



Continuous Gas Weight Monitoring System

A comprehensive approach to monitor weight of fire extinguishing agent

Introduction

Continuous Gas Weight Monitoring System is used in Gas based Fire Extinguishing system like CO₂, FE-13, FM-200, Inert System, NAF S-III System, FE-227 System to monitor weight of the agent in the cylinder to meet NFPA & OISD standard.

Necessity of the System

As per the OISD standards 142 1996 (Ref. Clause 7.2.2), Fixed Carbon dioxide Fire Extinguishing system. e. Refilling:

Loss in weight of cylinders shall be checked once in 3 months. Refilling should be done if loss in weight is more than 10%.

As per NFPA-12, quantity of gas should be checked at least once in 6 months.

Advantage of the System

Fire extinguishing efficiency depends on the correct design concentration of extinguishing gas. If the gas loss due to leakage or any other reason, cylinder has to be refilled for designed quantity. It is very obvious, continuous monitoring of the gas weight is required.

This requirement is simply fulfilled by Continuous Gas Weight Monitoring System.

Without this system, once in 3 months / 6 months each cylinder is to be removed from the cylinder bank and

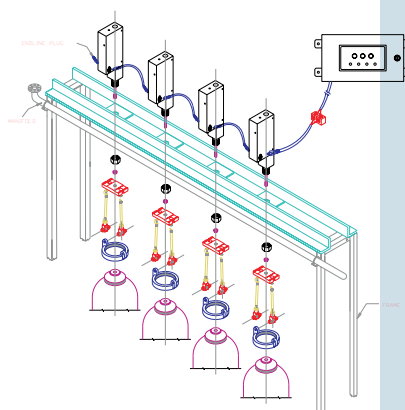
weight is to be measured. After measuring the weight, again cylinders are to be re fixed and re commissioned for proper function.

This is time-consuming process for maintenance department with highly skilled manpower.

System Description

The system consists of

1. Continuous Gas Weight Monitor Electronic LED Type (Model No. CGWM-E) - Part No. IH007



2. Continuous Gas Weight Monitor Control Panel (Model No. CGWM-CP) - Part No. IH009

Working Principle

Each cylinder requires one Gas weight Monitor. The cylinder should be fixed in hanging condition through

Gas Weight Monitor. When the weight of the gas is reduced below 10% or 5% (according to the requirement of standard and type of gas system - For CO₂ gas 10%, and FM200/ NAF SIII gas 5%), the Low weight is indicated, by means of LED indication.

Gas weight monitor Control Panel provides required supply for weight monitoring unit. This panel also supervises the wire connection for open and short condition. On receipt of Low weight Indication from the cylinder bank; the panel gives Audio and Visual Indication. 2 set of potential free NO and NC contacts are available for remote indication or any other relevant signaling.



The panel works on 230 V AC or 24 V DC from Fire alarm panel. Maximum 20 Nos. of gas weight monitor can be connected with the Control Panel.

Continuous Gas Weight Monitoring System

MODEL No.:CGWM-E, PART No.: IH007

General

Continuous Gas Weight Monitor is used in gas based fixed fire extinguishing system like CO₂, FE-13, FM 200, Inert Systems, NAF SIII, FE 227 to monitor weight of the agent in the cylinder to meet the NFPA requirement.

Features

- LED indication for low weight of agent.
- Cylinder ring matches the standard thread of cylinder neck.
- For non-standard threads, suitable ring will be provided.

- Hanger rod of standard length is used with ring to hang the cylinder.
- Low weight indication can be calibrated at the site if required.
- Device is powered directly by two wires from Continuous Gas Weight Monitor control panel model no. CGWM-CP.
- Plug in type simple connection from one device to another.
- One device is required for each cylinder
- 24V Signal supply is derived from control unit. No current consumption by Gas Weight Monitor during normal condition. While low weight indication is ON maximum current consumption will be 10mA.



CONTINUOUS GAS WEIGHT MONITOR CONTROL PANEL:

MODEL No.:CGWM-CP, PART No.: IH009

General

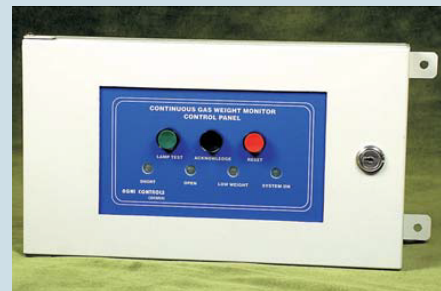
Continuous Gas Weight Monitor Control Panel supervise and indicate the status of gas weight monitors, which are holding the gas cylinders, used in gas based fire suppression/ extinguishing system.

Features

- Input supply voltage available in 24V DC / 230V AC / 110V AC, 50Hz
- Operating voltage 24V DC.
- Lamp test, acknowledge and reset control switches.
- System ON Green LED, Low weight orange LED, open and short Yellow LED.
- Inbuilt fault buzzer of continuous tone.
- Two wire style B wiring is provided to connect gas weight monitor.
- Control Panel provides only common

low weight indication per zone. [Individual low weight indication is available on gas weight monitor].

- This is single zone control panel.
- Inbuilt low weight indication buzzer (intermediate tone).
- Supervision facility for open and short of connecting cable of gas weight monitor.
- Maximum gas weight monitor per unit restricted to 20 nos.
- Provision of one set of low weight fault repeating potential free NO and NC contact of rating 6 amp at 24V DC.
- Wall mounting type suitable for indoor application.
- Multi zones control panel are available.



OTHER MODELS

Continuous Gas Weight Monitor—Mechanical Counter Weight Type
Model No.CGWM-M

Continuous Gas Weight Monitor—Bottom Resting Type
Model No.CGWM-BR/M LED

Continuous Gas Weight Monitor—Mechanical Counter Weight Type with explosion proof limit switch
Model No.CGWM-M.ex



Continuous Gas Weight Monitor

Model No.: CGWM-E, Part No.: IH007

Continuous Gas Weight Monitor monitors the weight of agent continuously and gives alarm if agent [CO₂] weight is reduced below 10% or Agent [Halocarbon] weight is reduced below 5%.

Construction

Gas Weight Monitor consists of calibrated spring, low weight switch contact, 5 mm yellow LED to indicate low weight. 18 gauge MS sheet enclosure suitable for indoor application. Center shaft moves through solid MS bar carries the hanger supporter. Hangers with ring hold the cylinder neck. Identical socket on both sides provide easy connection from one device to another.

Installation

Gas Weight Monitor is supported on the cylinder rack as shown in the figure. Hanger support piece is fixed on center rod using threads. Cylinder is hanged using hanger ring. 2 pin connector is used to connect one device to another. Last device is connected with 2 pin plug wired with End Line Resistor.

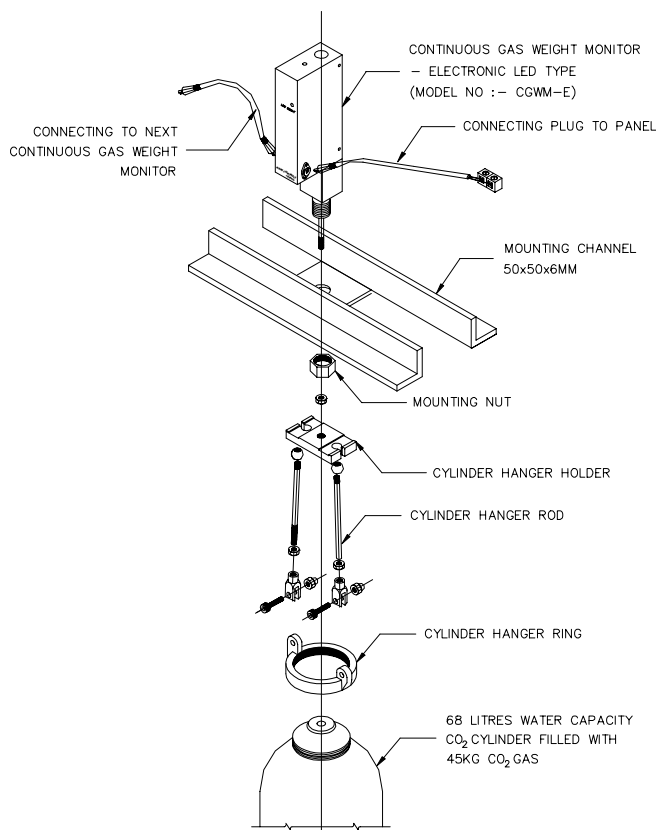
Specification

24V Signal supply is derived from control unit. No current consumption by Gas Weight Monitor during normal condition. While low weight indication is ON maximum current consumption will be 10mA.

Size: 550mm Height x 90mm Width

Weight: 3.5kg.

Packing: Single Unit Packing and Double Unit.



CONTINUOUS GAS WEIGHT MONITORING SYSTEM

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Necessity of the System

As per the OISD standards 142 – 1996 (Ref. Clause 7.2.2), Fixed Carbon di-oxide Fire Extinguishing system. e. Refilling:

Loss in weight of cylinders shall be checked once in 3 months. Refilling should be done if loss in weight is more than 10%.

As per NFPA-12, quantity of gas should be checked at least once in 6 months.

Advantage of the System

Fire extinguishing efficiency depends on the correct design concentration of extinguishing gas. If the gas loss due to leakage or any other reason, cylinder has to be refilled for designed quantity. It is very obvious, continuous monitoring of the gas weight is required.

This requirement is simply fulfilled by Continuous Gas Weight Monitoring System.

Without this system, once in 3 months / 6 months each cylinder is to be removed from the cylinder bank and weight is to be measured. After measuring the weight, again cylinders are to be re fixed and re commissioned for proper function.

This is time-consuming process for maintenance department with highly skilled manpower.

System Description

The system consists of

1. Continuous Gas Weight Monitor –Electronic LED Type (Model No. CGWM-E) - Part No.IH007
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Working Principle

Each cylinder requires one Gas weight Monitor. The cylinder should be fixed in hanging condition through Gas Weight Monitor. When the weight of the gas is reduced below 10% or 5% (according to the requirement of standard and type of gas system - For CO₂ gas 10%, and FM200/ NAF SIII gas 5%), the Low weight is indicated, by means of LED indication.

Gas weight monitor Control Panel provides required supply for weight monitoring unit. This panel also supervises the wire connection for open and short condition. On receipt of Low weight Indication from the cylinder bank; the panel gives Audio and Visual Indication. 2 set of potential free NO and NC contacts are available for remote indication or any other relevant signaling.

The panel works on 230 V AC or 24 V DC from Fire alarm panel. Maximum 20 Nos. of gas weight monitor can be connected with the Control Panel.



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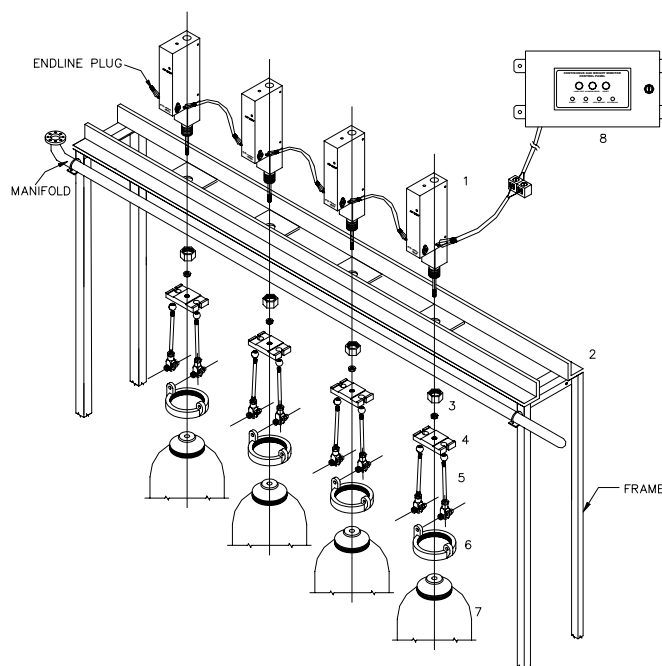
The panel works on 230 V AC or 24 V DC from Fire alarm panel. Maximum 20 Nos. of gas weight monitor can be connected with the Control Panel.

INSTALLATION PROCEDURE FOR CONTINUOUS GAS WEIGHT MONITORING SYSTEM

Installation Procedure

Continuous Gas Weight Monitor main unit referred as 1. is to be fixed in the channel referred as 2. by using mounting nut referred as 3. After fixing the main unit, fix cylinder hanger holder referred as 4. Cylinder ring and holding rods, which are referred as 5&6, are to be fixed in the cylinder neck. Normally 80mm Dia ring of standard thread to suit cylinder neck is supplied. (On specific requirement other size cylinder rings will be made available.) After fixing the ring, cylinder hanger rod can be mounted on cylinder hanger plate. To lift the cylinder, using Allen key of size 14, cylinders can be raised or lowered.

turn anti clockwise and Low Weight Indication will go). In order to check the system, while cylinder in hanging condition, if the cylinder is slightly raised around 5mm. then Low weight Indication will on. Again when the cylinder lowered, Low weight Indication will go. Using the connecting cables, which are interchangeable, all gas weight monitors are connected. The last gas weight monitor will be fitted with end line resistor plug. If this plug is not fitted, control panel will show open Indication in the wiring circuit. No separate power is required. Only 2 core cable from control



Commissioning

Initially cylinder will be resting on the floor. Gas Weight Monitor will show Low Indication. (If there is no Low Indication, use field setting slot and specified star screw driver turn clock wise and Low Weight Indication will "ON".) When Cylinder with correct weight gas is hanged Low Weight Indication will go. (If Low weight indication is continued to "ON", then using field setting slot and specified screw driver

panel is to be used as shown in the data sheet / drawing.

Reference Documents :

- 1) Catalogue for Continuous Gas Weight Monitor, Doc No. AC0002-11-2003
- 2) DataSheet for Continuous Gas Weight Monitor, Drg No. 065
- 3) Catalogue for Continuous Gas Weight Monitor Control Panel, Doc No. AC0003-11-2003
- 4) DataSheet for Continuous Gas Weight Monitor Control Panel, Drg No. 003



CONTINUOUS GAS WEIGHT MONITOR CONTROL PANEL

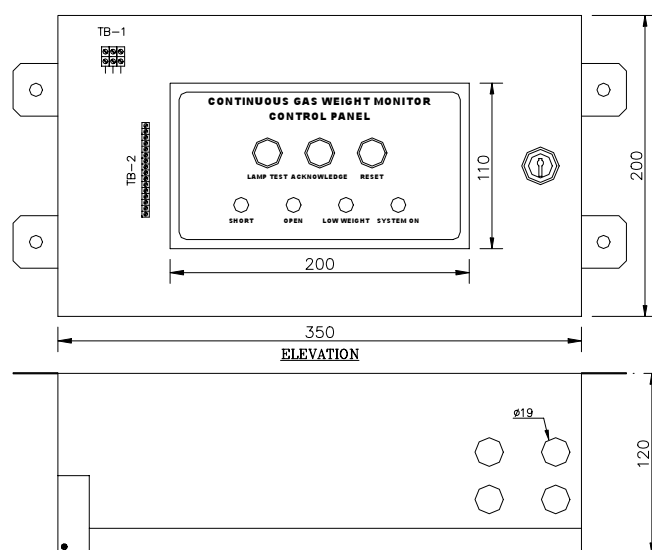
MODEL No.: CGWM-CP, PART No.: IH009

General


Continuous Gas Weight Monitor Control Panel supervise and indicate the status of gas weight monitors, which are holding the gas cylinders, used in gas based fire suppression/ extinguishing system.

Features

- Input supply voltage – available in 24V DC / 230V AC / 110V AC, 50Hz
- Operating voltage 24V DC.
- Lamp test, acknowledge and reset control switches.
- System ON Green LED, Low weight orange LED, open and short Yellow LED.
- Inbuilt fault buzzer of continuous tone.
- Two wire style B wiring is provided to connect gas weight monitor.
- Control Panel provides only common low weight indication per zone. [Individual low weight indication is available on gas weight monitor].
- This is single zone control panel.
- Inbuilt low weight indication buzzer (intermediate tone).
- Supervision facility for open and short of connecting cable of gas weight monitor.
- Maximum gas weight monitor per unit restricted to 20 nos.
- Provision of one set of low weight fault repeating potential free NO and NC contact of rating 6 amp at 24V DC.
- Wall mounting type suitable for indoor application.
- Multi zones control panel are available.

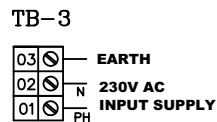
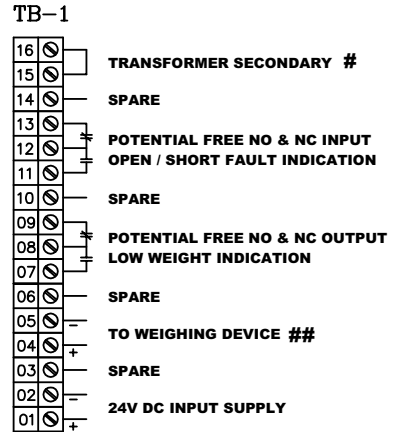
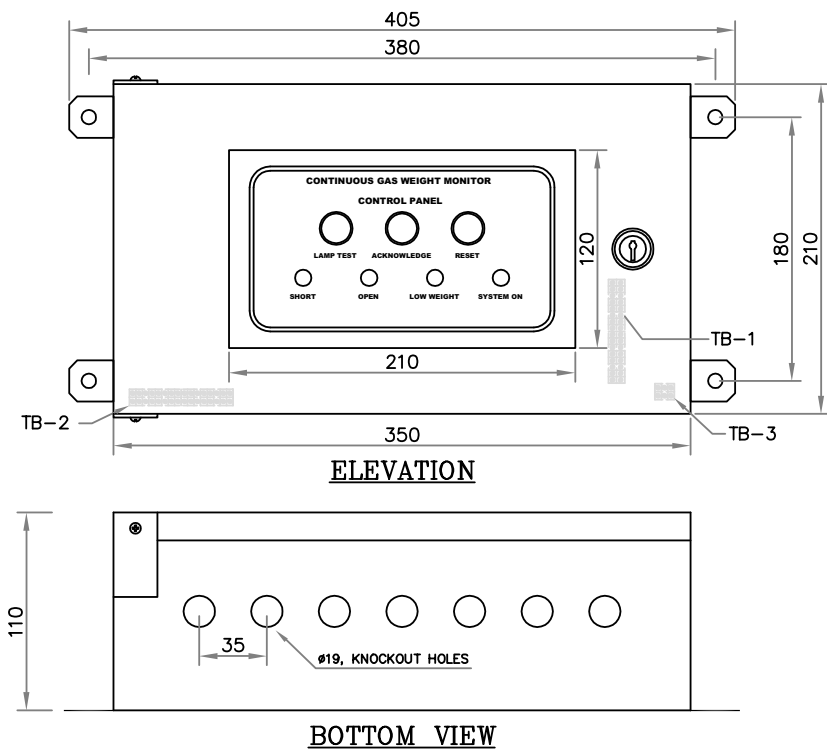


CONTINUOUS GAS WEIGHT MONITOR CONTROL PANEL - HORIZONTAL

DATA SHEET					PART NO : IH009H	
DWG NO : 003	DATE : 21-05-07	REVISION : 05	SCALE : N.T.S	SHEET : 1 OF 1	APPD. BY :	

INTRODUCTION :-

CONTINUOUS GAS WEIGHT MONITOR CONTROL PANEL WILL BE USED TO GET LOW WEIGHT INDICATION SIGNAL FROM WEIGHING MONITOR. ONE CONTROL PANEL CAN BE USED UPTO 25 NOS OF WEIGHING MONITORS.



TERMINAL BLOCK DETAILS

NOTES:

- PART NO. : IH009H
- # ALREADY CONNECTED AT FACTORY
- ## ENDLINE CONNECTING RESISTOR 3.3 K, 1/2 WATT CONNECTED BETWEEN TERMINAL 4 & 5 IS TO BE REMOVED AND CONNECTED IN THE LAST WEIGHING UNIT AS SUPERVISOR CIRCUIT FOR OPEN OR SHORT.
- NO EXTERNAL WIRING IS REQUIRED FOR TB-2, SINCE IT IS ALREADY CONNECTED AT FACTORY.

ALL DIMENSIONS ARE IN "mm" UNLESS OTHERWISE SPECIFIED.

TECHNICAL SPECIFICATION

1. MODEL NO	009H	6. LOAD CURRENT	250 mA max.
2. CONSTRUCTION	SHEET STEEL ENCLOSURE	7. TYPE OF MOUNTING	WALL MOUNTING TYPE
3. INPUT SUPPLY VOLTAGE	24 V DC/110 V AC/230 V AC	8. CABLE ENTRY	BOTTOM CABLE ENTRY (Ø19mm KNOCKOUT HOLES)
4. OPERATING VOLTAGE	24 V DC	9. PAINT SHADE	GRAY
5. QUIESCENT CURRENT	150 mA max.	10. OVER ALL DIMENSION	350(L) X 110(W) X 210(H)



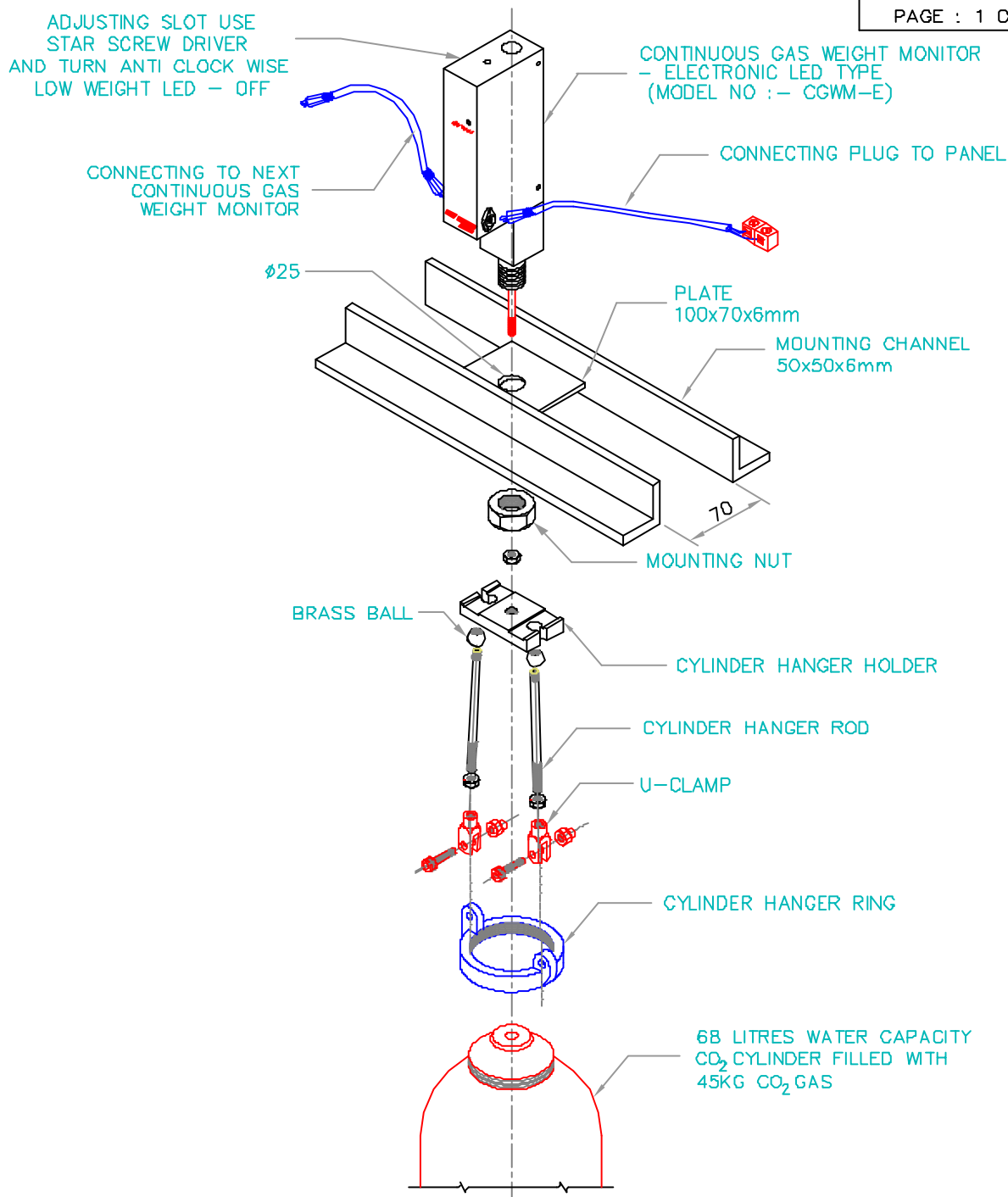
CONTINUOUS GAS WEIGHT MONITOR ANALOGUE LED TYPE / ASSEMBLY DETAILS

DATA SHEET	□ □	PART NO : IH007
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DWG NO : 134	DATE : 18-10-07	REVISION : 02	SCALE : N.T.S	SHEET : 1 OF 1	APPD. BY :
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INTRODUCTION :-

GAS WEIGHT MONITOR(MODEL NO :- CGWM-E) ASSEMBLING DETAILS IN CYLINDER BANKS. GAS CYLINDERS ARE HANGED THROUGH WEIGHT MONITORS.

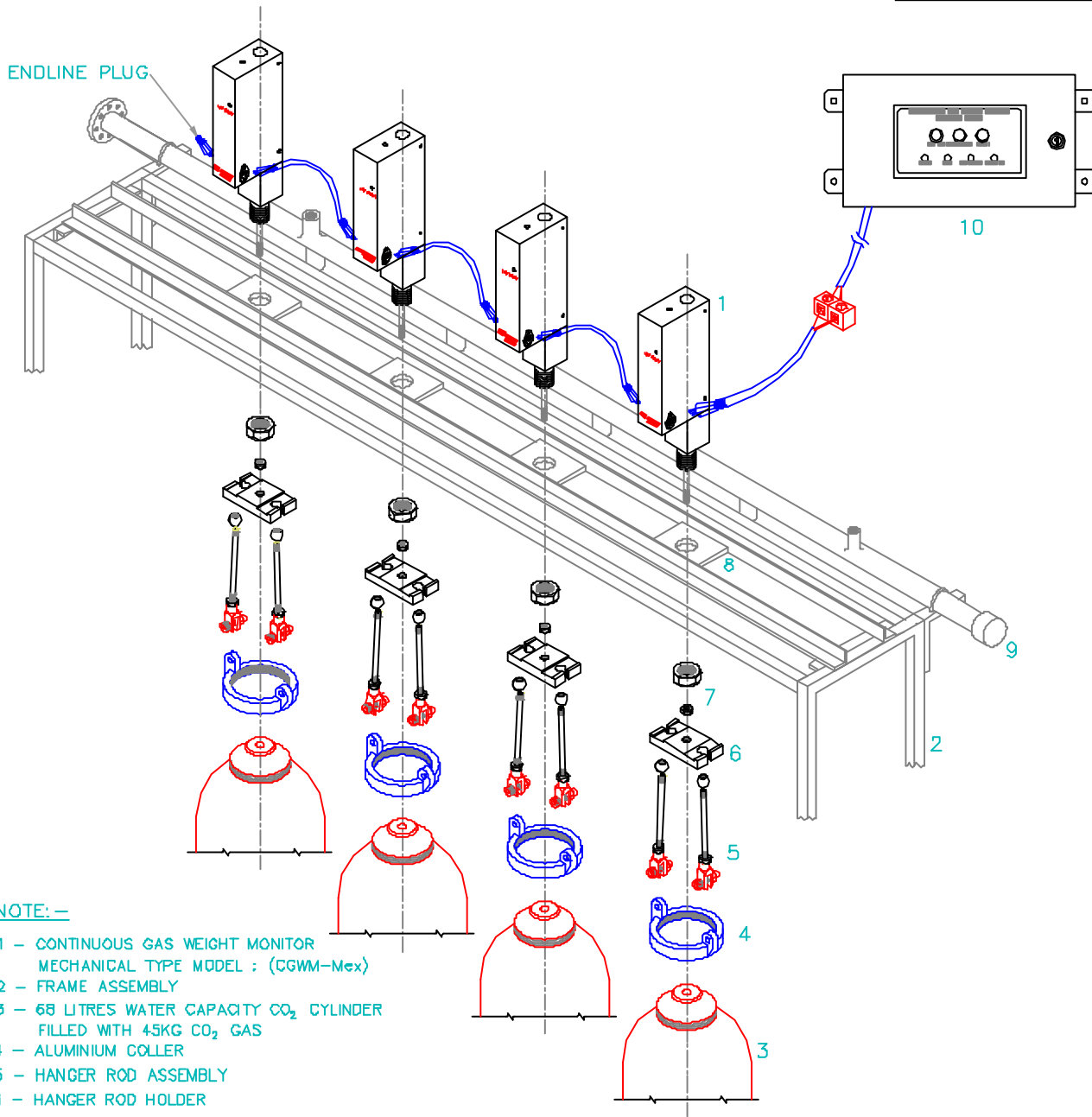


CONTINUOUS GAS WEIGHT MONITOR ANALOGUE LED TYPE / ASSEMBLY DETAILS

DATA SHEET					PART NO : IH007
DWG NO : 134	DATE : 18-10-07	REVISION : 02	SCALE : N.T.S	SHEET : 1 OF 1	APPD. BY :

INTRODUCTION :-

GAS QUANTITY MONITOR IS USED IN GAS BASED FIRE EXTINGUISHING SYSTEM LIKE CO₂, FE-13, FM-200, INERT SYSTEMS, NAF-511, FE-227 TO MONITOR WEIGHT OF THE AGENT IN THE CYLINDERS TO MEET NFPA REQUIREMENT. LOW WEIGHT WILL BE INDICATED THROUGH LED DISPLAY.



NOTE:-

- 1 - CONTINUOUS GAS WEIGHT MONITOR
MECHANICAL TYPE MODEL : (CGWM-Mex)
- 2 - FRAME ASSEMBLY
- 3 - 68 LITRES WATER CAPACITY CO₂ CYLINDER
FILLED WITH 45KG CO₂ GAS
- 4 - ALUMINIUM COLLAR
- 5 - HANGER ROD ASSEMBLY
- 6 - HANGER ROD HOLDER
- 7 - MOUNTING NUT
- 8 - RAIL ASSEMBLY
- 9 - MANIFOLD OR HEADER
- 10 - CONTINUOUS GAS WEIGHT MONITOR CONTROL PANEL, MODEL NO. CGWM-CP, PART NO. IH009

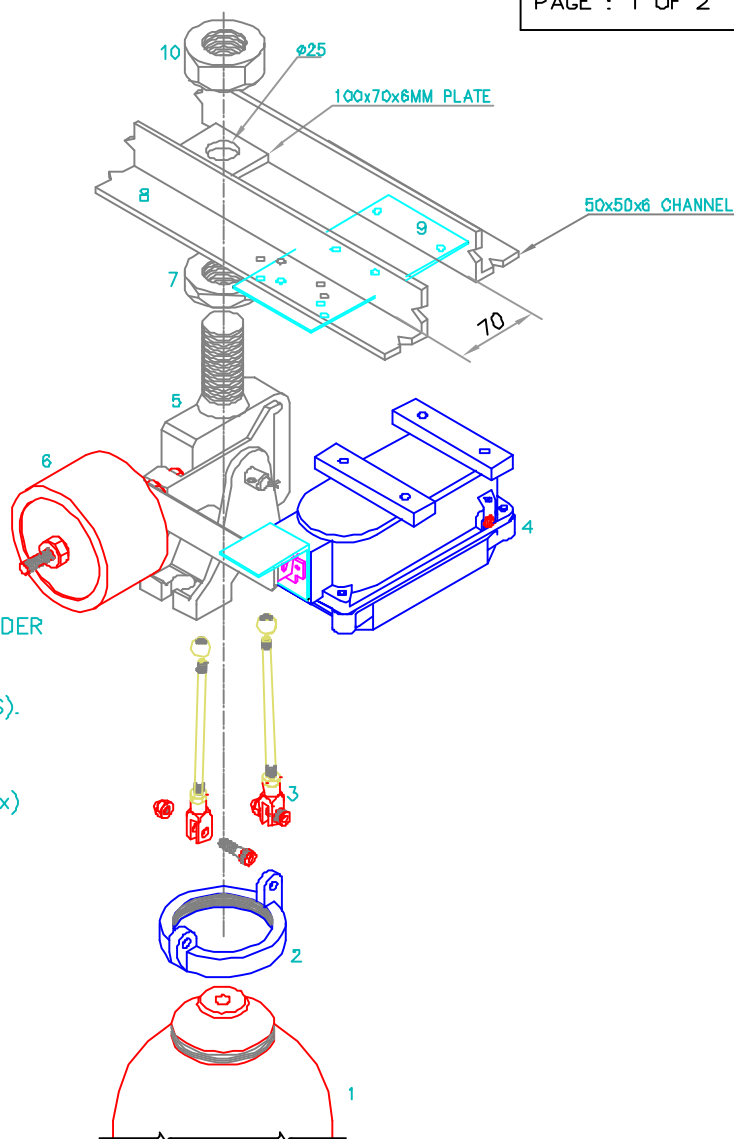


CONTINUOUS GAS WEIGHT MONITOR(MECHANICAL) EXPLOSION PROOF TYPE - ASSEMBLY DETAILS

DATA SHEET PART NO : IH006E					
DWG NO : 164	DATE : 03-08-06	REVISION : 04	SCALE : N.T.S	DESIGN BY :	APPD. BY :

INTRODUCTION :-

CONTINUOUS GAS QUANTITY MONITOR IS USED IN GAS BASED FIRE EXTINGUISHING SYSTEM LIKE CO₂, FE-13, FE-200, INERT SYSTEM, NAF-SII, FE-227 TO MONITOR WEIGHT OF THE AGENT IN THE CYLINDER'S TO MEET NFPA REQUIREMENT. LOW WEIGHT WILL BE INDICATED BY THE POSITION OF COUNTER WEIGHT.



NOTE:-

- 1 - 68 LITRES WATER CAPACITY CO₂ CYLINDER FILLED WITH 45KG CO₂ GAS
- 2 - ALUMINIUM COLLAR
- 3 - HANGER ROD ASSEMBLY (NON FERROUS).
- 4 - LIMIT SWITCH
- 5 - CONTINUOUS GAS WEIGHT MONITOR MECHANICAL TYPE MODEL : (CGWM-Mex)
- 6 - COUNTER WEIGHT
- 7 - M24 CHECK NUT
- 8 - RAIL ASSEMBLY
- 9 - LIMIT SWITCH MOUNTING PLATE
- 10 - M24 NUT

NOTE:



- 01. MODEL NO.: CGWM-Mex.
- 02. PART NO.: IH006E.
- 03. TO BE USED ALONG WITH ON-LINE WEIGHING DEVICE CONTROL PANEL.

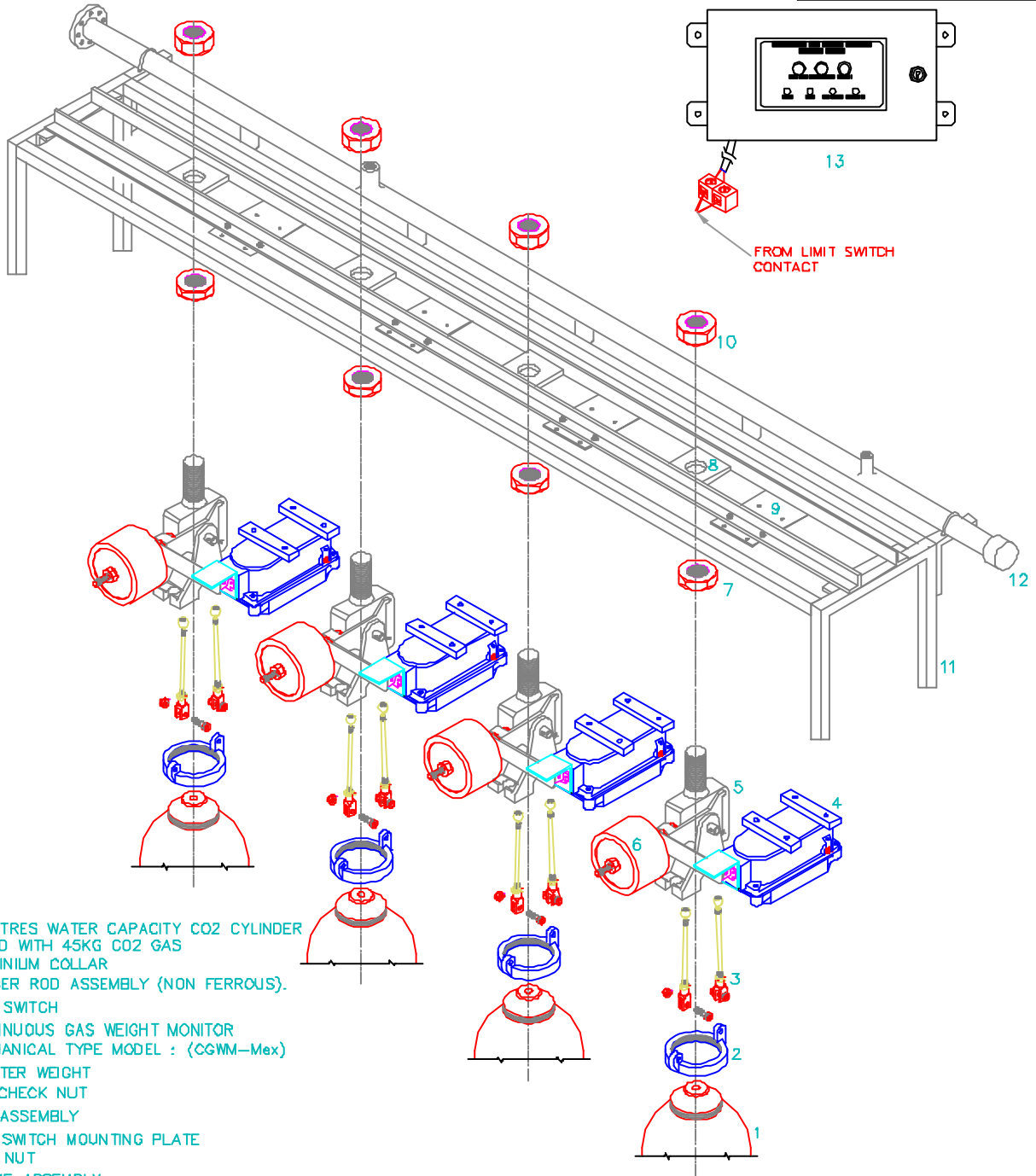
ALL DIMENSIONS ARE IN "mm" UNLESS OTHERWISE SPECIFIED.

TECHNICAL SPECIFICATION

01	MODEL NO	CGWM-M
02	COUNTER WEIGHT	MATERIAL OF CONSTRUCTION - M.S. (POWDER COAT PAINTED)
03	COLLAR	MATERIAL OF CONSTRUCTION - ALUMINIUM
04	HANGER ROD	MATERIAL OF CONSTRUCTION - SS304

CONTINUOUS GAS WEIGHT MONITOR(MECHANICAL) EXPLOSION PROOF TYPE - ASSEMBLY DETAILS

DATA SHEET  					PART NO : IH006E
DWG NO : 164	DATE : 03-08-06	REVISION : 04	SCALE : N.T.S	DESIGN BY :	APPD. BY :
					PAGE : 2 OF 2



NOTE:-

- 1 - 68 LITRES WATER CAPACITY CO2 CYLINDER FILLED WITH 45KG CO2 GAS
- 2 - ALUMINIUM COLLAR
- 3 - HANGER ROD ASSEMBLY (NON FERROUS).
- 4 - LIMIT SWITCH
- 5 - CONTINUOUS GAS WEIGHT MONITOR MECHANICAL TYPE MODEL : (CGWM-Mex)
- 6 - COUNTER WEIGHT
- 7 - M24 CHECK NUT
- 8 - RAIL ASSEMBLY
- 9 - LIMIT SWITCH MOUNTING PLATE
- 10 - M24 NUT
- 11 - FRAME ASSEMBLY
- 12 - MANIFOLD OR HEADER
- 13 - CONTINUOUS GAS WEIGHT MONITOR CONTROL PANEL MODEL NO. CGWM-CP, PART NO. IH009