

# GT2 High Temperature Valve

Mechanical Temperature Sensing Valve

*Part of the G Series of mechanical engine safety products  
for diesel engine emergency shutdown.*



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## About Wyndham Page Ltd

Based in the UK Wyndham Page specialise in the design and manufacture of safety equipment for diesel engines.

Our product range of Air Intake Shutdown Valves includes our E Series Automatic Valves and our F Series Butterfly Valves with solenoid, pneumatic or manual actuation options. We offer Speedswitch kits for the F Series valves, a range of G Series Mechanical Engine Safety Products and a range of Spark Arresters designed to prevent the emission of high energy sparks from diesel exhaust systems.

Wyndham Page is headed by Freddy Page-Roberts who brings over 20 years' experience in the diesel safety industry and was previously managing director of Chalwyn Ltd.

All members of the senior management team have considerable experience in organisations specialising in the design and manufacture of hazardous area equipment for diesel engines.

## Quality Assurance

Wyndham Page Valves are manufactured and tested under our EN ISO 9001: 2015 quality management system.

Wyndham Page Ltd are certified to supply Ex equipment under Quality Assurance Notification CML ATEXQ11003 in the UK, CML ATEXQ13649 in the EU and IECEx Quality Assurance Report GB/CML/QAR17.0023/01.

- Equipment supplied with an UK Declaration/Assertion of Conformity is CA marked and meets the provision of the UK directive SI 2016No. 1107
- Equipment supplied with an EU Declaration/Assertion of Conformity is CE marked and meets the provision of the ATEX directive 2014/34/EU.

## New G Series Mechanical Engine Safety Products

Wyndham Page supplies an ASOV, a Speed Valve, and a range of Temperature Sensing Valves for incorporation into the emergency shutdown control circuit of this type of application. Please contact Wyndham Page or your Wyndham Page supplier for additional details.

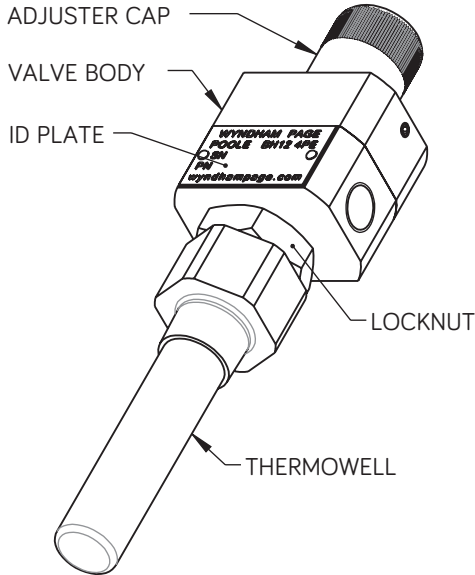
# GT2 Valve: Application

The GT2 mechanical temperature valve is used for monitoring exhaust gas or fluid temperatures in diesel engines converted to operate in hazardous areas without an electrical system. When connected to the safety control circuit of such an engine, in combination with a suitable air intake shutdown valve (ASOV) such as the Wyndham Page FG3, it provides an emergency means for rapid shutdown of the diesel engine should a temperature parameter exceed a preset limit.

The safety control circuit, usually pressurised oil from the engine lube system or an independent pneumatic supply, is vented to sump or atmosphere by the GT2 valve in the event of an over temperature event. The resulting pressure drop in the control circuit results in closure of the ASOV and a rapid shutdown of the engine.

The GT2 valve will automatically reset when the temperature falls below the preset trip point.

Stainless Steel is used throughout in the construction of the valve ensuring it is suitable for all areas of application.



# Description and Main Dimensions

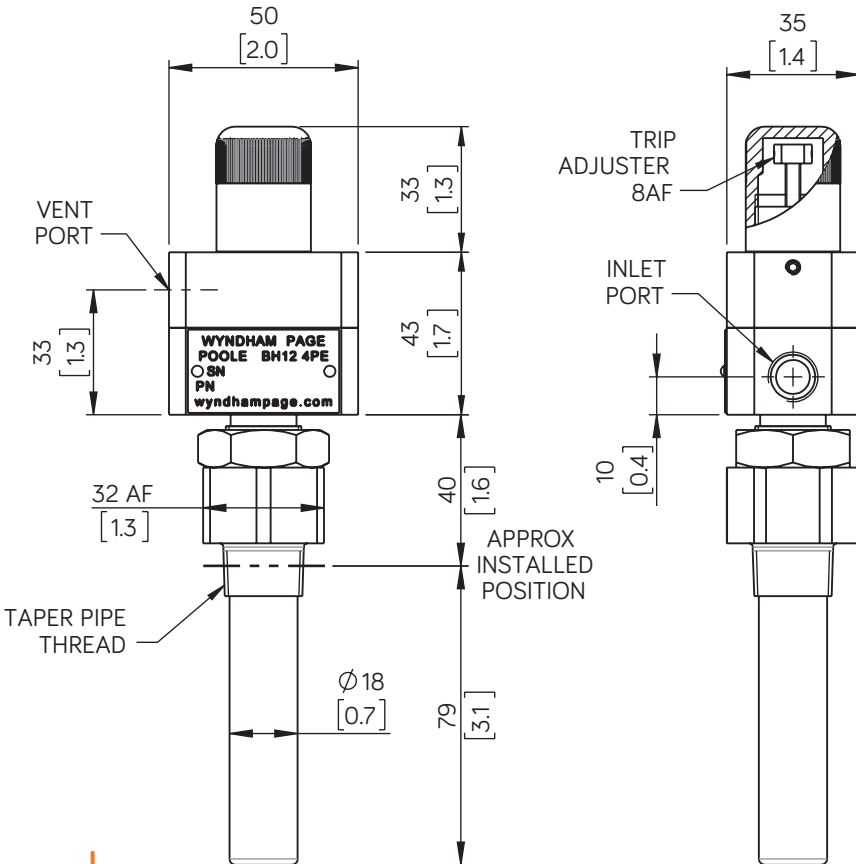
The GT2 temperature valve uses a stack of bi-metallic discs which expand with increasing temperature. When the expansion clearance has been taken up the resulting expansion force acts against the valve spring to open the valve allowing the control circuit pressure to vent.

The expansion clearance is field adjustable to allow the required trip temperature to be set.

The Valve can be manually opened for system testing.

The disk stack is contained in a protective thermowell which is mounted into a suitable threaded opening to the gas/fluid pipework.

The diagrams and data on pages 3 to 7 cover the main features and basic dimensions of the GT2 valve including selection of options and order coding.



# Valve Selection

As standard the GT2 Valve is supplied sand bath calibrated to open at approx 150°C. We can supply the valve factory calibrated to other temperatures however final field adjustment will usually be required as the thermal conditions of the installation may not match those at the factory. See order coding for further details.

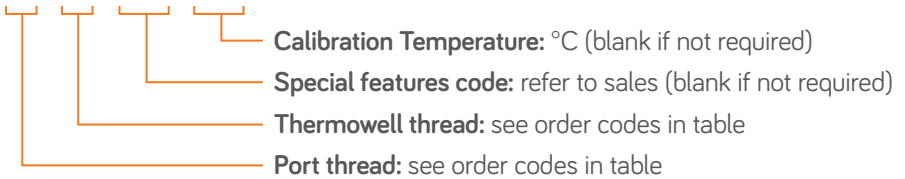
# Valve Selection

To enable Wyndham Page to select the most suitable version of the GT2 valve for the Customers application the following data is required:

1. Port thread type:
2. Thermowell thread type
3. Requirement to calibrate valve to a specified trip temperature

# Order Coding

GT2 - XX - XX - S00 - XXX      Example: GT2-01-01-135



PORT THREAD		THERMOWELL THREAD	
NUT	CODE	TIP	CODE
G1/4 (BSPP)	01	1/2 BSPT	01
1/4 NPT	02	1/2 NPT	02

**Special Features:** By arrangement with Wyndham Page.  
**Note:** The calibration temperature is not marked on the ID Plate.

## Valve Installation (mechanical)

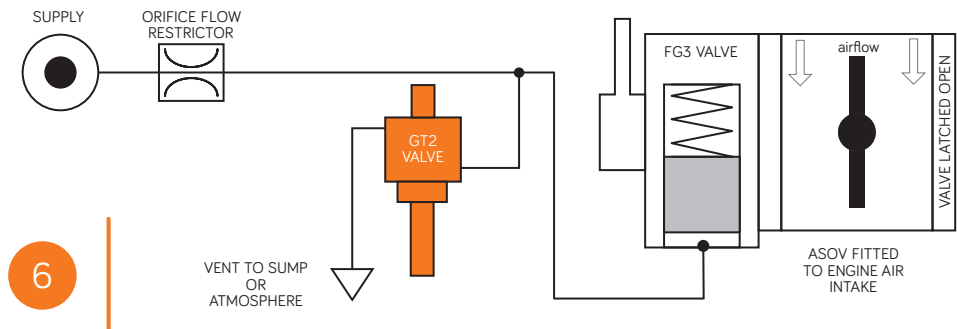
Select a position for the valve which meets the requirements below. The valve may be fitted in any attitude from horizontal to vertical but not in a position where it is subjected to temperatures, internal or external, outside of the range  $-40^{\circ}\text{C}$  to  $+230^{\circ}\text{C}$ . When planning and checking the installation always ensure that:

There is a suitable route for the control circuit pipework.

- i. In the case of a lube oil control circuit the orientation of the valve should be such that the vent port and associated pipework can drain back to the sump under gravity.
  - ii. In the case of a pneumatic control circuit the vent may be directly to atmosphere if allowed by applicable site regulations. In this case **always fit a suitable filter** to prevent contamination of the valve seat.
  - iii. Safe access is possible to adjust the Valve and there is sufficient clearance to remove the adjuster cover.
1. Release the locknut and unscrew the GT2 valve body from the Thermowell.
  2. Fit the Thermowell into its mounting point ensuring the taper pipe thread is sealed as appropriate to the pressures, temperatures and fluid/gas type.
  3. Ensure the Thermowell bore is free from all contamination. Screw the GT2 Valve body fully into the Thermowell then back off to align the control circuit ports with the control circuit pipework. Tighten the locknut down onto the Thermowell. Do not use the Valve body to tighten the Valve.

## Valve Installation (control circuit connection)

The detailed design of the control circuit is not within the scope of this handbook however the simplified schematic below shows the basic operating principle. Note the requirement for a flow restrictor to ensure the control pressure drops sufficiently to trip the ASOV valve to the closed position when the GT2 valve opens.



1. Connect the control circuit feed pipes to the valve ports using fittings and sealant appropriate to the control circuit type. In the case of lube oil systems final connection is best made after setting the trip point of the valve (see next section).
2. Use only a small amount of thread sealant and apply in a manner to ensure sealant does not enter the valve and cause contamination of the valve seals

## Trip Temperature Setting

The GT2 trip point is best set with the Valve installed on the engine and using a compressed air supply to detect the “crack open” point of the valve. In the case of engines with a lube oil safety circuit this should therefore be connected after trip temperature has been set using a compressed air supply.

The ASOV must be disabled to allow the trip point to be established without stopping the engine.

The compressed air supply must be filtered and pipework clean to avoid contamination of the valve seals. A pressure gauge connected to the Vent port can be used to indicate that the Valve is open.

**Note:** Rotating the adjuster nut clockwise increases the trip temperature by approx 6°C/360° rotation or 1°C/60° rotation.

### To set the Valve Trip temperature

With the engine and Valve warmed up to the normal operating temperature:

1. Remove the adjuster protection cap.
2. Turn on the compressed air supply to the inlet port set to approx 3 bar.
3. Turn the adjuster screw in the direction required to find the point at which the valve is just closed (bubble tight).
4. Using the figures above as a guide turn the adjuster nut clockwise to set the required margin above the normal operating temperature.
5. Manually trip the valve by pressing the adjuster nut down and check it reseals.
6. Replace the adjuster protection cap using PTFE tape to secure it against vibration.
7. In the case of Lube Oil systems connect the control circuit pipework and retest the operation of the valve at normal operating temperature.

## Operation

The GT2 valve requires no intervention at start-up or in normal operation and will automatically reset after an over temperature trip.

## Maintenance

The following maintenance schedule should be undertaken. Subject to experience of local operating conditions the frequency of the maintenance schedule may be varied. Carry out the proposed maintenance work when the equipment is in a safe area and record details of the work carried out. Rectify any problems identified before returning the diesel powered equipment back into service.

FOLLOWING INITIAL INSTALLATION AND THEREAFTER AT WEEKLY INTERVALS:

1. Check the control circuit pipework is secure and leak free.
2. Manually trip the valve to test the system as per step 6 of the setting section.

SIX MONTHLY:

Remove the GT2 valve from the Thermowell. Wipe clean as necessary and visually inspect for damage or excessive wear. Bench test valve function. Refit and complete the “Weekly” maintenance as listed above.



# GT2 Valve: General Specification

GENERAL DESCRIPTION:	
A mechanical valve designed to vent the safety control circuit pressure at a preset temperature	
GENERAL SPECIFICATION:	
Ambient Temperature:	Ambient: -40°C to 230°C
Construction:	Body & Thermowell: Stainless Steel
	Internal components: Stainless steel, Peek, Alloy composite
	Seals: Viton
Weight:	0.94 Kg (2.1lb)
OPERATING SPECIFICATION:	
Valve normally closed, opens when temperature exceeds field adjustable set point	
Control circuit type:	Filtered Engine lubrication oil
	Filtered Air: ISO 8573 Class 4
Control circuit pressures:	Max: 5.5 Bar (80 PSI)
	Air control circuits recommended max: 4 Bar (58 PSI)
Adjustable Trip Range:	135°C to 200°C
Trip adjuster setting:	approx 6°C / 360° rotation
	approx 1°C / 60° rotation

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