

# Low Pressure Automatic Tank Gauges

## CNC2570 Series

CNC 2570  
SERIES



## CNC 2570 SERIES LOW PRESSURE AUTOMATIC TANK GAUGES

### APPLICATION

The Motherwell Control Systems Limited (MCS) CNC 2570 Series Low Pressure Automatic Tank Gauge is a mechanical, float operated instrument that gives accurate, continuous measurement of liquid level. A dial wheel indicator gives a digital reading, which can be in either metric or imperial units. No power is required for local indication.

The CNC2570 Series Gauge has a sensitivity of 1mm and, when correctly installed, has an accuracy of  $\pm 3$ mm throughout the range. The gauge is acceptable for UK custody transfer purposes and conforms to the *Institute of Petroleum Measurement Manual Code of Practice*.

All models are designed to be compatible with the MCS digital and analog transmitters and alarm interlocks, which can be supplied with the gauge or added at any time in the future.

Tank depths of up to 20 metres can be measured and the gauge is gas tight to a pressure of 1 bar. If required, an oil seal unit can be fitted to protect the gaugehead from vapours.

### Principle of Operation

The principle of operation of the CNC2570 Low Pressure Automatic Tank Gauge is based on an ingenious but simple mechanism.

Liquid level sensing is achieved by a float, which is connected to a very accurately perforated stainless steel measuring tape. The tape runs from the float and is coiled around a pulley wheel in the gauge head. As the tape moves in and out of the gauge head it rotates a sprocket wheel connected to the counter dial mechanism to give a direct reading of liquid level. The counter mechanism compartment can be filled with oil to reduce friction.

Gauge accuracy is achieved by the use of a Constant Force Motor, which is designed to ensure that float immersion is not affected by the weight of the tape. The motor consists of a flat stainless steel spring in the form of a compact, tightly wound spiral. The pull of the motor acts on the tape pulley to maintain a constant tension at the float. This is calculated to equal the weight of the tape paid out from the pulley and gives proportional compensation at every level. The gauge is fitted with a check knob to test the float is free.

## Installation

There are a number of installation options available to suit all modern storage tank designs and the gauge can be positioned for tank top or ground reading operation.

The Standard CNC2570 low Pressure Automatic Tank Gauge is supplied with a fixing kit, which includes all necessary pipework, fittings and brackets for the installation as well as full instructions.

Installation requires one 60mm ( $2\frac{5}{16}$ " ) diameter hole in the tank roof for the float cable and two 23mm ( $\frac{7}{8}$ " ) diameter holes for the guide wire top anchors.

For out-of-service installations the guidewires are secured to the tank bottom on brackets, which are welded in place. For in-service installations an optional anchor weight can be provided to secure the guidewires.

For ground reading gauges the float tape is enclosed in pipework and directed by means of Sheave Elbows. The Sheave Elbow is an angled or straight housing, which contains a pulley wheel to ensure smooth operation of the Indicator. The housing is fitted with an Inspection Hatch for maintenance purposes.

For installation of the float and for ease of access it is recommended that a CNC161 Inspection Cover is installed within arms length of the top anchor installation.

## Materials of Construction

The standard gauge has an aluminium body with internals, generally of aluminium and stainless steel.

The float, measuring tape and guidewires are stainless steel and guidewire anchors are carbon steel. Pipework is galvanised mild steel and Sheave Elbows have aluminium housing with stainless steel trim.

Other materials can be provided for applications to meet clients' specifications.

### OPTIONS:

The following options are available for the CNC2570 Series Low Pressure Automatic Tank Gauges:

- Fixed Roof Version (CNC2570)
- Floating Roof Tank, Well Version (CNC2571)
- Floating Roof Tanks without Well Version (CNC2572)
- Top Mounting on Fixed Roof Tanks (CNC2573)
- Fixed Roof Tanks with Oil Seal (CNC2574)
- Sealed Gauge Unit (CNC2579)
- Flexible Tank Entry
- Guide Wire Anchor Weight
- Oil Seal Unit (CNC2585)
- High / Low Alarm Interlocks
- Electronic Digital Transmitter (Model 6560)
- Electronic Analog Transmitter (Model 3786)
- PC Tank Gauging System (Series 5000)
- PLC Tank Gauging System (Model 3108)



### Standard Gauge and Accessories

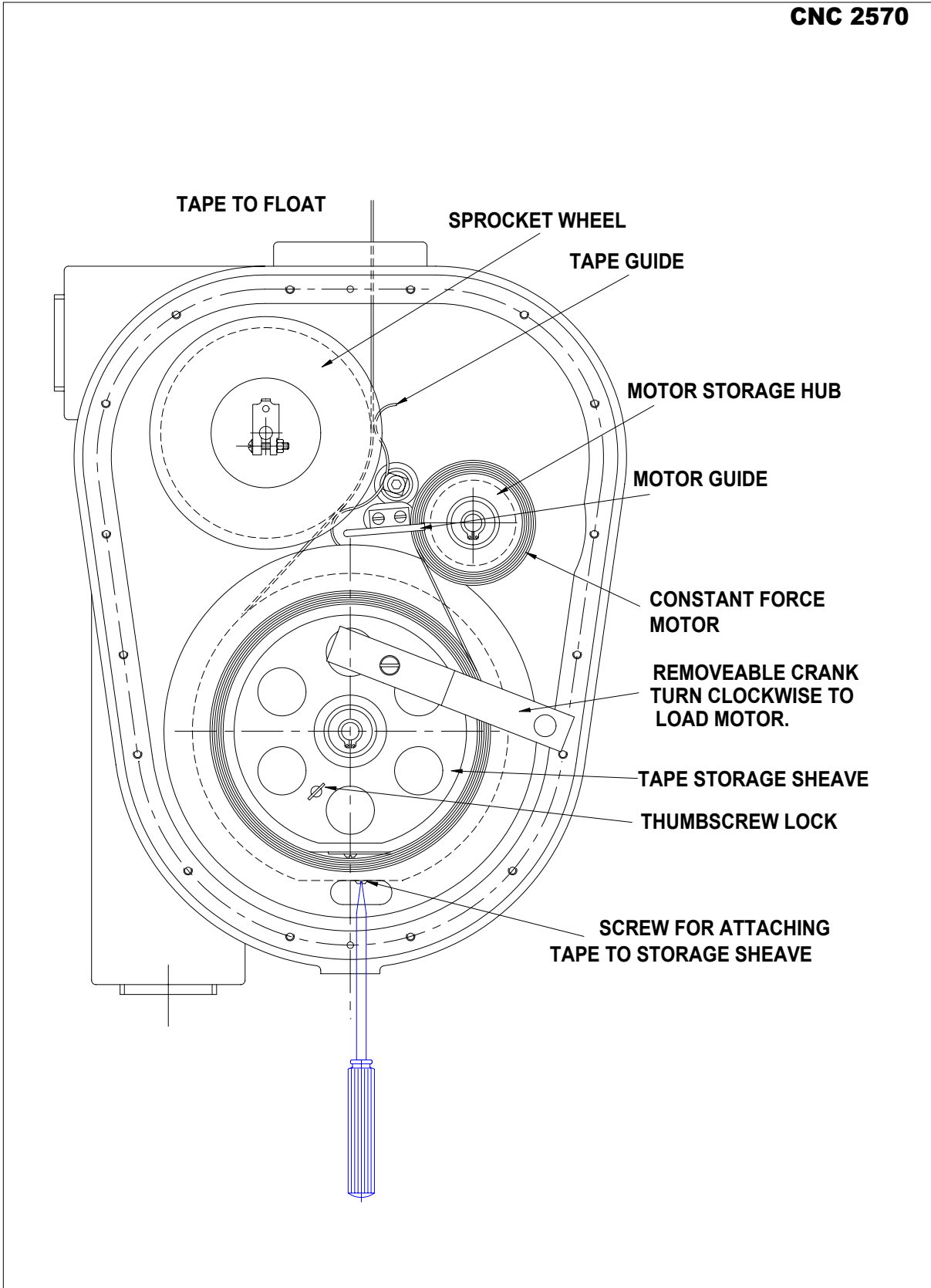
- Gaugehead
- Pipe Support Brackets
- Float
- Measuring Tape
- Bottom Anchor Bracket
- Guidewires
- Sheave Elbows
- Top Anchors
- Coupling

# STORAGE TANK FITTINGS

## CNC 2570 LOW PRESSURE AUTO TANK GAUGE



**CNC 2570**



DETAILS AND DIMENSIONS SUBJECT TO CONFIRMATION BY MCS FOR PARTICULAR APPLICATIONS

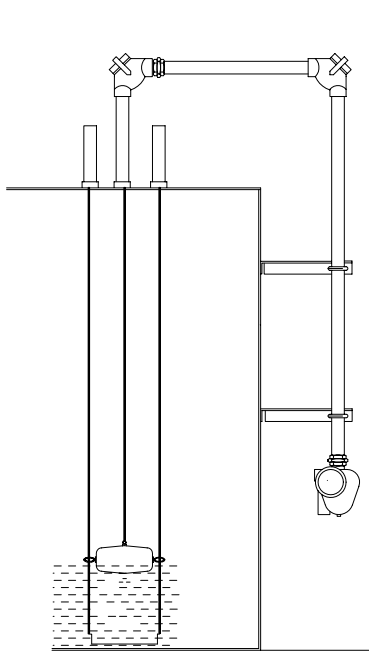
Motherwell Control Systems Limited

# STORAGE TANK FITTINGS

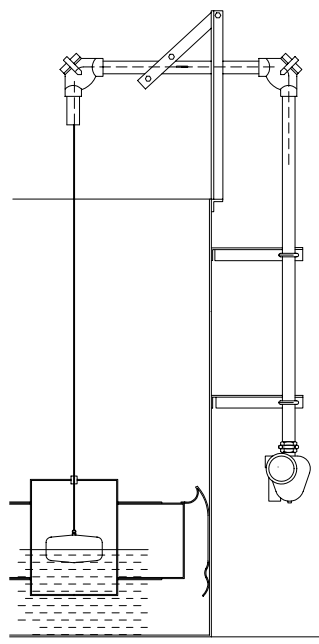
## CNC 2570 LOW PRESSURE AUTO TANK GAUGE



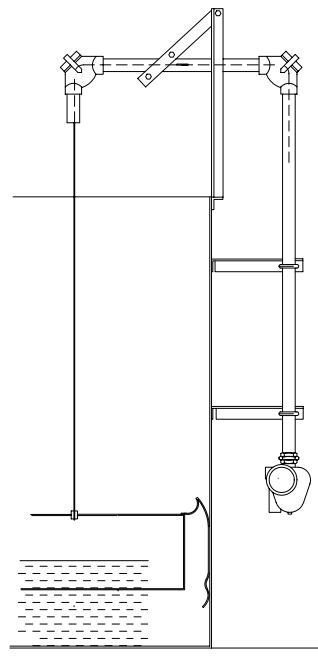
### TANK OPTIONS



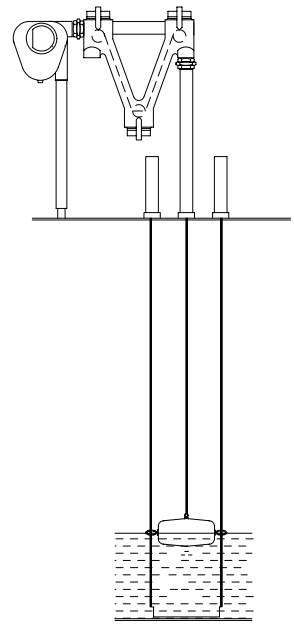
**CNC 2570**  
Cone Roof Tank.



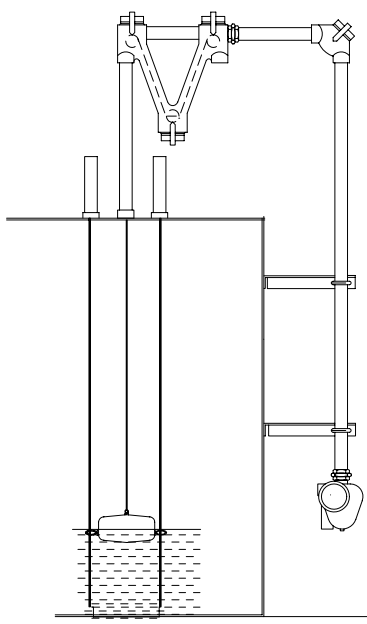
**CNC 2571**  
Floating Roof Tank.  
(Well Type)



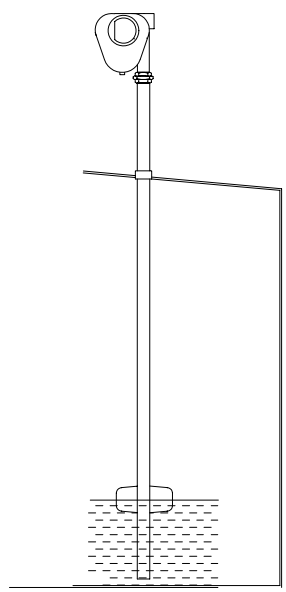
**CNC 2572**  
Floating Roof Tank.  
(Without Well)



**CNC 2573**  
Top Mounting.  
(With or without Oil Seal Unit)



**CNC 2574**  
Cone Roof Tank.  
(With Oil Seal Unit)



**CNC 2579**  
Magnetic Link Float.

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