SEPARATOR WITH SCRAPER

GREASE COMING

YD-35FO

INSTRUCTION MANUAL

Version: 20250404

World Chemical Co.,Ltd.

Table of Contents

NOTICE: This instruction manual is based on the standard equipment. Regarding the special type unit, substitute the specification with the appropriate article words.

In this manual, the ranking of safety precaution items are categorized into “Danger” and “Caution” and are defined as follows:

Mishandling may lead to death or fatal injuries.

Mishandling may lead to minor to moderate injuries and/or property damage.

Moreover, even items with a “CAUTION” warning could lead to serious results depending on the situation. Since both cases contain important descriptions, please abide by the rules governing usage.

I. Caution When Transport or Installation

(1) When transporting “GRERSECOMING”, always withdraw fluid from the separator. After using it, it is slick with oil. Take extra care of fall and slip drop. Additionally, remove the power cable of the scraper motor before transporting.

(2) When opening the wooden box, take care not to get injuries by nails or chips.

(3) Install the trestle on the level at the firm place and fix it on the floor with anchor bolts.

(4) The power of the scraper motor should be connected by the qualified person under the electric install technical standards.

(5) Use the crimp-type terminal to connect the power supply cable.

(6) The earth terminal must be connected to avoid electric shock and/or the motor failure.

(7) Do not bend, stretch nor pinch interstitially the power supply cable and the motor lead wire. It may cause fire or electric shock.

II. Caution for Preparation and Operation

(1) The correct rotation is the clockwise as viewed from above. If the motor rotates backward, make sure to turn off the power and reverse two out of three motor power cables.

(2) When collecting the high temperature liquid, the flow passage such as the collecting skimmer, the pump, the separator and the hose may be hot nearly the liquid temperature. Take care of it to prevent burn.

(3) Remove the power supply cable of the scraper motor to prevent electric leakage or electric shock, during no operation of the separator.

4) When the power blackout or going off the fail-safe device, cut the main power to prevent injuries by the sudden re-start.

5) At the emergency such as earthquake or fire, stop the operation.

(6) When any failure happens, stop the operation immediately and take appropriate measures.

(7) Do not put obstructs in the way of air around the motor. It may cause fire for overheat or the motor damage.

(8) Do not use the motor where the flammable gas enters, because fire or explosion may happen.

(9) When the motor heats up, it is in danger of fire. Never put combustible materials on the periphery.

(10) If touch the rotating parts, it may injury. Do not put your hands or fingers closer.

(11) If the rotating scraper is stopped by compulsion during the operation, it may cause the motor damage or failure. Never do like that.

III. Caution When Maintenance and Inspection

(1) When servicing or inspecting of the scraper system, always turn off the main power.
If it is maintained with power, it may cause electric shock.

(2) When repairing “GREASECOMING”, contact the agent or our sale department. Additionally, when sending it back, clean thoroughly and pack it in wooden crates or cartons after checking no adherence or leaks of liquid.

IV. Other Cautionary Items

(1) Do not use it in an environment other than that which meets the prescribed specifications. Using it outside the framework of the specifications would nullify our company’s warranty.

(2) Do not modify the unit by yourself as it would nullify our company’s warranty.

(3) When discarding GREASECOMING, remove oil and dispose it as industrial waste.

(4) Contact the agent or our sales department when using it to collect chemical materials other than oil (mineral, animal, and vegetable oil). It is impossible to collect solvents, organic acids, strong acids or alkali fluids. Also, never use it for flammable liquid.

SEPARATOR WITH SCRAPER
“GREASECOMING”
YD-35FO Instruction manual

1. PREFACE

Thank you for purchasing World Chemical’s “GREASECOMING”.
It is assembled with a pump and an oil collecting skimmer, such as a fix skimmer or a float suction, and configured floating oil collecting separating system. It can be installed with collecting tanks in factories, grease traps in company cafeterias, big restaurants or cleaning waste water tanks in food factories. It collects and separates floating oil in oily waste water, sewage water or whatever.
It has a scraper as standard and is possible to collect and separate smoothly oil, even if the floating oil is high viscosity or scum has a low fluidity.
Additionally, it is designed compact and adopted with all metal parts, so it is excellent at durability.
Read this manual thoroughly before using it and understanding of the capability and features.
Keep this manual handy for future reference.

2. COMPOSITION AND STRUCTURE

It is configured an iron separator painted with epoxy, which is took account of maintenance and durability, and an original designed scraper. There is the type attached with the power box as optional.

(1) Separator

The separator (1) is attached the scraper on the top of the round main body and has a filling port (8), a water drain port(9) and an oil drain port(11) around the body.
There is the round filling tank on the half-round pillar at the center of the main body. Therefore, the doughnut-shaped water passage between the main body and the filling tank is shown as viewed from above.

The filling port is connected with the filling tank by piping and the pipe of the filling tank side is attached on a tangent. When the collected oily water enters into the filling tank, it makes oil drop become coarse-grained by cyclone effect.
The agglomerated board unit which is combined with a sloping board is assembled at a 90-dgree angle at the upstream of the doughnut-shaped water passage. When drainage water passes through the aggregated board unit, oil drop becomes coarse-grained and sticks on the aggregated board. Then, they become big oil drop and emerge.

The water drain cap (6) is attached inside of the drain tank for smooth drain. The liquid level of the separator is designed to coincide with the top edge of the water drain cap. The inside of the water drain cap is the screw structure (The pitch: 2mm). The liquid level in the separator can be finely adjusted by rotating of the cap.
The top edge of the oil drain port at the side of the main body is slope. When scraper blades collect floating oil, the water content of oil is reduced and it collects only oil.
The separator is designed to collect high viscosity oil or floating oil with a lot of floating objects smoothly, and has oil drain port joint to possible to attach the flexible hose.
A drain valve (7) for drain is attached at the bottom of the separator. At the top of the separator, the cover is attached to prevent dirt or foreign objects.
The lower side of the separator has bolt holes to fix with equipment. Install it by using the holes.

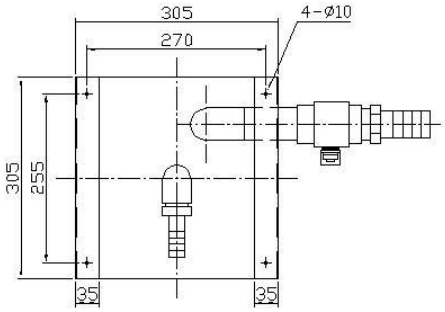
(2) Scraper
The scraper is configured a reduction motor (12) and scraper blades (13) and they collect oil floating in the separator and discharge it.
The voltage of the reduction motor is 3 phase / 200V or 1 phase / 100V and the rotating speed is 8.3/10rpm (50/60Hz). It is adopted the water proof motor for rainwater measure, because it is possible to install the equipment outside. A thermal protector is built-in to protect the motor, too.
If making an inspection during the thermal protector is power-on, the sudden re-start motor may cause injured. Make sure to turn off the power for the maintenance.
The tip of the rotating shaft in the separator has scraper blades. They are assembled in a frame and it is possible to be attached at either end of the frame as option, if collected oil is a large amount. The halved blades collect and drain floating oil at the doughnut-shaped water passage. The forward of the blades has rubber boards and it is useful for shock mitigation when oil passes through the oil drain port during rotating.

(3) Basis of collecting floating oil
It is adopted the difference in specific gravity separating system and the scraper collects floating oil by buoyancy. The oily water in the separator is as follows.
The oily water transferred from the collecting skimmer through the pump enters from the filling port (8) to the filling tank though the pipe. By generated cyclone in the filling tank, oil drop become coarse-grained and oily water overflows from the upstream edge of the dough-nut shaped water passage. The floating oil is dehydrated during going around the dough-nut shaped water passage and carried to the downstream with other floating oil by the scraper. Then, it arrives at the oil drain port. When oil is lifted alongside of the slope of the oil drain port, large water drop on the blades and oil is shook off and dehydrated.
After the drain water with minim oil drop is carried to the bottom of the main body, it becomes coarse-grained and be separated during passing through between the agglomerated board unit

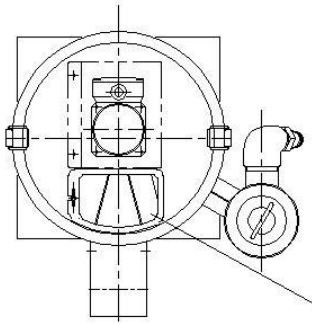
which is assembled with the sloping boards. Then, it floats through the sloping board.

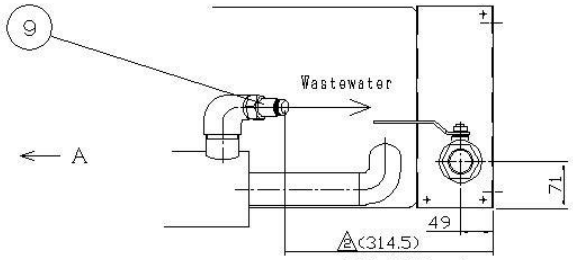
The drain water low in fat enters from the top of the agglomerated board unit to the dough-nut shaped water passage and is carried to the pipe of the drain tank under the main body. After that, it overflows and be discharged from the water drain cap (6). Then, the drain water is back to the oil drain pit through the water drain port (9) and the flexible hose.

改定 REV.	日付 DATE	改定内容 DESCRIPTION	承認 APP'D BY	検図 CK'D BY	設計 BY
1	2021/09/06	Revise/Material of motor, Clerical error, etc	YABE	MIYAJIMA	KOMATSU
2	2023/01/31	Change/Drain outlet direction, A4/Specification column	YABE	MIYAJIMA	KOMATSU
3	2025/3/31	Material details added, View B revised, Drain valve added, Etc.	MIYAJIMA	YOSHIDA	KIMURA

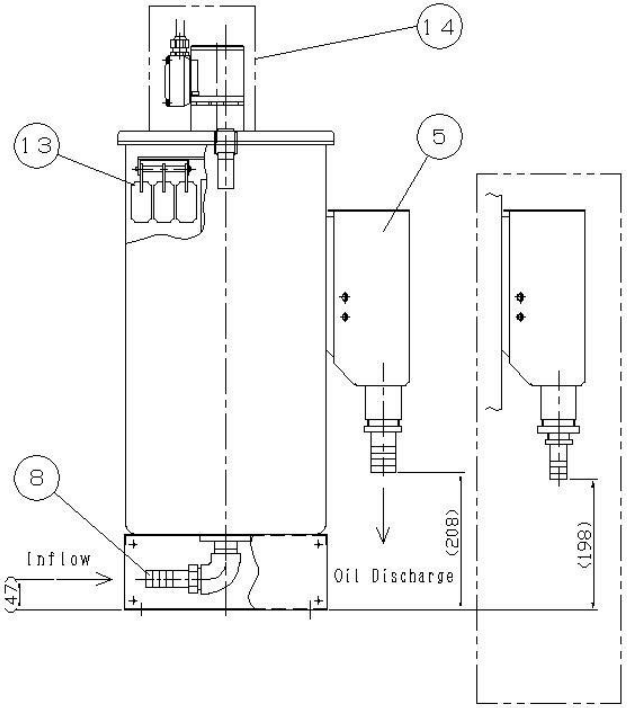


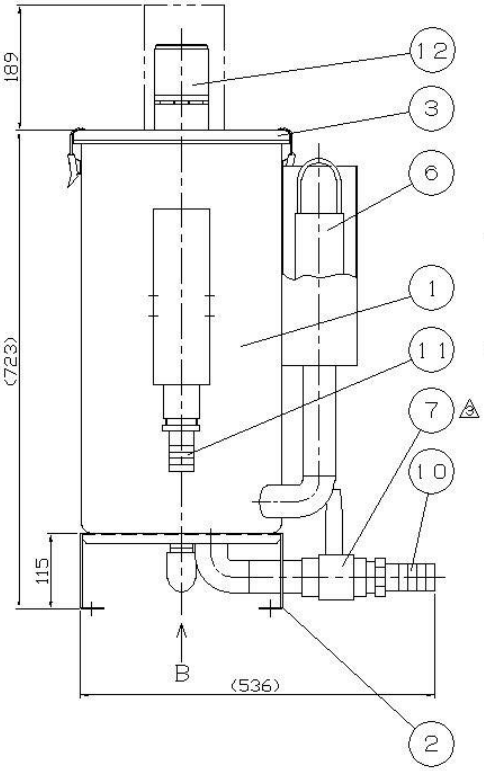
△3 VIEW B
(Fixing bolt hole dimensions)





VIEW A





△2

BORE	
TOTAL HEAD	
CAPACITY	
SCRAPER MOTOR	25W 1/360 SINGLE PHASE /THREE PHASES V 50/60Hz 4P
SCRAPER MOTOR CABLE	
WEIGHT	Approx. 23kg
OTHER SPECIFICATION	

UNIT in mm

	No.	品名 PARTS NAME	数量 Q'TY	材質 MATERIAL	備考 NOTE
	14	Motor Cover	1	SUS304	Option
	13	Scraper Vane	3	SUS304 △3	
△1	12	Scraper Motor	1	SUS304・etc △3	25W 100/200V Indoor TYPE
	11	Hose Joint For Oil Discharge	1	PP	40A×φ38
	10	Hose Joint For Drain	1	PP	40A×φ38
	9	Hose Joint For Drain Outlet	1	PP	25A×φ25
	8	Hose Joint For Suction	1	PP	25A×φ25
△3	7	Drain Valbe	1	SCS13・etc	40A
	6	Drain Outlet Cap	1	PP・NBR・etc △3	
	5	Oil Outer Happer	1	SUS304 △3	
	4	Check Window	1	PVC	
	3	Separator Lid	1	SUS304・etc △3	
	2	Base	1	SUS304 △3	
	1	Separator	1	SUS304・etc △3	

名称 TITLE	OUTLINE DRAWING		適応機種 ADAPTATION MODEL
型式 MODEL	YD-35FO		
承認 APPROVED BY	検図 CHECKED BY	設計・製図 DRAWN BY	日付 DRAWN DATE
T.Ebihara		M.Harigae	NOV.24.2009
図面番号 Dwg. No.	GY-3095-3		尺度 SCALE 1:7

株式会社 ワールドケミカル
World Chemical Co.,Ltd.

35FO-P7

3. INSTALLATION

(1) When lifting the separator, use belt slings or wire ropes to prevent slip it.
When transporting it, make sure to withdraw liquid.

(2) It makes oily water collected from the oil collecting pit separate oil and water and water is discharged by natural drop. Therefore, install the water drain port upper the water level of the pit.

(3) Install the mounting horizontally at the firm place.
If it is inclined, the tip of the scraper blades may not contact with floating oil according to the adjustment of the water level in the separator, and the scraper's oil drain system may not work properly.

(4) Fix the mount with anchor bolts firmly. If it is installed without fixing, it becomes unstable for vibration or earthquake. Make sure to fix it.

(5) Connect the transferring hose from the pump at the filling port of the separator and fix it with the hose band firmly.
Wrong connection causes liquid leaks. When connecting the hose, do not twist nor crash it.

(6) Connect the water drain hose at the water drain port and fix it with a hose band firmly.
When returning the separated water to the oil collecting pit, install the tip of the hose at the similar height of the water level and the position is as far as possible from the collecting skimmer. If installing the water drain hose near the collecting skimmer, it may disturb the floating oil layer by force of drain water and the collecting efficiency may be down. Additionally, if installing it at the higher position than the water level, emulsification of floating oil is enhanced.
However, if the tip of the water drain hose is submersed, the drain efficiency is down. Therefore, do not submerse it.
On the other hand, when transferring the separated water to the other tank, install the water drain port of the tank at the lower position than the water drain port of the separator. In each case, decline the water drain hose to discharge smoothly.

(7) It is recommended to put the suitable waste oil tank near the oil drain port of the separator.
However, the waste oil tank is not an accessory and it is our recommendation. If the hose joint for the oil drain port is the accessory, connect the oil drain hose with the waste oil tank.

4. PREPARATION FOR OPERATION

(1) Verify that the power specification on the name plate of the scraper motor is coincident with the AC power.

(2) Connect with the AC power.

When connecting with AC power, make sure the main power off to prevent the electric shock and short circuit.

Without power supply box

Connect the power supply cable of the scraper motor with the AC power. Install the suitable switch as the power line.

With power supply box (Option)

Connect the power supply cable of the power supply box with the AC power. The ground leakage breaker, the inverter and the terminal block are in the power supply box as standard.

[Guideline to set the inverter]

For the pump: Approx. 35 - 50/60Hz（Depends on submersible pump specification）
Adjust it finely according to the total head and capacity to use.

Regarding the operation procedure, refer to the accompanying instruction manual.

Caution

The above frequency for the pump is for the submersible pump used for our Gyro skimmer “YD-GYP series”. If the other pump is used, set the suitable frequency the capability of the pump.

(3) Verify to close the drain valve.

(4) Verify again that the flexible hose is fixed firmly and the connection point is correct.

(5) Open the separator and pour tap water in.

Pour tap water until overflow from the water drain port cap. At this time, if the position of the top edge of the water drain port cap is higher than the top edge of the slope of the oil drain port, tap water flows out from the water drain port cap before overflow. Take care of it.

(6) Verify the rotation of the scraper motor.

The correct rotation is the clockwise as viewed from above. If the motor is 3 phase / 200V and rotates backward, make sure to turn off the power and reverse two out of three motor power cables.

5. OPERATION AND ADJUSTMENT

The following is adjustment procedures after stating the operation. When the adjustment, follow all the precaution.

[A] Turn off the main power of the scraper motor except adjustment during operation.

[B] When collecting high temperature oily water, the separator also becomes hot. After stopping the operation, leave parts until the temperature is decreased enough.
When the adjustment during the operation, take care not to burn

[C] When collecting hazardous liquid such as dangerous liquid or poisonous liquid, take safety measures of workers as their obligation such as wearing rubber gloves and protective grasses.

The separator is tested, adjusted and administered the necessary test in our factory. However, if adjusting the oil drain procedure as the customers' request, refer to the following procedure according to the specification of the collecting oil.
The necessary part to adjust for the oil drain procedure is only the height of the water drain port cap. Firstly, collect oil at the normal condition during the separator operation, and adjust the water drain port cap with checking the state of drain oil.
When the collected oil is low viscosity and reducing water in drain oil, rotate the water drain port cap clockwise as viewed from above, be lower liquid level in the separator.
The adjustment range of the water drain port cap is 2 mm in one turn and it is possible to lower 45 mm from the top edge of the slope of the oil drain port as the liquid level in the separator.

When the collected oil is high viscosity (grease form) and no problem to mix a small amount of water in drain oil, rotate the water drain port cap anticlockwise and raise the liquid level in the separator. In this case, when oil drain from the oil drain port by scraper blades, a small amount of water is discharged with collected oil and it acts lubricant which prevents oil to stick and accumulate around the oil drain port.

When the collected oil is high viscosity and reducing water in drain oil, rotate the water drain port cap clockwise and lower the liquid level in the separator.
However, in this case, if oil, which is collected by scraper blades, sticks and accumulates around the oil drain port, it is possible to have no effect of oil drain gradually. Therefore, clean it to remove oil sometimes.

When collecting the normal low viscosity mineral oil, the difference between the top edge of the slope of the oil drain port and liquid level (drain oil drop) is 10 mm during operation.

The capability of the separator is 5 - 15 L/min as YD-35FO. Adjust it the collecting skimmer and the pump to the capability.

When transferring collected oily water more than the capability of the separator, it may cause oil separation defect or poor drainage.

6. MAINTENANCE AND INSPECTION

If much sludge or foreign objects are mixed with collected oily water, it may disrupt the performance of GREASECOMING. Take a maintenance check periodically or as appropriate.
When taking a maintenance check, make sure the precautions.

(1) When withdrawing liquid from the separator, attach the flexible hose with the drain valve (6) at the bottom of the main body.
(2) Open the drain valve, and withdraw liquid in the separator.
(3) Inspect the inside of the separator. If sludge, dirt or scum oil sticks on the inside of the separator, clean it by water.
(4) After dehydrating the inside of the separator firmly, close the drain valve and remove the flexible hose.
(5) Verify that the scraper rotates when the power on.
    If the scraper does not work, tighten attachment screws of the motor shaft more and fix the frame.
    Before this process, make sure to turn off the power.
(6) If sludge is accumulated on the scraper blades or the frame, the motor is overloaded and it may cause trouble or the oil drain efficiency defect. Clean it according to the
    If oil or objects sticks and accumulates on the wall of the separator, the scraper is overload and it may cause of the motor trouble to restrain the scraper rotation. It is recommended to clean and maintain them periodically.
(7) If sludge is accumulated on the slope of the oil drain port, the flatness of the slope is lost and the scraper blades have a loose connection. Then, the oil drain efficiency is decreased. Clean the parts periodically.
(8) The interval between regular inspections is depending on changing nature of floating oil and the inlet flow of sludge and dirt. Even if it works properly, withdraw liquid and inspect the inside once a month.
    Inflowing sludge or dirt may cause negatively affect such as blocking of the drain water flow or a decrease in separating performance. Depend on the inlet flow, withdraw liquid or do internal

washing.

7. TROUBLESHOOTING

Types of Breakdown	Cause	Countermeasure
Separation defect		
Oil is mixed with drain water.	Adjustment defect of the pump's flow rate.	Readjust the flow rate of the pump to the capability of the separator (Around 20L/min).
Water is mixed with collected oil.	Emulsification of collecting oil.	It is too hard to separate the emulsified oil to water.
	Adjustment defect of the water drain port cap.	Readjust the water drain port cap to lower the liquid level in the separator.
Water drain defect		
Separated water is not discharged smoothly.	The separator is installed at the low position.	Reinstall the water drain port of the separator higher than the oily water level in the collecting oil pit.
	Grade defect of the water drain hose.	Reinstall the water drain hose on the down grade.
	The tip of the water drain hose is submerged.	Reinstall the tip of the water drain hose higher than the oily water level in the collecting oil pit.
	The water drain hose is clogged.	Inspect and clean the inside of the water drain hose.
	Sludge is accumulated at the bottom of the separator.	Withdraw liquid in the separator and clean the inside.
Oil drain defect		
Collected oil is not discharged smoothly.	The oil drain port is clogged.	Remove oil or objects around the oil drain port and clean it.
	Foreign objects are accumulated on the slope of the oil drain port.	Clean the slope and readjust the flatness.
Scraper defect	Scraper blades are not contact with the surface of oil.	Rotate the water drain port cap and raise the liquid level in the separator. Readjust to submerge the scraper blades in oily water.
		Inspcet the slope of the separator and reinstall the top face horizontally.
	The scraper does not rotate.	Inspect the loosen of the attachement bolts for the motor shaft and tighten them.
	The scraper motor does not work.	Clean the scraper blades, the frame or the side wall of the separator and remove oil or objects.
		Inspect the power supply cable for the motor.
		Contact us, becaue the motor may be broken down.

8. WARRANTY / REPAIR

1. period and coverage

(1) The warranty period is 12 months from dispatched from our factory.

(2) During warranty period, if the pump breaks down or is damaged at the use under the condition instructed in this manual due to manufacturing defect(s), the failure parts are repaired free of charge.

(3) Even if the failure occurs within the warranty period, the followings are repaired or replaced for compensation in principle.

- Breakdown or damage due to different use or safekeeping from the instructions in this manual.
- Breakdown or damage due to incorrect use or unjust repair or modification.
- Breakdown or damage as result of pollution, salt damage, gas damage, abnormal voltage or undesigned power (voltage, frequency) as well as fire, earthquake, flood disaster, lightning strike or other natural disaster.
- Abrasion or degradation of consumable parts like a gasket or O-ring.
- Breakdown or damage during transportation, for relocation or fall after your purchase

(4) We cannot be responsible for the break down or damage of the customer-specified pump.

(5) Irregularities or breakdowns due to chemical or hydrodynamic corrosion by liquid and abrasion by the slurry are not covered under the warranty. The material chosen at the time of the contract is only a recommendation. We do not guarantee the chemical resistance of the material.

(6) If the determination of the cause for the breakdown or damage is questionable, it attributes to the negotiation between the customer and us.

(7) Expenses or other damage incurred as a result of breakdowns at the use under the different condition from the instruction in this manual are not covered under the warranty.

2. Repair

Notice:

For repair, consult the supplier. When returning a pump, thoroughly clean and pack the wet parts kit.

If irregularities are detected during operation, stop the operation immediately for check. (Refer to the section on “troubleshooting”).

(1) Consult your supplier or us for repair.

(2) Read this manual again and re-check before requesting repair.

(3) When visiting to a distance location for repair, the travel expenses are charged.

(4) Inform the followings when requesting repair.

- Model name and serial number
- Use duration and condition
- Damages parts and condition
- Liquid (Name, Specific gravity, Temperature, Slurry)

If liquid leaks during transportation, it is very dangerous, so make sure to clean inside thoroughly.

Installation record

Model:	
Purchase date:	Serial number:
Start date:	Supplier:

Ver.20240819

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