

# GPC1™ GPC1-16000™ / GPC1-10000™ High Gas Pressure Controller



## FEATURES

- GPC1-16000 sets and adjusts high pressure gas up to 110 MPa (16 000 psi), GPC1-10000 sets up to 70 MPa (10 000 psi).
- Operation requires no physical exertion
- Very high resolution pressure control with push button adjustment
- Used with both piston gauge and transfer standard based test and calibration systems
- Self-contained design with compact 30 cm x 54 cm (12 in. x 21 in.) footprint
- Half-turn metering valves cannot be overtightened
- No "end of stroke" variable volume limitations
- High quality, long life construction
- Advanced ergonomics

## PURPOSE / APPLICATIONS

GPC1-16000 and GPC1-10000 provide an alternative for setting and precisely adjusting high gas pressures in calibration and test systems. This compact and easy to use system provides just the right balance between the simplicity and reliability of manual operation and the convenience of automated features. Push button fine pressure control eliminates the tedious variable volume operation previously associated with high pressure gas operation. GPC1 is the ideal solution in a variety of applications where high pressure generation and precision control is required, including piston gauge and transfer standard based calibration and test systems.

GPC1 is the standard pressure setting and adjusting component in a DHI PG7202 piston gauge system.

GPC1 combined with an RPM4 reference pressure monitor creates a complete transfer standard based calibration system that is particularly well suited for calibrating analog gauges by setting the gauge needle on the cardinal point and reading back the actual pressure.

## DESCRIPTION

*(See schematic on overleaf.)*

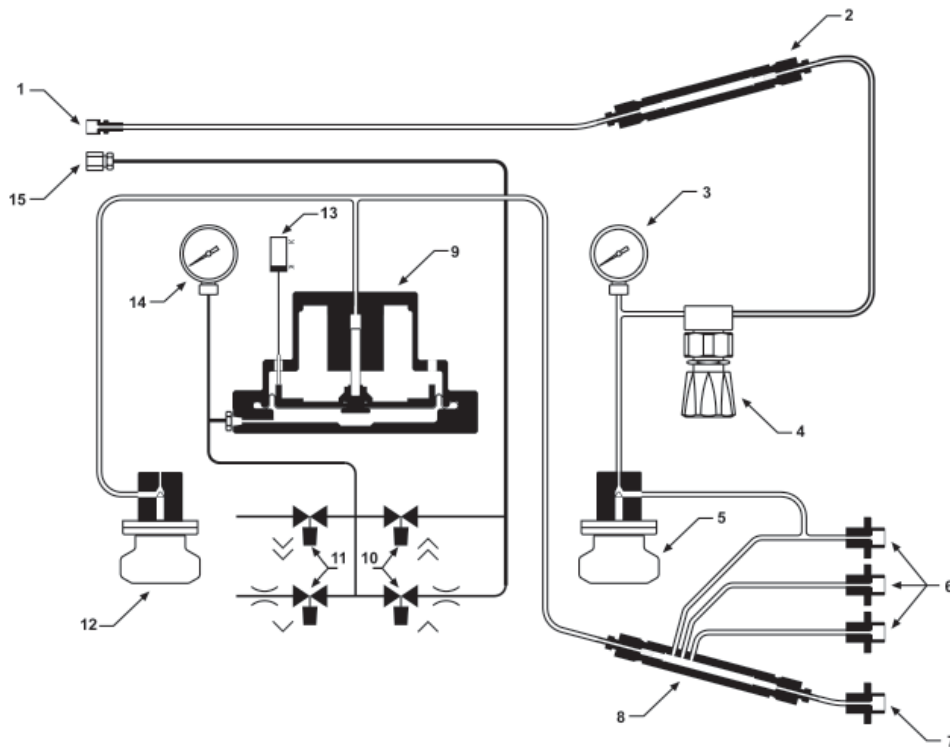
An external pressure supply equal to the maximum desired test pressure, up to up to 70 MPa (10,000 psi) (GPC1-10000) or 110 MPa (16,000 psi) (GPC1-16000), is connected to the GPC1 supply port. DHI gas boosters are available to provide the supply pressure. A built-in regulator and indicating gauge allow the high pressure supply to be adjusted locally to the pressure desired for the test being run. The output of the supply regulator feeds the high pressure inlet valve. The inlet valve admits pressure for rough ascending pressure control and the high pressure outlet valve decreases pressure. The control valves are specially designed metering valves that operate over a half turn and cannot be overtightened.

Fine pressure adjustment is achieved using a piston based variable volume. The variable volume is pneumatically actuated through a pneumatic diaphragm. Push button inlet and exhaust valves adjust the air pressure on the diaphragm providing both effort free micro adjustment and rapid piston movement as needed. The physical efforts and "end of stroke" operational limitations of conventional screw presses are eliminated. The variable volume piston position is indicated on the GPC1 front panel.

The GPC1 test ports are connected to an inclined manifold that serves as a sump to collect liquids or other contaminants that may be returned from the external test system. The sump is fitted with a drain port so that it may be purged at any time. This allows GPC1 to be used with test devices that have not been perfectly cleaned. A special clean test port is supplied directly from the gas inlet assuring that clean devices under test will not be contaminated by liquids that might be present in the sump.

# GPC1™ GPC1-16000™ / GPC1-10000™ High Gas Pressure Gas Controller

## PNEUMATIC SCHEMATIC



1. High pressure supply connection
2. Supply accumulator and filter
3. Supply gauge
4. Supply regulator
5. High pressure inlet valve
6. Test ports (two on instrument top and one on left side)
7. Test sump drain port (instrument right side)
8. Test sump
9. Pneumatically driven variable volume (PDVV)
10. PDVV up fast/slow push button valves
11. PDVV down fast/slow push button valves
12. High pressure outlet valve
13. PDVV plunger position indicator
14. PDVV drive pressure gauge
15. Drive air connection

## SPECIFICATIONS

**Pressure Range:** GPC1-16000: 0 to 110 MPa (16 000 psi)  
GPC1-10000: 0 to 70 MPa (10 000 psi)

**Operating Medium:** Any non-corrosive gas

**Test Connections:** DH500 (gland and collar type for coned and left hand threaded tube, equivalent to AE F250C, HIP HF4, etc.)

**Drive Air Connection:** 1/4 in. NPT F

**PDVV Displacement (Full Stroke):** 2 cc (0.12 cu in)

### PDVV Drive Air:

Clean, dry gas @ 200 sccm (very low flow) and pressure of:  
300 kPa (45 psi) for operation to 5 MPa (750 psi)  
650 kPa (95 psi) for operation to 50 MPa (7 500 psi)  
850 kPa (120 psi) for operation to 110 MPa (16 000 psi)

**Weight:** 24 kg (53 lbs)

**Dimensions:** 30 cm W x 53.5 cm D x 21.5 cm H  
(11.75 in. x 21.0 in. x 8.5 in.)

## ORDERING INFORMATION

GPC1 is delivered complete with:

- External tubing/adaptors to connect to a DHI PG7202 piston gauge or RPM reference pressure monitor and to convert the DH500 test port to a variety of other fittings
- Operation and maintenance manual

**Product Designation:** GPC1-16000                      GPC1-10000

**Part Number:** 401800                                      402200

**Ordering Description:** Gas pressure controller

## ACCESSORIES

GPC1 must be supplied with a pressure equal to the maximum desired test pressure. A gas booster can be used to supply this pressure. Gas boosters boost pressure as low as 35 MPa (500 psi) to 110 MPa (16 000 psi) using a Pascal type press driven by shop air pressure. Two models of boosters, defined by their boosting ratio, are available. The booster runs unattended and stalls when the output pressure equals the drive pressure times the boosting ratio.

Gas boosters are delivered complete with a drive air pneumatic control pack and external tubing/adaptors to connect to the GPC1 supply port. The 75:1 booster provides pressure up to 50 MPa (7 500 psi). The 152:1 booster is used for pressure up to 110 MPa (16 000 psi).

Designator	Description	P/N
Gas Booster	75:1, with control kit	401002
Gas Booster	152:1, with control kit	400509

Contact DHI for information on the GPC1 hydrocarbon free option and accessories for dedicated use in hydrocarbon free calibration and test systems.

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Due to a policy of continual product improvement, product specifications, descriptions and features are subject to change without notice.

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