process measurement solutions

solartron mobrey

Mobrey

Automatic Control Check System for industrial steam boilers

Data sheet BP203

Complies with H&SE PM5, SAFed PS62, BS prEN12953-9, BS prEN12952-11 for all new boilers and reduced site manning on existing installations

Introduction

The Mobrey Automatic Control Check System has been designed to provide automatic blowdown of the boiler water level control chambers and their connections, at regular intervals, in sequence. This ensures adequate blowing through of the steam and water legs, purging of the float chamber and testing of the low water level alarms. The system will operate without interruption of the boilers' running and this is particularly pertinent to boilers which are left unattended at weekends or any other time. Only in event of a fault would the boiler go to lock-out and require manual attention and meets all current and forthcoming legislation.

Features

- Complies with EU requirements
- AOTC design approved
- Provides automatic daily level control chamber and water leg blowdown
- Ensures safer boiler operation
- Easily installed into existing boiler control circuits
- Key prevents unauthorised interference
- Self checking dual channel design
- Checks correct operation of low water level switches
- A logical step towards the totally automatic boiler
- Reduces labour
- Provides uninterrupted boiler operation
- Connections available to interlock with flame sensing circuit.

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Function

The Mobrey Automatic Control Check System provides : Automatic Sequenced Blowdown and Electrical testing of externally mounted boiler level controls.
The function of each control is checked every 6 hours.

Description

The System Control Unit is housed in a strong metal box which is weatherproof to IP54. The logic circuit and timers, together with indicating lights and relays are mounted on two printed circuit boards.
When the Unit is in operation, the lamps and one of the clocks, in digital form, are clearly displayed.

A push button is provided for intial start-up.
The Unit has a key operated switch for resetting or advancing the next test which prevents unauthorised interference.
A second key operated switch is provided to enable either valve to be motored to the closed position for maintenance or direct mounted controls to be manually tested.

Manual testing should be done on a weekly basis to comply with PM5.
The control unit is supplied ready for mounting in a suitable position with four fixing lugs provided. There is a removable gland plate that can be drilled to connect the unit to the burner circuit, the motorised valves or direct mounted controls and the power supply.
The unit is easily connected into the existing circuits and will operate with all makes of boiler level controls where two low level alarm functions are provided in external chambers with side and bottom connections.
The Valves are motorised versions of the well established Mobrey Sequencing Valve with hand override. The Valve body material is Gunmental and the seats and trim are of stainless steel.

Operation

The System is designed to individually operate each of the Sequence Valves once every 6 hours so that one control remains fully operational whilst the other is being tested.

First Low Water Alarm Control

When this is automatically tested the 1st low water alarm will sound and the burner will stop firing (this function may be bridged at the discretion of the user). A signal from the 1st low water switch unit will inform the logic circuit that its float has gone down. If this signal is combined with one that shows that the burner has stopped firing, then the whole safety system can be seen to have functioned. The Motorised Sequence Valve will then return to the open position or the direct mounted control test device will cease to be actuated, the float will come up and the alarm signal will stop. The burner will reignite automatically.
If a modulating Feed Control Valve is fitted, then contacts are available which should be used to automatically shut during the testing sequence. This has been arranged to prevent a high water situation arising. The same contact should be used to isolate the pump, where a modulating valve is not used, for the same reason.
The burner cutout relay in the control unit associated with the 1st low water alarm control is tested during this period.

Second Low Water Alarm Control (6 hours later)

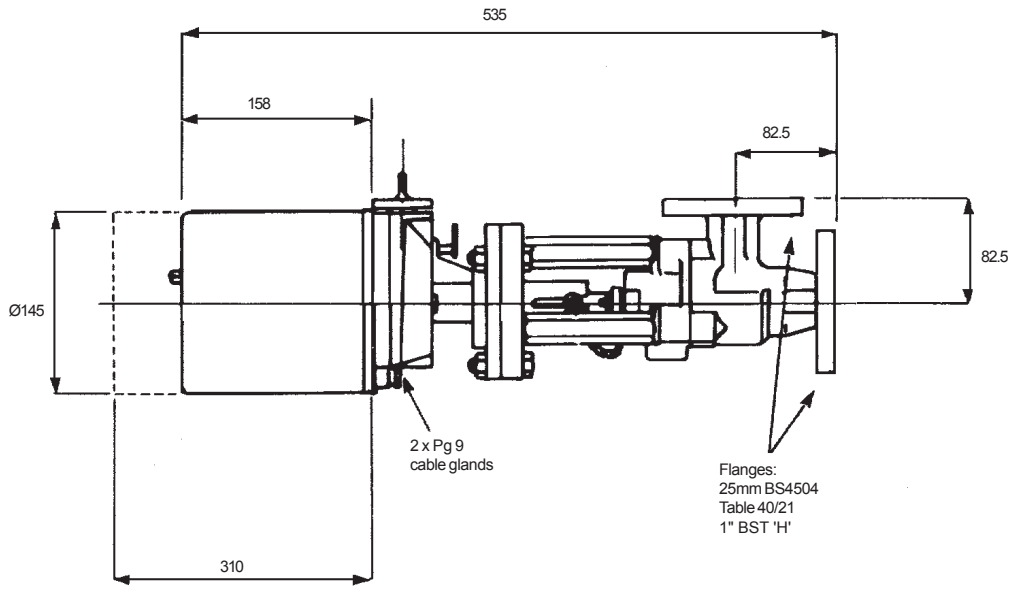
To avoid interruption of the boiler operation whilst this control is being tested, the switch that shuts down the burner in event of low water is overriden. If this override remains in position for more than 5 minutes or if the 2nd low water alarm switch does not function, the burner is locked out. The burner lock out relay in the control unit associated with the 2nd low water alarm control is tested during this period. It can be seen that during testing, one low level control continues to protect the boiler.
The design of the blowdown equipment descibed in this leaflet has been approved by AOTC under their reference TC 83022 subject to the weekly test requirements of PM5 being physically carried out and meets the forthcoming European regulations for unmaned boilers up to 24 hours.

Technical Specification

		Motorised Sequence Valve	
Control Unit		**Type No.81300**	- 220V Metric Flanged
Type No. 83003/6		**Type No.81320**	- 110V Metric Flanged
Type No. 83004/6		**Type No.81340**	- 220V BST 'H' Flanged
Supply Voltages		**Type No.81360**	- 110V BST 'H' Flanged
from	220V -15% to 240V +10%, 50Hz	**SupplyVoltages**	220V-15% +10%, 50Hz
or	110V -15% +10%, 50Hz	**or**	110V-15% +10%, 50Hz
Power Consumption	50W	**Power Consumption**	40W
Enclosure Rating	IP54	**Cable Glands**	2 x Pg 9
Max. Ambient Temperature	55°C	**Max. Working Pressure**	21.0 kg/cm²
Weight	14 kg	**Max. Ambient Temperature**	60°C
Battery Back-up	25 sec minimum	**Flanges 1" BST 'H' or**	25mm BS4504 Table 40/21
		Weight	14.5kg

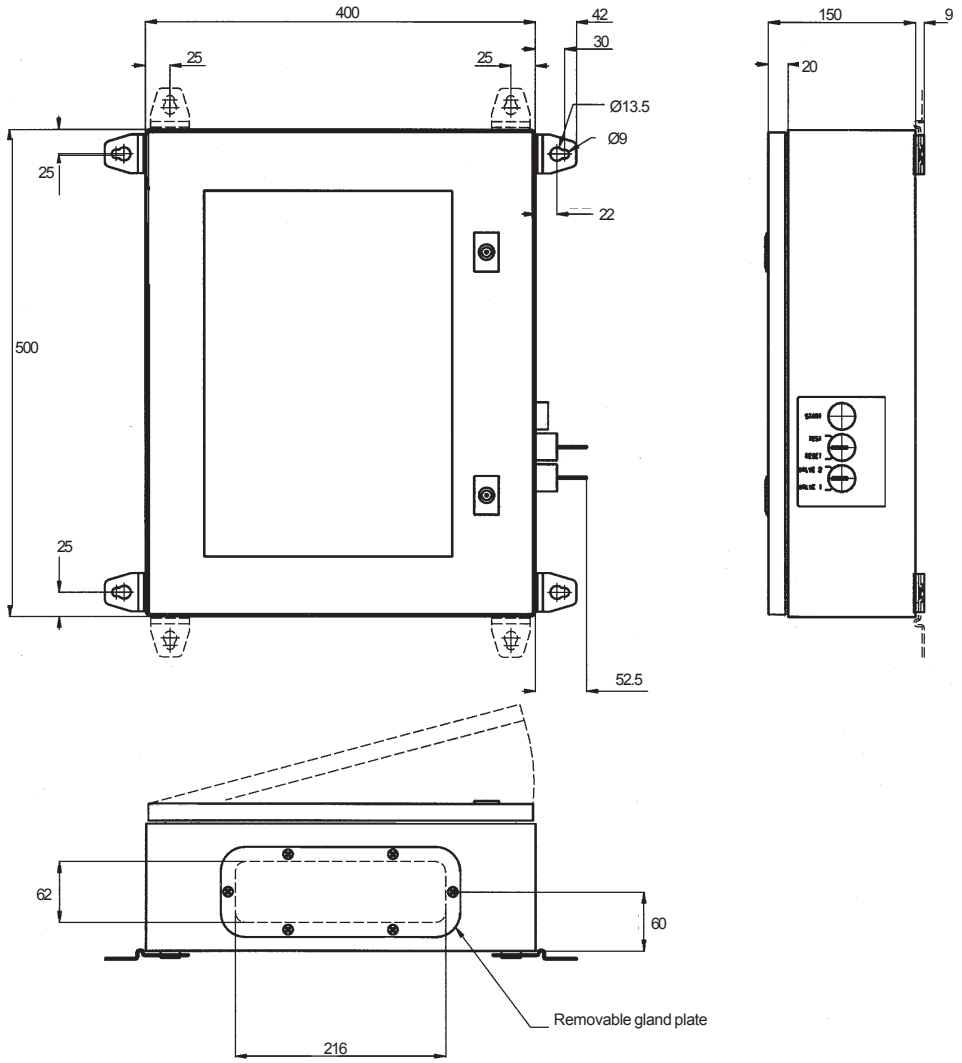
Overall Dimensions

Motorised Sequencing Valve



Overall Dimensions

Control Unit
Type No. 83003/6
83004/6



Bestobell Service is an on-site operating division of Solartron Mobrey providing systems and packages, installation, commissioning and maintenance services for all your boiler needs.
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