

LAMPIRAN



Company name:

Created by:

Phone:

Date:

06/06/2023

Qty. Description

1 NK 125-180/158 AA1F1S3ESBQQEGW5



Note! Product picture may differ from actual product

Product No.: On request

Non-self-priming, single-stage, centrifugal pump designed according to ISO 5199 with dimensions and rated performance according to EN 733. Flanges are PN 10 with dimensions according to EN 1092-2. The pump has an axial suction port, a radial discharge port and horizontal shaft. It is of the back pull-out design enabling removal of the motor, coupling, bearing bracket and impeller without disturbing the pump housing or pipework.

The unbalanced rubber bellows seal is according to DIN EN 12756.

The pump is fitted with a foot-mounted, fan-cooled asynchronous motor. Pump and motor are mounted on a common base frame.

Controls:

Frequency converter: NONE

Pressure sensor: N

Liquid:

Pumped liquid: Water

Liquid temperature range: -25 .. 120 °C

Selected liquid temperature: 20 °C

Density: 995.6 kg/m³

Kinematic viscosity: 1 mm²/s

Technical:

Pump speed on which pump data are based: 935 rpm

Actual calculated flow: 41.67 m³/h

Pump with motor (Yes/No): Y

Resulting head of the pump: 3 m

Actual impeller diameter: 158 mm

Nominal impeller diameter: 180

Code for shaft seal: BQQE

Mechanical seal type: Single

Curve tolerance: ISO9906:2012 2B

Bearing design: Standard

Materials:

Pump housing: Cast iron

EN 1561 EN-GJL-250

ASTM A48-35

Impeller: Stainless steel

EN 1.4308

ASTM A351 CF8

Internal pump house coating: Painting

Shaft: Steel

EN 1.0503/1.4301

AISI 1045/304

Installation:

Maximum ambient temperature: 40 °C

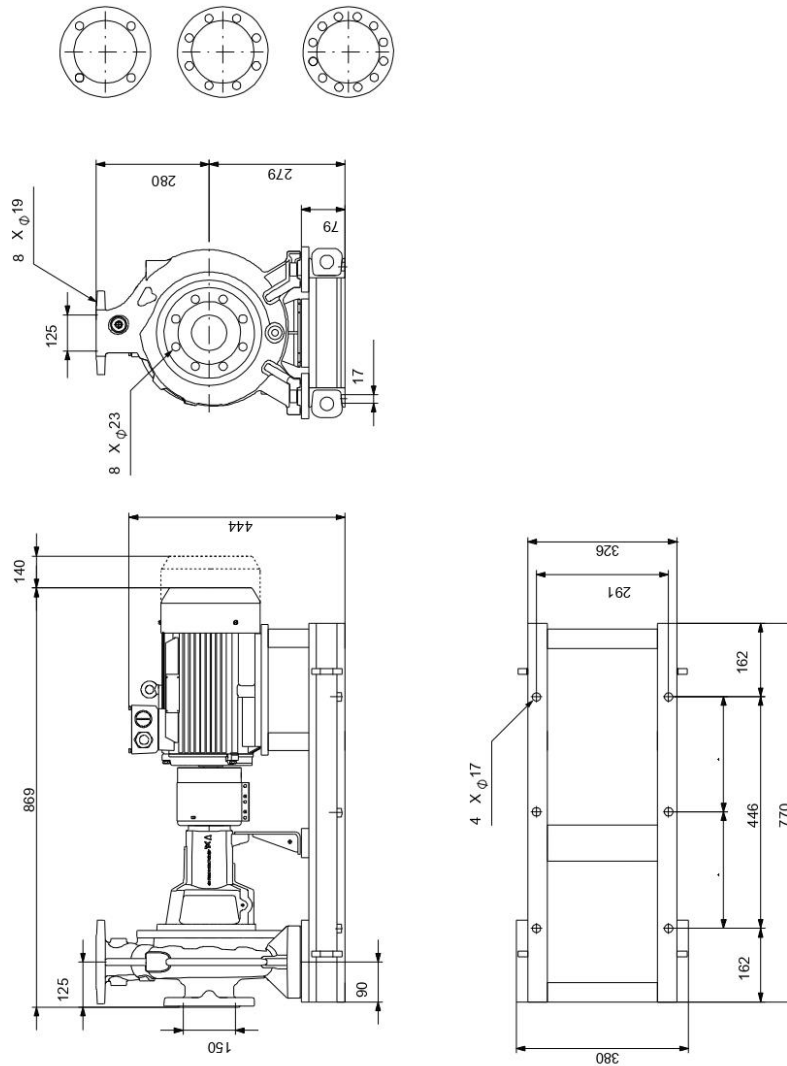


Company name:
Created by:
Phone:

Date: 06/06/2023

Qty.	Description
1	Maximum operating pressure: 10 bar Pipe connection standard: EN 1092-2 Type of inlet connection: DIN Type of outlet connection: DIN Pressure rating for connection: PN 10 Coupling type: Flexible w/o spacer Base frame design: C-channel Code for base frame: 278 Grouting (Yes/No): N Electrical data: Motor type: 90L Rated power - P2: 1.1 kW Mains frequency: 50 Hz Rated voltage: 3 x 220-230/380-400 V Rated current: 4,88-4,67/2,83-2,69 A RequestedVoltage: 400 V RatedCurrentAtThisVoltage: 2.69 A Starting current: 590-590 % Cos phi - power factor: 0.73-0.73 Rated speed: 935-935 rpm IE efficiency: IE3 81% - IE3 81% IE Efficiency class: IE3 Motor efficiency at full load: 81-81 % Motor efficiency at 3/4 load: 80.7-80.7 % Motor efficiency at 1/2 load: 79.5-79.5 % Number of poles: 6 Enclosure class (IEC 34-5): 55 (Protect. water jets/dust) Insulation class (IEC 85): F Motor No: 92740282 Bearing insulation type N-end: N Others: Minimum efficiency index, MEI ≥: 0.70 DOE Pump Energy Index CL: 0.00 DOE Pump Energy Index VL: 0.00 Net weight: 151 kg Gross weight: 182 kg Shipping volume: 0.575 m³ Country of origin: CN Custom tariff no.: 84137042

NK 125-180/158 AA1F1S3ESBQQEGW5 50 Hz



Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

Qty.	Description																																										
1	NKE 125-180/176 AA1F1S3ESBQQEJWA  Note! Product picture may differ from actual product Product No.: On request Non-self-priming, single-stage, centrifugal pump designed according to ISO 5199 with dimensions and rated performance according to EN 733. Flanges are PN 10 with dimensions according to EN 1092-2. The pump has an axial suction port, a radial discharge port and horizontal shaft. It is of the back pull-out design enabling removal of the motor, coupling, bearing bracket and impeller without disturbing the pump housing or pipework. The unbalanced rubber bellows seal is according to DIN EN 12756. The pump is fitted with a foot-mounted, fan-cooled, permanent-magnet synchronous motor. Pump and motor are mounted on a common base frame. The motor includes a frequency converter and PI controller in the motor terminal box. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement. Controls: <table> <tr> <td>Frequency converter:</td><td>Built-in</td></tr> <tr> <td>Pressure sensor:</td><td>N</td></tr> </table> Liquid: <table> <tr> <td>Pumped liquid:</td><td>Water</td></tr> <tr> <td>Liquid temperature range:</td><td>-25 .. 120 °C</td></tr> <tr> <td>Selected liquid temperature:</td><td>20 °C</td></tr> <tr> <td>Density:</td><td>995.6 kg/m³</td></tr> <tr> <td>Kinematic viscosity:</td><td>1 mm²/s</td></tr> </table> Technical: <table> <tr> <td>Pump speed on which pump data are based:</td><td>1189 rpm</td></tr> <tr> <td>Actual calculated flow:</td><td>41.67 m³/h</td></tr> <tr> <td>Pump with motor (Yes/No):</td><td>Y</td></tr> <tr> <td>Resulting head of the pump:</td><td>3.5 m</td></tr> <tr> <td>Actual impeller diameter:</td><td>144 mm</td></tr> <tr> <td>Nominal impeller diameter:</td><td>180</td></tr> <tr> <td>Code for shaft seal:</td><td>BQQE</td></tr> <tr> <td>Mechanical seal type:</td><td>Single</td></tr> <tr> <td>Curve tolerance:</td><td>ISO9906:2012 2B</td></tr> <tr> <td>Bearing design:</td><td>Standard</td></tr> </table> Materials: <table> <tr> <td>Pump housing:</td><td>Cast iron EN 1561 EN-GJL-250 ASTM A48-35</td></tr> <tr> <td>Impeller:</td><td>Stainless steel EN 1.4308 ASTM A351 CF8</td></tr> <tr> <td>Internal pump house coating:</td><td>Painting</td></tr> <tr> <td>Shaft:</td><td>Steel EN 1.0503/1.4301 AISI 1045/304</td></tr> </table> Installation:	Frequency converter:	Built-in	Pressure sensor:	N	Pumped liquid:	Water	Liquid temperature range:	-25 .. 120 °C	Selected liquid temperature:	20 °C	Density:	995.6 kg/m³	Kinematic viscosity:	1 mm²/s	Pump speed on which pump data are based:	1189 rpm	Actual calculated flow:	41.67 m³/h	Pump with motor (Yes/No):	Y	Resulting head of the pump:	3.5 m	Actual impeller diameter:	144 mm	Nominal impeller diameter:	180	Code for shaft seal:	BQQE	Mechanical seal type:	Single	Curve tolerance:	ISO9906:2012 2B	Bearing design:	Standard	Pump housing:	Cast iron EN 1561 EN-GJL-250 ASTM A48-35	Impeller:	Stainless steel EN 1.4308 ASTM A351 CF8	Internal pump house coating:	Painting	Shaft:	Steel EN 1.0503/1.4301 AISI 1045/304
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Company name:

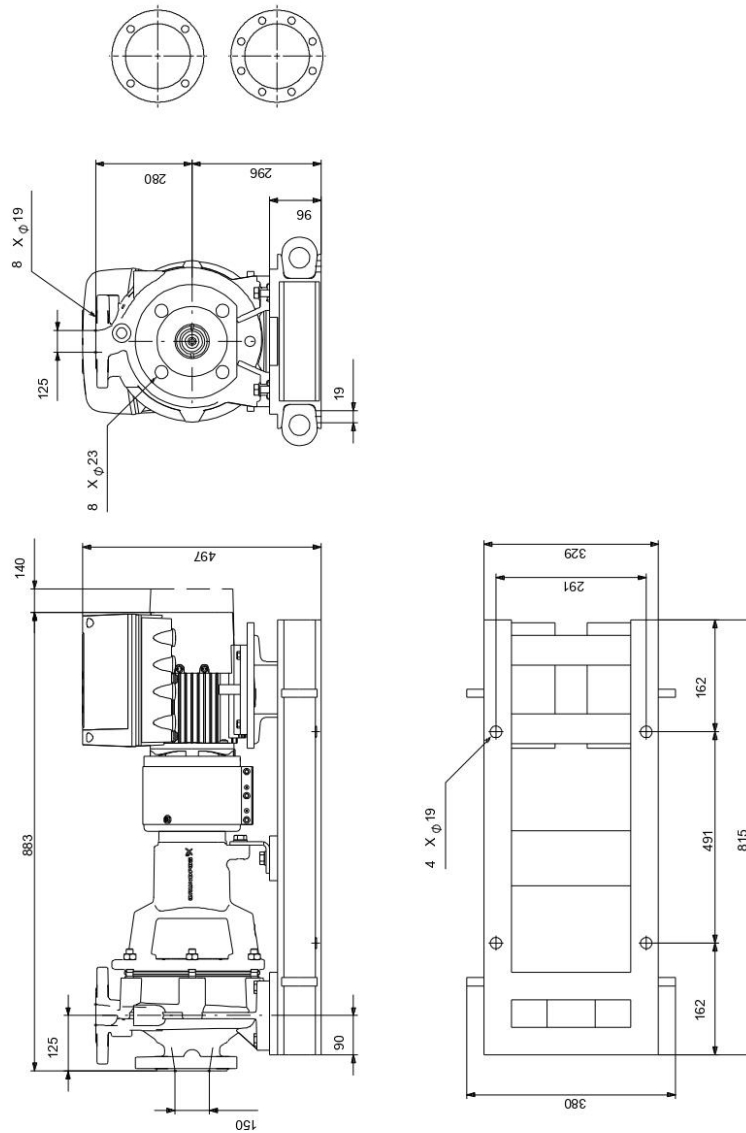
Created by:

Phone:

Date: 06/06/2023

Qty.	Description
1	Range of ambient temperature: -20 .. 50 °C Maximum operating pressure: 10 bar Pipe connection standard: EN 1092-2 Type of inlet connection: DIN Type of outlet connection: DIN Pressure rating for connection: PN 10 Coupling type: Flexible w/o spacer Base frame design: C-channel Code for base frame: 279 Grouting (Yes/No): N Electrical data: Motor type: 100LD Rated power - P2: 3 kW Mains frequency: 50 Hz Rated voltage: 3 x 380-500 V Rated current: 5.80-4.60 A Requested Voltage: 400 V RatedCurrentAtThisVoltage: 5.6 A Cos phi - power factor: 0.91-0.86 Rated speed: 180-2200 rpm IE Efficiency class: IE5 Motor efficiency at full load: 90.1 % Number of poles: 4 Enclosure class (IEC 34-5): IP55 Insulation class (IEC 85): F Motor No: 99305881 Bearing insulation type N-end: STEEL BEARING Others: Minimum efficiency index, MEI ≥: 0.70 Net weight: 148 kg Gross weight: 179 kg Shipping volume: 0.575 m³ Country of origin: CN Custom tariff no.: 84137042

NKE 125-180/176 AA1F1S3ESBQQEJWA 50 Hz



Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

Qty. Description

1 NKE 125-180/176 AA1F1S3ESBQQEJWA



Note! Product picture may differ from actual product

Product No.: 92778360

Non-self-priming, single-stage, centrifugal pump designed according to ISO 5199 with dimensions and rated performance according to EN 733. Flanges are PN 10 with dimensions according to EN 1092-2. The pump has an axial suction port, a radial discharge port and horizontal shaft. It is of the back pull-out design enabling removal of the motor, coupling, bearing bracket and impeller without disturbing the pump housing or pipework.

The unbalanced rubber bellows seal is according to DIN EN 12756.

The pump is fitted with a foot-mounted, fan-cooled, permanent-magnet synchronous motor. Pump and motor are mounted on a common base frame.

The motor includes a frequency converter and PI controller in the motor terminal box. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement.

Controls:

Frequency converter: Built-in
Pressure sensor: N

Liquid:

Pumped liquid: Water
Liquid temperature range: -25 .. 120 °C
Selected liquid temperature: 20 °C
Density: 995.6 kg/m³
Kinematic viscosity: 1 mm²/s

Technical:

Pump speed on which pump data are based: 1270 rpm
Actual calculated flow: 79.2 m³/h
Pump with motor (Yes/No): Y
Resulting head of the pump: 6.5 m
Actual impeller diameter: 176 mm
Nominal impeller diameter: 180
Code for shaft seal: BQQE
Mechanical seal type: Single
Curve tolerance: ISO9906:2012 2B
Bearing design: Standard

Materials:

Pump housing: Cast iron
EN 1561 EN-GJL-250
ASTM A48-35
Impeller: Stainless steel
EN 1.4308
ASTM A351 CF8
Internal pump house coating: Painting
Shaft: Steel
EN 1.0503/1.4301
AISI 1045/304

Installation:



Company name:

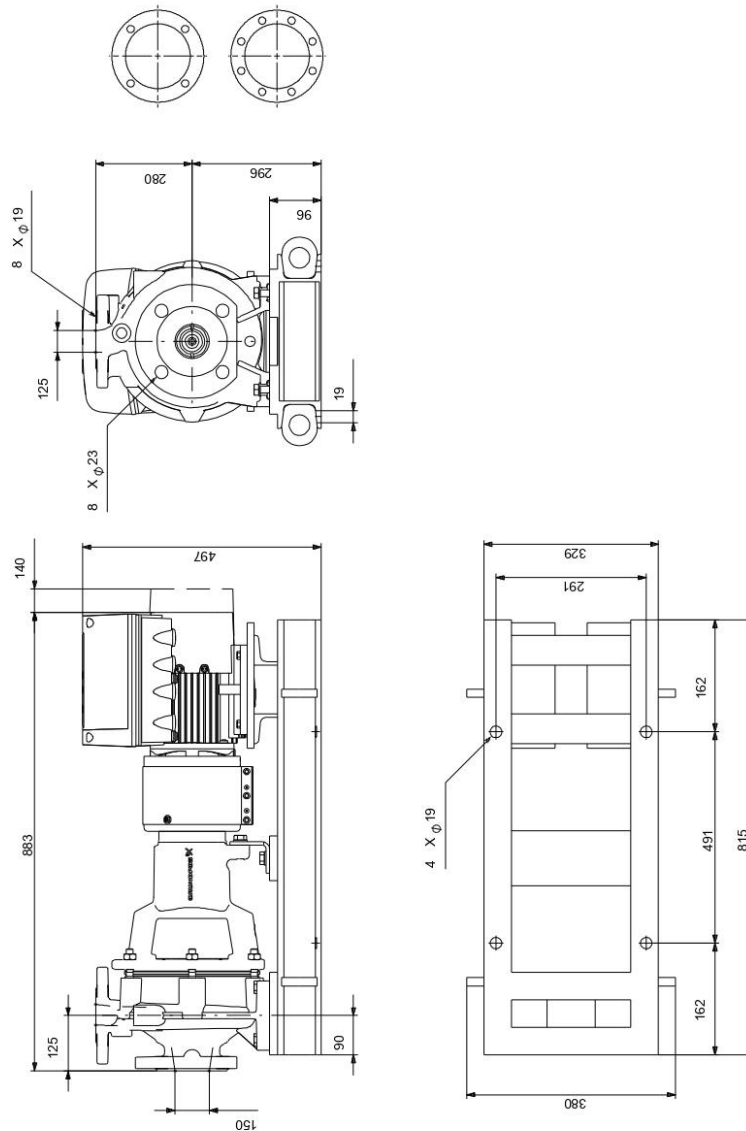
Created by:

Phone:

Date: 06/06/2023

Qty.	Description
1	Range of ambient temperature: -20 .. 50 °C Maximum operating pressure: 10 bar Pipe connection standard: EN 1092-2 Type of inlet connection: DIN Type of outlet connection: DIN Size of inlet connection: DN 150 Size of outlet connection: DN 125 Pressure rating for connection: PN 10 Coupling type: Flexible w/o spacer Base frame design: C-channel Code for base frame: 279 Grouting (Yes/No): N Electrical data: Motor type: 100LD Rated power - P2: 3 kW Mains frequency: 50 Hz Rated voltage: 3 x 380-500 V Rated current: 5.80-4.60 A RequestedVoltage: 400 V RatedCurrentAtThisVoltage: 5.6 A Cos phi - power factor: 0.91-0.86 Rated speed: 180-2200 rpm IE Efficiency class: IE5 Motor efficiency at full load: 90.1 % Number of poles: 4 Enclosure class (IEC 34-5): IP55 Insulation class (IEC 85): F Motor No: 99305881 Bearing insulation type N-end: STEEL BEARING Others: Minimum efficiency index, MEI ≥: 0.70 Net weight: 148 kg Gross weight: 179 kg Shipping volume: 0.575 m³ Country of origin: CN Custom tariff no.: 84137042

92778360 NKE 125-180/176 AA1F1S3ESBQQEJWA 50 Hz



Note! All units are in [mm] unless others are stated.
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Qty.	Description																																										
1	DMX 16-12 B-PVC/E/C-X-G11007XEMNG 99206068  Note! Product picture may differ from actual product Product No.: 99206068 The 221 pump of the DMX series is a versatile positive displacement diaphragm dosing pump. The diaphragm is coupled mechanically via a precise gear-eccenter-tapet-system to a high efficiency AC motor. The dosing capacity is adjusted by varying the stroke length at the stroke adjustment knob in the ratio 1:10. The liquid end is composed of: - PVC Dosing head - PTFE coated diaphragm - Double ball valves up to 50 l/h and single ball valves from 60 l/h Other features: - Robust industrial pump with chemical resistance plastic enclosure - Easy to install and operate design - Long life PTFE coated diaphragm - Optimum capacity and stroke frequency graduation - Dosing flow variation $\pm 1.5\%$ (FS), linearity $\pm 4\%$ (FS) Controls: <table> <tr> <td>Type of connector:</td><td>No plug</td></tr> <tr> <td>Type of control variant:</td><td>Standard</td></tr> <tr> <td>Frequency converter:</td><td>Not prepared for VFD</td></tr> </table> Liquid: <table> <tr> <td>Pumped liquid:</td><td>Water</td></tr> <tr> <td>Liquid temperature range:</td><td>0 .. 40 °C</td></tr> <tr> <td>Selected liquid temperature:</td><td>20 °C</td></tr> <tr> <td>Density:</td><td>998.2 kg/m³</td></tr> </table> Technical: <table> <tr> <td>Nominal flow rate at 50 Hz:</td><td>16 l/h</td></tr> <tr> <td>Number of dosing heads:</td><td>1</td></tr> <tr> <td>Approvals:</td><td>CE, EAC, CNROHSEX</td></tr> <tr> <td>Non return valve type, inlet pump 1:</td><td>Standard</td></tr> <tr> <td>Non return valve type, outlet pump 1:</td><td>Standard</td></tr> <tr> <td>Max viscosity:</td><td>200 mPas</td></tr> </table> Materials: <table> <tr> <td>Pump housing:</td><td>Thermoplastic</td></tr> <tr> <td>Dosing head, pump 1:</td><td>Plastic</td></tr> <tr> <td></td><td>PVC</td></tr> <tr> <td>Valve ball:</td><td>Ceramic</td></tr> <tr> <td></td><td>Al2O3</td></tr> <tr> <td>Valve seat:</td><td>Rubber</td></tr> <tr> <td></td><td>EPDM</td></tr> <tr> <td>Valve gasket:</td><td>EPDM</td></tr> </table>	Type of connector:	No plug	Type of control variant:	Standard	Frequency converter:	Not prepared for VFD	Pumped liquid:	Water	Liquid temperature range:	0 .. 40 °C	Selected liquid temperature:	20 °C	Density:	998.2 kg/m³	Nominal flow rate at 50 Hz:	16 l/h	Number of dosing heads:	1	Approvals:	CE, EAC, CNROHSEX	Non return valve type, inlet pump 1:	Standard	Non return valve type, outlet pump 1:	Standard	Max viscosity:	200 mPas	Pump housing:	Thermoplastic	Dosing head, pump 1:	Plastic		PVC	Valve ball:	Ceramic		Al2O3	Valve seat:	Rubber		EPDM	Valve gasket:	EPDM
Type of connector:	No plug																																										
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Valve seat:	Rubber																																										
	EPDM																																										
Valve gasket:	EPDM																																										



Company name:

Created by:

Phone:

Date: 23/05/2023

Qty.	Description
1	Rubber Installation: Max operating pressure at 50 Hz: 12 bar Maximum permissible inlet pressure: 0 bar Type of inlet connection: Installation set Type of outlet connection: Installation set Size of inlet connection: 6/12 Size of outlet connection: 6/12 Max. Suction lift during operation: 4 m Electrical data: Power input P1: 0.09 kW Mains frequency: 50 Hz Max. frequency: 50 Hz Rated voltage: 1 x 220/240 V Enclosure class (IEC 34-5): IP65 Cable included (Yes/No): N Power plug: No plug Others: Net weight: 7 kg Gross weight: 9.55 kg Shipping volume: 0.04 m³ Diaphragm Leakage Detection: N Country of origin: SG Custom tariff no.: 84135031

Basic Selection

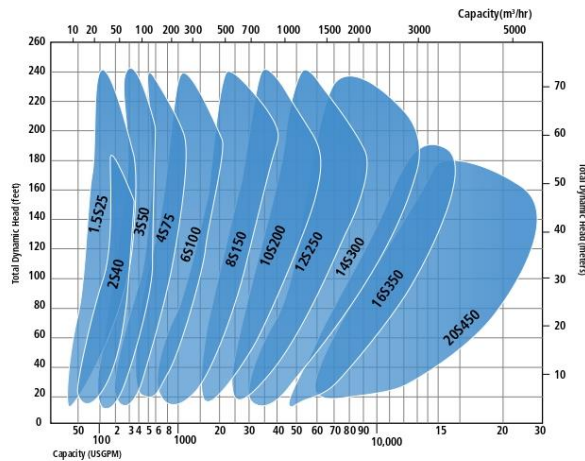
S SERIES HYDRAULIC COVERAGE

All Models Available with Elastomer

Maximum Working Pressure:

Elastomer — 170 psi (1172 kPa)

Chrome Iron — 300 psi (2068 kPa)



MATERIAL SELECTION

	Liners	Impellers	Expeller	Stuffing Box Expeller Ring	Shaft Sleeve	Seals	Casing	Base
Standard	Chrome Alloy* Natural Rubber	Chrome Alloy* Natural Rubber	Chrome Alloy*	Chrome Alloy*	420C SS	Rubber Nitrile	Ductile Iron	Ductile Iron
Options	Proprietary Alloys Stainless Steels Duplex Alloys Hastelloy Neoprene Butyl EPDM Hypalon Nitrile	Proprietary Alloys Stainless Steels Duplex Alloys Hastelloy Neoprene Butyl EPDM Hypalon Nitrile	Ductile Iron Proprietary Alloys Stainless Steels Duplex Alloys Hastelloy Nat. Rubber	Natural Rubber Ductile Iron Proprietary Alloys Stainless Steels Duplex Alloys Hastelloy	CD4MCU 316 SS Hastelloy C Hard Coatings	Viton EPDM	N/A	N/A

*Standard Chrome Alloy: ASTM A532 Class III Type A- 27% Cr; 650BHN; Alternatives available for highly corrosive services.



Schurco Hydraulic and Maintenance Training Seminar
(Schurco 6x4 S Series natural rubber pump).

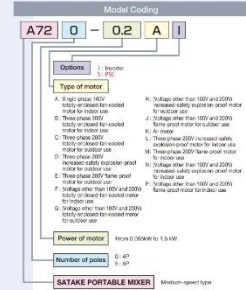


Schurco 8x6 S Series pumps at an
industrial sand producer

A720,A725

Number of revolution 50Hz : 300min⁻¹ 60Hz : 360min⁻¹

A720 is ideal for soluble liquids mixing, dilution, heat transfer, solid-liquid mixing, dispersion, antisedimentation and homogeneous mixing. Compact, light, but tough. The clamp is integrated with the mixer body.



BTF300
option



P36 Impeller
for Medium-speed type

This superior hydrofoil impeller with a camber and a rake angle at each blade can generate high-speed axial flows.

JPN PAT.No.827551

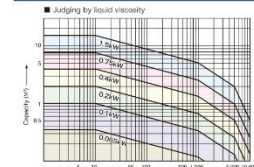
Standard specification

Mode	Frame number	Motor			Impeller			Shaft length (mm)
		Power (kW)	Phase and voltage	Frequency (Hz)	Revolution (rpm)	Diameter (mm)	Stages	
A720-0.065A	1	0.065	4 Single phase 220	50	300	150	1	600
A720-0.1A		0.1	4 Single phase	50	300	200	1	800
A720-0.18		0.18	4 Three phase	50	300	200	1	800
A720-0.2A	2	0.2	4 Single phase 220	50	300	270	1	1000
A720-0.28		0.28	4 Three phase	50	300	270	1	1000
A720-0.43		0.4	4 Three phase	50	300	310	1	1250
A720-0.48	4	0.4	4 Three phase	50	240	350	1	1500
A720-0.78A		0.75	4 Three phase	50	300	350	1	1500
A720-0.78B	5	0.75	4 Three phase	50	240	400	1	2000
A720-1.1		1.1	4 Three phase	50	300	400	1	2000
A720-1.58		1.5	4 Three phase	50	300	400	1	2000

[†] This model is the successor to ASSE model

^a This model is the successor to A&E model.

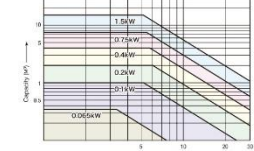
Charts to select the mixing capacity (For Medium-speed type)



¹ Please refer to us when the viscosity is 1000 mPa · s or more, or when the specific gravity is 1.2 or more.

- It takes 5 minutes or more to mix a liquid with another liquid.

Judging by particle sedimentation velocity



* Please refer to us when the impeller diameter is 35% of the tank diameter or smaller.

* Please refer to us when the incisor diameter is 25% of the tank diameter or smaller.

Options

Electric component	Inverter, Control panel, etc.
Impeller	Three bladed propeller, Pacelle, Turbine, etc.
Material	Low carbon material, Hastelloy, Titanium, etc.
Lining	Rubber lining, PVC, FRP, etc.
Sanitary	Wetted part : Buffing, Electrochemical polishing, Welding, etc. Body : Stainless steel cover for motor, speed changer and reducer, Stainless coating, Special plating, etc.
Other options	One touch coupling, Safety cover, etc.

Standard dimensions

Model	Frame number	Motor size (A)	Dimension profile												Estimated weight (kg)	
			B	B-MAX	φH	D	E	F	G	H	MAX	I	J	K		L
A720	1	0.065 A	2666	666	950	15	160	85	(182)	100	28	48	85	(48)	40	10
		0.08 A	2666	760	960	13	220	85	(182)	100	28	48	85	(48)	40	11
		0.1 B	2920	920	980	13	220	85	(173)	100	28	48	85	(48)	40	11
		0.2 A	3176	1080	1100	12	270	101	(173)	125	30	55	105	(48)	40	12
		0.3 A	3276	1080	1300	16	270	101	(173)	125	30	55	105	(48)	40	15
	2	0.4 A	3382	1100	1400	20	310	122	(200)	140	39	65	120	(58)	52	19
		0.5 B	3410	1220	1510	21	350	122	(200)	140	40	65	140	(58)	52	20
		0.6 A	3410	1220	1610	21	350	122	(200)	140	40	65	140	(58)	52	20
		0.7 B	3410	1220	1710	21	350	122	(200)	140	40	65	140	(58)	52	20
		0.8 B	3410	1220	1810	21	350	122	(200)	140	40	65	140	(58)	52	20

^b The estimated weight shows the total amount including the motor, the mixing shaft, and the impeller.

* The standard painting color is N6.5 of Munsell color system. The painting color for motor depends on each manufacturer's standard.

*The standard painting color is 42.3 of Munsell color system. The painting color for motor depends on each manufacturer's standard color.

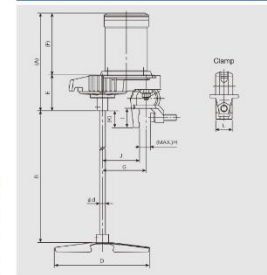
Applicable stands and tanks

Mixer		Applicable stand	Applicable tank
Model	Power(W)		
A720	0.003	ZS-1	ZT-20, ZT-25, ZT-35, ZT-45
			ZT-45, ZT-90, ZT-190, ZT-190
		ZU-1	ZT-55, ZT-90, ZT-190, ZT-190
	0.1	ZS-2	ZT-55, ZT-90, ZT-190, ZT-190
		ZU-1	ZT-200
	0.2	ZS-3	ZT-150, ZT-200 300 ~ 800 ℓ
			300 ~ 800 ℓ
		ZU-1	ZT-200
	0.4	ZS-3	300 ~ 2000 ℓ
		ZS-5	300 ~ 2000 ℓ
	0.75	ZS-5	300 ~ 3000 ℓ

* Please ask us about the applicable

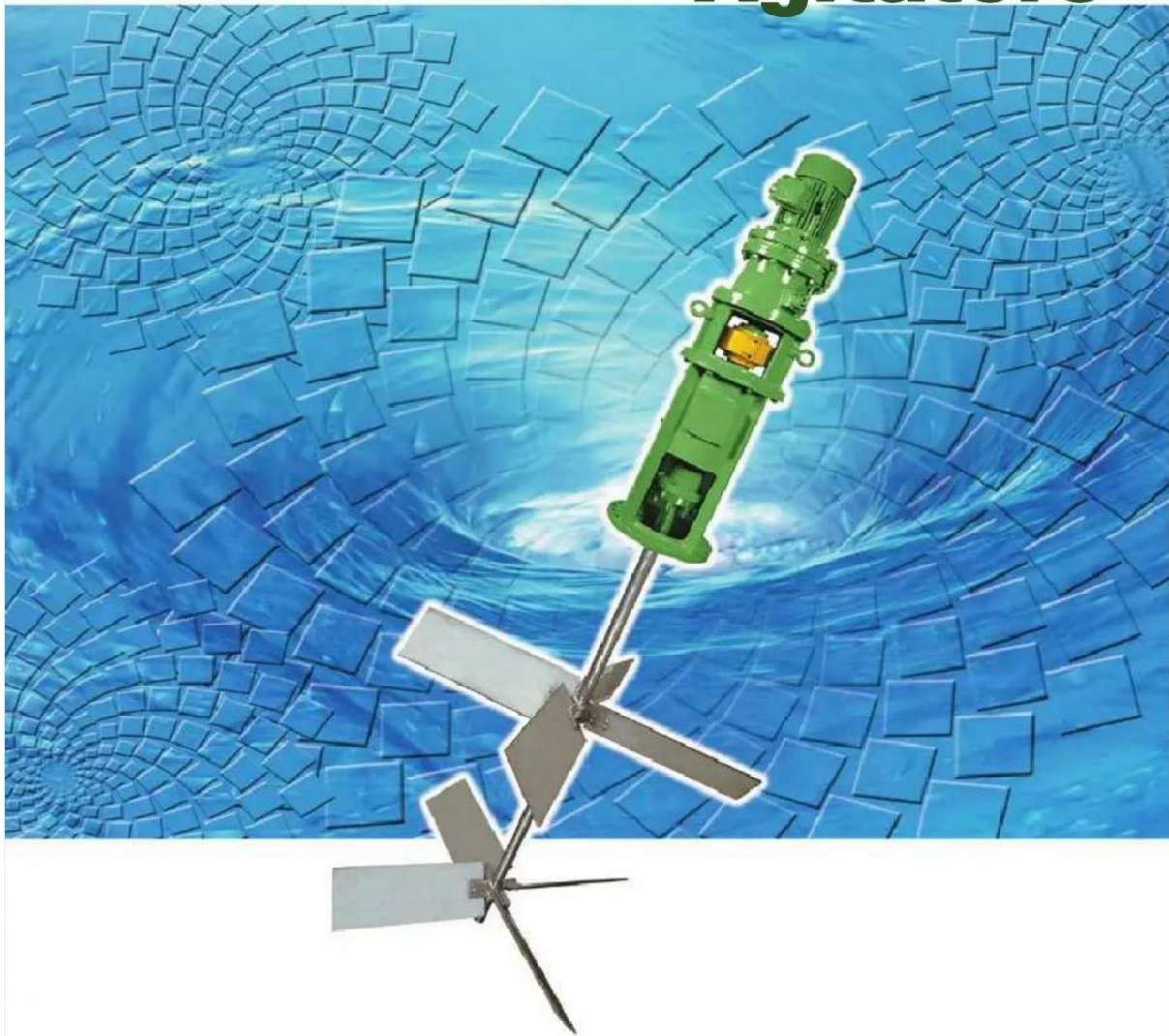
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Dimensional drawing



TACMINA

Agitators



www.tacmina.com

TACMINA Agitators for All Agitation and Mixing Needs

TACMINA Agitators for All Agitation and Mixing Needs

Manufacturing processes not only in the food and chemical industries but also in all sectors of industry are diversifying. Agitators are now required to immediately meet varying on-site conditions. TACMINA's range of agitators has been

further enhanced to cover agitation of liquids, slurry, kneaders, static mixers, and other related equipment.

Select the ideal model to suit your on-site requirements as if you are ordering a custom-made machine.



TACMINA AGITATORS

Extensive Applications

Chemical industry

Uniform mixing of various raw materials, suspension, reaction, melting, promotion of heat transfer, dispersion, various chemical plants, etc. (soap, paint, etc.)

Food industry

High-precision mixing of raw food materials, suspension melting, heat transfer, etc. (sugar, alcohol, tempura coating, etc.)

Chemical industry

High-precision mixing of raw chemical materials, suspension melting, heat transfer, etc.

Petrol industry

Blending, gas absorption, reaction, extraction, suspension of sludge, etc. (petrol, gasoline, refining, etc.)

Papermaking industry

Uniform agitation of chest and black liquor, etc.

Fermenting industry

Aeration, promotion of fermentation, mixing of solutions, etc.

Fat industry

Heating, mixing, extraction, reaction, storage, etc.

Rubber industry

Suspension polymerization, extraction, melting of rubber, etc.

Textile industry

High-viscosity polymer mixing, melting of dye, mixing of glue materials, etc.

Coal related

Slurrification, COM adjustment, prevention of COM precipitation, gasification adjustment tanks, etc.

Water treatment

Waste water treatment, surface aeration, chemical adjustment, waste liquid treatment, etc.

Prevention of air pollution

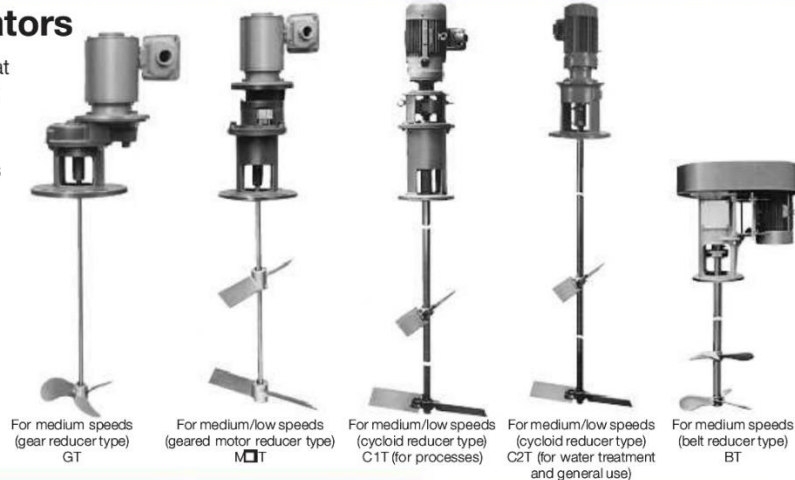
Exhaust-gas desulfurization (plaster slurry tank), etc.

Models Suited to Specific On-site Needs

Select from three types - vertical, portable, horizontal - to suit pre- and post-manufacturing processes and on-site conditions.

Vertical Agitators

These agitators are fixed at the top part of tanks, and their shafts are inserted vertically for use. Two features of these agitators is a long service life and little vibration.

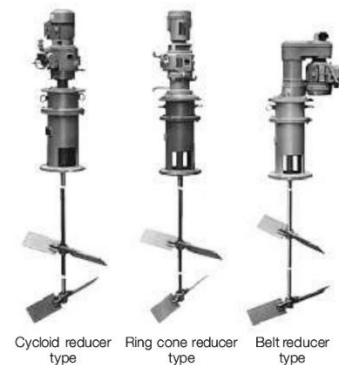


Portable Agitators

Compact and lightweight, these highly portable agitators can be easily attached onto or removed from the top edge of tanks or support bases.



Variable Speed Model (custom order)



Horizontal Agitators

These agitators are mounted directly onto the side wall of tanks, and are used for large-capacity tanks or deep liquid tanks, or when there are height or other restrictions.



Agitators for bottom surfaces can also be controlled.

Model Code

M **T** **O** - **0.1** - **1** - **S**

① Transmission method

- G: Gear reducer
- MT: Geared motor reducer type
- B: Belt reducer type
- C1: Cycloid reducer type (for processes)
- C2: Cycloid reducer type (water treatment, general purpose)

* Gear ratio is indicated in **□** only in the case of transmission method M.

M10 : 1/10 M30 : 1/30
M15 : 1/15 M50 : 1/50
M20 : 1/20 CS8 : 1/8 CS15: 1/15
CS11: 1/11

② Type

- S: Portable type
- T: Vertical type
- L: Horizontal type

③ Shaft seal method

- O: Open
 - P: Sealed (gland packing seal)
- * Mechanical seals, vapor seals, and water seals can be produced.

④ Motor output (kW)

Single-phase motors are appended with "A". (Example: 0.1 A)

⑤ Liquid contact materials

- 1: SUS304
- 2: SUS316
- 3: Rubber lining
- 4: PE lining
- 5: PVC lining

⑥ Others

- S: Standard
- X: Special
- * 6-pole motor
- * Other special specifications

Model Selection

When selecting the type of agitator and motor drive, it is important that you fully understand specifications and operating conditions.

Your dealer will select the ideal agitator model matched to your particular requirements for you. Check each of the following items, fill in the table on the rear of this catalog, and inform your dealer of this information.

Agitation Force

Check your particular agitation requirements and physical conditions of the liquid you are going to agitate before checking the agitation force.

Motor Drive

Confirm that the motor drive matches the volume of liquid.



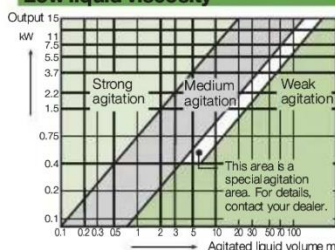
Shaft Seal Unit

Select a seal unit that matches the operating conditions. For horizontal agitators, select the gland packing seal or mechanical seal.



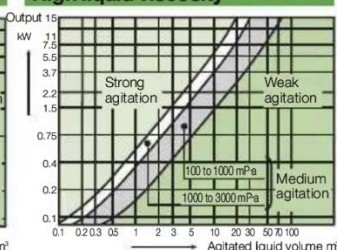
Agitation Force	Strong	Medium	Weak
Liquids ↔ Liquids Agitation	- Uniform mixing and agitation of high-viscosity liquids - Uniform mixing of insoluble liquids having different phases	- Short-term agitation of soluble liquids - Mixtures of medium- to high-viscosity liquids that may be agitated gently	- Gentle agitation of low-viscosity soluble liquids - Storage tank for low-viscosity products
Solids ↔ Liquids Agitation	Agitation such as mixing, dissolving, and melting of high-specific gravity liquids and solid particles having a large grain size	- Agitation such as mixing, dispersion, and dissolving of solid particles - Particle grain size: 2.3 or less - Particle grain size: 200 mesh or less - Particle concentration: 10 to 20 wt% or less - Prevention of precipitation of solid particles - Particle true specific gravity: 2.3 - Particle grain size: 200 mesh (74μm) - Particle concentration: 10 wt% or less	—
Gases ↔ Liquids Agitation	Gas absorption/reaction/culture agitation of medium- to high-viscosity liquids	Gas absorption/reaction/culture agitation of low-viscosity liquids	—
Heat transfer Agitation	- Uniform heating of high-viscosity liquids inside tanks - When fast agitation of medium- to low-viscosity liquids	Uniform heating of medium- to low-viscosity liquids inside tanks	Simple temperature regulation, etc.

Low liquid viscosity



- In the case of soluble liquid-liquid agitation
- Specific gravity range of liquid is 1.0 to 1.05.

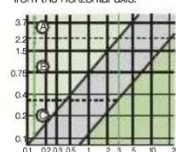
High liquid viscosity



- When the weak agitation range is for gentle agitation.
- Agitation time set between 15 to 25 minutes
- Cylindrical agitation tank with tank diameter (D)/height (H) ratio (H/D) within range 0.8 to 1.1

How to interpret selection charts

Find the agitated volume on the horizontal axis, and read the required motor output on the vertical axis inside the agitation strength range on the line extending upwards from the horizontal axis.



(Example) When agitating non-viscous liquid of volume 3m³, (A) is strong agitation range, (B) the medium agitation range, and (C) the weak agitation range.

Open (standard)

Sealed (gland packing seal)

100°C, 0.1 MPa or less

- * At 100°C or higher, a water jacket is provided. (custom order product)



Gland packing seal

Special (mechanical seal)

Simple mechanical seal

250°C, 1 MPa or less

Double mechanical seal

250°C, 0.8 to 2 MPa or less

Dry mechanical seal

150°C, 0.2 MPa or less



Mechanical seal

- * Vapor seals and water seals can also be produced. 100°C, 1 kPa or less (External intrusion of dust and vapor from the tank at low temperatures and pressures can be prevented.)



Vapor (oil) seal

Tank bottom bearings are also available



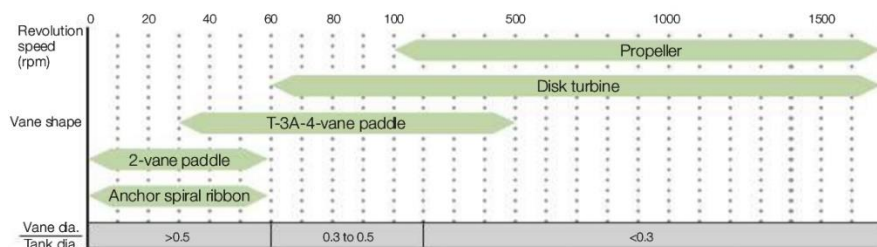
Foot bearing



Simple type

Impeller

Selection of the optimum impeller shape is vital. (Your dealer will select the impeller matched to your specifications.)



Standard Specifications

3-vane propeller

This axial flow propeller is the most widely used to obtain a large circulation volume.



3-vane propeller (standard)

Paddles

4-45° paddle

This paddle produces a high agitation effect flow by the combined action of radial flow and axial flow. It is ideal for agitation of large volumes of comparatively high-viscosity liquids, (500 to 20000mpA*s) liquids at slow speeds, and is used at rotation speeds of vane outer peripheral speeds of 3m/sec or less.



Paddle (4-45° paddle)

2-45° paddle

This paddle is used for the same applications as the 4-45° paddle except that it is used for bringing the effect of agitation closer to the inner wall of the tank depending on the characteristics of the liquid.



Paddle (2-45° paddle)

Special Specifications

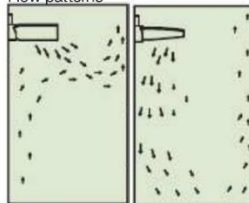
T-3A

This propeller can be substituted for almost all 4-45° paddles. The same performance can be achieved by half the motor power. T-3A generates a more powerful axial flow than the 4-45° paddle, and does not allow dead space even at large bottom clearances.



T-3A

Flow patterns



4-45° paddle

T-3A impeller

Anchor

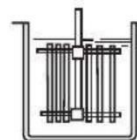
This horse shoe shaped vane matches the surface of tank bottoms. It can also be made to user specifications for special applications.



Anchor paddle

Gate type vane (bobbin vane)

This is used for slow agitation in large tanks.



Gate type

Stabilizer

Stabilizer ring
This is particularly effective for preventing vibration of the mounting agitation shaft when a longer than standard agitation shaft is required and agitation down to the bottom of the tank is required.



Stabilizer ring

3-vane propeller

Marine type

This 3-dimensionally twisted propeller is extremely efficient. It is used mostly in the 200 to 350 rpm medium rotation speed range.



3-vane propeller (Marine type)

Disk turbine

6-45° disk turbine

Axial flow, radial flow and shearing flow that are used for every kind of application is uniformly obtained by this turbine. The disk turbine is ideal for high-viscosity (5000 to 20000 mPa*s) liquid-liquid agitation and high concentration solid-liquid agitation.



Disk turbine (6-45° disk turbine)

Spiral ribbon

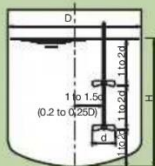
The inner screw stirs the liquid upwards while the outer ribbon pushed the liquid down to screw a powerful vertical circulatory flow. The spiral ribbon is used for mixing of high-viscosity liquids, melting, and heat transfer.



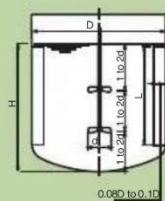
Spiral ribbon

Mounting procedure for vertical agitators

In this example, the agitator is mounted eccentrically in the tank to obtain vertical convection and turbulence in the direction of axial flow.



In this example, the agitator is mounted at the center of the tank, and baffle plates are attached on the inner wall of the tank to create vertical convection and turbulence.



Baffle plates 3 or 4 locations

In this example, the agitator is mounted eccentrically in a flat bottom tank. Corners are provided at the bottom of the tank to prevent settling and retention when there is a particularly large difference in specific gravities in melting slurry, mixing, and liquid-liquid agitation.



* In case of propeller

**For medium speeds
(gear reducer type)**

As this vertical agitator is a high-precision gear unit, it emits little sound during operation, is compact, and demonstrates high performance.

**For medium/low speeds
(geared motor reducer type)**

This model emits little sound during operation as it is a high-precision gear unit. The desired revolution speed can also be selected according to applications such as the agitation of viscous liquids.

**For medium speeds
(belt reducer type)**

As this compact and easy-to-maintain model is designed in a simple mechanism, it will hardly malfunction, and will emit little sound during operation. At motor drives of 5.5 kW or more, shaft diameter, length and other mechanical parts can be set to match the operating environment.

**For medium/low speeds
(cycloid reducer type)
(for processes)**

This model has been designed to be rigid for use in processes. Select the model to suit your particular requirements. A high-precision cyclo, Bayel-Cyclo, ring cone, and other adjustable speed reducers can also be mounted. A mechanical seal type is also available.

* Please contact us for details.

**For medium/low speeds
(cycloid reducer type)
(for water treatment and general use)**

This model is designed to have highly applicable functions. Select the model to suit your particular requirements. A high-precision cyclo, Bayel-Cyclo and other adjustable speed reducers can also be mounted.

* Please contact us for details.



GTO



BTO



C2T

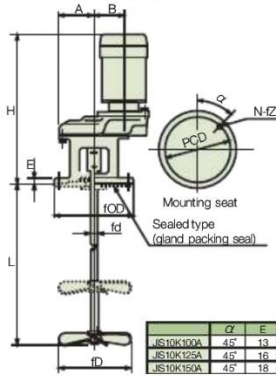


MOT



C1T

External Dimensions



* Dimension H varies slightly according to motor manufacturer.

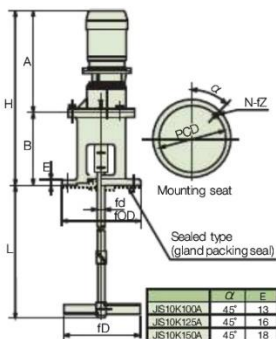
Specification Dimensions

0.4 kW or more for 6-pole motor (customer order). Also, body, shaft diameter and propeller diameter dimensions increase by one more rank.

Model	Motor		Revolution Speed (min ⁻¹)	Agitation Shaft		3-vane propeller		Main Body		Mounting Flange				Max. Agitation Capacity		Approx. Weight kg		
	Output kW	Speed 50Hz 60Hz		Standard length (L)	Shaft Dia. (D)	1st stage dia. (d1)	2nd stage dia. (d2)	(H)	(A)	(B)	Nominal dia. JS-10K	O.D. (OD)	Pitch (PCD)	Hole (Z)	Nuts (N)			
				mm	mm	mm	mm	mm	mm	mm							mm	mm
GTO-0.065A	0.065		600	13	160	120	352	73	70	100A	210	175	19	4	400	100	16	
GTO-0.1A	0.1	295 350	800	13	200	160	367	73	70	100A	210	175	19	4	600	200	18	
GTO-0.1	0.1	(4-pole motor) (4-pole motor)	800	20	200	160	329	73	70	100A	210	175	19	4	600	200	17	
GTO-0.2A	0.2	190 230	1000	16	250	200	404	73	70	100A	210	175	19	4	1200	400	20	
GTO-0.2	0.2	(6-pole motor) (6-pole motor)	1000	16	250	200	363	73	70	100A	210	175	19	4	1200	400	19	
GTO-0.4	0.4		1200	22	300	250	426	98	93	125A	250	210	23	4	2500	800	30	
GTO-0.75	0.75		1400	22	350	300	449	98	93	125A	250	210	23	4	5000	1500	39	

- The 2-stage, 3-vane propeller is optional.
- Idling is prohibited.
- The standard paint color is Munsell 10GY-6/6.
- The standard liquid-end materials are SUS304 and SUS316. Linings are also available in various materials.
- The standard motor is a 4-pole, totally enclosed fan-cooled outdoor type. However, the single phase motor 0.065A and 0.1A is the totally enclosed indoor type, and 0.2A is the totally enclosed fan cooled indoor type.

External Dimensions



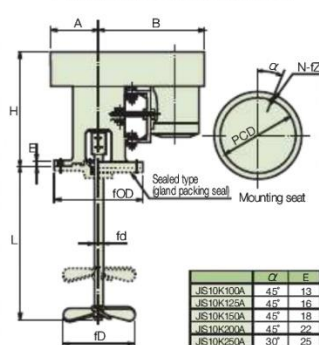
- * Can be made up to 0.75 kW/1/20.
- * Dimensions H and A vary slightly according to motor manufacturer.
- * Paddle, 3-vane propeller and turbine impellers are also available.
- * Agitators having a gear ratio other than the above are also available.

Specification Dimensions

Model	Motor/Gear Reducer		Revolution Speed (min ⁻¹)	Agitation Shaft		2-vane Paddle	Main Body	Mounting Flange						Max. Agitation Capacity		Approx. Weight W/ motor	
	Output	Gear Ratio		Standard length	Shaft Dia. D			Nominal dia. JS-10K	O.D. (OD)	Pitch (PCD)	Hole (Z)	Hole (N)	Diluted Liquids	Medium Viscosity Liquid			
															(H) (A) (B)		
	kW	i	50Hz	60Hz	mm	mm	mm	mm	mm	mm	mm	mm	PCS	l	kg		
M□T□ - 0.1A	0.1	1/10	150	180			200									18	
		1/15	100	120			250									18	
		1/20	75	90			300	410	241							18	
		1/30	50	60			350									19	
		1/50	30	36			500							700	300	20	
1/10	150	180			200										21		
M□T□ - 0.1	0.1	1/15	100	120	1000	16	250			169	100A	210	175	19	4		21
		1/20	75	90			300	468	299								22
		1/30	50	60			350										22
		1/50	30	36			500										24
		1/10	150	180			250										19
1/15	100	120			300	451	282									19	
M□T□ - 0.2A	0.2	1/20	75	90			350										20
		1/30	50	60			450										27
		1/50	30	36	1200	22	550	480	296	184	125A	250	210	23	4		29
		1/10	150	180			250								1300	600	22
		1/15	100	120	1000	16	300	502	333	169	100A	210	175	19	4		22
1/20	75	90			350											23	
1/30	50	60			450	531	347									30	
1/50	30	36			550											32	
M□T□ - 0.2	0.2	1/10	150	180			250										22
		1/15	100	120	1000	16	300	502	333	169	100A	210	175	19	4		22
		1/20	75	90			350										23
		1/30	50	60			450	531	347								30
		1/50	30	36			550										32
M□T□ - 0.4	0.4	1/10	150	180	1200	22	350			184	125A	250	210	23	4		33
		1/15	100	120			400	558	374								33
		1/20	75	90			450										33
		1/30	50	60			550										51
		1/50	30	36			650	618	387								53
1/10	150	180	1500	32	400			231	150A	280	240	23	4			59	
M□T□ - 0.75	0.75	1/15	100	120			500	644	413								60
		1/20	75	90			600								5000	2500	61

- Contact your dealer when idling may occur.
- The standard paint color is Munsell 10GY-6/6.
- The standard liquid-end materials are SUS304 and SUS316. Linings are also available in various materials.
- The standard motor is a 4-pole, totally enclosed fan-cooled outdoor type. However, the single phase motor 0.1A is the totally enclosed indoor type, and 0.2A is the totally enclosed fan cooled indoor type.

External Dimensions



- * Up to 0.75 kW, 1 stage, 3-vane propeller is standard
- * The shape varies slightly at 5.5 kW or more.

Specification Dimensions

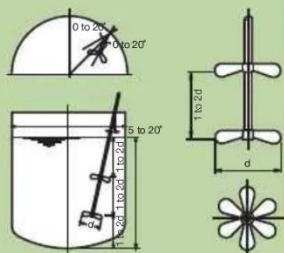
0.4 kW or more for 6-pole motor (customer order). Also, body, shaft diameter and propeller diameter dimensions increase by one more rank.

Model	Motor		Revolution		Agitation Shaft		3-vane propeller		Main Body		Mounting Flange					Max. Agitation Capacity		Approx. Weight
	Output kW	Speed (min ⁻¹)	Standard		Dia. mm	1st stage mm	2nd stage mm	(H) mm	(A) mm	(B) mm	Nominal dia. JS-10K mm	O.D. mm	Pitch mm	Hole		Diluted Liquids l	Medium Viscosity Liquid kg	
			50Hz	60Hz										Z	PCS			
BTO - 0.1	0.1		800	13	200	160	269	150	270	100A	210	175	19	4	600	200	24	
BTO - 0.2	0.2		1000	16	250	200	269	150	270	100A	210	175	19	4	1200	400	25	
BTO - 0.4	0.4	295 350	1200	22	300	250	347	150	360	125A	250	210	23	4	2500	800	37	
BTO - 0.75	0.75	(4-pole motor) (4-pole motor)		1400	22	350	300	347	150	360	125A	250	210	23	4	5000	1500	47
BTO - 1.5	1.5	190 230	1600	32	400	350	428	210	420	150A	280	240	23	4	10000	3000	76	
BTO - 2.2	2.2	(6-pole motor) (6-pole motor)		1800	32	450	400	428	210	420	150A	280	240	23	4	15000	5000	87
BTO - 3.7	3.7		2000	40	500	450	508	210	470	200A	330	290	23	4	20000	8000	143	
BTO - 5.5	5.5		2200	50	550	480	658	285	540	250A	400	355	25	6	30000	12000	285	

- The 2-stage, 3-vane propeller is optional.
- Idling is prohibited.
- The standard paint color is Munsell 10GY-6/6.
- The standard liquid-end materials are SUS304 and SUS316. Linings are also available in various materials.
- The standard motor is a 4-pole, totally enclosed fan-cooled outdoor type.

Portable Type

Mounting procedure for portable agitators



The agitator is clamped to the support base or top edge of the tank. Though the shaft is mounted at an angle with respect to the horizontal and vertical directions, it should be fixed so that its vanes do not exceed beyond the center of the tank. When there is piping in the tank, the agitator must be mounted so that the vanes are positioned at the center of the tank. Also, mount so that the top and bottom propellers become multiples of the number of vanes.

GS

For medium speeds (gear reducer type)

As this portable agitator is a high-precision gear unit, it emits little sound during operation, is compact, and demonstrates high performance. This handy multi-type model can also be used as a vertical type (GT model) if the clamp is removed and a flange is attached.



M□S

For medium/low speeds (geared motor reducer type)

This model emits little sound during operation as it is a high-precision gear unit. The desired revolution speed can also be selected according to applications such as the agitation of viscous liquids. This handy multi-type model can also be used as a vertical type (MT model) if the clamp is removed and a flange is attached.



Horizontal Type

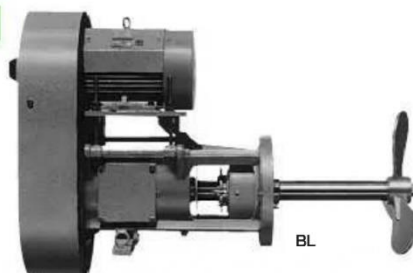
BL

For medium speeds (belt reducer type)

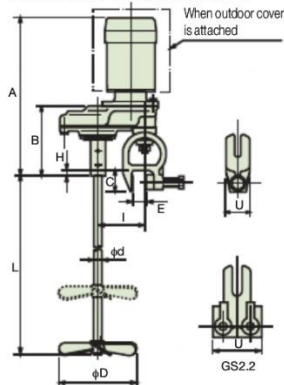
Features

1. V-belt drive results in low noise and little vibration.
2. Small drive power can also be applied to agitation of large volumes. Considerable agitation effect and economical.
3. Outstanding gland seal minimizes leaks. Models using mechanical seal systems are also available for pressure- and corrosion-resistant applications.

* Please contact us for details.



External Dimensions



- * The 1-stage, 3-vane propeller is standard.
- * Dimension A varies slightly according to motor manufacturer.

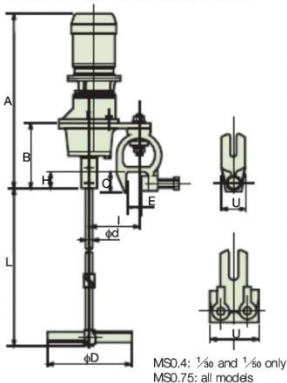
Specification Dimensions

0.4 kW or more for 6-pole motor (customer order). Also, body, shaft diameter and propeller diameter specifications increase by one more rank.

Model	Motor		Revolution Speed (min ⁻¹)		Agitation Shaft		3-vane propeller		Part Dimensions										Max. Agitation Capacity		Approx. Weight W/ motor
	Output kW	Voltage V	50Hz	60Hz	Standard length (L) mm	Dia. (D) mm	1st stage dia. mm	2nd stage dia. mm	(A) mm	(B) mm	(C) mm	(H) mm	(I) mm	(E) mm	(U) mm	Diluted Liquids L	Medium Viscosity Liquid L				
GS - 0.065A	0.065	100			600	13	160	120	325	127	50	-4	101	38	47	400	100	13			
GS - 0.1A	0.1	100			800	13	200	160	340	127	50	-4	101	38	47	600	200	15			
GS - 0.1	0.1	200	295	350	800	13	200	160	302	127	50	-4	101	38	47	600	200	14			
GS - 0.2A	0.2	100			1000	16	250	200	377	127	50	-4	101	38	47	1200	400	17			
GS - 0.2	0.2	200	190	230	1000	16	250	200	336	127	50	-4	101	38	47	1200	400	16			
GS - 0.4	0.4	200			1200	22	300	250	399	168	50	23	128	38	47	2500	800	22			
GS - 0.75	0.75	200			1400	22	350	300	422	168	50	23	128	38	47	5000	1500	31			

- * The 2-stage, 3-vane propeller is optional.
- * Idling is prohibited.
- * The standard paint color is Munsell 10GY-6/6.
- * The standard liquid-end materials are SUS304 and SSU316. Linings are also available in various materials.
- * The standard motor is a 4-pole, totally enclosed fan-cooled type. However, the single phase motor 0.065A and 0.1A is the totally enclosed indoor type, and 0.2A is the totally enclosed fan-cooled indoor type.

External Dimensions



- * Can be made up to 0.75 kW/1/20.
- * Dimension A varies slightly according to motor manufacturer.
- * Paddle, 3-vane propeller and turbine impellers are also available.
- * Agitators having a gear ratio other than the above are also available.

Specification Dimensions

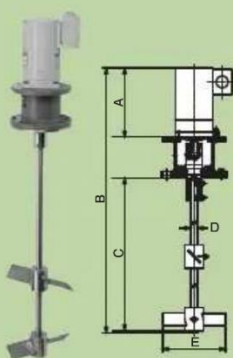
Model	Motor/Gear Reducer		Revolution Speed (min ⁻¹)		Agitation Shaft		2-vane paddle		Part Dimensions										Max. Agitation Capacity		Approx. Weight
	Output kW	Gear ratio	50Hz	60Hz	Standard (inch)	Dia. D (mm)	1st stage (mm)	2nd stage (mm)	(A) (mm)	(B) (mm)	(C) (mm)	(H) (mm)	(I) (mm)	(E) (mm)	(U) (mm)	Diluted Liquids L	Medium Viscosity Liquid L	W/ motor kg			
□ M S - 0.1A	0.1	1/10	150	180				200											15		
		1/15	100	120				250											15		
		1/20	75	90				300	383										15		
		1/30	50	60				350											16		
		1/50	30	36				500							700	300			17		
□ M S - 0.1		1/10	150	180				200											18		
		1/15	100	120	1000	16		250		142	50	25	98	38	47				18		
		1/20	75	90				300	441										18		
		1/30	50	60				350											19		
		1/50	30	36				500											20		
□ M S - 0.2A		1/10	150	180				250											16		
		1/15	100	120				300	424										16		
		1/20	75	90				350											17		
		1/30	50	60				450											22		
		1/50	30	36	1200	22		550	453	157	74	14	112	66	72	1300	600		24		
□ M S - 0.2		1/10	150	180				250											19		
		1/15	100	120	1000	16		300	475	142	50	25	98	38	47				19		
		1/20	75	90				350											20		
		1/30	50	60				450											25		
		1/50	30	36				550	504										27		
□ M S - 0.4		1/10	150	180	1200	22		350		157	74	14	112	66	72				27		
		1/15	100	120				400	531										27		
		1/20	75	90				450							2500	1200			27		
		1/30	50	60				550											44		
		1/50	30	36				650	574										45		
□ M S - 0.75	0.75	1/10	150	180	1500	32		400		187	74	43	123	66	144				49		
		1/15	100	120				500	600						5000	2500			51		
		1/20	75	90				600											52		

- * Contact your dealer when idling may occur.
- * The standard paint color is Munsell 10GY-6/6.
- * The standard liquid-end materials are SUS304 and SSU316. Linings are also available in various materials.
- * The standard motor is a 4-pole, totally enclosed fan-cooled type. However, the single phase motor 0.1A is the totally enclosed indoor type, and 0.2A is the totally enclosed fan-cooled indoor type.

Agitator Applied Devices

**Chemical dissolving tank with metering pump and base for agitator
Solution Tank**

Agitator for Solution Tank



Agitator Mounting Bases

Features

In addition to standalone use, this tank can be used in various combinations for various applications: with a metering pump, with an agitator, or with a metering pump and agitator. An extensive range of range sizes are available: 50, 100, 200, 300, 500 and 1000 liters.



CS

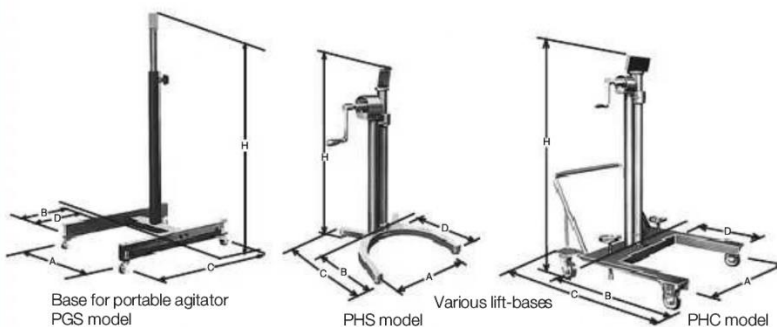
Features

Compact. Ideal for small volumes
Combining with Solution Tank fully demonstrates performance.

Specification Dimensions

Specification Dimensions														
Model	Motor Output (W)	Gear Reducer Clear Ratio	Revolution speed (rpm)		Body Height (mm)	Main Body Height (mm)	Agitation Shaft		Impeller (2-Vane Paddle)		Mounting Range	Applicable Tank (L)	Approx. Weight W/motor (kg)	
			50 Hz	60 Hz	A	B	Length (mm)	Dia. (mm)	Dia. (mm)	Number				Nominal Dia.
CS8TV-0.04-1-S	40	1/8	181	219					150				13.0	
CS15TV-0.04-1-S		1/15	96.7	117	164	712	450	16	150	2	JIS5K65A	50	13.0	
CS8TV-0.06-1-S	60	1/8	181	219					180				14.0	
CS15TV-0.06-1-S		1/15	96.7	117	164	862	600	16	200	2	JIS5K65A	100	14.0	
CS8TV-0.09-1-S	90	1/8	181	219					200				14.0	
CS15TV-0.09-1-S		1/15	96.7	117	164	962	700	16	300	2	JIS5K65A	200	14.0	
CS8TV-0.1-1-S	100	1/8	181	219					220				16.0	
CS15TV-0.1-1-S		1/15	96.7	117	178	976	700	16	300	2	JIS10K65A	300	16.0	
CS8TV-0.2-1-S	200	1/8	181	219					260				18.0	
CS15TV-0.2-1-S		1/15	96.7	117	220	1118	800	16	380	2	JIS10K65A	500	18.0	
CS11TV-0.4	0.4	1/11	132	159					380				23.0	
CS15TV-0.4		1/5	96.7	117	245	1543	1200	22	450	2	JIS10K65A	1000	23.0	

- Idling is prohibited.
- The standard paint color is Munsell 10GY-6/6.
- The standard liquid-end materials are SUS304 and SUS316. Linings are also available in various materials.
- The standard motor is a 4-pole, totally enclosed fan-cooled outdoor type.



A wide range of stands portable agitators is available. When ordering, notify your dealer of size, base height, stroke and tank size.

- Bases with hydraulically driven, motor-driven or pneumatically driven automatic elevator can also be made.
- For details on cantilever type and gate type elevated bases for vertical agitators, consult with your dealer.

External Dimensions

Model	Standard Dimensions					Load Limits
	H	A	B	C	D	
PGS-1	700 to 1030	370	350	600	313	30 kg
PGS-2	930 to 1310	425	400	680	363	50 kg
PGS-3	1200 to 1650	560	470	800	420	85 kg
PHS-1	880 to 1330	475	340	480	290	30 kg
PHS-2	950 to 1450	605	365	515	305	50 kg
PHS-3	1500 to 2250	700	650	1000	525	75 kg
PHC-1	950 to 1430	475	340	480	290	30 kg
PHC-2	1070 to 1570	645	490	690	415	50 kg
PHC-3	1500 to 2250	700	650	1000	525	75 kg

* Shapes of bases may vary slightly from the photographs.

* Dimensions can be changed by user request.

Peripheral Devices

Metering Pumps

Direct-Drive Diaphragm Metering Pump

Safety Pumps

Various Devices for Supporting Agitator Applications

Solenoid-Driven Metering Pump PZ series



Features

Wide voltage range power supply (AC90V to AC264V)
Outdoor specifications
Equivalent to IEC specifications; IP95
Dust-proof, jet stream-proof structure
Simple structure
Reduced number of parts allows easy maintenance.
ON-OFF control is possible by the external operation signal. (Model PZL)

Model PZL series are also available:
PZ14: Input signal control type

Specifications and Performance Table

Specification	Model	PZ□-31	PZ□-61	PZ□-12
Maximum discharge volume L/H (mL/min)		1.8 (30)	3.6 (60)	6.0 (100)
Maximum discharge pressure bar (MPa)		10 (1.0)	8 (0.8)	4 (0.4)
Stroke frequency (pulses/min)		Max. 300: Adjustable from 15 to 300		
Connection	PVC braided hose	dia.4 x dia.9	dia.6 x dia.11	dia.6 x dia.11
aperture (mm)	PE tube	dia.6 x dia.9 or 1/4" x 3/8"		
Weight (kg)		1.7	1.7	1.7



- Reliable metering performance and repeatability at a low price
 - Delivers stable discharge volume hardly effected by the discharge-side pressure.
Capable of microscopic amounts, high-pressure injection.
 - Capable of racing
- Product variations ranging from 30 mL/min to 43 L/min* in capacity *Per pump head



Features

Strong acids and alkalis through to solvents
Pumps are made in two types of main materials, polypropylene and stainless steel, accommodating a wide range of chemicals.

Thermal protector

The thermal protector prevents motor seizure caused by overloads, eliminating the need for the troublesome replacement of fuses and repair.
* Excluding SP40-P and MSP series

Motor can be selected for pressure-resistant, explosion-proof applications.

Flowrate 2-stage selector switch

The discharge volume can be selected by one-touch switch operation.

* SP40-P series and SP40-S series (excluding pressure-resistant, explosion-proof specifications)

Lightweight, compact design
Little residual liquid in container

Impeller has been designed to position as low as possible.

Applications

- Transfer and sub-division of liquids in chemical plants and chemical warehouses
- Hygienic feeding of drinks and brewed liquids in food processing plants
- Transfer and replenishment of chemicals in steelworks, and water and waste water treatment facilities/ water works facilities
- Replenishment of chemicals in laboratories and hospitals
- Transfer of sodium hypochlorite in swimming pools
- Transfer of sodium hypochlorite in simple water works facilities
- Transfer of various industrial waste liquids



SP60-P Series

MSP Series

Small, lightweight type having pump diameter of 32 cm for insertion in oil cans and polyethylene cans

Noritake Static Mixers with No Driven Parts

For reduced maintenance and energy and space savings in mixing processes



Sanitary Finishing Type

N30 Series

This sanitary type conforms to the same standards for sanitary piping used in food processing plants and supports CIP cleaning. The main unit and element can be easily removed and attached, making it ideal for processes that require disassembly for cleaning.



General-purpose, Fixed Element Type

N10 Series

Both ends of the element are welded to the housing, with six elements provided for a single module as standard. Select the number of modules according your specific requirements. This type is widely used for mixing, dispersion, neutralizing, extraction, and other general applications.



General-purpose, Removable Element Type

N60 Series

This type is used for the same applications as the N10 series. However, the element is only welded onto a ring so that it can be removed from the housing, making it ideal for processes that require disassembly for cleaning.



Corrosion-resistant PVC Type

N50 Series

On this static mixer, all of the element, housing and flange are made of PVC. This type is used in applications where piping leading to and exiting the installation is made of PVC, mainly in drinking water and pure water treatment. This type can also be made in impact-resistant PVC or heat-resistant PVC. It can also be reinforced with an FRP outer sheath.



Corrosion-resistant Ceramic Type

CSM Series

An element made of ceramic treated with special glaze is used. The surface of this element is smooth, making it difficult for scale to adhere and highly resistant to wear. Housings in various materials are also available so that you can select the material best suited to fluid characteristics. This type is used both in water treatment processes and chemical processes.

Notify us of the following when inquiring about TACMINA agitators.

Specifications

Tank	Shape and dimensions	Square (V x H x H) Round (dia. x H) Base height
	Bottom shape	Flat bottom Mirror bottom Spherical bottom
	Dimensions	
	Tank states	Sealed Open Pressure Temperature Indoor/outdoor
Liquid	Properties	Liquid name Viscosity Specific gravity Liquid temperature
	Solids Powder	Solid particle name Solid particle specific gravity Solid particle diameter Slurry concentration (%) Precipitation speed (mm) Maximum/minimum
	Liquid amount	Decrease during agitation Idling
	Purpose	Uniform mixing Dissolving Precipitation prevention Heat transfer Reaction Dispersion Polymerization Deposition Gas dispersion Other
Agitation	Time	Batch type Continuous access type Flow speed Flowrate Retention time
	Liquid (gas) contact materials	Selected materials at liquid contacting parts Selected materials at gas contacting parts
	Motor	Power supply (V, Hz) Motor type

CAUTION

- Do not use agitators that do not conform to explosion-proof specifications in explosive or flammable atmospheres. Doing so might result in explosion or fire.
- Before stopping agitators for inspection and maintenance, be sure to turn the power OFF. Also, attach the "WORK IN PROGRESS. DO NOT TURN POWER ON" tag on the switch to prevent other personnel from turning the agitator ON by mistake.
- Never perform racing agitators on which racing is prohibited. Also, never perform racing agitators while the liquid level is rising above the vanes. Doing so might damage the agitator.
- Do not use agitators outside of specified product operating ranges. Doing so might result in electric shock.

Static mixer and static mixer applied products are developed and manufactured by Noritake Company Limited. TACMINA sells these products on an engineering dealership basis.

Product designs and specifications are subject to change without notice for product improvement.

TACMINA CORPORATION

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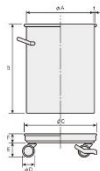
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MIXER TANKS ZT Series



Tare model	Applicable stand	Applicable model	
		Model	Power (kW)
ZT-200	ZS-1	AT10	0.065
		AT20	0.065
ZT-65	ZS-2	AT20	0.065
		AT10	0.065
ZT-80	ZS-2	AT20	0.1
		AT10	0.1
ZT-190	ZS-3 (Unstowed) (hour)	AT20	0.06-0.039
		AT10	0.065-0.1
	ZS-1	AT20	0.065
		AT10	0.065
	ZS-2	AT20	0.1
		AT10	0.1
	ZS-3	AT20	0.2
		AT10	0.2
	ZU-1 (Unstowed) (hour)	AT20	0.06-0.039
		AT10	0.065-0.1
ZT-230	ZS-2	AT20	0.1
		AT10	0.1
	ZS-3	AT20	0.2
		AT10	0.2
	ZU-1 (Unstowed) (hour)	AT20	0.1-0.2
		AT10	0.1-0.2
	ZS-3	AT20	0.2
		AT10	0.2
300F 800F	ZS-4	AT20	0.1-0.2
		AT10	0.1-0.2
	ZS-4	AT20	0.2-0.4
		AT10	0.2-0.4
	ZS-4	AT20	0.2-0.4
		AT10	0.2-0.4
	ZS-4	AT20	0.4-0.75
		AT10	0.4-0.75
	ZS-4	AT20	0.4
		AT10	0.4
1000F	ZS-4	AT20	0.3-0.4
		AT10	0.4
	ZS-4	AT20	0.2-0.4
		AT10	0.4
2000F	ZS-5	AT20	0.4-0.75
		AT10	0.4-0.75
3000F	ZS-5	AT20	0.4
		AT10	0.4



Model	Dimension	Thickness	Maximum capacity (μ)
	A-B (mm)	t (mm)	
ZT-20	300 $\times$ 300	0.8	20
ZT-25	330 $\times$ 330	0.8	25
ZT-35	360 $\times$ 360	0.9	35
ZT-45	390 $\times$ 390	0.9	45
ZT-65	430 $\times$ 450	1.0	65
ZT-80	470 $\times$ 470	1.2	80
ZT-100	470 $\times$ 600	1.2	100
ZT-150	565 $\times$ 600	1.2	150
ZT-200	565 $\times$ 900	1.2	200

Model	Applicable tank	Inside diameter	Wheel diameter	Height	Depth
		C (mm)	D (mm)	E (mm)	F (mm)
ZC-20	ZT-20	305	50	65	40
ZC-25	ZT-25	335	50	65	40
ZC-35	ZT-35	365	63	82	40
ZC-45	ZT-45	395	63	82	40
ZC-65	ZT-65	435	75	101	40
ZC-80	ZT-80	475	75	101	40
ZC-100	ZT-100				
ZC-150	ZT-150				
ZC-300	ZT-300	575	100	119	50

* We can manufacture self-venting tanks (DCC-S0001) with mixer mount other than the standard tanks.
* We can attach valves and nipples to drain fluid from the tank bottom. For example, ball valves whose

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Model	Available capacity		Tensile dimensions (mm)												Weight (kg)
	Capacity	Minimum capacity	A	B	C	D	E	F	G	H	I	J	K	L	
2PT-100	100	120	825	820	3	400	450	134	116	256-252.5	3	105-104.5	1	10 B Sprocket	48
2PT-150	150	180	1025	1020	3	500	550	164	146	326-322.5	3	135-134.5	1	10 B Sprocket	63
2PT-200	200	240	1225	1220	3	600	650	194	176	396-392.5	3	165-164.5	1	10 B Sprocket	78
2PT-300	300	360	1625	1620	3	800	850	264	246	526-522.5	3	225-224.5	1	10 B Sprocket	66
2PT-400	400	480	2025	2020	3	1000	1050	334	316	596-592.5	3	295-294.5	1	10 B Sprocket	77
2PT-500	500	600	2425	2420	3	1200	1250	404	386	666-662.5	3	365-364.5	1	10 B Sprocket	98
2PT-600	600	720	2825	2820	3	1400	1450	474	456	736-732.5	3	435-434.5	1	10 B Sprocket	119
2PT-750	750	900	3425	3420	3	1700	1750	574	556	886-882.5	3	535-534.5	1	10 B Sprocket	150
2PT-1000	1000	1177	4100	4100	3	2100	2150	694	676	1066-1062.5	3	655-654.5	1	10 B Sprocket	170
2PT-1500	1500	1722	5200	5200	4	2600	2650	834	816	1306-1302.5	3	805-804.5	1	10 B Sprocket	260
2PT-2000	2000	2273	6300	6300	4	3100	3150	974	956	1546-1542.5	3	965-964.5	1	10 B Sprocket	340
2PT-3000	3000	3393	7800	7800	4	3900	3950	1194	1176	1906-1902.5	3	1205-1204.5	1	10 B Sprocket	469
2PT-4000	4000	4493	9300	9300	4	4700	4750	1414	1396	2266-2262.5	3	1445-1444.5	1	10 B Sprocket	598
2PT-5000	5000	5593	10800	10800	4	5500	5550	1634	1616	2626-2622.5	3	1685-1684.5	1	10 B Sprocket	727
2PT-6000	6000	6693	12300	12300	4	6300	6350	1854	1836	2986-2982.5	3	1945-1944.5	1	10 B Sprocket	856
2PT-7500	7500	8273	14800	14800	4	7800	7850	2254	2236	3546-3542.5	3	2345-2344.5	1	10 B Sprocket	1089
2PT-10000	10000	11073	18300	18300	4	9800	9850	2754	2736	4306-4302.5	3	2885-2884.5	1	10 B Sprocket	1418
2PT-15000	15000	16573	22800	22800	4	12300	12350	3354	3336	5266-5262.5	3	3565-3564.5	1	10 B Sprocket	1958
2PT-20000	20000	21973	27300	27300	4	14800	14850	3954	3936	6226-6222.5	3	4165-4164.5	1	10 B Sprocket	2599
2PT-30000	30000	32973	34800	34800	4	18300	18350	4854	4836	7586-7582.5	3	5045-5044.5	1	10 B Sprocket	3449
2PT-40000	40000	43973	42300	42300	4	21800	21850	5754	5736	8946-8942.5	3	5925-5924.5	1	10 B Sprocket	4498
2PT-50000	50000	53973	49800	49800	4	24800	24850	6554	6536	10106-10102.5	3	6785-6784.5	1	10 B Sprocket	5547
2PT-60000	60000	64973	57300	57300	4	27800	27850	7354	7336	11266-11262.5	3	7545-7544.5	1	10 B Sprocket	6596
2PT-75000	75000	81973	69800	69800	4	34300	34350	8954	8936	13826-13822.5	3	9145-9144.5	1	10 B Sprocket	8446
2PT-100000															

* We have the padded type latex, too.

Model	Dimension of error (mm print)						Model	Dimension of error (mm print)					
	N	M	L	P	G	Weight		N	M	L	P	G	Weight
ATD-0-000	10	NA	10	1	10	10	ATD-0-006	10	NA	10	1	10	10
ATD-0-01	10	NA	10	1	10	10	ATD-0-1	10	NA	10	1	10	10
ATD-0-02	10	NA	10	1	10	10	ATD-0-2	10	NA	10	1	10	10
ATD-0-03	10	NA	10	1	10	10	ATD-0-3	10	NA	10	1	10	10
ATD-0-04	10	NA	10	1	10	10	ATD-0-4	10	NA	10	1	10	10
ATD-0-05	10	NA	10	1	10	10	ATD-0-5	10	NA	10	1	10	10
ATD-0-06	10	NA	10	1	10	10	ATD-0-6	10	NA	10	1	10	10
ATD-0-07	10	NA	10	1	10	10	ATD-0-7	10	NA	10	1	10	10
ATD-0-08	10	NA	10	1	10	10	ATD-0-8	10	NA	10	1	10	10
ATD-0-09	10	NA	10	1	10	10	ATD-0-9	10	NA	10	1	10	10
ATD-0-10	10	NA	10	1	10	10	ATD-0-10	10	NA	10	1	10	10
ATD-0-11	10	NA	10	1	10	10	ATD-0-11	10	NA	10	1	10	10
ATD-0-12	10	NA	10	1	10	10	ATD-0-12	10	NA	10	1	10	10
ATD-0-13	10	NA	10	1	10	10	ATD-0-13	10	NA	10	1	10	10
ATD-0-14	10	NA	10	1	10	10	ATD-0-14	10	NA	10	1	10	10
ATD-0-15	10	NA	10	1	10	10	ATD-0-15	10	NA	10	1	10	10
ATD-0-16	10	NA	10	1	10	10	ATD-0-16	10	NA	10	1	10	10
ATD-0-17	10	NA	10	1	10	10	ATD-0-17	10	NA	10	1	10	10
ATD-0-18	10	NA	10	1	10	10	ATD-0-18	10	NA	10	1	10	10
ATD-0-19	10	NA	10	1	10	10	ATD-0-19	10	NA	10	1	10	10
ATD-0-20	10	NA	10	1	10	10	ATD-0-20	10	NA	10	1	10	10
ATD-0-21	10	NA	10	1	10	10	ATD-0-21	10	NA	10	1	10	10
ATD-0-22	10	NA	10	1	10	10	ATD-0-22	10	NA	10	1	10	10
ATD-0-23	10	NA	10	1	10	10	ATD-0-23	10	NA	10	1	10	10
ATD-0-24	10	NA	10	1	10	10	ATD-0-24	10	NA	10	1	10	10
ATD-0-25	10	NA	10	1	10	10	ATD-0-25	10	NA	10	1	10	10
ATD-0-26	10	NA	10	1	10	10	ATD-0-26	10	NA	10	1	10	10
ATD-0-27	10	NA	10	1	10	10	ATD-0-27	10	NA	10	1	10	10
ATD-0-28	10	NA	10	1	10	10	ATD-0-28	10	NA	10	1	10	10
ATD-0-29	10	NA	10	1	10	10	ATD-0-29	10	NA	10	1	10	10
ATD-0-30	10	NA	10	1	10	10	ATD-0-30	10	NA	10	1	10	10
ATD-0-31	10	NA	10	1	10	10	ATD-0-31	10	NA	10	1	10	10
ATD-0-32	10	NA	10	1	10	10	ATD-0-32	10	NA	10	1	10	10
ATD-0-33	10	NA	10	1	10	10	ATD-0-33	10	NA	10	1	10	10
ATD-0-34	10	NA	10	1	10	10	ATD-0-34	10	NA	10	1	10	1

* Figures shown in () are the weights of the minor mounts for the isolated type tanks

Eccentric mounting

15°

eccentric mounting

left eccentric makes used flow and gas can run with high velocity liquid or slurry, powder materials

high eccentricity

tank

15mm

Do not exceed the value in the range of 5 degree or more from the center of the tank

Mounting angles

Liquid surface

Z

5°-20°

D

50mm or more

50mm or more

Z dimension
(From the impeller to the liquid surface)

A729, A910	1.6D or more
A710*	2.6D or more
A736	1.6D or more
A745	2.6D or more

*The dimension is from the space impeller outside

*The value of A710 is 2.0D

Please refer to the ZED data and dimension table on our website for this information, crank length and impeller clearance. (Monitor registration is required. These data are only available to the registered.)

<http://www.satake.co.jp>

Do not install this riser in the range of 5 degrees plus or minus from the center of the tank. Provided that some baffles are installed in the tank, you can attain good mixing effect. Please refer to page19 for information about baffles.

2

Submersible aerator - selfpriming



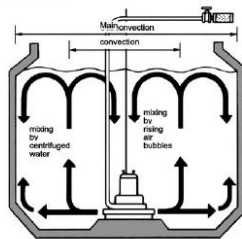
TRN 3-phase
50Hz

Specifications:

Diameter air pipe mm	Model	Colour code curve	Power output kW	Phases	r.p.m.	Starting method	Dry weight kg without cable	Number outlets	Rated current A	max. impeller depth m	Air volume m ³ /h	Cable m
32	32TRN275	1	0,75	3	2850	direct	55,0	6	2,4	3,5	7	10
32	32TRN21.5	2	1,5	3	2850	direct	55,0	6	3,5	3,5	20	10
50	50TRN42.2	3	2,2	3	1450	direct	140,0	6	5,3	3,6	39	10
50	50TRN43.7	4	3,7	3	1450	direct	150,0	6	8,6	4	55	10
50	50TRN45.5	5	5,5	3	1450	direct	170,0	6	12,0	4	78	10
80	80TRN47.5	6	7,5	3	1450	direct	190,0	6	15,9	4,5	124	10
80	80TRN412	7	12	3	1450	star/delta	200,0	6	25,7	6	157	10
80	80TRN417	8	17	3	1450	star/delta	220,0	6	35,2	6	202	20
100	100TRN424	9	24	3	1450	star/delta	435,0	8	48,0	6	388	20
150	150TRN440	10	40	3	1450	star/delta	583,0	8	80,0	6	528	20



sample:



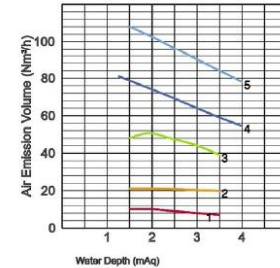
Main Convection |
direct oxygen intake thanks to
air bubbles

Subconvection |
indirect oxygen intake
by mixing

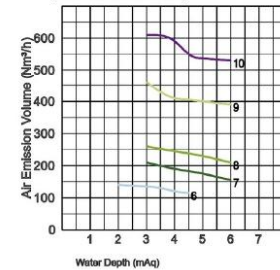
Air volume and oxygen intake rate measured at max. installation depth

Model	Guide vane depth	Diameter main convection	Diameter subconvection circular tank	Diameter subconvection square tank
32TRN2.75	3,5m	1,4m	3,5m	3,0m
32TRN21.5	3,5m	1,8m	4,5m	4,0m
50TRN42.2	3,6m	2,4m	6,0m	5,5m
50TRN43.7	4,0m	3,0m	7,0m	6,5m
50TRN45.5	4,0m	3,8m	9,0m	8,0m
80TRN47.5	4,5m	4,4m	10,0m	9,0m
80TRN412	6,0m	5,2m	12,0m	11,0m
80TRN417	6,0m	5,6m	13,0m	11,5m
100TRN424	6,0m	6,3m	14,5m	13,0m
150TRN440	6,0m	7,3m	17,0m	15,0m

Air Emission Volume - Water Depth Curve
(Air Emission Volume at 20°C)

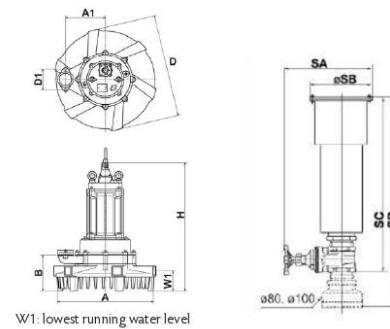


Air Emission Volume - Water Depth Curve
(Air Emission Volume at 20°C)



Dimensions in mm:

Model	Aerator								Air pipe	Silencer/Valve			
	A	A1	B	D	D1	H	W1			SA	SB	SC	SD
32TRN2.75	371	184	146	420	90	473	81	32	180	116	175	-	-
32TRN21.5	371	184	146	420	90	473	81	32	180	116	275	-	-
50TRN42.2	660	271	226	700	140	689	123	50	230	154	370	-	-
50TRN43.7	660	271	226	700	140	694	123	50	230	154	370	-	-
50TRN45.5	660	271	226	700	140	835	123	50	230	154	370	-	-
80TRN47.5	660	271	246	700	140	868	133	80	245	180	-	585	-
80TRN412	660	271	246	700	140	898	133	80	245	180	-	585	-
80TRN417	660	271	246	700	140	958	133	80	245	180	-	585	-
100TRN424	980	385	417	1000	230	1225	272	100	345	256	-	760	-
150TRN440	980	410	452	1050	280	1482	269	150	448	370	740	863	-





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PERANCANGAN BANGUNAN PENGOLAHAN AIR BUANGAN

DOSEN PENGAMPU

FIRRA ROSARIAWARI, ST., MT.

DOSEN PEMBIMBING

□ Ir. NANIEK RATNI JULIARDI AR. M.Kes.

MAHASISWA

NPM

AZIZAH MAHIRAH RIZKI
PANDU WICAKSONO

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
SALURAN PEMBAWA DAN BAR SCREEN

KETERANGAN

SKALA

DENAH DAN
POTONGAN A-A
SALURAN PEMBAWA
DAN BAR SCREEN

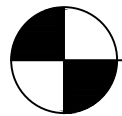
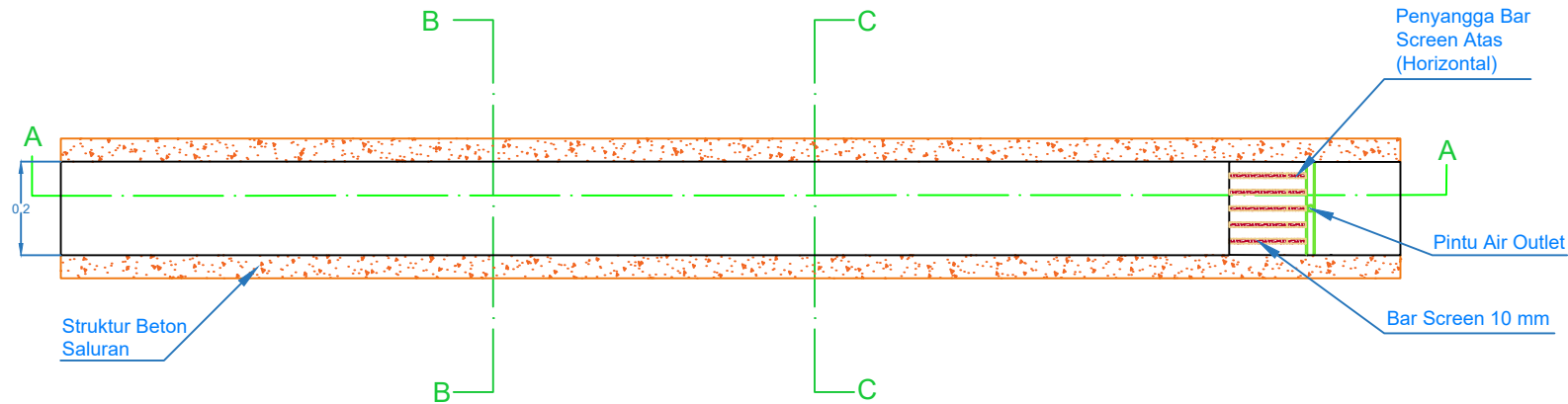
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SATUAN

METER

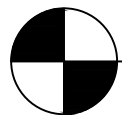
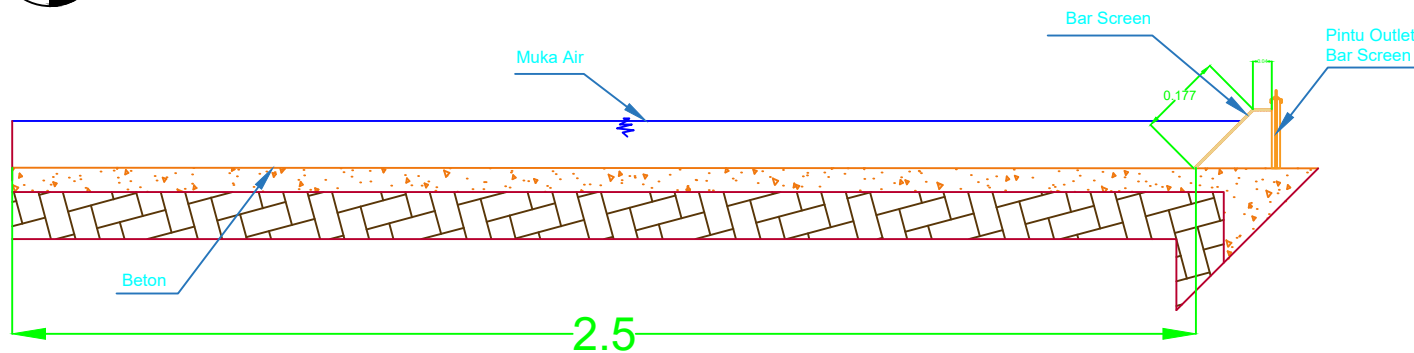
NOMOR GAMBAR

TANGGAL ACC



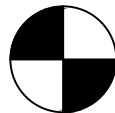
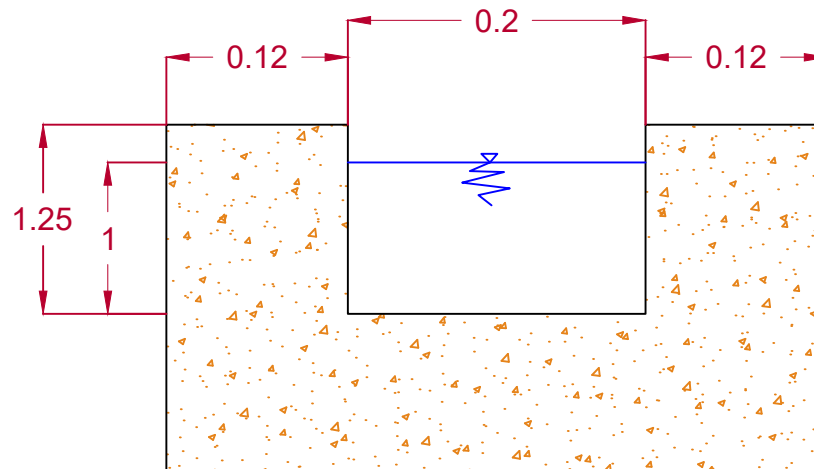
DENAH SALURAN PEMBAWA DAN BARSCREEN

SKALA 1:16



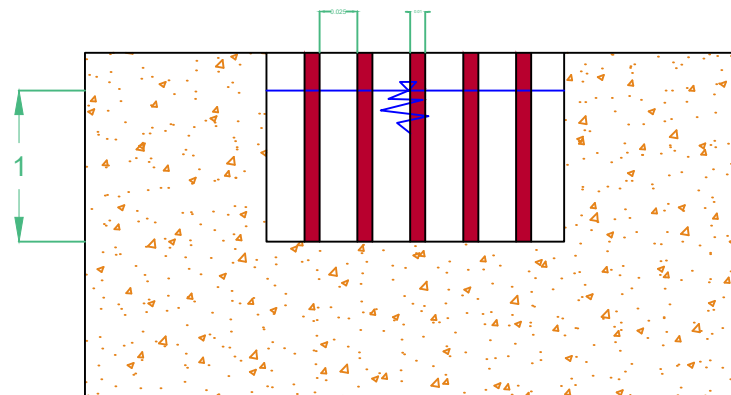
POTONGAN A-A SALURAN PEMBAWA DAN BAR SCREEN

SKALA 1:16



POTONGAN B-B SALURAN PEMBAWA DAN BARSCREEN

SKALA 1:5



POTONGAN C-C SALURAN PEMBAWA DAN BARSCREEN

SKALA 1:5



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TUGAS

PERANCANGAN
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AIR BUANGAN

DOSEN PENGAMPU

FIRRA ROSARIAWARI, ST., MT.

DOSEN PEMBIMBING

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
SALURAN PEMBAWA DAN BAR SCREEN

KETERANGAN

SKALA

POTONGAN B-B DAN
POTONGAN C-C
SALURAN PEMBAWA
DAN BAR SCREEN

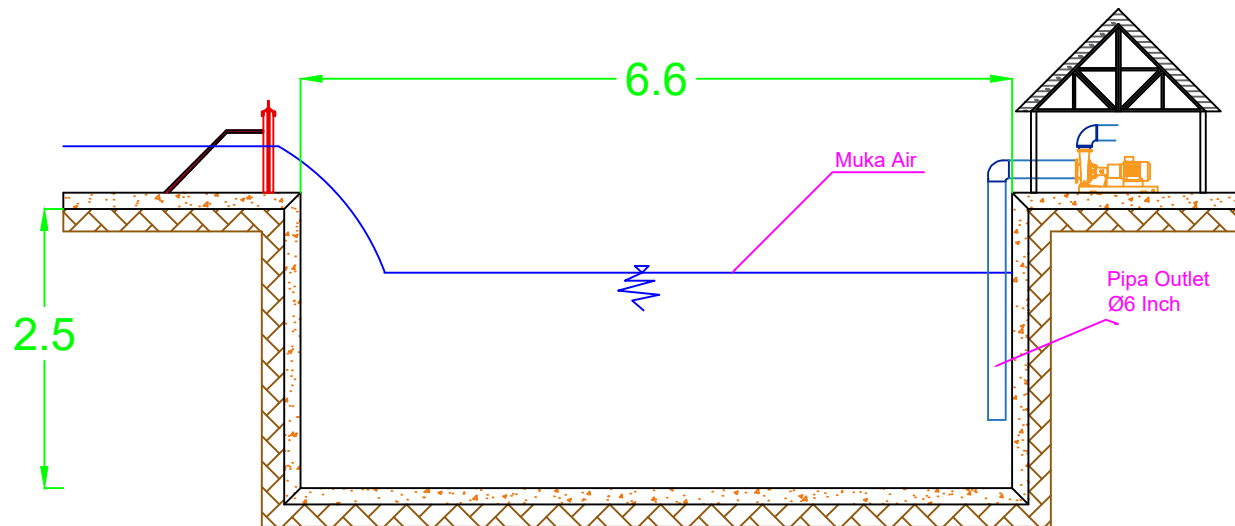
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SATUAN

METER

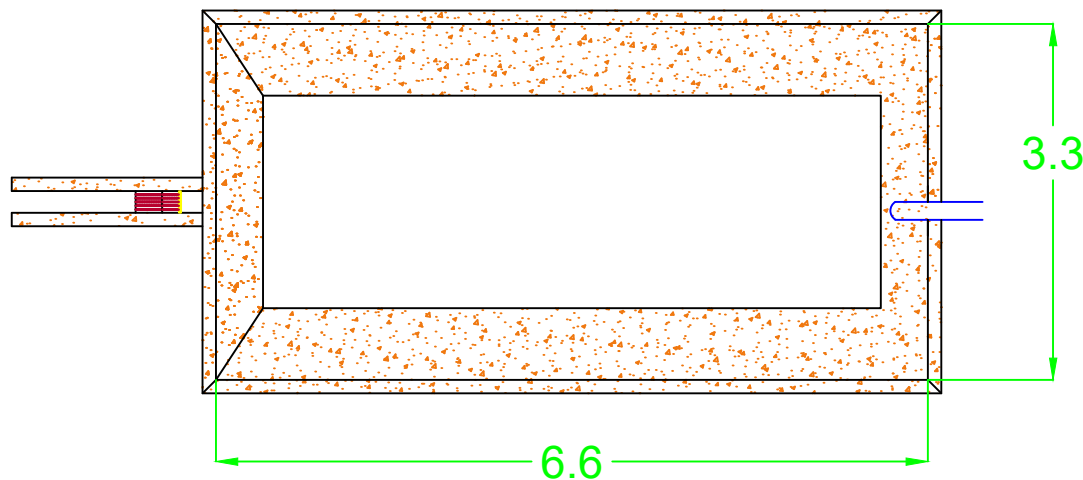
NOMOR GAMBAR

TANGGAL ACC



DENAH BAK PENAMPUNG

SKALA 1:70



TAMPAK ATAS BAK PENAMPUNG

SKALA 1:70



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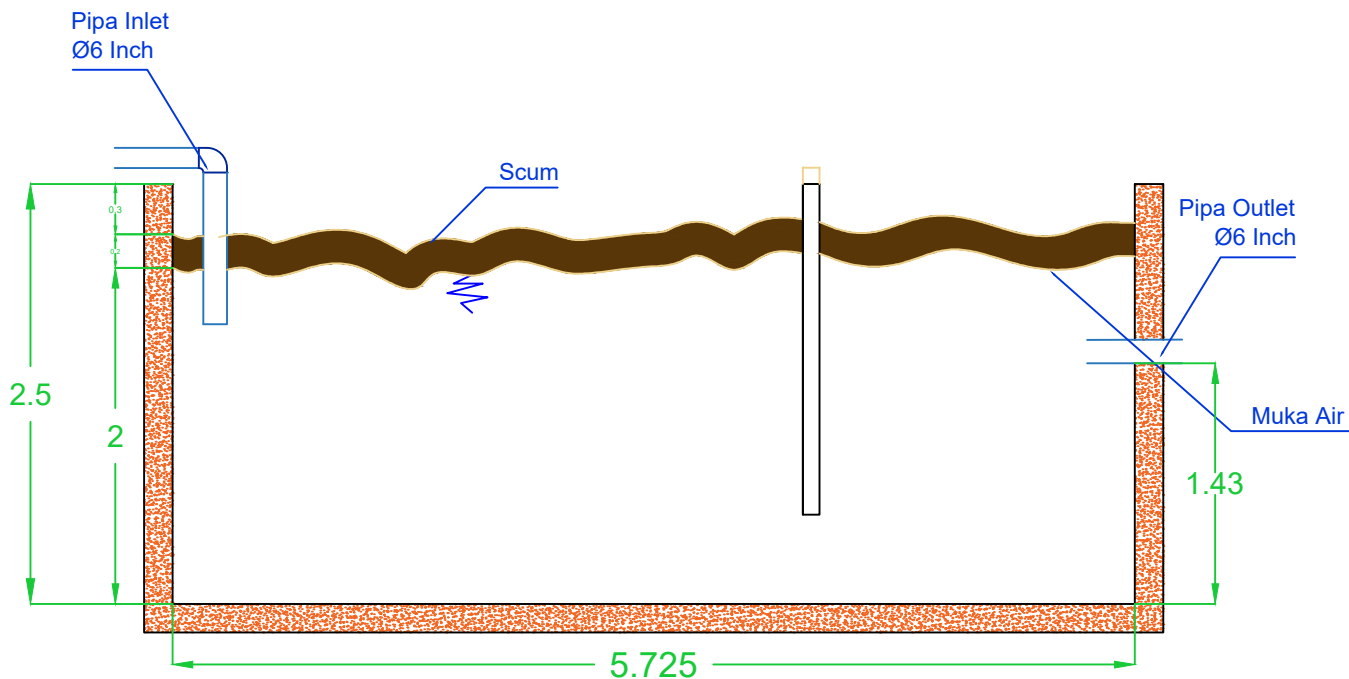
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PANDU WICAKSONO

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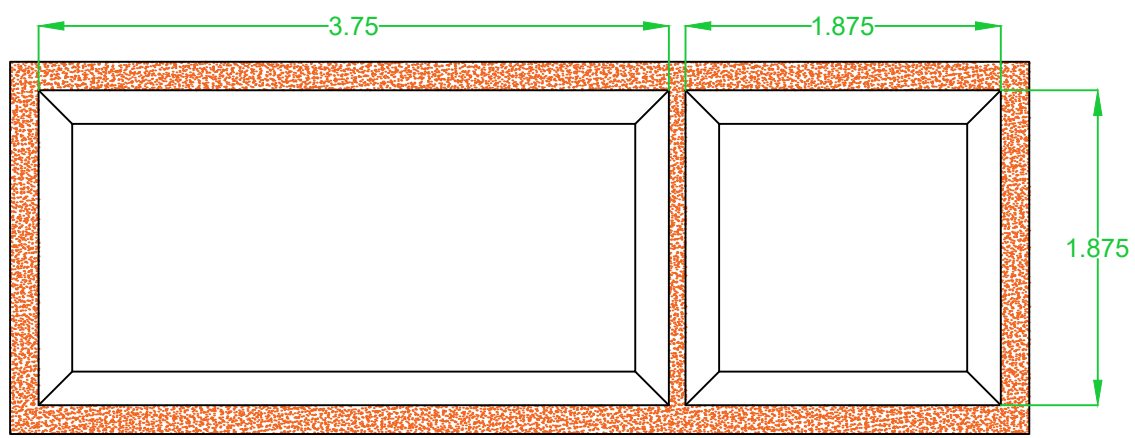
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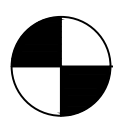
UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
BAK PENAMPUNG

KETERANGAN	SKALA
DENAH DAN TAMPAK ATAS BAK PENAMPUNG	1:70
	SATUAN
	METER
NOMOR GAMBAR	TANGGAL ACC



 DENAH GREASE TRAP
SKALA 1:45



 TAMPAK ATAS GREASE TRAP
SKALA 1:45



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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
GREASE TRAP

KETERANGAN

SKALA

DENAH DAN TAMPAK
ATAS GREASE TRAP

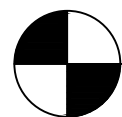
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SATUAN

METER

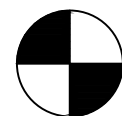
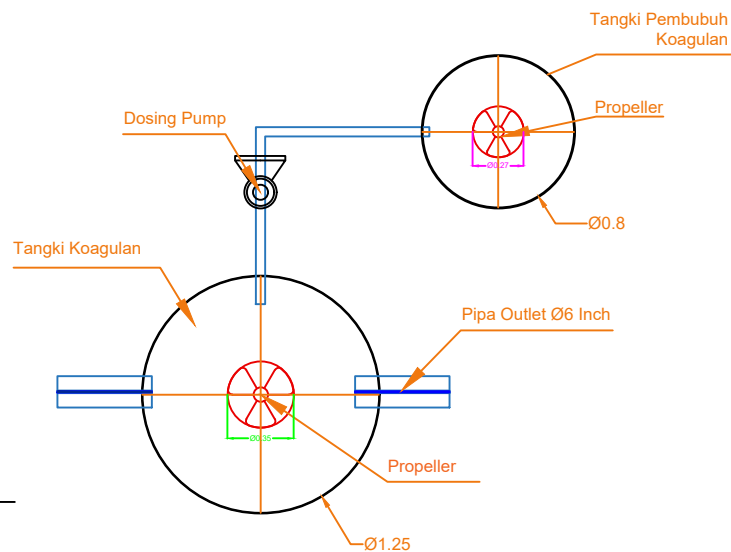
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TANGGAL ACC



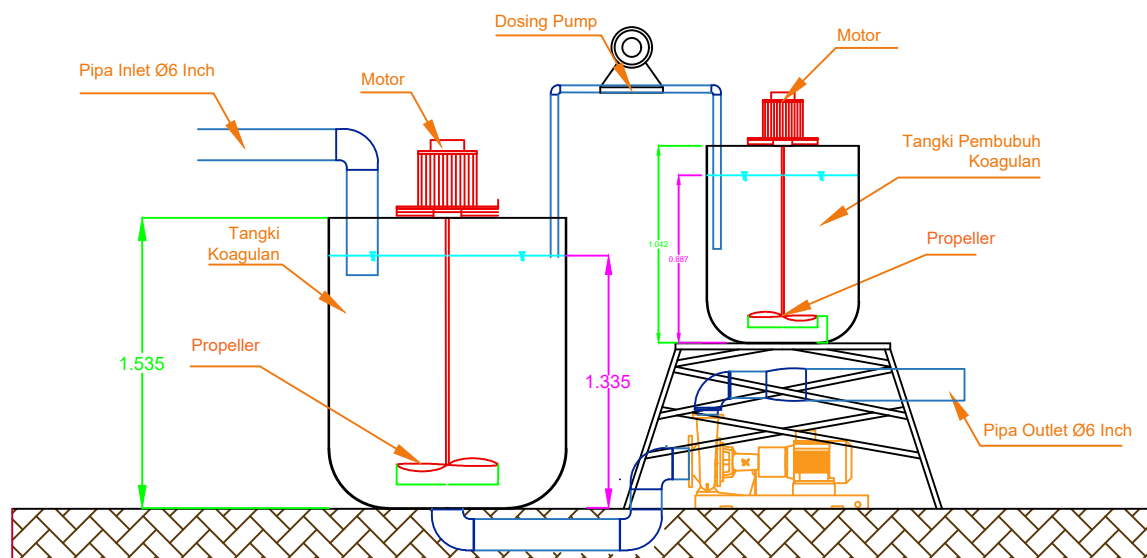
DENAH KOAGULASI

SKALA 1:40



POTONGAN A-A KOAGULASI

SKALA 1:40



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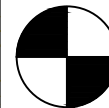
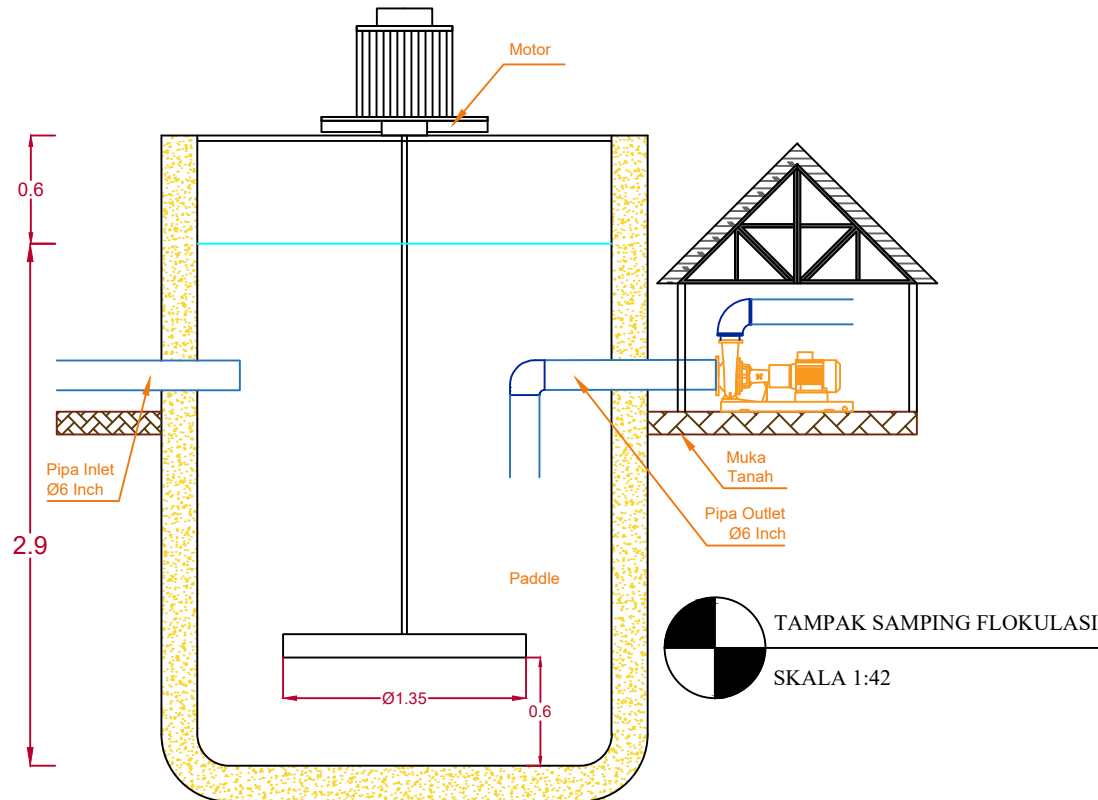
AZIZAH MAHIRAH RIZKI
PANDU WICAKSONO

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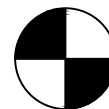
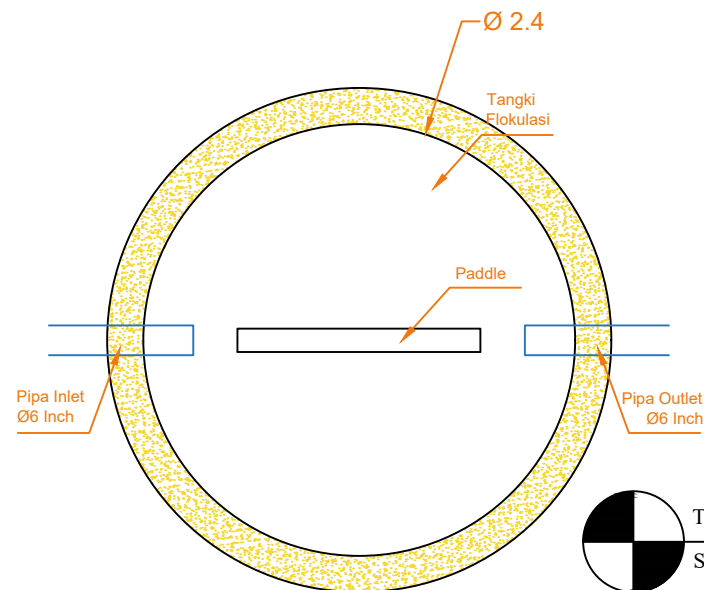
UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
GREASE TRAP

KETERANGAN	SKALA
DENAH DAN TAMPAK ATAS GREASE TRAP	1:45
	SATUAN
	METER
NOMOR GAMBAR	TANGGAL ACC



TAMPAK SAMPING FLOKULASI

SKALA 1:42



TAMPAK ATAS FLOKULASI

SKALA 1:42



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AIR BUANGAN

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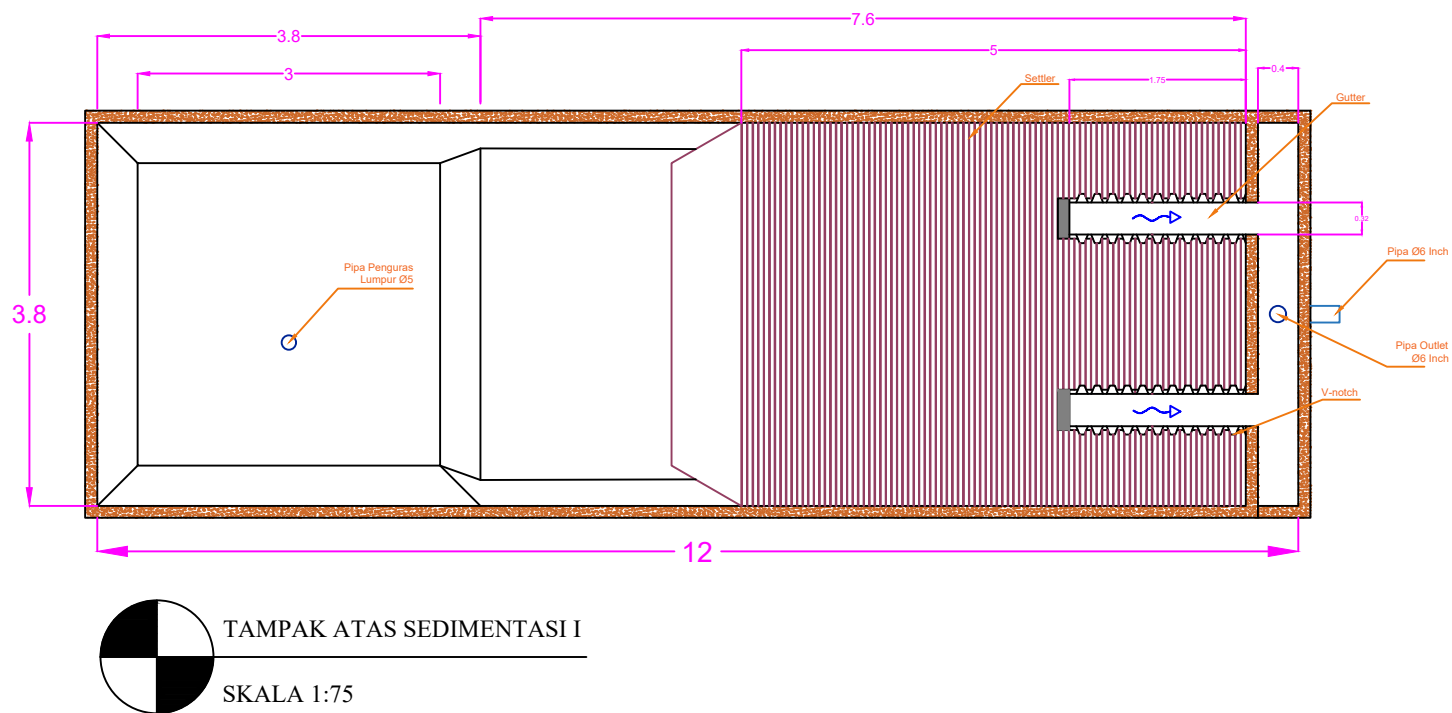
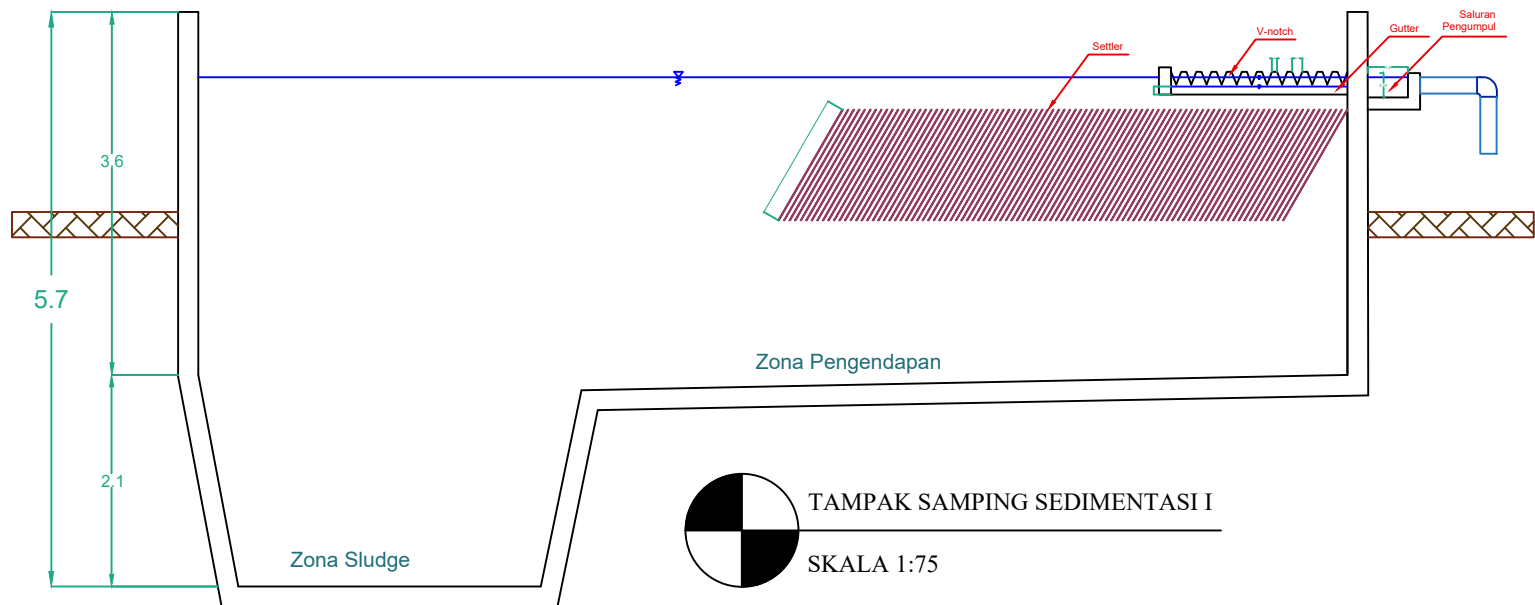
AZIZAH MAHIRAH RIZKI
PANDU WICAKSONO

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
FLOKULASI

KETERANGAN	SKALA
TAMPAK SAMPING DAN TAMPAK ATAS FLOKULASI	1:42
	SATUAN
	METER
NOMOR GAMBAR	TANGGAL ACC



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SEDIMENTASI I

KETERANGAN

SKALA

TAMPAK ATAS
DAN TAMPAK SAMPING
SEDIMENTASI I

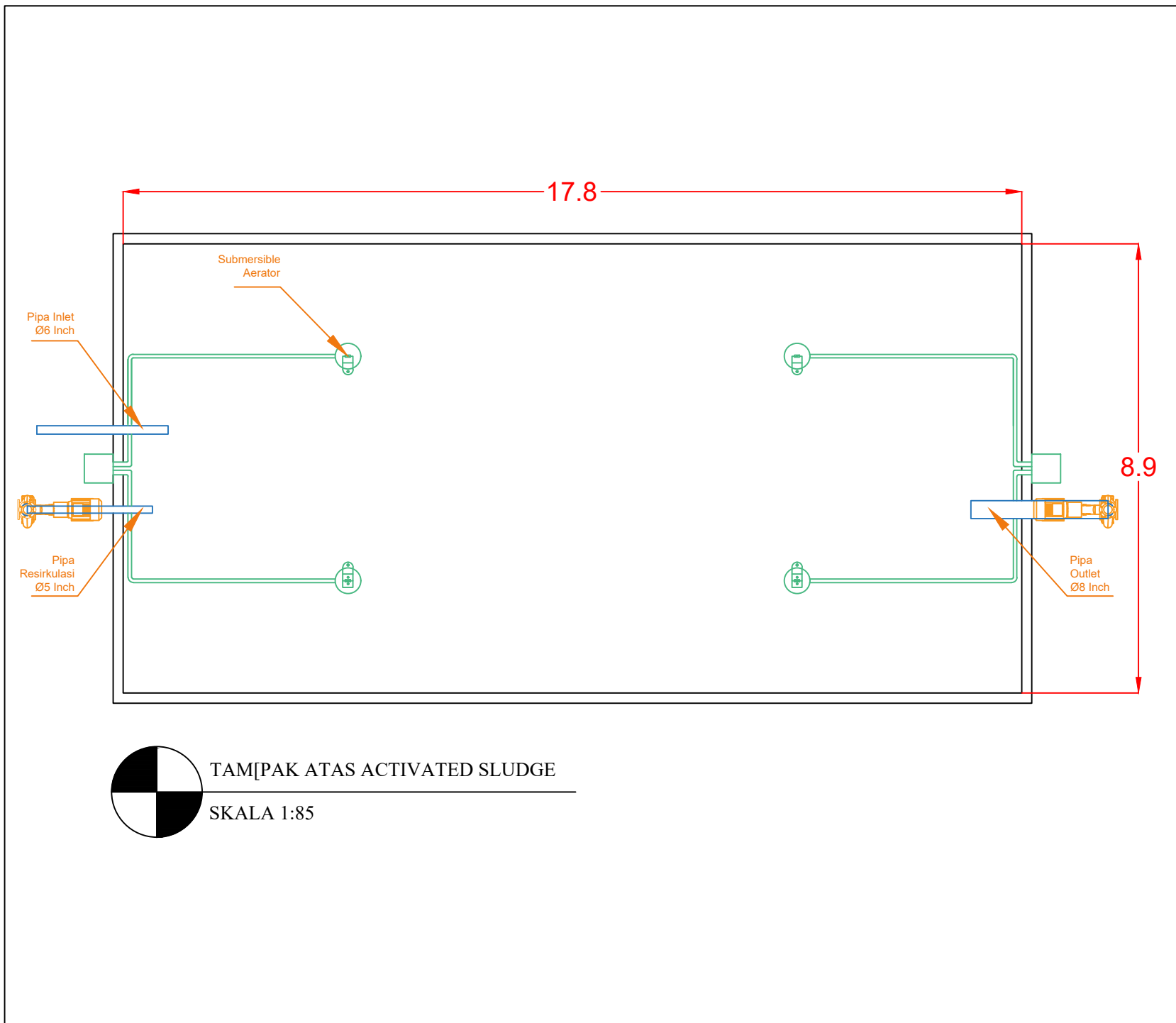
1:75

SATUAN

METER

NOMOR GAMBAR

TANGGAL ACC



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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
ACTIVATED SLUDGE

KETERANGAN

SKALA

TAMPAK ATAS
ACTIVATED SLUDGE

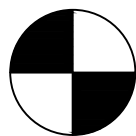
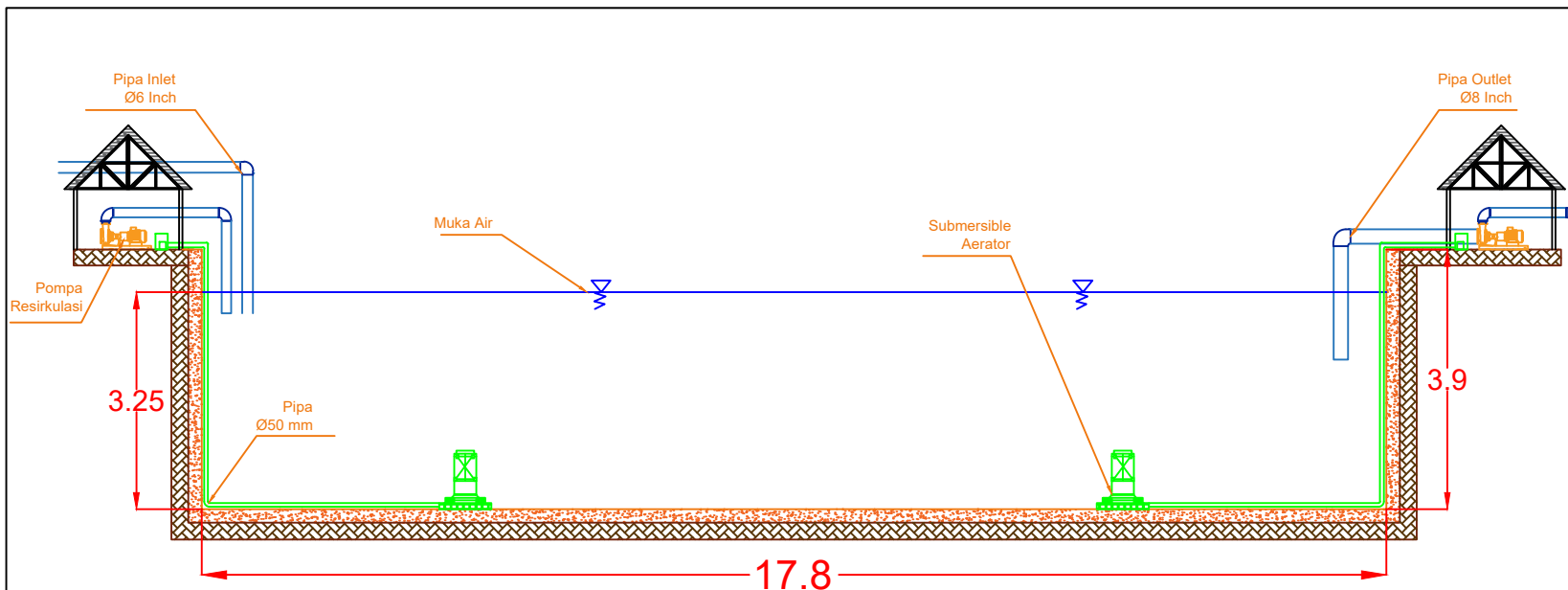
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SATUAN

METER

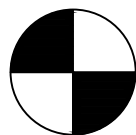
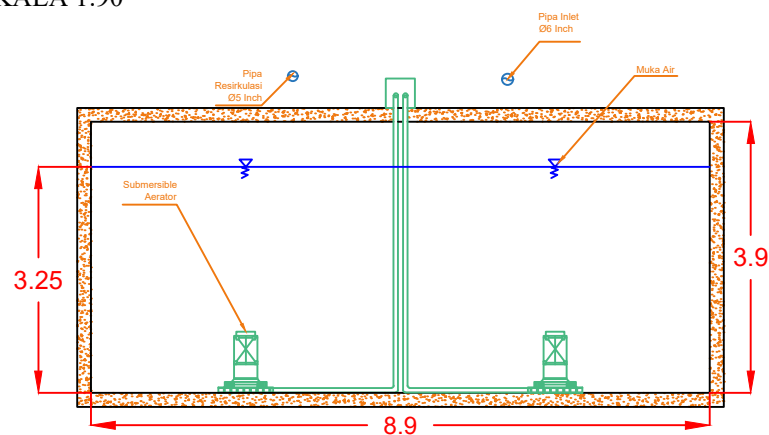
NOMOR GAMBAR

TANGGAL ACC



POTONGAN A-A ACTIVATED SLUDGE

SKALA 1:90



POTONGAN B-B ACTIVATED SLUDGE

SKALA 1:90



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TUGAS

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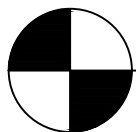
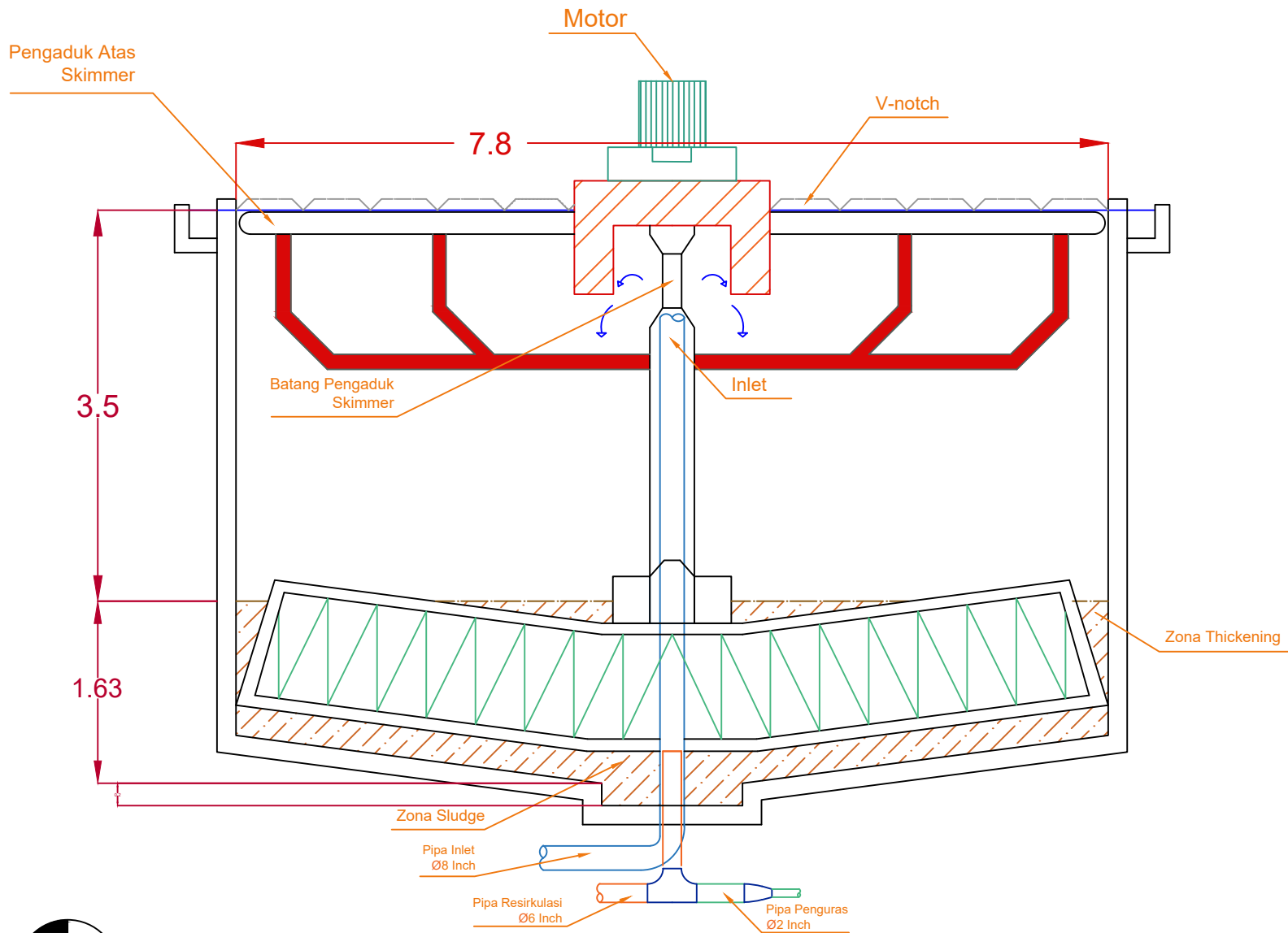
AZIZAH MAHIRAH RIZKI
PANDU WICAKSONO

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20034010030

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
ACTIVATED SLUDGE

KETERANGAN	SKALA
POTONGAN A-A DAN POTONGAN B-B ACTIVATED SLUDGE	1:90
	SATUAN
	METER
NOMOR GAMBAR	TANGGAL ACC



TAMPAK SAMPIING CLARIFIER

SKALA 1:55



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"VETERAN" JAWA TIMUR
PROGRAM STUDI TEKNIK LINGKUNGAN
FAKULTAS TEKNIK

TUGAS

PERANCANGAN
BANGUNAN PENGOLAHAN
AIR BUANGAN

DOSEN PENGAMPU

FIRRA ROSARIAWARI, ST., MT.

DOSEN PEMBIMBING

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20034010030

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
ACTIVATED SLUDGE

KETERANGAN

SKALA

TAMPAK SAMPIING
CLARIFIER

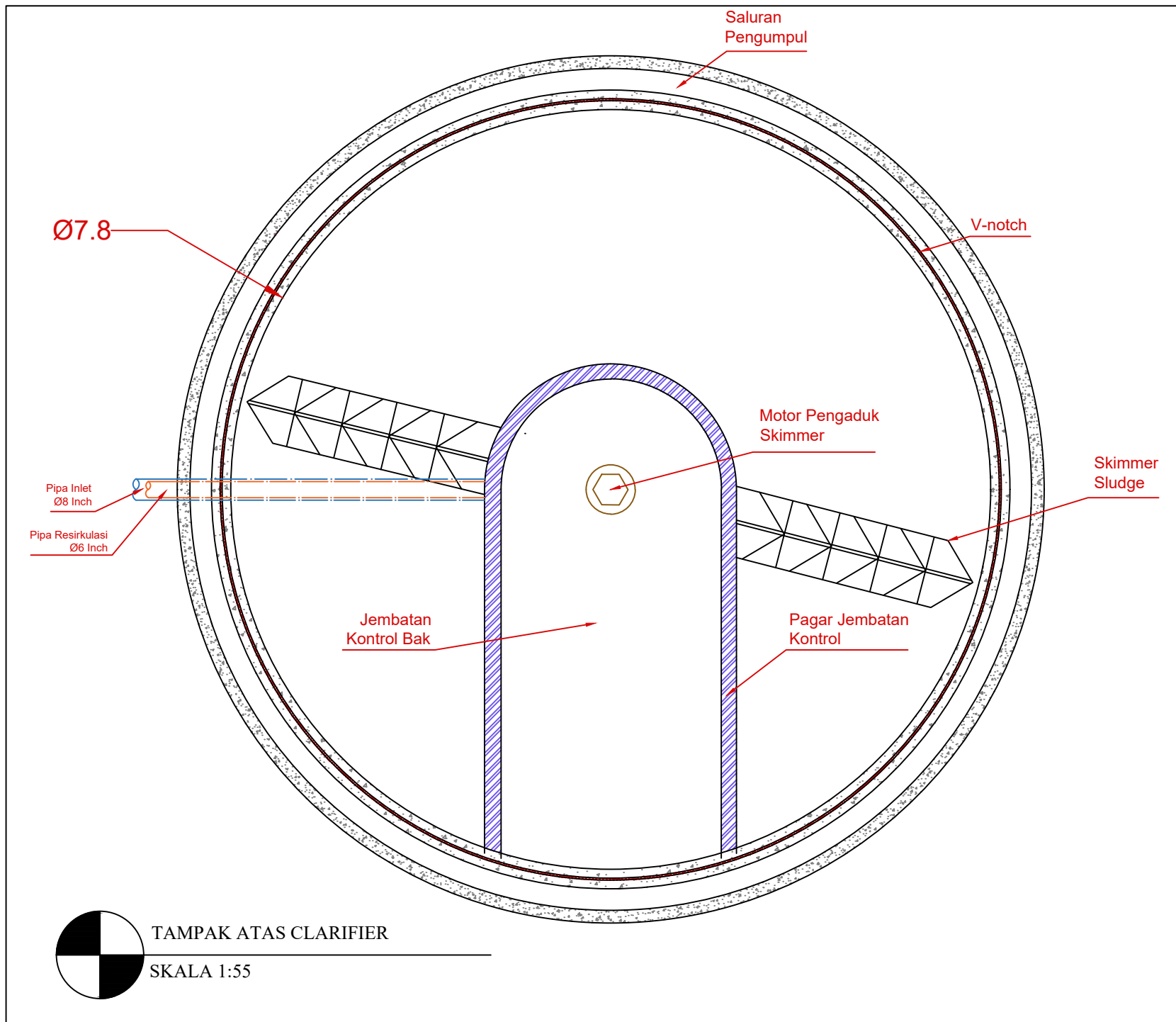
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SATUAN

METER

NOMOR GAMBAR

TANGGAL ACC



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"VETERAN" JAWA TIMUR
PROGRAM STUDI TEKNIK LINGKUNGAN
FAKULTAS TEKNIK

TUGAS

PERANCANGAN
BANGUNAN PENGOLAHAN
AIR BUANGAN

DOSEN PENGAMPU

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20034010030

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
CLARIFIER

KETERANGAN

SKALA

TAMPAK ATAS
CLARIFIER

1:55

SATUAN

METER

NOMOR GAMBAR

TANGGAL ACC



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"VETERAN" JAWA TIMUR
PROGRAM STUDI TEKNIK LINGKUNGAN
FAKULTAS TEKNIK

TUGAS

PERANCANGAN
BANGUNAN PENGOLAHAN
AIR BUANGAN

DOSEN PENGAMPU

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UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
SALURAN PEMBAWA DAN BAR SCREEN

KETERANGAN

SKALA

DENAH
SLUDGE DRYING
BED

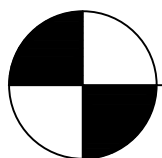
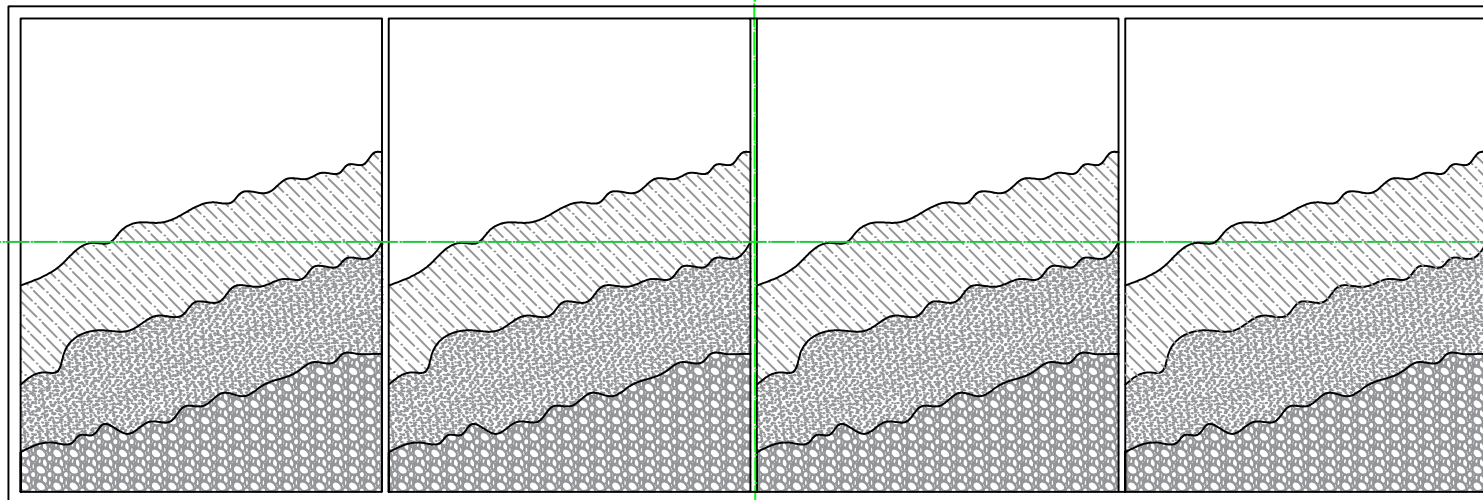
1:230

SATUAN

METER

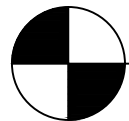
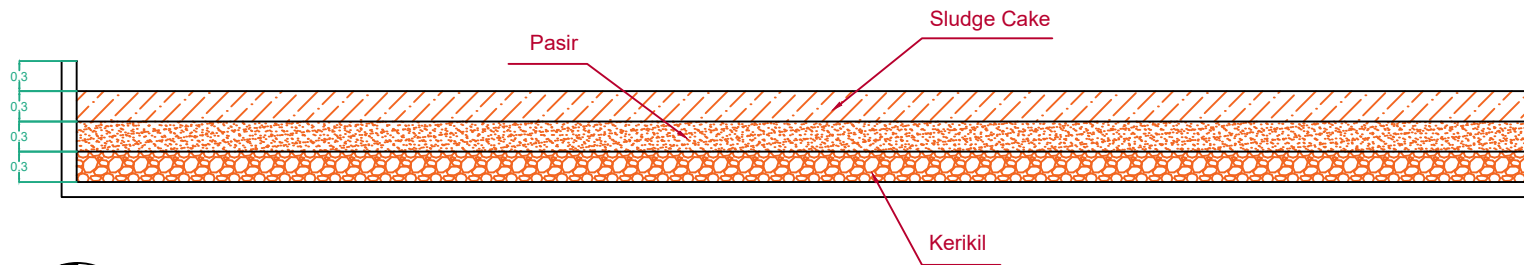
NOMOR GAMBAR

TANGGAL ACC



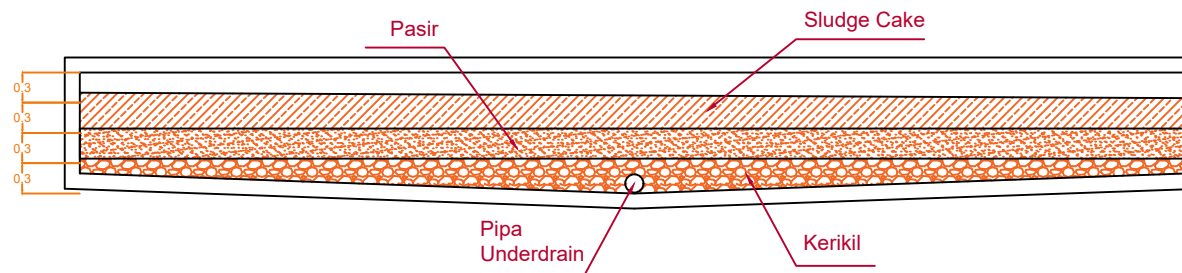
DENAH SLUDGE DRYING BED

SKALA 1:230



POTONGAN A-A SLUDGE DRYING BED

SKALA 1:75



POTONGAN B-B SLUDGE DRYING BED

SKALA 1:75



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"VETERAN" JAWA TIMUR
PROGRAM STUDI TEKNIK LINGKUNGAN
FAKULTAS TEKNIK

TUGAS

PERANCANGAN
BANGUNAN PENGOLAHAN
AIR BUANGAN

DOSEN PENGAMPU

FIRRA ROSARIAWARI, ST., MT.

DOSEN PEMBIMBING

□ Ir. NANIEK RATNI JULIARDI AR. M.Kes.

MAHASISWA

NPM

AZIZAH MAHIRAH RIZKI
PANDU WICAKSONO

20034010006
20034010030

GAMBAR

UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
SLUDGE DRYING BED

KETERANGAN

SKALA

POTONGAN A-A DAN
POTONGAN B-B
SLUDGE DRYING BED

1:75

SATUAN

METER

NOMOR GAMBAR

TANGGAL ACC



UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN"
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FAKULTAS TEKNIK

MATA KULIAH

PERANCANGAN BANGUNAN
PENGOLAHAN AIR BUANGAN

KETERANGAN

SKALA

NOMOR
GAMBAR

TANGGAL
ACC

DOSEN PENGAMPU

FIRRA ROSARIAWARI, ST., MT.

DOSEN PEMBIMBING

Ir. NANIEK RATNI JULIARDI AR. M.Kes.

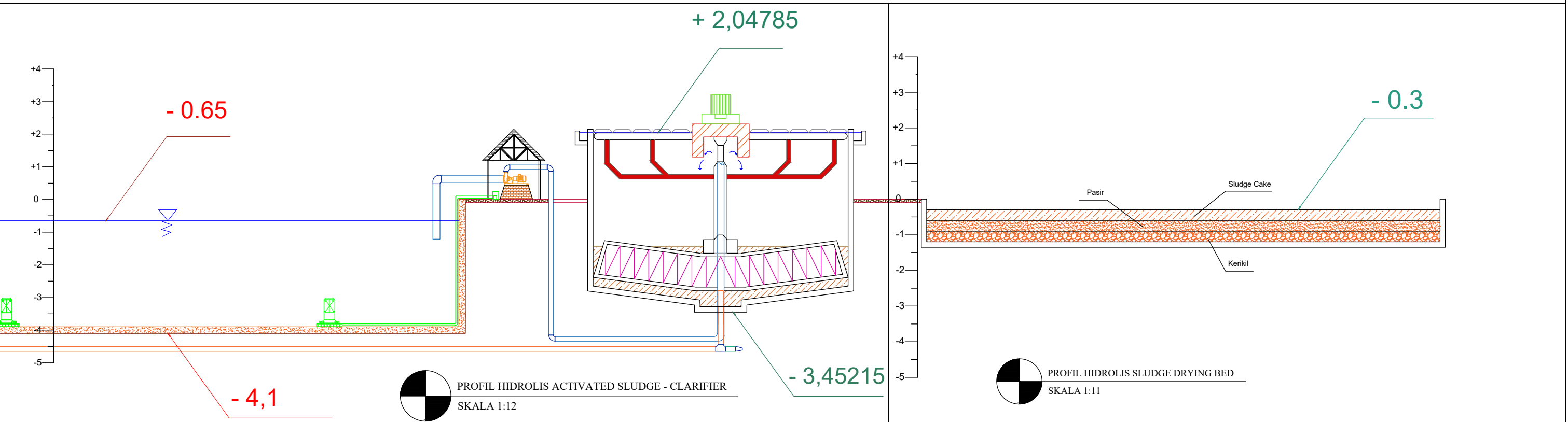
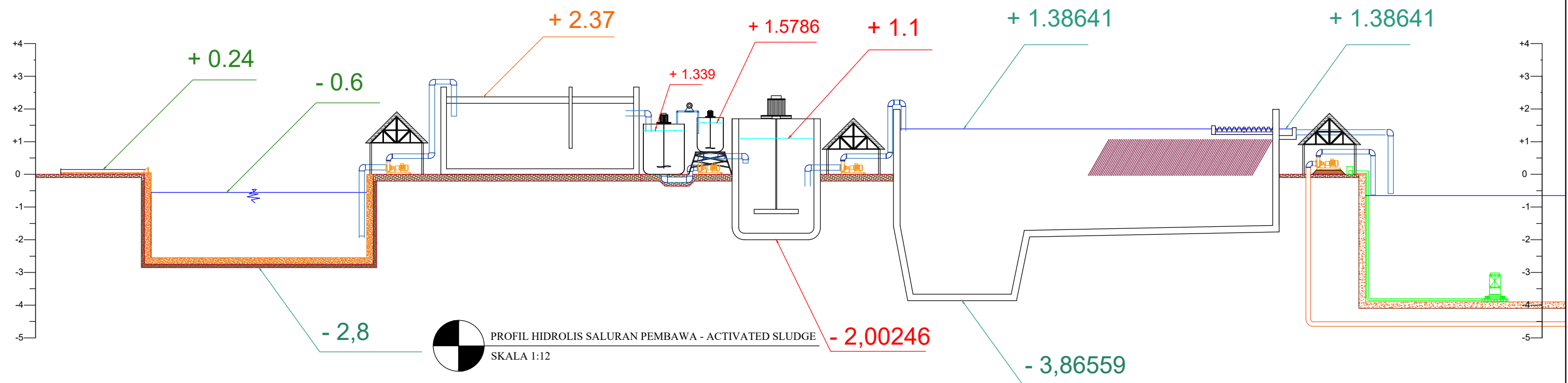
NAMA MAHASISWA (NPM)

AZIZAH MAHIRAH RIZKI (20034010006)
PANDU WICAKSONO (20034010030)

JUDUL GAMBAR

UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
PROFIL HIDROLIS

TANDA TANGAN





UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN"
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MATA KULIAH

PERANCANGAN BANGUNAN
PENGOLAHAN AIR BUANGAN

KETERANGAN

SKALA

NOMOR
GAMBAR

TANGGAL
ACC

DOSEN PENGAMPU

FIRRA ROSARIAWARI, ST., MT.

DOSEN PEMBIMBING

Ir. NANIEK RATNI JULIARDI AR. M.Kes.

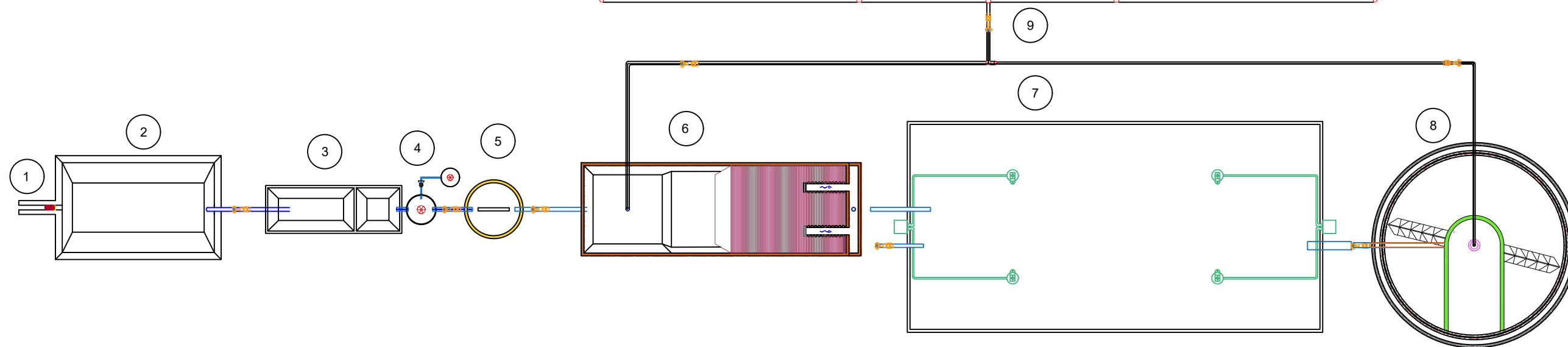
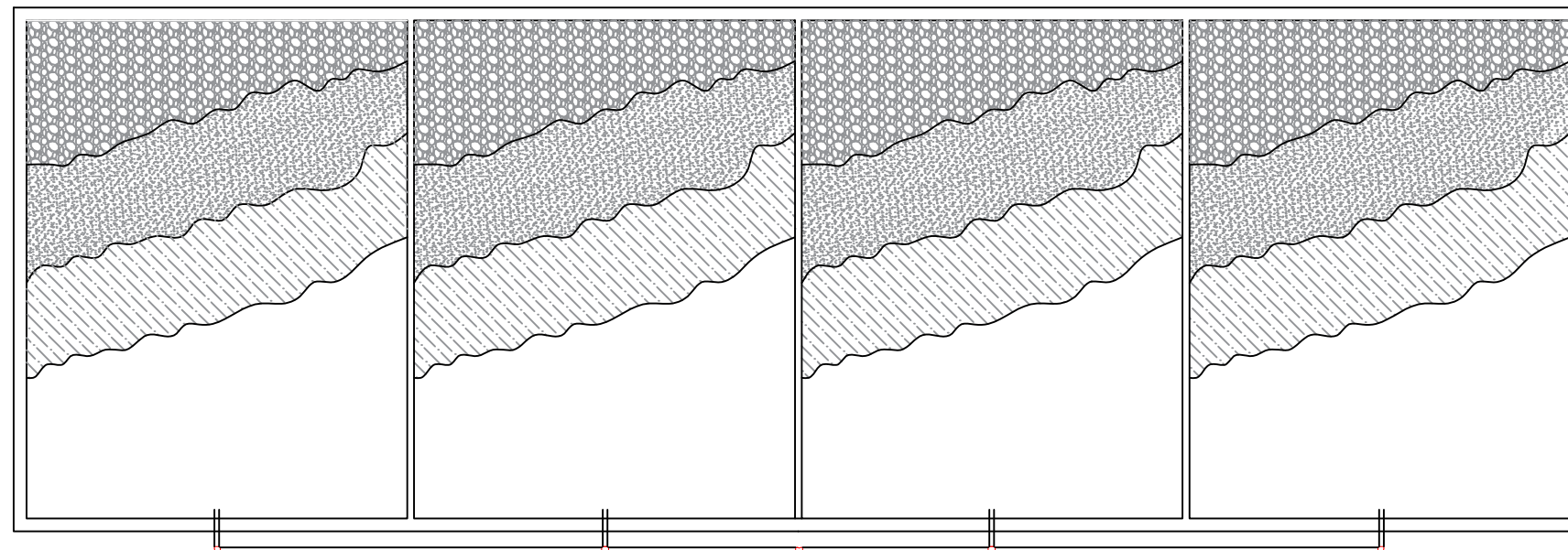
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AZIZAH MAHIRAH RIZKI (20034010006)
PANDU WICAKSONO (20034010030)

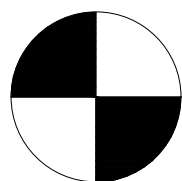
JUDUL GAMBAR

UNIT IPAL INDUSTRI SUSU PT. X SURABAYA
PROFIL HIDROLIS

TANDA TANGAN



1. Saluran Pembawa & Bar screen
2. Bak Penampung
3. Grease Trap
4. Koagulasi & Pembubuh Koagulan
5. Flokulasi
6. Sedimentasi I
7. Activated Sludge
8. Clarifier
9. Sludge Drying Bed



LAYOUT IPAL

SKALA 1:10



PROGRAM STUDI TEKNIK LINGKUNGAN
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UNIVERSITAS PEMBANGUNAN NASIONAL “VETERAN” JAWA TIMUR

LEMBAR ASISTENSI TUGAS PERANCANGAN

Tugas : Tugas Perancangan PBPAB
Nama Mahasiswa/NPM : 1. Azizah Mahirah Rizki (20034010006)
2. Pandu Wicaksono (20034010030)
Pembimbing : Ir. Naniek Ratni Juliardi AR., M.Kes

No.	Hari/Tanggal Asistensi	Keterangan	Tanda Tangan Pembimbing
1.	Selasa, 7 Februari 2023	1) Mencari Karakteristik Air Limbah 2) Mencari Industri yang air limbahnya akan diolah 3) Mencari karakteristik parameter air limbah 4) Mencari buku panduan	<i>Ribant</i>
2.	Selasa, 21 Februari 2023	1) Industri yang akan diolah ialah industri susu 2) Debit air limbah 1000 M ³ /hari 3) Parameter yang diolah BOD, COD, TSS Minyak dan Lemak, Nitrogen 4) Membuat Flowchart untuk tugas selanjutnya	<i>Ribant</i>
3.	Selasa, 28 Februari 2023	Asistensi Ketiga Tugas Perancangan PBPAB 1) Menaikkan kadar parameter air limbah karena unit yang digunakan tidak sesuai dengan kondisi di lapangan 2) Mengganti unit yang dipilih untuk pengolahan air limbah 3) Mengurangi kadar COD, Mencari referensi jurnal terkait kadar COD	<i>Ribant</i>
7.	Selasa, 7 Maret 2023	Menghitung Neraca Massa; 1) Intake dan bar screen 2) Grease Trap	<i>Ribant</i>
8.	Selasa, 14 Maret 2023	Menghitung Neraca Massa 1) ABR 2) Activated Sludge	<i>Ribant</i>
9.	Selasa, 21 Maret 2023	Menghitung Neraca Massa 1) Clarifier	<i>Ribant</i>

10	Selasa, 28 Maret 2023	Menghitung Neraca Massa ; 1) Bak Penampung di sebelum grease trap	<i>Ribant</i>
11	Selasa 9 Mei 2023	1) Progress neraca massa sudah mencapai bangunan ke-7, Activated sludge 2) Melanjutkan perhitungan DED hingga unit terakhir	<i>Ribant</i>
12	Selasa, 16 Mei 2023	Mengganti unit ABR ke Koagulan-Flokulasi karena jika menggunakan ABR adanya kemungkinan kenaikan pada ammonia-nitrogen	<i>Ribant</i>
13	Selasa, 22 Mei 2023	Validasi progress hingga perhitungan DED serta mengurus surat tugas	<i>Ribant</i>
14.			