilot, main regulator and downstream components.
- > Dynamic Piloting offers improved delivery pressure accuracy.
- > External Feedback further improves delivery pressure accuracy.
- > Fail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

IDEAL USES

- > 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).



DR – DOME REGULATOR



DFR – DOME FILTER REGULATOR

IN:
420
barg
(6000 psig)

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

Cv
20,30

Features and Specifications

1. Piloting Options

- SRH6 High Pressure Pilot Regulator (as shown) provides improved performance dynamic piloting over a wide range of control pressures.
- Additional Options Include: 'SRL15' High Accuracy Pilot Regulator provides excellent pressure control with zero droop accuracy for delivery. 'Closed Dome' charged via a needle valve block (used for applications where pressure control is less critical can also be specified). Performance below 20 barg

2. Inlet/Outlet Flange Adaptors

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

3. External Feedback Options

- Via connection to pilot regulator (high sensitivity option - SRL15 Type only).
- Via connection direct to main regulator (improved performance & higher flow)

4. Large Diaphragm

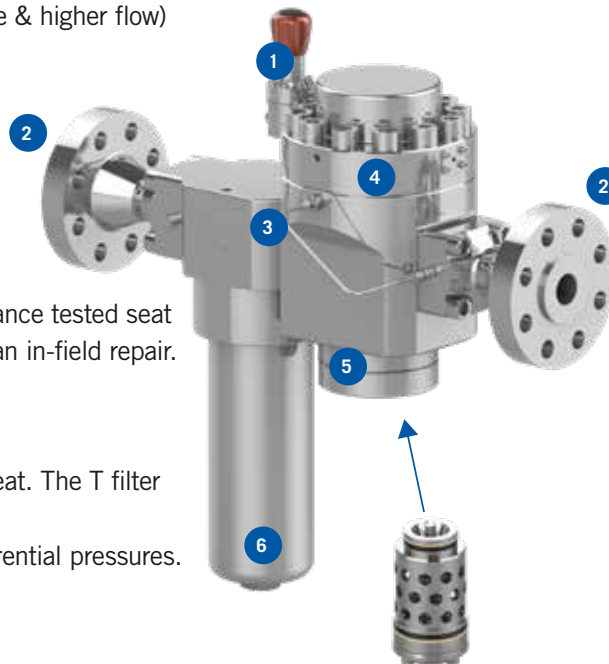
Provides a high degree of sensitivity for excellent pressure control and stability under large pressure drops.

5. Seat Assemblies

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

6. Inlet Filter

Critical for preventing contamination from damaging the valve seat. The T filter ensures easy servicing. The element is stainless steel 316L and withstanding high differential pressures. Elements are available in sintered mesh/pleated filter options



Product Specification Data

	D(F)RH50
Inlet Pressure	420 barg (6000 psig)
Regulator Cv	20 30
Seat Flow Area	Cv 20: 24mm Cv 30: 34mm
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 & 40
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
Helium Leak Test, Seat / Outboard (Option at Extra Cost)	Helium Leak Testing available at additional costs. Please contact sales@halehamilton.com for additional information

Note:

> For Additional Configurations, see page 4 and for Product Ordering Codes, page 5.

Features and Specifications Cont.



SRH6 - Pilot Regulator

- > Control Range:
(0 – 250 barg/0 – 3625)
- > 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

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 connection.
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/EN 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



DRH50 - 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



DFRH50 - 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



DRH50 - Regulator - Piloted

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



DFRH50 - Filter Regulator - Piloted with External Sensing

- > 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



DRH50 - 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



DRH 50 - Regulator Piloted with gauges and External feedback to Pilot Regulator

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



DFRH50 - Filter Regulator - Piloted Flanges

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



DFRH50 - Filter Regulator with External Feedback to Pilot Regulator

- > Inlet 420 barg (6000 psig)
- > Low Pressure Pilot
(0 – 20 barg/0 – 290 psig)
- > Filter Protects Pilot & Dome Regulator Seats
- > Dynamic Piloting with feedback provides improved delivery pressure



DFRH50 - Filter Regulator with External Feedback to Pilot Regulator and Gauges

- > Inlet 420 barg (6000 psig)
- > Low Pressure Pilot
(0 – 20 barg/0 – 290 psig)
- > Filter Protects Pilot and Dome Regulator seats
- > Dynamic Piloting with feedback provides improved delivery pressure
- > Inlet & Outlet visual pressure indication



Flanged Filter Regulator
D-F-RH-50-E11-E11-2-10-H-K-1-B-RF

Product Ordering Codes

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.

'D' **'F'** **'RH'** **'50'** **'E11'** **'E11'** **'2'** **'10'** **'H'** **'K'** **'1'** **'B'** **'RF'**

Type	Filter	Pressure Category	Series (Nominal Size)	Port Type (Inlet)	Port Type (Outlet)	Cv & Seat Size	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)	'50' (2" / DN50)	'1' ISO G	'1' ISO G	'1' Cv20 (24mm)	'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.
				'WXX' Weld Stub. Please refer to table on page 6 for code	'WXX' Weld Stub. Please refer to table on page 6 for code	'2' Cv30 (35mm)	'20' 20 Micron	'F' FKM (Viton) *	'P' PEEK *	'1' Pilot Regulator, SRH6 0-25 barg	'B' Sensed from Regulator Body	'1' 0-50 barg (0-725 psig)	'1' 0-5 barg (0-73 psig)	'2' Special Clean*	'RTJ' RTJ Flange Facing
				'EXX' EN Flange. Please specify type required	'EXX' EN Flange. Please specify type required			'E' EPDM *		'2' Pilot Regulator, SRH6 0-100 barg		'2' 0-100 barg (0-1450 psig)	'2' 0-10 barg (0-145 psig)		'RF' Raised Face Facing
				'AXX' ASME Flange. Please specify type required	'AXX' ASME Flange. Please specify type required					'3' Pilot Regulator, SRH6 0-150 barg		'3' 0-200 barg (0-2900 psig)	'3' 0-20 barg (0-290 psig)		
										'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 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)		
													'7' 0-400 barg (0-5800 psig)		

- Note:**
- > Options marked '*' indicate configurations that may incur additional costs / lead time.
 - > External Feedback is recommended for delivery pressures <20 barg.
 - > External Feedback reduces droop as flow increases (see page 8).

*Please contact us for any special clean requirements

Connections - Weld Stub & Flange

Stub Weld Options

Code	Inlet Pipe	Code	Outlet Pipe
W23	DN40 (1 1/2") Sch5	W29	DN50 (2") Sch5
W24	DN40 (1 1/2") Sch10	W30	DN50 (2") Sch10
W25	DN40 (1 1/2") Sch40	W31	DN50 (2") Sch40
W26	DN40 (1 1/2") Sch80	W32	DN50 (2") Sch80
W27	DN40 (1 1/2") Sch160	W33	DN50 (2") Sch160
W28	DN40 (1 1/2") SchXXS	W34	DN50 (2") SchXXS
W29	DN50 (2") Sch5	W35	DN65 (2 1/2") Sch5
W30	DN50 (2") Sch10	W36	DN65 (2 1/2") Sch10
W31	DN50 (2") Sch40	W37	DN65 (2 1/2") Sch40
W32	DN50 (2") Sch80	W38	DN65 (2 1/2") Sch80
W33	DN50 (2") Sch160	W39	DN65 (2 1/2") Sch160
W34	DN50 (2") SchXXS	W40	DN65 (2 1/2") SchXXS
W35	DN65 (2 1/2") Sch5	W41	DN80 (3") Sch5
W36	DN65 (2 1/2") Sch10	W42	DN80 (3") Sch10
W37	DN65 (2 1/2") Sch40	W43	DN80 (3") Sch40
W38	DN65 (2 1/2") Sch80	W44	DN80 (3") Sch80
W39	DN65 (2 1/2") Sch160	W45	DN80 (3") Sch160
W40	DN65 (2 1/2") SchXXS	W46	DN80 (3") SchXXS
		W47	DN90 (3 1/2") Sch5
		W48	DN90 (3 1/2") Sch10
		W49	DN90 (3 1/2") Sch40
		W50	DN90 (3 1/2") Sch80
		W51	DN90 (3 1/2") Sch160
		W52	DN90 (3 1/2") SchXXS
		W53	DN100 (4") Sch5
		W54	DN100 (4") Sch10
		W55	DN100 (4") Sch40
		W56	DN100 (4") Sch80
		W57	DN100 (4") Sch160
		W58	DN100 (4") SchXXS

ASME Flange Interface Options

Code	Inlet Pipe	Code	Outlet Pipe
A23	DN40 (1 1/2") #150	A29	DN50 (2") #150
A24	DN40 (1 1/2") #300	A30	DN50 (2") #300
A25	DN40 (1 1/2") #600	A31	DN50 (2") #600
A26	DN40 (1 1/2") #900	A32	DN50 (2") #900
A27	DN40 (1 1/2") #1500	A33	DN50 (2") #1500
A28	DN40 (1 1/2") #2500	A34	DN50 (2") #2500
A29	DN50 (2") #150	A35	DN65 (2 1/2") #150
A30	DN50 (2") #300	A36	DN65 (2 1/2") #300
A31	DN50 (2") #600	A37	DN65 (2 1/2") #600
A32	DN50 (2") #900	A38	DN65 (2 1/2") #900
A33	DN50 (2") #1500	A39	DN65 (2 1/2") #1500
A34	DN50 (2") #2500	A40	DN65 (2 1/2") #2500
A35	DN65 (2 1/2") #150	A41	DN80 (3") #150
A36	DN65 (2 1/2") #300	A42	DN80 (3") #300
A37	DN65 (2 1/2") #600	A43	DN80 (3") #600
A38	DN65 (2 1/2") #900	A44	DN80 (3") #900
A39	DN65 (2 1/2") #1500	A45	DN80 (3") #1500
A40	DN65 (2 1/2") #2500	A46	DN80 (3") #2500
		A47	DN90 (3 1/2") #150
		A48	DN90 (3 1/2") #300
		A49	DN90 (3 1/2") #600
		A50	DN90 (3 1/2") #900
		A51	DN90 (3 1/2") #1500
		A52	DN90 (3 1/2") #2500
		A53	DN100 (4") #150
		A54	DN100 (4") #300
		A55	DN100 (4") #600
		A56	DN100 (4") #900
		A57	DN100 (4") #1500
		A58	DN100 (4") #2500

EN Flange Interface Options

Code	Inlet Pipe	Code	Outlet Pipe
E23	DN40 (1 1/2") PN16	E29	DN50 (2") PN16
E24	DN40 (1 1/2") PN40	E30	DN50 (2") PN40
E25	DN40 (1 1/2") PN100	E31	DN50 (2") PN100
E26	DN40 (1 1/2") PN160	E32	DN50 (2") PN160
E27	DN40 (1 1/2") PN250	E33	DN50 (2") PN250
E28	DN40 (1 1/2") PN400	E34	DN50 (2") PN400
E29	DN50 (2") PN16	E35	DN65 (2 1/2") PN16
E30	DN50 (2") PN40	E36	DN65 (2 1/2") PN40
E31	DN50 (2") PN100	E37	DN65 (2 1/2") PN100
E32	DN50 (2") PN160	E38	DN65 (2 1/2") PN160
E33	DN50 (2") PN250	E39	DN65 (2 1/2") PN250
E34	DN50 (2") PN400	E40	DN65 (2 1/2") PN400
E35	DN65 (2 1/2") PN16	E41	DN80 (3") PN16
E36	DN65 (2 1/2") PN40	E42	DN80 (3") PN40
E37	DN65 (2 1/2") PN100	E43	DN80 (3") PN100
E38	DN65 (2 1/2") PN160	E44	DN80 (3") PN160
E39	DN65 (2 1/2") PN250	E45	DN80 (3") PN250
E40	DN65 (2 1/2") PN400	E46	DN80 (3") PN400
		E47	DN90 (3 1/2") PN16
		E48	DN90 (3 1/2") PN40
		E49	DN90 (3 1/2") PN100
		E50	DN90 (3 1/2") PN160
		E51	DN90 (3 1/2") PN250
		E52	DN90 (3 1/2") PN400
		E53	DN100 (4") PN16
		E54	DN100 (4") PN40
		E55	DN100 (4") PN100
		E56	DN100 (4") PN160
		E57	DN100 (4") PN250
		E58	DN100 (4") PN400



> DR50 with Flanged Connections

Selecting the Right Piloting Option

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

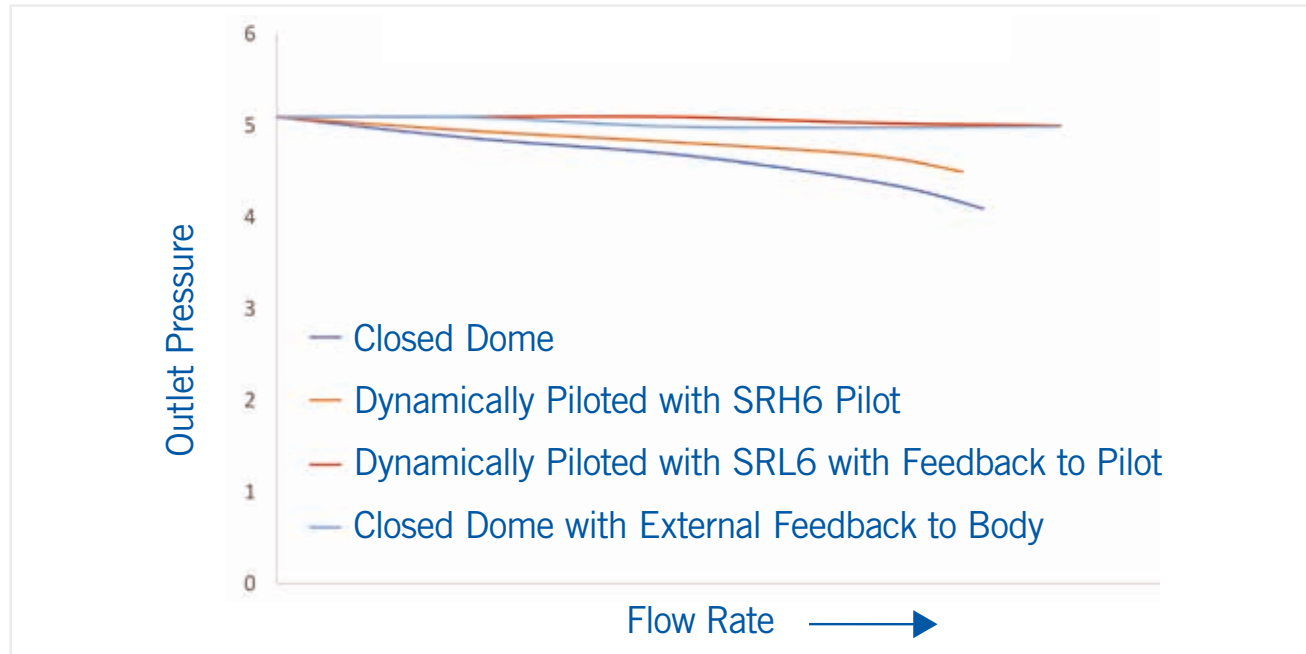
A Closed Dome (loaded with a needle valve block) will provide reliable pressure control.

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



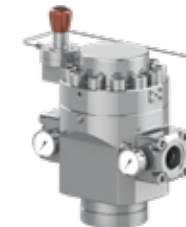
Dynamically Piloted

- > 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

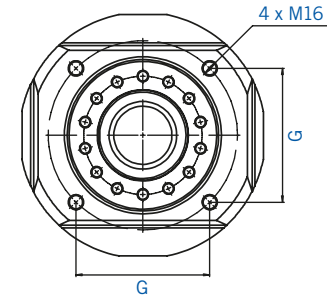
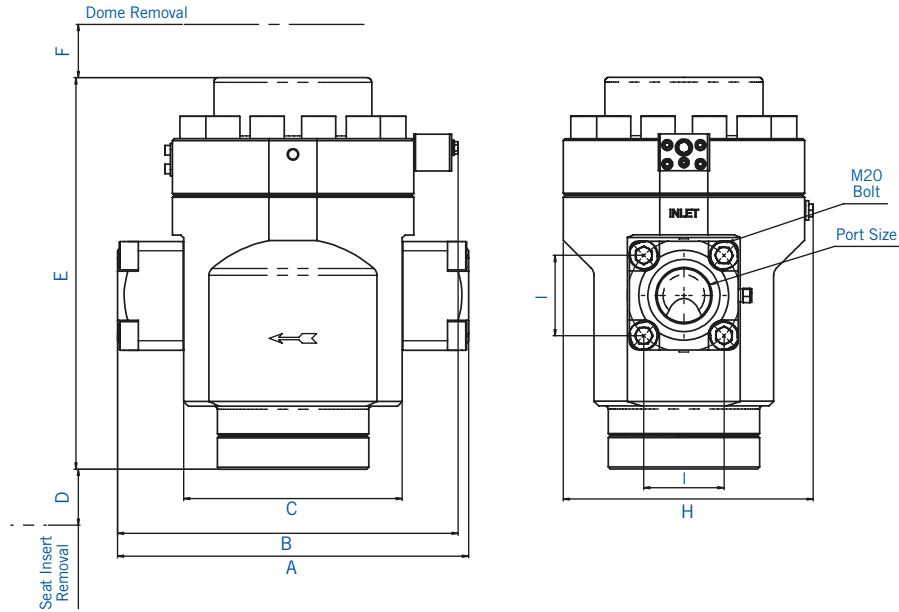


Dynamically Piloted with external feedback to the SRL15 Pilot Regulator

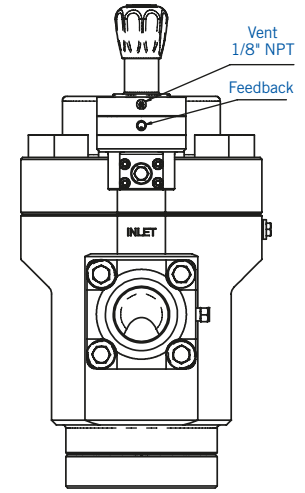
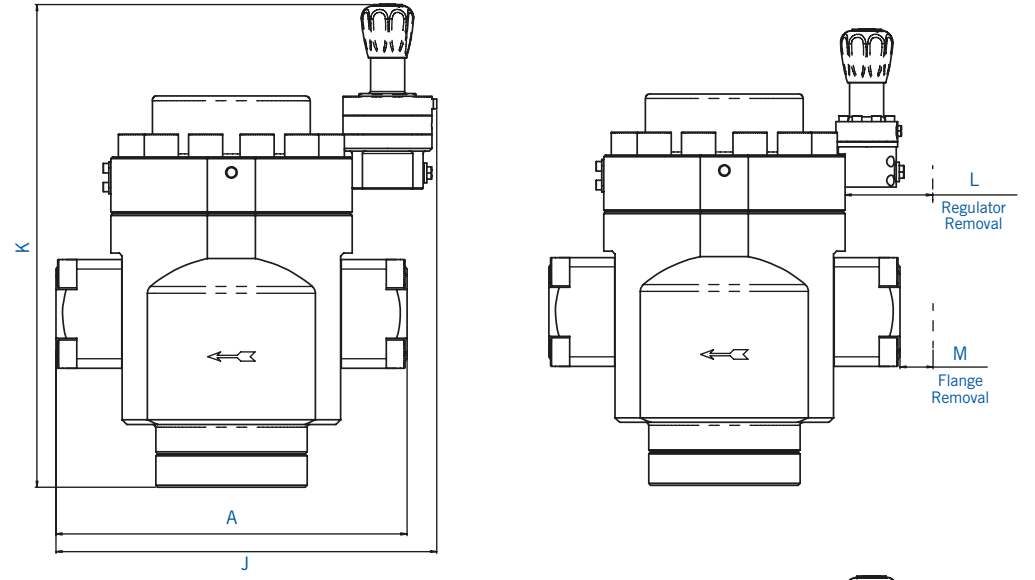
- > High Accuracy Pilot Regulator provides excellent control pressure accuracy
- > Feedback from outlet reduces droop to almost zero

Installation Dimensions - DRH50 (Threaded Connection)

DR50 - Closed Dome



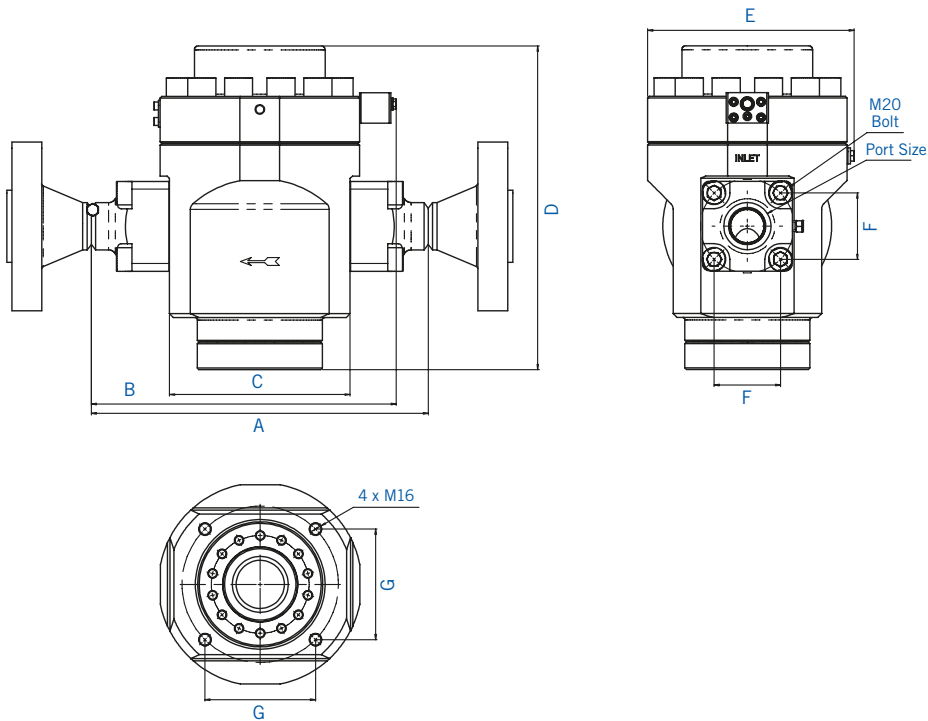
DR50 - Dynamically Piloted



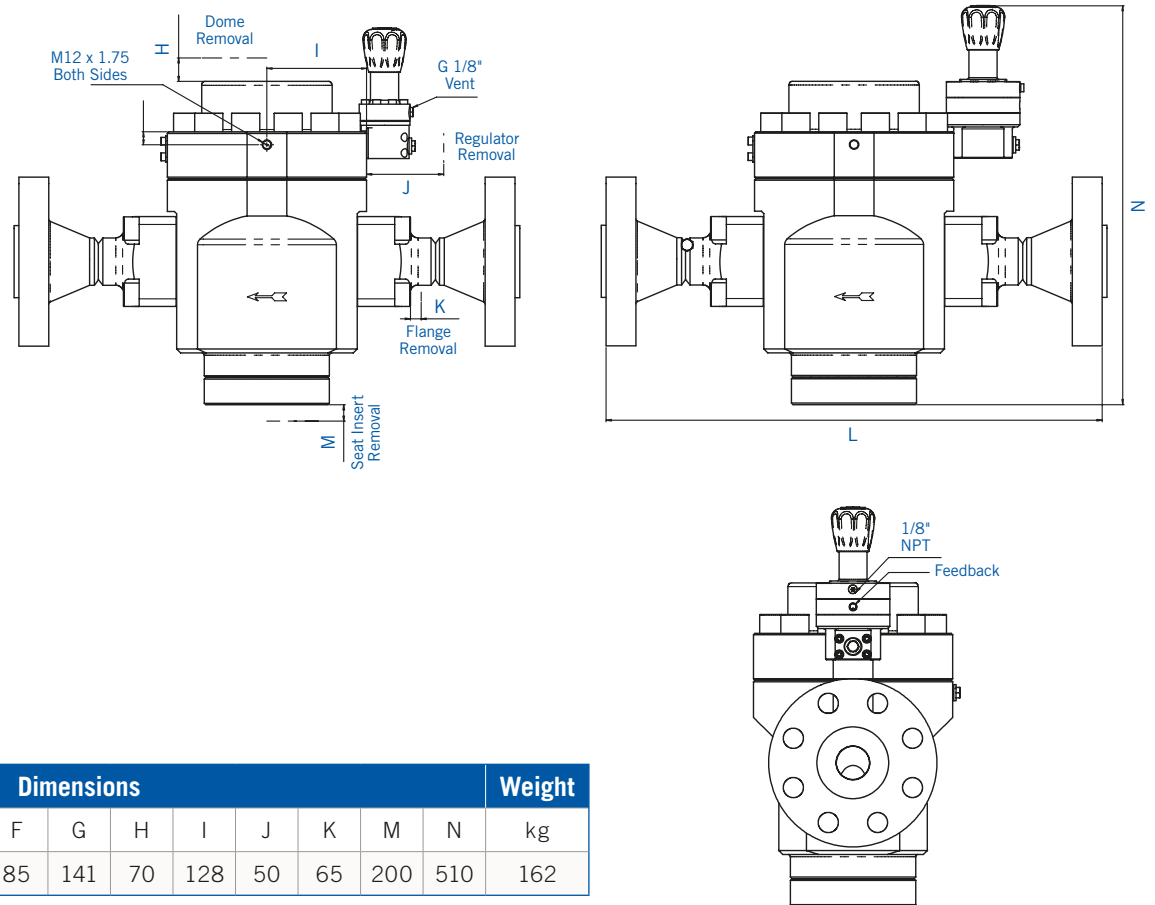
Series	Dimensions														Z - Port Size		Weight
	A	B	C	D	E	F	G	H	I	J	K	L	M	Inlet	Outlet	kg	
DRH50	371	360	231	200	414	70	141	264	85	403	510	50	65	G 1 - 1/2"	G 1 - 1/2"	126	

Installation Dimensions - DRH50 (Flanged Connection)

DR50 - Closed Dome



DR50 - Dynamically Piloted



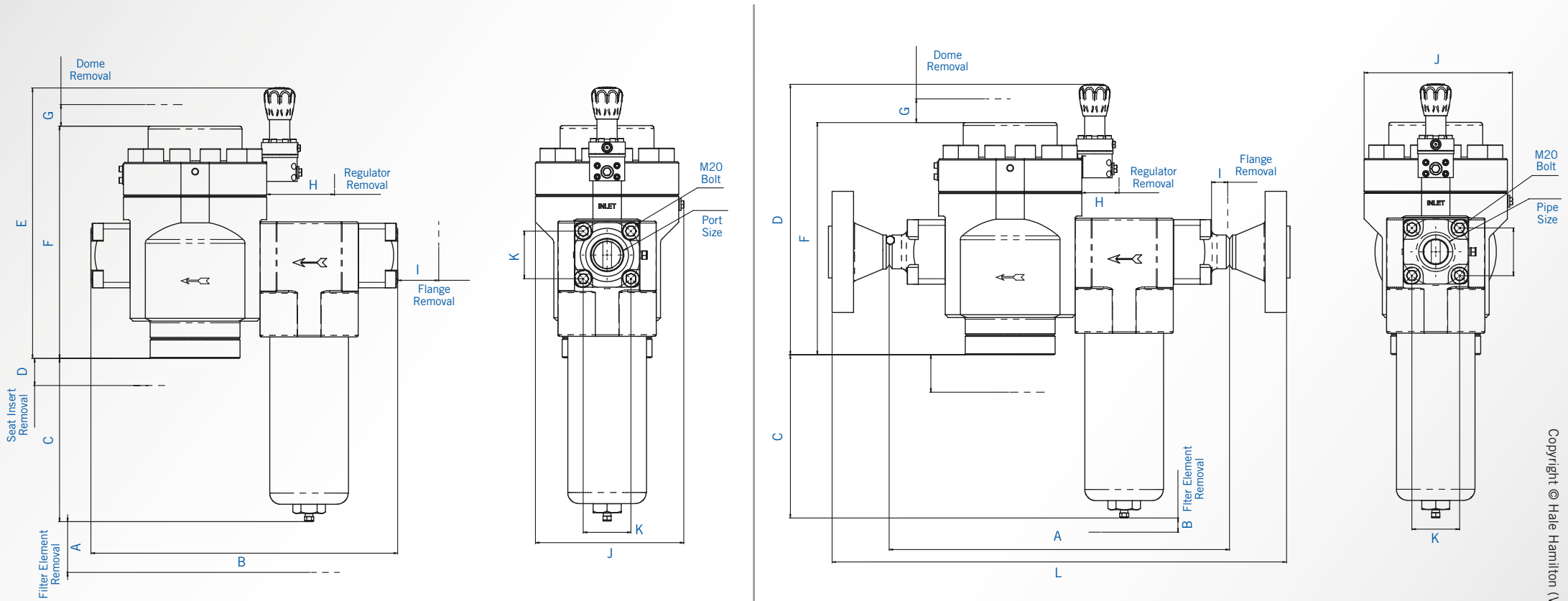
Series	Dimensions													Weight	
	DR50	A	B	C	D	E	F	G	H	I	J	K	M		N
DRH50		431	390	231	414	264	85	141	70	128	50	65	200	510	162

Note:

> Dimension 'L' and weight will vary according to the thickness of the flange.

Installation Dimensions - DFR50

DFR50



Series DFR50	Dimensions											Weight kg
	A	B	C	D	E	F	G	H	I	J	K	
DFR50 Threaded	335	546	291	200	482	414	70	50	65	264	85	183
DFR50 Flanged	606	335		482	N/A							227

Note:

> Dimension 'L' and weight will vary according to the thickness of the flange.