

t-max

ALUMINUM SILOS

www.t-max.com.tr

FEATURES:

- » Single or double layer, Long or short bottom design.
- » Special alloy Aluminium or SST 304 material option
- » Modular panel silo design
- » Opportunity to choose size-volume in special dimensions according to the business area
- » Delivery is made with many options included.
- » Fill tube
- » Ports for level sensor
- » Manhole, air evacuation, control shafts on the silo roof
- » Climbing ladder, roof railing, silo passageways
- » Manufacturing with 600-900 discharge angle depending on raw material flow characteristics.
- » Static and dynamic calculation report per earthquake regulations.



Today, one of the most important equipment of automatic raw material transfer systems in high-capacity plastic production facilities is indoor or outdoor storage silos. In this way, while contributing to the more efficient use of what is indoor or outdoor, the stocking of raw materials becomes regular at the same time. Storage silos are manufactured from aluminium or SST 304 material according to customer demands.

In addition to silo models designed in standard volumes and ready-made dimensions, T-MAX offers silo features suitable for needs and raw material characteristics. In addition, we offer solutions suitable for crushing, PET flake, powder-free flow, or all kinds of hard flow raw materials with our wide range of options. In this regard, we provide technical support to all our customers and help them in silo selection. Thanks to the silo, raw materials are not affected by climatic conditions. It helps the process to be stable. silos; It can be used to store commercially available plastic raw materials without any special features.

ADVANTAGES

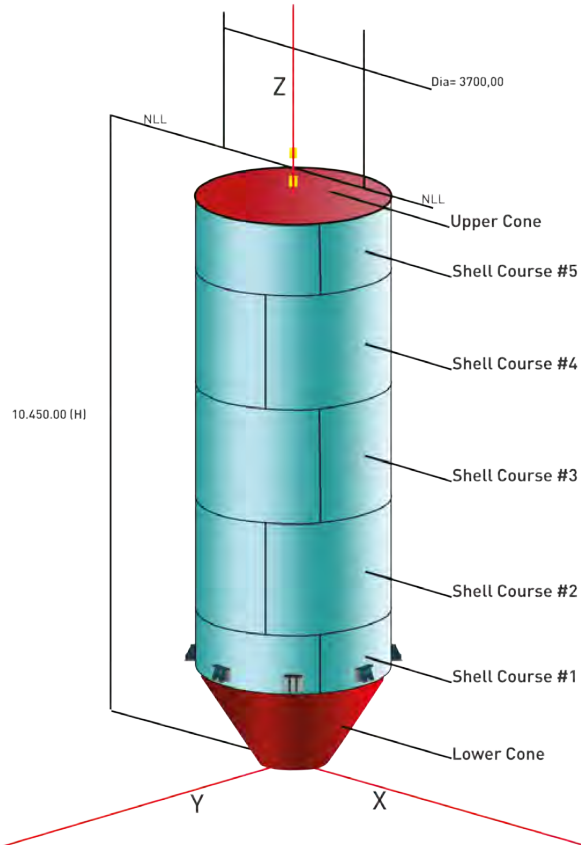
- » Long-life against corrosion
- » Easy and fast installation
- » Raw material, time, and labour savings thanks to direct filling from a silo or in-line container or tanker.
- » Packaging costs such as bags, big-bags and obtains are reduced when bulk raw materials are purchased with containers.
- » It eliminates demurrage costs with planned logistics activities.
- » It prevents raw material mixing with POKE-YOKE or coded silo filling connections.
- » Instant capacity is obtained in the silo with min or max level and instant radar level control.
- » By providing data transfer to the server or local computer communication between departments is facilitated.
- » Thanks to instant reports, raw material consumption can be controlled at any time and can be monitored continuously.



ENGINEERING AND TECHNICAL CONSULTING SERVICE

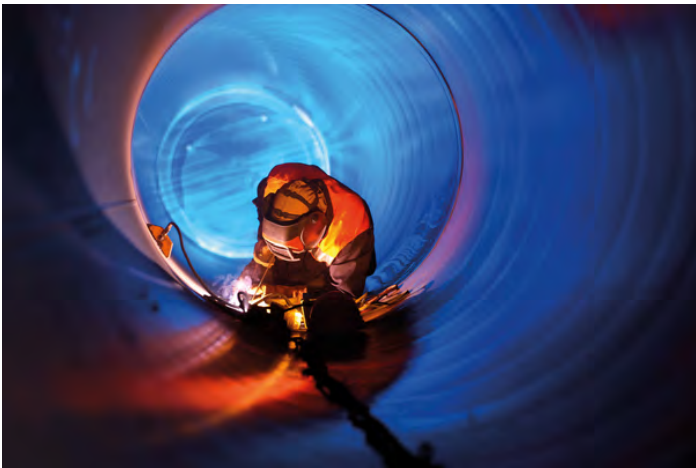
COMPUTER-AIDED ANALYSIS AND DESIGN:

The required silo body thickness and foundation calculation are determined by computer-aided analysis according to the area where the silo will be installed, the size and volume of which is determined according to customer needs, earthquake regulation, snow load, wind load, safety factor, and raw material pouring density.



WELDING TECHNOLOGY:

Our silo productions in line with the demands of our customers are done by our internationally certified welders who are experts in their fields without compromising on technique and quality.



FEATURES:

- » Special Alloy or Stainless-Steel material
- » Welded joint
- » Conical angle according to raw material property
- » Monitoring raw material stocks instantly
- » Long-life against corrosion
- » Design suitable for food and occupational safety
- » Easy and fast installation

ADVANTAGES

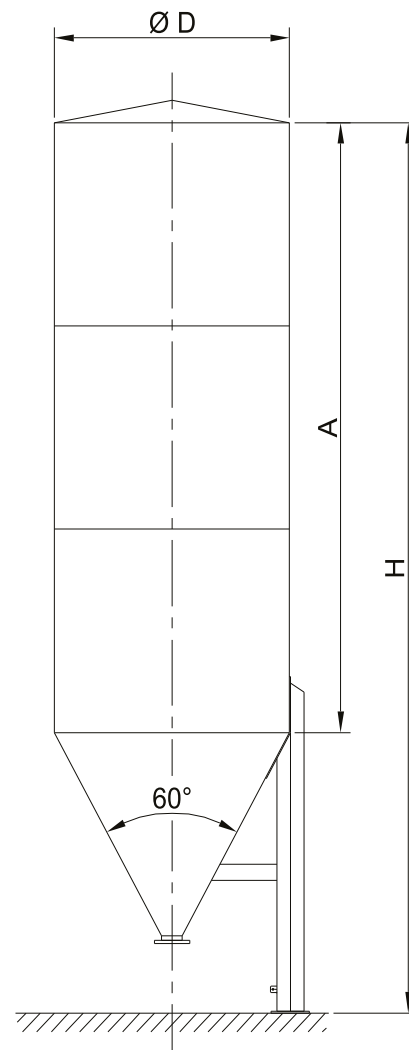
- » It eliminates costly storage in the production area.
- » It prevents the raw material from being adversely affected by weather conditions.
- » It reduces the risk of foreign matter mixing with the raw material.
- » When applied together with the central loading system, it prevents unnecessary raw material movement within the enterprise.
- » It provides the possibility of direct delivery of raw materials to the machines.

Footed, cylindrical silos are generally used for economical and reliable storage of granular, powder, and flake plastic raw materials between 1.5-25 m³. Space-saving is achieved by using intermediate stocking silos for companies that have a shortage of space in the business. It is manufactured with special alloy Aluminium or SST-304 material to ensure a long service life against corrosion. Special designs can be made in desired sizes and dimensions.

| ØD | m ³ | A (mm) | H (mm) |
|-------|----------------|--------|--------|
| Ø1250 | 1,5 | 1000 | 2500 |
| Ø1250 | 3 | 2000 | 3500 |
| Ø1250 | 4 | 3000 | 4500 |

| ØD | m ³ | A (mm) | H (mm) |
|-------|----------------|--------|--------|
| Ø1910 | 7 | 2000 | 4000 |
| Ø1910 | 10 | 3000 | 5000 |
| Ø1910 | 13 | 4000 | 6000 |

| ØD | m ³ | A (mm) | H (mm) |
|-------|----------------|--------|--------|
| Ø2400 | 12 | 2000 | 4500 |
| Ø2400 | 16 | 3000 | 5500 |
| Ø2400 | 21 | 4000 | 6500 |
| Ø2400 | 25 | 5000 | 7500 |



SINGLE CHAMBER SILO WITH CYLINDRICAL LEGS

t-max

FEATURES:

- » Special Alloy Aluminium or Stainless-steel material
- » Welded joint
- » Conical angle according to raw material property
- » Instantly tracking raw material stocks
- » Long-lasting structure against corrosion
- » Design suitable for food and work safety
- » Easy and fast installation feature

It is used in order to stock plastic raw materials in the form of granules, powders and flakes.

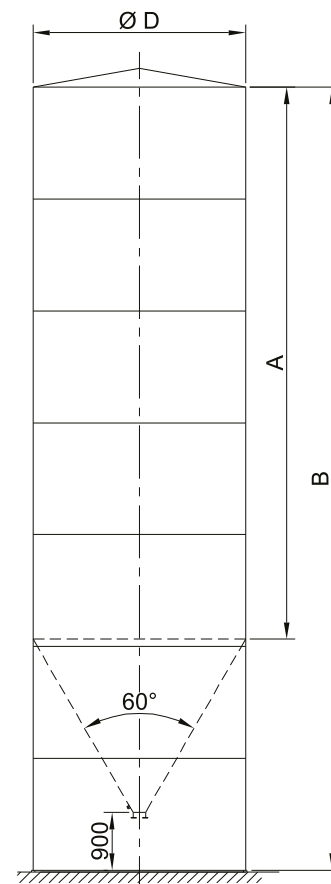
| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø2865 | 36 | 4,800 | 8,000 |
| Ø2865 | 49 | 6,800 | 10,000 |
| Ø2865 | 62 | 8,800 | 12,000 |
| Ø2865 | 75 | 10,800 | 14,000 |
| Ø2865 | 88 | 12,800 | 16,000 |
| Ø2865 | 100 | 14,800 | 18,000 |
| Ø2865 | 113 | 16,800 | 20,000 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3500 | 50 | 4,200 | 8,000 |
| Ø3500 | 69 | 6,200 | 10,000 |
| Ø3500 | 88 | 8,200 | 12,000 |
| Ø3500 | 107 | 10,200 | 14,000 |
| Ø3500 | 127 | 12,200 | 16,000 |
| Ø3500 | 146 | 14,200 | 18,000 |
| Ø3500 | 165 | 16,200 | 20,000 |
| Ø3500 | 184 | 18,200 | 22,000 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3820 | 81 | 6,000 | 10,000 |
| Ø3820 | 104 | 8,000 | 12,000 |
| Ø3820 | 127 | 10,000 | 14,000 |
| Ø3820 | 150 | 12,000 | 16,000 |
| Ø3820 | 173 | 14,000 | 18,000 |
| Ø3820 | 196 | 16,000 | 20,000 |

ITS ADVANTAGES

- » It eliminates costly storage in the production area.
- » It prevents the raw material from being adversely affected by weather conditions.
- » It reduces the risk of foreign matter mixing with the raw material
- » When applied together with the central loading system, it prevents unnecessary raw material movement within the enterprise.
- » It provides the possibility of direct delivery of raw materials to the machines.
- » It is used to stock plastic raw materials in the form of granules powders, and flakes.



| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø4200 | 122 | 7,600 | 12,000 |
| Ø4200 | 150 | 9,600 | 14,000 |
| Ø4200 | 177 | 11,600 | 16,000 |
| Ø4200 | 205 | 13,600 | 18,000 |
| Ø4200 | 232 | 15,600 | 20,000 |
| Ø4200 | 260 | 17,600 | 22,000 |

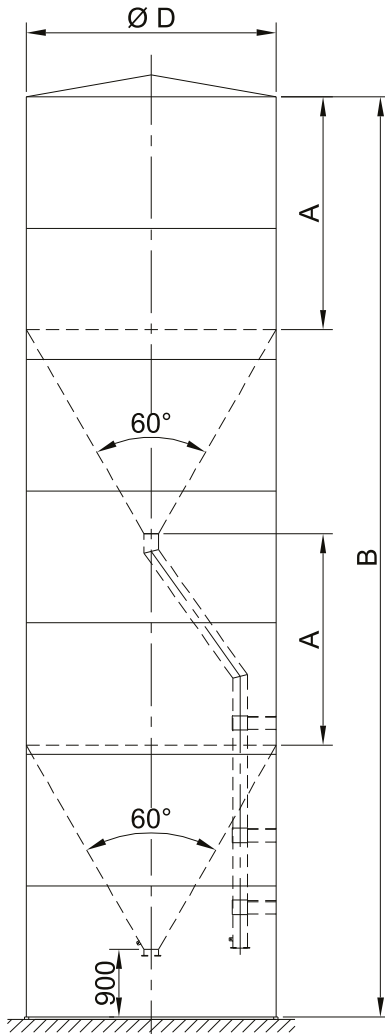
FEATURES:

- » Special alloyed Aluminium or SST-304 material option,
- » Opportunity to choose size-volume in special dimensions according to the business area,
- » The calculation in accordance with the Earthquake Code
- » Silo Filling Pipe and Sensor Flanges,
- » Manhole and air discharge chimneys on the Silo Roof
- » The conical discharge angle of 600-900, according to raw material flow characteristics

ITS ADVANTAGES

- » Double compartment silos; It ensures that various raw materials are stocked in separate compartments.
- » It reduces the risk of foreign matter mixing with the raw material.
- » Long life against corrosion,
- » It saves space in the business, reduces the workload.
- » It reduces the raw material loss-leakage rate.
- » Easy and fast installation

Silos are used to store commercially available plastic raw materials. A double chamber silo is a standard silo that is split into two using an additional discharge hopper. The size of the individual silo rooms depends on the capacity of the silo trucks.



| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3000 | 2x28 | 3,150 | 12,000 |
| Ø3000 | 2x35 | 4,150 | 14,000 |
| Ø3000 | 2x42 | 5,150 | 16,000 |
| Ø3000 | 2x56 | 6,150 | 18,000 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3500 | 2x45 | 3,710 | 14,000 |
| Ø3500 | 2x55 | 4,710 | 16,000 |
| Ø3500 | 2x65 | 5,710 | 18,000 |
| Ø3500 | 2x75 | 6,710 | 20,000 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3820 | 2x52 | 3,430 | 14,000 |
| Ø3820 | 2x63 | 4,430 | 16,000 |
| Ø3820 | 2x75 | 5,430 | 18,000 |
| Ø3820 | 2x86 | 6,430 | 20,000 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø4200 | 2x74 | 4,100 | 16,000 |
| Ø4200 | 2x87 | 4,100 | 18,000 |
| Ø4200 | 2x101 | 6,100 | 20,000 |
| Ø4200 | 2x115 | 7,100 | 22,000 |
| Ø4200 | 2x129 | 8,100 | 24,000 |

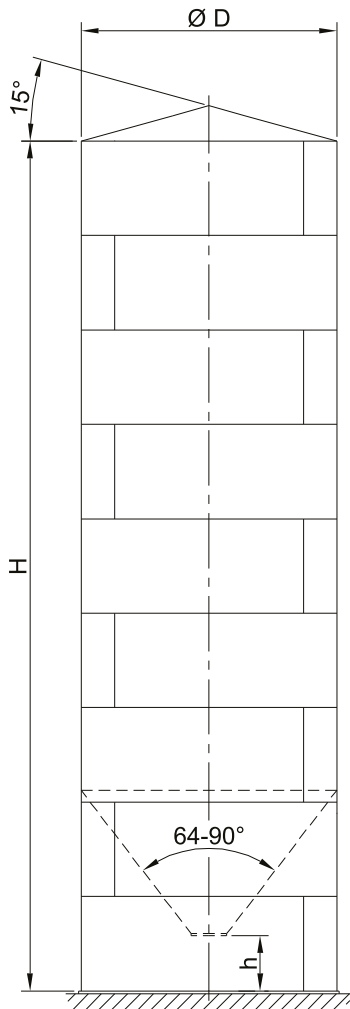
FEATURES:

- » Special Alloy Aluminium or Stainless-Steel material
- » Discharge angle according to raw material feature
- » Instantly tracking raw material stocks
- » Long-lasting structure against corrosion
- » Design suitable for food and work safety
- » Installation of independent panels is easily done
- » Wide product range.

ITS ADVANTAGES

- » Reduced shipping costs for large volume silos
- » Eliminates the cost of stocking in the production area.
- » It prevents the raw material from being adversely affected by weather conditions.
- » When applied together with the central loading system, it prevents unnecessary raw material movement within the enterprise.
- » It reduces the risk of foreign matter mixing with the raw material.
- » It provides the possibility of direct shipment of raw materials

It allows the use of raw materials following their purpose at the point where high-capacity raw material stock volume is needed. Aluminium Panel (modules) Silos are used for logistical convenience. Silos are preferred from > Q4200 mm.



| PANEL (MODULAR) ALUMINIUM SILO | | | | | |
|--------------------------------|----------------------------------|----------------------------------|------------------------|----------------|------|
| ØD | Volume m ³ (α 64°) | Volume m ³ (α 90°) | Cylindrical Height (H) | Conical Output | h |
| Ø5500 | 383 m ³ | 415 m ³ | 20,000 | DN250 | 1000 |
| Ø5500 | 430 m ³ | 462 m ³ | 22,000 | DN250 | 1000 |
| Ø5500 | 478 m ³ | 509 m ³ | 24,000 | DN250 | 1000 |
| Ø5500 | 526 m ³ | 556 m ³ | 26,000 | DN250 | 1000 |



FEATURES:

- » Special Alloy Aluminium or Stainless-Steel material
- » Welded joint
- » Suitable for platform mounting
- » Instantly tracking raw material stocks
- » Conical angle according to raw material property
- » Long life against corrosion
- » Design suitable for food and work safety

ITS ADVANTAGES

- » Eliminates costly storage in the production area.
- » It prevents the raw material from being adversely affected by weather conditions.
- » When applied together with the central loading system, it prevents unnecessary raw material movement within the enterprise.
- » It reduces the risk of foreign matter mixing with the raw material.
- » It provides the possibility of direct delivery of raw materials to the machines.

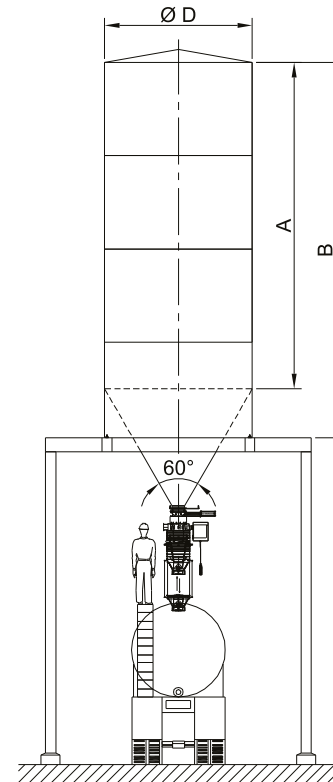
Loading Silos are ideal for stocking plastic raw materials in the form of granules, powders, and flakes and for transferring them to containers or bulk trailer units. The need for loading blinds that arise during this transfer can be met by us.

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø2865 | 36 | 4,800 | 5,300 |
| Ø2865 | 49 | 6,800 | 7,300 |
| Ø2865 | 62 | 8,800 | 9,300 |
| Ø2865 | 75 | 10,800 | 11,300 |
| Ø2865 | 88 | 12,800 | 13,300 |
| Ø2865 | 100 | 14,800 | 15,300 |
| Ø2865 | 113 | 16,800 | 17,300 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3500 | 50 | 4,200 | 4,700 |
| Ø3500 | 69 | 6,200 | 6,700 |
| Ø3500 | 88 | 8,200 | 8,700 |
| Ø3500 | 107 | 10,200 | 10,700 |
| Ø3500 | 127 | 12,200 | 12,700 |
| Ø3500 | 146 | 14,200 | 14,700 |
| Ø3500 | 165 | 16,200 | 16,700 |
| Ø3500 | 184 | 18,200 | 18,700 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø3820 | 81 | 6,000 | 6,500 |
| Ø3820 | 104 | 8,000 | 8,500 |
| Ø3820 | 127 | 10,000 | 10,500 |
| Ø3820 | 150 | 12,000 | 12,500 |
| Ø3820 | 173 | 14,000 | 14,500 |
| Ø3820 | 196 | 16,000 | 16,500 |
| Ø3820 | 219 | 18,000 | 18,500 |

| ØD | m ³ | A (mm) | B (mm) |
|-------|----------------|--------|--------|
| Ø4200 | 122 | 7,600 | 8,100 |
| Ø4200 | 150 | 9,600 | 10,100 |
| Ø4200 | 177 | 11,600 | 12,100 |
| Ø4200 | 205 | 13,600 | 14,100 |
| Ø4200 | 232 | 15,600 | 16,100 |
| Ø4200 | 260 | 17,600 | 18,100 |



TELESCOPIC LOADING BELLOW (ELECTRICAL MOTORS)

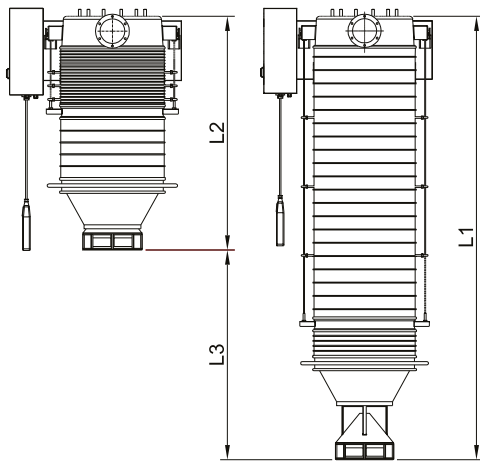
t-max

HOW DOES IT WORK?

- » The system basically works with the principle of trapping the dust generated during the pouring of the powder or granular plastic material through a bellows that can be shortened and lengthened in this bellows assembly. While the material flows down with its own weight from the closed environment, the dust formed is pulled upwards by vacuum.

ADVANTAGES

- » Easy to use
- » Lossless product filling
- » Safe working environment
- » A dust-free ambient air
- » Model option for different applications
- » Sensors preventing raw material from overflowing
- » Automatic pull-up feature when the raw material loading process is finished



TELESCOPIC LOADING: Prevents the spread of dust and particles that arise during the filling of raw materials into bulk trailer units or containers to the operating environment and the environment. In addition, it prevents product loss and ensures that the filling operation is completed quickly and safely. Our wide product range in this field offers solutions for all sizes thanks to its telescopic design.

| No | L1 | L2 | L3 | kW |
|----|------|------|------|------|
| 1 | 700 | 225 | 475 | 0,55 |
| 2 | 1000 | 450 | 550 | 0,55 |
| 3 | 1300 | 675 | 625 | 0,55 |
| 4 | 1600 | 900 | 700 | 0,55 |
| 5 | 1900 | 1125 | 775 | 0,55 |
| 6 | 2200 | 1350 | 850 | 0,55 |
| 7 | 2500 | 1575 | 925 | 0,55 |
| 8 | 2800 | 1800 | 1000 | 0,55 |
| 9 | 3100 | 2025 | 1075 | 0,55 |
| 10 | 3400 | 2250 | 1150 | 0,55 |
| 11 | 3700 | 2475 | 1225 | 0,55 |
| 12 | 4000 | 2700 | 1300 | 0,55 |
| 13 | 4300 | 2925 | 1375 | 0,55 |
| 14 | 4600 | 3150 | 1450 | 0,55 |

MIXING SILO (with legs):

The raw material is continuously collected from the conical with the vertical mixing helix and transported upwards to the roof of the silo using the spiral pipe to ensure homogeneous mixing.

| ØD | m ³ | H (mm) | H1 (mm) | H2 (mm) | n |
|-------|----------------|--------|---------|---------|---|
| Ø1250 | 1,5 | 1000 | 2500 | 3500 | 3 |
| Ø1250 | 3 | 2000 | 3500 | 4500 | 3 |

| ØD | m ³ | H (mm) | H1 (mm) | H2 (mm) | n |
|-------|----------------|--------|---------|---------|---|
| Ø1910 | 7 | 2000 | 4000 | 5300 | 3 |
| Ø1910 | 10 | 3000 | 5000 | 6300 | 3 |
| Ø1910 | 13 | 4000 | 6000 | 7300 | 3 |

| ØD | m ³ | H (mm) | H1 (mm) | H2 (mm) | n |
|-------|----------------|--------|---------|---------|---|
| Ø2400 | 12 | 2000 | 4500 | 5850 | 4 |
| Ø2400 | 16 | 3000 | 5500 | 6850 | 4 |
| Ø2400 | 21 | 4000 | 6500 | 7850 | 4 |

MIXING SILO (with bottom):

The raw material is continuously collected from the conical with the vertical mixing helix and transported upwards to the roof of the silo using the spiral pipe to ensure homogeneous mixing.

| ØD | m ³ | H (mm) | H1 (mm) | H2 (mm) |
|-------|----------------|--------|---------|---------|
| Ø2400 | 21 | 4000 | 6500 | 7850 |
| Ø2400 | 25 | 5000 | 7500 | 8850 |
| Ø2400 | 29 | 6000 | 8500 | 9850 |
| Ø2400 | 33 | 7000 | 9500 | 10850 |
| Ø2400 | 37 | 8000 | 10500 | 11850 |

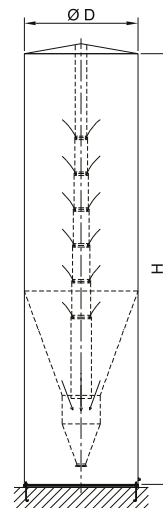
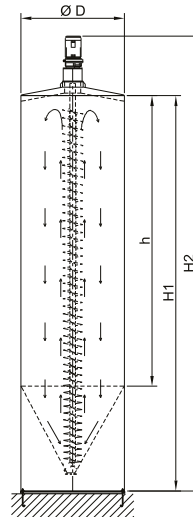
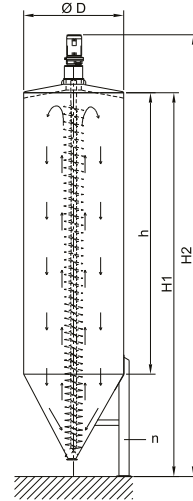
| ØD | m ³ | H (mm) | H1 (mm) | H2 (mm) |
|-------|----------------|--------|---------|---------|
| Ø2865 | 36 | 4800 | 8000 | 9500 |
| Ø2865 | 49 | 6800 | 10000 | 11500 |
| Ø2865 | 62 | 8800 | 12000 | 13500 |
| Ø2865 | 75 | 10800 | 14000 | 15500 |

BLENDING SILO (central pipe type) - GRAVITY MIXER

The pipe placed in the middle of the silo has different entrances. Due to the special material intake areas, the product flows from different areas by taking advantage of the gravitational force and a homogeneous mixture is provided.

Inlet ports opened in different geometries according to the raw material in the pipes create different flow rates. In this way, it allows the raw material to be mixed homogeneously.

| ØD | m ³ | H (mm) | ØD | m ³ | H (mm) |
|-------|----------------|--------|-------|----------------|--------|
| Ø3000 | 58 | 12500 | Ø3500 | 75 | 12500 |
| Ø3000 | 76 | 15000 | Ø3500 | 99 | 15000 |
| Ø3000 | 94 | 17500 | Ø3500 | 123 | 17500 |
| Ø3000 | 112 | 20000 | Ø3500 | 147 | 20000 |



Silo Connection Ring



Basic Silo Study



Silo Fixing Footings



Silo Anchor Assembly



Suction Box



Silo Loading and Transfer lines



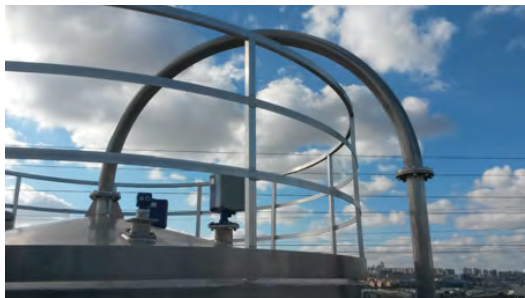
Climbing Ladder



Passageways



Filling Elbows



Wear Resistant Elbows



Filling Lines



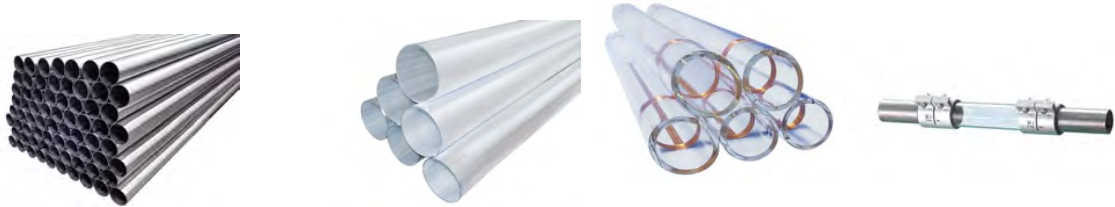
Filter Systems



Pipe Couplings



Raw Material Conveying Lines



Stainless Steel Elbows (Anti-Wear)



Glass Elbows



Wear Resistant Elbow



Stainless Aluminium 'Y' and 'T' Parts



Glass 'Y' Part



Stainless and Aluminium Reducer



Distribution Stations



Raw Material Conveying Lines

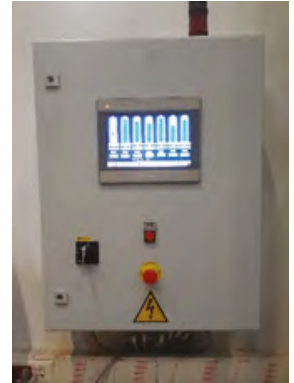




SILO RAW MATERIAL LEVEL CONTROL AND TRACEABLE TOUCH PANELS

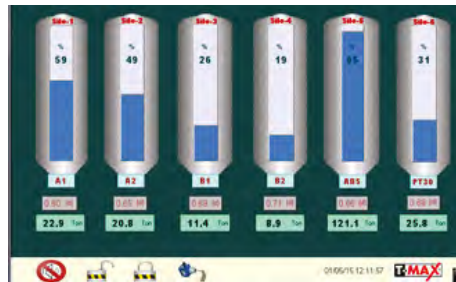
FEATURES:

- » Standard silo measuring and control panels (control up to 4-6-8-10 silos)
- » Advanced screen providing the tracking of raw materials
- » Various screen sizes - (3.5, 5.7, and 10 inches)
- » Audible and light warning
- » Access to enterprise database via Ethernet Port
- » Remote access via PC interface program
- » ERP Integration
- » Infrastructure of Industry 4.0 appropriate software
- » Full compatibility with bulk trailer, bag cutting, or container units
- » Error prevention with RFID in silo filling lines (option)
- » POKA-YOKE (Failure Prevention) safety mechanical connection.



SENSOR TECHNOLOGY:

We can use the measurement values obtained by the sensor in different ways. We have various program and analysis device solutions, from displaying values on the screen to using them in complex process analysis via Ethernet to transmitting measurement values via a radio link. We use level sensors with radar, Loadcell, or YO-YO technique.



MINIMUM AND MAXIMUM LEVEL SENSORS



Vibrating Level Sensor



Leaf-type Level Sensor

RADAR TYPE RAW MATERIAL LEVEL SENSOR

FEATURES:

- » Instant or continuous measurement
- » Ease of parameter entry via the hand terminals
- » With non-contact measurement technique; no wear and no maintenance
- » It is not affected by external factors
- » Easy and effortless calibration.

WEIGHT MEASUREMENT SYSTEM

The raw materials in the silos enable weighing using load cells.



ROTARY VALVES (airlock)



SILO TOP FILTERS



and more



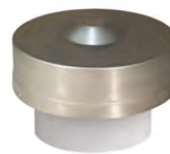
CLAMP



MANUAL CLAMP



PINCH VALVE



PRESSURE RELIEF VALVE



MANHOLE



SILO BOTTOM MAGNET



BIN ACTIVATOR



DIVERTER



t-max

Tepro Makina ve Otomasyon Sistemleri San. ve Tic. A.Ş.
İnönü Mah. Gebze Güzeller OSB, Nursultan
Nazarbayev SK. No:14, 41400 Gebze / Kocaeli
+90 (216) 709 26 00

www.t-max.com.tr