

# GH & GHL-SERIES

Gas-Over-Oil Valve Actuators



## COMPANY



For over 30 years Paladon Systems has been supplying valve actuators and control systems on a global basis.



Since its inception in 1981, Paladon Systems has continuously developed its design, engineering, organisational, quality and management capabilities. Today Paladon Systems designs and manufactures many valve automation technologies that lead the industry in terms of cost efficiency, operational performance and environmental responsibility.



Paladon Systems' vast experience with supporting the Oil, Gas and Power industries with valve automation solutions for the most critical applications in extreme operating environments has resulted in product designs that offer unsurpassed quality and reliability across all industries and applications.

Holding ISO 9001 certification for over 20 years, today Paladon Systems hold accreditation and approvals from almost all major institutes, engineering companies and end users.

Headquartered in England, Paladon Systems has offices and facilities in Scotland, Italy, Malaysia, the Russian Federation and the United States. With a comprehensive suite of valve automation solutions backed by a dedicated team of field service engineers, Paladon Systems is **Total Valve Control**.



## INTRODUCTION

Paladon Systems GH and GHL-Series gas-over-oil valve actuators use high pressure process gas to provide the energy required to power the valve actuator. To provide increased safety and reliability, the process gas acts upon hydraulic fluid stored in gas-over-oil tanks, creating hydraulic pressure that is subsequently used to power the valve actuator.

As standard the gas-over-oil control system provides local open and close control using either the high pressure process gas or via a hydraulic hand pump. Numerous additional control system options are available; including remote control and high/low and rate-of-drop linebreak detection.

Although gas-over-oil valve actuators and control systems are more complicated than direct gas type actuators, they offer many benefits including increased safety, reliability and operational lifespan.



## KEY FEATURES

- Low or high pressure control system designs available
- Suitable for operation on sour and wet power gas
- Compact, rugged and reliable manifolded control systems
- Modular control system manifolds to allow for quick, simple and inexpensive control system functionality changes or servicing
- Fully enclosed controls with lockable cover to provide excellent environmental protection and protection from unauthorised operation
- Hydraulic manual override as standard to allow for local open and close operation on loss of power gas supply
- Local open and close valve operation using power gas as standard
- Independent open and close valve speed control as standard
- PED or ASME approved gas-over-oil and power gas storage tanks for safe containment of power gas
- Scotch-yoke valve actuators with symmetrical, canted and demi-canted yoke designs to ensure optimum actuator sizing and Lloyds certified for operation down to  $-65^{\circ}\text{C}$  ( $-85^{\circ}\text{F}$ )
- Linear valve actuator systems available
- Double-acting and spring-return valve actuator configurations
- Valve actuators certified to IP66M
- Valve actuators 3<sup>rd</sup> party approved for SIL 3 applications
- Valve actuators certified in accordance with PED 93/27/EC

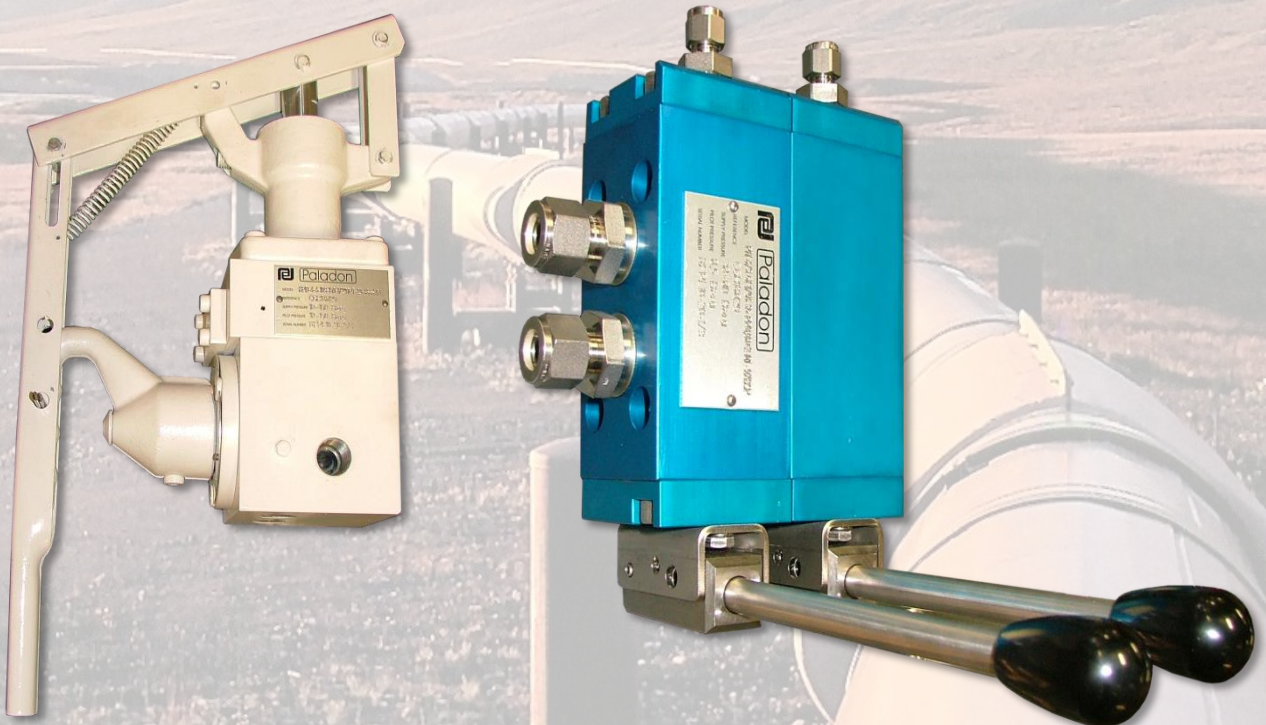
## PERFORMANCE DATA

- **Supply Pressures**
  - ▶ GH & GHL-Series 13 to 250 Barg (90 to 3,625 psig)
- **Torque Output**
  - ▶ GH-Series Up to 680,000 Nm (6,018,000 lb in)
- **Thrust Output**
  - ▶ GHL-Series Up to 289,134 N (65,000 lbf)
- **Ambient Operating Temperatures**
  - ▶ Ultra-low  $-65$  to  $+80^{\circ}\text{C}$  ( $-85$  to  $+176^{\circ}\text{F}$ ) (HY-Series only)
  - ▶ Low  $-45$  to  $+60^{\circ}\text{C}$  ( $-49$  to  $+140^{\circ}\text{F}$ )
  - ▶ Standard  $-20$  to  $+80^{\circ}\text{C}$  ( $-4$  to  $176^{\circ}\text{F}$ )
  - ▶ High  $-20$  to  $+140^{\circ}\text{C}$  ( $-4$  to  $+284^{\circ}\text{F}$ )

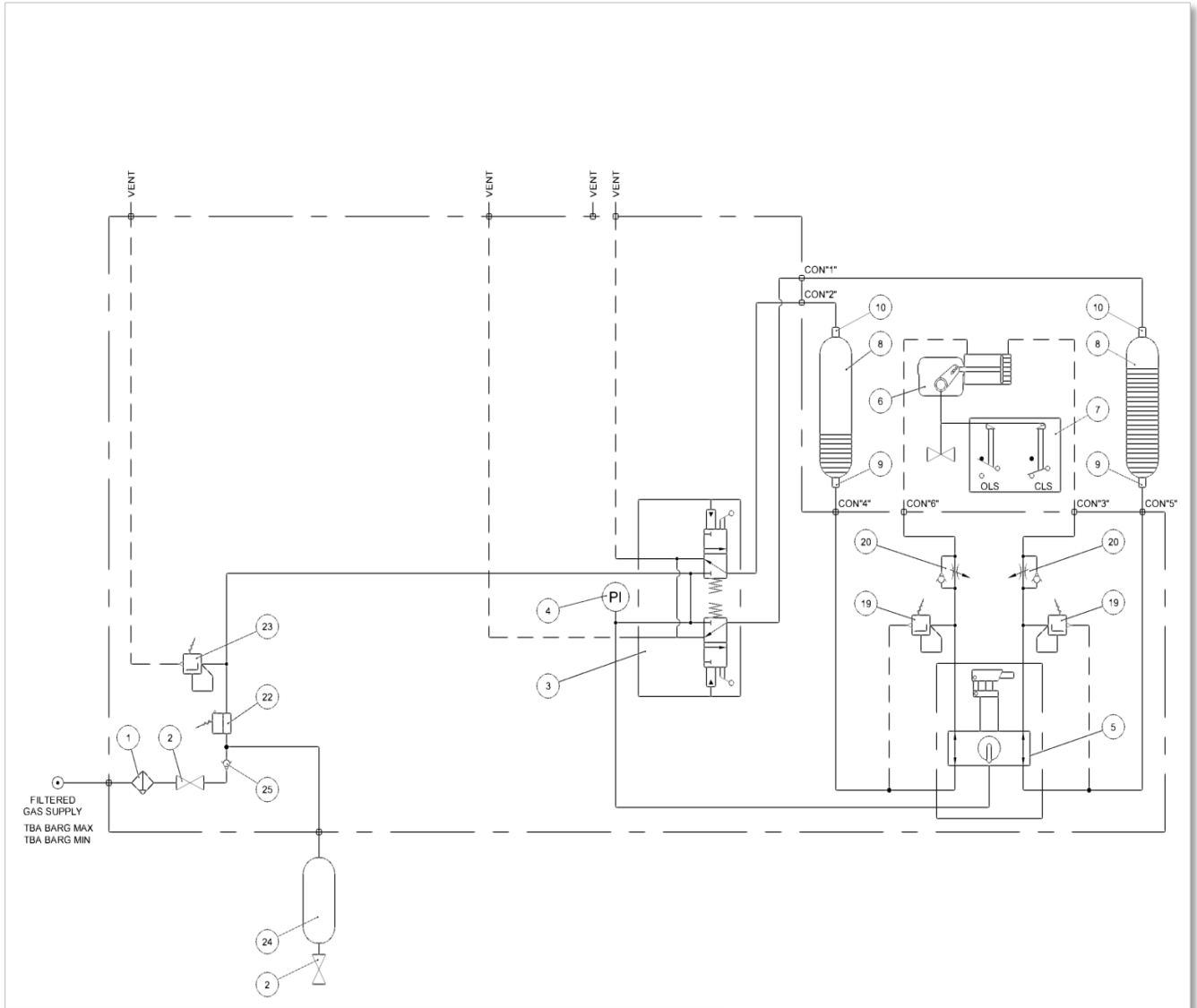
## CONTROL SYSTEM OPTIONS

In addition to bespoke gas-over-oil control systems, Paladon Systems provides the following standard control system functionality:

- Local manual control using a hydraulic handpump
- Local control using power gas
- Remote control using solenoid valves
- Automatic high/low linebreak control using either a pressure pilot valve or electrical pressure transmitter
- Automatic rate-of-drop linebreak control using either a mechanical or electrical linebreak sensor
- Positional control using either 3-15 psig pneumatic positioners or 4-20 mA electrical positioners

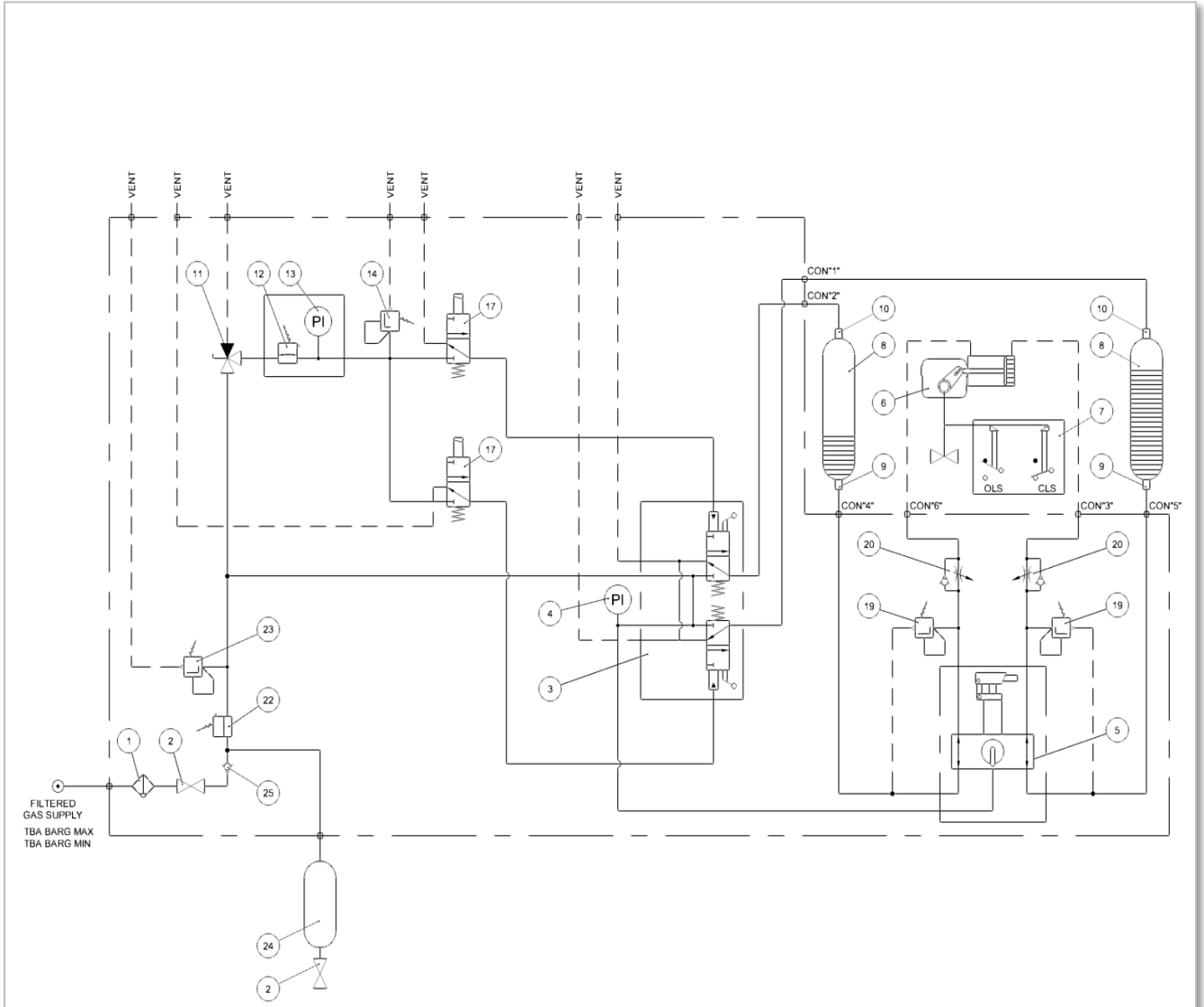


# LOCAL MANUAL CONTROL SCHEMATIC



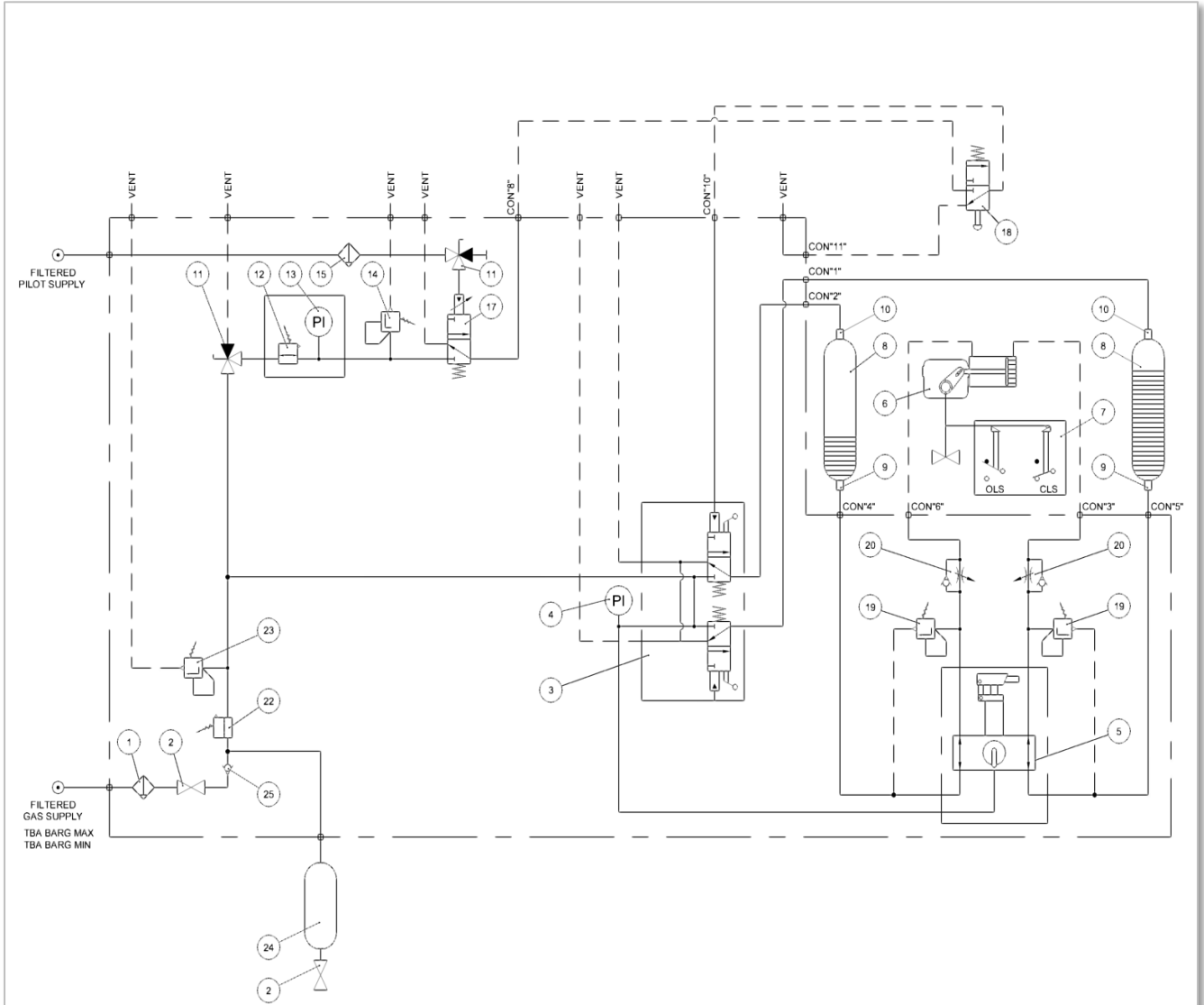
1	Filter	10	Diffuser
2	Ball Valve	19	Pressure Relief Valve
3	Poppet Block	20	Flow Control Valve
4	Pressure Gauge	22	Pressure Regular
5	Handpump Assembly	23	Pressure Relief Valve
6	Valve Actuator	24	Pressure Vessel
7	Limit Switch	25	Non-Return Valve
8	Gas-Over-Oil Tanks		
9	Drain & Reducer		

# REMOTE CONTROL SCHEMATIC



1	Filter	10	Diffuser	23	Pressure Relief Valve
2	Ball Valve	11	Ball Valve	24	Pressure Vessel
3	Poppet Block	12	Pressure Regulator	25	Non-Return Valve
4	Pressure Gauge	13	Pressure Gauge		
5	Handpump Assembly	14	Pressure Relief Valve		
6	Valve Actuator	17	Solenoid Valve		
7	Limit Switch	19	Pressure Relief Valve		
8	Gas-Over-Oil Tanks	20	Flow Control Valve		
9	Drain & Reducer	22	Pressure Regulator		

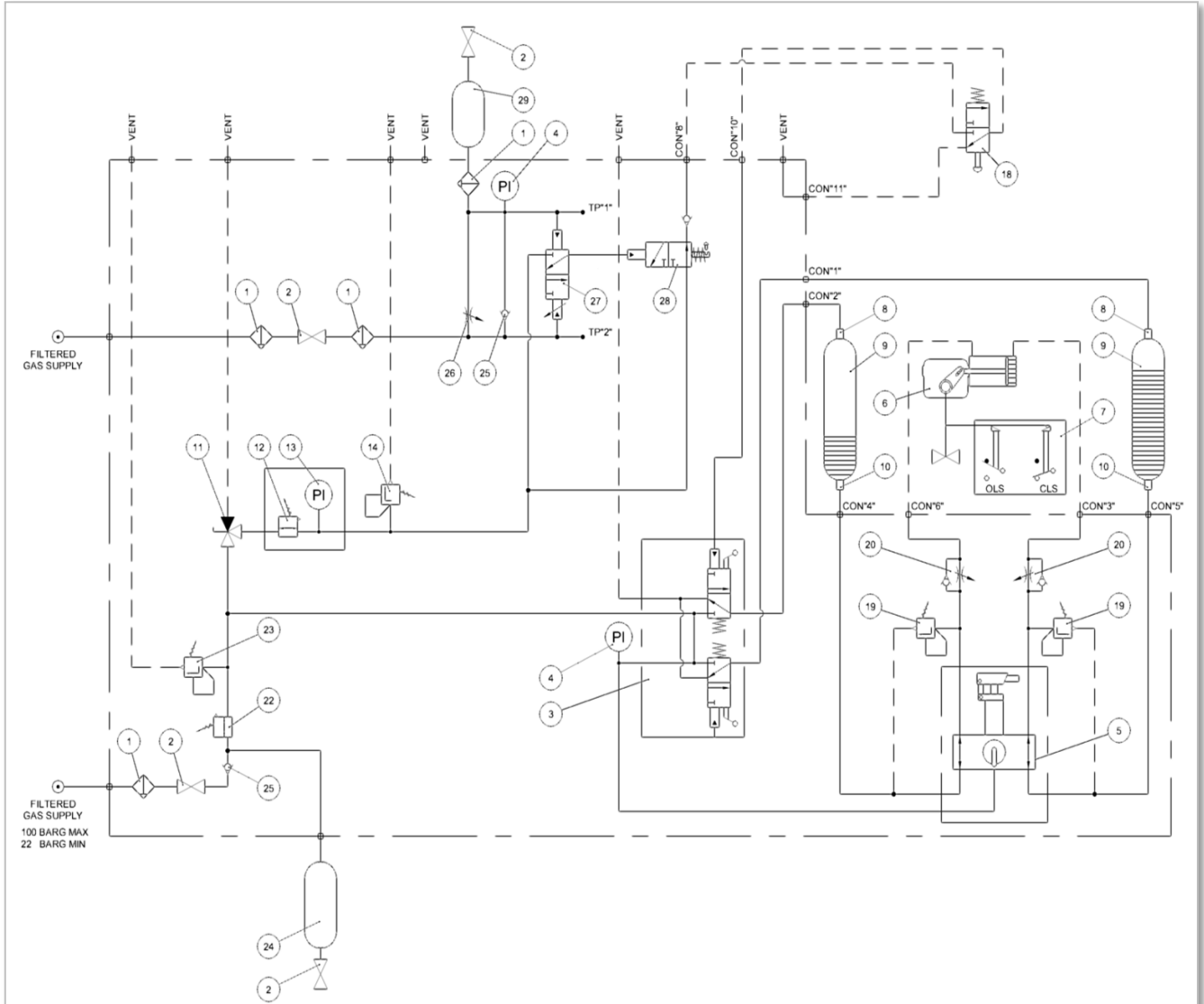
# AUTOMATIC HIGH/LOW LINEBREAK SCHEMATIC



1	Filter	10	Diffuser	20	Flow Control Valve
2	Ball Valve	11	Ball Valve	22	Pressure Regulator (optional)
3	Poppet Block	12	Pressure Gauge	23	Pressure Relief Valve (optional)
4	Pressure Gauge	13	Pressure Gauge	24	Pressure Vessel (optional)
5	Handpump Assembly	14	Pressure Relief Valve	25	Non-Return Valve (optional)
6	Valve Actuator	15	Filter Unit		
7	Limit Switch	17	Pneumatic Pressure Switch		
8	Gas-Over-Oil Tanks	18	Cam Operated Valve		
9	Drain & Reducer	19	Pressure Relief Valve		



# AUTOMATIC RATE-OF-DROP LINEBREAK SCHEMATIC



1	Filter	10	Diffuser	23	Pressure Relief Valve
2	Ball Valve	11	Ball Valve	24	Pressure Vessel
3	Poppet Block	12	Pressure Regulator	25	Non-Return Valve
4	Pressure Gauge	13	Pressure Gauge	26	Needle Valve
5	Handpump Assembly	14	Pressure Relief Valve	27	Pressure Sensing Pilot Valve
6	Valve Actuator	18	Cam Operated Valve	28	Pilot Valve
7	Limit Switch	19	Pressure Relief Valve	29	Reference Tank
8	Gas-Over-Oil Tanks	20	Flow Control Valve		
9	Drain & Reducer	22	Pressure Regulator		

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