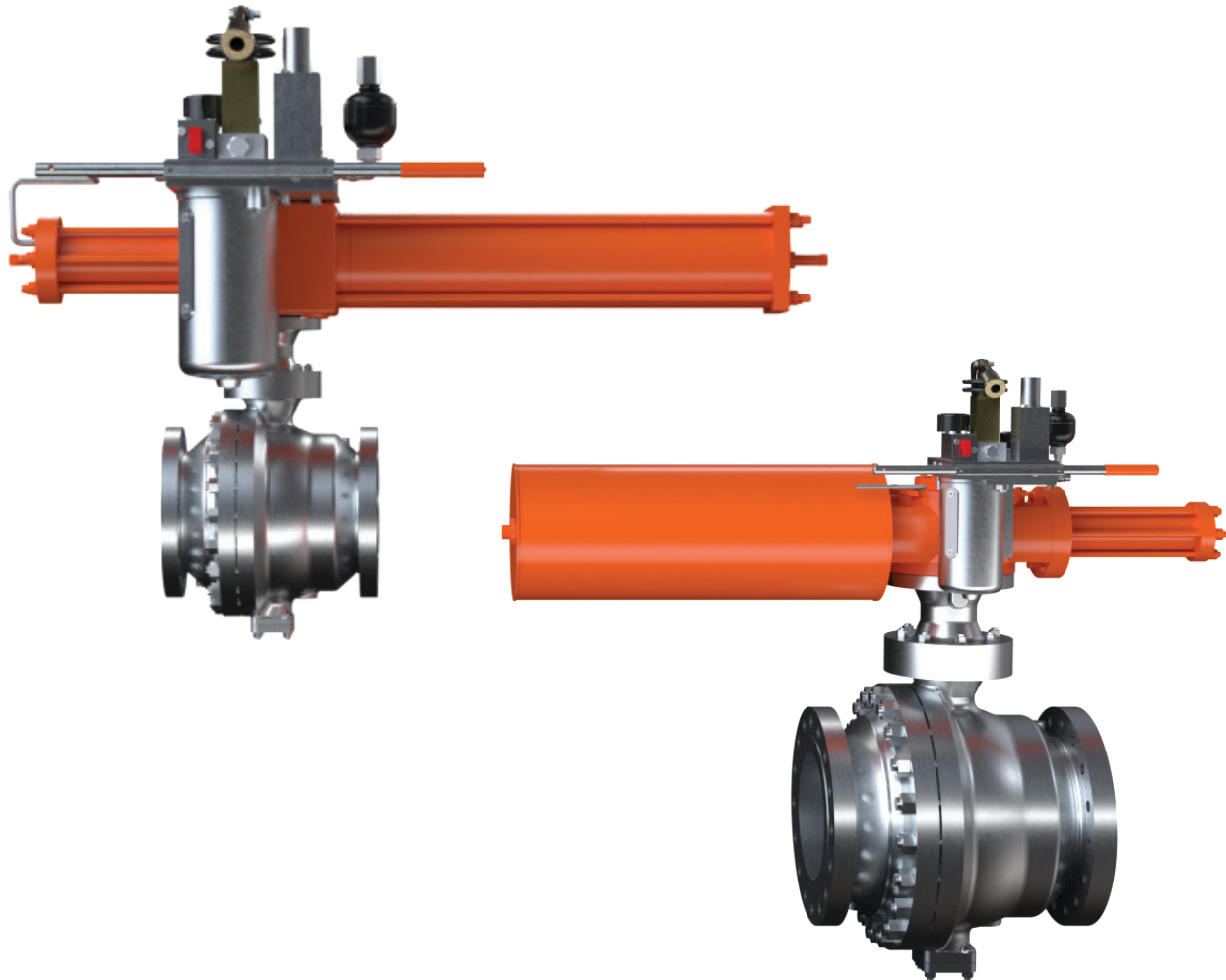


# Bettis™ Pressureguard™

Hydraulic Actuators



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# Bettis™ PressureGuard™

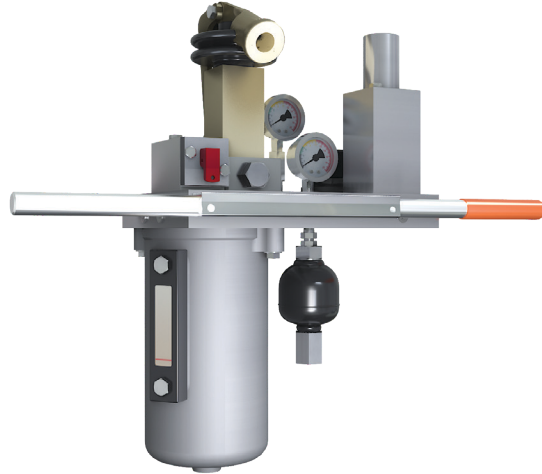
## Standard Features

- Manual handpump with stainless steel ram, weatherproof boot, and stainless steel handpump handle
- Hydraulic reservoir with high and low level mark
- Manual reset valve to arm the unit prior to pumping and for shutdown
- Pressure regulator to reduce the hydraulic pressure to allow the use of low pressure control components in the control circuit
- Low pressure accumulator to absorb additional volume of the hydraulic fluid in the control system during temperature swings
- High pressure accumulator (optional) absorbs additional volume of the hydraulic fluid in the actuator during significant temperature increases
- A weatherproof and corrosion resistant breather
- Stainless steel pressure gauges (optional)
- Weatherproof manifold with a padlockable cover (optional)

## Optional Features for Shutdown

- Fusible Plugs
- High and/or Low Pressure Pilots
- Remote ESD Shutdown
- Pressure Drop Rate

Figure 1.



## Bettis™ E-Series PressureGuard™

### Material

- Modular, with basic drive case/cylinder combinations to most economically suit field requirements
- Safe, reliable and field removable spring cartridges
- Tie rod cylinder construction for simplified maintenance
- Guaranteed torque output to ensure your safety function

### Construction

- Modular, with basic drive case/cylinder combinations to most economically suit field requirements
- Safe, reliable and field removable spring cartridges
- Tie rod cylinder construction for simplified maintenance
- Guaranteed torque output to ensure your safety function

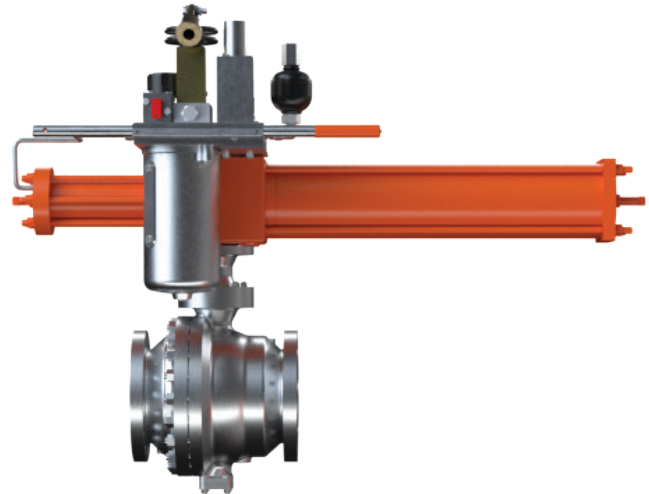
### Controls

- Local or remote control self-contained hydraulic system
- Complete control packages to suit specific applications

### Temperature

- Low temperature trim is standard: -50 °F to + 150 °F
- High temperature trim is optional: -20 °F to + 225 °F
- Consult factory for other temperature trims

Figure 2.



# Bettis™ G-Series PressureGuard™

## Material

- Ductile iron and alloy steel
- Corrosion resistant, with protective internal and external coatings, performs reliably in harsh environments

## Construction

- Compact, optimize the center of gravity location. Significantly lighter and require less space than other actuators
- Field serviceable drive, power, spring and override modules. The modules are removable, serviceable and interchangeable while mounted to the valve
- The Tension-Lok™ allows for the safe installation and removal of the spring module greatly reducing accidental release of the spring force
- Allowing for quick reversal of the fail-safe mode, while allowing the addition of overrides, accessories and other modules
- Water ingress IP66 and IP67M protected, has no gaskets and is totally O-ring sealed
- Superior surface finishes and selflubricating bearings maximize input energy transfer directly to the valve stem. Efficiency is further enhanced by the outboarded spring, minimizing radial loads on the piston rod

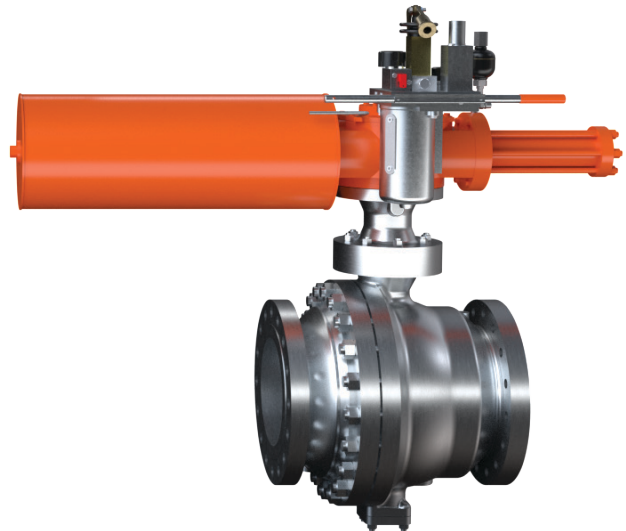
## Controls

- Local or remote control self-contained hydraulic system
- Complete control packages to suit specific applications

## Temperature

- Standard: -20 °F to 200 °F
- High temperature: 0 °F to 350 °F
- Low Temperature: -40 °F to 150 °F
- Consult factory for other temperature trims

**Figure 3.**



## Bettis™ E-Series and G-Series Spring-Return Torque Output

Table 1.

Model	Minimum Operating Pressure	Maximum Operating Pressure	Display (in <sup>3</sup> )	Spring BTC (in-lb)	Spring RTC (in-lb)	Spring ETC (in-lb)	Torque at Minimum Pressure (in-lb)			Torque at 1250 Pressure (in-lb)		
							BTO	RTO	ETO	BTO	RTO	ETO
35DSRM100-SC2MP	200	275	5.7	2,730	1,060	1,530	2,710	1,050	1,500	N/A	N/A	N/A
35DSRH100-SC2HP	950	2,000	5.7	2,480	960	1,390	2,810	1,100	1,600	4,140	1,750	2,890
50DSRH100-SC2HP	800	2,000	22.1	9,770	3,870	5,700	8,440	3,200	4,370	16,390	7,180	12,320
G01002.5-SR4-CW-SC2HP	947	2,362	19.6	10,432	5,249	8,803	4,453	2,131	2,830	9,455	4,784	7,827
60DSRH100-SC2HP	1,000	2,000	38.9	16,300	6,440	9,420	12,200	4,630	5,280	17,610	7,400	10,680
G2003.0-SR4-CW-SC2HP	972	1,845	36	20,437	9,593	15,277	11,260	4,774	6,108	19,748	9,297	14,589
70DSRH100-SC2HP	800	2,000	64.9	27,700	10,900	15,800	25,800	9,910	13,800	49,200	21,620	37,140
70DSRH120-SC2HP	960	2,000	64.9	33,400	13,300	19,600	30,200	11,600	16,200	45,240	19,120	31,180
G2003.0-SR2-CW-SC2HP	1,208	1,845	36	25,853	12,256	20,047	13,720	5,915	7,925	14,974	6,587	9,177
G3003.5-SR4-CW-SC2HP	1,007	1,986	59	34,855	16,284	26,089	19,490	8,214	10,731	31,562	14,648	22,797
G3004.0-SR2-CW-SC2HP	970	1,470	79.4	45,847	21,360	34,449	25,923	10,883	14,535	59,685	28,780	48,281
G4004.5-SR4-CW-SC2HP	914	1,942	120	65,513	29,577	45,990	40,268	16,254	20,762	74,596	34,565	55,066
G4004.5-SR2-CW-SC2HP	1,307	1,942	120	95,492	42,508	66,113	60,363	24,048	31,010	60,363*	24,048*	31,010*
G5006.0-SR4-CW-SC5HP	888	1,929	276	148,365	62,771	91,300	105,763	40,034	48,712	191,072	85,761	133,993
G5006.0-SR2-CW-SC5HP	1,318	1,929	276	223,717	91,726	130,291	168,044	62,079	74,636	168,044*	62,079*	74,636*
G7007.0-SR4-CW-SC9HP	1,250	2,218	466	301,080	125,510	181,576	221,079	82,783	101,595	299,084	124,994	179,580

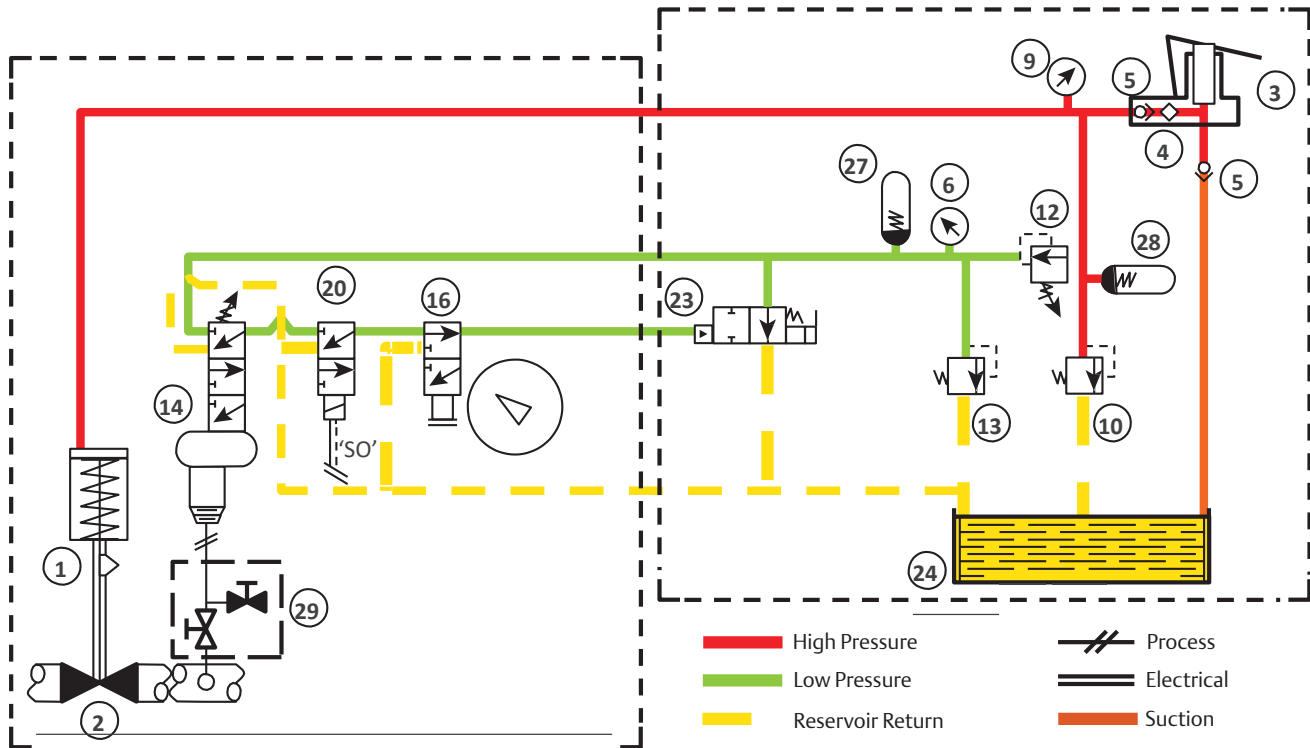
**Notes:**

1. G4004.5-SR2 minimum operating pressure is 1,307 psi.
2. G5006.0-SR2 minimum operating pressure is 1,317 psi.



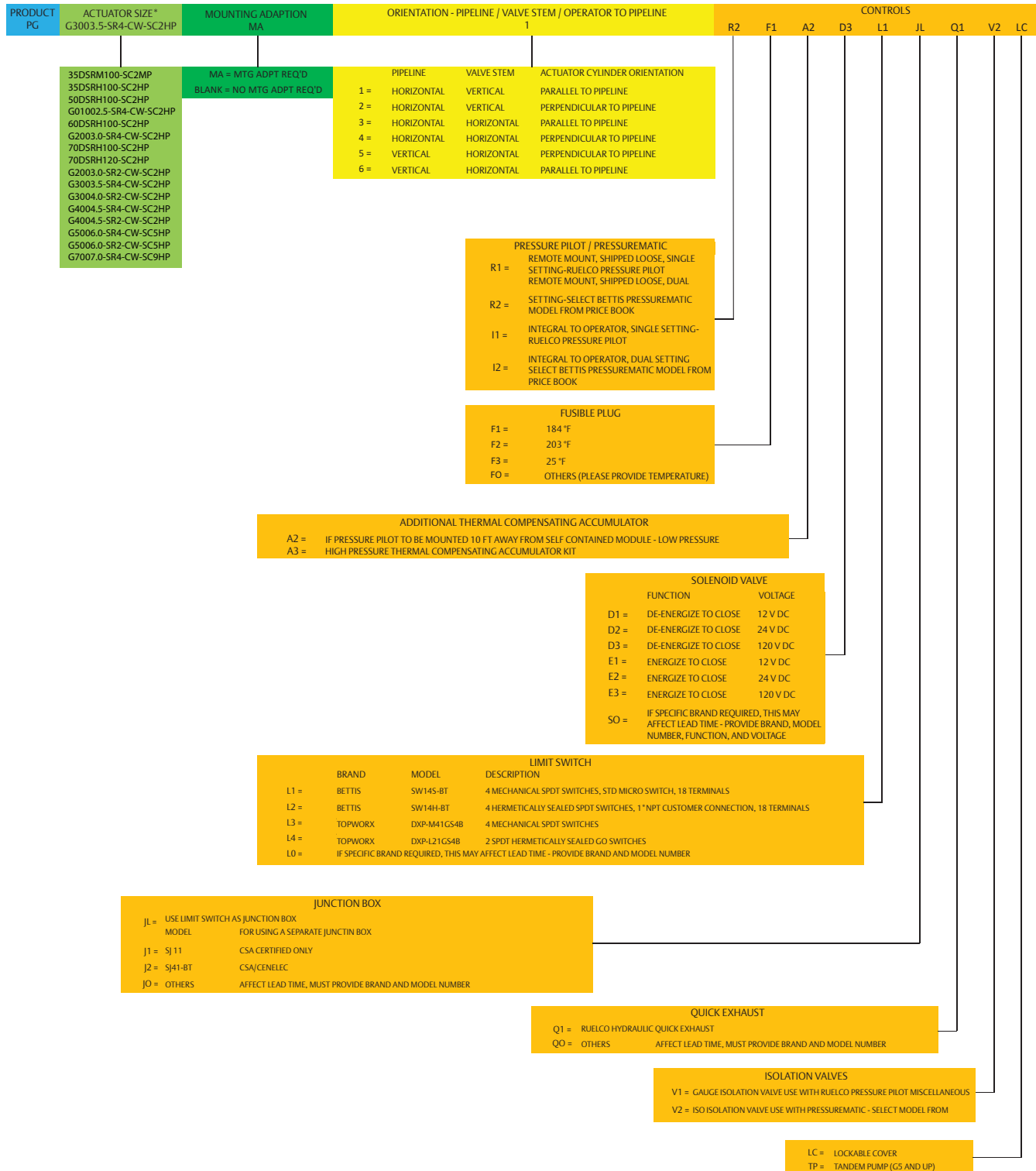
## Basic Control Schematics

Figure 4.



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1. Operator</li> <li>2. Wellhead ESD Valve</li> <li>3. Handpump</li> <li>4. Filter</li> <li>5. Check Valve</li> <li>6. Gauge, LP 2.5" (optional)</li> <li>9. Gauge, HP 2.5" (optional)</li> <li>10. Relief Valve, HP</li> <li>12. Pressure Regulator</li> </ul> | <ul style="list-style-type: none"> <li>13. Relief Valve, LP</li> <li>14. Pressure Pilots (optional)</li> <li>16. Selector Valve (optional)</li> <li>20. Solenoid Valve N.C. (optional)</li> <li>23. Reset Valve</li> <li>24. Reservoir</li> <li>27. LP Accumulator</li> <li>28. HP Accumulator (optional)</li> <li>29. Isolation Test Valve (optional)</li> </ul> |
|--|---|

# PressureGuard™ Model Designation



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