



OCS Cement Silos are utilised for transport and storage of powdered cement. They are manufactured to ASME-VIII-Div 1 rules for the construction of vessels and are classified as ISO Type 20B4 (20ft Dry Bulk Containers). They also fall under ISO TC-104.

As the silos are in gauge 20 ft standards ISO configuration, they are easily transported by conventional shipping container lines and well suited to intermodal transportation. The Silos are provided with TIR, CSC certification. These are individually inspected by the CCS.

| <b>Cement Silo Tank</b> |                         |
|-------------------------|-------------------------|
| Volume                  | 22m <sup>3</sup>        |
| Air Supply              | > 8m <sup>3</sup> / min |
| Design Pressure         | 0.22 Mpa                |
| Tested Pressure         | 0.33 Mpa                |
| MGW                     | 32,200 kg               |
| Tare                    | 4,200 kg                |
| Net                     | 28,000 kg               |
| Dimensions              | 20ft x 8ft x 8ft        |
| No of Units             | 2                       |

**Specification and Function target**

| <b><u>Items</u></b>                                                                             | <b><u>Unit</u></b>  | <b><u>Parameter</u></b>                        |
|-------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------|
| External dimension (LxWxH)                                                                      | mm                  | 6,058(20') x 2,438(8')x 2,591(8'6")            |
| Internal size of tank L x D                                                                     | mm                  | 6000 x2400                                     |
| Load capacity                                                                                   | l                   | 22,500                                         |
| Design pressure                                                                                 | MPa                 | 0.22                                           |
| Test pressure                                                                                   | MPa                 | 0.33                                           |
| Design temperature                                                                              | °C                  | -19 to +80                                     |
| Max. gross weight                                                                               | kg                  | 32,200                                         |
| Tare weight                                                                                     | kg                  | 4,200                                          |
| Loading weight                                                                                  | kg                  | 28,000                                         |
| Air source pressure                                                                             | MPa                 | 0.2~0.3                                        |
| Air supply                                                                                      | m <sup>3</sup> /min | ≥8                                             |
| Allowable stacking weight .<br>1.8g                                                             | kg                  | 192,000                                        |
| Manhole diameter                                                                                | mm                  | 500                                            |
| Air-inlet diameter                                                                              | mm                  | 100mm cam lock type joint                      |
| Outlet diameter                                                                                 | mm                  | 4" male adaptor                                |
| Average speed of discharge (conveying<br>cement to the silo s which is 25m high and<br>10m far) | t/min               | cement: 1.0 ~1.5                               |
| Remnant ratio                                                                                   | %                   | cement: ≤0.4<br>( Cement: Not more than 100kg) |

### Materials

Main materials used for the container shall be of the best quality conforming to the requirements of this specification and classification society.

### Materials of the main parts

| <u>Parts</u>          | <u>Materials</u>                                                                                              | <u>Remark</u> |
|-----------------------|---------------------------------------------------------------------------------------------------------------|---------------|
| Tank shell            | Q345B                                                                                                         |               |
| Dish end              | Yield Point: 33kg/mm <sup>2</sup>                                                                             |               |
| Bottom side rail      | Tensile Strength: 52 kg/mm <sup>2</sup>                                                                       |               |
| Top side rails        |                                                                                                               |               |
| End rails             | Structural steel: SS41(Q235)                                                                                  |               |
| Internals             | Yield Point: 25 kg/mm <sup>2</sup>                                                                            |               |
| Walk way              | Tensile Strength: 41 kg/mm <sup>2</sup>                                                                       |               |
| Saddles               |                                                                                                               |               |
| Reinforcement         |                                                                                                               |               |
| Corner posts          | SM90A or Q345B                                                                                                |               |
| Barrel supports       | Yield Point: 33kg/mm <sup>2</sup>                                                                             |               |
| End arc support rings | Tensile Strength: 50 kg/mm <sup>2</sup>                                                                       |               |
| Corner fittings       | Casted Weldable Steel: SCW49<br>Yield Point: 28 kg/mm <sup>2</sup><br>Tensile Strength: 49 kg/mm <sup>2</sup> | ISO/R1161     |
| Pipe                  | 20-GB8163<br>Yield Point: 25kg/mm <sup>2</sup><br>Tensile Strength: 40 kg/mm <sup>2</sup>                     | Seamless Pipe |
| Valve                 | Cast steel                                                                                                    |               |
| Ventilation layer     | Synthetic fabric                                                                                              |               |
| Screws                | Structural steel: SS400 (Q235)                                                                                |               |
| Bolts                 | Yield Point: 25 kg/mm <sup>2</sup><br>Tensile Strength: 41 kg/mm <sup>2</sup>                                 |               |

OCS has Equipment passports for individual equipments which must be reviewed before each project to assess the status. The equipment passport gives the working history, maintenance and certification history of equipment.

It is important to regularly review the list of critical spare parts of the equipment before each project. Where failures occur during operations Equipment bulletins will be issued to document the problem and the remediation solutions applied. The equipment bulletin will be circulated to all field engineers to be informed about the possible failure that can occur during the operation and thereby avoid future failure

This equipment file remains a live document and will be constantly updated by the equipment department.