# GMS

## Thermal Products Ltd

### www.gmsthermal.co.uk



# GMS BOILER SOLUTIONS
# BLOWDOWN VESSELS

# GMS BLOW DOWN VESSELS

## Introduction

BV blow down vessels are designed and manufactured fully in accordance with the latest version of PD5500, inspected during design and manufacture by an independent insurance company and supplied complete with a data dossier. They also comply fully with the European Pressure Equipment Directive 97/23/EC (SI 1999/2001) and are CE marked

## Background Information

When a steam boiler evaporates water the dissolved minerals in the remaining boiler water are concentrated. To prevent the concentration becoming excessive and causing damage to the boiler some of the water is "blown down" from the boiler periodically and replaced with fresh water. The blow down water loses pressure rapidly, resulting in the evolution of flash steam. This mixture of steam and hot water is a potential hazard. It is not permissible to drain water to public sewers above 43°C so the blow down water must be safely contained and allowed to cool first. The BV Blow down Vessel is designed to do this.

## Selection

Select the appropriate blow down vessel from Tables 1 and 2. Table 2 allows for a loss of boiler pressure equal to 8 metres pipe length in the blow down line. If the loss is less than 8 metres then multiply the actual boiler pressure by 1.2 before using Table 2. Calculate the loss in pipe lengths using Table 1 and adding the length of straight pipe.

## Regulations

Boiler blow down installations must comply with the Pressure Systems and Transportable Gas Containers Regulations 1989 ("Pressure Systems Regulations") (HMSO). Recommendations on design of boiler installations are given in BS806 and PM60 (available from BSI and HMSO respectively). Following these recommendations will satisfy most of the requirements of the Pressure Systems Regulations.

GMS blow down vessels comply with BS806 and PM60. Also, the HSE Guidance Note PM5 (available from HMSO) states various requirements for the system design. Blow down vessels must have a minimum design pressure of 7 BarG or 25% of boiler pressure, whichever is the greater.

GMS blow down vessels have a standard design pressure 7 BarG - higher on request.

## Ancillaries Supplied As Standard

Vent Head - Stainless Steel, Screwed or Flanged
Cooling System - Direct Acting Valve & Sensor
Inlet Manifolds (Three off) - Supplied Complete With Isolation & Check Valves
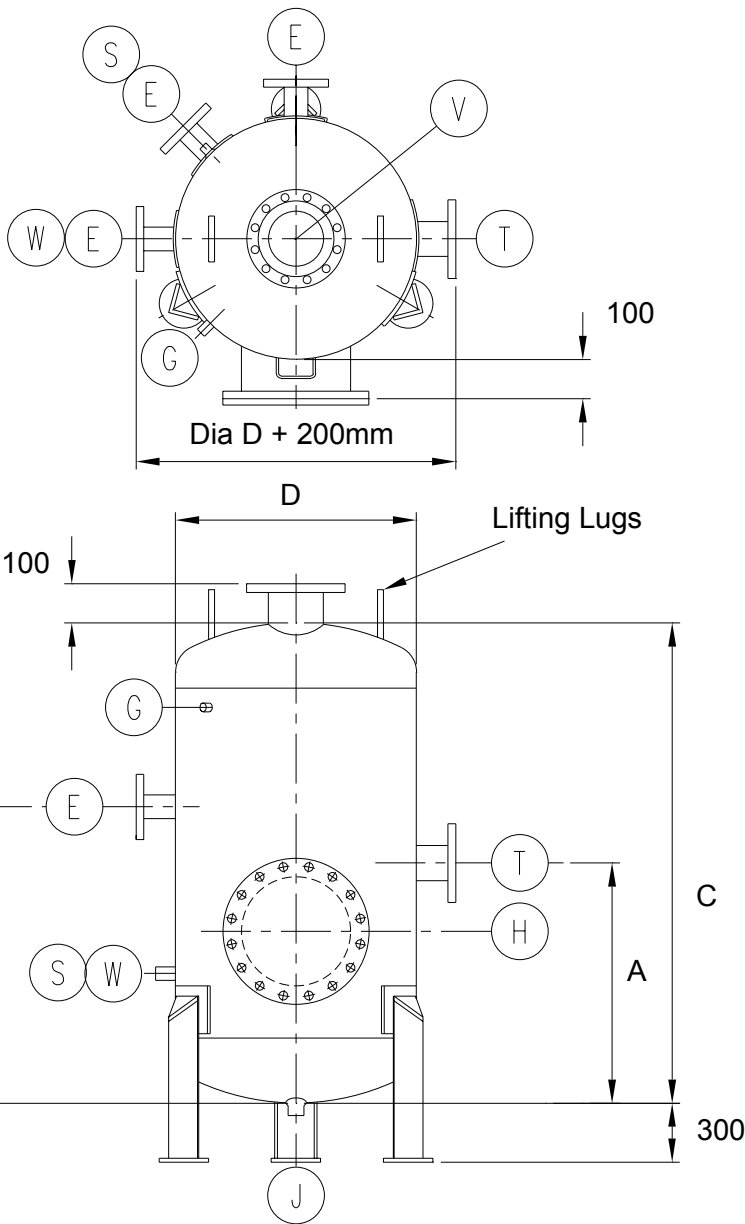
### Table 1

| Main Blow Down Line Size | 1" | 1¼" | 1½" | 2" |
|---|---|---|---|---|
| Pipe Fitting | Equivalent Length of Pipe in Metres | | | |
| Blow Down Valve | 0.3 | 0.35 | 0.4 | 0.5 |
| Long Radius Bend | 0.5 | 0.65 | 0.75 | 0.9 |
| Globe Valve | 9.5 | 12.0 | 14.0 | 18.0 |
| Check Valve | 3.5 | 4.3 | 5.0 | 6.3 |
| Manifold Inlet | 1.1 | 1.5 | 1.7 | 2.2 |

### Table 2

| Main Blow Down Line Size | 1" | 1¼" | 1½" | 2" |
|---|---|---|---|---|
| Boiler Pressure (BarG) | Blow Down Vessel Type BV.. | | | |
| 5.5 | 1 | 1 | 1 | 2 |
| 7.5 | 1 | 1 | 2 | 3 |
| 8.5 | 1 | 2 | 2 | 4 |
| 10.5 | 1 | 2 | 3 | 4 |
| 12.0 | 2 | 2 | 3 | 5 |
| 17.5 | 2 | 3 | 4 | 5 |
| 20.5 | 3 | 4 | 5 | 6 |
| 24.0 | 3 | 4 | 5 | 6 |
| 27.5 | 4 | 5 | 5 | 7 |

# W A T E R   H E A T I N G   M A D E   E A S Y



Dia D + 200mm

100

D

Lifting Lugs

100

G

E

B

S W

T

H

C

A

300

J

**Design Code:**
PD5500
CE Marked
Complies with SI 1999/2001
Pressure Equipment Directive
Complies with HSE Guidance Note PM60

Material: Carbon Steel
Design Pressure: 7 BarG
Design Temperature: 171°C
Higher Pressure & Temperature Units on Request

Outlet (T) has an internal dip-tube to allow blow down to cool before disposal. If disposal temperature exceeds 43°C, water cooling may be needed.

## CONNECTIONS

| | |
|---|---|
| **E** | Inlets (Three as Standard) |
| **G** | Pressure Gauge (3/8" BSP) |
| **H** | Inspection Opening |
| **J** | Drain (2" BSP) |
| **S** | Cooling Water (1" BSP) |
| **T** | Outlet |
| **V** | Vent |
| **W** | Temperature Sensor (1" BSP) |

| Vessel Type | Dimensions in mm | | | | Connections (mm, Flanged PN16) | | | | Weight (kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **A** | **B** | **C** | **D** | **E** | **H** | **T** | **V** | **Dry** | **Flooded** |
| **BV1** | 600 | 700 | 1300 | 500 | 50 | 200 | 80 | 100 | 126 | 381 |
| **BV2** | 700 | 800 | 1500 | 600 | 50 | 200 | 80 | 100 | 176 | 600 |
| **BV3** | 850 | 950 | 1700 | 700 | 50 | 200 | 100 | 150 | 234 | 888 |
| **BV4** | 1050 | 1150 | 2100 | 800 | 50 | 300 | 100 | 150 | 340 | 1340 |
| **BV5** | 1300 | 1400 | 2600 | 1000 | 50 | 300 | 150 | 200 | 673 | 2715 |
| **BV6** | 1000 | 1100 | 2000 | 1450 | 50 | 300 | 150 | 200 | 858 | 4161 |
| **BV7** | 1400 | 1500 | 2800 | 1600 | 50 | 500 | 150 | 250 | 1563 | 7193 |

*Please note all information shown within this leaflet is subject to change without prior notice.*