



To: All Plan Holders of Record

From: Verdantas LLC
For the Owner

Re: Addendum No. 1
Wastewater Treatment Plant Sludge Dewatering Improvements
City of Wheeling, WV

Date: September 2, 2026

This Addendum forms a part of the contract documents and modifies the original bidding documents dated August 2026 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

BID OPENING

The Bid opening is extended by one week to Thursday, September 10, 2026. The time and place remain unchanged.

ENGINEERS OPINION OF PROBABLE CONSTRUCTION COST

The Engineers opinion of Probable Construction Cost is \$1,500,000.00

PRE-BID MEETING

The Pre-Bid Conference meeting minutes dated August 31, 2026 are attached. Statements made during the conference are not binding unless incorporated into the Contract Documents by addendum.

CLARIFICATIONS

EQUIPMENT INFORMATION

The ESMIL equipment submittal for the multi-disc screw press and shaftless screw conveyor is attached for bidding and coordination purposes. The attached package identifies the proposed MDQ-506 CS screw press, KVE 6/4.6 300 conveyor, control panel, junction box, two sludge feed pumps, two polymer feeders, one flowmeter, and spare parts. Bidders remain responsible for coordinating the complete installation with the Contract Drawings and Specifications.

CONTRACTOR EQUIPMENT AND INSTALLATION RESPONSIBILITIES

The major equipment responsibilities are identified in Specification Section 011100, Appendix 1. The Construction Contractor is responsible for receiving, unloading, handling, storage, installation, integration, testing, and commissioning support for Owner-furnished equipment, together with all incidental labor, materials, supports, anchors, piping, valves, electrical work, instrumentation, controls, and coordination required for a complete installation, except where the Contract Documents specifically assign the work to others.

The Construction Contractor is also responsible for installation of the replacement crane system under the crane-system allowance, all HVAC equipment and associated installation, and the architectural, structural, mechanical, electrical, process, instrumentation, and general site improvements shown or specified in the Contract Documents.

DEMOLITION CLARIFICATION

Concrete demolition shall comply with the demolition notes on Drawings 10S-01, 10D-01, and the other applicable Contract Drawings. Saw cutting and the specifically identified low-impact removal methods are permitted. Heavy percussive demolition methods are prohibited. Controlled hand chipping is permitted only where allowed by the Contract Drawings and shall use chipping hammers weighing 14 pounds or less. Saw cuts shall not overcut corners or damage concrete designated to remain.

QUESTIONS AND ANSWERS

Q1. Will cut sheets be provided for all equipment to be installed?

A1. The attached ESMIL submittal provides information for the screw press package and shaftless screw conveyor, including identified major components. Information for additional equipment may be issued in a subsequent addendum if received before bidding closes.

Q2. Are Digested Sludge Pumps P-11 and P-12 being provided?

A2. Yes. P-11 and P-12 are included as new progressive-cavity pump, motor, and frame replacements. The Construction Contractor shall install the pumps and complete the required piping, alignment, anchorage, electrical, instrumentation, and controls work shown or specified.

Q3. Do the existing 6-inch expansion joints remain beneath the new check valves and plug valves for P-11 and P-12?

A3. No. Replace the existing 6-inch expansion joint at each pump installation. Provide replacement expansion joints compatible with the existing piping, service, and operating conditions. Field verify dimensions and coordinate spool pieces, alignment, valves, and pump connections before fabrication or installation.

Q4. Which polymer pump will be reused in the first-floor polymer room?

A4. Existing Polymer Pump P-17 and its associated disconnect are designated for relocation and reuse. The Contractor shall field verify the condition of P-17 before installation and notify the Engineer if damage or deterioration is observed.

Q5. Is a new concrete pad required for the relocated polymer transfer pump in the first-floor polymer room?

A5. No separate concrete housekeeping pad is required. Anchor the pump frame to the existing floor using an anchorage system appropriate for the existing slab and the classified area. Coordinate the final location to maintain access, clearances, and piping alignment.

Q6. How shall the relocated polymer totes be piped to the relocated polymer transfer pump?

A6. Field coordinate the final location and routing in the first-floor polymer room in accordance with Drawing 10D-09. Provide all piping, fittings, valves, supports, and appurtenances required to connect the relocated polymer totes to Pump P-17 and to connect the pump discharge to the existing 950-gallon polymer storage system. Verify existing connection points and elevations before installation. Submit a coordinated layout or shop drawing showing the proposed routing, supports, valves, and tie-in points before commencing the work.

ATTACHMENTS

- Attachment A - Screw Press Installation Pre-Bid Meeting Minutes, dated August 31, 2026
- Attachment B - ESMIL Submittal, Multi-disc Screw Press MDQ-506 CS and Screw Conveyor KVE 6/4.6 300, Rev. 0

EF/LS:mep

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Meeting Minutes

To: Attendees

Subject: *Wheeling Wastewater Treatment Plant Sludge Dewatering Improvements Screw Press Installation*

Date: August 31, 2026

The agenda for the Pre-bid Conference scheduled for **August 26, 2026 at 10:00 a.m.** at the City of Wheeling WPCD Conference Room is as follows:

- Sign-In Sheet
- Introductions
- Introduction of the Project
- Question and Answers – Note all answers to question are only made final when documented by addendum.

Project Overview: The project includes the procurement of a complete, fully integrated sludge dewatering packaged system for the City of Wheeling Water Pollution Control Division (WPCD), Wheeling, West Virginia. The scope of this Contract is limited solely to furnishing the complete sludge dewatering equipment system. All installation, construction, demolition, structural, mechanical, electrical, piping, and system integration work will be performed under a separate Construction Contract.

Sealed bids will be received by the City of Wheeling, WV at the office of the City Manager, 1500 Chapline Street, Wheeling, WV 26003 until **2:30 p.m. on September 3, 2026** and will be opened and read immediately thereafter.

Project includes but is not limited to:

From SPEC 011100

- A. The Sludge Dewatering Improvements Project – Construction Contract includes the complete installation, integration, and commissioning of a fully furnished sludge dewatering packaged system procured under a separate Equipment Procurement Contract.
1. Receiving, unloading, handling, and storage of Owner-furnished sludge dewatering equipment
 2. Installation of all process equipment and accessories
 3. Structural modifications and supports required for installation
 4. Installation of mechanical piping systems, valves, and appurtenances
 5. Electrical work, including conduit, wiring, terminations, and integration with control panels
 6. Instrumentation installation and calibration
 7. System integration, testing, and commissioning
 8. Coordination with the Equipment Vendor and Manufacturer's field services
 9. Startup assistance and operator training support

Project is NOT subject to BABAA requirements.

Meeting Minutes:

Meeting Minutes were derived from AI note taking

Equipment Cut Sheets

Bidders requested equipment cut sheets and package information for the supplied screw press equipment.

Response: ESMIL submittals have been received and are currently under review. Relevant equipment information will be distributed through a forthcoming addendum.

Valves and Piping

Questions were raised regarding valve schedules and appurtenances.

Response: Most valves are associated with piping systems connected to the equipment package. Any additional valves are specified within the contract drawings.

Demolition Materials

Questions were raised regarding disposal of demolished equipment and materials.

Response:
See Spec Section 024100

Crane System Allowance

A cash allowance of \$115,000 is included in the bid documents.

Purpose:

Replacement of the existing crane/monorail system.
Final design of replacement crane remains in development.

Contractors shall carry the allowance as indicated in the bid form. Future design details may be issued by addendum as the crane design is completed.

Construction Constraints

Floor Loading Restrictions

The existing structure has restrictive floor loading limitations.

Contractors were advised that:

Equipment must generally be staged outside the building.
Components will need to be lifted into the building individually.
Existing monorail system may be used during installation sequencing.
The existing monorail will remain in service until installation activities are complete, after which the system will be replaced.

Weight Considerations



The equipment package was intentionally specified to ship in multiple pieces to facilitate movement into the structure and minimize floor loading impacts.

Startup and Commissioning

Startup support will include participation from ESMIL manufacturer representatives.

Start up and commissioning requirements are listed in spec section 054523 and 017517. Generally contractor responsibilities include but are not limited to:

- Assisting with equipment startup activities.
- Supporting wet and dry testing.
- Providing temporary water connections as necessary.
- Participating in field QA/QC activities.

Approximately three days of manufacturer-assisted startup are anticipated.

Polymer Room Walkthrough

During the site tour, the following clarifications were discussed:

- Existing polymer feed equipment is largely being replaced.
- One polymer transfer pump will be reused/relocated as indicated in the contract documents.
- Existing polymer piping tie-in locations require field verification per the contract drawings.

Solids Control Center Walkthrough

Discussion topics included:

- Extensive demolition of existing dewatering equipment and associated piping.
- Reuse of selected existing penetrations as denoted in the contract drawings and where practical.
- Installation of partition walls and HVAC improvements.

Demolition Methods

Bidders raised concerns regarding restrictions on jackhammering and other percussive demolition methods due to structural limitations.

Approved demolition methods are noted in the contract drawings. Jack hammering is not allowed as damage may occur to the floor. Saw cutting is permitted.



HVAC Improvements

Field review of HVAC work identified:

Existing rooftop HVAC equipment will be removed.

New rooftop units will be installed.

Ductwork modifications are part of the contractor's scope and may defer based on final crane design.

Portions of existing penetrations may be reused where feasible.

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SUBMITTAL

Multi-disc screw press MDQ-506 CS

Screw conveyors KVE 6/4.6 300

Rev.0 (08/03/2026)

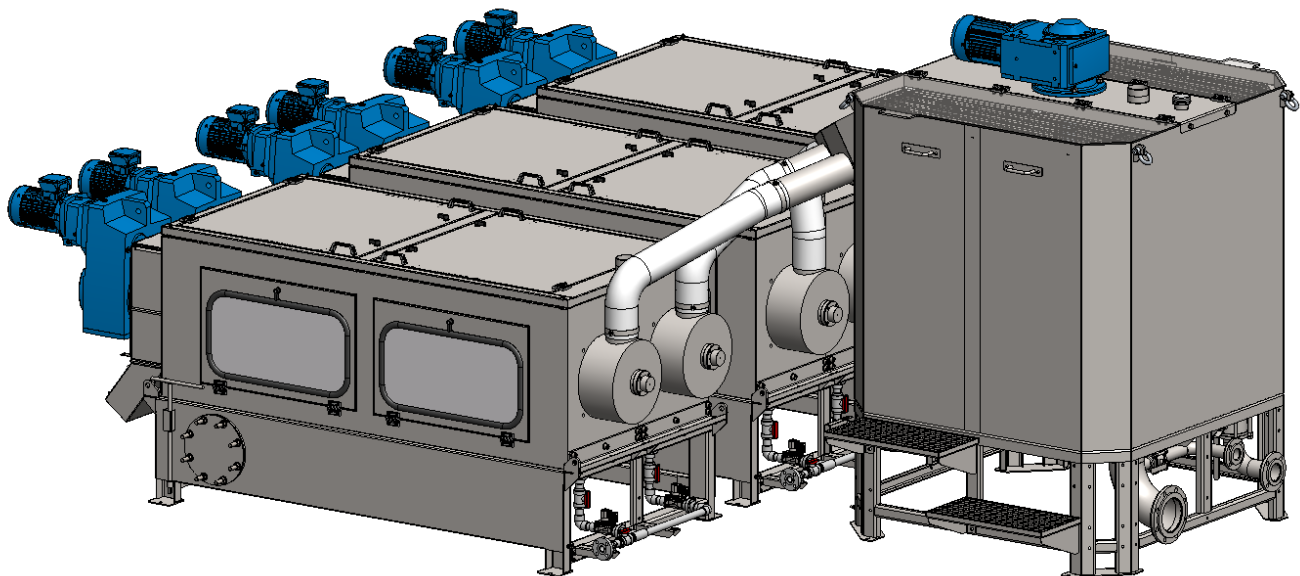
Procurement of Dewatering Equipment,

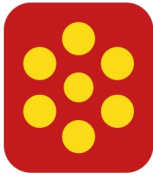
City of Wheeling, WV

Applicable Specification Sections

SECTION 467331 – DEWATERING MULTI-DISK SCREW PRESS

SECTION 461211 – SCREW SHAFTLESS CONVEYOR



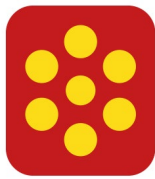


**Procurement of Dewatering Equipment,
City of Wheeling, WV**

SUBMITTAL

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Motion sensor	
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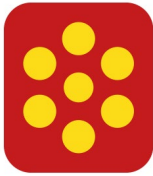
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City of Wheeling, WV
SUBMITTAL**

PROJECT DATA AND CONTACT INFORMATION

Project data and main components

The following information regarding this project should be referenced when contacting ESMIL Group about spare parts.

Project name	Procurement of Dewatering Equipment, City of Wheeling, WV
Project address	2516 Main Street, Wheeling, WV 26003
Ordinance number	16376
Ordinance date	July 17, 2026
ESMIL project number	#139
ESMIL supply	One (1) Multi-disc screw press MDQ-506 CS One (1) Shaftless screw conveyor KVE 6/4.6 300 One (1) Control panel One (1) Junction box Two (2) Sludge feed pumps Two (2) Polymer feeders One (1) Flowmeter Spare parts
Local sales representative	Baker and Associates, Ltd. – Tony Lococo 19425 County Highway 4, Carey, OH 43316 +1 (330) 961 1087 tony@hlbaker.com https://hlbaker.com/

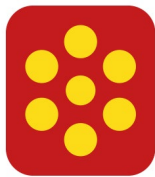


**Procurement of Dewatering Equipment,
City of Wheeling, WV
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Contact information

The following are the contacts for supplying parts and equipment for this system. While ESMIL Group may be contacted for any parts supplied, particularly following the expiration of the warranty period, contacting the manufacturer directly may expedite the supply of parts.

Manufacturer	ESMIL Group
Contact name	Alex Martynenko
Phone	+1 (646) 286 5512
Email	info@esmil.us
Address	3939 Mogadore Industrial Parkway, Mogadore, Ohio 44260
Website	https://esmil.us/



PRODUCT LIMITED WARRANTIES AND REMEDIES CERTIFICATE

ESMIL Group warrants the goods it supplied against defects in materials and workmanship for a period of twelve (12) months from the date of final acceptance of the equipment or eighteen (18) months from the date of equipment delivery. ESMIL Group will either repair or replace, at its option, such component provided that written notice of any such defect or deficiency is given to ESMIL Group within 14 days after its initial discovery, including a description of the part, a description of the defect and date defect was discovered. ESMIL Group reserves the right to inspect said defect at purchaser's installation site or to have said defective part or parts returned to ESMIL Group via commercial freight carrier for inspection.

In the event that the equipment covered by this Warranty was originally purchased by a General Contractor for incorporation into the work, the word "Purchaser" shall mean either the General Contractor or ultimate Owner on whose behalf the equipment was purchased.

ESMIL Group warranty and obligations do not cover defects or deficiencies due to or arising out of normal wear and tear; improper or negligent handling, operation, maintenance, overloading or use; defective or improper premises or equipment installation; chemical, electro-chemical or electrical influences; weather or influences of nature; or alteration or repair performed by the Purchaser or third parties without ESMIL Group prior written consent.

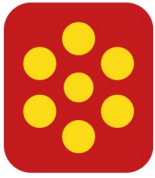
For any repair covered by this warranty, installation expense and any other expense associated with the removal of claimed defective part shall be borne by purchaser and ESMIL Group liability is extended only to furnishing said part or parts.

The Purchaser shall grant ESMIL Group a reasonable time and opportunity after written notice for all repairs required under this warranty. If any particular repair cannot be corrected immediately, ESMIL Group shall not be deemed to be in default for so long as it actively pursues corrective action. ESMIL Group reserves the right to adjust and modify the goods if necessary to meet its warranties.

ESMIL Group is not liable for incidental or consequential damages, such as loss of profit, delays or expenses incurred by failure of said part or parts or for failure of equipment to comply with any federal, state, or local laws. Failure due to abuse, negligence, accident, improper repair, improper maintenance, incorrect adjustments, exposure to a corrosive or abrasive environment, or alteration/modification to the equipment without ESMIL Group written authorization, does not constitute failure due to defects in workmanship or materials.

Any action or suit based on any alleged defect or deficiency in the goods supplied shall be barred if not asserted or commenced within 12 months from the date a claim was first made against this warranty by the Purchaser.

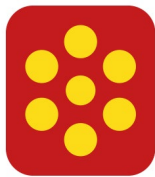
Component parts not manufactured by ESMIL Group (i.e.: motors, gear reducers, etc.) will be repaired or replaced at the option of the manufacturer. Contact the nearest authorized service center for those warranty claims. The warranty as specifically set forth herein shall be purchaser's exclusive warranty and is hereby provided by ESMIL Group in lieu of any and all other warranties, actual or implied.



**Procurement of Dewatering Equipment,
City of Wheeling, WV
SUBMITTAL**

SECTION 2

Technical information



MULTI-DISC SCREW PRESS

DESCRIPTION

1.1.Intended purpose

The screw press is used for dewatering any types of sludge generated during wastewater (municipal, industrial, agricultural, etc.) treatment and water purification processes with a dry solids content of up to 80,000 ppm and a volatile solids content of not less than 60 %.

1.2.Technical characteristics

The screw press is available in different models. The model is selected depending on the desired dewatering capacity, required cake dry solids content, and influent sludge properties.

The screw press is rated for use at ambient temperature of not less than +40° F. It is strongly recommended that the screw press be installed under cover or indoors in an environment where the possibility of freezing conditions and direct solar radiation is minimized.

Special design considerations are needed if the screw press is subject to any of the following conditions. Consult ESMIL Group for design considerations:

- Direct contact with abrasive or aggressive corrosive materials (acids, bases, salts, certain gases, etc.).
- Exposure to extreme high or low temperatures, high relative humidity, condensation moisture or very wet environments.
- Hazardous locations (risk of fire or explosion).

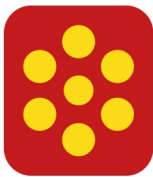
1.3.Main components

All metals in contact with polymer or sludge, and all other components specified to be stainless steel are AISI 304 stainless steel. Option in AISI 316 is also available.

The screw press consists of two main parts – the mixing tank (Fig. 1, pos. 1) and dewatering drum(-s) (Fig. 1, pos. 2). Larger units have separate frame-bases (Fig. 1, pos. 3, 4) for each part, while smaller ones are mounted on a common frame base. Side walls of the filtrate collection tray (Fig. 1, pos. 5) are an integral part of the frame-base of the dewatering drum(-s).

The screw press arrives on site with its mixing tank and dewatering drum(-s) preassembled with the frame-base.

The mixing tank and dewatering drum(-s) are connected with feed tube(-s) (Fig. 1, pos. 6).



MULTI-DISC SCREW PRESS

DESCRIPTION

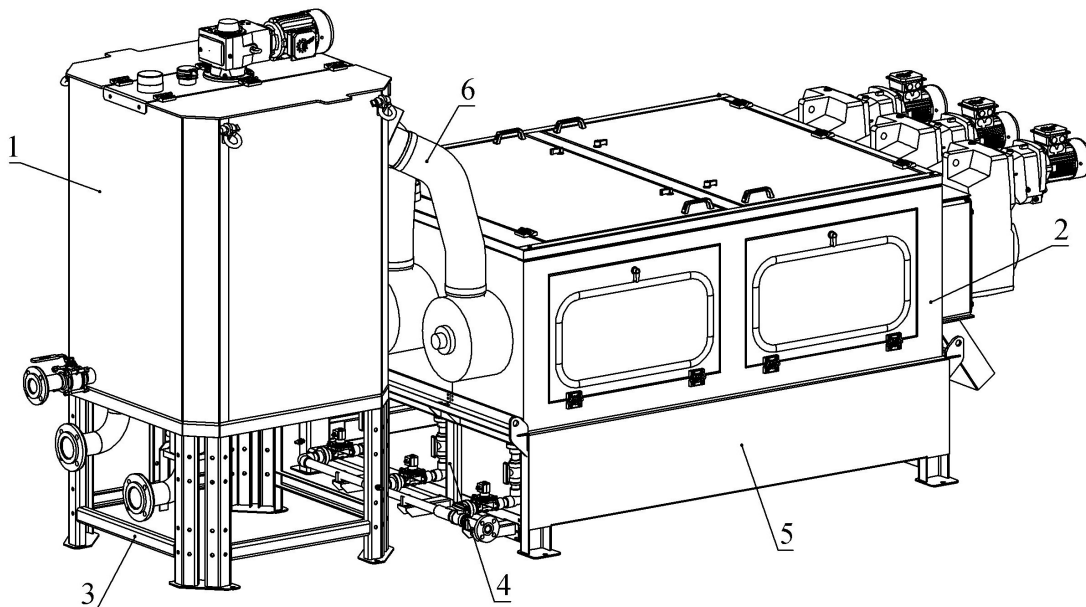


Fig. 1. Main components of the screw press:

1 – Mixing tank; 2 – Dewatering drum(-s); 3 – Frame-base of the mixing tank;
4 – Frame-base of the dewatering drums; 5 – Filtrate collection tray; 6 – Dewatering drum(-s) feed tube(-s).

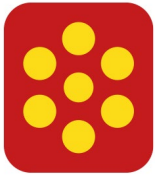
The mixing tank is equipped with sludge inlet (Fig. 2, pos. 1), polymer inlet (Fig. 2, pos. 2) and drainage outlet (Fig. 2, pos. 3). Influent sludge and chemicals are mixed together with an electric agitator (Fig. 2, pos. 4). Furthermore, the mixing tank is equipped with pressure sensor (Fig. 2, pos. 5) and conductometric level sensor (Fig. 2, pos. 6).

Chemically conditioned sludge enters the dewatering drum(-s) through the feed tube(-s) (Fig. 1, pos. 6).

The dewatering drum consists of a variable flight pitch screw (Fig. 3, pos. 3) located within a support frame (Fig. 3, pos. 4) of alternating fixed and moving discs. Fixed discs (Fig. 3, pos. 1) are equipped with spacers that hold the fixed discs apart and provide a gap for moving discs (Fig. 3, pos. 2) between them.

The screw flight pitch as well as the thickness of the spacers and, consequently, the gap between the fixed and moving discs decrease as the sludge is transported further down the drum. Therefore, the drum may be divided into two zones – the thickening zone and the dewatering zone with the different screw flight pitch and the gap between the moving and fixed discs.

At the end of the drum is a spring-loaded dam plate (Fig. 3, pos. 5) through which the cake exits the unit.



MULTI-DISC SCREW PRESS

DESCRIPTION

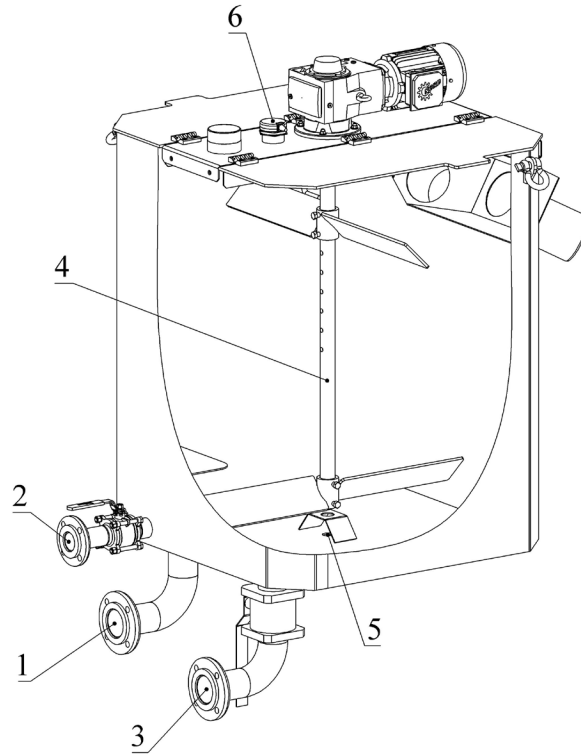
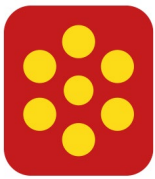


Figure 2. Mixing tank:

1 – Sludge inlet; 2 – Polymer inlet; 3 – Drainage outlet; 4 – Electric agitator;
5 – Pressure sensor; 6 – Level sensor.



MULTI-DISC SCREW PRESS

DESCRIPTION

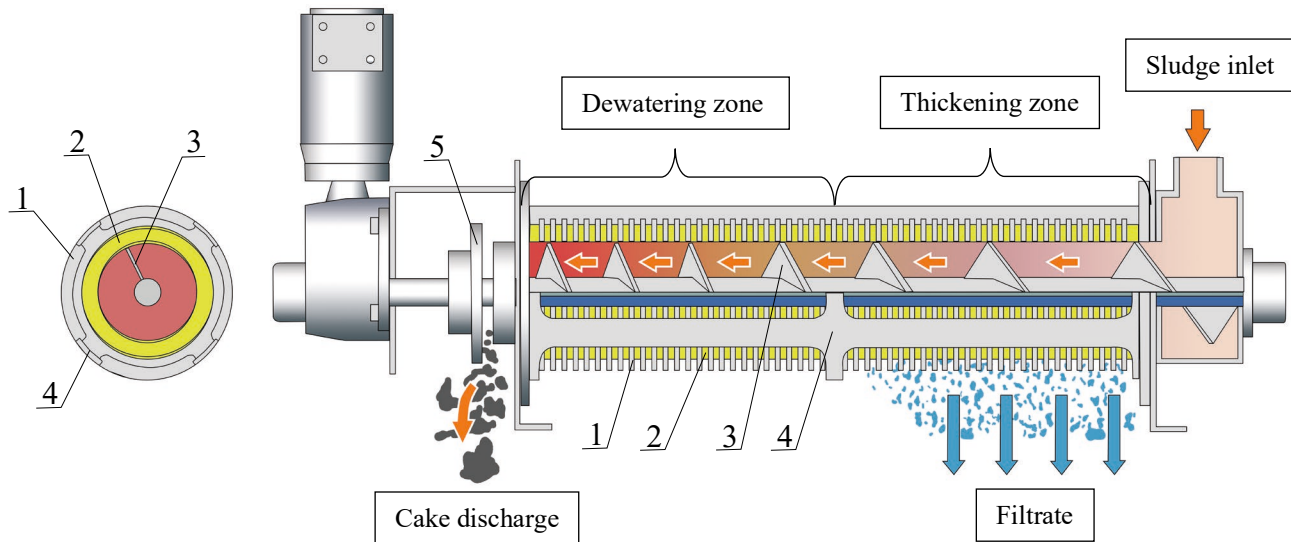


Figure 3. Dewatering drum:
1 – Fixed disc; 2 – Moving disc; 3 – Screw; 4 – Support frame; 5 – Dam plate.

Each dewatering drum is equipped with an individual rinsing water system. The system consists of water supply pipe (Fig. 4, pos. 1) with spray nozzles (Fig. 4, pos. 2), located above the dewatering drum. Each rinsing water system must be equipped with solenoid valve.

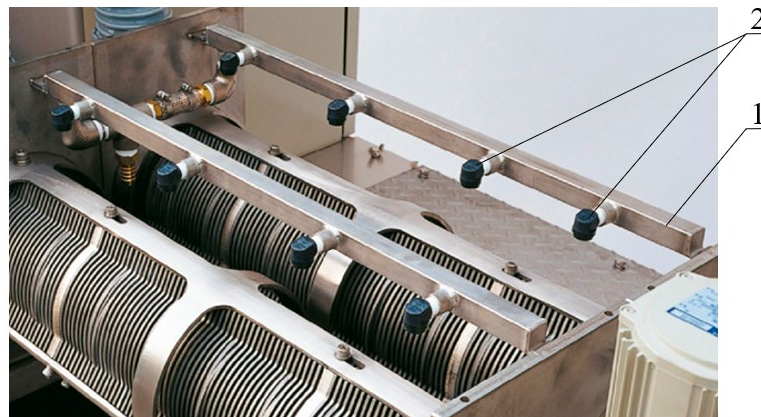
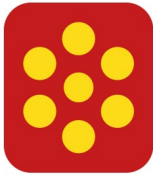


Figure 4. Rinsing water supply system:
1 – Water supply pipe; 2 – Spray nozzles.



MULTI-DISC SCREW PRESS

DESCRIPTION

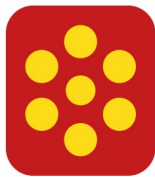
1.4.General operation description

Influent sludge from an external sludge storage tank is fed to the mixing tank by an influent sludge pump where it is mixed with polymer solution and the flocs are formed.

Chemically conditioned sludge flows into the dewatering drum(-s) by gravity. The screw inside the drum rotates, moving the sludge down the drum, while released free water is drained through the gaps between the moving and fixed discs to the filtrate collection tray. The drum has a built-in thickening zone. Here, thickening of the sludge occurs and the majority of free water is released, mainly due to gravity. Filtrate from thickening zone may be reused. In the dewatering zone, the sludge is further dewatered due to the reduction of the screw flight pitch and the gap between the fixed and moving discs.

The dewatering drum is self-cleaning. Internal diameter of the moving discs is smaller than the screw diameter, therefore the internal radial surface of the moving discs is in constant contact with the flight lands of the screw. When the screw rotates, it pushes the moving discs resulting in their constant movement parallel to the fixed discs. This movement facilitates constant cleaning of the gaps between the discs and prevents their clogging.

The final dewatering occurs at the end of the drum where a spring-loaded dam plate creates the pressure on the cake that exits the drum. The dewatered cake is discharged into either a container or a transporting equipment, while the filtrate is discharged in accordance with the process flow diagram of the wastewater treatment plant.



SCREW CONVEYOR

DESCRIPTION

1.1.Intended purpose

Conveyors are built to transport different types of materials generated during wastewater treatment, such as screenings, grit, and dewatered sludge. They do not process the material in any way, except in transporting it from point A to point B (or to multiple discharge points).

1.2.Technical characteristics

Depending on demand, ESMIL Group may offer different types of conveyors:

- Horizontal or inclined.
- Pulling, pushing or reversible.

To get maximum efficiency, every conveyor is custom built, therefore conveyors and their parts can vary in appearance. See the drawings provided for your project for the specific design.

As a standard, the conveyor is rated for use at ambient temperature of not less than +40° F. It is strongly recommended that the conveyor be installed under cover or indoors in an environment where the possibility of freezing conditions is minimized. In case the conveyor is exposed to freezing temperatures, ESMIL Group, on request, may insulate the conveyor trough and equip it with the heating system.

Special design considerations are needed if the conveyor is subject to any of the following conditions. Consult ESMIL Group for design considerations:

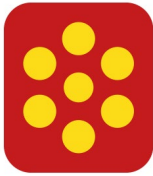
- Direct contact with aggressive corrosive materials (acids, bases, salts, certain gases, etc.)
- Exposure to extreme high or low temperatures, high relative humidity, condensation moisture or very wet environments.
- Hazardous locations (risk of fire or explosion).

1.3.Main components

Conveyor screw is made of St.52.3 painted carbon steel. Stainless steel is possible on request. All other metals parts are made of stainless steel AISI 304. Option in AISI 316 is also available. Replaceable liners are made of UHMW-PE. The liners are formed of two layers, each of a different color, to provide a visible indication when the liner is nearing the end of its service life. Materials of the equipment from sub-suppliers may be found in the equipment sub-suppliers' documentation.

The material is fed to the conveyor via one or more inlet hoppers (Fig. 1, pos. 7). These are equipped with safety guards (Fig. 1, pos. 8) unless closed connection between the inlet hopper of the conveyor and the feeding equipment is provided.

Shaftless screw (Fig. 1, pos. 3) rotates in a conveyor trough (Fig. 1, pos. 2) and moves the material towards one or more discharge spouts (Fig. 1, pos. 9). On request, the latter may be equipped



SCREW CONVEYOR

DESCRIPTION

with manually or automatically operated slide gate valves and ultrasonic level sensors for cake level measurement in the receptacle beneath the spouts.

The trough is closed with safety covers (Fig. 1, pos. 4) and is equipped with a plugged threaded 1 1/2" diameter drainage port (Fig. 1, pos. 11) at its bottom end.

The conveyor can either be pushing or pulling depending on the location of the gearmotor (Fig. 1, pos. 1). In case transportation of the material in both directions is required, reversible conveyors are available.

Because the screw is always in contact with the trough when it rotates, the trough is protected by a replaceable wear-resistant liner.

Conveyors are complete with adjustable supports (Fig. 1, pos. 5) fastened to either support ribs (Fig. 1, pos. 6) or support brackets (Fig. 1, pos. 10). Depending on the conveyor type and installation place, the appearance of the supports may vary. See the drawings provided for your project for the specific design.

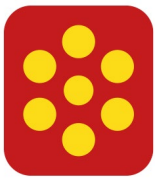
Depending on technological requirements, conveyors can operate in either continuous or intermittent modes.

In case the conveyor is exposed to freezing temperatures, ESMIL Group, on request, may insulate the conveyor with an insulation layer in a stainless steel jacket and equip it with the heating system comprising of the heating cable and a temperature sensor.

Conveyors are typically provided with an emergency stop button or emergency stop mechanism with operator accessible pull-cable. When actuated, it shall immediately stop the conveyor drive system. Besides, it is recommended that actuation of the emergency stop would also stop the equipment feeding the conveyor.

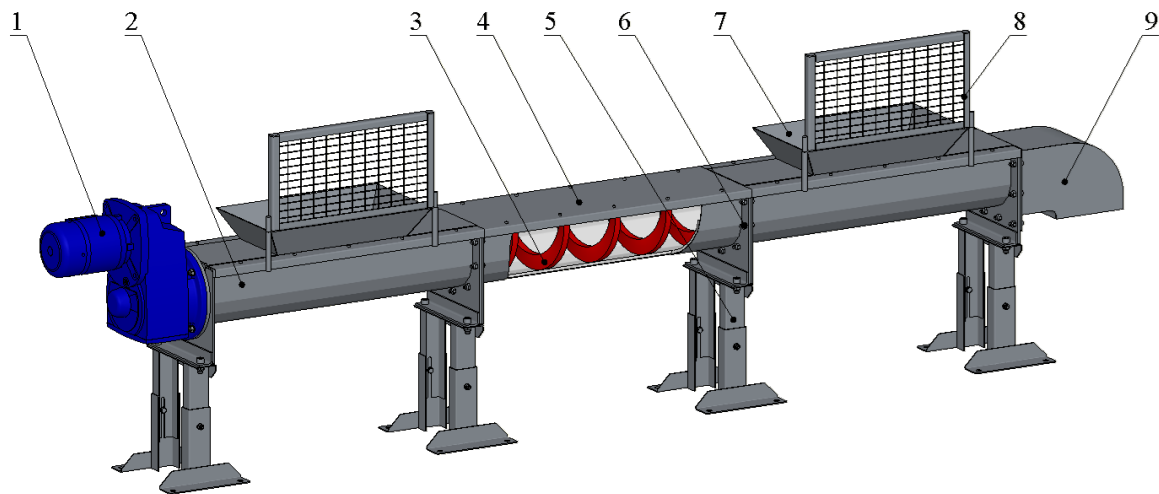
Conveyors may also be provided with a motion sensor. Should a failure of the screw or the gearmotor result in conveyor stoppage, the motion sensor provides an output to disable the gearmotor and provide visual indication to alert operations. Besides, it is recommended that the motion sensor output would also stop the equipment feeding the conveyor.

Conveyors normally arrive on site as one piece of equipment. When overall conveyor length presents shipping or handling constraints, the conveyor will be shipped disassembled into separate sections of transportable length with screw, gearmotor, supports and other parts packed separately. When the conveyor is shipped disassembled, fasteners will be included in a delivery set. Field welding is required in case the screw is delivered in multiple sections.

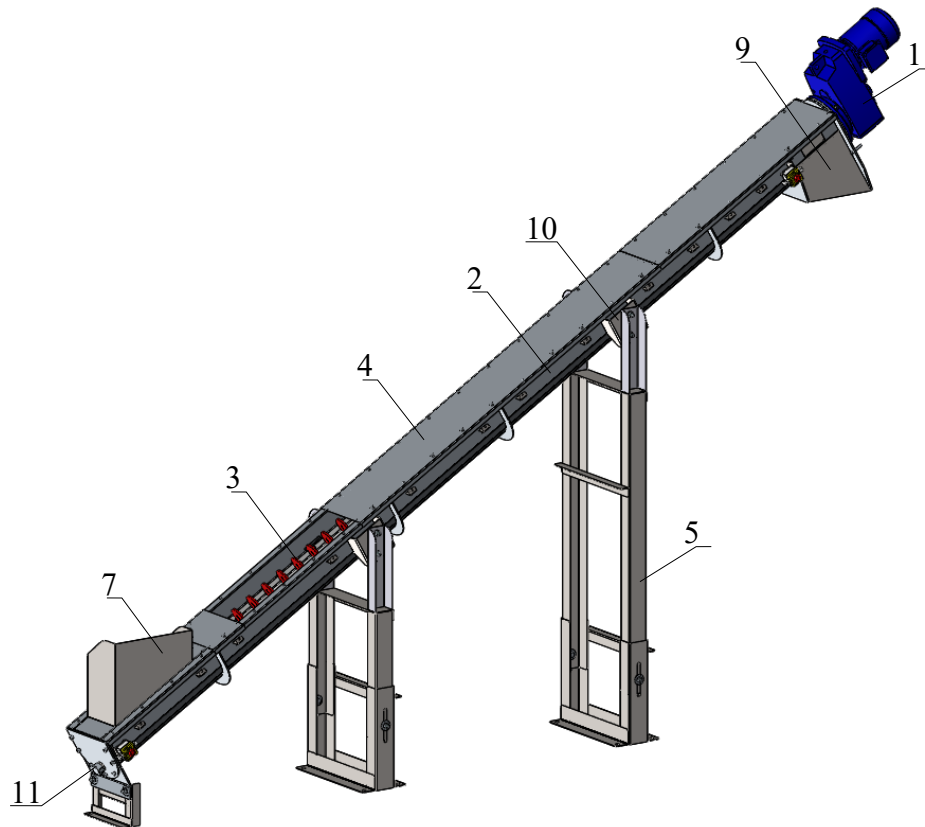


SCREW CONVEYOR

DESCRIPTION



a)



b)

Figure 1. Main components of the Conveyor:

a) Horizontal type; b) Inclined type;

1 – Gearmotor; 2 – Trough; 3 – Screw; 4 – Safety cover;

5 – Support; 6 – Support rib; 7 – Inlet hopper; 8 – Safety guard;

9 – Discharge spout; 10 – Support bracket; 11 – Drainage (not seen in a).



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**EFFECTIVE AND ECONOMICAL
SLUDGE DEWATERING**

Multi-Disc Screw Press MDQ



For municipal and industrial wastewater treatment plants



Minimal service requirements



The highest-capacity unit offers throughput of up to 1300 gpm (9400 lbDS/h)



MDQ Multi-Disc Screw Presses are intended for mechanical dewatering of industrial and municipal wastewater sludge

Wide range of applications

- Activated sludge;
- Primary sludge;
- Aerobically digested sludge;
- Anaerobically digested sludge;
- DAF sludge;
- Biogas plant sludge;
- Water treatment sludge;
- Agriculture sludge.

Productivity range of MDQ



for municipal WWTP sludge:
6...7150 lbDS/h and 2...1300 gpm



for industrial WWTP sludge:
6...9400 lbDS/h and 2...350 gpm

Model series range consists of 18 different models with different diameters and number of dewatering drums.



If you need assistance with model selection, please get in touch with us.

Key features of Multi-Disc Screw Press MDQ

- High operational reliability,
- Intuitive, user-friendly operation,
- High solids capture rate,
- Efficient dewatering performance,
- Low power consumption,
- Effective with complex sludge, including oily and greasy sludge.



Key Advantages of ESMIL Multi-Disc Screw Presses



Reliable and Continuous Operation

The slow-rotating screw (typically 0.5–2 rpm) and self-cleaning disc filtration system ensure stable performance without clogging, allowing uninterrupted operation with minimal operator intervention.



Clean Filtrate

Most filtrate is separated in the gravity thickening zone through the disc gaps, producing a very clean filtrate stream. Optional filtrate separation allows the cleanest fraction to be discharged while returning the remainder to the flocculation tank.



Simple Operation

The presses are fully automated and easy to operate. After brief training, operators can control the process, adjust parameters, and perform routine maintenance without specialized tools.



Flexible Capacity Configuration

Each machine can accommodate up to six dewatering drums, enabling flexible capacity adjustment and simplified maintenance.



Low Energy Consumption

The innovative drum design significantly reduces power demand – typically around 380 kWh/MG, helping lower operating costs and environmental impact.



Compact Installation

Compared with many other dewatering technologies, multi-disc screw presses require significantly less installation space.



Minimal Wash Water Requirement

The continuous movement of the discs prevents clogging of the filtration gaps, minimizing flushing needs. Standard water pressure is sufficient – high-pressure cleaning is not required.



Robust Mechanical Design

Reinforced drum structures and high-precision disc manufacturing provide exceptional durability and reliable long-term operation.



Effective for Difficult Sludge Types

Multi-disc screw presses perform particularly well when treating sludge with high fat and oil content, making them ideal for applications such as DAF sludge and food industry wastewater.



Extended Screw Protection

The screw blade is protected with a FREA-METAL wear strip, increasing abrasion resistance and extending service life to approximately 50,000 operating hours.



Optimized Flocculation Process

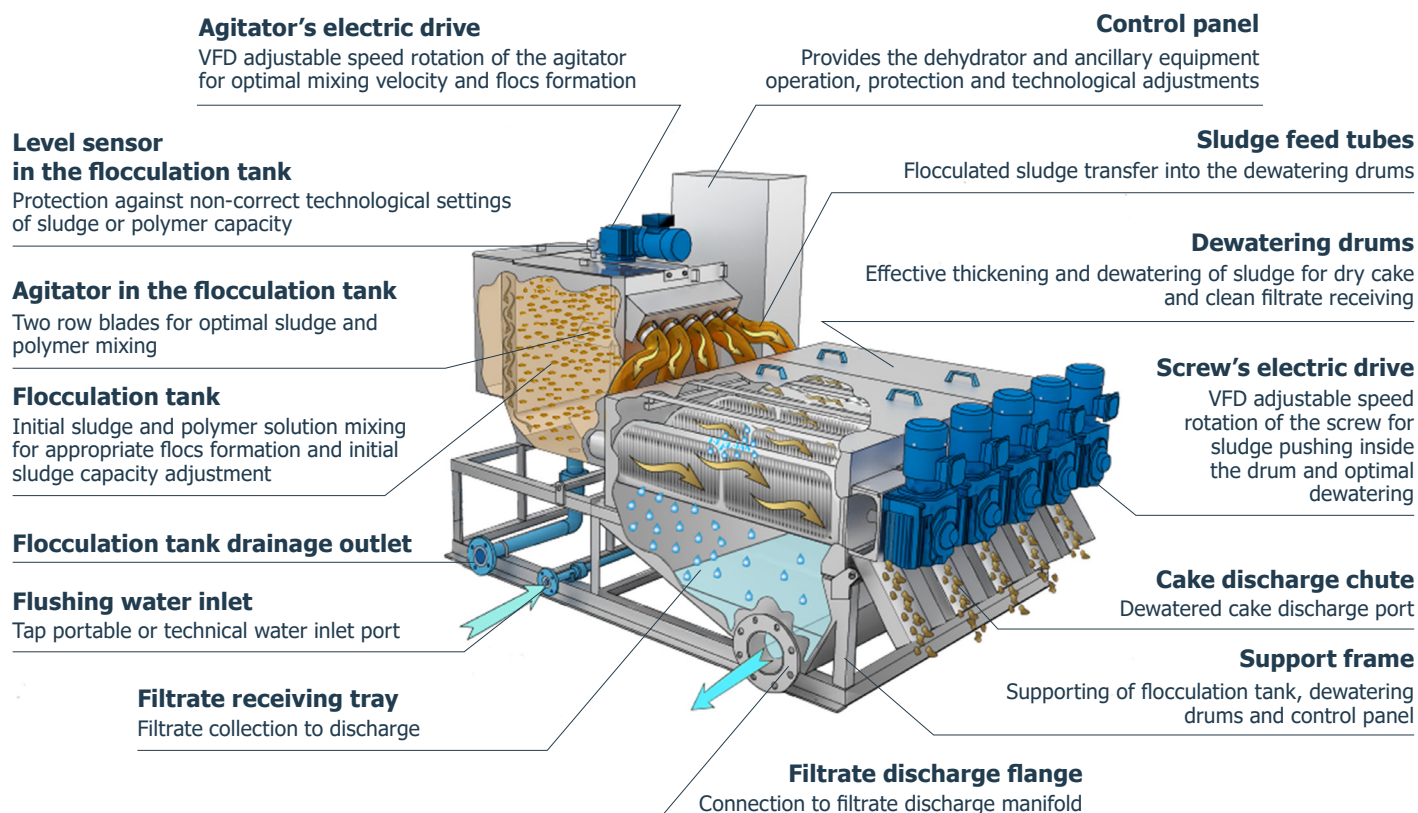
An integrated flocculation chamber ensures proper floc formation and gentle sludge transfer into the dewatering zone, preserving floc structure and improving separation efficiency.



Long Equipment Lifespan

High-precision manufacturing and durable materials ensure long service life and consistent performance even in demanding operating conditions.

Multi-Disc Screw Press MDQ Design



The flocculation process significantly influences the dewatering outcome. Therefore, ESMIL multi-disc screw presses MDQ offer a variety of options for reagent treatment, such as two-stage mixing, dynamic mixer, extended flocculation, and others. An essential aspect is the operator's ability to visually monitor the flocculation process and manage it accordingly.

Productivity of MDQ/MDQ-C Multi-disc Screw Presses

Models	Maximum capacities, up to		Treatment capacity (kgDS/h) and related hydraulic capacity (m ³ /h), up to							
			Excess Biological Sludge / Chemically Precipitated Sludge				Mixed municipal sludge		Raw sludge and industrial DAF* sludge	
			0.2%		1%		3%		5%	
	lbDS/h	gpm	lbDS/h	gpm	lbDS/h	gpm	lbDS/h	gpm	lbDS/h	gpm
MDQ-101	55	9	6,5	6,5	10	2	35	2	40	1,5
MDQ-102	105	20	15	15	20	4,5	65	4,5	80	3,0
MDQ-103	160	25	20	20	35	6,5	100	6,5	120	5,0
MDQ-201	160	20	20	20	35	6,5	100	6,5	120	5,0
MDQ-202	320	45	40	40	65	15	200	15	240	10
MDQ-203	475	65	60	60	100	20	300	20	355	15
MDQ-401	1215	155	155	155	310	60	925	60	1100	45
MDQ-402	2425	310	310	310	615	125	1850	125	2205	90
MDQ-403	3640	460	465	460	925	185	2780	185	3305	130
MDQ-404	4850	615	615	615	1235	245	3705	245	4410	175
MDQ-405	6065	770	770	770	1545	310	4630	310	5510	220
MDQ-406	7275	925	925	925	1850	370	5555	370	6615	265
MDQ-501	1565	220	220	220	440	90	1190	80	1435	57
MDQ-502	3130	440	440	440	880	175	2380	160	2865	115
MDQ-503	4695	660	660	660	1320	265	3570	240	4300	170
MDQ-504	6260	880	880	880	1765	350	4760	315	5730	230
MDQ-505	7825	1100	1100	1100	2205	440	5950	395	7165	285
MDQ-506	9390	1320	1320	1320	2645	530	7145	475	8600	345

* information is based on experience of DAF-sludge dewatering with relatively high O&G concentration (40-60%) from meat processing plants (slaughter, poultry) and milk processing plants, etc.

Bigger Drum. Higher Capacity.

To meet the demand for higher sludge treatment capacity, ESMIL developed the MDQ-500 dewatering drum – the largest drum used in multi-disc screw press technology.

With a 20-inch diameter and 8’ drum length,, the enlarged drum significantly increases throughput while maintaining the reliability and gentle sludge handling typical for multi-disc presses.

MDQ-500 — THE LARGEST MULTI-DISC SCREW PRESS DRUM ON THE MARKET

This design allows treatment plants and industrial facilities to process larger sludge volumes with fewer machines, reducing installation footprint and operational complexity.

Why a Larger Drum Matters

Increasing the drum size directly improves dewatering performance:

- higher treatment capacity per unit
- fewer machines required for large plants
- reduced installation space
- simplified maintenance
- stable operation under high sludge loads

A single MDQ press can be equipped with up to six dewatering drums, enabling very high processing capacity within a compact system.



Designed for Durability

The MDQ-500 drum incorporates reinforced components to ensure reliable long-term operation:



Reinforced discs. Disc thickness in the dewatering zone increased to 3.5 mm, improving wear resistance.



FREA-METAL screw protection. A 1.5 mm ultra-durable FREA-METAL strip is welded onto the screw blade edge, significantly increasing resistance to abrasion. For highly abrasive sludge, protection can be increased to 3 mm.



Single-piece drum frame. A rigid single-piece structural frame provides enhanced strength and resistance to deformation.

MDQ Model				
	MDQ-100	MDQ-200	MDQ-400	MDQ-500
Nominal Diameter of the Dewatering Drum, in	4	8	16	20
Length of the Dewatering Drum, ft-in	2	3'-3"	6'	8'

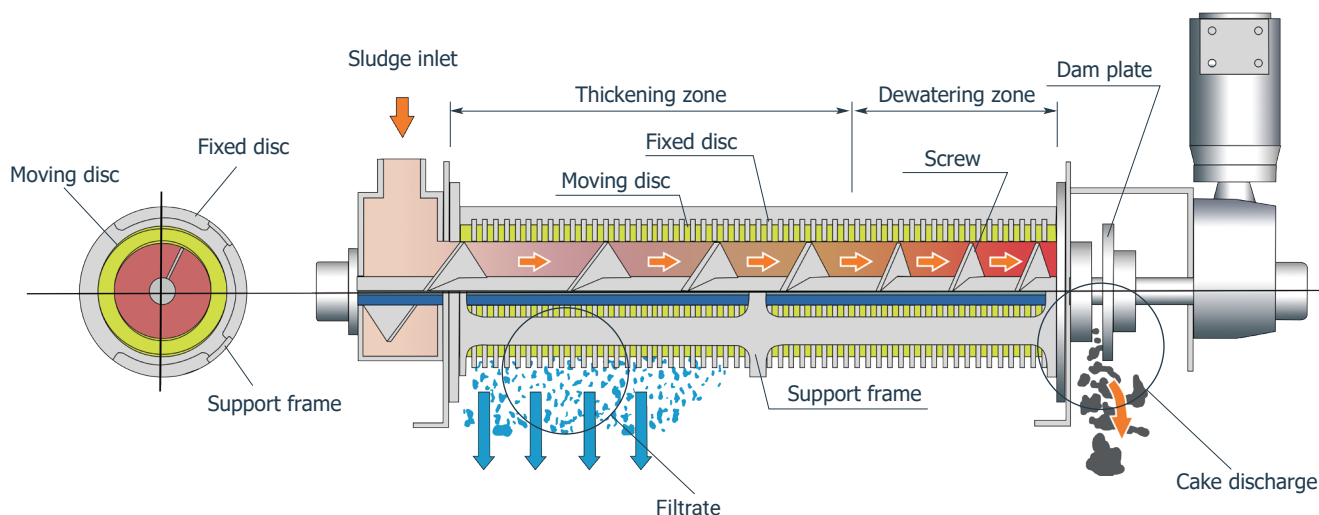
Built for High-Capacity Plants

The MDQ-500 drum is designed for large municipal and industrial facilities where maximum capacity per machine is required.

Combined with multi-drum configuration, MDQ presses deliver high performance while maintaining the advantages of low-speed, energy-efficient screw press technology.

Dewatering drum construction

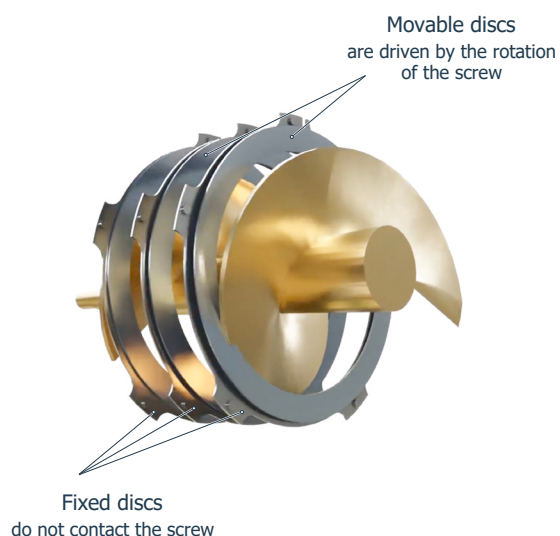
The multi-disc screw press's key element is the dewatering drum with closely spaced discs. The rotating screw conveys sludge to discharge. Sludge undergoes moisture loss within the drum, and filtrate is discharged through disc gaps. Highest pressure is near discharge for compaction. The drum's slow 1-2 RPM screw uses low power (approx. 380 kWh/MG), needs minimal water, provides clean filtrate, and is highly efficient.



Thickening zone
low pressure, disc gaps 0.5 mm

Intermediate zone
low pressure, disc gaps 0.35 mm

Dewatering zone
high pressure, disc gaps 0.15 mm



What Makes ESMIL-Tsurumi MDQ Screw Press Different?

NOT ALL MULTI-DISC SCREW PRESSES ARE THE SAME

Although many manufacturers use similar terminology, the design of the dewatering drum and its key components has a decisive impact on performance, reliability and service life.

ESMIL MDQ presses are engineered with a focus on structural strength, wear resistance and long-term operational stability, ensuring reliable sludge dewatering even in demanding conditions.

What Really Determines Dewatering Performance



Drum Size and Capacity

Many manufacturers emphasize model names rather than actual machine size.

In practice, the diameter and length of the dewatering drum determine the real capacity of a screw press.

ESMIL MDQ presses are designed with large drum dimensions, allowing higher throughput per unit and reducing the number of machines required for large plants.

Engineering That Makes the Difference



Reinforced Drum Frame

Unlike lightweight constructions sometimes used in the industry, the ESMIL drum is built on a rigid structural frame, providing high resistance to deformation and ensuring stable operation over many years.

Enhanced Screw Protection



The screw is one of the most critical components exposed to abrasion

ESMIL presses use FREA-METAL wear protection, welded directly onto the screw blade edge.

This protective layer significantly increases resistance to wear and extends the screw's operational life.



Precision Rings for Reliable Filtration

The filtration rings are manufactured with high precision and controlled flatness, ensuring stable filtration gaps and consistent dewatering performance.

High-quality materials and precise manufacturing eliminate deformation and premature wear.

Robust Automation System



Reliable automation ensures stable operation and protects the equipment from overload

ESMIL presses are equipped with fully integrated automation, allowing operators to control process parameters and maintain optimal dewatering performance.



Designed for Long-Term Operation

Every MDQ press incorporates over 30 years of technological development and operational experience.

The result is equipment designed for:

- long service life
- stable performance in demanding sludge conditions
- minimal maintenance requirements
- reliable operation in municipal and industrial facilities.

Over 1 500 MDQ Multi-Disc Screw Presses have been installed and are operating worldwide



Applications Examples

MUNICIPAL WASTEWATER TREATMENT FACILITY

Location: Butte, MT, USA

MDQ-404 Multi-Disc Screw Press

Operational Data:

- Type of sludge: Waste activated sludge
- Flow rate per dewatering press: up to 150 GPM

The replacement of two outdated belt presses with modern MDQ multi-disc screw presses enabled the plant to achieve:

- reduced polymer consumption
- more consistent and stable dewatering performance
- lower maintenance requirements compared to previously used belt presses
- simplified operation and improved process predictability

DAIRY PLANT

Location: Poland

Containerized Dewatering Unit based on MDQ-503 Multi-Disc Screw Press with Orège SLG® Technology

This project was conducted as a pilot program to evaluate the combined performance of ESMIL and Orège technologies in industrial sludge treatment. Operational data:

- DAF sludge: 3.2–4.2% DS
- DAF + activated sludge mix

Results:

- DAF sludge: 21.3–22.8% DS cake dryness
- DAF + activated sludge mix: 16.5–17.8% DS cake dryness

The results confirm the effectiveness of the ESMIL x Orège solution in delivering stable and measurable dewatering performance, even with varying sludge compositions - supporting improved efficiency, reduced sludge volumes, and more predictable operation in industrial applications.

CHEMICAL PLANT

Location: Charleston, NC, USA

Mobile Sludge Dewatering System based on the MDQ-503 Multi-Disc Screw Press

Faced with rising sludge disposal costs under increasing operational loads, the facility urgently needed a more efficient and cost-effective dewatering solution. A mobile ESMIL unit was quickly deployed on-site, providing immediate support and stabilizing the dewatering process under real operating conditions.

Operational data:

- Type of sludge: mixture of chemical and biologically activated sludge (approx. 8% DS)
- Required capacity: 30 GPM

Implementation results:

- Dry solids content in dewatered sludge exceeded 25% DS, reducing sludge volume and disposal costs
- Throughput of approx. 30 GPM, fully meeting process requirements
- High level of automation reduced operator involvement to basic supervision

The system was deployed under real operating conditions from day one. Performance quickly confirmed the expected results, and after 1.5 years of successful rental operation, the customer decided to proceed with a permanent installation.

Multi-disc Screw Presses are available in different configurations to match various sludge characteristics and project requirements.

The standard MDQ series includes an integrated flocculation chamber with a VFD-controlled agitator, providing a complete dewatering solution.

For specific applications, customized versions are available, including a technological chamber with internal pumps, an additional dosing chamber, two-stage mixing, and other tailored options.

Dimensions and features of MDQ Multi-Disc Screw Presses

Model	Number × Nominal diameter of dewatering drums	Installed power, hp	Total rinsing water consumption*, gph	Preliminary dimensions (L x W x H), in	Weight dry/ in operation, lbs
MDQ-101	1×4	0.32	4.2	70 x 30 x 60	680/1120
MDQ-102	2×4	0.48	8.4	70 x 30 x 60	880/1340
MDQ-103	3×4	0.73	12.6	70 x 40 x 60	1100/1650
MDQ-201	1×8	0.58	8.7	100 x 40 x 65	1100/2200
MDQ-202	2×8	0.91	17.4	100 x 40 x 65	1320/2430
MDQ-203	3×8	1.5	26.1	100 x 50 x 65	1650/2870
MDQ-401	1×16	1.12	23.2	170 x 65 x 85	3730/5580
MDQ-402	2×16	3.0	46.4	175 x 70 x 85	6110/9550
MDQ-403	3×16	5.0	69.6	180 x 70 x 85	8910/15050
MDQ-404	4×16	7.0	92.8	190 x 90 x 90	11620/20350
MDQ-405	5×16	8.0	116.0	195 x 120 x 90	14370/23820
MDQ-406	6×16	10.0	139.2	210 x 140 x 90	16970/28930
MDQ-501	1×20	4.0	29.0	195 x 70 x 90	5180/8200
MDQ-502	2×20	8.0	58.0	210 x 75 x 90	9220/15230
MDQ-503	3×20	12.0	87.0	220 x 80 x 95	13410/22310
MDQ-504	4×20	15.0	116.0	230 x 110 x 95	17710/29420
MDQ-505	5×20	19.0	145.0	235 x 135 x 95	21760/35480
MDQ-506	6×20	23.0	174.0	240 x 160 x 95	25640/41970

* information is based on a typical cyclical rinsing once per 10 minutes for 10 seconds for each rinsing valve (from 1 to 6 valves).



Solving Sludge Challenges with Expert Dewatering Solutions

Roller Press JD

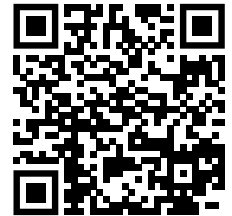


The JD Roller Press is designed for mechanical dewatering of sludge with high mineral content, including sludge containing sand, grit and other abrasive particles. It is suitable for municipal wastewater treatment plants as well as industrial, agricultural and food processing facilities.

The robust design ensures stable operation when treating difficult sludge types where conventional dewatering equipment often experiences clogging or accelerated wear. The JD press provides effective sludge volume reduction of 6-20 times, making problematic sludge easier to handle and dispose of.

Key advantages:

- Reliable dewatering without clogging or jamming
- Efficient operation across various sludge types
- Low wear even with abrasive sludge
- Simple operation and maintenance
- High operational reliability in demanding conditions.



Sludge Thickener MDQ-T



MDQ technology adapted for thickening is a new way to concentrate sludge from municipal and industrial wastewater treatment plants.

ESMIL-Tsurumi MDQ-T multi-disc thickeners are reliable, productive and space-saving equipment while consuming a minimum amount of energy, water and reagents, as well as requiring minimal operator's and maintenance personnel's attention.



MDQ Multi-Disc Screw Press — Flexible Dewatering Solutions

Reliable Dewatering Where You Need It

For projects requiring flexible installation and fast deployment, the MDQ Multi-Disc Screw Press can be supplied in several configurations. The equipment is available on a skid or platform for integration into existing facilities, as well as in fully containerized units based on standard 20- or 40-foot sea containers.

This flexibility allows wastewater treatment plants and industrial facilities to implement efficient sludge dewatering solutions with minimal construction work and reduced installation time.

Designed for Flexible Installation

The modular design of MDQ systems enables easy adaptation to different plant layouts and operational requirements.

Typical applications include:

- installation in new wastewater treatment plants
- modernization of existing sludge treatment lines
- temporary or additional dewatering capacity
- industrial wastewater treatment systems
- remote or decentralized treatment facilities

Containerized Plug-and-Operate Concept

Containerized MDQ systems are delivered as fully assembled and factory-tested units. The equipment includes all key technological components required for sludge dewatering.

On-site installation is simplified and requires only basic utility connections such as:

- power supply
- sludge feed
- polymer dosing
- filtrate and cake discharge

This approach significantly reduces installation time, civil works and commissioning efforts, allowing the system to become operational within a short timeframe.

Operational Reliability

The MDQ screw press technology combines slow-speed operation, self-cleaning filtration discs and robust mechanical design, ensuring reliable performance with minimal maintenance requirements.

Mounted on a rigid skid or integrated inside a container, the system provides:

- stable long-term operation
- easy access for service and maintenance
- compact installation footprint

Scalable and Adaptable Solution

The modular concept of MDQ dewatering systems allows operators to expand capacity by adding additional units or modules when required. This provides wastewater treatment plants with a flexible solution that can adapt to changing sludge volumes and future plant upgrades, while maintaining low operating costs and high process reliability.





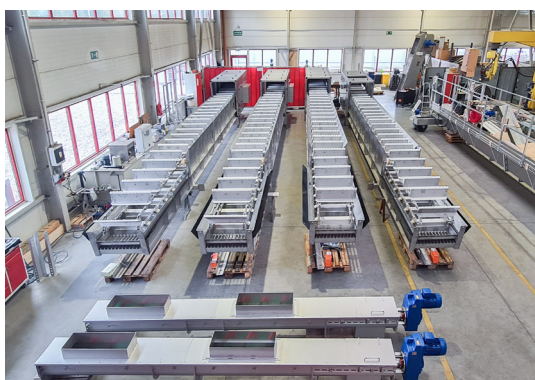
ABOUT ESMIL GROUP

ESMIL Corp is part of ESMIL Group, an international manufacturer of equipment and technologies for municipal and industrial wastewater treatment and sludge management, with a global portfolio of installations.

In 2016, ESMIL established a manufacturing facility in Akron, Ohio, strengthening its presence in the North American market. Today, we manufacture equipment in the USA in compliance with BABA requirements, American Steel provisions, and American Welding Society (AWS) standards.

Our core expertise includes sludge dewatering technologies such as MDQ Multi-Disc Screw Presses, JD Roller Presses, sludge thickeners, and containerized dewatering systems. The MDQ and JD series are manufactured under a licensing partnership with Tsurumi Manufacturing (Japan), combining proven Japanese technology with ESMIL's manufacturing expertise to deliver reliable performance in demanding operating conditions.

Combining manufacturing capabilities with engineering expertise and project experience, ESMIL delivers solutions tailored to the specific requirements of each application. Today, ESMIL equipment operates in municipal and industrial facilities worldwide, supporting efficient wastewater treatment and sludge management processes.



Esmil Corp.

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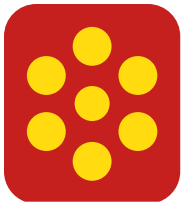
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EQUIPMENT

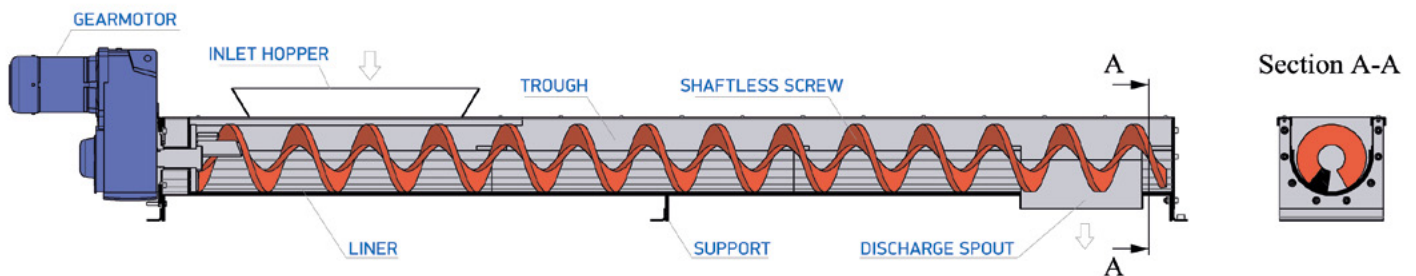
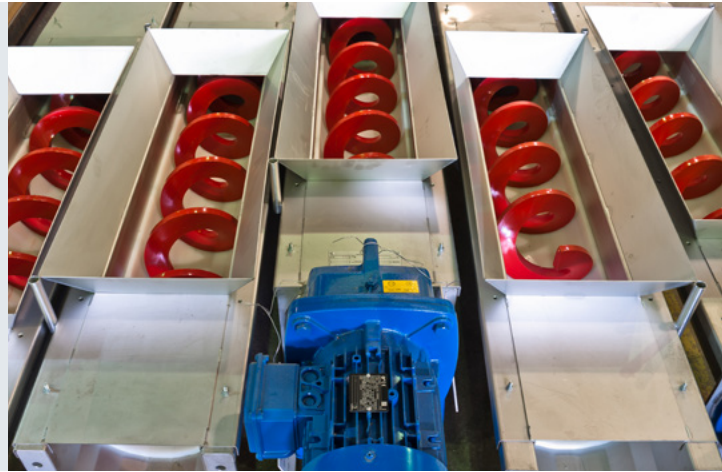
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for wastewater treatment

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USA Corporation Screw Conveyor KVE

To get maximum efficiency every ESMIL Conveyor is custom built by highly skilled specialists.

Screw Conveyors are built to transport different types of materials generated during wastewater treatment, such as screenings, grit, and dewatered sludge.



Depending on demand, different types of Conveyors may be offered:

- » horizontal or inclined;
- » shaftless or shafted;
- » pulling, pushing or reversible.

Depending on technological requirements, Conveyors can operate in either continuous or intermittent modes.



On request, Conveyors can be equipped with:

- » manually/automatically operated slide gates;
- » level sensors;
- » motion sensor;
- » safety stop control with cable break detection;
- » etc.



Parameters:

- » capacity up to 2500 ft³/hr;
- » transportation length up to 100 ft;
- » inclination angle up to 45°;
- » nominal screw diameter 7.5, 9, 11, 12.6, 14.4, 14.5, 18 in.

CONTACT US FOR MORE DETAILS!

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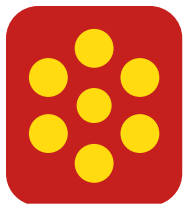
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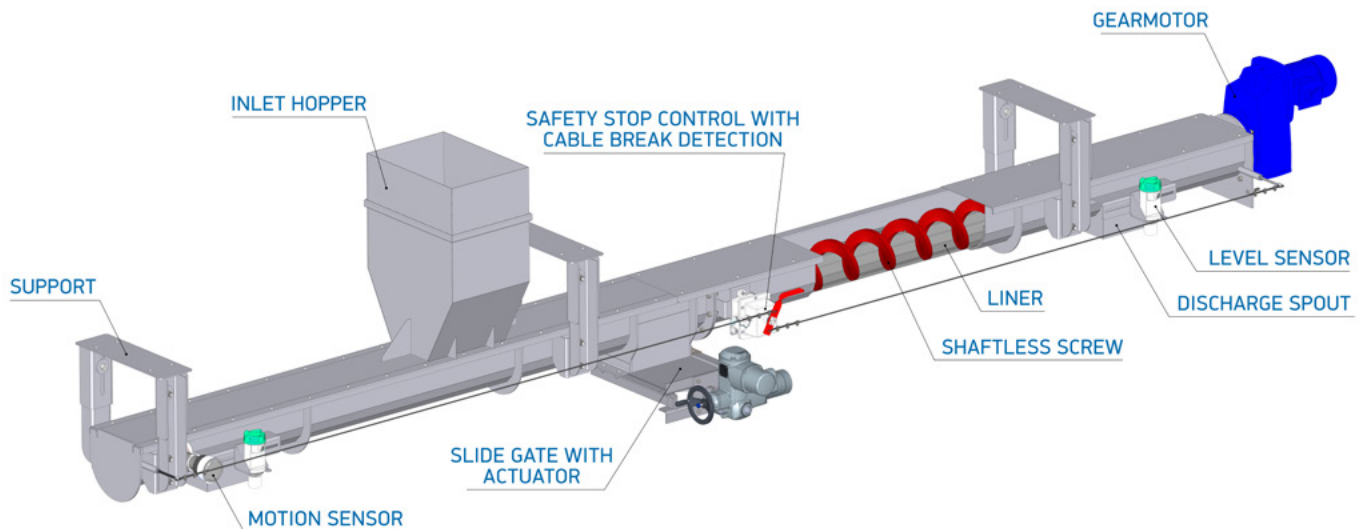


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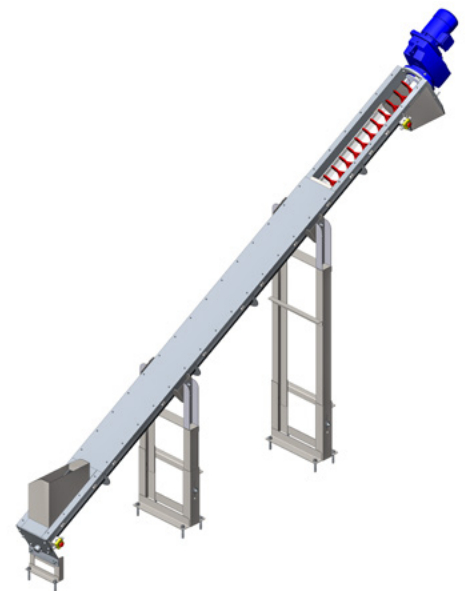
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for wastewater treatment

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Advantages / Features:

- » seamless shaftless screw made by unique technology enables more efficient transportation, prevents clogging and reduces drive load. For heavy load applications special double or screw to spiral are recommended;
- » no bearing construction reduces maintenance work;
- » totally enclosed design provides clean and safe workspace, prevents from spillage and odours;
- » synchronized operation with other equipment reduces energy consumption;
- » compliance with the CEMA standard;
- » conveyor body is made of AISI 304 stainless steel. Option in AISI 316 on demand;
- » spiral is made of St.52.3 painted carbon steel or high strength alloys up to 350 BHN. Stainless steel is possible on request;
- » replaceable liners made of UHMW-PE or ROBALON protect and ensure long life of Conveyor.



One of ESMIL's core values is responsibility. We not only supply the highest quality equipment, but we are also responsible for its performance during entire service life.

CONTACT US FOR MORE DETAILS!

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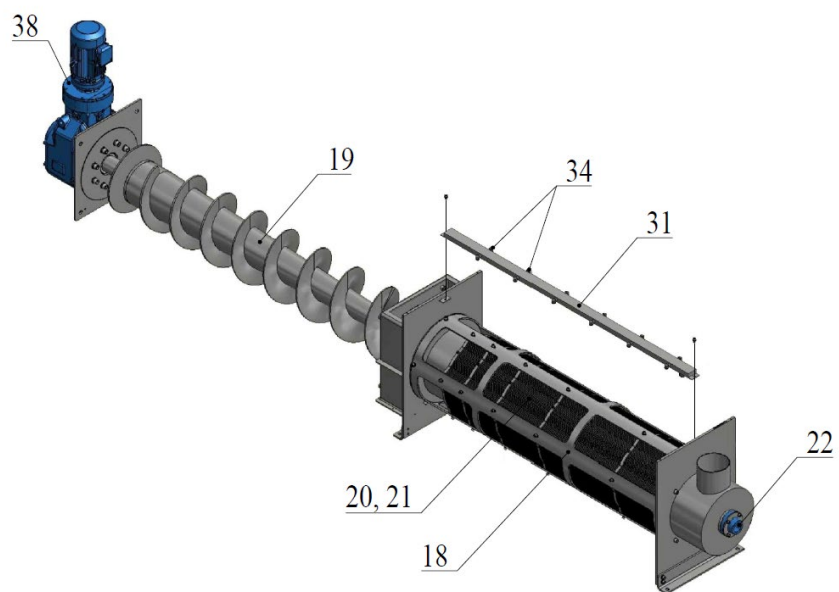
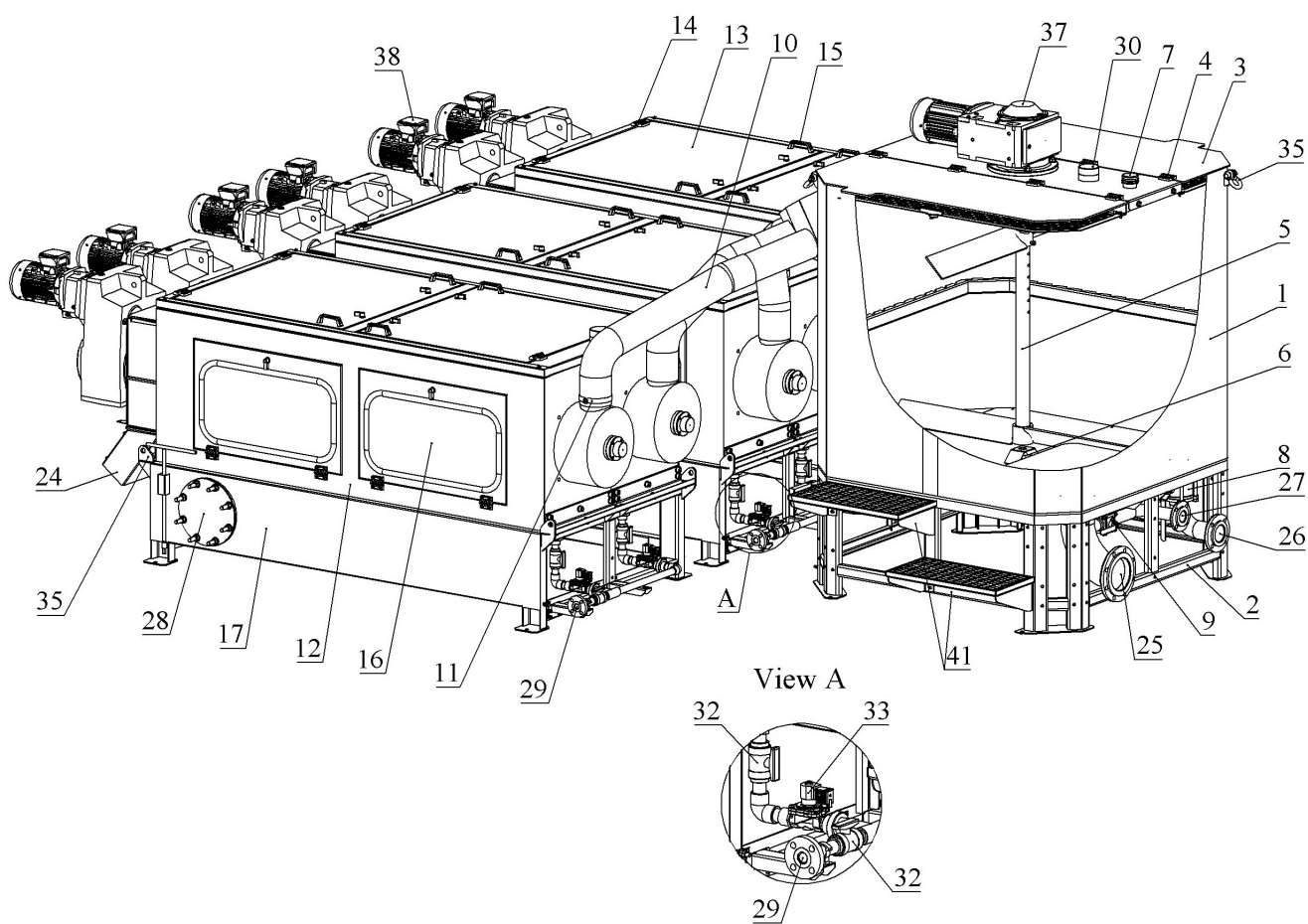
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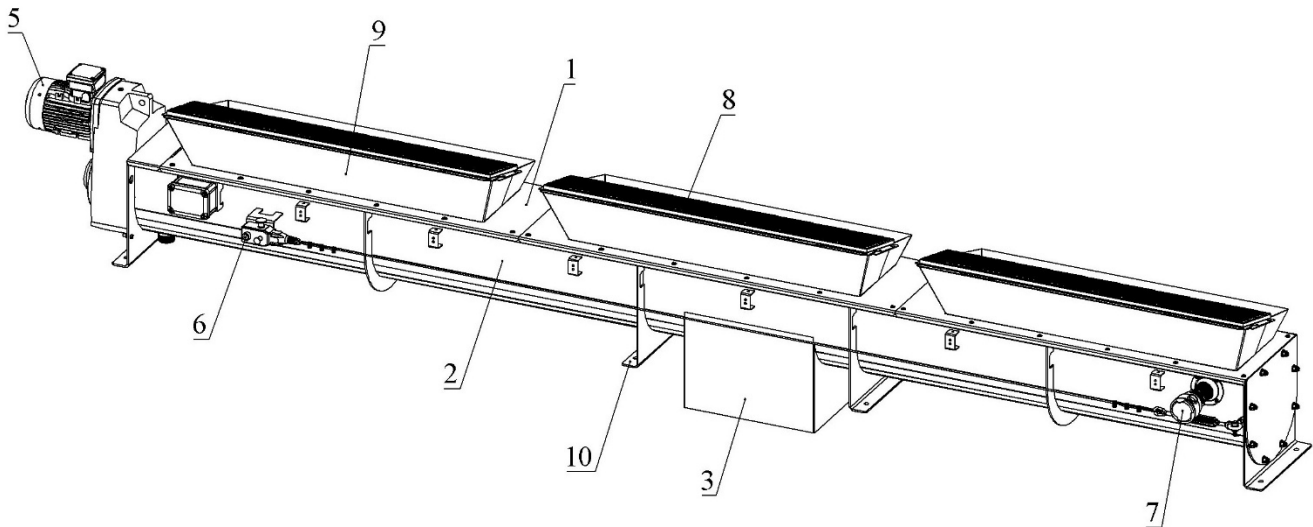
Screw press bill of materials

	ITEM	MATERIAL	NOTES
	MIXING TANK		
1	Enclosure	AISI 304	Manufactured
2	Frame-base	AISI 304	Manufactured
3	Inspection covers	Polycarbonate	Manufactured
4	Hinges of the inspection covers	Polyamide	Purchased
5	Agitator in the mixing tank	AISI 304	Purchased
6	Pressure sensor	St. steel (wetted parts), NBR (sealing)	Purchased
7	Level sensor	Resin (housing), st. steel (electrode)	Purchased
8	Ball valve on the drainage line	AISI 304	Purchased
9	Ball valve on the flocculant line	AISI 304	Purchased
	DEWATERING DRUMS		
10	Feed tube	PU	Purchased
11	Feed tube clamp	AISI 304	Purchased
12	Enclosure	AISI 316	Manufactured
13	Inspection cover	AISI 316	Manufactured
14	Hinges of the inspection covers	Polyamide	Purchased
15	Handles of the inspection covers	Polyamide	Purchased
16	Inspection window	Polycarbonate	Manufactured
17	Frame-base with filtrate collection tray	AISI 304	Manufactured
18	Drum frame	AISI 304	Purchased
19	Screw	AISI 304/FREA metal	Purchased
20	Moving discs	AISI 304	Purchased
21	Fixed discs	AISI 304	Purchased
22	Bearing	HDPE	Purchased
23	Seals (not seen)	EPDM	Purchased
24	Cake discharge chute	AISI 304	Manufactured
	EXTERNAL CONNECTIONS		
25	Sludge inlet	AISI 304	Purchased
26	Drainage outlet	AISI 304	Purchased
27	Polymer inlet	AISI 304	Purchased
28	Filtrate outlet	AISI 304	Purchased
29	Rinsing water inlet	PVC	Purchased
30	Ventilation	AISI 304	Manufactured
	RINSING WATER SYSTEM		
31	Pipeline	PVC / AISI 304	Purchased
32	Ball valve	PVC	Purchased
33	Solenoid valves	AISI 316 (body)	Purchased
34	Nozzles	Plastic	Purchased
35	Lifting eyes	AISI 304	Manufactured
36	Fastening elements (not shown)	18-8 stainless steel	Purchased
37	Agitator gearmotor	Painted cast iron	Purchased
38	Dewatering drum gearmotor	Painted cast iron	Purchased
39	Control panel (not shown)	Steel	Purchased
40	Junction box (not seen)	AISI 304	Purchased
41	Steps	AISI 304	Manufactured



Screw conveyor bill of materials

	ITEM	MATERIAL	NOTES
1	Trough	AISI 304	Manufactured
2	Safety covers	AISI 304	Manufactured
3	Discharge chute	AISI 304	Manufactured
4	Drainage connection (not seen)	AISI 304	Manufactured
5	Gearmotor	Painted cast iron	Purchased
6	Safety stop control	Aluminium (housing)	Purchased
7	Motion sensor	Aluminium (housing)	Purchased
8	Safety mesh	AISI 304	Manufactured
9	Inlet hopper	AISI 304	Manufactured
10	Support	AISI 304	Manufactured
11	Screw (not seen)	S355J2G3 steel	Purchased
12	Fastening elements (not shown)	18-8 stainless steel	Purchased



Data sheet of multi-disc screw press

General information		
Model		MDQ-506 CS
Hydraulic capacity, gpm		up to 140
DS productivity, lb DS/h		up to 2 400
Liquid temperature, °F		41...95
Dimensions, ft-in	Length	18'-7 1/2"
	Width	14'-9 3/4"
	Height	8'-3/16"
	Cake discharge height	1'-1 5/16"
Dry weight, lb	Mixing tank	2 450
	Dewatering drum	23 550
Weight in operation, lb	Mixing tank	12 825
	Dewatering drum	31 565
Material of the main construction		AISI 304
Total installed power, HP		23
Connections		
Sludge inlet		6" ANSI, 150#
Flocculant inlet		2" ANSI, 150#
Rinsing water inlet		1" ANSI, 150#
Drainage outlet		3" ANSI, 150#
Filtrate drain		8" ANSI, 150#
Ventilation, in		4"
Rinsing water		
Nominal consumption, gpm		29
Pressure, psi		30-60
Typical sum consumption, gph		174
Rinsing valves		
Manufacturer		GC valves
Model		NS211YF16C7FG9
Quantity, pcs.		6
Dewatering drums		
Dimensions	Nominal screw diameter, in (mm)	20 (500)
	Length, ft	8
Drum discs thickness, in		0.12
Inclination angle, °		0
Quantity, pcs.		6
Material	Frame, screw, discs, spacers, dam plate	AISI 304
	Drum covers	AISI 316
	Screw flights wear protection	welded FREA metal
	Rinsing nozzles	PA
Dewatering drum dam plate		
Model		spring loaded
Material		AISI 304
Quantity, pcs.		6

Dewatering drum gearmotor		
Manufacturer		NORD
Model		SK 7382/22AFBHV L - 100LP/4 CUS TF
Quantity, pcs.		6
Nominal power, HP		3
Rotation speed, rpm		4.1
Enclosure/ingress protection, IP		TEFC/IP 55
Ratio		435.5
Explosion protection, EX		no
Mixing tank		
Dimensions, in		63(W) x 59(H) x 63(D)
Volume, gal		990
Working volume, gal		680
Material		AISI 304
Agitator gearmotor		
Manufacturer		NORD
Model		SK 9042.1AFBH - 112MP/4 CUS TF
Quantity, pcs.		1
Nominal power, HP		5
Rotation speed, rpm		15
Enclosure/ingress protection, IP		TEFC/IP 55
Ratio		117.79
Explosion protection, EX		no
Pressure sensor		
Manufacturer		WIKA
Model		S-11
Quantity, pcs.		1
Conductometric level sensor		
Manufacturer		OMRON
Model		PS-3S
Quantity, pcs.		1
Control system		
Junction box		included
Control panel		included
Electrical specifications		
Supply	Voltage, V	460
	Phase	3
	Frequency, Hz	60
Nema rating		4X
Explosion protection, EX		no

* Presented parameters are preliminary and may be inconsiderably changed by the manufacturer.

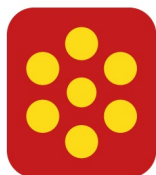
Exact technical characteristics are determined in the contract of the equipment supply.

Data sheet of screw conveyor

General information	
Model	KVE 6/4.6 300
Inclination angle, °	horizontal
Type	center-discharge screw conveyor with opposed flights
Transportation length, ft-in	15'-5/8"
Approx. weight, lb	1 410
Material of the main construction	AISI 304
Screw	
Type	shaftless
Diameter, in	12
Pitch, in	12
Spiral thickness (external/internal), in	1/0.8
Material	S355J2G3 steel
Liners	
Thickness, in	0.4
Material	UHMW polyethylene
Inlet hoppers	
Number of inlet hoppers	3
Discharge chutes	
Number of discharge points	1
Gearmotor	
Manufacturer	NORD
Model	SK5282AZBH VL-100LP/4 CUS TW
Quantity, pcs.	1
Nominal power, HP	3
Rotation speed, rpm	13
Enclosure/ingress protection, IP	TEFC/IP 55
Ratio	134.03
Explosion protection, EX	no
Rope pull emergency stop switch	
Manufacturer	Omron
Model	ER6022
Quantity, pcs.	1
Motion sensor	
Manufacturer	Siemens
Model	Sitrans WM100
Quantity, pcs.	1

* The maximum size of wastes entering the conveyor should not exceed 150 mm [6"].

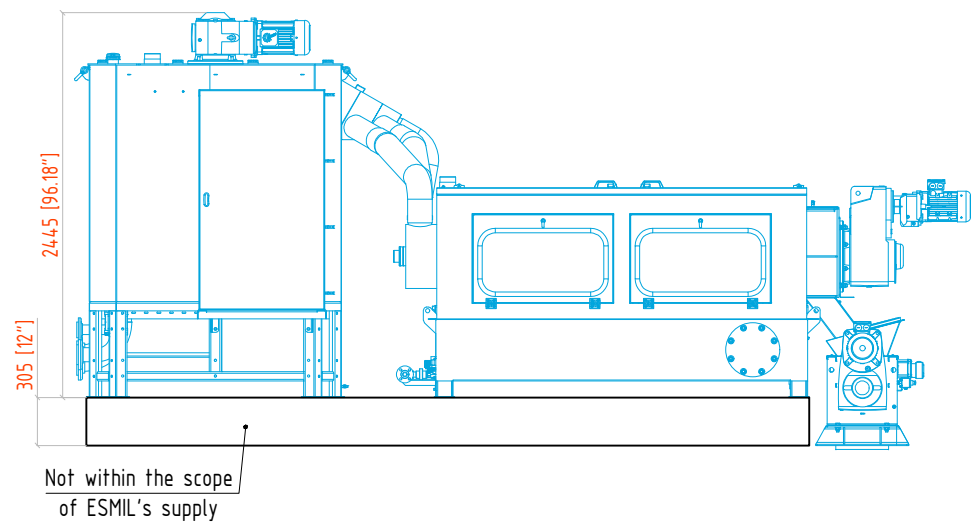
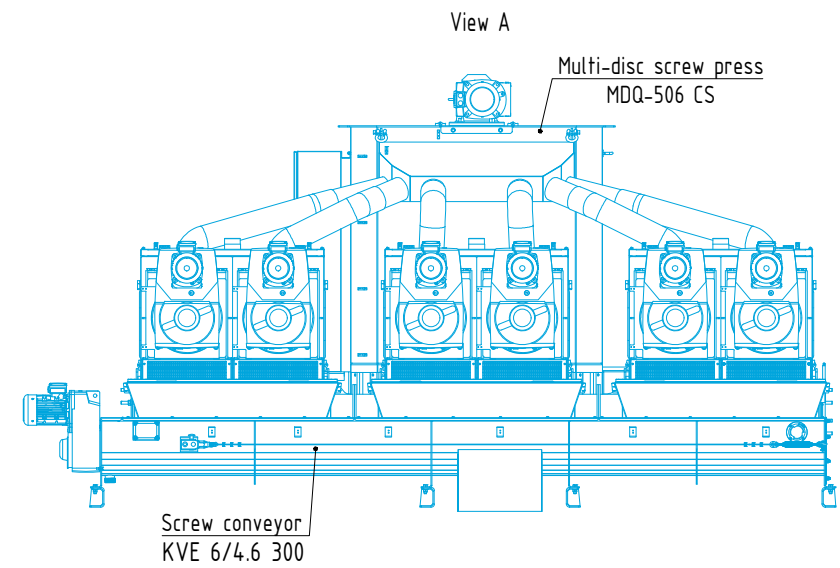
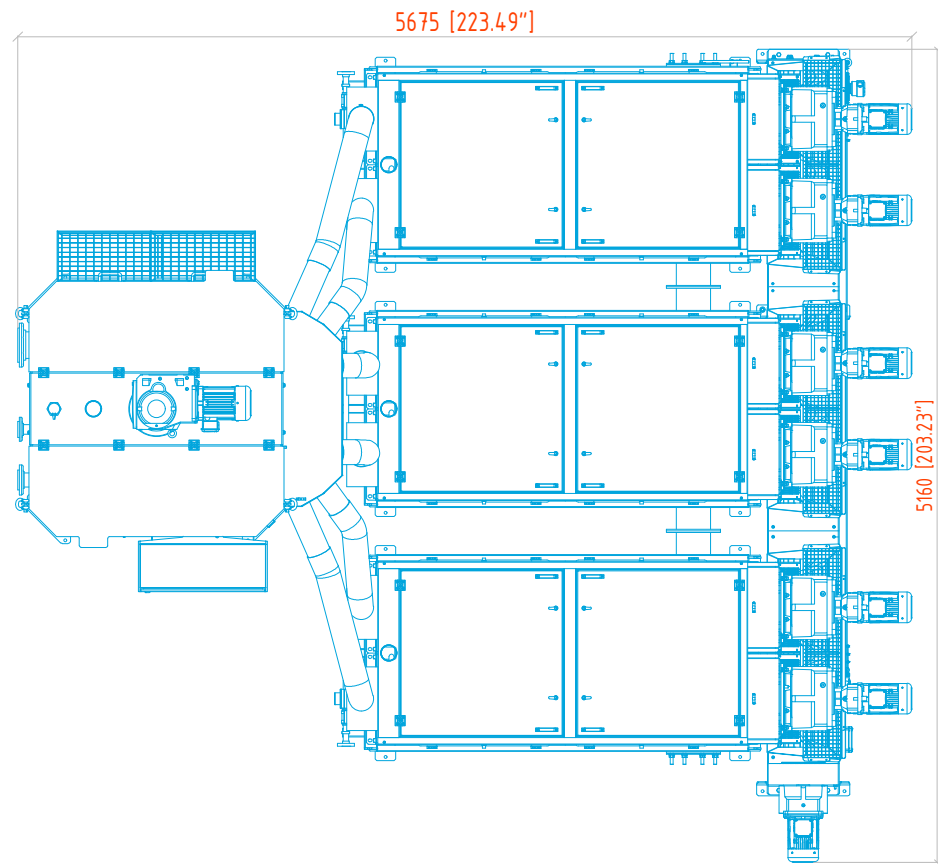
** Presented parameters are preliminary and may be inconsiderably changed by the manufacturer.
Exact technical characteristics are determined in the contract of the equipment supply.



MULTI-DISC SCREW PRESS

SPARE PARTS

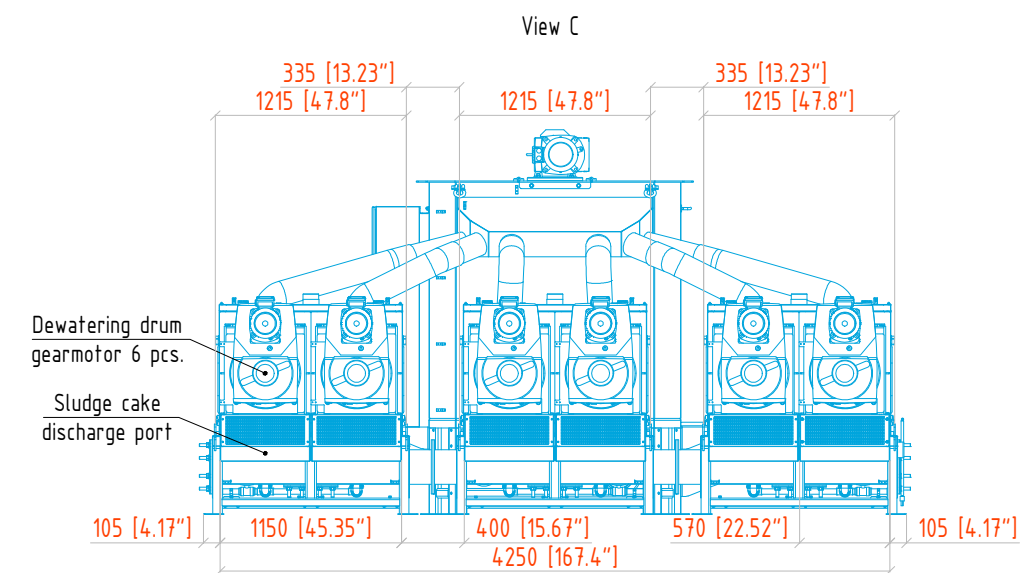
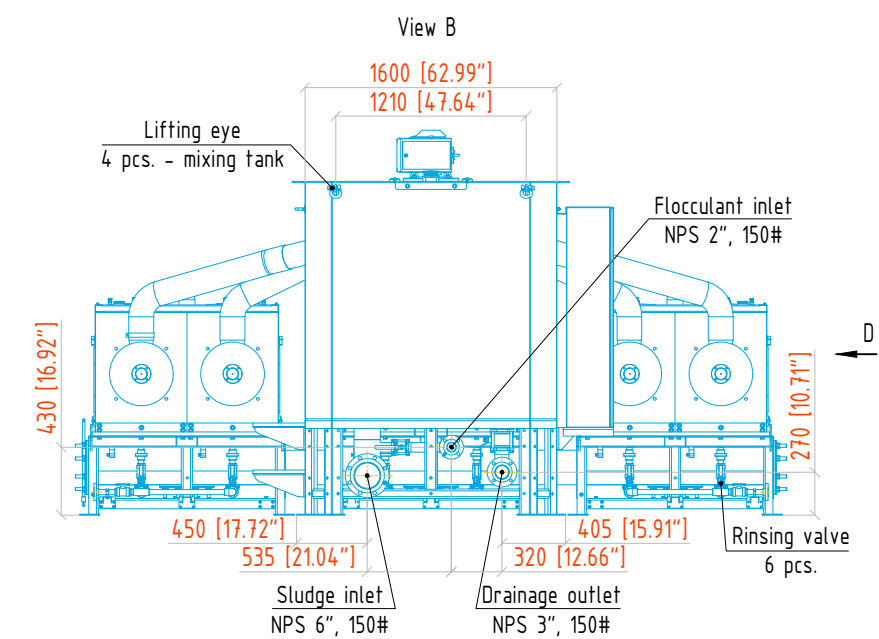
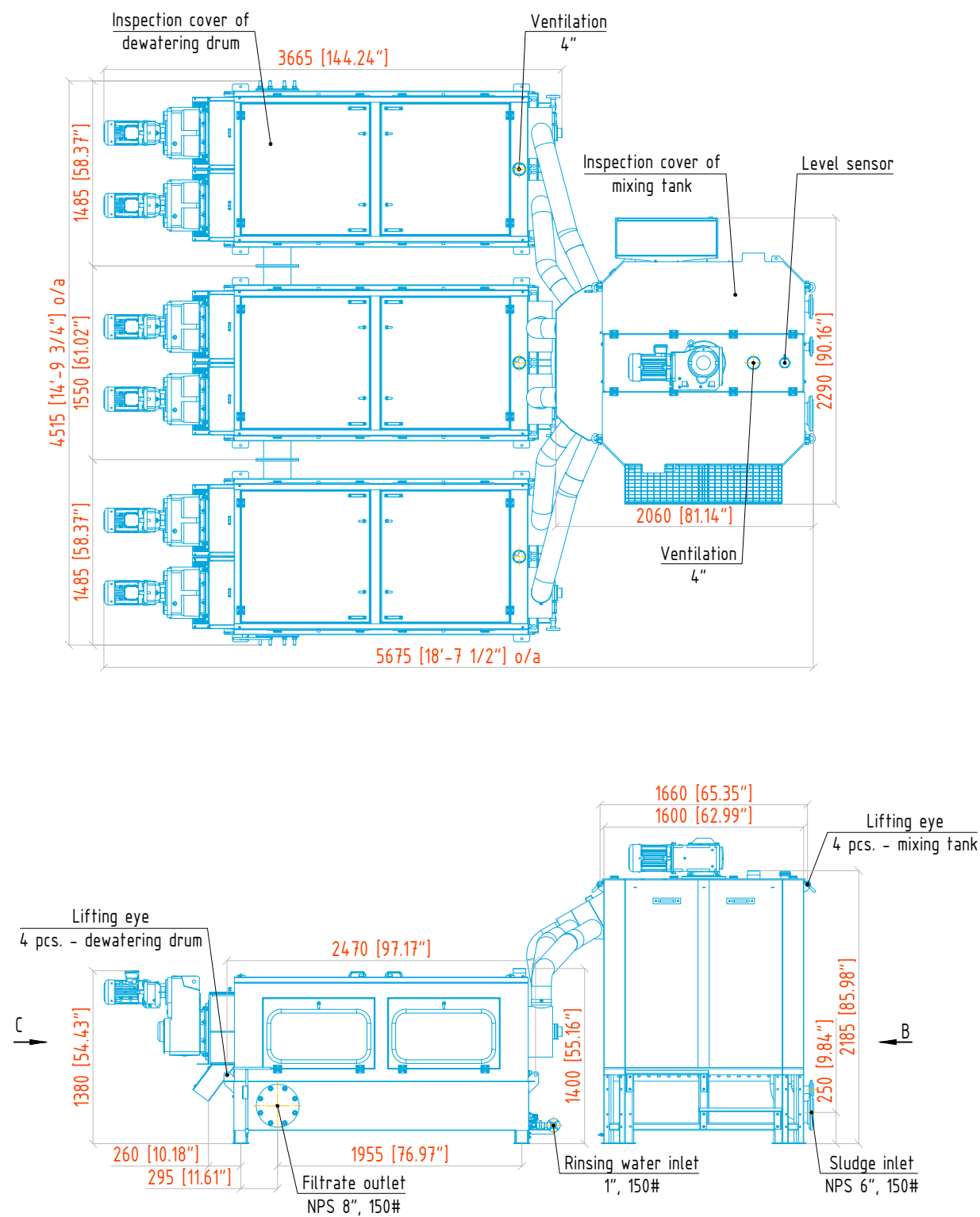
ITEM	QTY.
SCREW PRESS	
Solenoid valve	1 pc.
CONTROL PANEL	
PLC with cards – CompactLogix 5380 (preprogrammed)	1 set
Weintek HMI CMT2158X (preprogrammed)	
Allen Bradley Drive Power Flex P525 – 3 Hp	
Allen Bradley Drive Power Flex P525 – 4 Hp	
Stratix 2000 16 Port Unmanaged Switch	
Allen Bradley 24VDC Power Supply 1606-XLB240E	
SCREW CONVEYOR	
Gearmotor	1 pc.
Liners	2 sets
Rope pull emergency stop switch	1 pc.
POLYMER FEEDER	
Stator for polymer pump	1 pc.
Rotor for polymer pump	1 pc.
Shaft seal for polymer pump	1 pc.
Progressive cavity pump with motor (no VFD required)	1 pc.



Dimensions: mm [inch].

 E-mail: info@esmil.us https://esmil.us/		PROJECT Wheeling, WWTP			
DRAWN Bilous A.	DATE 07.29.2026	TITLE Multi-disc screw press & screw conveyor			
CHECKED Martynenko A.	DATE 07.29.2026				
General tolerances ASME Y14.5M-2009	Flanges ASME B 16.5	SIZE B	CAGE CODE	DWG NO	REV 0
ALL RIGHTS RESERVED.		SCALE 1/4"=1'-0"		SHEET 1 of 4	

MULTI-DISC SCREW PRESS MDQ-506 CS



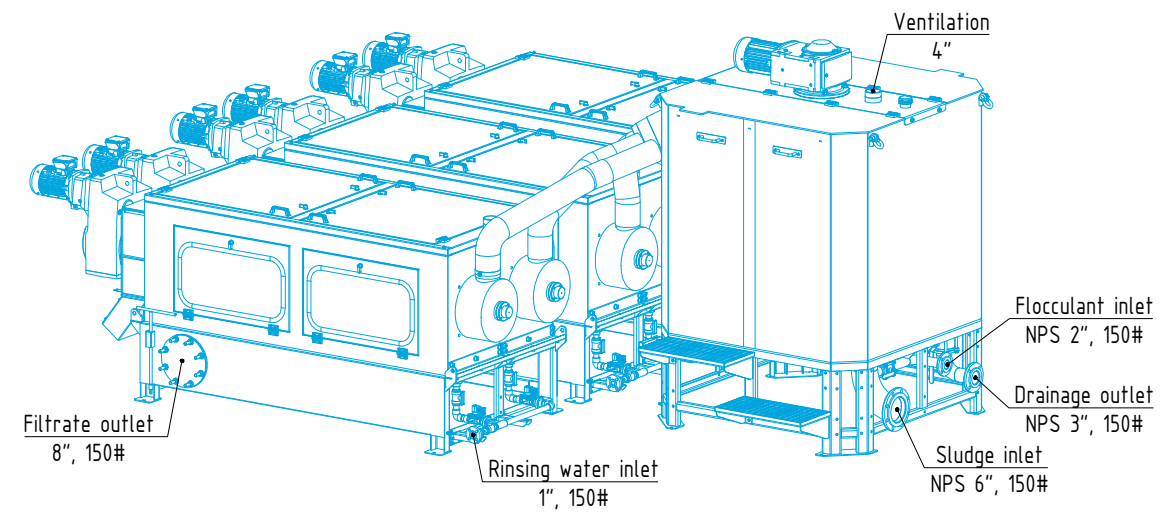
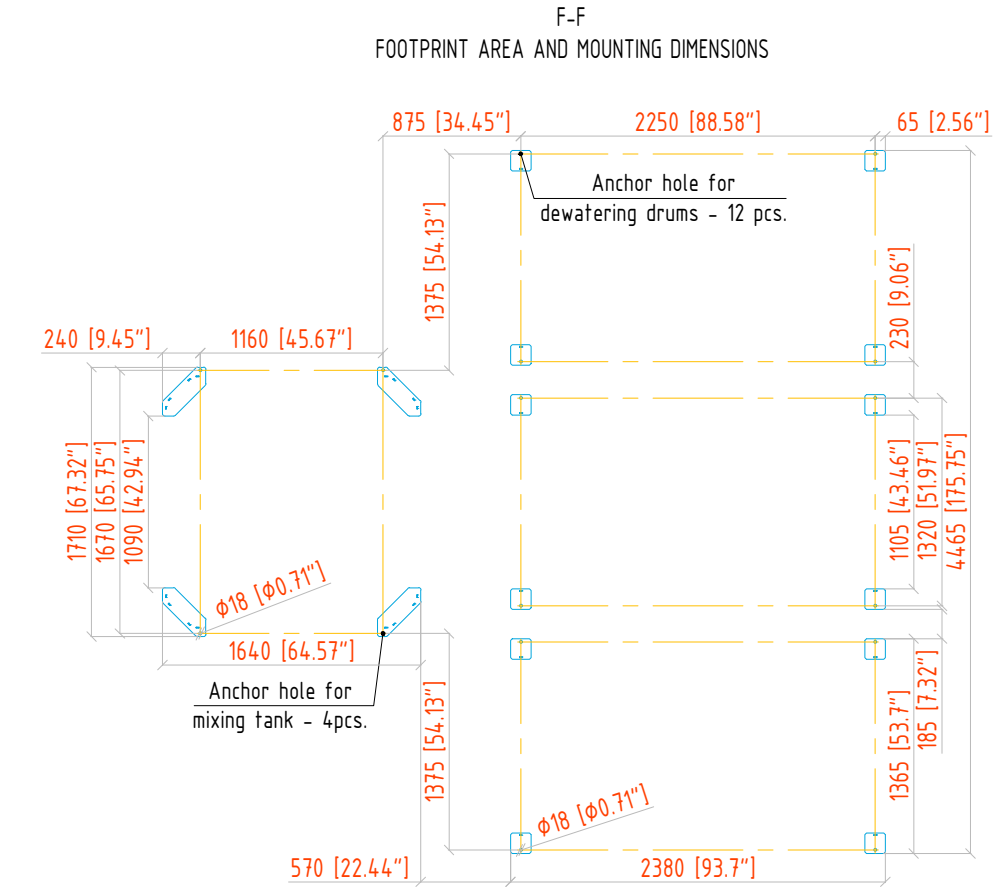
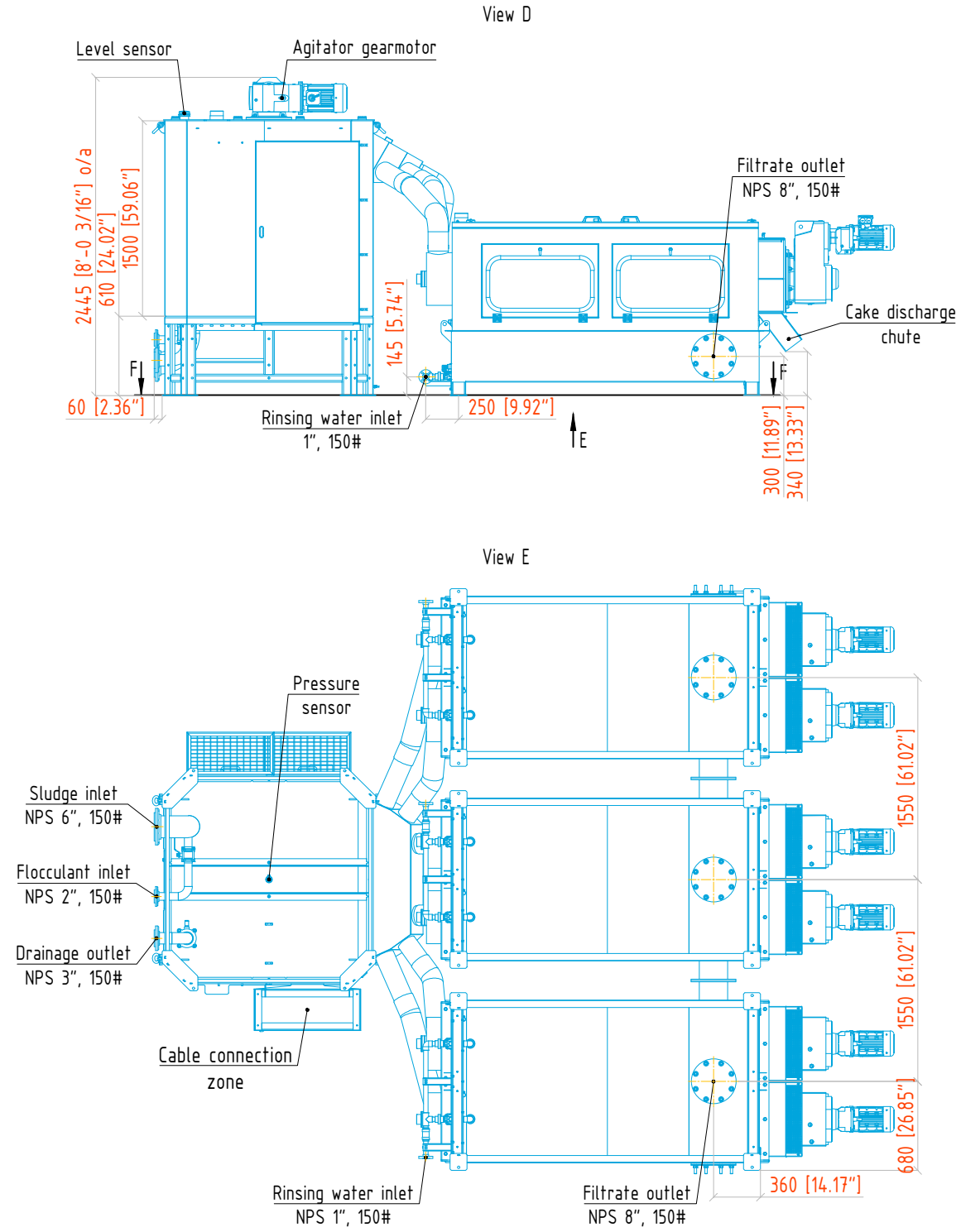
Dimensions: mm [inch].
Dry weight - 26,000 lb; weight in operation - 44,390 lb.



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<https://esmil.us/>

SIZE	CAGE CODE	DWG NO	REV
B			0
SCALE 1/4"=1'-0"		SHEET 2 of 4	

MULTI-DISC SCREW PRESS MDQ-506 CS



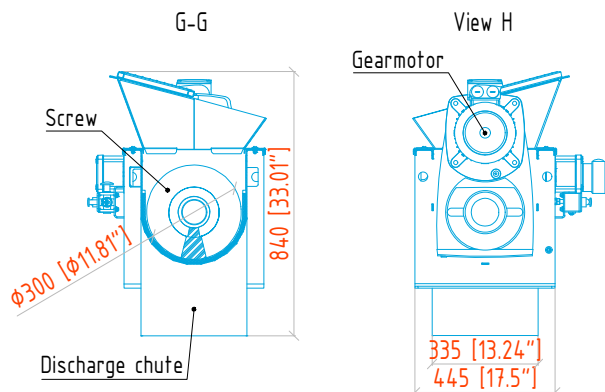
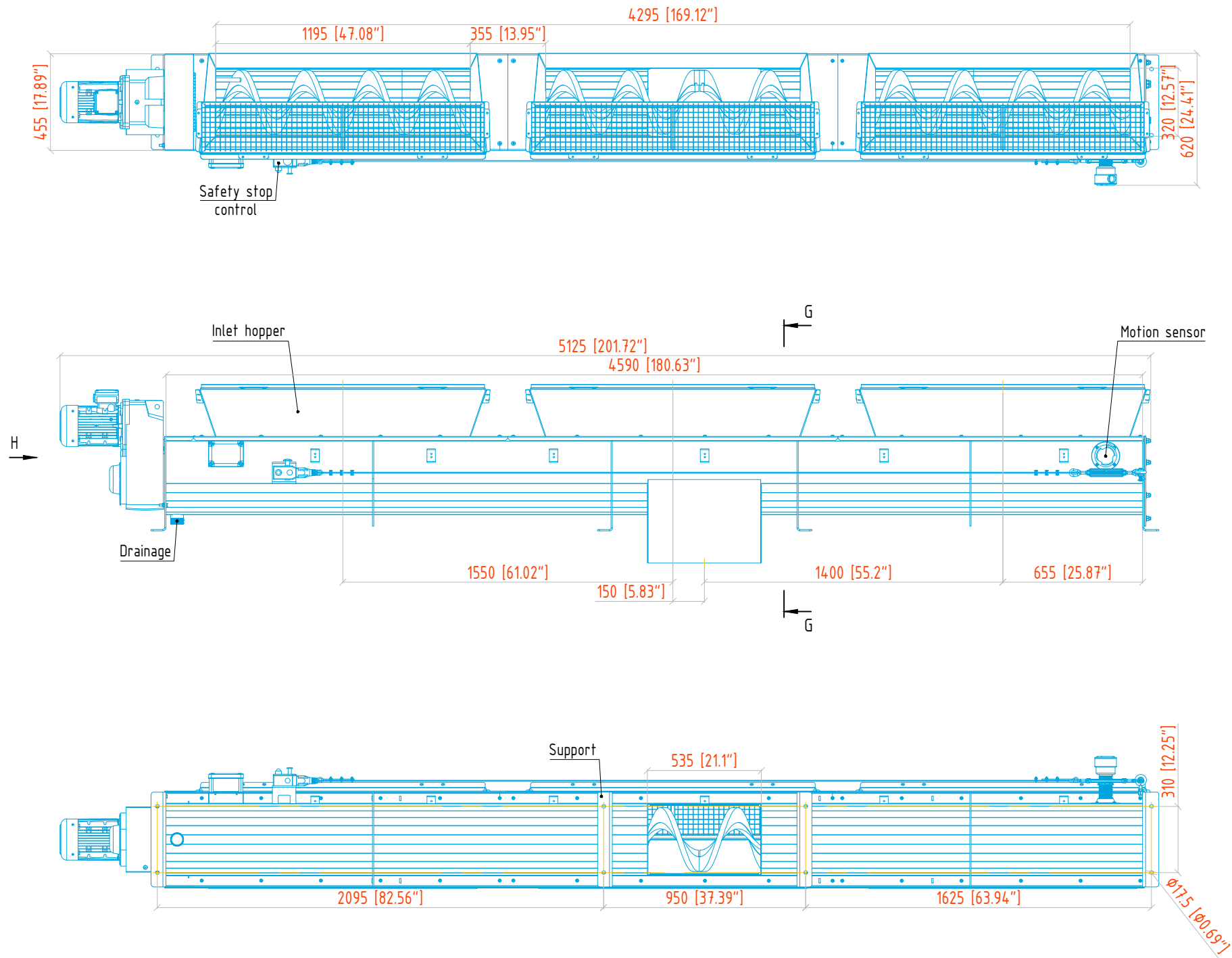
Dimensions: mm [inch].
Dry weight - 26,000 lb; weight in operation - 44,390 lb.



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<https://esmil.us/>

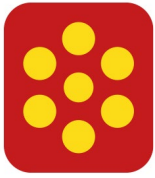
SIZE	CAGE CODE	DWG NO	REV
B			0
SCALE 1/4"=1'-0"		SHEET 3 of 4	

SCREW CONVEYOR KVE 6/4.6 300



Dimensions: mm [inch].
Weight - 1,410 lb.

 E-mail: info@esmil.us https://esmil.us/			
SIZE B	CAGE CODE	DWG NO	REV 0
SCALE 1/2"=1'-0"		SHEET 4 of 4	



**Procurement of Dewatering Equipment,
City of Wheeling, WV
SUBMITTAL**

SECTION 3

Data sheets for major components

NS211YF16C7FG9 Cut Sheet



GC Valves potable water solenoid valve, 2-port (2-way), 2-position, N.C., 316 stainless steel body, 1in female NPT inlet(s), 1in female NPT outlet(s), Cv=13, 24 VDC operating voltage, 10W, NSF/ANSI/CAN 61.

For complete product information, please see this item on our store at the following link:



<https://www.automationdirect.com/pn/NS211YF16C7FG9>

Technical Specifications

Brand	GC Valves
Item	Valve
Working Fluid	Potable water
Valve Type	Solenoid process
Port Quantity	2-port (2-way)
Number Of Positions	2
Valve Configuration	N.C.
Action	Single solenoid spring return
Body Material	316 stainless steel
Inlet Port	1in female NPT
Outlet Port	1in female NPT

Flow Coefficient	13
Minimum Operating Pressure	5 psi
Maximum Operating Pressure	150 psi
Operating Voltage	24 VDC
Power Rating	10W
Electrical Connection	18mm DIN style wiring plug
Potable Water Certifications	NSF/ANSI/CAN 61

Agency Approvals

UL Listed File #	None
UL Recognized File #	MH17997
UL Hazardous File #	None
CE	View CE declarations
CSA File #	069111_0_000
RoHS Status	Yes (See CE Doc)
EU REACH	View EU REACH document
Other	NSF Listing

Dimensional Drawings



2D Drawing PDF Link:
<https://cdn.automationdirect.com/static/drawings/NS211YF16C7FG9.pdf>
See store item page for other formats.

Flush pressure transmitter For viscous and solids-containing media Model S-11

WIKA data sheet PE 81.02



Applications

- Machine building
- Hydraulic aggregates
- General industrial applications
- Food and beverage industry

Special features

- High-quality product
- Many configurations possible
- Flush process connection
- Large stocks for short delivery times
- Vacuum-tight



Fig. left: Pressure transmitter model S-11
Fig. right: Pressure transmitter model S-11 with cooling element

Description

Specialist for viscous and solids-containing media

The model S-11 pressure transmitter with flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallising, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

Through its optimised design, the flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

High accuracy, a robust design, high-quality workmanship and the high flexibility of configuration are key features of the model S-11.

Flush process connection

All process connections of the flush pressure transmitter are made of stainless steel, all welded and isolate the process medium from the pressure measuring instrument via a positive seal. A reliable, dead-space free sealing between the process connection and the measuring medium is thus assured.

For high medium temperatures of up to 302 °F (150 °C), the pressure transmitter is also available with an integrated cooling element.

Specifically for the food and beverage industry, a version with internal system fill fluid in accordance with FDA 21 CFR 178.3750 can be chosen.

Measuring ranges

Gauge pressure								
bar	Measuring range	0 ... 0.1	0 ... 0.16	0 ... 0.25	0 ... 0.4	0 ... 0.6	0 ... 1	0 ... 1.6
	Overpressure limit	1	1.5	2	2	4	5	10
	Measuring range	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25	0 ... 40
	Overpressure limit	10	17	35	35	80	50	80
	Measuring range	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600	
	Overpressure limit	120	200	320	500	800	1,200	
psi	Measuring range	0 ... 15	0 ... 20	0 ... 30	0 ... 50	0 ... 60	0 ... 100	0 ... 150
	Overpressure limit	145	145	145	240	240	500	500
	Measuring range	0 ... 160	0 ... 200	0 ... 250	0 ... 300	0 ... 400	0 ... 500	0 ... 600
	Overpressure limit	1,160	1,160	1,160	1,160	1,160	1,160	1,160
	Measuring range	0 ... 750	0 ... 1,000	0 ... 1,500	0 ... 2,000	0 ... 3,000	0 ... 5,000	0 ... 6,000
	Overpressure limit	1,740	1,740	2,900	4,600	7,200	11,600	11,600

Absolute pressure								
bar	Measuring range	0 ... 0.25	0 ... 0.4	0 ... 0.6	0 ... 1	0 ... 1.6	0 ... 2.5	0 ... 4
	Overpressure limit	2	2	4	5	10	10	17
	Measuring range	0 ... 6	0 ... 10	0 ... 16				
	Overpressure limit	35	35	80				
psi	Measuring range	0 ... 15	0 ... 25	0 ... 50	0 ... 100	0 ... 250		
	Overpressure limit	72.5	145	240	500	1,160		

Vacuum and +/- measuring range						
bar	Measuring range	-0.6 ... 0	-0.4 ... 0	-0.25 ... 0	-0.16 ... 0	-0.1 ... 0
	Overpressure limit	4	2	2	1.5	1
	Measuring range	-1 ... 0	-1 ... +0.6	-1 ... +1.5	-1 ... +3	-1 ... +5
	Overpressure limit	5	10	10	17	35
	Measuring range	-1 ... +9	-1 ... +15	-1 ... +24		
	Overpressure limit	35	80	50		
psi	Measuring range	-30 inHg ... 0	-30 inHg ... +30	-30 inHg ... +60	-30 inHg ... +100	-30 inHg ... +160
	Overpressure limit	72.5	240	240	500	1,160
	Measuring range	-30 inHg ... +200	-30 inHg ... +300			
	Overpressure limit	1,160	1,160			

The given measuring ranges are also available in mbar, MPa and further units.

Vacuum tightness

Yes

Output signals

Signal type	Signal
Current (2-wire)	4 ... 20 mA
Current (3-wire)	0 ... 20 mA
Voltage (3-wire)	DC 0 ... 10 V DC 0 ... 5 V

Other output signals on request.

Depending on the signal type the following loads apply:

Current (2-wire)	$\leq (\text{power supply} - 10 \text{ V}) / 0.02 \text{ A}$
Current (3-wire)	$\leq (\text{power supply} - 3 \text{ V}) / 0.02 \text{ A}$
Voltage (3-wire)	$> \text{max. output signal} / 1 \text{ mA}$

Voltage supply

Power supply

The power supply depends on the selected output signal

4 ... 20 mA (2-wire)	DC 10 ... 30 V
0 ... 20 mA (3-wire)	DC 10 ... 30 V
DC 0 ... 10 V	DC 14 ... 30 V
DC 0 ... 5 V	DC 10 ... 30 V

Reference conditions (per IEC 61298-1)

Temperature

59 ... 77 °F (15 ... 25 °C)

Atmospheric pressure

12.47 ... 15.37 psi (860 ... 1,060 mbar)

Humidity

45 ... 75 % r. h.

Power supply

DC 24 V

Mounting position

Calibrated in vertical mounting position with process connection facing downwards.

Accuracy data

Accuracy at reference conditions	
Standard	$\leq \pm 0.5 \% \text{ of span}$
Option	$\leq \pm 0.25 \% \text{ of span}^{1)}$

1) Only for measuring ranges $\geq 0.25 \text{ bar}$

Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2). Calibrated in vertical mounting position with process connection facing downwards.

Non-linearity (per IEC 61298-2)

$\leq \pm 0.2 \% \text{ of span BFSL}$

Non-repeatability

$\leq \pm 0.1 \% \text{ of span}$

Temperature error in rated temperature range

Rated temperature range:

32 ... 176 °F (0 ... 80 °C)

Mean temperature coefficient of zero point:

Measuring range $> 0.25 \text{ bar}$ $\leq 0.2 \% \text{ of span}/10 \text{ K}$

Measuring range $\leq 0.25 \text{ bar}$ $< 0.4 \% \text{ of span}/10 \text{ K}$

Mean temperature coefficient of span:

$\leq 0.2 \% \text{ of span}/10 \text{ K}$

Long-term drift

$\leq \pm 0.2 \% \text{ of span/year}$

Adjustability of zero point and span

Adjustment is made using potentiometers inside the instrument.

Not possible for cable outlet with ingress protection IP 68.

Zero point $\pm 5 \%$

Span $\pm 5 \%$

Time response

Settling time

$\leq 10 \text{ ms}$

Operating conditions

Ingress protection (per IEC 60529)

The ingress protection depends on the type of electrical connection.

Electrical connection	Ingress protection
Angular connector DIN 175301-803 A	IP 65
Circular connector M12 x 1 (4-pin)	IP 67
Cable outlet	
■ Standard	IP 67
■ Option	IP 68 ²⁾

2) Adjustability of zero point and span not possible.

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

Vibration resistance

Process connections without cooling element:
20 g (IEC 60068-2-6, under resonance)

Process connections with cooling element:
10 g (IEC 60068-2-6, under resonance)

Shock resistance

Process connections without cooling element:
1,000 g (IEC 60068-2-27, mechanical)

Process connections with cooling element:
400 g (IEC 60068-2-27, mechanical)

Permissible temperature ranges

Also meets EN 50178, tab. 7, operation (C) 4K4H, storage (D) 1K4, transport (E) 2K3.

Process connections without cooling element		
Medium		
■ Standard	-30 ... +100 °C	-22 ... +212 °F
■ Option	-30 ... +125 °C	-22 ... +257 °F
Ambient	-20 ... +80 °C	-4 ... +176 °F
Storage	-40 ... +100 °C	-40 ... +212 °F

Process connections with cooling element		
Medium	-20 ... +150 °C	-4 ... +302 °F
Ambient	-20 ... +80 °C	-4 ... +176 °F
Storage	-40 ... +100 °C	-40 ... +212 °F

Electrical connections

Short-circuit resistance

S₊ vs. U₋

Reverse polarity protection

U₊ vs. U₋

Overvoltage protection

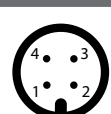
DC 36 V

Insulation voltage

DC 500 V with NEC class 02 voltage supply (low voltage and low current max. 100 VA even under fault conditions)

Connection diagrams

Angular connector DIN 175301-803 A			
	2-wire		3-wire
	U ₊	1	1
	U ₋	2	2
	S ₊	-	3
Wire cross-section max. 1.5 mm ² (AWG 16) Cable diameter 6 ... 8 mm (0.24 ... 0.31")			

Circular connector M12 x 1 (4-pin)		
	2-wire	3-wire
	U ₊	1
	U ₋	3
	S ₊	4

Cable outlet		
	2-wire	3-wire
	U ₊	brown
	U ₋	green
	S ₊	white
	Shield	grey

Wire cross-section 6 x 0.5 mm² (AWG 20)

Cable diameter 6.8 mm (0.27")

Cable lengths 1.5 m, 3 m, 5 m, 10 m, 15 m
(4.9 ft, 9.8 ft, 16.4 ft, 32.8 ft, 49.2 ft)

Other connections on request.

Process connections

Process connection	Available measuring ranges	
G ½ B flush ³⁾	0 ... 2.5 to 0 ... 600 bar	0... 50 to 0 ... 6,000 psi
G 1 B flush ³⁾	0 ... 0.1 to 0 ... 1.6 bar	0 ... 15 psi
Hygienic G 1 B flush (in accordance with 3-A Sanitary Standards)	0 ... 0.1 to 0 ... 25 bar	0 ... 15 to 0 ... 300 psi, respectively

3) Process connection also available with cooling element.

Cooling elements

For higher medium temperatures process connections with cooling element are available (see "Operating conditions") .

Sealing

Process connection	Max. medium temperature	Sealing material and max. pressure limitation		
		Standard	Option 1	Option 2
without cooling element	up to 212 °F (100 °C)	NBR up to 8,700 psi (600 bar)	FKM/FPM ⁴⁾ up to 8,700 psi (600 bar)	EPDM up to 2,900 psi (200 bar)
	up to 257 °F (125 °C)	NBR up to 8,700 psi (600 bar)	FKM/FPM ⁴⁾ up to 5,800 psi (400 bar)	EPDM up to 2,900 psi (200 bar)
with cooling element	up to 302 °F (150 °C)	FKM/FPM ⁴⁾ up to 4,350 psi (300 bar)	EPDM up to 2,900 psi (200 bar)	-
Hygienic	up to 302 °F (150 °C)	EPDM up to 2,900 psi (200 bar)	-	-

4) Minimum permissible medium and ambient temperature -20 °C / -4 °F

The sealings listed under "Standard" are included in the delivery.

Materials

Wetted parts

- Stainless steel
- For sealing materials see "Process connections"

Non-wetted parts

Internal system fill fluid	
Standard	Synthetic oil
Option	Food-compatible system fill fluid per FDA 21 CFR 178.3750

CE conformity

Pressure equipment directive

97/23/EC

EMC directive

2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

Approvals

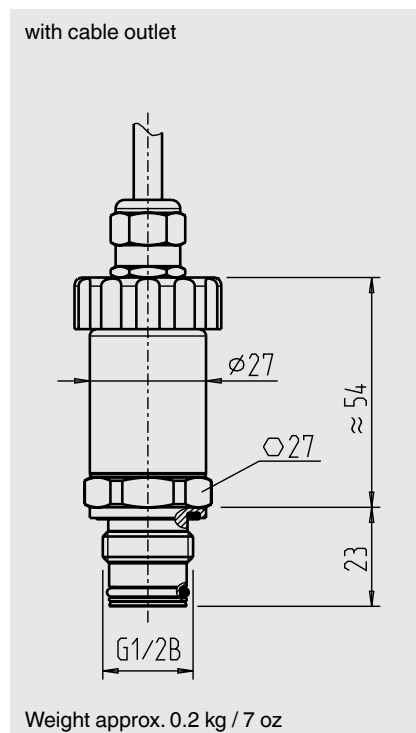
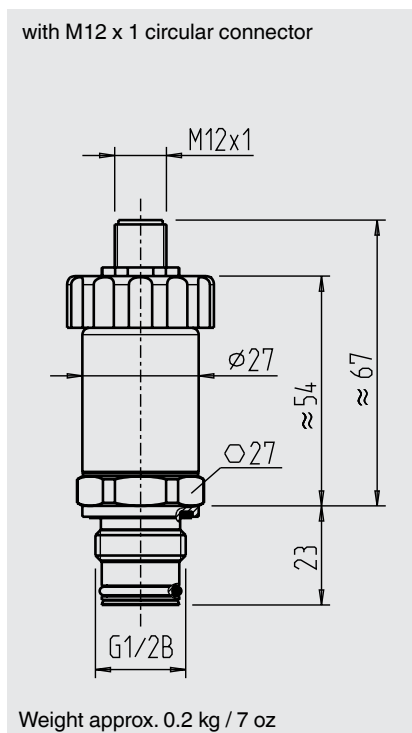
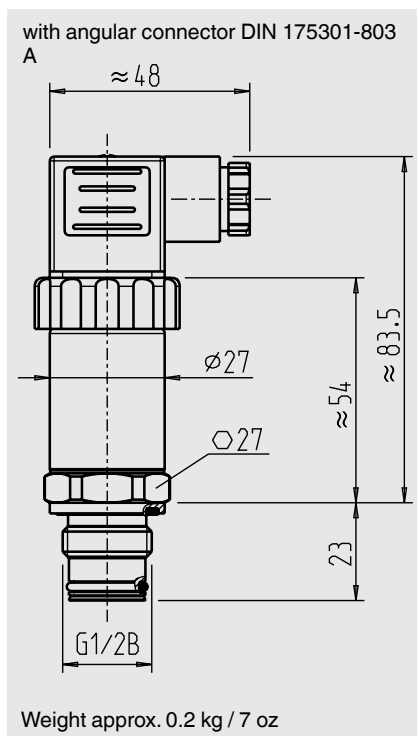
- **CSA**, safety (e.g. electr. safety, overpressure, ...), Canada
- **GOST-R**, import certificate, Russia
- **GOST**, metrology/measurement technology, Russia
- **3-A** ⁵⁾, food, USA
- **CRN**, safety (e.g. electr. safety, overpressure, ...), Canada

5) 3-A only for instruments with hygienic process connection G 1 B

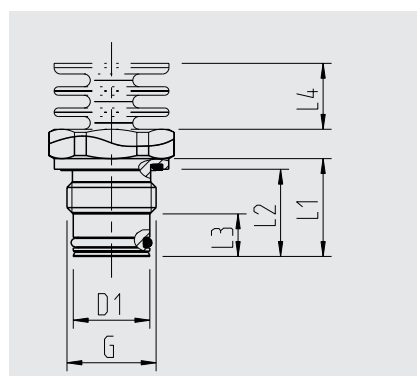
Approvals, see website

Dimensions in mm (inch)

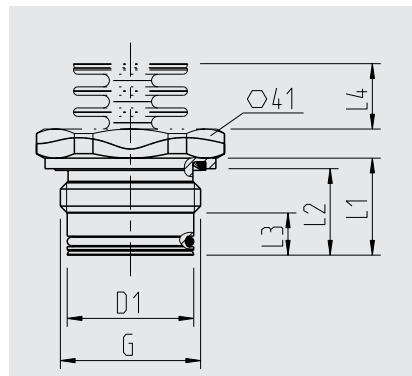
Pressure transmitter



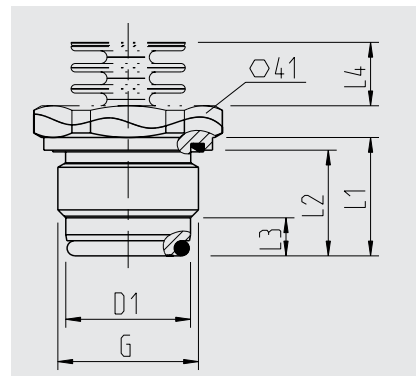
Process connections



G	D1	L1	L2	L3	L4
G 1/2 B	18 (0.71)	23 (0.91)	20.5 (0.81)	10 (0.4)	15.5 (0.61)



G	D1	L1	L2	L3	L4
G 1 B	30 (1.19)	23 (0.91)	20.5 (0.81)	10 (0.4)	15.5 (0.61)



G	D1	L1	L2	L3	L4
G 1 B hygienic	29.5 (1.17)	28 (1.11)	25 (0.99)	9 (0.36)	15.5 (0.61)

For information on tapped holes and welding sockets, see Technical information IN 00.14 at www.wika.com.

Accessories

Welding socket

	Designation	Order no.
	Welding socket for G 1/2 B flush	1192299
	Welding socket for G 1 B flush	1192264
	Welding socket for G 1 B hygienic flush	14070973
	Welding socket for G 1 B hygienic flush with leak-control channel	14070974

Further adapter systems for for measuring instruments with process connection G 1 B hygienic, see data sheet AC 09.20.

Mating connector

Designation	Order no.			
	without cable	2 m cable, shielded	5 m cable, shielded	10 m cable, shielded
Angular connector DIN 175301-803 A				
■ with cable gland, metric	11427567	14100465	14100466	-
■ with cable gland, conduit	11022485	-	-	-
Circular connector M12 x 1 (4-pin)				
■ straight	-	14086880	14086883	14086884
■ angled	-	14086889	14086891	14086892

Sealings for mating connectors

Mating connector	Order no.	
	Blue (WIKA)	Brown (neutral)
Angular connector DIN EN 175301-803 A	1576240	11437902

Sealings for process connection

Thread size and sealing	Order no.		
	NBR	FPM/FKM	EPDM
G 1/2 B			
■ O-ring	14072275	14072276	14072277
■ Profile sealing	1039067	1039075	1538306
G 1 B			
■ O-ring	1108247	1099094	1535056
■ Profile sealing	1100386	1145967	11522381
G 1 B hygienic			
■ O-ring	-	-	2225859
■ Profile sealing	-	-	11522381

Ordering information

Model / Measuring range / Output signal / Accuracy / Electrical connection / Medium temperature / Process connection / Sealing / System fill fluid

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Electrode Holder

PS-□S(R)/-31

CSM_PS-_S(R)_-31_DS_E_7_7

Separate Electrode Holders for Water Supply and Drainage Control in Buildings. Small, Lightweight Electrode Holders for Use as Built-in Components.

- The PS-□S(R) are separate Electrode Holders that allow the Electrodes to be withdrawn easily for inspection.
- The PS-□S(R) come in 3, 4, or 5 pole models for supply and drainage of tap water in buildings.
- PS-31 is a small and light-weight Electrode Holder that is suitable for installation in limited space and built-in components.

 **Refer to Safety Precautions for Electrodes and Electrode Holders.**



Ordering Information

■ Electrode Holders

Application	Model
General applications for purified water	
For 3-pole electrode	PS-3S
For 3-pole electrode (2-wire)	PS-3SR
For 4-pole electrode	PS-4S
For 4-pole electrode (2-wire)	PS-4SR
For 5-pole electrode	PS-5S
For 5-pole electrode (2-wire)	PS-5SR
For small spaces (3-pole)	PS-31 (SUS304, 300 mm)
	PS-31 (SUS304, 1,000 mm)

Note: Use the electrode holders in combination with the 61F and electrodes.

■ Accessories (Order Separately)

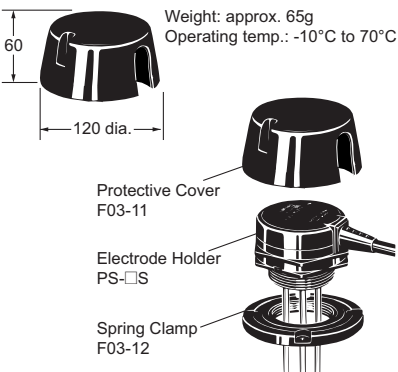
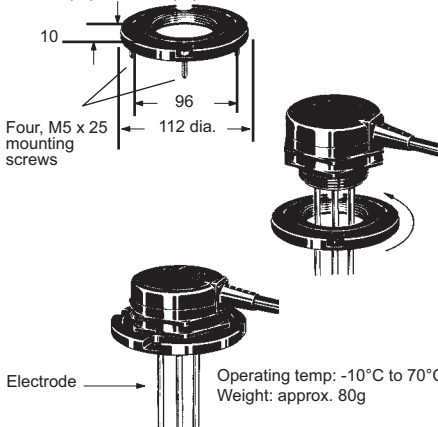
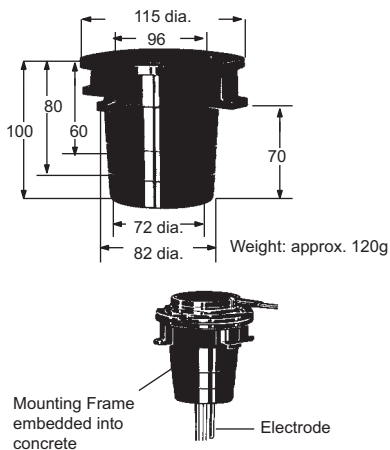
Application	Model
Protective Cover (for PS-□S and BF-3/-5)	F03-11
Mounting Frame (for PS-□S)	F03-12
Mounting Frame for Installing in Concrete (for PS-□S(R))	F03-13
Dust-proof Rubber Cap (for PS-31)	F03-31

Specifications

Item	Model	PS-3S(R) (See note 1.)	PS-4S(R) (See note 1.)	PS-5S(R) (See note 1.)	PS-31 (See note 2.)
No. of Electrodes		3	4	5	3 (See note 3.)
Material		Resin (PBT = Polybutylene terephthalate)			
Insulation resistance		100 MΩ min.			
Operating temperature		-10 to 70°C (with no icing)			
Operating pressure		Atmospheric pressure			
Applications		Water supply and drainage control in buildings			Limited Mounting Space
Electrodes		Purchase F03-01 separately.			Single-piece construction

- Note:** 1. The Two-wire Electrode Holders (R models) have a built-in resistor of 6.8 kΩ. They should be used with the Two-wire 61F Controllers.
2. Cut the electrodes to the desired length.
3. PS-31 comes in a 3-pole model only.

■PS-□S(R) Electrode Holder Accessories (Order Separately)

F03-11 Protective Cover	F03-12 Spring Clamp	F03-13 Mounting Frame for installing in concrete
Use this Cover for PS-series Electrode Holders with Mounting Frames (upper one in the following illustration). This Cover can also be used when installing the BF-series Electrode Holders outdoors. This Cover is for protection from rain and wind. It is not waterproof. Applicable Electrode Holders: BF-3, BF-4, BF-5, PS-3S(R), PS-4S(R), PS-5S(R)  Weight: approx. 65g Operating temp.: -10°C to 70°C Protective Cover F03-11 Electrode Holder PS-□S Spring Clamp F03-12	Used to clamp an Electrode Holder with ease, as shown in the illustrations, when the Electrode Holder is applied to a tank without a coupling. Squeeze the mounting frame into the Holder as shown below. Applicable Electrode Holders: PS-3S(R), PS-4S(R), PS-5S  Four, M5 x 25 mounting screws Electrode Operating temp: -10°C to 70°C Weight: approx. 80g	Firmly secure the F03-12 Spring Clamp to the F03-13 Mounting Frame with M5 x 25 screws and embed it into the concrete production water tank. Cut the F03-13 to match the depth of the concrete.  Weight: approx. 120g Mounting Frame embedded into concrete Electrode Commonly used with Mounting Frame

Note: If the F03-11 and F03-12 are used together, the screws and bolts that are provided with the F03-11 cannot be used.

■PS-31 Electrode Holder Accessories (Order Separately)

F03-31 Dust-proof Rubber Bushing

Note: This Bushing is not waterproof.



6 dia. (inner)

32 dia.

75

Material: Silicon rubber

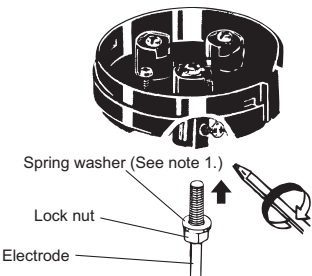
■Accessories Required for Connecting the PS-□S(R) and Electrodes (Order Separately)

Electrodes Shorter than 1 m

The following items are required for each pole.

- 1 × F03-01 Electrode
- 1 × F03-03 Lock Nut

The Electrode can be cut anywhere based on the control level.

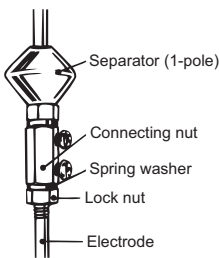


Electrode Longer than 1 m

The following items are required for every additional meter of electrode for each pole.

- 1 × F03-01 Electrode
- 1 × F03-02 Connecting Nut
- 2 × F03-03 Lock Nuts

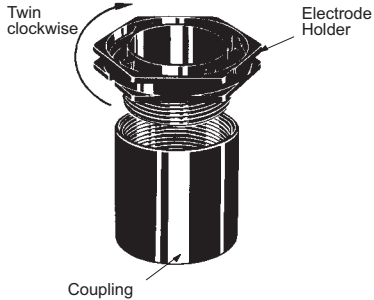
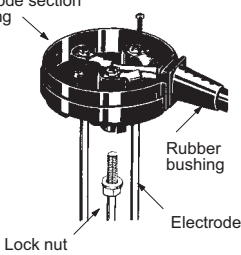
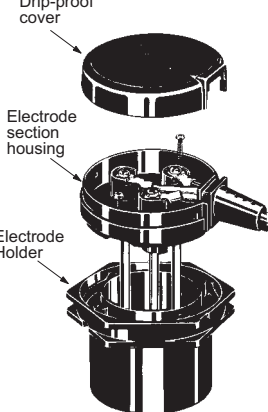
Use F03-14 1P, 3P, and 5P Separators to prevent the electrodes from touching each another.



- Note:**
1. The spring washer comes with the lock nut.
 2. Refer to F03-□ for details on Electrodes, Connecting Nuts, Lock Nuts, and Separators.

Mounting

■PS-3S Electrode Holders

1. Mounting Electrode Holder Screw the Electrode Holder into the coupling secured at the installation location.	2. Attaching Electrode(s) to Electrode section - Insert each Electrode into the connecting nut, secure the Electrode with the clamp screws, and then tighten the lock nut. - Connect the leads, inserted through the hole of the rubber bushing, into the respective terminals.	3. Inserting Electrode section into Electrode Holder - Fit the Electrode section into the Electrode Holder and secure it with the two screws. - Check the Electrode section for proper wiring, fit the rubber bushing in position, and then cover the Electrode Holder with the drip-proof cover.
		

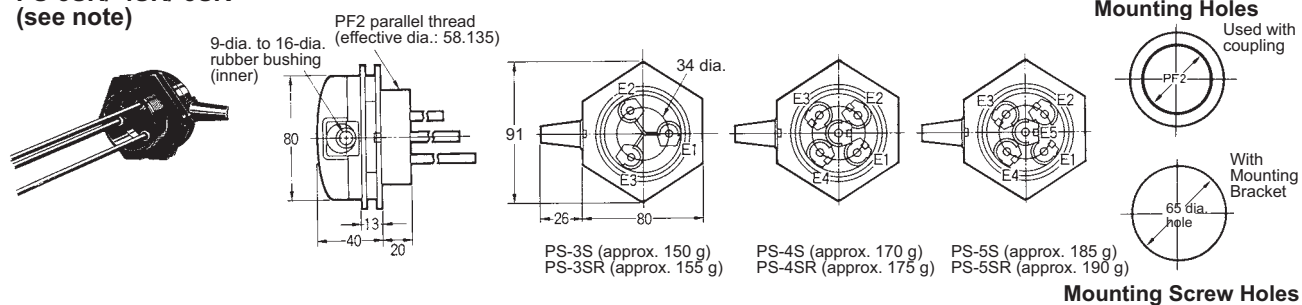
Note: 1. OMRON does not sell couplings.
2. Screw in the Electrode until it reaches the bottom of the nut. Insufficient insertion will cause a faulty connection.

Dimensions

Note: All units are in millimeters unless otherwise indicated.

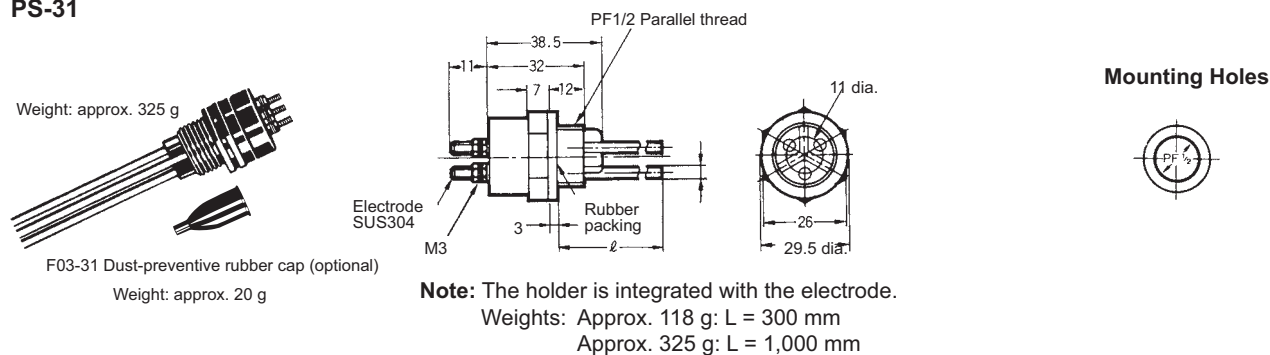
Electrode Holders

PS-3S/-4S/-5S
PS-3SR/-4SR/-5SR
(see note)



Note: The PS-3SR, PS-4SR, and PS-5SR have built-in resistor of 6.8 k Ω and used for the two-wire 61F models.

PS-31



Safety Precautions

Refer to *Safety Precautions for All Level Controllers*.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

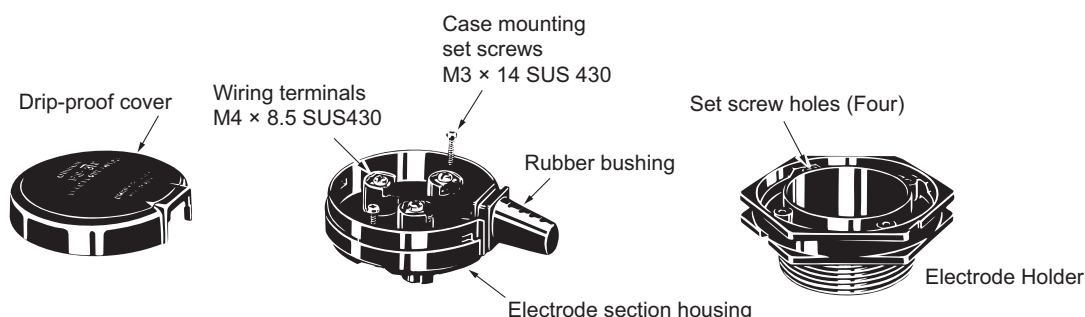
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

Level Controller Installation

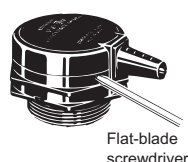
■ Attaching Electrodes to the Electrode Holder

Appearance

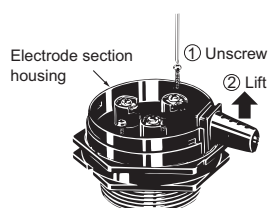


1. Removing the cover

1. Wedge a flat-blade screwdriver into the groove on either side of the rubber bushing and lever it off alternately. (The cover may break if you lever it too much on one side.)

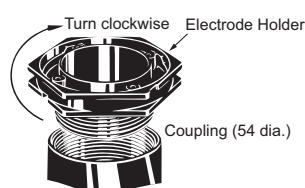


2. Undo the two set screws and lift off the electrode section.

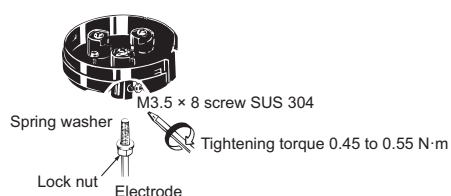


2. Mounting

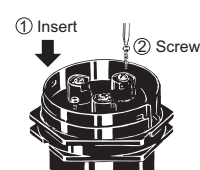
1. Screw the Electrode Holder into the coupling (54 dia.) secured at the installation location.



2. Screw in the electrodes until it cannot be turned any further, tighten the lock nut, and then secure them with the clamp screws (M3.5).



3. Attach the electrode section to the Electrode Holder.

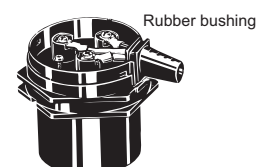


(Secure with the two case mounting screws. Tightening torque 0.7 N·m)

4. The rubber bushing can be cut with a utility knife if the hole size requires adjustment to fit the cables.



5. Connect the leads to the respective terminals. (Fit the rubber bushing in position as shown in the diagram below.)



6. Put the claw at the back of the cover into the hole at the back of the electrode section housing and push it close until you hear a click.

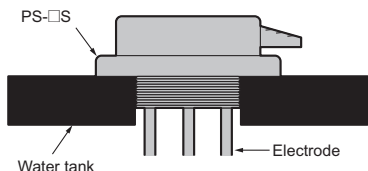


■ Installing an Electrode Holder on a Tank

Note: Electrode Holders should always be installed from above the tank.

Method 1

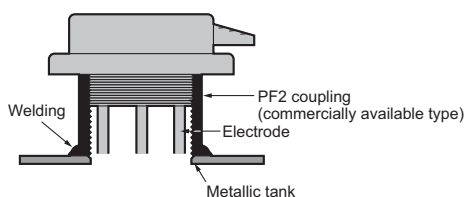
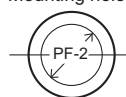
Fabricate screw threads of the same size as PF2 in the tank.



Method 2

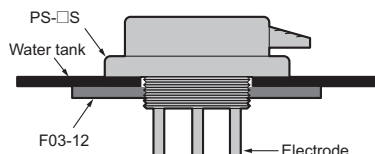
Use a commercially available coupling (PF2 parallel thread (effective dia.: 58.135) JIS B0202).

Mounting holes



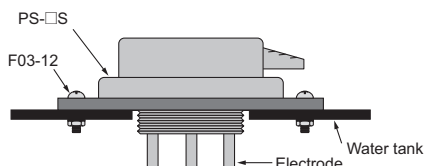
Method 3

Drill a hole (65 dia.) in the tank and insert the Electrode Holder. Use an F03-12 Frame (sold separately) as a nut from below and secure in place.

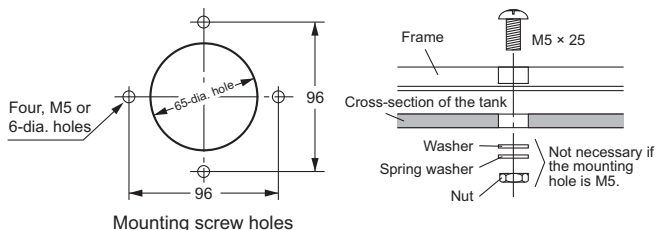


Method 4

Use the F03-12 Frame (sold separately) as a flange.

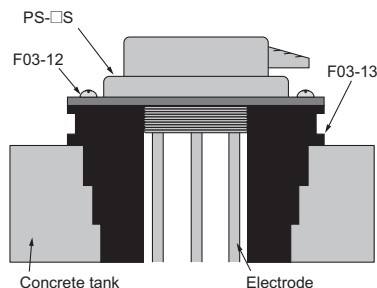


1. Drill a hole in the tank.
2. Attach the Frame over the hole.
(Tighten the four F03-12 mounting screws.)



Method 5

Use F03-12 and F03-13 Frames (both sold separately) together and embed them in the concrete.



■ Mounting the F03-11 Protective Cover (Sold Separately)

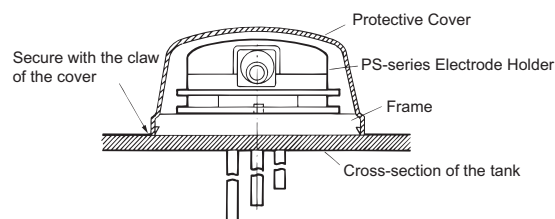
The protective cover can only be used for methods 4 and 5 described in the previous section.

PS-□S(R) Series

Attach the F03-12 Frame to the bottom of the PS-series Electrode Holder. (See diagram below.)

Next, place the F03-11 Protective Cover on top of the Electrode Holder and press on it until it clicks into place.

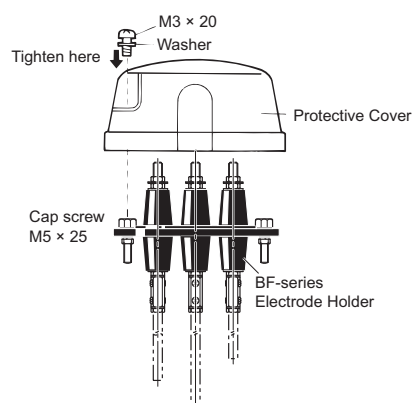
Note: The cap screw attached to the protective cover is not required for mounting.



BF-series Electrode Holder (Applicable to BF-3(R), -5(R))

Remove the two mounting screws (M5 × 25) of the BF-series Electrode Holder and attach the two cap screws (M5 × 25) provided with the F03-11 Protective Cover.

Next, put the Protective Cover over the top of the BF-series Electrode Holder, and then tighten the two enclosed screws (M3 × 20 with washers). See diagram below.



Note: The Protective Cover cannot be mounted on the BF-1.

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Rope Pull Emergency Stop Switch

ER6022

- Long rope spans up to 80 m means fewer number of switches required per application
- Tension indicator—the tension indicator makes the system easy to set up and to maintain the proper rope tension
- Contact arrangements of 2 N/C + 1 N/O or 3 N/C
- IP67 (NEMA 6) enclosure enables the ER6022 switch to withstand water washdown cleaning
- Heavy-duty housing—the die-cast housing and stainless steel eye nut makes the ER6022 suitable for demanding industrial applications
- Reset button—the blue reset button must be pushed in order to return to “machine run” condition following switch actuation by a pulled or slacked rope
- Long life—the ER6022 switch is designed for a minimum of one million actuations
- Vibration tolerant—the snap-acting switch contacts protect against nuisance tripping due to vibration
- Indicator beacon—the optional dual indicator beacon, available in 24 VDC, can be wired to flash red to indicate a tripped switch or glow a constant green to indicate a properly reset switch
- E-stop button—the ER6022 has two mounting positions where the optional E-stop button may be installed; the E-stop button may be added or replaced in the field



CE c UL US LISTED

Operation

Blue Reset Button



A blue reset button is provided to easily return the unit back to its machine-run position after actuation.

Emergency Push Button



The emergency push button may be installed or repositioned in the field. The ER6022 has two possible mounting positions for the emergency stop button.

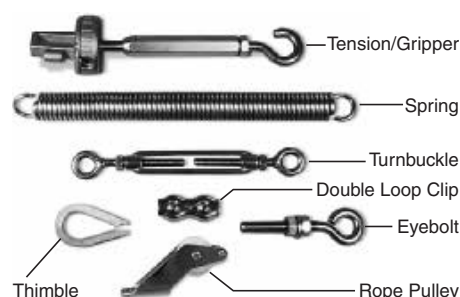
Installation Hardware Available

RK Rope Tension Kit



The RK Rope Tension Kit comes with all of the required hardware for most installations. A spring is required as shown in the installation example below.

Installation Hardware



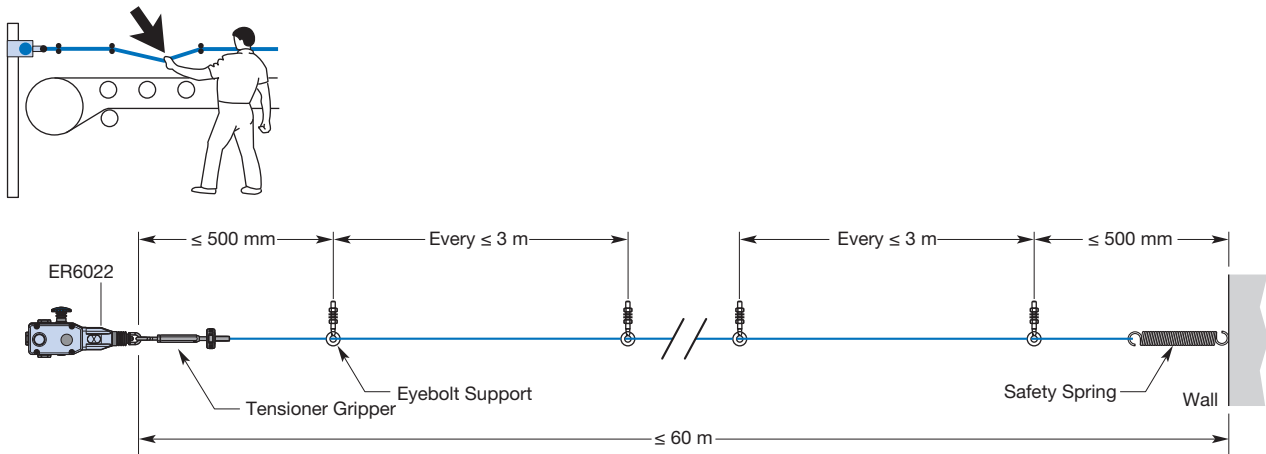
Individual hardware items may be purchased for specific installation requirements.

Contact Arrangements

	0 mm	3.5 mm	14.5 mm	17.0 mm
	2NC + 1NO Versions	Rope Slack	Tension Range	Rope Pulled
	11/12			
	21/22			
	3NC Versions	Rope Slack	Tension Range	Rope Pulled
	11/12			
	21/22			
	31/32			

☐ Contact Open ☒ Contact Closed

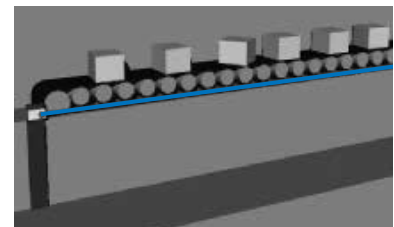
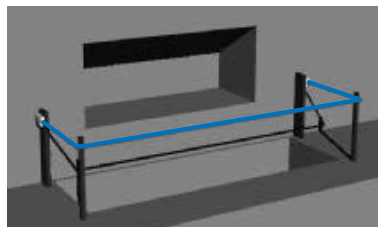
Mounting Specification



Note: Some installations may require a ER6022 on each end.

Applications

Typical applications are on conveyor systems and across rotating machinery, and around hazardous areas.



Ordering information

Rope Pull Emergency Stop Switch

E-Stop	Indicator Beacon	Contacts	Wiring Entry	Model
Not included	Not included	2 N/C + 1 N/O	3 x M20	ER6022-021M
Not included	Not included	3 N/C	3 x M20	ER6022-030M
Not included	Included (24 VDC)	2 N/C + 1 N/O	3 x M20	ER6022-021ML
Not included	Included (24 VDC)	3 N/C	3 x M20	ER6022-030ML
Included	Not included	2 N/C + 1 N/O	3 x M20	ER6022-021ME
Included	Not included	3 N/C	3 x M20	ER6022-030ME
Included	Included (24 VDC)	2 N/C + 1 N/O	3 x M20	ER6022-021MEL
Included	Included (24 VDC)	3 N/C	3 x M20	ER6022-030MEL

Accessories

Item	Model
Replacement Lid	SM06-SL500
Replacement Lid/LED	SM06-SL510
Rope Kit, 5 m, Stainless Steel	RK5
Rope Kit, 10 m, Stainless Steel	RK10
Rope Kit, 20 m, Stainless Steel	RK20
Rope Kit, 50 m, Stainless Steel	RK50
Rope Kit, 80 m, Stainless Steel	RK80
Rope Only, 5 m	R5M
Rope Only, 10 m	R10M

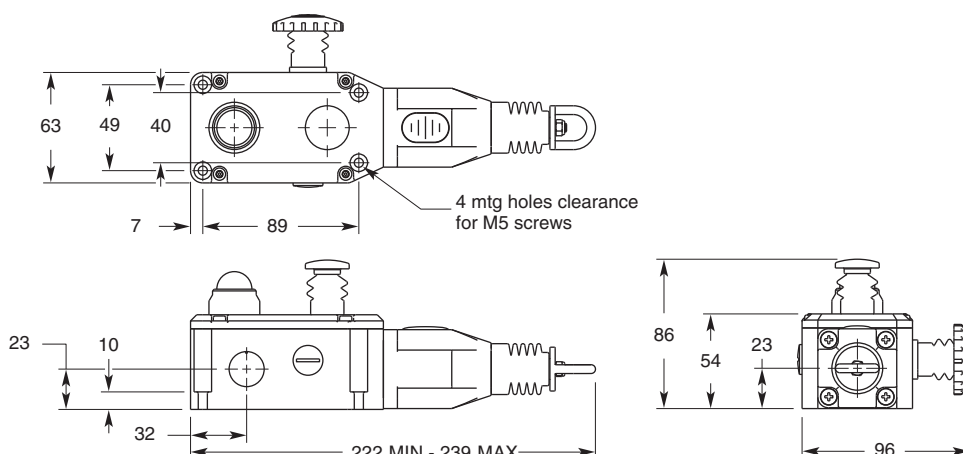
Item	Model
Rope Only, 20 m	R20M
Rope Only, 50 m	R50M
Rope Only, 100 m	R100M
Rope Only, 126 m	R126M
Tensioner Gripper, Stainless Steel	SM06-TG00
Eye Bolt Stainless Steel, 8 per pack	SM06-EB10
Double Loop Clip, Stainless Steel, 4 per pack	SM06-DL20
Thimble Stainless Steel, 4 per pack	SM06-THSS
Turnbuckle, Stainless Steel	SM06-TB30
Spring, Stainless Steel	SM06-SP50
Rope Pulley, Stainless Steel	SM06-RPSS
E-Stop Mechanism	SM06-ES60

Specifications

Electrical	Contact Configurations	2 N/C + 1 N/O, 3 N/C
	Safety Contacts	2 N/C, 3 N/C
	Switching Ability	AC: 240 V–3 A, 120 V–6 A, Inductive, DC: 24 V–2.5 A, Inductive
	Auxiliary Contacts	1 N/O
	Max Switching Current/Volt/Amp	240 V/720 VA
	Minimum Current	5 V, 5 mA DC
	Electrical Life	1,000,000 minimum
	LED Indicator Beacon	24 VDC
Mechanical	Mounting	Any position
	Mounting Hardware	4 x M5 screws
	Actuator Travel for Positive Opening	See diagrams on previous page
	Max Rope Span	80 m
	Operation Force	< 125 N
	Tensioning Force to Run Position	130 N typical
	Case Material	Die-cast aluminum alloy
	Eye Nut Material	Stainless steel
	Wiring Entry	3 x M20
	Weight	880 g
Environmental	Color	Yellow
	Mechanical Life	1,000,000 minimum
	Protection	IP67 (NEMA 6)
	Operating Temperature	-25 to 80°C
Compliance	Cleaning	Water washdown
	Standards	IEC947-5-1, IEC947-5-5, EN418, UL508, BS5304
Compliance	Approvals/Listings	CE marked for all applicable directives, UL and C-UL

Note: The safety contacts of the Omron STI switches are described as normally closed (N/C)—i.e., with the rope properly tensioned and the machine able to be started.

Dimensions



Safety precautions

Operating instructions

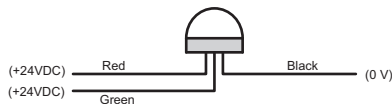
Installation must be in accordance with the following steps and stated specifications and should be carried out by suitably competent personnel. Adherence to the recommended maintenance instructions forms part of the warranty.

WARNING Do not defeat, tamper, remove or bypass this unit. Severe injury to personnel could result.

Optional 24 VDC Indicator Beacon

When +24VDC is applied to the **red** wire, the beacon will illuminate red and flash.

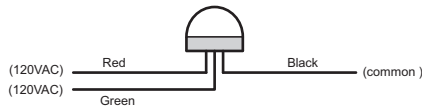
When +24 VDC is applied to the **green** wire, the beacon will illuminate green.



Optional 120 VAC Indicator Beacon

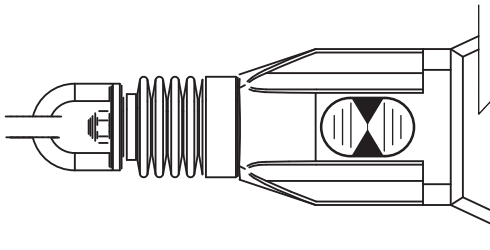
When +120VAC is applied to the **red** wire, the beacon will illuminate red and flash.

When +120 VAC is applied to the **green** wire, the beacon will illuminate green.



Tension Indicator

Indicator shown with steel rope properly adjusted.



WARNING

1. Installation of all Safety Rope Switch systems must be in accordance with a risk assessment for the individual application. Installation must only be carried out by competent personnel and in accordance with these instructions.
2. Rope support eyebolts must be fitted at 2.5 m. min. to 3 m. max. intervals along all rope lengths between switches. The rope must be supported no more than 500 mm from the switch eyebolt or Safety Spring (if used). It is important that this first 500 mm is not used as part of the active protection coverage.
3. M5 mounting bolts must be used to fix the switches. Tightening torque for mounting bolts to ensure reliable fixing is 4 Nm. Tightening torque for the lid screws, conduit entry plugs and cable glands must be 1.5 Nm to ensure IP seal. Only use correct sizing glands for conduit entry and cable outside diameter.
4. Tensioning of rope is achieved by use of tensioner / gripper assemblies. Upon installation, tension to mid-position as indicated by the red arrows in the viewing window of each switch. Check operation for all switches and the control circuits by pulling the rope at various locations along the active protection area and resetting each switch by depressing the Blue Reset button. Ensure each time that the switches latch off and require manual resetting by depressing the Blue Reset button. Increase the system tension further, if required, depending upon the checks along the active length of coverage. If fitted with a Mushroom type E-Stop button (Red) then test and reset each switch to ensure function of control circuits. Typical operational conditions for successful operation of system is less than 75 N. pulling force and less than 150 mm deflection of rope between eyebolt supports. If the optional LED is fitted but is not used, ensure that the conductors remain coiled and tied to the tie hole in the LED flange.
5. Every week: Check correct operation of system at locations along all coverage length. Check for nominal tension setting, re-tension rope if necessary. Every 6 months: Isolate power and remove cover. Check screw terminal tightness and check for signs of moisture ingress. Never attempt to repair any switch.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



Cost-effective equipment protection

SITRANS WM100 motion sensor



Accurate monitoring in harsh conditions

SITRANS WM100 is a heavy-duty zero-speed alarm switch. This non-contacting unit provides cost-effective equipment protection even in the harshest conditions. It is suitable for heavy industries such as mining, aggregates or cement. The WM100 monitors the absence of motion on moving or rotating equipment. Key applications include tail pulleys, driven pulleys, motor shaft sensing, screw conveyor flights, and bucket elevators.

Design

Lightweight yet rugged, SITRANS WM100 is compact and easy to install. With its rugged cast aluminum housing, it is suitable for outdoor installation.

Mode of operation

Process protection devices act as early warning systems to avoid costly process interruptions and equipment breakdowns. Located outside of the process, Sitrans WM100 accurately detects operating conditions without wear on the sensor. Sitrans WM100 can be mounted up to 100 mm (4") from the ferrous target. The robust motion sensor provides the contacts to shutdown machinery whenever zero speed is detected. On belt, drag, and screw conveyors, or on bucket elevators, fans and pumps, the zero speed alarm option can warn instantly of equipment malfunctions. It alarms to minimize spillage, prevent extensive damage or even fire caused by belt slippage at the head pulley and warn against conveyor malfunction.

Siemens probes work on the principle of Faraday's Law of Electromagnetic Induction. When a ferromagnetic object enters the probe's permanent magnetic field, it distorts the flux, causing its coil windings to generate a voltage. This voltage is proportional to the strength of the magnet and the number of wire turns in the coil (constant in the probes) and the speed at which the ferrous target passes through the flux. The generated voltage is also inversely proportional to the square of the distance between the target and the probe.

Process protection

www.siemens.com/processprotection

Answers for industry.

SIEMENS



SITRANS WM100

Non-contacting motion sensors detect changes in motion and speed of conveying, reciprocating and rotating machinery. The sensors are located outside of the process, accurately detecting conditions without wear on the sensor. Motion sensors can warn of equipment malfunction and shut down machinery in case of slowdown or failure. They are rugged and perform even in harsh conditions. On belt, drag, and screw conveyors, or on bucket elevators, fans, and pumps, the speed alarm option can warn instantly of equipment problems.

- Up to 100 mm (4") gap between SITRANS WM100 and targets
- Non-contacting design eliminates the need for lubricating, cleaning, and part replacement
- Visual indication of target triggered pulse
- Rugged, low maintenance suitable for tough environments
- 1 SPDT Form C relay contact
- Provides cost-effective protection

	SITRANS WM100
Mode of operation	
Measuring principle	Disruption of a magnetic field by ferrous target
Typical applications	Monitors absence or presence of motion in harsh conditions
Output	
Contact	1 SPDT Form C dry relay contact, rated 5A at 250 V AC, fail-safe operation
Time delay	Start up: 10 to 14 seconds (5 to 7 seconds with 12 ppm jumper installed)
Zero Speed (selected via a common jumper)	• 5 seconds $\pm$1 (minimum speed 10 to 15 ppm) or • 10 seconds $\pm$2 (minimum speed 5 to 7.5 ppm)
Rated operating conditions	
Operating temperature	• -40 to 60 °C (-40 to 140 °F)
Design	
Probe body	Aluminum
Process mounting	2" NPSL
Connection box	Aluminum, 3/4" NPT conduit entrance, 5 screw terminals plus grounding terminal for electrical connection, max. 12 AWG (3.30 mm ²) wire size
Gasketing	Neoprene
Display	Red LED for verification of pulses
Enclosure rating	Type NEMA 4X, 6, IP67
Dynamic range	
	• Minimum 6 or 12 pulses per minute • Maximum 3000 pulses per minute
Shipping weight	
	2 kg (4 lbs)
Power supply	
	• 115 V AC/50 to 60 Hz, 7 VA • 230 V AC/50 to 60 Hz, 7 VA • $\pm$10 % of rated voltages
Certificates and approvals	
	• CSA _{US/IC} , CE, C-TICK

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Industry Sector
Sensors and Communication
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GERMANY

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The information provided contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes violate the rights of the owners.

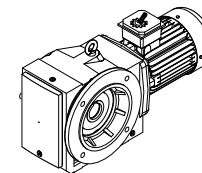
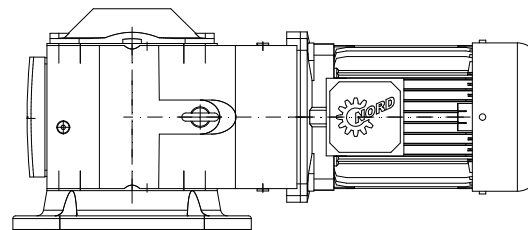
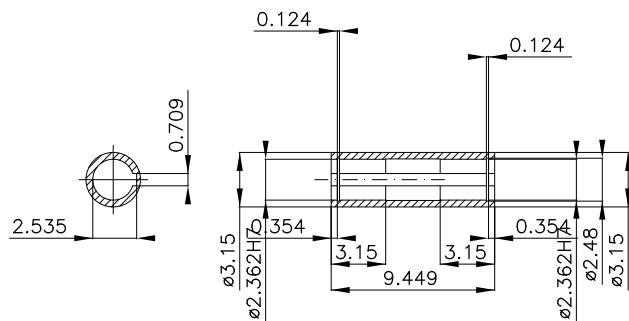
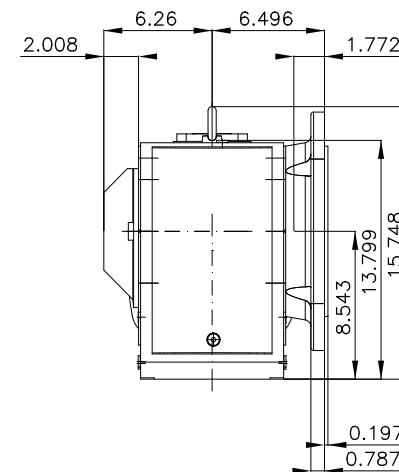
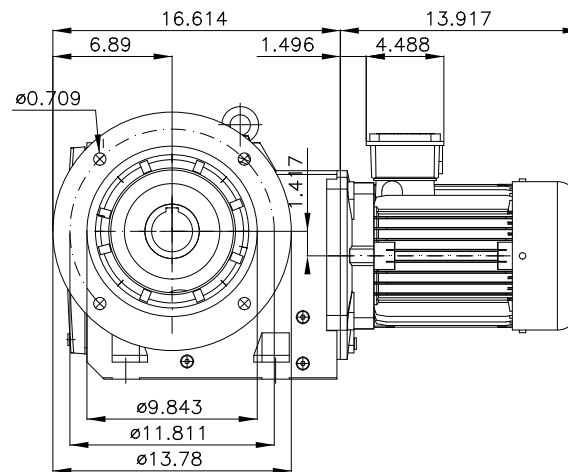
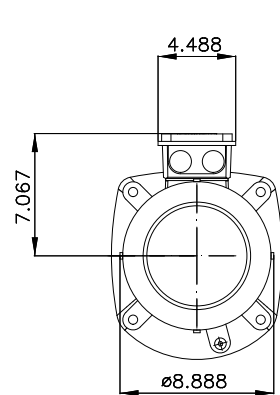
Gearmotor of agitator



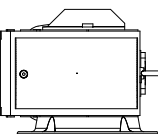
Pos.	Description	Material	Quantity
	Helical Bevel Gearmotor SK 9042.1AFBH - 112MP/4 CUS TF		1
	Product Name	Helical Bevel Gears BLOCK	
	Input Speed	1755 rpm	
	Motor Inverter Speed Range	Standard Line Powered - Inverter Capable	
	Ratio	117.79	
	Output Speed	15 rpm	
	Service Factor	1	
	Output torque	21150 lb-in	
	Overhung load	2812 lb	
	Axial Load	8992 lb	
	Power	5 hp	
	Voltage	230/460 V	
	Frequency	60 Hz	
	Efficiency Class	IE3	
	Current 1	13 A	
	Current 2	6.5 A	
	Cosinus	0.8	
	Motor Duty	S1 - Continuous	
	Enclosure	IP55	
	Insulation	F	
	Mounting Pos	M5	
	Housing Material	Cast Iron Housing	
	Type of housing	Flange Mount	
	Output Shaft	Hollow Keyed	
	Output Shaft Dia	60H7 mm	
	Output Shaft Material	Standard	
	Flange Dia	350 mm	
	Flange Loc	A Side	
	Gearbox Breather Options	Autovent	
	Gearbox Sealing Options	Standard	
	Gearbox Options	Shaft Fixing Kit Cover Hollow Shaft	
	Bearing Design	Standard Bearings	



Shaft Cover Side	B Side (Shaft cover)
Motor Cooling	TEFC - Totally Enclosed Fan Cooled
Terminal Box Pos	2
Conduit Entry Loc	II
Terminal Box Connection	Directly Wired to Terminal Block
Cable Glands	Brass Cable Gland M32X1.5 IP68
Nameplate Additional Marking	Standard Nameplate Marking
Nameplate Material	Standard Nameplate Material
Motor Thermal Protection	Thermistor
Lubricant	Mineral oil CLP 220 (Standard)
Lubricant Qty	6.87 qt
Sealed Surface Conversion	No Surface Sealing Conversion
Paint Coating	Basic (F 2): For indoor installation (Standard)
Paint Color	RAL 5010 Blue
Base Weight	311 lb
Requested Delivery Date	2 - 3 Weeks



Center Hole acc. to DIN 332 part 2 form D
General tolerances DIN ISO 8062-3 - DCTG 9-12
This drawing is created with NORDCAD 9.3.1.3 SAP - Technical changes reserved!

Einbaulage/Mounting Pos.: M5		Angewandte Normen		Applied Standards		Getriebebau NORD GmbH & Co. KG Getriebebau-Nord-Straße 1 D-22941 Borgeheide Tel. 04532/289-0 – Fax. 04532/289-2253 – www.nord.com						Observe protection note according to ISO 16016		Scale: 1:1		Format: A3		Page 1 of 1					
		Vollwellen bis ø50 nach ISO k6 Vollwellen ?ber ø50 nach ISO m6 Hohlwellen nach ISO H7 Passfedern nach DIN6885 Zentriergewinde nach DIN 332/2 Flanschzentrierung bis ø230 nach ISO j6 Flanschzentrierung ?ber ø230 nach ISO h6		Shafts up to ø50 according to ISO k6 Shafts above ø50 according to ISO m6 Hollow shafts according to ISO H7 Keyways according to DIN 6885 Center Hole Thread according to DIN 332/2 Flange centering up to ø230 according to ISO j6 Flange centering above ø230 according to ISO h6						Date		Name		SK 9042.1AFBH – 112MP/4 CUS									
										Creat.		30.10.2024								SYSTEM			
										Check.													
																		Documentnumber: NC241030152115PV_D Revision:					
		Motor:		Skizze / Outline:						Unmachined-No./Pre-fab-No.:													
1		2		3		4				Rev.		Change		Date		Name		T-Task:					

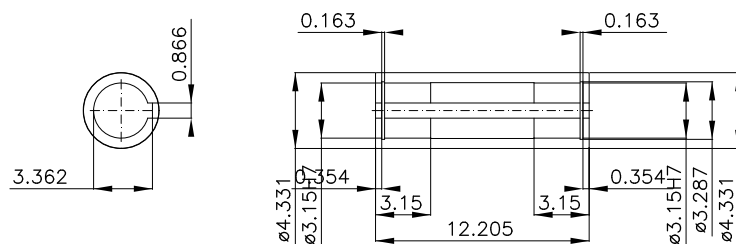
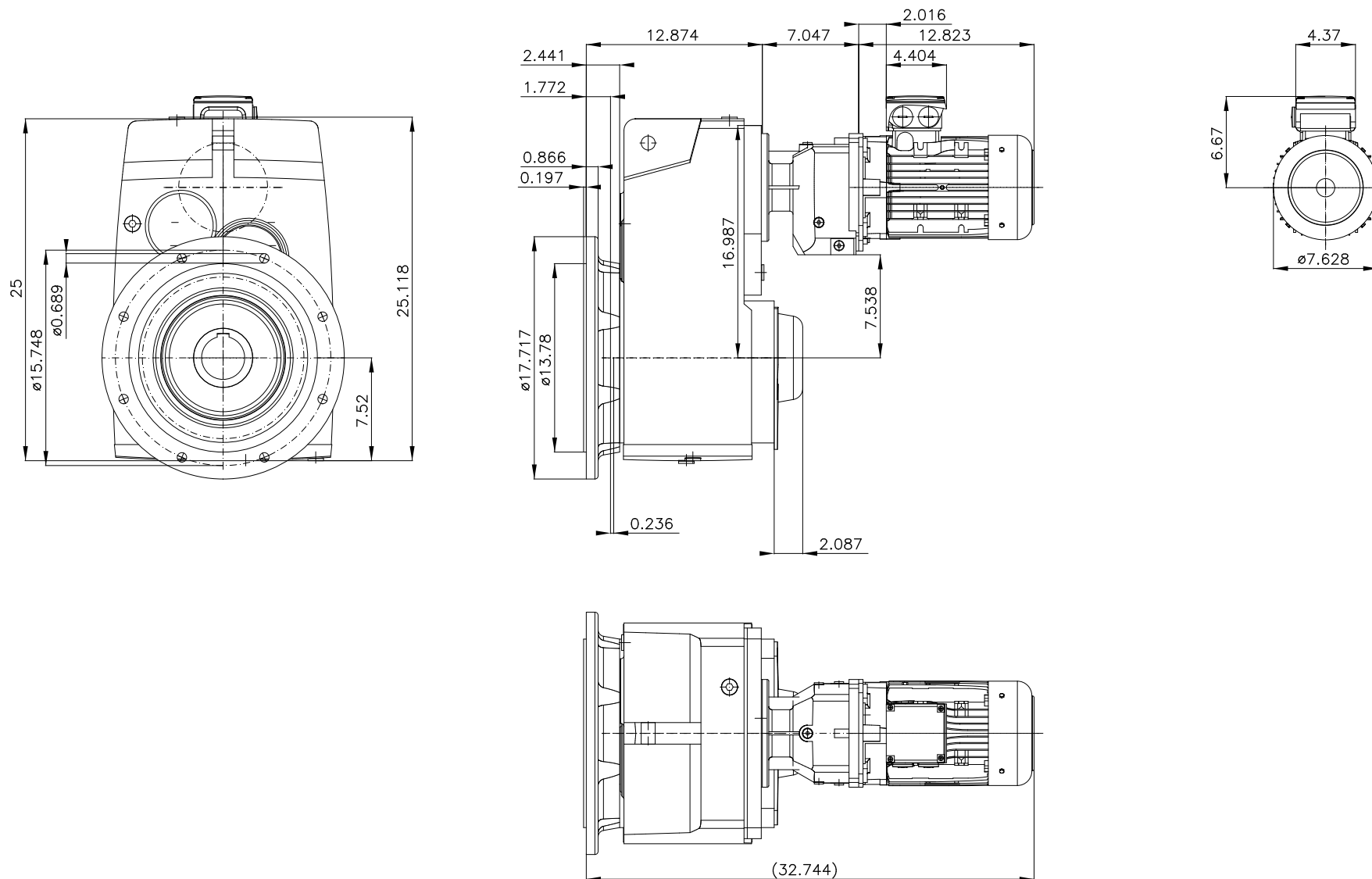
Gearmotor of dewatering drum



Pos.	Description	Material	Quantity
	Shaft Mount Gearmotor		1
	SK 7382/22AFBVL - 100LP/4 CUS TF		
	Product Name	Parallel Shaft Gears BLOCK	
	Input Speed	1765 rpm	
	Motor Series	Optimized Motor Design	
	Motor Inverter Speed Range	Standard Line Powered - Inverter Capable	
	Ratio	435.5	
	Output Speed	4.1 rpm	
	Service Factor	1.4	
	Output torque	45750 lb-in	
	Over Hung Load Capacity VL Brgs	13793 lb	
	Axial VL	17985 lb	
	Power	3 hp	
	Voltage	230/460 V	
	Frequency	60 Hz	
	Efficiency Class	IE3	
	Current 1	8.21 A	
	Current 2	4.11 A	
	Cosinus	0.75	
	Motor Duty	S1 - Continuous	
	Enclosure	IP55	
	Insulation	F	
	Mounting Pos	M1	
	Housing Material	Cast Iron Housing	
	Type of housing	Flange Mount	
	Output Shaft	Hollow Keyed	
	Output Shaft Dia	80H7 mm	
	Output Shaft Material	Standard	
	Flange Dia	450 mm	
	Gearbox Breather Options	Autovent	
	Gearbox Sealing Options	Standard	
	Gearbox Options	Shaft Fixing Kit	
		Cover Hollow Shaft	
	Bearing Design	Heavy Duty Output Bearings	



Motor Cooling	TEFC - Totally Enclosed Fan Cooled
Terminal Box Pos	2
Conduit Entry Loc	I
Terminal Box Connection	Directly Wired to Terminal Block
Cable Glands	Brass Cable Gland M32X1.5 IP68
Nameplate Additional Marking	Standard Nameplate Marking
Nameplate Material	Standard Nameplate Material
Motor Thermal Protection	Thermistor
Lubricant	Mineral oil CLP 220 (Standard)
Lubricant Qty	24.04 qt
Sealed Surface Conversion	No Surface Sealing Conversion
Paint Coating	Basic (F 2): For indoor installation (Standard)
Paint Color	RAL 5010 Blue
Base Weight	637 lb
Requested Delivery Date	2 - 3 Weeks



SK7382/22AFBHVL – 100LP/4 TF

NORD



Drawn	Date	Name
	25.01.2023	SYSTEM

Nord Internet: <http://www.nord.com>

Gearmotor of conveyor



Quote Reference:

New Project

Quote-ID:

Line Items	200
Name	UNICASE Parallel Shaft Gear Motor
Type Description	SK5282AZBH VL-100LP/4 CUS TW
Weight	255 lb

myNORD Links



Gear units		
General		
Gear unit		SK 5282
Ratio	i	134.03
Installed output torque	M ₂	14358 lb-in
Nominal output torque	M _{2,max}	23490 lb-in
Output Speed	n ₂	13 r/min
Service factor	f _B	1.6
Mounting position gear unit		M1
Name plate design		Aluminium name plate
Housing		
Gear unit housing design		Flange housing
Gear unit housing material		Cast iron (GJL)

Quote-ID: 8482H.0

Created on: 7/2/2026

Output

Gear unit output design	B14 output flange
Output bearing design	Reinforced bearings

Output shaft

Shaft	Hollow shaft
Torque transmission	Key
Output shaft material	Quench and tempered steel - C45
Shaft dimension output shaft	60 mm

Sealing system output

Type of sealing system at output	Double radial shaft seals
Output shaft seal material	NBR

Lubrication

Oil	Mineral oil CLP 220 (standard)
Oil filling quantity of gear unit (operation)	V_{oil} 7.93 qt

Options

Torque arm / Torque bracket	Cast torque arm	
Fixing element	Fixing Element Kit	[Quench and tempered steel - C45]
Hollow shaft cover	Hollow shaft cover	[Cover supplied loose]
Venting type	Spring-loaded breather / AUTOVENT	

Motor

General

Motor		100 LP/4	
Motor type		Asynchronous	
Manufacturer		NORD	
Number of poles		4	
Efficiency class		NEMA Premium	
Motor phases		3-Phase	
Mains or inverter operation		Mains operation	
Operating mode of motor		S1	
Mains frequency	f	60 Hz	
Nominal motor voltage		230/460 V	[+/-10%]
Motor connection type		Star	
Nominal power	P_1	3.00 HP	
Nominal current 1	I_1	8.21 A	
Nominal current 2	I_2	4.11 A	
IA / IN 1		9.60	

Quote-ID: 8482H.0

Created on: 7/2/2026

Motor speed	n ₁	1765 r/min
Cosine phi 1	cos φ	0.75
Nominal torque 1		11.9 Nm
Starting torque (Ma)		45.3 Nm
Breakdown torque		59.5 Nm
Inertia		0.0074 kgm ²
Motor housing material		Aluminium
Insulation class		ISO F (155 °C)
Motor protection class		IP55
Motor cooling		Self-cooling
Cable gland material		Plastic
Cable gland design		Standard screwed cable gland
Cable gland		CG M32x1.5 / plastic / IP68 / O-ring
Terminal box design		Two-piece – metric
Terminal box position		Terminal box position for 3
Cable entry (metric)		Cable gland at III

Options

Motor shaft seal material	NBR
Thermal motor protection	Thermostat

Surface treatment

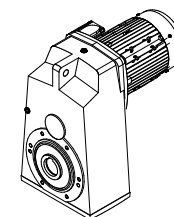
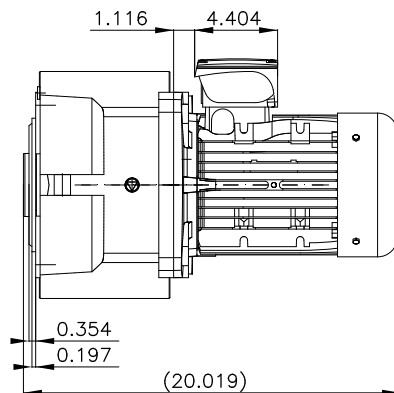
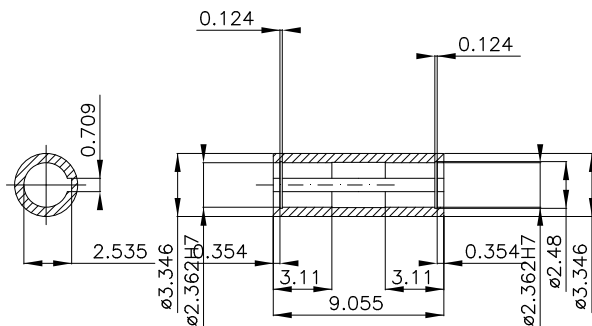
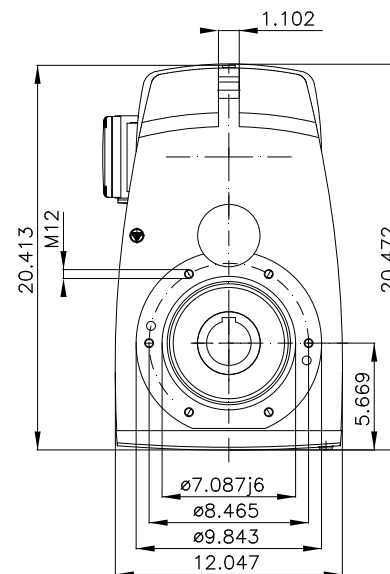
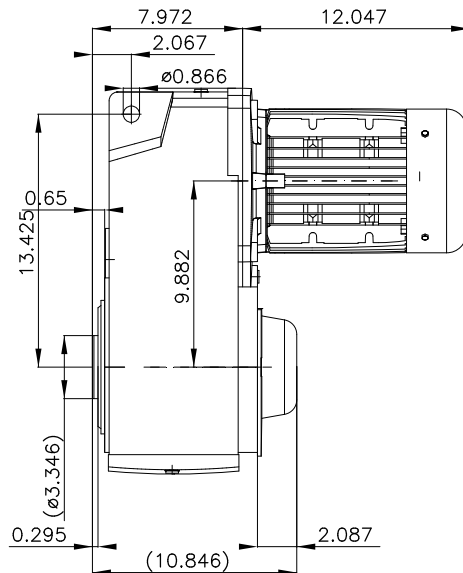
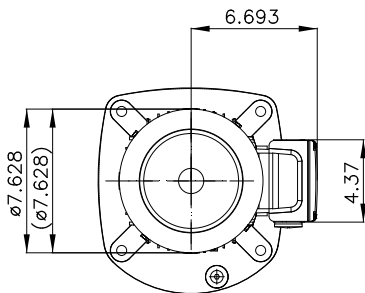
Surface treatment

Coating instruction	Basic	[5010 Gentian blue]
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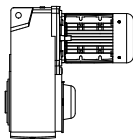
Certifications

Certifications

Certifications and conformities	CE labelling, CSA certification, CSAev certification, DoE-CC certification, UL certification
---------------------------------	--



Center Hole acc. to DIN 332 part 2 form D
General tolerances DIN ISO 8062-3 - DCTG 9-12
This drawing is created with NORDCAD 9.3.5.1 CPQ NG - Technical changes reserved!

Einbaulage/Mounting Pos.: M1		Angewandte Normen	Applied Standards	Getriebebau NORD GmbH & Co. KG Getriebebau-Nord-Straße 1 D-22941 Barmstedt Tel. 04532/289-0 – Fax. 04532/289-2253 – www.nord.com					Observe protection note according to ISO 16016	Scale: 1:1	Format: A3	Page 1 of 1			
		Vollwellen bis ø50 nach ISO k6 Vollwellen ?ber ø50 nach ISO m6 Hohlwellen nach ISO H7 Passfedern nach DIN6885 Zentriergewinde nach DIN 332/2 Flanschzentrierung bis ø230 nach ISO j6 Flanschzentrierung ?ber ø230 nach ISO h6	Shafts up to ø50 according to ISO k6 Shafts above ø50 according to ISO m6 Hollow shafts according to ISO H7 Keyways according to DIN 6885 Center Hole Thread according to DIN 332/2 Flange centering up to ø230 according to ISO j6 Flange centering above ø230 according to ISO h6					Date	Name	SK5282AZBH VL-100LP/4 CUS TW					
								Creat.	02.07.2026				SYSTEM		
								Check.							

Overview



The SITRANS FMS500 is a magnetic flowmeter sensor suitable for volume flow measurement of liquids (conductive) and is the ideal product for applications in water abstraction, wastewater treatment, water distribution networks, and irrigation.

The rugged, fully welded design supports direct burial, constant flooding and to stand up a wide range of harsh chemicals found in water-based applications in many different industries.

Designed for highly accurate measurement in low-flow conditions, these meters can measure from very low velocities up to 10 m/s, giving it a very wide measurement range.

Combined with a flowmeter transmitter it is a traditional externally powered electromagnetic flowmeter system

Application

- Water abstraction
- Water treatment
- Water distribution network (leak detection management)
- Custody transfer water meters
- Irrigation
- Waste water treatment
- Filtration plant (e.g. reverse osmosis and ultra-filtration)
- Industrial water applications

The SITRANS FMS500 with its NBR or EPDM rubber lining is a flow meter sensor for all kinds of water applications such as ground water, potable water, cooling water, wastewater, sewage, or sludge applications.

Connected to the compatible transmitter SITRANS FMT020, either mounted remotely or as a compact unit, it forms the magnetic flow meter system SITRANS FM520 which can be used in almost all general-purpose water applications.

SITRANS FM520

Perfect match for a cost-effective solution for all water and wastewater applications. Standard measuring accuracy $\pm 0.4\%$ of the actual flow rate, optional a high accuracy calibration with $\pm 0.2\%$ of flow actual rate is available.

Benefits

- Zero Up and Zero Down installation capabilities
- NBR rubber liner for all water and wastewater applications
- EPDM liner specifically for drinking water applications requiring special approvals
- Soft elastomer facing provides high abrasion resistance
- Increased low flow accuracy for water leak detection
- Rugged construction with no moving parts for maintenance-free operation over many years
- Simple on-site upgrade to IP68 of a standard sensor allowing underground installation, permanent immersion or underwater installation
- Integrated grounding electrodes – no grounding rings required for many applications
- Short delivery time
- Built-in length according to ISO 20456 (up to DN 400 mm)
- SENSORPROM™ Technology provides an automatic upload of start-up settings and calibration data for easy commissioning
- Designed to allow in-situ verification for easy performance check
- In conformity with ISO 4064, OIML R49 and EN 14154
- Custody transfer approvals for cold water billing (MI-001)

SITRANS FM (electromagnetic)

Flow sensors

SITRANS FMS500

Selection and ordering data

7ME6532-3TJ02-1GA3-Z+A05+F01

Sensor SITRANS FMS500		Article No. 7ME653- • - • • • • • - 1 • A •									
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Transmitter variant											
No transmitter (sensor only)		0									
Transmitter SITRANS FMT020		2									
Diameter											
DN 15, ½ inch			1	V							
DN 25, 1 inch			2	D							
DN 40, 1½ inch			2	R							
DN 50, 2 inch			2	Y							
DN 65, 2½ inch			3	F							
DN 80, 3 inch			3	M							
DN 100, 4 inch			3	T							
DN 125, 5 inch			4	B							
DN 150, 6 inch			4	H							
DN 200, 8 inch			4	P							
DN 250, 10 inch			4	V							
DN 300, 12 inch			5	B							
DN 350, 14 inch			5	D							
DN 400, 16 inch			5	H							
DN 450, 18 inch			5	K							
DN 500, 20 inch			5	R							
DN 600, 24 inch			5	Y							
DN 700, 28 inch			6	B							
DN 750, 30 inch			6	D							
DN 800, 32 inch			6	H							
DN 900, 36 inch			6	K							
DN 1000, 40 inch			6	R							
DN 1050, 42 inch			6	Y							
DN 1100, 44 inch			7	D							
DN 1200, 48 inch			7	H							
DN 1400, 54 inch			7	M							
DN 1500, 60 inch			7	R							
DN 1600, 64 inch			7	V							
DN 1800, 72 inch			7	Y							
DN 2000, 80 inch			8	B							
Process connection											
EN 1092-1 PN 6 flanges				A							
EN 1092-1 PN 10 flanges				B							
EN 1092-1 PN 16 flanges (PED compliant)				C							
EN 1092-1 PN 16 flanges, non-PED type of equipment (excluded from scope of PED 2014/68/EU)				D							
EN 1092-1 PN 40 flanges				F							
ANSI B16.5 Class 150 flanges				J							
AWWA C-207 Class D flanges				M							
AS 4087 PN 16 flanges				S							
JIS B 2220:2004 10K flanges				W							
Process connection material											
Carbon steel ASTM A 105 with corrosion-resistant coating acc. to EN ISO 12944 grade C4								0			
Carbon steel ASTM A 105 with corrosion-resistant coating acc. to EN ISO 12944 grade C5 (300 µm)								1			
Liner material											
EPDM								2			
NBR								3			
Electrode material											
Hastelloy C276 / 2.4819										1	
Transmitter mounting & enclosure type											
No transmitter (sensor only)											A
Compact design (integral mount), polycarbonate enclosure											G
Remote design, polycarbonate enclosure (wall-mounting unit and sensor terminal board included)											J

SITRANS FM (electromagnetic)

Flow sensors

SITRANS FMS500

Selection and ordering data (continued)

Sensor SITRANS FMS500	Article No. 7ME653-
	• - • • • • • - 1 • A •
Power supply	
None (sensor only)	0
12 ... 42 V DC	2
100 ... 240 V AC, 50/60 Hz	3

1) Not concerned by PED

Additional information	Order code
Please add "-Z" to Article No. and specify Order code(s) and plain text.	
Cable glands	
Without cable glands (blind plugs)	A00
M20x1.5 cable glands, material polyamide	A02
M20x1.5 cable glands, Ex, material polyamide	A03
1/2 inch NPT cable glands, material polyamide	A05
1/2 inch NPT cable glands, Ex, material polyamide	A06
Certificates	
Declaration of compliance with the order 2.1 (EN 10204)	C00
Inspection certificate 3.1 (EN 10204) - Material of pressure-containing and wetted parts	C12
Test report 2.2 (EN 10204)	C14
Inspection certificate 3.1 (EN 10204) - Pressure test	C18
High accuracy calibration	
High accuracy calibration +/- 0.2% of the act. vol. flow, DN ≤ 200, ≤ 8 inch	D01
High accuracy calibration +/- 0.2% of the act. vol. flow, DN 250 ... 600, 10 ... 24 inch	D02
High accuracy calibration +/- 0.2% of the act. vol. flow, DN 700 ... 1200, 28 ... 48 inch	D03
High accuracy calibration +/- 0.2% of the act. vol. flow, DN ≥ 1400, ≥ 54 inch	D04
5-point calibration	
5-point factory calibration, DN ≤ 200, ≤ 8 inch	D10
5-point factory calibration, DN 250 ... 600, 10 ... 24 inch	D11
5-point factory calibration, DN 700 ... 1200, 28 ... 48 inch	D12
5-point factory calibration, DN ≥ 1400, ≥ 54 inch	D13
10-point calibration	
10-point factory calibration, DN ≤ 200, ≤ 8 inch	D15
10-point factory calibration, DN 250 ... 600, 10 ... 24 inch	D16
10-point factory calibration, DN 700 ... 1200, 28 ... 48 inch	D17
10-point factory calibration, DN ≥ 1400, ≥ 54 inch	D18
Default matched-pair calibration	
Default matched-pair factory calibration, DN ≤ 200, ≤ 8 inch	D20
Default matched-pair factory calibration, DN 250 ... 600, 10 ... 24 inch	D21
Default matched-pair factory calibration, DN 700 ... 1200, 28 ... 48 inch	D22
Default matched-pair factory calibration, DN ≥ 1400, ≥ 54 inch	D23
5-point matched-pair calibration	
5-point, matched-pair factory calibration, DN ≤ 200, ≤ 8 inch	D25
5-point, matched-pair factory calibration, DN 250 ... 600, 10 ... 24 inch	D26
5-point, matched-pair factory calibration, DN 700 ... 1200, 28 ... 48 inch	D27
5-point, matched-pair factory calibration, DN ≥ 1400, ≥ 54 inch	D28
10-point matched-pair calibration	
10-point, matched-pair factory calibration, DN ≤ 200, ≤ 8 inch	D30
10-point, matched-pair factory calibration, DN 250 ... 600, 10 ... 24 inch	D31

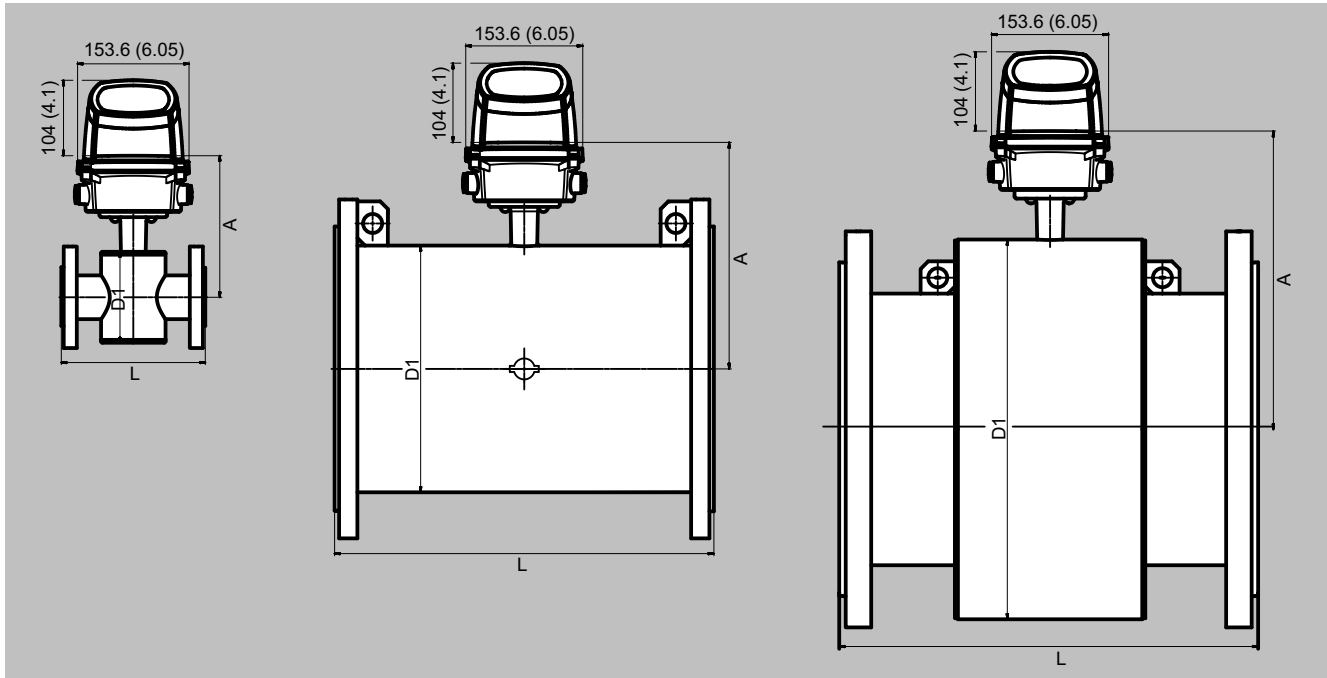
Additional information	Order code
10-point, matched-pair factory calibration, DN 700 ... 1200, 28 ... 48 inch	D32
10-point, matched-pair factory calibration, DN ≥ 1400, ≥ 54 inch	D33
Accredited ISO/IEC 17025 calibration	
ISO/IEC 17025 accredited, 5-point, matched-pair factory calibration, DN ≤ 200, ≤ 8 inch	D35
ISO/IEC 17025 accredited, 5-point, matched-pair factory calibration, DN 250 ... 600, 10 ... 24 inch	D36
ISO/IEC 17025 accredited, 5-point, matched-pair factory calibration, DN 700 ... 1200, 28 ... 48 inch	D37
ISO/IEC 17025 accredited, 5-point, matched-pair factory calibration, DN ≥ 1400, ≥ 54 inch	D38
General safety	
CSA General Purpose	E06
Explosion protection	
ATEX (Europe) & IECEx (World)	E20
FM (USA & Canada)	E22
IECEx (World)	E23
Country specific approvals	
CPA (China)	E75
Drinking water approvals	
WRAS (WRC, BS 6920, GB)	E80
NSF/ANSI 61 (Cold water, US)	E81
ACS (France)	E82
Compliance to Trinkwasserverordnung §14 (Germany)	E83
Belgaqua (Belgium)	E84
AS/NZS 4020 (Australia/New Zealand)	E85
GB/T 5750 (China)	E86
General purpose / Without drinking water approval	E89
Country of origin	
France	E90
Communication	
HART with 4 ... 20 mA output, active or passive	F01
Modbus RTU / RS485	F04
PROFIBUS PA	F05
PROFIBUS DP	F06
PROFINET	F07
EtherNet/IP	F09
MODBUS TCP/IP	F10
I/O extension	
Digital input / output, passive	F30
Custody transfer approval	
Without approval	G00
MI-001 cold water meter	G01
OIML R49 - Class 2 accuracy	G05
OIML R49 - Class 1 accuracy	G06
MI-001 - OIML R49 verification	
No initial verification, without certification, default factory calibration for DN 50 ... 300, 2 ... 12 inch	G10
Dynamic range Q3/Q1 = 40 DN 50 ... 300, 2 ... 12 inch	G11

SITRANS FM (electromagnetic)

Flow sensors

SITRANS FMS500

Dimensional drawings



SITRANS FMS500 Sensor: DN 15 ... 40, ½" ... 1½" (left), DN 50 ... 300, 2" ... 12" (middle) and DN 350 ... 2000, 14" ... 80" (right)

Sensor SITRANS FMS500 (7ME653)									
Nominal diameter		A		D1		L ¹⁾		Weight ¹⁾	
[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[kg]	[lbs]
15	½	170	6.7	77	3.0	200	7.9	5	11
25	1	180	7.1	96	3.8	200	7.9	6	13
40	1½	195	7.7	127	5.0	200	7.9	9	20
50	2	181	7.1	76	3.0	200	7.9	10	22
65	2½	187	7.4	89	3.5	200	7.9	12	26
80	3	193	7.6	102	4.0	200	7.9	13	29
100	4	200	7.9	114	4.5	250	9.8	17	37
125	5	210	8.3	140	5.5	250	9.8	20	44
150	6	225	8.9	168	6.6	300	11.8	27	60
200	8	250	9.8	219	8.6	350	13.8	39	86
250	10	277	10.9	273	10.8	450	17.7	56	123
300	12	303	11.9	324	12.8	500	19.7	72	159
350	14	375	14.8	451	17.8	550	21.7	115	254
400	16	400	15.7	502	19.8	600	23.6	143	315
450	18	431	17.0	563	22.2	600	23.6	177	390
500	20	456	18.0	614	24.2	600	23.6	222	489
600	24	507	20.0	715	28.2	600	23.6	321	708
700	28	557	21.9	816	32.1	700	27.6	331	730
750	30	584	23.0	869	34.2	750	29.5	-	-
800	32	609	24.0	927	36.5	800	31.5	386	851
900	36	656	25.8	1032	40.6	900	35.4	482	1063
1000	40	707	27.8	1136	44.7	1000	39.4	672	1482
1050	42	707	27.8	1136	44.7	1000	39.4	-	-
1100	44	758	29.8	1238	48.7	1100	43.3	-	-
1200	48	813	32.0	1348	53.1	1200	47.2	1116	2460
1400	54	918	36.1	1574	65.94	1400	55.1	1592	3502
1500	60	965	38.0	1672	65.83	1500	59.1	1850	4070
1600	66	1018	40.1	1774	75.39	1600	63.0	2110	4642
1800	72	1116	43.9	1974	77.72	1800	70.9	2560	5632
2000	80	1216	47.9	2174	85.59	2000	78.9	3640	8008