



PRODUCT DOCUMENT PACK

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PRODUCT

Fagor CCO-120DCW Electric Conveyor Dishwasher – 1180mm, 28.5kW

Model / SKU: CCO-120DCW

KW COMMERCIAL KITCHEN

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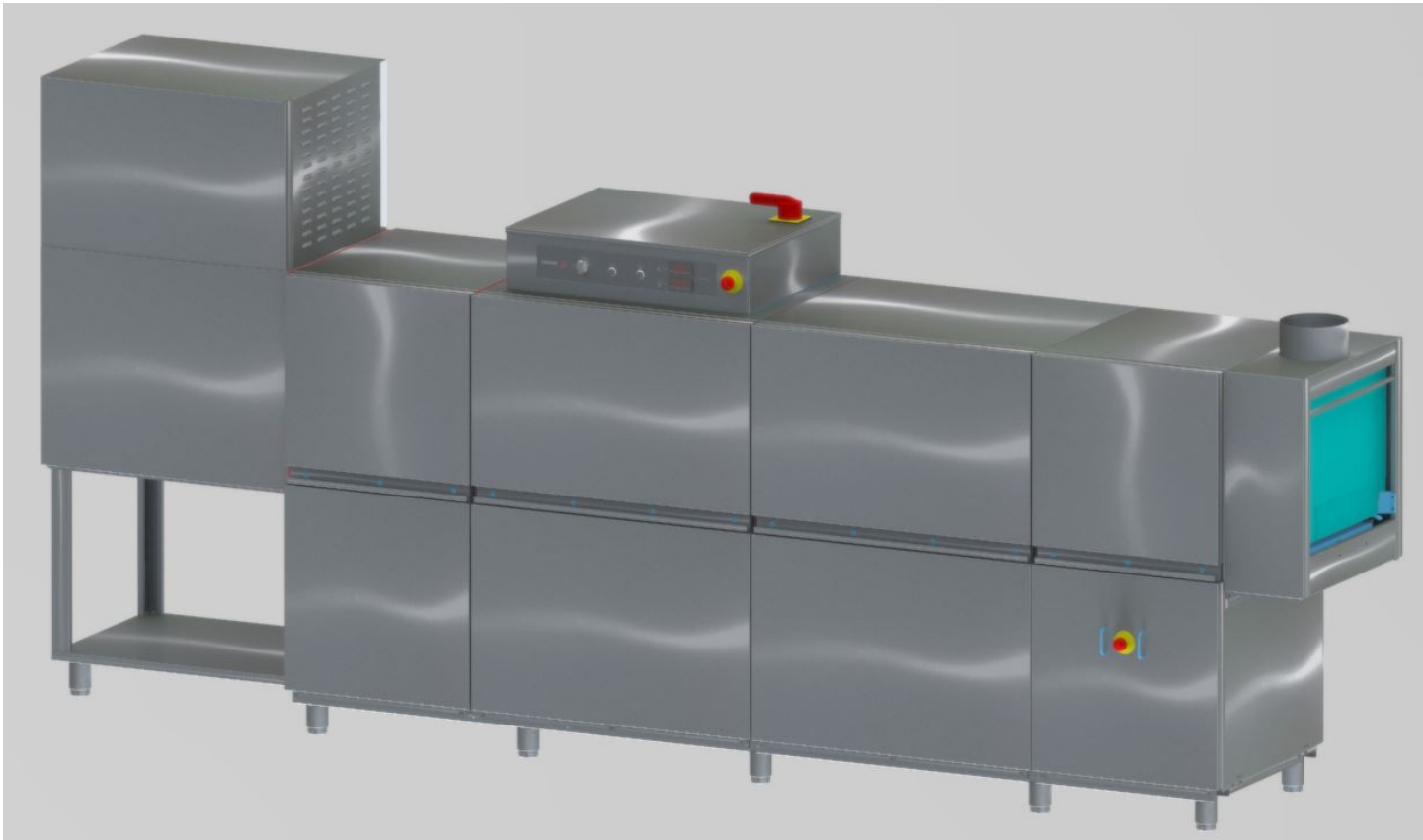
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Service Manual

CONVEYOR DISHWASHERS

02/05/2020



SERVICE MANUAL “CONVEYOR DISHWASHERS”



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DISHWASHERS

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1. INTRODUCTION

Dear customer,

We would like to thank you for the confidence you have placed in our brands and in our product. We are sure that this machine will meet your requirements.

This manual is designed to offer the information necessary for the installation, start-up, and maintenance of equipment.

The special installation and maintenance must be carried out by qualified technicians.

The equipment must only be used for the purposes established by the manufacturer. Inappropriate use of the same may result in risks to the integrity and safety of users and damage to the equipment. This machine may only be used by professionals or qualified personnel. Any other use will be in conflict with the intended use and is therefore hazardous.

The guarantee does not cover damage to glass components, or damage to insulation material or damage due to the incorrect installation of the equipment, or to inappropriate use, inadequate maintenance or poor repair processes.

This Service Manual is a guide to help in the maintenance of the machine.

This equipment is subject to changes and modifications for its technical progress.

2. OPERATING TESTS

The dishwasher you have purchased is designed for its correct operation, the result of which is certified by a rigorous quality control test.

The dishwasher has been tested, and the outcome of the tests established for its production was satisfactory.

The supplier may require the defective part to be returned for analysis and statistics.

The company will correct any possible errors or defects provided that the machine has always been used in accordance with the instructions in the manual.

IN THE EVENT OF REPAIR OR REPLACEMENT OF PARTS, ALWAYS PROVIDE THE CODE AND THE SERIAL NUMBER OF THE APPLIANCE, FOUND ON THE SPECIFICATIONS PLATE.

Please read the instruction manual closely as this contains safety directives that must be observed for your own safety.

Liability will not be accepted if the machine has not been handled as indicated in the manual or by unauthorised or unqualified personnel.

3. SAFETY INSTRUCTIONS

For your safety:

Do not store or use inflammable and/or corrosive liquids or gases near the equipment.



The operation of the machine must never be entrusted to minors or individuals with physical, mental or sensory disability. Nor to individuals without the experience and/or necessary knowledge, unless under the supervision of a safety manager.

The machine must only be operated by hand. Any damage resulting from the use of sharp, pointed objects or similar will invalidate all warranty rights.

To avoid the risk of accidents and damage to the machine, operators must receive adequate safety training by means of relevant courses, seminars and programmes.



Warning: The incorrect adjustment, substandard cleaning or installation, or inadequate maintenance or service, together with the renovation of the machine may result in property damage and/or personal injury, or even loss of life. Please read the instructions in the manual supplied with the machine carefully before starting the machine.

Safety measures for the use of the machine.

- Always open the door of the machine carefully.



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- Use suitable protective clothing.
- Cleaning - Aggressive chemical action (risk of abrasion).

During cleaning, always use suitable protective equipment: protective goggles and gloves, face mask, etc. Observe the safety instructions listed in the section “Cleaning”.

- Do not store explosive, corrosive or inflammable substances inside or close to the appliance (risk of fire).

The positioning and installation, and all repairs and/or modifications, should always be carried out by an **AUTHORISED TECHNICIAN**, in accordance with the applicable legislation of the country or geographical region. The manufacturer does not accept liability for the consequences if the machine is incorrectly installed.

- It is strictly forbidden to delete, alter, manipulate or suppress the safety devices. Failure to comply with this warning may result in severe risk for the health and safety of individuals.

- Use of spare parts other than original parts will cancel the guarantee.
- To prevent the contamination of recipients and to maintain hygiene standards, the elements in contact with food and surrounding zones should be cleaned after each use.
- Before switching on the newly installed appliance for the first time, the inside should be cleaned with a cloth soaked in soapy water to eliminate the odours associated with a new appliance.
- This equipment has been designed for use in ambient temperatures between 5 and 40 °C.
- Do not leave flammable products or objects inside the tub or in its vicinity.
- Abrasive or corrosive products, acids, solvents, or **CHLORINE/HYPOCHLORITE**-based detergents **must never be used**.
- **Never use** the equipment for any of its components as a ladder or means of support, and do not deposit objects on top of the machine.
- Do not open the door of the machine while the machine is operating. Switch off the appliance before accessing the inside of the machine.
- Do not install the appliance in places exposed to jets of water.

USE THE PPE NECESSARY TO GUARANTEE YOUR SAFETY, AND THAT OF THE USER AND THE EQUIPMENT.



IMPORTANT: WAIT AT LEAST 10 MINUTES AFTER SWITCHING OFF THE MACHINE BEFORE CLEANING THE INSIDE OF THE APPLIANCE.

WHILE THE MACHINE IS OPERATING AND FOR 10 MINUTES AFTER DRAINING THE WASH TANK.

4. PICTOGRAMS



Danger Risk of imminent danger that may lead to serious physical injury or loss of life. Failure to observe this instruction may result in property damage or personal injury.



Warning Risk of potential hazard that may lead to serious physical injury or loss of life. Failure to observe this instruction may result in property damage or personal injury.



Caution Potentially hazardous situation that may lead to minor physical injury. Failure to observe this instruction may result in property damage or personal injury.



Caustic substances. Failure to observe this instruction may result in property damage or personal injury.



Risk of fire. Failure to observe this instruction may result in property damage or personal injury.



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Risk of burns. Failure to observe this instruction may result in property damage or personal injury.



Danger high voltage. Failure to observe this instruction may result in property damage or personal injury.

5. UPKEEP

To maintain the quality of the stainless steel, ensure good hygiene and prevent the incorrect operation of the machine, it must be cleaned every day. Follow the instructions given in the “Cleaning” chapter.



If the machine is not cleaned correctly and as often as necessary, dirt, grease and traces of food may build up in the tub.

- To prevent rust, clean away traces of food every day.
- Do not use high pressure cleaners.
- Do not clean the machine with products containing acid or expose it to the effects of acid vapours. Acid damages the passive layer of the steel and may result in discolouration.
- Use suitable cleaning products. The use of unsuitable products may damage the machine and invalidate warranty rights.
- Do not use abrasive cleaning products or scrubs.

6. PROLONGED PERIOD OF INACTIVITY

If the machine is going to be inactive or out of service for a long period of time (holidays, temporary closure, maintenance, etc.), the following should be observed:

- The machine must be fully drained.
- The machine must be thoroughly cleaned.
- Leave the door of the machine open.
- Switch off the mains power switch
- The appliance must not be left in environments with temperatures less than **5 °C**
- Leave the door ajar to allow the air to circulate and to prevent the appearance of mould and bacteria.

7. MAINTENANCE

With these guidelines, we aim to offer you assistance so that the equipment always works perfectly throughout its useful life



- Inspection, maintenance and repair work must be performed by a specialised Official Technical Service.
- When performing cleaning, inspection, repair or maintenance work, the power supply must be disconnected from all the machine power points.

- When changing the position of the equipment, make sure that the power cable and the water and drainage pipes have been correctly disconnected. When returning the machine to its original location, it must be immobilised again. Check that the power supply line and the water and drainage connection pipes are installed in accordance with the regulations.

- To ensure that the machine is in perfect technical order, it should be inspected at least once a year by an **Official Technical Service**.



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7.1. DAILY MAINTENANCE

The appliance should be cleaned every day.
For the correct working and maintenance of the appliance, it should be cleaned every day using degreasing products specifically designed for this.



IMPORTANT: Sand-based or abrasive products must **NOT** be used. Nor should a hose be used to clean the outside of the appliance as this could affect the internal components.
The appliance must always be switched off for **Manual Cleaning**.



taken as strictly **ATTENTION:** The detergents are highly active and therefore extreme caution should be they could cause irritation to the skin or eyes. The manufacturer’s instructions must be observed.

When applying detergents and degreasing products, rubber gloves, face mask and protective goggles must be worn, in accordance with the applicable safety regulations.

If the oven is cleaned everyday, the operation can be completed quickly, giving an appliance in perfect condition and ready for use the next day.

NOTE: Do not use products or tools which may scratch the surface of the equipment.

- To ensure the stainless steel maintains its high quality, for hygienic reasons and to prevent the faulty operation of the machine, it must be cleaned every day.
- To prevent the tub from rusting, clean the machine every day.
- Leave the machine door ajar if it is to be out of service for a length of time (e.g. overnight).
- **NEVER** clean the equipment with a high pressure cleaner.
- Do **NOT** clean the machine with products containing acid or expose it to the effects of acid vapours. This could damage the passivating chrome-plated steel coat, resulting in possible discolouration of the machine.
- To clean, use detergents suitable for use with products in contact with food.
- Do **NOT** use abrasive or corrosive products or acids, solvents and chlorine-based detergents as these may damage the components of the equipment.
- Observe the detergent instructions.
- Do **NOT** direct jets of pressurised water at the internal parts.
- Only use specific cleaning products. The use of unsuitable cleaning products may damage the machine and invalidate warranty rights.
- Do **NOT** use abrasive cleaning products or scrubs.



WARNING
• If the cleaning of the machine is inadequate, the build-up of grease and traces of food inside the tub may damage the stainless steel.
• Use protective clothing, protective gloves, goggles and face masks in accordance with local legislation.
• Do not store chemical cleaning products inside the machine.

It is essential to carry out all the necessary and relevant cleaning operations in order to increase the service life of the machine and to ensure its correct operation. To ensure the efficient washing of the glasses, the glass washer must be perfectly clean and disinfected.



Contact a cleaning product distributor for detailed information about the methods and products available for the regular disinfection of the machine.
Only use products suitable for use with industrial glass washers.
The guarantee does not cover damage caused by the incorrect use of chemical products.



When handling chemical substances, the product safety instructions and recommended doses must be observed. Use protective clothing, gloves and safety glasses when handling chemical products.



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The appliance is made of high quality stainless steel. However, under certain conditions, corrosion may appear. To keep the stainless steel surfaces permanently free of corrosion, only use suitable cleaning products. To ensure the correct operation of the equipment, Fagor Industrial recommends the following maintenance tasks are performed daily:

- The machine should be cleaned at the end of each working day.
- **ATTENTION:** Do not use jets of water, pressure or steam cleaners to clean the machine or its environment.
- **DO NOT** use abrasive or corrosive, materials, solvents, chlorine or chlorine-based products or hypochlorites to clean the machine. Only use products suitable for cleaning industrial dishwashers in the correct doses.

After switching off and draining the machine every day:

- Disconnect the power switch.
- Remove the frames and clean with a brush under a strong jet of water.
- Replace all the parts correctly.
- Thoroughly clean the chamber; attached food waste should be removed with a brush.
- At the end of the day, the door of the machine should be left open.

Before carrying out any cleaning operations, **the appliance must be disconnected at the mains.**

Some models are equipped with a drainage pipe for cleaning, as well as for collecting the possible flow of liquids from the food. It is essential to remove and clean the drain lid during the cleaning operation, to prevent it from being blocked up with solid waste. This is so that any liquids present do not become stagnant. **It should be installed again after cleaning.**

The appliance must be switched off if cleaning with water. Panels should not be moved to access electrical components except by technical staff authorised to carry out maintenance and repair operations.

The inside of the cooler should be cleaned with great care.

7.2. REGULAR CHECKS PERFORMED BY THE USER

- It is recommended that there are no heat sources near to the cooler.
- The appliance should be levelled to prevent excess vibrations.
- The door seal should be in good condition and the door should close with a hermetic seal.
- Check that the drainage pipe is not blocked.

7.3. EVERYDAY CLEANING

Before carrying out any cleaning operations, the appliance must be disconnected at the mains.

It is essential to remove and clean the drain lid during the cleaning operation, to prevent it from being blocked up with solid waste. This is so that any liquids present do not become stagnant. **It should be installed again after cleaning.**

The appliance must be switched off if cleaning with water. Panels should not be moved to access electrical components except by technical staff authorised to carry out maintenance and repair operations

The inside of the cooler should be cleaned with great care.

- Do **NOT** wash the appliance with direct jets of water, as filtrations into the electrical components could affect the normal operation of the machine.
- We recommend cleaning the outside of the unit daily with a damp cloth and following the direction of the stainless steel honing. Dry thoroughly.
- Use neutral soaps and avoid chlorine-based or abrasive substances.
- Do **NOT** use tools that could cause cuts resulting in rust.



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- Remove hard deposits by applying water and soap or neutral detergents, and using a plastic or wooden spatula if necessary.
- Clean the inside of the chamber to prevent the build-up of dirt with neutral chlorine-free non-abrasive detergents.
- The zones around the appliance should also be cleaned everyday with soap and water, avoiding chlorine-based or toxic detergents. Rinse with clean water and dry thoroughly.

7.4. SPECIALISED MAINTENANCE

To ensure that the equipment is in perfect and safe condition, it should be maintained and serviced by an Authorised Service Centre at least once a year.



DANGER

- High voltage.

• Before removing the panel from the machine, accessing components and carrying out work on live components, disconnect the machine from the power supply.

Use the resources and tools suited to each operation on the machine.

Call the technical service twice a year to have the machine serviced:

- Cleaning of water filter.
- Cleaning of lime on the resistors, pipes and surfaces of the equipment. The use of phosphoric-based products is recommended.
- Inspection of the condition of the seals.
- Inspection of the condition of the parts.
- Checking the correct operation of the dispensers.
- Tightening of the electrical connections on the terminals, once a year.
- Check that the temperature of the premises does not exceed that indicated for your machine.
- The guarantee will be made void if there is insufficient ventilation.
- Check that the doors close properly.
- Do not disassemble the mobile components guards or front panels without first **having turned the appliance off**.
- Gloves must be worn before accessing the appliance area, given the existence of high temperatures of some components, with the resulting risk of burns.
- If the supply hose is damaged, it should be replaced by authorised technical personnel in order to avoid risks.
- If it is replaced, the earth pin must be positioned again.
- If a cable requires replacement, the cross-section must never be reduced.
- If it is necessary to disassemble the inner lid of the electrical installation, it is extremely important to leave it exactly as it was when reassembling it.



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DISHWASHERS

8. HYGIENE REGULATIONS

- The equipment should be kept perfectly clean and maintained.
- Operators must strictly observe all hygiene requirements when handling food.

9. REMOVAL OF PACKAGING

Remove packaging from the equipment and check for damage during transportation. If any damage is observed, immediately notify the supplier and the transport company. In the event of doubt, do not use the equipment until the problem has been assessed.



Packaging (plastic, wood, staples, etc.) must not be left in the reach of children, it is a potential hazard. It is a potential hazard.

The appliance must be handled using a forklift or similar to prevent damage to the structure of the machine. Transport the equipment to the installation location and then remove its packaging.

9.1. RECYCLING



All the packaging can be recycled. Dispose of packaging correctly. This machine does not contain components which may damage the environment if not correctly processed. The machine must not be disposed of in the municipal waste.

The machine must be disposed of in accordance with the current local legislation, which can be obtained from the local authorities.

Recycle packaging material correctly at the selective collection points.

Deposit packaging material in the correct bins for recycling.

Help to protect the environment and public health, and to recycle waste from electrical and electronic equipment. Do not dispose of the machine with domestic waste. Take the product to the local recycling centre or contact your local office.

the reach of children, it is a potential

At the end of its useful life, this machine be placed in an electrical waste and

Depending on the features, the materials can be recycled. By recycling and other ways of processing electrical waste and electronic equipment, you can significantly contribute to protecting the environment.

Protect the environment by disposing of waste at the waste disposal points established for this purpose.

The European standard 2012/19/EU Directive on Waste Electrical and Electronic Equipment indicates that this appliance must not be disposed of as a domestic appliance. It must be correctly disposed of in order to optimise the recycling of materials and to protect the environment, as indicated by the **WEEE** symbol on the machine.

For further information on the correct disposal of the machine, please contact the nearest public waste disposal service or the distributor/supplier of the appliance.

The European standard 2012/19/EU Directive on Waste Electrical and Electronic Equipment indicates that this appliance must not be disposed of as a domestic appliance. It must be correctly disposed of in order to optimise the recycling of materials and to protect the environment, as indicated by the **WEEE** symbol on the machine.

For further information on the correct disposal of the machine, please contact the nearest public waste disposal service or the distributor/supplier of the appliance.



Packaging (plastic, wood, staples, etc.) must not be left in hazard.

must not be thrown away in a standard rubbish bin, but must electronic equipment collection point for correct disposal.



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10

10. GENERAL INFORMATION AND WARNINGS



BEFORE INSTALLING AND STARTING THE APPLIANCE, PLEASE READ THE INSTRUCTIONS CONTAINED IN THIS MANUAL CAREFULLY.



THIS APPLIANCE IS INTENDED EXCLUSIVELY FOR PROFESSIONAL USE AND MAY ONLY BE USED BY QUALIFIED PERSONNEL. IT MUST BE INSTALLED AND REPAIRED EXCLUSIVELY BY AN AUTHORISED AND QUALIFIED TECHNICAL SUPPORT SERVICE.



THE MANUFACTURER MAY NOT BE HELD LIABLE FOR ANY PROPERTY DAMAGE OR PERSONAL INJURY RESULTING FROM THE INCORRECT INSTALLATION, USE, MAINTENANCE OR REPAIR, OR CAUSED BY FAILURE TO COMPLY WITH THE STANDARDS AND INSTRUCTIONS PROVIDED.



- The placement, installation, repairs and/or modifications must always be carried out by an **Authorised Technician** in accordance with the manufacturer's instructions and the applicable regulations.

- Any installations, adjustments or repairs carried out by unauthorised personnel, incorrect maintenance or use, the use of spare parts other than those supplied by the manufacturer and any other type of alteration to the appliance may cause damage or injury and result in loss of cover under the warranty.

- Ensure that the earth connection operates correctly and efficiently.

- If the appliance breaks down, please call the **Technical Service Centre**. Do **NOT** try to repair it or allow unauthorised or unqualified personnel to do so.

- Do not change the position of or handle the machine components, as this may affect the operating safety.

- The dishwasher must be correctly levelled and the electrical cables, water and drainage hoses must not be trapped or contain kinks.

- The appliance has been designed to operate at ambient temperatures ranging from 5 °C to 40 °C and must not be used at temperatures below 5 °C.

- **This dishwasher is designed to wash plates, trays, glasses and similar tableware containing food and drink waste. Any other use will be considered inadequate.** Objects other than those described above, or objects contaminated with petrol, paint, steel or iron shavings, fragile objects or those which are not dishwasher-resistant must **NOT** be washed in the dishwasher.

- During cleaning or maintenance operations, the dishwasher should be disconnected from the electricity supply at the mains and the water inlet tap closed.

- Abrasive or corrosive products, acids, solvents, or **CHLORINE/HYPOCHLORITE**-based detergents **must never be used**.

- The appliance or any of its parts **must never be used** as a support and objects must not be placed on top.

- Do not open the door of the machine while the machine is operating. Do not immerse hands in the washing solution. Switch off the appliance and drain the tub before accessing the inside of the machine.

- Do not install the appliance in places exposed to jets of water.

IMPORTANT: WAIT AT LEAST 10 MINUTES AFTER SWITCHING OFF THE MACHINE BEFORE CLEANING THE INSIDE OF THE APPLIANCE.

WARNING: DO NOT INSERT HANDS AND/OR TOUCH THE INTERNAL PARTS OF THE TANK WHILE THE MACHINE IS OPERATING AND WAIT 10 MINUTES AFTER THE WASH TANK HAS DRAINED.

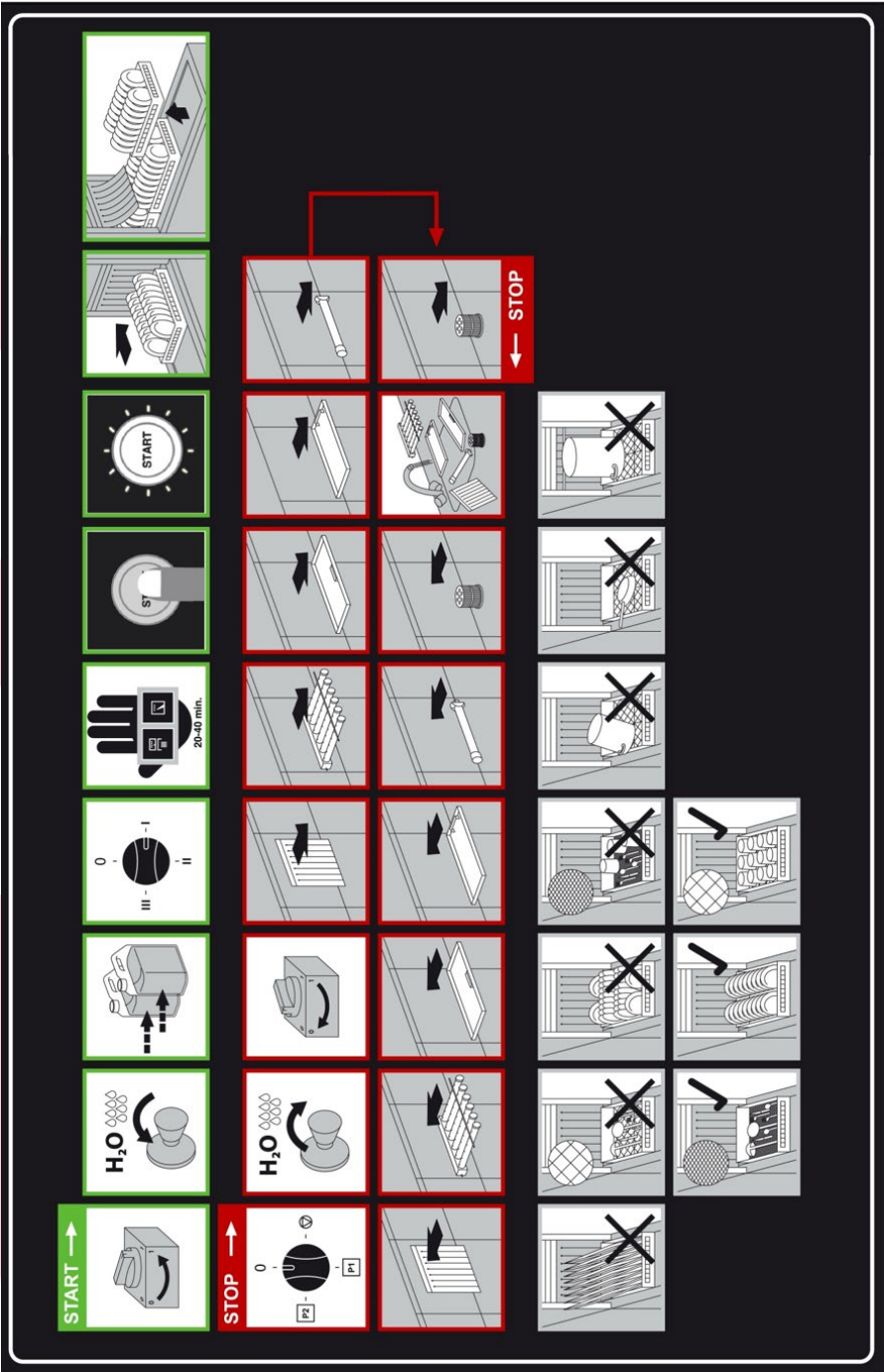


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11. USE



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12. MODELS AND VERSIONS

MODELS / VERSIONS

Compact:

- CCO-120 FI-160 / FI-200
- CCO-160 FI-200 H

Modular:

- CCO-180 FI-280
- CCO-225 FI-370
- CCO-270 FI-460
- CCO-320 FI-550

MODELS / ECO VERSIONS

Compact:

- CCO-120 ECO FI-160 / ECO-200
- CCO-160 ECO FI-200 H

Modular:

- CCO-180 ECO FI-280
- CCO-225 ECO FI-370
- CCO-270 ECO FI-460
- CCO-320 ECO FI-550

The different models with their different versions of the machine are designed for different temperatures of incoming water from the mains:

- **HW:** for incoming hot water (50 °C)
- **CW:** for incoming cold water (a greater heating capacity is required)

Type of electric heating

CCO-180 compact and modular models, manufactured **as standard with alternate heating** (wash tank / drum)

The other modular models have simultaneous heating.

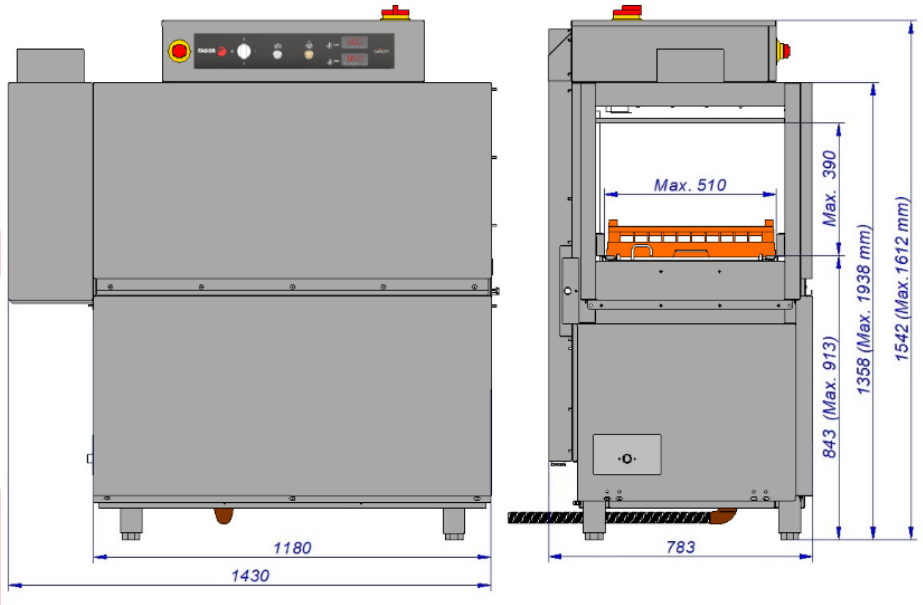


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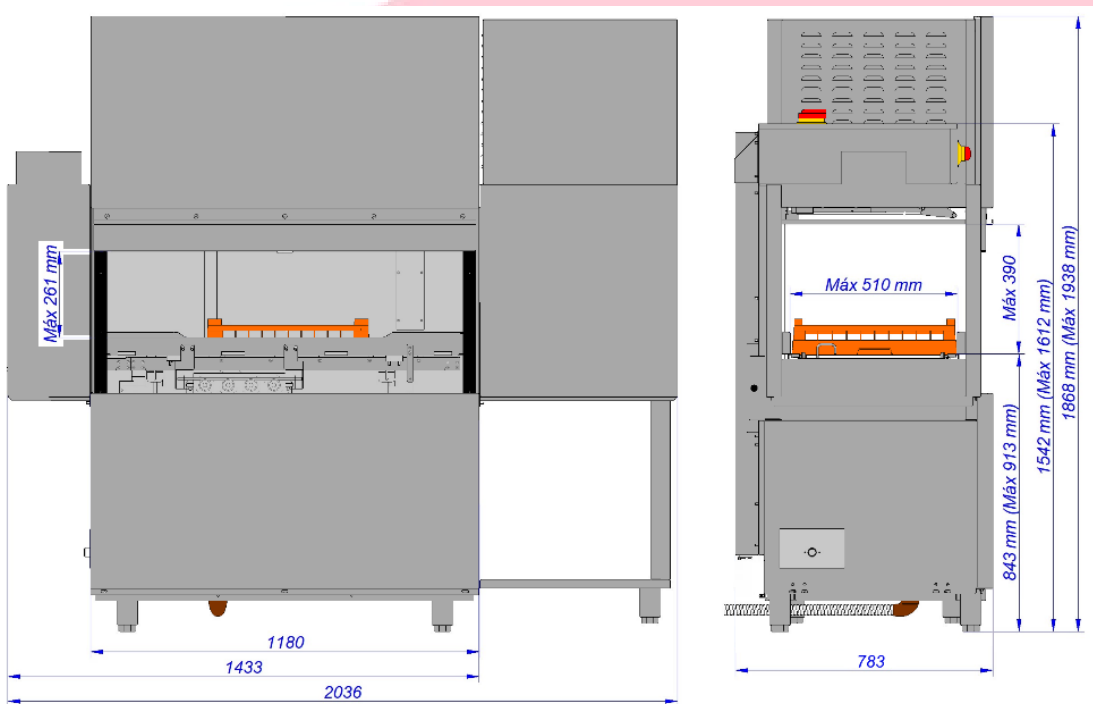


13. DIMENSIONS

13.1. CCO-120, CCO-160, CCO-120 ECO and CCO-160 ECO

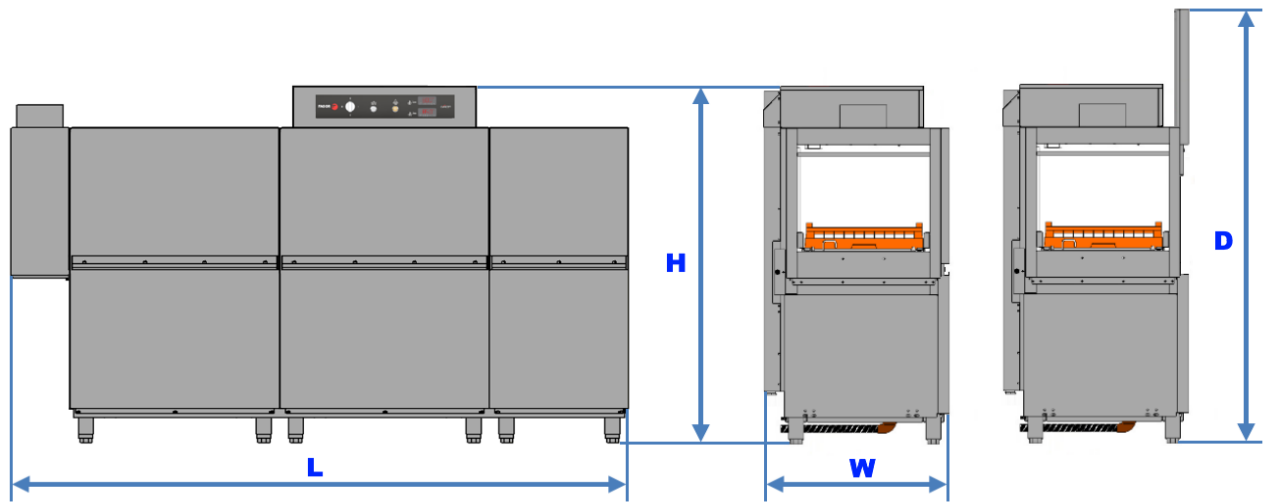


13.2. CCO-120 and CCO-160 + CDT-600, CCO-120 ECO and CCO-160 ECO + CDT-600



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13.3. CCO-180 and CCO-225 + CDT-600, CCO-270 and CCO-320 + CDT-600, CCO-180 ECO and CCO-225 ECO + CDT-600, CCO-270 ECO and CCO-320 ECO +CDT-600



L x W x H (mm)		CCO 180	CCO 225	CCO 270	CCO 320
CCO (+CRS-700)	L	1760 mm	2360 mm	2660 mm	3260 mm
+CDT-600		2360 mm	2960 mm	-	-
+CDT-800		-	-	3460 mm	4060 mm
+AS-260		+ 260 mm	+ 260 mm	+ 260 mm	+ 260 mm
	W	790 mm	790 mm	790 mm	790 mm
CCO	H	1550-1610 mm			
+CDT-600/800		1860-1920 mm			
+CRS-700		1960-2020 mm			
	D	1870-1930 mm			



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14. COMPOSITION

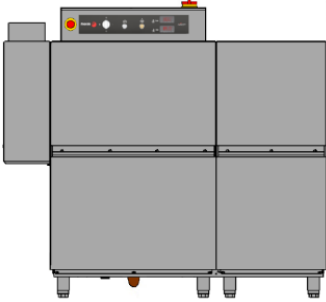
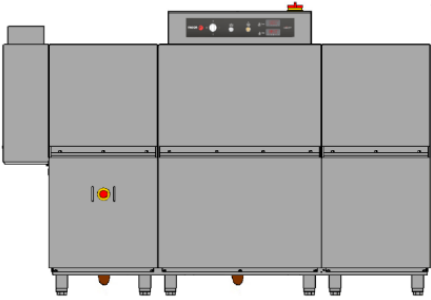
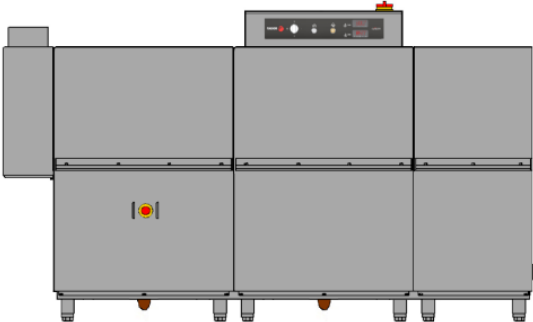
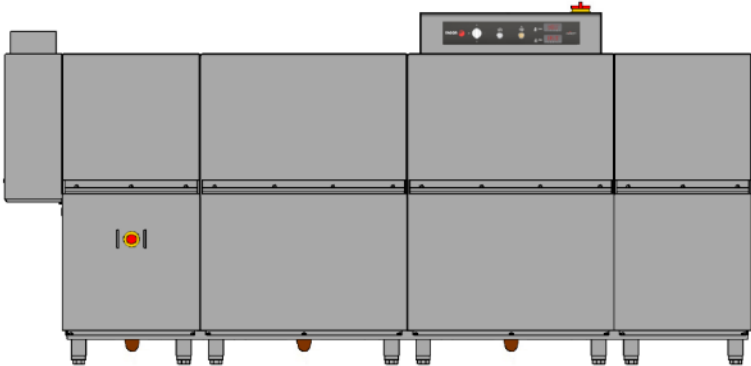
		CCO-180	CCO-225	CCO-270	CCO-320
AS-260	Splash guard supplement	●	●	●	●
PL3	Pre-wash	-	●	-	●
PL5	Intense Prewash	-	-	●	-
L5	First Wash	-	-	-	●
LP	Main Wash	●	●	●	●
DA	Pre-rinse + Dual Rinse	●	●	●	-
DA-ECO	Pre-rinse + ECO Dual	ECO	ECO	ECO	-
TA	Triple Pre-rinse + Dual Rinse	-	-	-	●
DA/TA-ECO	Triple Pre-rinse + ECO Dual Rinse	-	-	-	ECO
CDT-600	600 Drying Module	○	○	-	-
CDT-800	800 Drying Module	-	-	○	○
CRS-700 (CW & H ₂ O<25°C)	Energy Recovery System (CW and H ₂ O <25°C models)	○	○	○	○
AS-260	Splash guard supplement	○	○	○	○



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CCO-180	AS-260+LP+DA (DA-ECO)	
		+CRS-700 / +CDT-600 / +AS-260
CCO-225	AS-260+PL3+LP+DA (DA-ECO)	
		+CRS-700 / +CDT-800 / +AS-260
CCO-270	AS-260+PL5+LP+DA (DA-ECO)	
		+CRS-700 / +CDT-800 / +AS-260
CCO-320	AS-260+PL3+L5+LP+TA (DA/TA-ECO)	
		+CRS-700 / +CDT-800 / +AS-260



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15. TECHNICAL DATA

Datos técnicos		CCO-120	CCO-160	CCO-180	CCO-225	CCO-270	CCO-320
Velocidades		3	3	3	3	3	3
Producción	(cestas/h)						
Programa lavado profundo		80	100	-	-	-	-
Programa intensivo (DIN-10534)		-	-	90	125	140	170
Programa medio		100	130	135	175	225	245
Programa alta capacidad		120	160	180	225	270	320
Prelavado PL3,PL5							
Capacidad cuba	(l)	-	-	-	60	100	60
Potencia bomba	(kW)	-	-	-	1,2	2,2	1,2
Lavado L5, LP							
Capacidad cuba	(l)	50	50	100	100	100	200
Temperatura	(°C)	55-65	55-65	55-65	55-65	55-65	55-65
Potencia calentamiento	(kW)	9	9	12	12	12	18
Potencia bomba	(kW)	1,2	1,2	2,2	2,2	2,2	4,4
Preaclarado DA, TA							
Capacidad cuba	(l)	-	-	15	15	15	15
Temperatura	(°C)	-	-	70	70	70	70
Potencia calentamiento	(kW)			5	5	5	5
Potencia bomba	(kW)	-	-	0,26	0,26	0,26	0,26
Aclarado							
Capacidad del calderín	(l)	21	21	21	21	21	21
Temperatura	(°C)	80-85	80-85	80-85	80-85	80-85	80-85

Datos técnicos		CCO-120	CCO-160	CCO-180	CCO-225	CCO-270	CCO-320
Potencia calentamiento	(kW)						
CW		27	30	27	24	27	27
CW con recuperador		24	27	24	21	24	24
HW		18	21	18	15	18	18
ECO		-	-	-	-	-	-
Potencia bomba aclarado ECO rinse (kW)		0,26	0,26	0,26	0,26	0,26	0,26
Consumo de agua ①							
	(l/h)	210	240	210	210	240	240
	(l/cesta)	1,75	1,5	1,17	0,93	0,89	0,75
Conexión estándar							
Tipo de conexión (de fábrica)		ALT.	ALT.	ALT.	SIM.	SIM.	SIM.
Voltaje ②		400 V /3N ~ / 50 - 60Hz					
Potencia total (kW)							
CW		28,5	31,5	34,7	44,9	48,9	56,1
CW con recuperador		26,2	29,2	32,3	42,5	46,5	53,7
HW		19,5	22,5	25,7	35,9	39,9	47,1
ECO		10,7	10,7	19,7	20,9	21,9	29,1
ECO gas booster (gas kW)		38	38	38	38	38	38

① Información no vinculante. El consumo podría variar en función de las características de la instalación

② Pedir a fábrica con tensión a 230 V 3~ u otras opciones



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Datos técnicos	CCO-120	CCO-160	CCO-180	CCO-225	CCO-270	CCO-320
Ancho (mm)	1180	1180	1750	2360	2660	3260
Estándar	1180	1180	1500	2100	2400	3000
Con modulo de entrada	1440	1440	1760	2360	2660	3260
Con modulo de secado	1780	1780	2100	2700	3200	3800
Fondo (mm)	790	790	790	790	790	790
Alto (mm) ③	1550	1550	1550	1550	1550	1550
Estándar	1550-1610	1550-1610	1550-1610	1550-1610	1550-1610	1550-1610
Con secado	1860-1920	1860-1920	1860-1920	1860-1920	1860-1920	1860-1920
Con recuperador	1960-2020	1960-2020	1960-2020	1960-2020	1960-2020	1960-2020
Con puerta abierta	1870-1930	1870-1930	1870-1930	1870-1930	1870-1930	1870-1930
Altura de trabajo (mm)	850-900	850-900	850-900	850-900	850-900	850-900
Altura útil de entrada (mm)	390	390	390	390	390	390
Anchura de paso (mm)	510	510	510	510	510	510
Peso (kg)						
Neto	211	211	259	381	434	556
Bruto	305	305	382	556	628	792
Conexión de agua						
Presión de trabajo	2 - 4 bares					
Tipo de conexión	3/4" GAS					
Tª de agua caliente	50 °C - 60 °C					
Tª de agua fría	15 °C - 50 °C					

Modulo		CCO-120	CCO-160	CCO-180	CCO-225	CCO-270	CCO-320
Estructura							
Anti-salpicadura + anti atrapamiento en la entrada	AS-260	○	○	●	●	●	●
Prelavado	PL3	-	-	-	●	-	●
Prelavado intenso	PL5	-	-	-	-	●	-
Primer lavado	L5	-	-	-	-	-	●
Lavado principal	LP	●	●	●	●	●	●
Doble aclarado	A	●	●	-	-	-	-
Doble aclarado ECO rinse	A-ECO	○	○				
Doble preaclarado + doble aclarado	DA	-	-	●	●	●	-
Doble preaclarado + doble aclarado ECO rinse	DA-ECO	-	-	○	○	○	-
Triple preaclarado + doble aclarado	TA	-	-	-	-	-	●
Triple preaclarado + doble aclarado ECO rinse	DA / TA-ECO	-	-	-	-	-	○
Secado 600	CDT-600	○	○	○	○	-	-
Secado 800	CDT-800	-	-	-	-	○	○
Recuperador de energía compacto	CRS-600	○	○	-	-	-	-
Recuperador de energía modular	CRS-700	-	-	○	○	○	○
Modulo anti-salpicadura en la salida		○	○	○	○	○	○

Equipamiento estándar

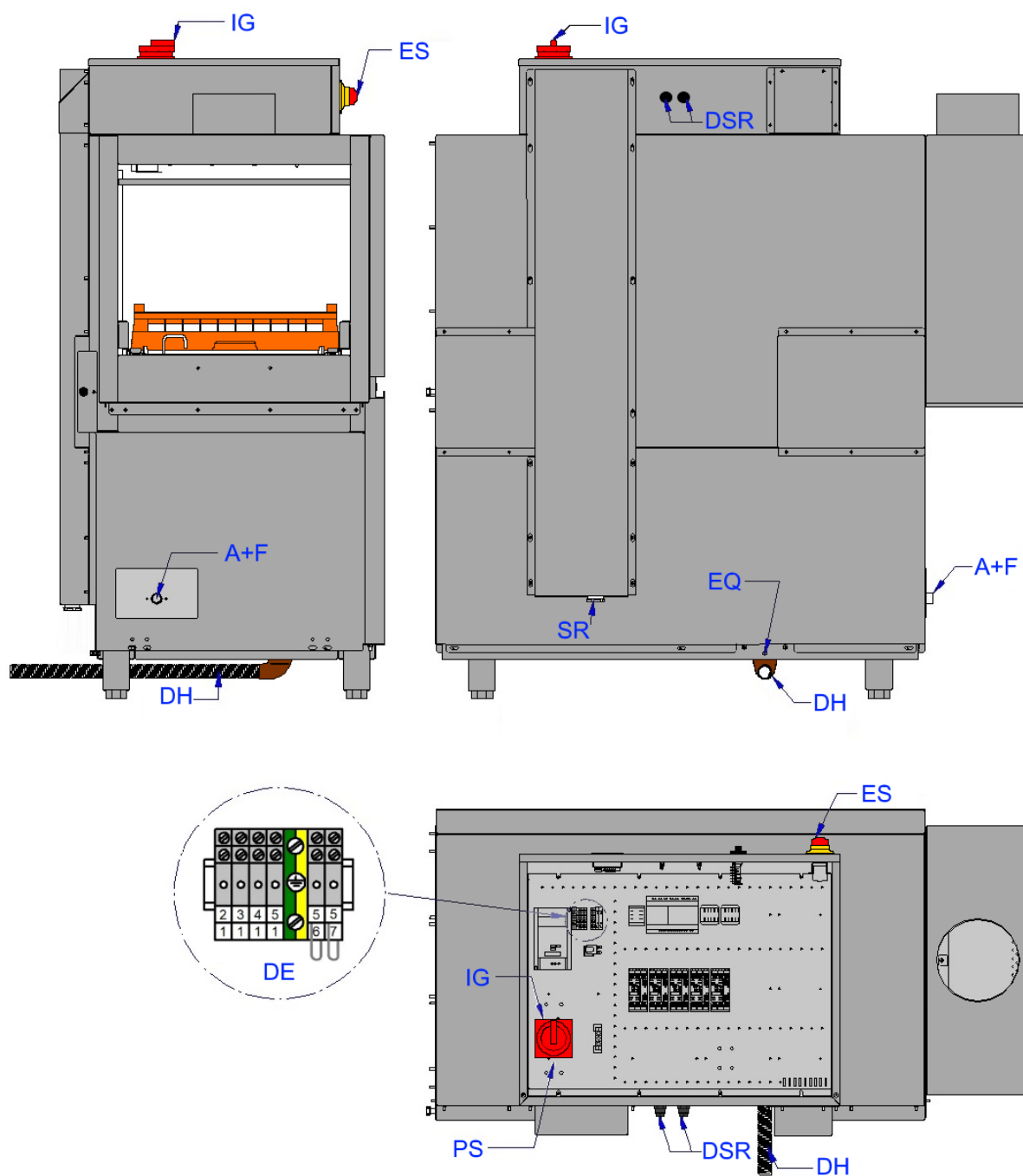
Cesta para platos	CP-16/18	2
Cesta estándar para vasos	CT-10	2
Cesta para vaso y copa baja	CV-16/105	1
Cesta para cubiertos	CT-10 R	1

● Estándar ○ Opcional - No disponible



16. CONNECTIONS

16.1. CCO-120 and CCO-160, CCO-120 and CCO-160 + CDT-600, CCO-1

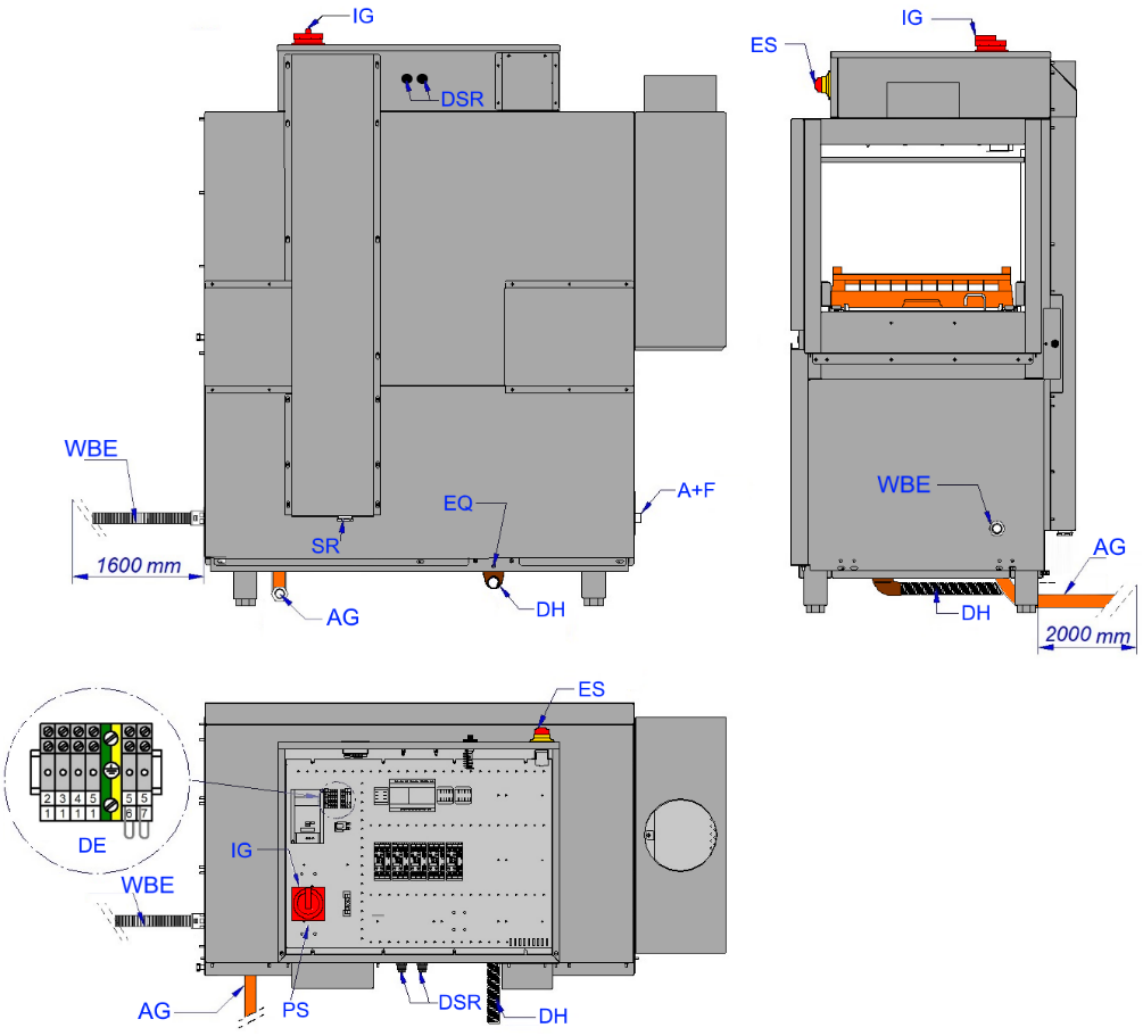


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16.2. CCO-120 ECO and CCO-160 ECO, CCO-120 ECO and CCO-160 ECO + CDT-600, CCO-1



A+F	Water inlet
FW	Tub filler water inlet
DH	Drainage hose
SR	Stuffing box
PS	Mains supply
EQ	Equipotential connection
EN	Emergency push button
IG	Power switch
DSR	Stuffing box
DE	Electrical connection Rinse aid / detergent dispensers / Limit switch
AG	Generator water inlet
WBE	Water generator electrical connection

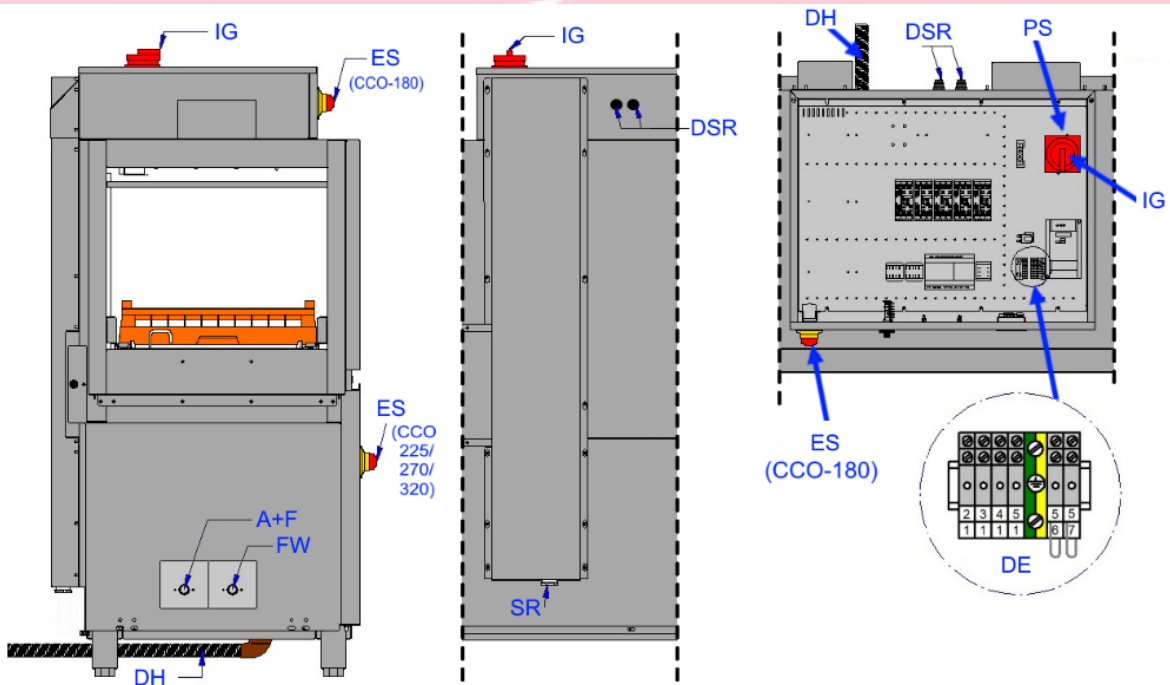
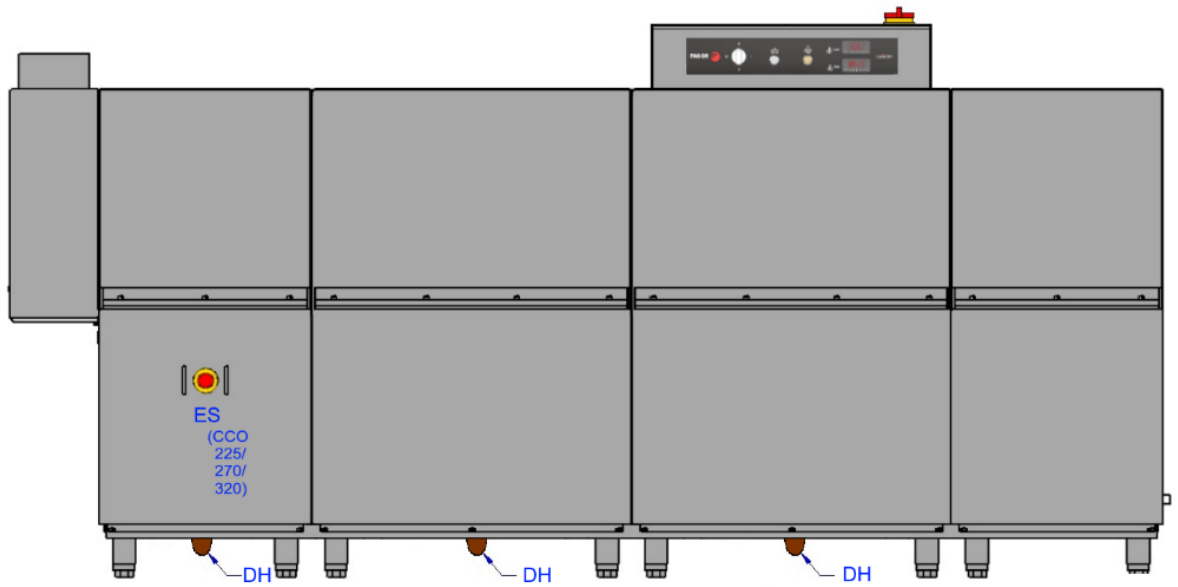


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16.3. CCO-180 and CCO-225 + CDT-600, CCO-270 and CCO-320 + CDT-800, CCO-180 ECO and CCO-225 ECO +CDT-600, CCO-270 ECO and CCO-320 ECO + CDT-800



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17. SAFETY ASPECTS OF THE MACHINE:

- **Doors with magnetic switches:** When the door(s) is/are lifted, the prewash, wash, rinse and basket feed functions are stopped.
- **Doors with hook fastenings:** The doors have hook fastenings to prevent them from falling when fulling open.
- **Safety Lock:** If any element blocks the feed, the Safety Lock system, on detecting the obstruction, stops the feed to prevent any element from being forced.
- **Limit switch:** This switch, mounted on the output bench, stops the machine when a basket touches it on reaching the end of the output bench.
-



Risk of trapping / crushing



Heat-related risks

Access to motors, pumps and live areas is protected by closed panels secured with bolts. It is strictly forbidden to open any panel and/or access the interior of the appliance or the electric box; only a qualified and authorised **Technical Assistance Service** may install, repair or carry out maintenance work to the appliance.

Use of the machine must be supervised by an operator.

It is dangerous to touch the mains switch with wet hands.



- **If the feed belt is blocked, remove the obstacle before restarting the appliance.**
- **Before removing objects that have fallen inside the machine, the appliance must be at a complete standstill and disconnected.**
- **Do not insert hands in the machine when it is running.**
- **To avoid the risk of entanglement, do not approach the feed mechanism, especially if wearing jewellery or loose clothing.**
- **In the event of breakdown and/or the incorrect operation of the machine, switch off the appliance at the mains and refrain from carrying out direct intervention or attempts to repair.**



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18. PRODUCT DETAILS

The machine is specially designed for cleaning tableware, glassware and other items of kitchenware, used in the hotel and catering sector. As it is an industrial product, it is characterised for having a high dishwashing capacity. All the appliances have a specifications plate which identifies the appliance and indicates its technical characteristics, it is located on one side of the machine. Don't remove the specifications plate from the unit.

SPECIFICATIONS PLATE

- 1: NAME OF APPLIANCE
- 2: APPLIANCE CODE
- 3: SERIAL NUMBER + DATE OF MANUFACTURE
- 4: ELECTRICAL SPECIFICATIONS
- 5: WATER SPECIFICATIONS

MOD. 1

REF. 2

SN. 3

4

5

Water Press: kPa(bar)

Water: Max. 60°C

CE

Made in EU

These details should be quoted when the Technical service is called.

In appliances consisting of various modules, you will find a specifications plate with a mark indicating the total electrical values of the appliance, in order to dimension the electrical connection.
If a module is added to the appliance, the new configuration must be indicated.

VALOR TOTAL / TOTAL VALUES / VALEURS TOTALES / GESAMTWERTE / VALORI TOTALI (ALT)					
400V 3N~	☒	kW	kW	A	A
HW		19,6	18	33,9	40
HW + CDT-600	☒	29,1	27	48,3	63
CW		28,6	27	46,9	63
CW + CRS-600		26,3	24	44,5	63
CW + CDT-600		38,1	36	61,4	80
CW + CRS-600 + CDT-600		35,9	33	59,0	80

If the appliance is converted in any way and the heating connection is changed from alternate to simultaneous, the plate provided in the equipment must be used, indicating the new configuration, attached to the appliance with the other plates, and protected with clear adhesive tape.

CAMBIADO A / CHANGED TO / CHANGÉ EN / GEWECHSELT ZU / CAMBIATO IN (SIM)					
400V 3N~	☒	kW	kW	A	A
HW		28,6	27	46,9	63
HW + CDT-600	☒	38,1	36	61,4	80
CW		37,6	36	59,9	63
CW + CRS-600		35,3	33	57,6	80
CW + CDT-600		47,1	45	74,4	80
CW + CRS-600 + CDT-600		44,9	42	72,1	80

The operating configuration of the appliance must always be displayed and the electricity connection must be in line with this configuration.



19. INSTALLATION INSTRUCTIONS



The placement, installation, repairs and/or modifications must always be carried out by an authorised technician in accordance with the manufacturer's instructions and the applicable regulations. Any installations, adjustments or repairs carried out by unauthorised personnel, incorrect maintenance or use, the use of spare parts other than those supplied by the manufacturer and any other type of alteration to the appliance may cause damage or injury and result in loss of cover under the warranty.



THE MANUFACTURER MAY NOT BE HELD LIABLE FOR ANY PROPERTY DAMAGE OR PERSONAL INJURY RESULTING FROM THE INCORRECT INSTALLATION, USE, MAINTENANCE OR REPAIR, OR CAUSED BY FAILURE TO COMPLY WITH THE STANDARDS AND INSTRUCTIONS PROVIDED.

19.1. POSITIONING AND LEVELLING

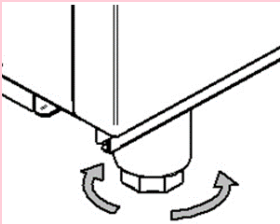
Fagor Industrial recommends that the place where the appliance is to be installed should be analysed prior to installation to check that it is suitable.

The installation location must be able to withstand the weight of the machine.

The height of the legs can be adjusted by turning them to ensure that the appliance is correctly installed. It is essential that the machine is correctly levelled.

Electrical cables, water and drainage hoses must not be trapped or contain kinks.

Turn the leg clockwise to extend and anticlockwise to shorten.



The installation of this appliance requires electrical and hydraulic connections, and an adequate ventilation/extraction system due to the steam emitted by the machine.

19.2. ELECTRICAL CONNECTION

An **AUTHORISED TECHNICIAN** should always carry out the appliance's electrical connection.

The legal standards in force regarding connection to the mains must be taken into account.

- The specifications plate indicates the maximum power in kilowatts (kW) and amperes (A) for the correct sizing of the installation components (line, power supply cable...).
- Check that the mains voltage corresponds to that indicated on the nameplate.
- Flexible cable with oil-resistant coating, **H05RN-F** or **H07RN-F** type must be used.
- The cross-section of the power cable must be suitable for the rated current of the machine.
- It is obligatory to earth the appliance. Ensure that the earth connection operates correctly and efficiently. The manufacturer will not be held liable for damage originated by failure to observe this requirement.
- Near the appliance and easily accessible to the user, between the power supply and the appliance, a suitable omnipolar cut-off Circuit Breaker with a minimum contact separation of 3 mm (0,12 in) must be installed. This switch should be used to disconnect the appliance during installation, repair, cleaning and maintenance work. It is recommended that it has lockout-tagout capabilities. The manufacturer will not be held liable for damage originated by failure to observe this requirement.
- A suitable safety switch / Residual current device must be installed near the appliance between the power supply and the appliance. **The differential protector must be type A-SI (Super-immunised type A)**. The manufacturer will not be held liable for damage originated by failure to observe this requirement.
- The terminal marked with the symbol EQUIPOTENTIAL BONDING on the rear of the machine must be used for the equipotential connection between different appliances.
- If any faults are observed during the installation, the supplier should be notified immediately.
- The electrical protection system must be tested before starting the appliance.

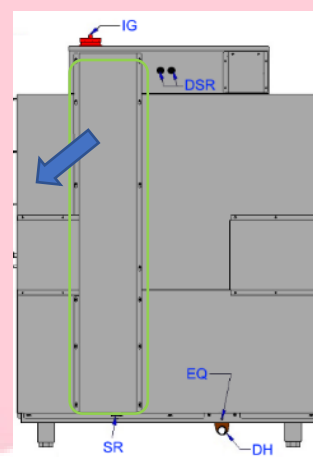
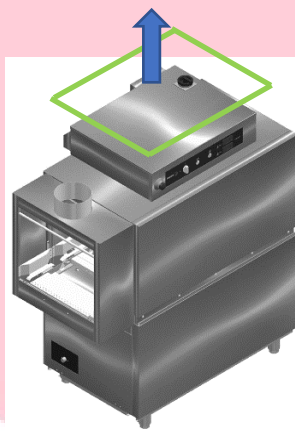


The voltage, amperage and connection configuration is given on the specifications plate.

To complete the electrical connection, remove the upper cover protecting the electrical panel in order to access the connection strip **PS**. You should also remove the rear vertical protective cover to make it easier to insert the cables. First turn the mains switch **IG** to **OFF** in order to remove the cover. Next, remove the fastening bolts and undo the cover.



IG



First insert the power cable through the packing gland **SR** and connect it to the connection strip **PS**.

The power cable must be secured using the packing glands **SR**.

It is also possible to complete the electrical connection of the detergent / rinse aid dispensers and/or the limit micro



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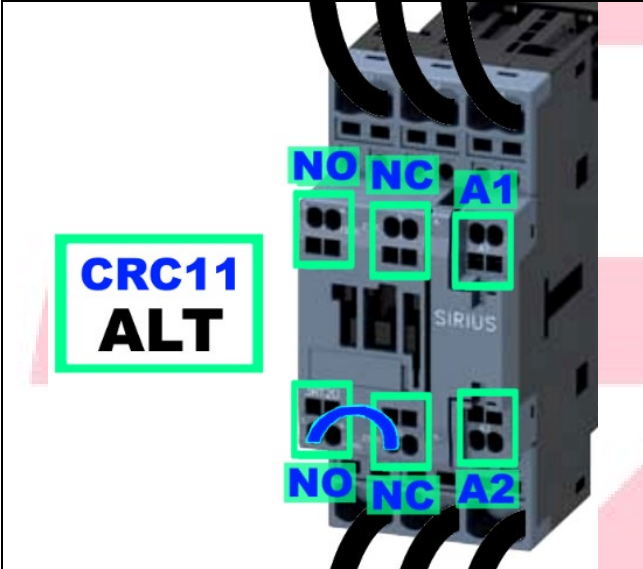
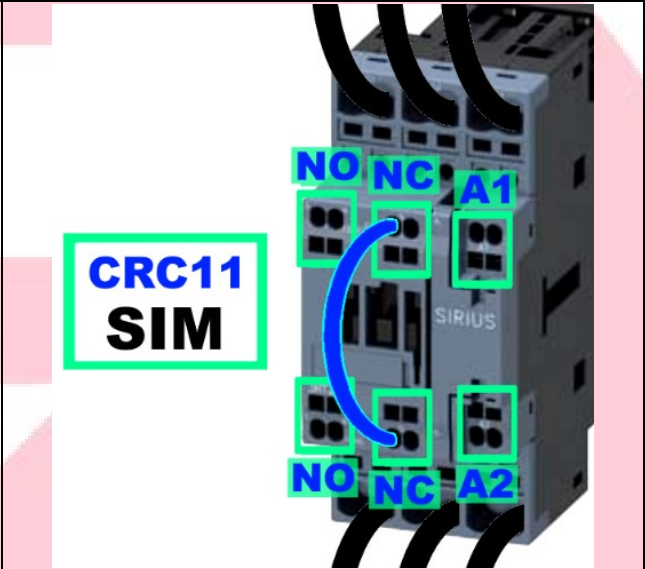


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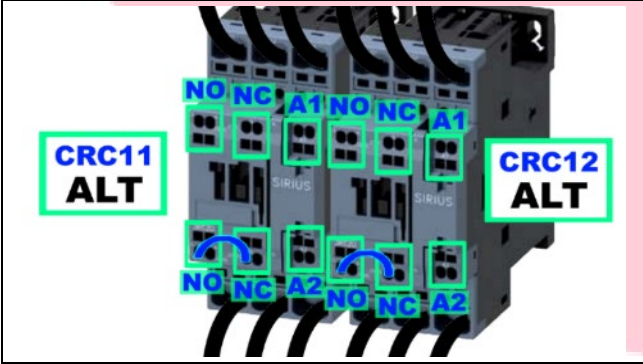
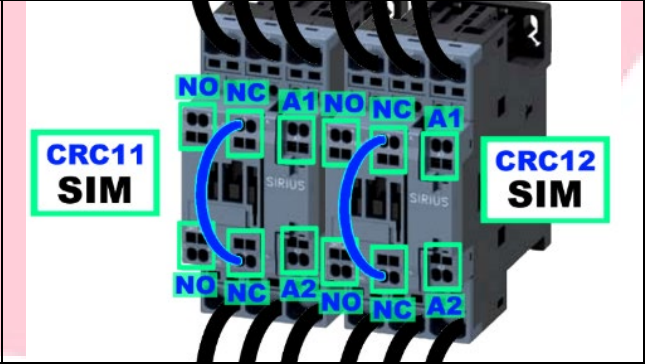
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switch (please refer to the corresponding chapter).
The default setting of the appliance is set to alternate heating **ALT**. If simultaneous heating **SIM** is required (simultaneous heating of the drum and the wash tank), this change must be reflected in **Fig. 11**.
On completion of the electrical installation, replace and fasten the covers.

ALT/SIM connection in CCO-120 and CCO-160

ALT (alternate heating) Fig. 10	SIM (simultaneous heating) Fig. 11
	
FACTORY ELECTRICAL SETTING	H ₂ O < 15°C

ALT/SIM connection in CCO-180, CCO-225, CCO-270 and CCO-320

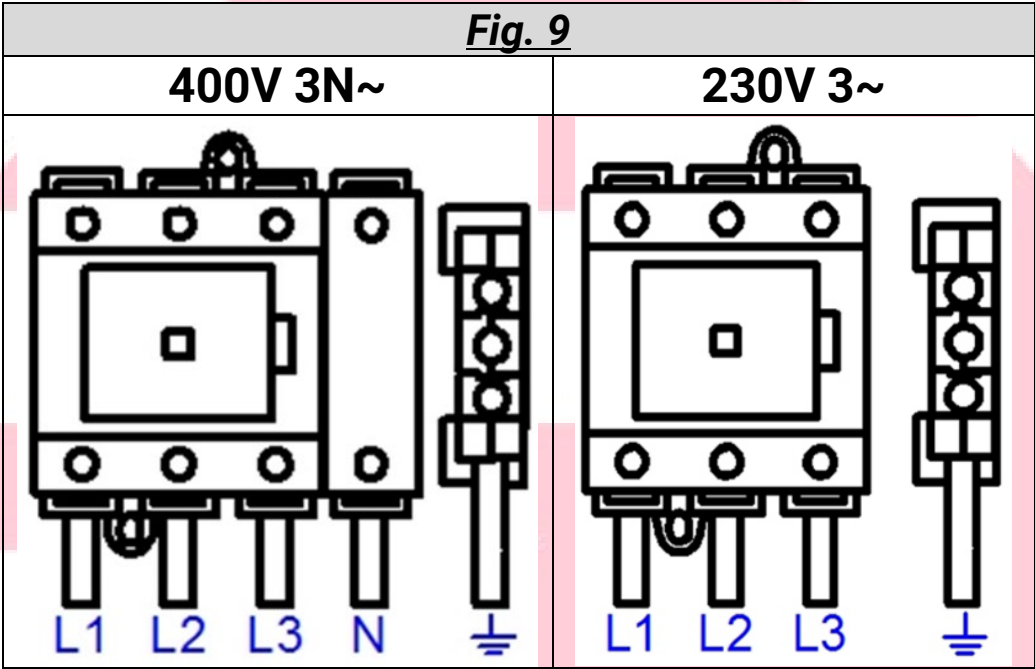
ALT (alternate heating) Fig. 10	SIM (simultaneous heating) Fig. 11
	
FACTORY ELECTRICAL SETTING	H ₂ O < 15°C





50Hz // 60Hz // 50/60Hz

Confirm the frequency of your appliance



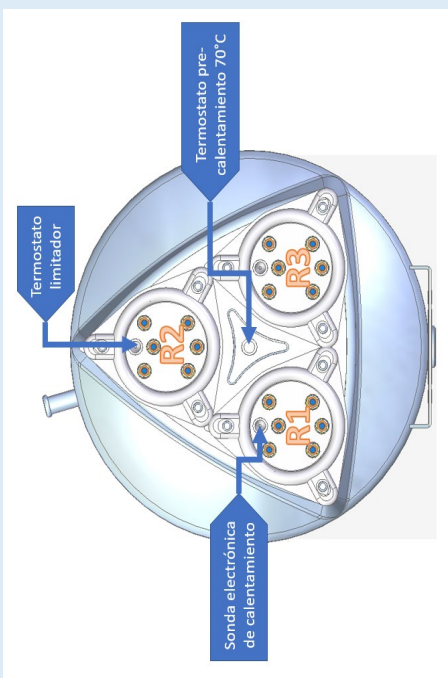
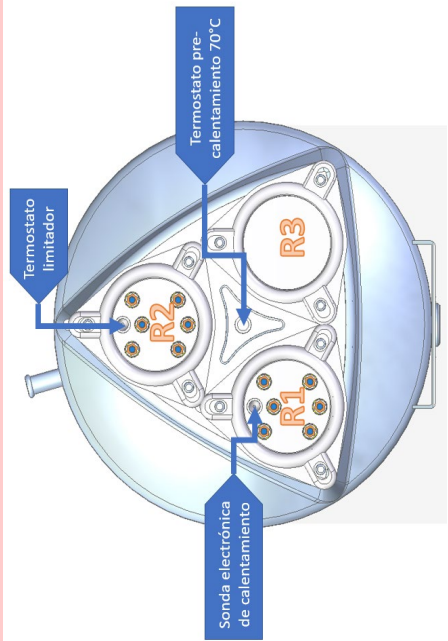
	Earth
N:	Neutral
L1, L2, L3:	Cycle

19.3. POWERS

POTENCIAS								
	MODELO		CCO-120	CCO-160	CCO-180	CCO-225	CCO-270	CCO-320
	CW	kW	28,5	31,5	34,7	44,9	48,9	56,1
	CW con recuperador	kW	26,2	29,2	32,3	42,5	46,5	53,7
	HW	kW	19,5	22,5	25,7	35,9	39,9	47,1
	ECO	kW	10,7	10,7	19,7	20,9	21,9	29,1
	ECO gas booster (gas kW)	kW	38	38	38	38	38	38



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CONFIGURACION DE RESISTENCIAS DE CALDERÍN DE ARRASTRE 2018		
M O D E L O S	T I P O D E M Á Q U I N A	CW Cold Water / Agua fría
		HW Hot Water / Agua caliente
		
		
CCO-120	COMPACTO	CON CRS-600 R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214) R1: 12 kW (12024721) R2: 9 kW (12024214) R3: 6 kW (12024740)
CCO-160	COMPACTO	R1: 12 kW (12024721) R2: 9 kW (12024214) R3: 6 kW (12024740)
CCO-180	MODULAR	CON CRS-700 R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214) R1: 9 kW (12024214) R2: 6 kW (12024740) R3: 9 kW (12024214) R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214) R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214)
CCO-225	MODULAR	R1: 9 kW (12024214) R2: 6 kW (12024740) R3: 9 kW (12024214) R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214)
CCO-270	MODULAR	R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214) R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214)
CCO-320	MODULAR	R1: 9 kW (12024214) R2: 9 kW (12024214) R3: 9 kW (12024214)



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19.4. HYDRAULIC CONNECTION

Before connecting the machine to the mains water supply, the water must be tested and should comply with the following requirements:

pH:	6.5 ÷ 7.5	Total hardness of the water:	5 – 10 °fH (French degrees)
Impurities:	Ø < 0.08 mm		3.5 – 7 °eH (English degrees)
Chlorides:	max. 150 mg/l		2.8 - 5.6° dH (German degrees)
Cl:	0.2 ÷ 0.5 mg/l		50 – 100 mg CaCO3/l
Conductivity:	400 ÷ 1,000 µS/cm		

If the water quality does not meet the specified requirements, contact a professional able to advise on the water treatment systems necessary to make the water suitable and to provide a solution.

If the water hardness is higher than that indicated, a descaler should be installed to prevent the build-up of lime on the machine and to permit optimum cleaning and drying.

In addition to water quality, the pressure of the mains water supply must be considered. This is important to ensure the machine operates correctly. The dynamic pressure of the water inlet must be within the values indicated in the following table.

DYNAMIC PRESSURE OF WATER INLET				
Min.	200 kPa	2 bar	2 kg/cm²	29 psi
Max.	400 kPa	4 bar	4.1 kg/cm²	58 psi

If the water pressure is higher than the recommended pressure, a pressure regulator must be mounted. If it should not be connected as shown in **Fig. 6** but without the pressure reducer.

If the water pressure is lower than the recommended pressure, a pressure pump must be mounted (**Fig. 7**). Please contact your supplier or the manufacturer to request the **PRESSURE PUMP KIT**.

If the mains pressure is within the values shown, the installation is as shown in **Fig. 5**.

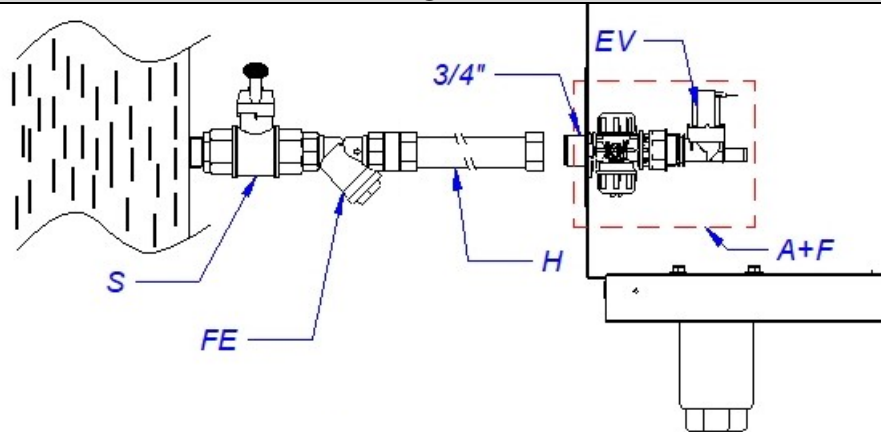
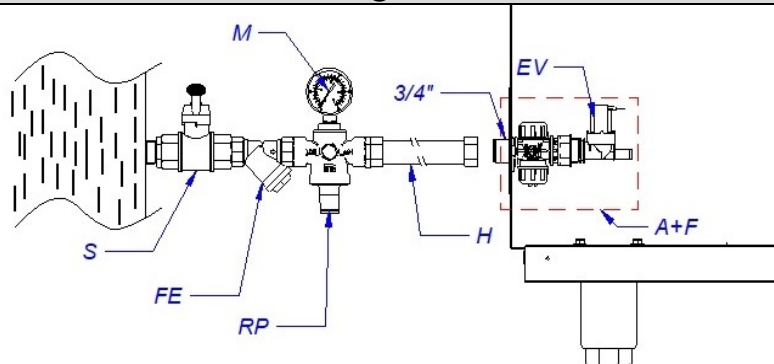
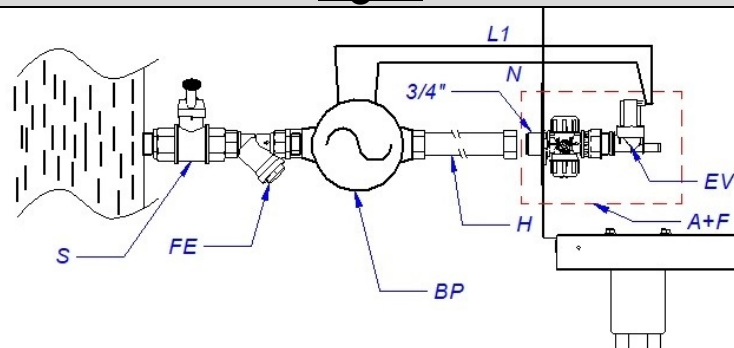
The temperature of the water entering the appliance is also important. Depending on the version purchased, the appliance will be prepared to operate with cold water (CW) or hot water (HW). The required temperatures are shown in the following table.

WATER INLET TEMPERATURE	Min.	Max.
Cold Water (CW version)	15 °C / 59 °F	50 °C / 122 °F
Hot Water (HW version)	50 °C / 122 °F	60 °C / 140 °F

Each model is designed to operate within a temperature range for the incoming water. Therefore if the incoming water does not fulfil the specified requirements, the wash and rinse temperatures may not be reached in the required time or may not be correct.

The temperature of the hot water must not exceed 60 °C / 140 °F and the cold water temperature must not be less than 15 °C / 59 °F.



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DISHWASHERS**Fig. 5****Fig. 6****Fig. 7**

If using water at temperatures below 15 °C / 59 °F, the appliance must have a simultaneous heating connection **SIM**. The default setting of the appliance is set to alternate heating. If simultaneous heating is required (simultaneous heating of the drum and the wash tank), it is necessary to change the setting.

For the correct hydraulic installation of the machine, you must:

- Make sure that the water does not contain waste (new installation, etc.). Therefore before connecting the appliance to the mains, run the water through the drainage until it comes out clean to avoid blocking the appliance filter.
- Connect the appliance to a water supply which complies with the requirements specified above. All the machines have a 3/4" screw-on water hose connection. Old or used hoses must **NOT** be used. Connect the

CONVEYOR BELT
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water inlet hose to **A+F**.

- Install a shut-off valve on the water supply close to the machine in an accessible position.
- A filter must be installed after the shut-off valve and before the appliance and should be easily accessible for cleaning.
- Check that the mains pressure is within the range indicated above.
- Check that there are no leaks.

S	Water shut-off valve
FE	Exterior filter
RP	Pressure reducer
M	Manometer
BP	Pressure pump
H	Water inlet hose
A+F	Water inlet and filter
EV	Electrovalve
DH	Drainage hose

The hydraulic circuit guarantees a stable consumption in the event of changes in pressure in the mains. The water input pressure to the machine should be 2 to 4 bar. Therefore, the rinse water control pressure must be adjusted to the following pressures:

- CCO-120 -> 0.7 bar -> 210 L/h
- CCO-160 -> 0.9 bar -> 240 L/h
- CCO-180 -> 0.7 bar -> 210 L/h
- CCO-225 -> 0.7 bar -> 210 L/h
- CCO-270 -> 0.9 bar -> 240 L/h
- CCO-320 -> 0.9 bar -> 240 L/h

In the ECO models, the rinse water flow must be adjusted with the following flows:

- CCO-120 ECO -> 210 L/h
- CCO-160 ECO -> 240 L/h
- CCO-180 ECO -> 210 L/h
- CCO-225 ECO -> 210 L/h
- CCO-270 ECO -> 240 L/h
- CCO-320 ECO -> 240 L/h

19.5. WATER CONSUMPTION

CONSUMO AGUA							
	MODELO	CCO-120	CCO-160	CCO-180	CCO-225	CCO-270	CCO-320
	(l/cesta)	1,75	1,5	1,17	0,93	0,89	0,75
	(l/h)	210	240	210	210	240	240



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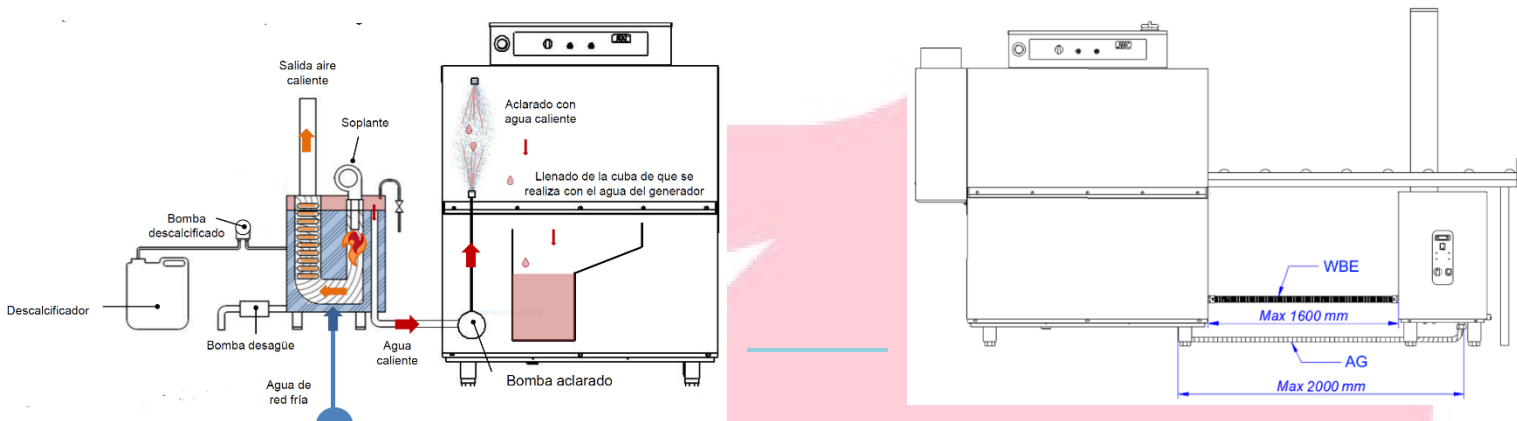
19.6. CONNECTION OF ECO MODELS

In the ECO models (with hot water generator) the corrugated pipe **AG** must be connected between the rinse pump of the conveyor belt dishwasher and the hot water generator water outlet.

To link the two machines electrically, there is a connector which must be linked using the wiring and protective hose **WBE**.

The hot water gas generator (GWB-40) replaces the electric rinse drum in the dishwasher, implying a significant savings in electricity consumption.

- Given the generator heating power, the dishwasher is designed to be installed in installations with a very cold water connection ($>5\text{ }^{\circ}\text{C}$).
- The dishwasher is equipped with a motor pump for sending the water from the generator to the rinse nozzles.
- The dishwasher includes a flow regulator to ensure constant water consumption.
- The first fill of the dishwasher wash tub uses water from the generator, which rapidly reaches the operating temperature.

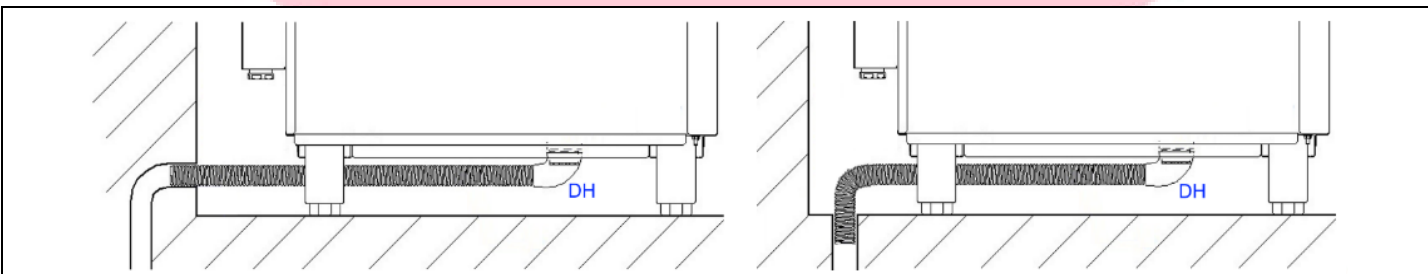


19.7. DRAIN CONNECTION

Conveyor belt dishwashers require effective drainage as they run continuously. The machine drainage hose must be connected to the drain so that water flows freely under gravity; therefore, the drain must be lower than the drainage hose.

Always use pipes able to withstand a constant temperature of 70°C . The machine drainage hose must be connected to a sump with a drain trap to prevent the return of bad odours.

Check that the drainage system operates correctly and is not blocked.

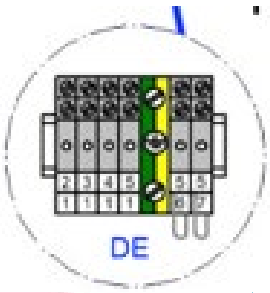


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19.8. DISPENSERS (DETERGENT/RINSE AID)

The appliance does not have detergent and rinse aid dispensers, but is designed to permit the installation of external dispensers. The correct dispensers must be installed and the correct detergent and rinse aid dispensers used to ensure optimum washing and cleaning. Otherwise this is not guaranteed.

To complete this installation, the dishwasher must be switched off at the mains using the disconnection switch and the mains switch, and the water inlet tap closed.



The following installation and adjustment must be carried out by authorised and qualified personnel.

Contact a qualified chemical product supplier to determine the most suitable product and dose in order to optimise the wash.

The guarantee does not cover damage caused by the incorrect installation or use of dispensers and chemical products.

The correct selection and dosing of detergent and rinse aid is essential for obtaining an optimum wash. At the start of the work day, check that the quantity of product in the reservoirs is enough for the daily requirement.

Only use liquid or solid detergent specially designed for use with industrial dishwashers and which is non-foaming at high temperatures. Detergents designed for domestic use should not be used under any circumstances.

The results of the wash should be assessed after two fills and at least three wash cycles in order to stabilise the doses. There should not be any foam in the tub after running the cycles.

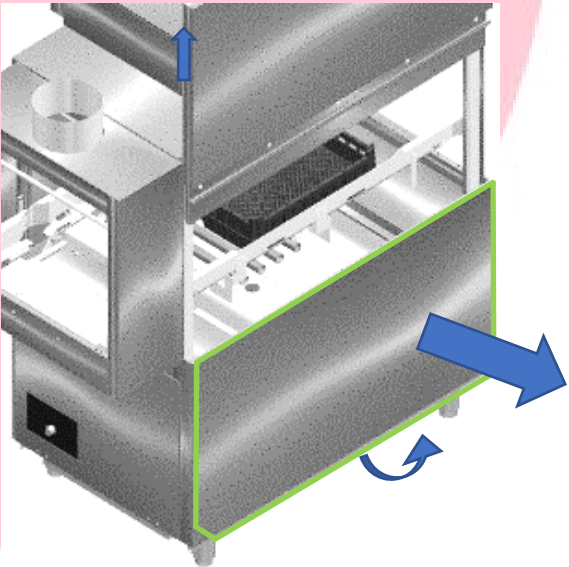
Rinse aid is necessary to correctly disperse and drain the water over the dishes in order to avoid stains and to speed up the drying process.

Scratched dishes and the formation of foam in the wash solution are usually an indication of excess rinse aid. Dishes with too many water drops or which are slow to dry are usually a sign of insufficient rinse aid.

19.8.1. DISPENSER HYDRAULIC CONNECTION

For the hydraulic connection of the dispensers, remove the lower front panel of the appliance.

- First remove the panel fastening bolts and lift the door.
- Turn the front panel slightly upwards at the lower part and then remove.
- To insert the pipes, use the bushing located in the lower central part of the appliance.



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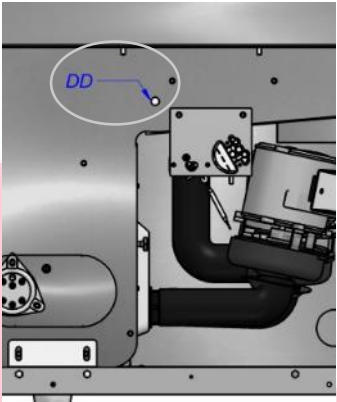
CONVEYOR BELT
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19.8.2. DETERGENT DISPENSER

The detergent entry point to the wash tub is in the upper part of the front of the tub and is identified by a label.

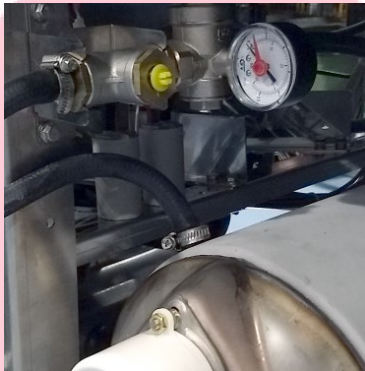
CONEXIÓN DETERGENTE
DETERGENT CONNECTION
CONNEXION DE DÉTERGENT
SPÜLMITTEL-ANSCHLUB
CONNESSIONE DEL DETERGENTE

There is a covered hole just next to this, and a packing gland should be installed here for the detergent dispenser
A stainless steel packing gland should be used, as detergent is an abrasive product and plastic packing glands wear faster.



19.8.3. RINSE AID DISPENSER

The rinse aid inlet point should be mounted on the water inlet to the drum, as shown in the diagram.
The yellow cap shown in the figure should be removed. This will provide an inlet with 1/8" thread where the rinse aid dispenser pipe can be connected.
In ECO models with hot water gas generator, the rinse aid dispenser connection should be on the hot water generator itself.



19.8.4. FEEDERS' ELECTRICAL CONNECTION

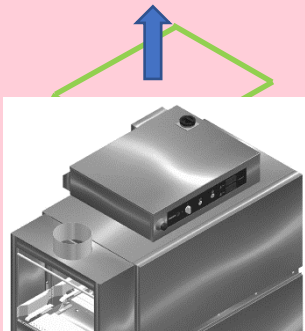
To complete the electrical connection of the detergent and rinse aid dispensers, remove the upper cover protecting the electrical panel in order to access the connection strip for the dispensers/Limit switch **DE**.

First turn the mains switch **IG** to **OFF** in order to remove the cover. Next, remove the fastening bolts and undo the cover.

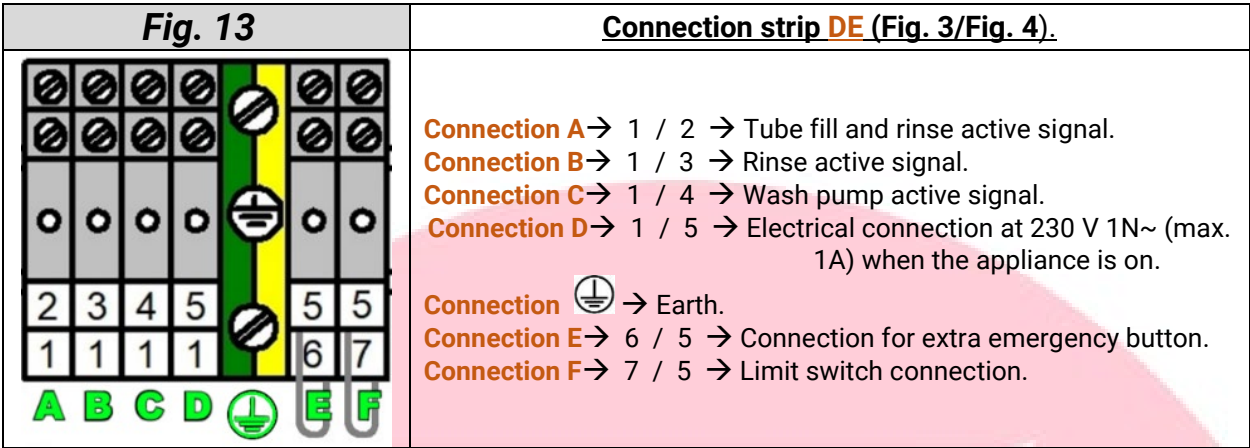


IG

The rinse aid / detergent dispenser connection cables must be inserted through the two packing glands **DSR** and connected to the rinse aid /limit switch connection strip **DE**. The connection options are shown in **Fig.13**.



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On completion of the electrical connection, the cover of the electric panel must be replaced and secured.

19.9. LIMIT SWITCH/MICRO SWITCH

The limit switch/micro switch is mounted at the end of the dishwasher output bench, where it is activated when the basket reaches the end of the bench, and the machine operation is stopped. When the limit switch is released on removing the baskets from the bench, the machine continues with the wash.

The electrical connection cables of the limit switch / micro switch must be inserted through the packing gland **DSR** (Fig. 3/Fig. 4) and connected to the **DE** terminal strip at **connection 7 / 5** as with the dispensers (see Fig.13.).

On completion of the electrical connection, the cover of the electric panel must be replaced and secured.

19.10. EXTRA EMERGENCY BUTTON

The appliance also permits the installation of an extra external emergency button in the location required.

The electric connection cables must be inserted through the **DSR** packing gland and connected to the **DE** terminal strip at **connection 6 / 5** as with the dispensers.

On completion of the electrical connection, the cover of the electric panel must be replaced and secured.

20. SAFETY LOCKING SYSTEM

The machine is fitted with a safety locking system, which stops the appliance and notifies the user with a light and acoustic signal if a blockage or impediment is detected in the feed system.

This system must be adjusted if the dishwasher has accessories such as automated input and/or output benches which require a greater feed force than the force configured as standard, as a greater weight is carried on the belt.



If the dishwasher has automated input and/or output benches which require a greater feed force, the spring supplied in the kit must be installed.

The additional spring must not be installed without checking that it is really necessary, as this could damage the appliance.

To adjust the system first disconnect the water using the shut-off valve, and then the electricity, using the magneto-thermal switch/ setting the mains switch **IG** to **OFF**.

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The system is adjusted using springs (1 or 2) mounted on the module where the drive motor is located.

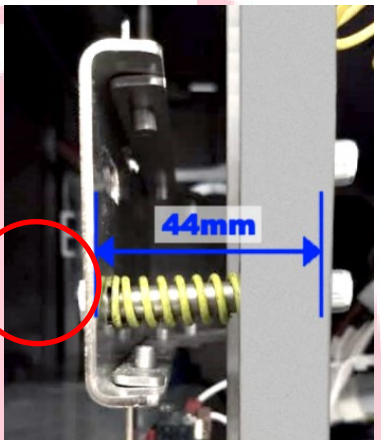
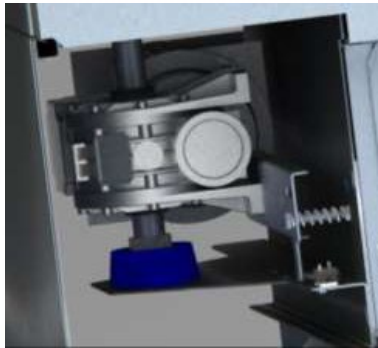
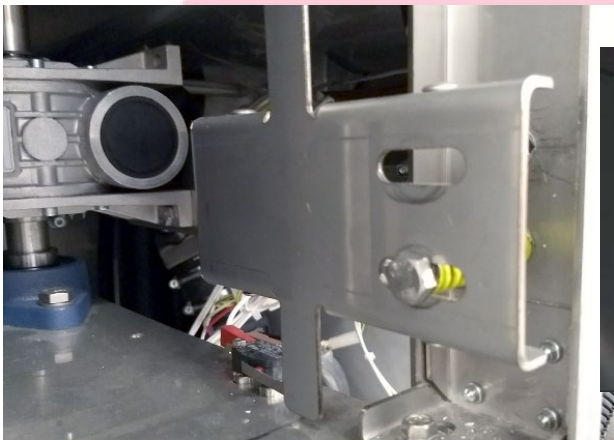
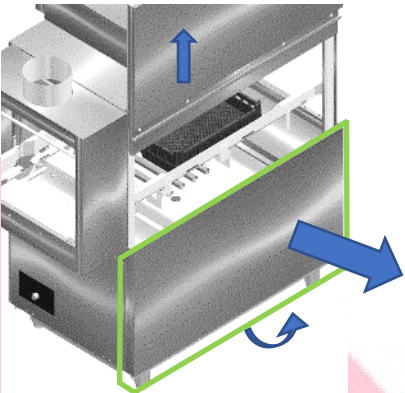
A spring and screw are supplied with the appliance.

Locate the module where the drive motor is mounted and remove the corresponding lower front panel.

First remove the panel fastening bolts and lift the door.

Turn the front panel slightly upwards at the lower part and then remove.

Locate the existing spring and mount the new spring in the adjacent space. The spring which is now mounted can be released to make the task easier. **Take care not to over-tighten the bolts and break or damage the safety lock detector switch (see circle in image below).** **VERY IMPORTANT: the springs must be compressed to a length of 44 mm.**



IMPORTANT: The springs must be compressed to a length of 44 mm in order to function correctly.

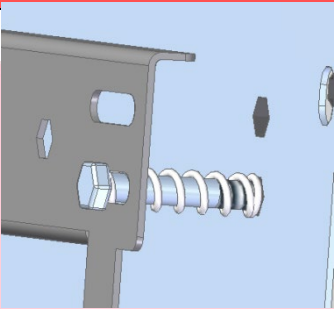
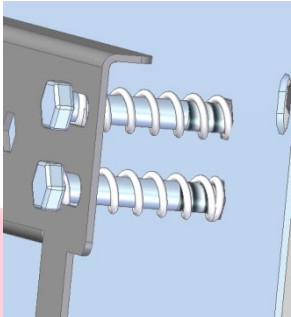
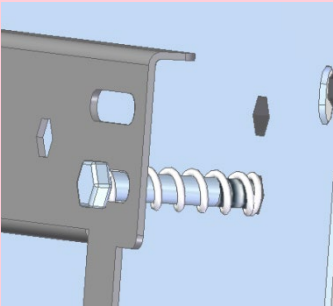
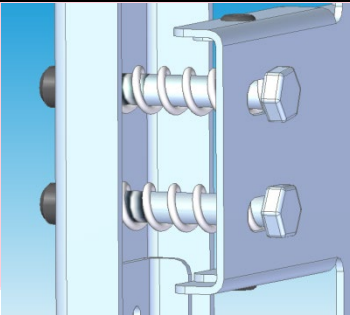
This is the interior measurement. The thickness of the plates must be added if measuring the outer part.



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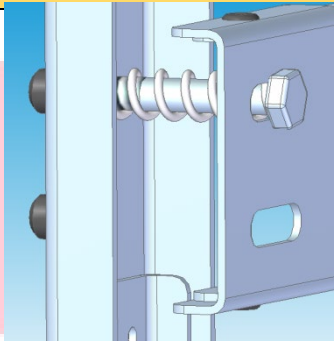
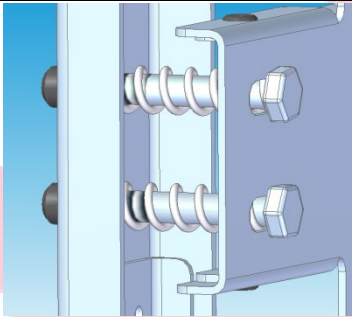
CCO-120			
TYPE OF MACHINE	SPRING MOUNTED	FIGURE	SPRING IN EQUIPMENT
STANDARD MACHINE	1 60 N spring (white) 12170393		1 60 N spring (white) 12170393
MACHINE WITH BENCHES (Output, Input or both)	2 60 N springs (white) 12170393		-
CCO-160			
TYPE OF MACHINE	SPRING MOUNTED	FIGURE	SPRING IN EQUIPMENT
STANDARD MACHINE	1 60 N spring (white) 12170393		1 60 N spring (white) 12170393
MACHINE WITH BENCHES (Output, Input or both)	2 60 N springs (white) 12170393		-

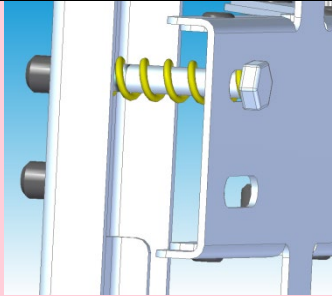
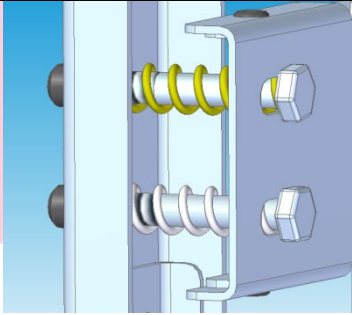


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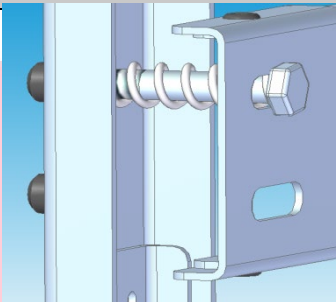
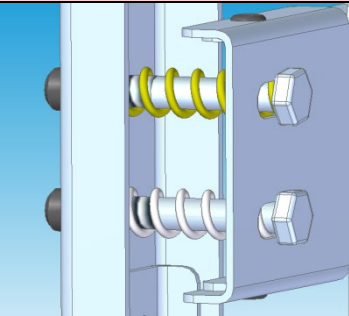
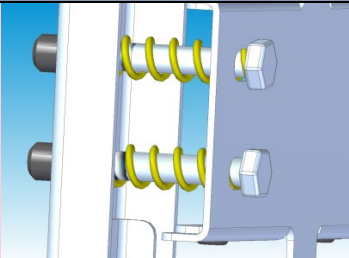
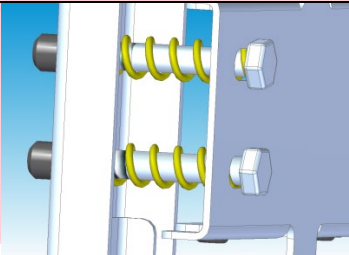
CONVEYOR BELT
DISHWASHERS

CCO-180			
TYPE OF MACHINE	SPRING MOUNTED	FIGURE	SPRING IN EQUIPMENT
STANDARD MACHINE	1 60 N spring (white) 12170393		1 60 N spring (white) 12170393
MACHINE WITH BENCHES (Output, Input or both)	2 60 N springs (white) 12170393		-

CCO-225			
TYPE OF MACHINE	SPRING MOUNTED	FIGURE	SPRING IN EQUIPMENT
STANDARD MACHINE	1 100N spring (yellow) 12158631		1 60 N spring (white) 12170393
MACHINE WITH BENCHES (Output, Input or both)	1 100N spring (yellow) 12158631 + 1 60N spring (white) 12170393		-



CONVEYOR BELT
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CCO-270			
TYPE OF MACHINE	SPRING MOUNTED	FIGURE	SPRING IN EQUIPMENT
STANDARD MACHINE	1 60 N spring (white) 12170393		1 60 N spring (white) 12170393
MACHINE WITH BENCHES (Output, Input or both)	1 100N spring (yellow) 12158631 + 1 60N spring (white) 12170393		-
CCO-320			
TYPE OF MACHINE	SPRING MOUNTED	FIGURE	SPRING IN EQUIPMENT
STANDARD MACHINE	2 100N springs (yellow) 12158631		-
MACHINE WITH BENCHES (Output, Input or both)	2 100N springs (yellow) 12158631		-

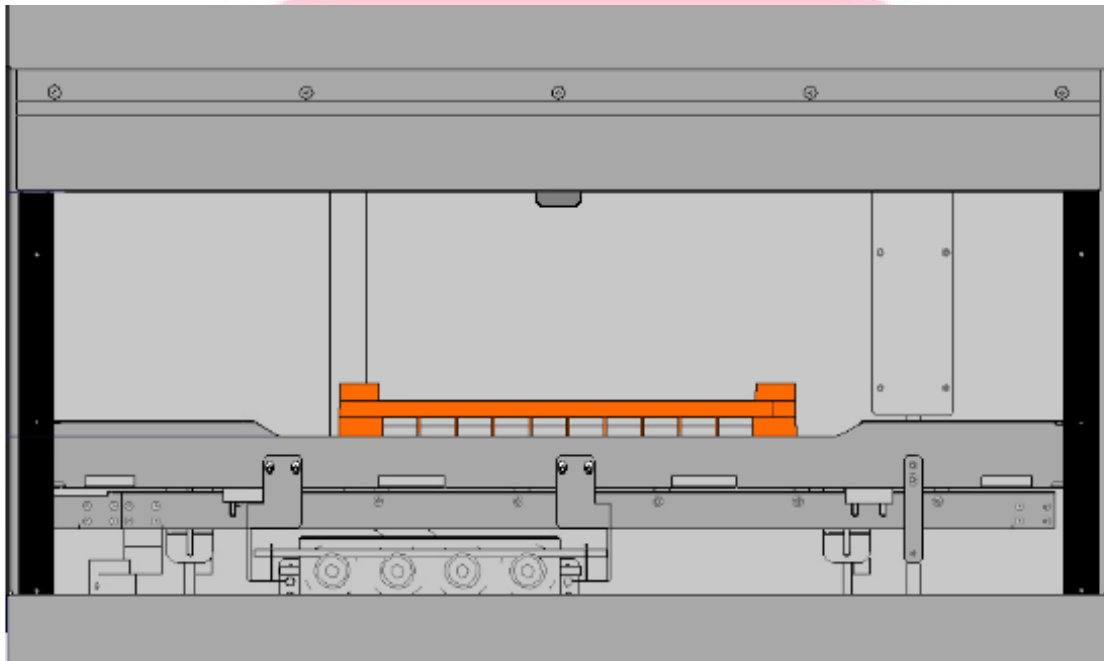


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21. DOOR LOCKING SYSTEM

The doors have an automatic locking system in the door fully open position, to make cleaning and access to the inside of the appliance easier by preventing the door from closing. To lock the door in this position, raise it to the maximum opening height.

To unlock and close the door, gently push the locking part, located behind the door and in the centre, towards the interior of the appliance.



22. HYGIENE REGULATIONS

- The machines are fitted with temperature displays indicating the temperature of the boiler and the tank (**WASH TEMP, RINSE TEMP**). Before starting to wash, wait until the correct wash temperatures are reached in the tank (55 °C – 65 °C) and in the boiler (80 °C – 85 °C).
- Before placing dishes in the dishwasher, carefully remove food remains to avoid blocking the filters, jets and tubes.
- Stop the machine at regular intervals to remove any waste which has accumulated on the trays, and if necessary, drain the wash tank and clean the filters.
- Make sure that the quantities of detergent and rinse aid dispensed are correct (as recommended by supplier). At the start of the work day, check that the quantity of product in the reservoirs is enough for the daily requirement.
- Remove the basket from the appliance and handle the dishes/cutlery with gloves or clean hands to prevent contamination. Be careful as the dishes will be hot.
- Do not dry the plates with kitchen towels or cloths that are not sterile.
- The dishwasher should be kept perfectly clean and maintained.
- Operators must strictly observe all hygiene requirements when handling clean dishes and cutlery.



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23. ALTERNATE (ALT) / SIMULTANEOUS (SIM) HEATING

By default, the CCO-120, CCO-160 and CCO-180 models are configured for alternate heating (Fig. 10, ALT), i.e., that the tank resistor and the boiler resistor do not operate together.

By default, the CCO-225, CCO-270 and CCO-320 models are configured for simultaneous heating SIM.

If simultaneous heating is required (simultaneous heating of the boiler and the wash tank), this change must be reflected in Fig. 11, SIM.

First disconnect the electricity using the magneto-thermal switch and setting the mains switch IG to OFF.

The blue bridge connection of the CRC11 contactor must be modified. Undo the end connected to NO (Normally open) from the lower part of the contactor and connect it to the NC (Normally closed) contact on the upper part of the contact.

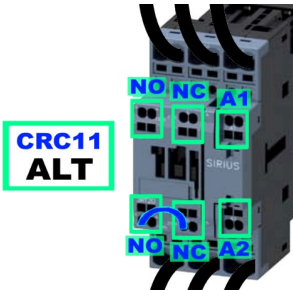


IMPORTANT: When the Alternate/Simultaneous configuration of the appliance is modified, the power and amperage is modified. Therefore the components of the installation (power cable, magneto-thermal switch, etc.) should be checked and modified if necessary.

If the production is consecutive or if the water inlet temperature is very low, the tank temperature may fall below the values recommended by the manufacturer (55 °C – 65 °C). In this case, it is necessary to change to simultaneous heating.

Show the conversion on the specifications plate as described in point 3.

ALT/SIM connection in CCO-120 and CCO-160

ALT (alternate heating) Fig. 10	SIM (simultaneous heating) Fig. 11
	
FACTORY ELECTRICAL SETTING	H ₂ O < 15°C

ALT/SIM connection in CCO-180, CCO-225, CCO-270 and CCO-320

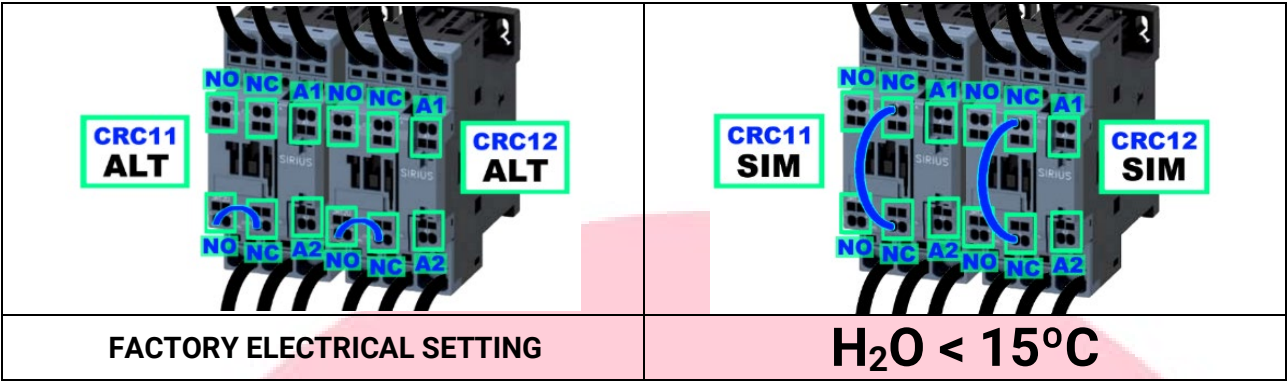
ALT (alternate heating) Fig. 10	SIM (simultaneous heating) Fig. 11
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24. INITIAL START-UP (AUTHORISED INSTALLER/TECHNICIAN)

Before starting the appliance, use a functional test to check that the electrical protection system is operating correctly. The machine must have been installed and/or inspected by qualified personnel, who will start the machine for the first time, check the appliance operates correctly and provide the operating instructions to the user. The manufacturer does not accept responsibility for an incorrect installation or start-up. Before switching on the machine, check that the wash distributors, filters and trays are correctly positioned.

24.1. FIRST FILL AND ACTIVATION OF THE BOILER

BEFORE DRAINING THE BOILER, THE RINSE TEMP DISPLAY MUST ALWAYS BE DEACTIVATED.



THIS OPERATION MUST ALWAYS BE PERFORMED AFTER DRAINING THE DRUM.

THE MANUFACTURER DOES NOT ACCEPT ANY RESPONSIBILITY FOR PROPERTY DAMAGE OR PERSONAL INJURY RESULTING FROM THE NON-COMPLIANCE OF THE ABOVE INSTRUCTIONS.

Activate the magneto-thermal switch and set the mains switch **IG** to **ON**.
Open the water shut-off valve.
Using the **SELECT** switch, select position **I, II or III**. The **WASH TEMP** display lights up and water starts to fill the appliance.

VERY IMPORTANT: As this is the first fill, the drum will be empty and the drum heating must not be activated; the **RINSE TEMP** display must continue switched off.



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If the drum is empty and **RINSE TEMP** is activated, immediately move the **SELECT** control switch to position **0** to switch off the appliance.
To switch off the heating turn the appliance back on. The **RINSE TEMP** display flashes several times before starting. After the fourth flash (not before) press and hold down the **ON/OFF** button of the display  until the display switches off.
If the display does not switch off in 5 seconds, immediately switch off the appliance and try again.



Check that water enters in the machine (the doors must be closed).
When the boiler is full, water will start to come out through the rinse arms in order to fill the tank. If the door is opened, the fill will stop. The rinse arms can be watched from the basket output of the appliance. Now it is possible to activate the drum heating using the **RINSE TEMP** display, by pressing the **ON/OFF** button on the display  for 3 seconds.

The **ECO** models do not have a boiler or boiler temperature display, therefore this does not apply. The appliance will wait until the generator heats the water and then start to fill the tank. The instructions for the start-up and use of the generator can be found in the generator instruction manual.

Once the tank is full, the appliance is operative and the heating starts, the following checks on the appliance operation should be run:

- Check that there are no water leaks in hoses, joints, etc.
- Check that the tank levels are correct, below the overflow drainage.
- Check that the curtains are correctly fitted (long curtains at the exits and short curtains in the interior).
- Check the correct operation of the detergent and rinse aid dispensers if installed.
- Check the correct operation of the limit switch.
- Check the correct operation of the emergency button.
- Check that the appliance stops if the doors are opened.
- Check that the temperatures are correct and the heating operates correctly.
- Check that the wash cycle runs correctly and the different switches operate as required.
- **IMPORTANT!** Check the rotation of the drive geared motor (depending on the model): if it turns anticlockwise (see figure) the safety lock does not operate. Therefore two of the connection phases of the drive motor should be inverted in the electric panel, at the variator output.



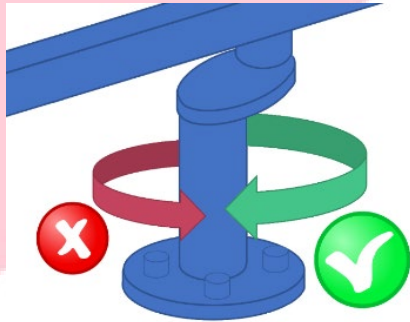
DIRECTION



DIRECTION
CLOCKWISE



ANTICLOCKWISE



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- **IMPORTANT!** In all Compact models (CCO-120, CCO-160, CCO-120 ECO and CCO-160 ECO) and in the right-hand Modular models (CCO-180, CCO-225, CCO-270, CCO-320, CCO-180 ECO, CCO-225 ECO, CCO-270 ECO, CCO-320 ECO) rotation should be clockwise. In the left-hand modular models (CCO-180, CCO-225, CCO-270, CCO-320, CCO-180 ECO, CCO-225 ECO, CCO-270 ECO, CCO-320 ECO), rotation should be anticlockwise.
- **IMPORTANT!** Check that the dryer fan and the energy recovery fan rotate in the correct direction. The dryer fan must be able to open the dryer air output cover and the energy recovery fan must extract air. If both fans are not operating correctly, change the two phases of the electrical supply cable.

24.2. CONFIGURATION OF HEATING TEMPERATURES

The heating temperatures of the tank and the boiler can be configured using the digital thermometers **WASH TEMP** and **RINSE TEMP**.

The preconfigured and nominal recommended temperatures are 85 °C in the boiler and 62 °C in the tank. If these values are changes, adequate wash and/or rinse temperatures cannot be guaranteed.

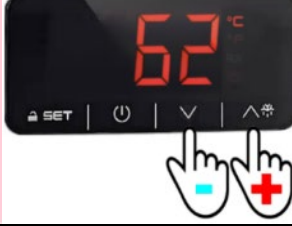
If one of the digital thermometers is replaced, the nominal heating value must be configured.

The digital thermometers permit the configuration of temperatures within the following ranges:

RINSE TEMP → Boiler: Temp range between 70 and 85 °C (Not available in ECO models).

WASH TEMP → Tank: Temp range between 50 and 65 °C.

The procedure for changing the temperature parameters is as follows:

1	When the appliance is switched on, the keys on the electronic thermometers are unlocked. They lock automatically after 30 seconds of inactivity. To unlock the keypad, press SET for several seconds. When this is pressed, Loc (Locked) is displayed, when the keypad is unlocked this changes to UnL (Unlocked).	
2	After unlocking the thermometer keypad, the true temperature continues to be displayed. Press SET once and the thermometer enters the temperature range configuration: the default temperature is displayed and the upper left green icon  flashes.	
3	Use the ▲ and ▼ buttons to increase or lower the nominal heating temperature configured, within the ranges specified above. RINSE TEMP → <u>Boiler</u>: Temp range between 70 °C and 85 °C WASH TEMP → <u>Tank</u>: Temp range between 50 °C and 65 °C	

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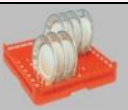
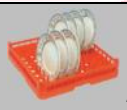
Once the required heating temperature has been configured, confirm the temperature by pressing **SET** once. The temperature display again displays the true temperature and the keypad automatically locks after 30 seconds of inactivity.



25. DETAILS OF INTEREST

The heating temperatures of the tank and the drum can be configured.

MOD.		 / h	Water L/h	Tank	Boiler	kg	NS
CCO-120	500mm	80-100-120	210 L/h	50 L	20.8 L	220 kg	< 72 dB
CCO-120 ECO	x		240 L/h				
CCO-160		100-130-160					
CCO-160 ECO	500mm						
+CDT-600: +70 kg / +AS-260: +15 kg / +CRS-600: +65 kg							

MOD.		 / h	Water L/h	Tank	Boiler	kg	NS
CCO-180 HW / CW / ECO	500mm x 500mm	90 - 135 - 180	210 L/h	100 L	21 L	260 kg	< 72 dB
CCO-225 HW / CW / ECO		125 - 175 - 225		160 L		380 kg	
CCO-270 HW / CW / ECO		140 - 205 - 270	240 L/h	200 L		435 kg	
CCO-320 HW / CW / ECO	500mm	170 - 245 - 320		260 L		560 kg	

Production	Baskets/hour
Water L/h:	Water consumption (L/h)
Tank:	Tank capacity
Boiler:	Drum capacity
kg:	Net weight
NS:	Sound level



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26. CONTROL PANEL

Serigraphy models CCO-120, CCO-160, CCO-180, CCO-225, CCO-270 and CCO-320



Serigraphy models CCO-120 ECO, CCO-160 ECO, CCO-180 ECO, CCO-225 ECO, CCO-270 ECO and CCO-320 ECO



27. PREPARATION AND SWITCHING ON THE MACHINE

Before switching on the machine:

- ✓ Make sure that the machine is clean (filters, trays, distributors, arms...).
- ✓ Make sure that elements such as filters, trays, distributors, arms, overflow and curtains are correctly mounted in their respective positions. (Long curtains at the exits and short curtains in the interior).
- ✓ Open the water mains tap and check that there is water.
- ✓ Close the doors of the appliance.
- ✓ Activate the magneto-thermal switch and set the mains switch **IG** to **ON**. If there is no current, check that the emergency button has not been pressed.



To start filling the machine, it is essential that the door is totally closed. The appliance does not operate if it detects that the door is open.

Using the **SELECT** switch, select position **I**, **II** or **III**. The **WASH TEMP** and **RINSE TEMP** displays light up and water starts to fill the appliance.

The fill and machine preheating processes take place. This process may last about 30 minutes.

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HEATING UP

The machine will be operative once the digital thermometers reach the temperatures in the tank, **WASH TEMP** > 60 °C, and in the drum, **RINSE TEMP** > 70 °C.

The appliance has an automatic energy saving function which, while the appliance is not washing, makes the boiler lower the maintenance temperature to approximately 70°C. When the appliance starts to wash baskets again, the boiler heating nominal value is activated to the defined value (85°C by default).



During the first heating of the day, the boiler may reach higher temperatures than normal due to the heating inertia as the boiler water is cold. This is normal.



After the start-up insert a couple of baskets approximately half an hour before starting the wash to warm up the machine and to prevent the temperature from falling on starting the wash.

27.1. PREPARATION OF THE DISH

Before starting the wash process, the dishes should be prepared correctly. It is essential to comply with the following requirements:

- ✓ Remove large pieces of waste and quickly rinse all the dishes before placing it in the baskets.
- ✓ Soak the cutlery and even the plates when these are to be washed if they have not been used recently.
- ✓ **NEVER** rinse/soak with domestic detergents, bleach or similar products, as these react with those used in the appliance, creating large quantities of foam. Only use clean water.
- ✓ First wash glassware (*tumblers, glasses, jugs, ...*).
- ✓ Place wineglasses, cups and glasses upside down in the basket.
- ✓ Make sure that the maximum height of the basket including the elements to be washed does not exceed 390 mm.
- ✓ Do not overload baskets. Leave space to permit the wash water to clean the items.
- ✓ Use the right basket for each element to be washed. Consult your supplier.
- ✓ Place trays in the baskets designed for this purpose, with the shortest side in a vertical position (**max. height basket + tray = 390 mm**).
- ✓ Insert plates on a slant with the internal surface facing upwards in the basket with spikes and insert them with the front of the plates facing the entrance.
- ✓ Place cutlery in a basket without spikes with a thicker base and spread out.



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27.2. WASH SPEED SELECTION

Use the **SELECT** switch to select position **I, II or III**, each one corresponding to a feed speed, with the following production rates.

HOURLY PRODUCTION		
POSITION OF THE SWITCH	CCO-120	CCO-160
I	80 baskets/h	100 baskets/h
II	100 baskets/h	130 baskets/h
III	120 baskets/h	160 baskets/h

HOURLY PRODUCTION				
POSITION OF THE SWITCH	CCO-180	CCO-225	CCO-270	CCO-320
I (*)	90 baskets/h	125 baskets/h	140 baskets/h	1270 baskets/h
II	135 baskets/h	175 baskets/h	205 baskets/h	255 baskets/h
III	180 baskets/h	225 baskets/h	270 baskets/h	320 baskets/h

(*) The standard DIN 10534 is met at this speed.

Remember that the quality of the wash depends on the speed of the appliance and the type of dirt to be washed. Therefore, the wash speed should always be appropriate for the dirt on the dishes.



The quality of the dishwasher wash will depend on the wash speed (lower speed higher quality wash), tank water temperature (55-65 °C), correct detergent dose and rinsing prior to inserting the dishes in the dishwasher.

28. DIN 10534 standard

The **DIN 10534 standard is a summary of the DIN 10510, DIN 10511, DIN 10512 and DIN 10522 standards**. It specifies the hygiene requirements for the design, construction, and operation of commercial dishwashers (GSM) with different designs, and offers special tips regarding the professional and hygienic operation, for cleaning and disinfecting the washware and for the care and maintenance of the machines. The methods for testing the hygienic operation are described. In addition to the principles for the correct spatial and operational arrangements within the kitchen and for the proper and hygienic organisation of the Spülgutkreislaufes assembly. This standard is applied to commercial dishwashers for cleaning washware used in contact with food including dishes, glassware, cutlery, reusable boxes for transporting food and other similar items. Commercial dishwashers are used in kitchens found in restaurants, canteens, hospitals and commercial establishments including bakeries, butchers, etc. Dishwashers for domestic use, and for the reprocessing of medical devices in the sense of the Medical Device Regulation Act are



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excluded from the scope of the above standard. The main objective of this standard is the protection of consumer health. Given the hygiene problems found in practice, an urgent need has been observed for regulation. The above standard focusses on the test methods for dishwashers, which permit the result of the wash to be verified from the point of view of food hygiene. On the one hand, the test methods established may help device manufacturers to verify the performance of their devices with respect to a perfectly hygienic wash result. On the other hand, the standard food inspection may use the above standard for the detection of any hygiene deficiency. In addition to the equipment manufacturers and the control authorities, the standard is also directed at users from the food industry, in particular in the field of public catering. Here, the hygienic and professional operation for the cleaning and disinfection of the dishes must be guaranteed together with the care and maintenance of the dishwasher. Hygienic cleaning of the washware in accordance with legal requirements. The document has been prepared by the Standards Committee for Food and Agricultural Products, Working Group NA 057-02-01-08 AK "Hygiene requirements for the mechanical cleaning of utensils and materials in contact with foodstuffs" in the Working group NA 057-02-01 AA "Food hygiene". By decision of the Working group on "Food hygiene", the text of the standard is published in German and English.

DIN 10510 - "Hygiene standards– Commercial dishwashing with multitank transport dishwashers – For washing foods, test procedure"

DIN 10511 - "Food hygiene– Commercial glasswashing with glasswashing machines- Hygiene requirements, testing"

DIN 10512 - "Food hygiene– Commercial dishwashing with one-tank dishwashers - Hygiene requirements, testing type"

DIN 10522 - "Food hygiene– Commercial cleaning of reusable boxes and reusable containers for unpackaged foodstuffs - Hygiene requirements, testing"

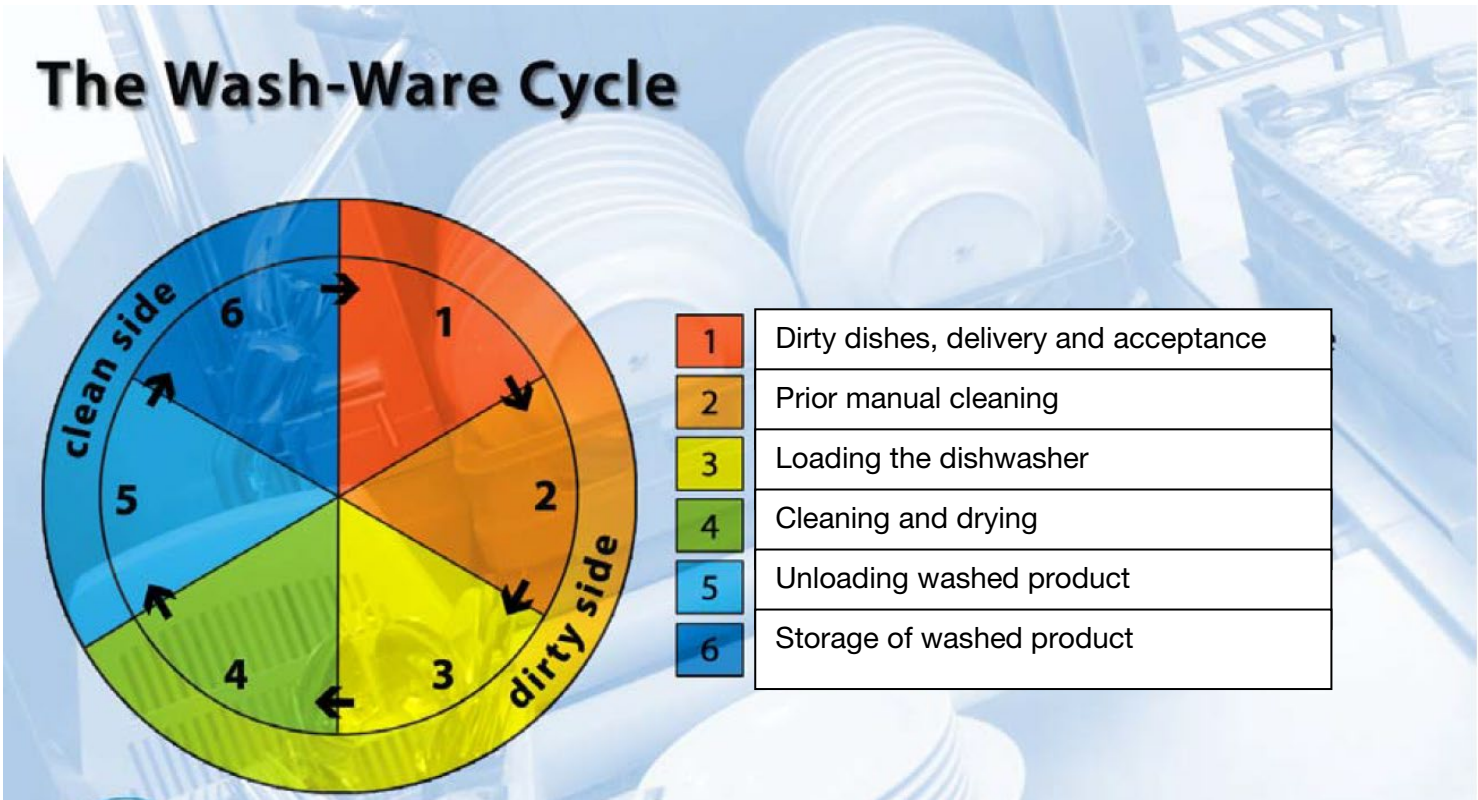


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DIN 10510 - Multitank transport dishwashers

Zone	Temperatures without disinfection component °C	Temperatures with an adequate quantity of a disinfection component in the detergent solution °C
Fresh water pre-wash	over 40	25 ÷ 40
Pre-wash zone	40 ÷ 50	40 ÷ 50
Wash tank	60 ÷ 65	55 ÷ 65
Auxiliary rinse	60 ÷ 70	60 ÷ 70
Fresh water rinse	80 ÷ 85	80 ÷ 85

Scientific studies have shown that the water contact time in multitank dishwashers must be approx. 2 minutes.

DIN 10511 - Glasswashers

For hygiene reasons, the temperature in the wash tank shall be at least 55°C. Since the durability and usability of a drinking glass is substantially affected by the temperature, the temperature of the detergent solution should not substantially exceed 60°C. The temperature of the rinse aid solution should be 65 (± 2)°C. Contact times of 90 seconds are deemed to provide a sound basis for achieving fully hygienic warewashing results. Under special circumstances, e.g. where there is an increased risk of infection, glasswashers have to be operated at higher temperatures and the use of disinfection components is recommended.

DIN 10512 - One-tank dishwashers



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Zone	Temperatures without disinfection component °C	Temperatures with an adequate quantity of a disinfection component in the detergent solution °C
Wash tank	60 ÷ 65	55 ÷ 65
Auxiliary rinse	80 ÷ 85	80 ÷ 85

Contact times of 90 seconds are deemed to provide a sound basis for achieving fully hygienic warewashing and disinfection results.

DIN 10522 – Warewashers for reusable containers

Zone	Temperatures* where there is no disinfection or oxidation component in the detergent and rinse aid solution °C	Measurement point
Wash tank	60 ÷ 65	Wash tank
Auxiliary rinse	80 ÷ 85	Boiler

*In the case of chemical disinfection, no temperature is specified for the detergent and rinse aid solution.

Due to the different areas of use and different hygiene requirements for washware, no universally valid contact time can be defined for such warewashers.



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29. WASH PROCESS



The door must be closed for the wash cycle to start. For safety reasons, if the door is open, the machine will not start the cycle.



- IF THE FEED BELT IS BLOCKED, REMOVE THE OBSTACLE BEFORE RESTARTING THE APPLIANCE.
- BEFORE REMOVING OBJECTS THAT HAVE FALLEN INSIDE THE MACHINE, THE APPLIANCE MUST BE AT A COMPLETE STANDSTILL AND DISCONNECTED.
- DO NOT INSERT HANDS IN THE MACHINE WHILE IT IS RUNNING.
- TO AVOID THE RISK OF ENTANGLEMENT, DO NOT APPROACH THE FEED MECHANISM, ESPECIALLY IF WEARING JEWELLERY OR LOOSE CLOTHING.
- IN THE EVENT OF BREAKDOWN AND/OR THE INCORRECT OPERATION OF THE MACHINE, SWITCH OFF THE APPLIANCE AT THE MAINS AND REFRAIN FROM CARRYING OUT DIRECT INTERVENTION OR ATTEMPTS TO REPAIR.

Once the appliance has reached the conditions required to start the wash and the dishes has been correctly stacked in the baskets, the wash process is performed as follows:

- Using the **SELECT** switch, select position **I, II or III**. After selecting the required wash speed, press the **START/STOP** button to start the basket conveyor belt. If the machine runs for 10 minutes without detecting the entrance of baskets, it will automatically stop.
- Once the feed belt is moving, the baskets can be inserted through the entrance of the appliance. Before inserting the baskets, prepare all the washware correctly. Do not exceed the height limit of the machine entrance (390 mm) as this may lead to damage to the machine and the elements to be washed.
- When the wash process starts, the boiler automatic energy saving function is deactivated and the heating is activated to obtain a rinse temperature between 80-85 °C. Sometimes the machine may take a few seconds to return to the ideal operating temperature. In this case, an empty basket can be inserted first so that the appliance starts to heat up before.



If, with the first basket, the rinse does not reach a temperature of 80-85 °C, do not insert any baskets for a few moments and allow the machine to return to the ideal operating temperature.

- The baskets will come out through the appliance output opening and collect on the output bench. Allow the dishes to dry naturally for a minute. The following health aspects should be noted:
 - The basket should be removed and the dishes handled with clean hands or wearing gloves in order not to contaminate it. Be careful as the dishes will be hot.
 - Do not dry the dishes with kitchen towels or cloths that are not sterile.
 - Operators must strictly observe all hygiene requirements when handling clean dishes and cutlery.
- Stop the machine at regular intervals in order to remove any waste which has collected in the trays of the appliance.

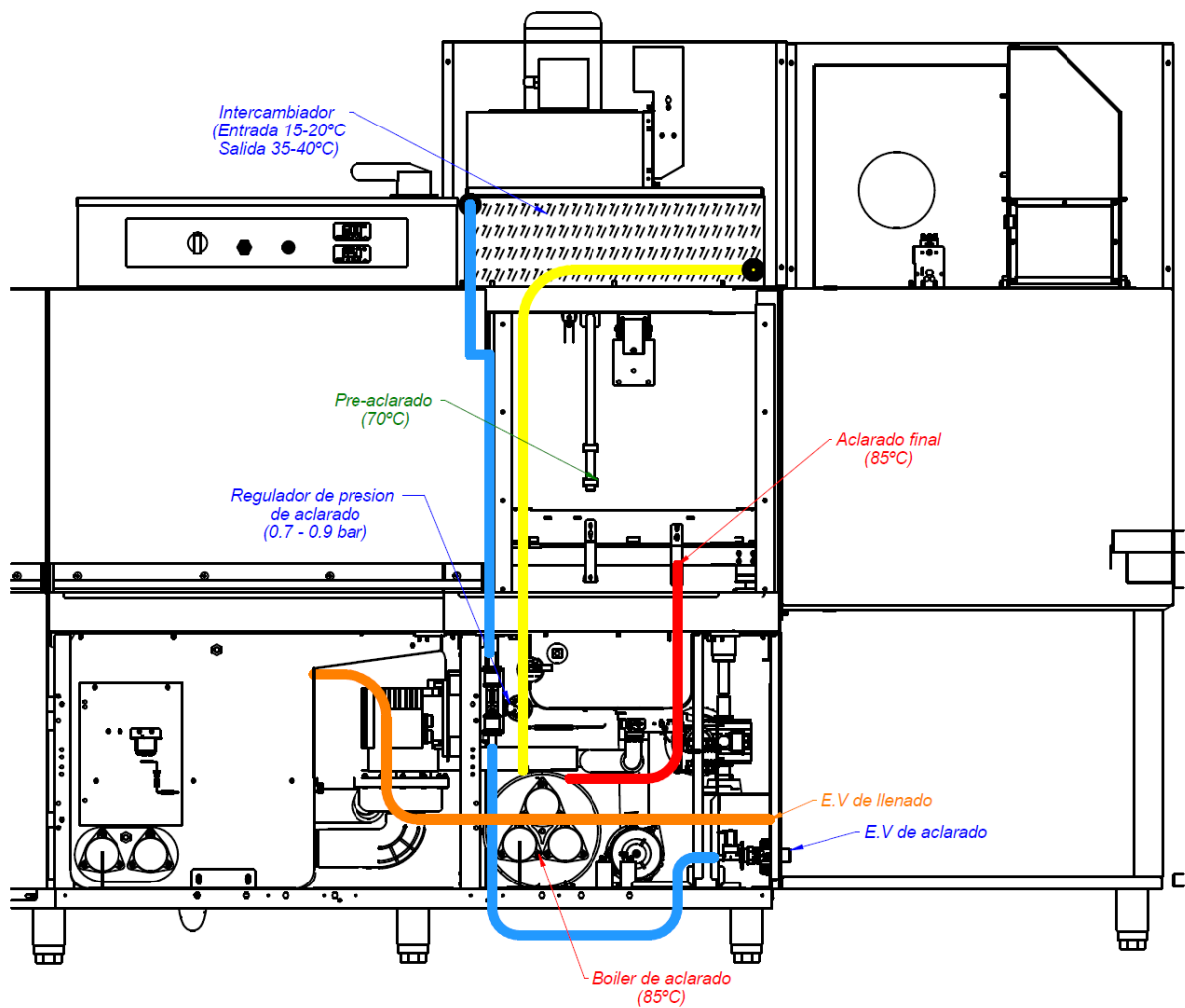


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30. HYDRAULIC DIAGRAM OF CONVEYOR BELT DISHWASHER

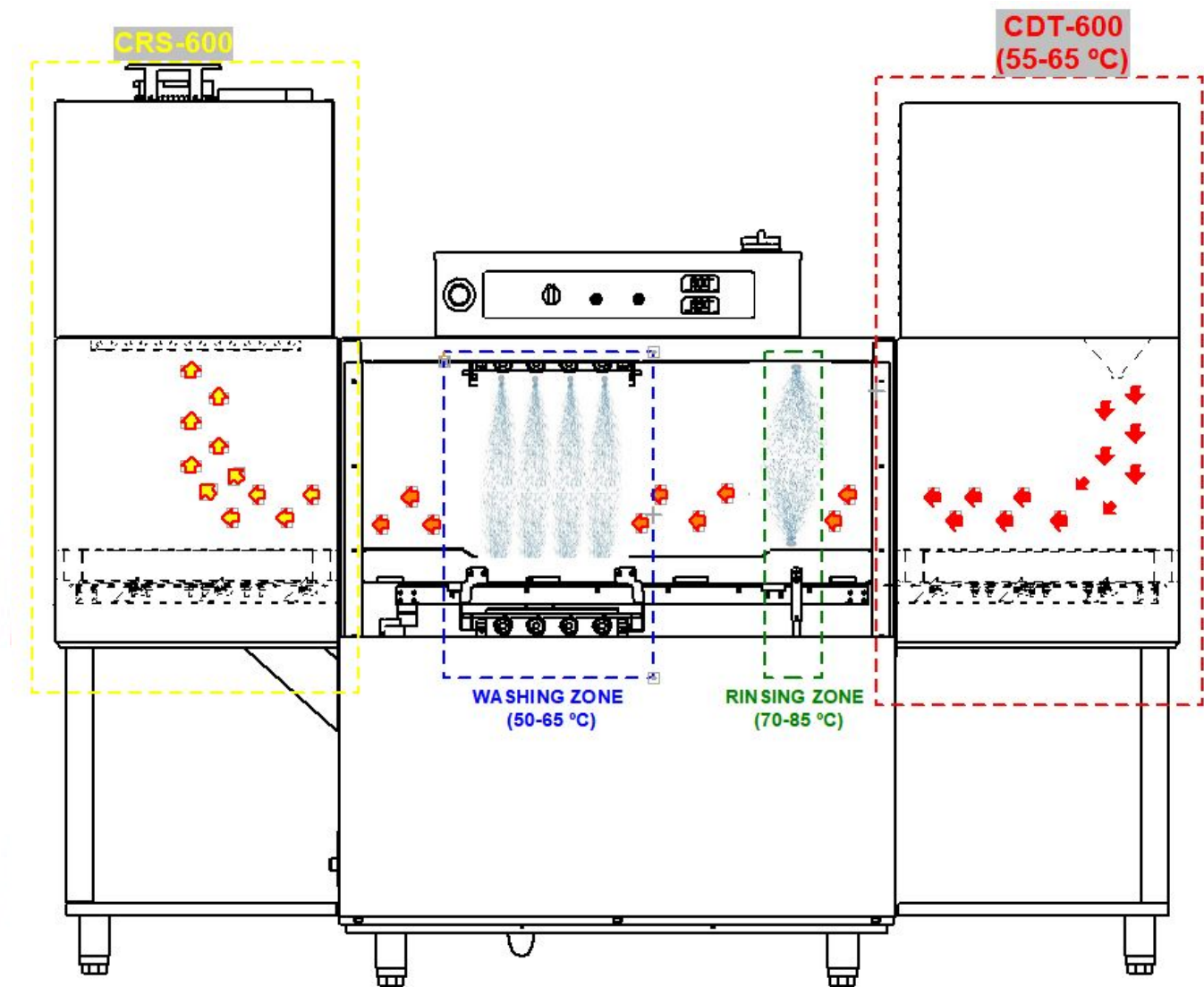


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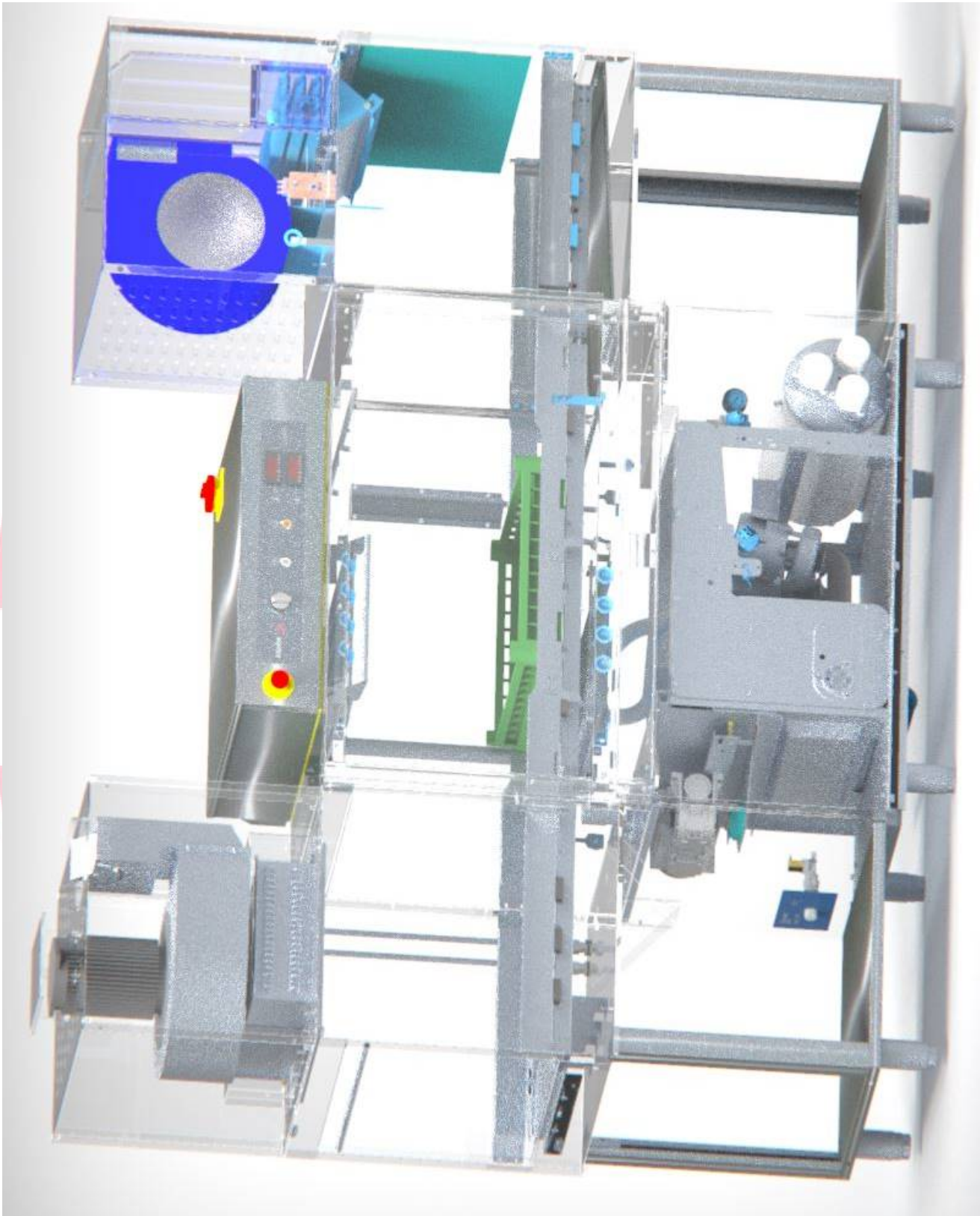
31. FUNCTIONAL DIAGRAM OF CONVEYOR BELT DISHWASHER



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32. WASH CYCLE

The machine cycle includes a wash, drainage and a final rinse, with an optional dryer.

The tank thermostat maintains the wash water temperature at between 55 - 65 °C and motor pumps circulate this water with detergent towards the wash arms. The jets of water reach the dishes from different directions in order to guarantee a uniform wash.

The wash system starts when the wash actuator located in the rear internal part of the machine detects a basket, and stops automatically when there are no baskets to be washed.

There is a drainage zone between the wash zone and the rinse zone which allows the detergent to drain off the dishes towards the wash tub.

In the rinse zone, the baskets are rinsed with mains water heated to between 80 °C - 85 °C, mixed with rinse aid to remove the detergent from the dishes, which at the same time regenerates the wash tank water, thus reducing the level of dirt in the tank.

The rinse system starts when the rinse actuator located in the rear internal part of the machine detects a basket, and stops automatically when there are no baskets to be washed.

An optional drying module is available for heating and expelling air at a temperature of 55 - 65 °C so that the dishes comes out completely dry. The dryer is automatically deactivated several minutes after the last basket has come out.



If the water input temperature is lower than the specified temperature, the times required to return to the operating temperatures will increase and productions rates will be lower.

32.1. INTERRUPTING THE WASH PROCESS

The wash and rinse processes are deactivated after the baskets have passed through the machine and the feed belt automatically stops after 10 minutes without detecting incoming baskets.

If, at any time, it is necessary to interrupt the wash process, the best way is to Press the **START/STOP**. The feed belt stops and the wash and rinse processes are interrupted. If the button is pressed again within a short period of time the machine will start to operate again. If not, only the feed belt starts again.

Other ways to stop the machine, but which are **not recommended** unless absolutely necessary, include the following:

- Selecting position **0** using the **SELECT**. This will switch off the machine. The wash process is not restarted. Any basket that is in the appliance when the machine is stopped should be reinserted as the wash has been interrupted and not completed correctly.
- When the door is opened, **(CAUTION!)** the feed belt stops and the wash and rinse processes are interrupted, but hot water may splash and cause burns.
- Press the emergency button **ES** to switch off the machine which will stop operating completely. **ONLY USE IN THE EVENT OF EMERGENCY.**

32.2. DRAINAGE AND SWITCHING OFF THE MACHINE

At the end of the working day or when it is necessary to change the wash water because it is too dirty, the wash tank should be drained.

To drain the machine, just remove the overflow. The machine should be switched off first.

To switch off the machine, select position **0** using the switch **SELECT**.

At the end of the work day, the machine should be emptied and the water disconnected using the water shut-off valve, together with the electricity, using the magneto-thermal switch/setting the mains switch **IG** to **OFF**, and the machine



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cleaned (follow the instructions for cleaning given in the manual).
Leave the door open to help dry the inside of the machine and to prevent bad odours when the machine is not in use.



At the end of the day, the machine must be cleaned. Follow the instructions given in this manual with respect to cleaning.



IMPORTANT:
WAIT AT LEAST 10 MINUTES AFTER SWITCHING OFF AND DRAINING THE MACHINE BEFORE CLEANING THE INTERIOR.

33. TROUBLESHOOTING

A list of possible causes and solutions in the event of anomalies or operating errors is given below. In the event of doubt, or if you are unable to resolve the problem, please contact the technical service.



WARNING



HAZARDOUS VOLTAGE




THIS APPLIANCE MAY ONLY BE REPAIRED BY AN AUTHORISED AND QUALIFIED TECHNICAL SUPPORT SERVICE USING PARTS SUPPLIED BY THE MANUFACTURER.

THE MANUFACTURER MAY NOT BE HELD LIABLE FOR ANY PROPERTY DAMAGE OR PERSONAL INJURY RESULTING FROM THE INCORRECT INSTALLATION, USE, MAINTENANCE OR REPAIR, OR CAUSED BY FAILURE TO COMPLY WITH THE STANDARDS AND INSTRUCTIONS PROVIDED.

FAULT	POSSIBLE CAUSE	ACTION
The machine does not come on.	The appliance does not receive mains power.	Check whether the magneto-thermal circuit breaker or the differential switch has tripped.
	Emergency button activated.	Check whether the emergency button is activated.
	Blown fuses.	Call the technical service to have it replaced and the cause analysed.
Water does not enter the machine.	Interruption to the supply of water or the intake water valve is closed.	Check whether there is water in the main system and open the shut-off valve.
	Rinse nozzles blocked.	Clean the nozzles. If there is a build-up of lime on the arm, contact the technical service to have the appliance cleaned.
	Solenoid valve filter blocked.	Call the technical service to have it cleaned.
	Faulty solenoid valve.	Call the technical service to replace it.
	Pressostat is broken.	Call the technical service to replace it.
Incorrect wash.	There is no detergent.	Refill the detergent.
	Insufficient detergent.	Call the technical service to reset the dispenser.
	Wash distributors obstructed.	Clean distributors thoroughly.
	Dirty filters.	Clean the filters thoroughly.



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FAULT	POSSIBLE CAUSE	ACTION
	Presence of foam.	Inadequate detergent. Change detergent.
		Too much rinse aid. Call the technical service to reset the dispenser.
	Temperature in tank less than 50 °C / 122 °F.	Faulty thermostat or incorrect setting. Contact the technical service.
	Dirt on the dishes.	Select a lower wash speed according to the dirt on the dishes.
	Water too dirty.	Drain the wash tub and fill with clean water.
Dishes and kitchenware are not dry.	There is no rinse aid.	Fill the rinse aid container.
	Insufficient rinse aid.	Call the technical service to reset the dispenser.
	Dishes left inside dishwasher for too long.	Remove the dishes at the end of the wash cycle and leave to dry by evaporation for a minute.
	Rinse temperature lower than 80 °C / 176 °F.	Allow the boiler to reach the rinse temperature before starting the cycle. If the problem persists, call the technical service.
	Dryer module does not operate correctly.	Contact your Technical Assistance Service.
Dishes stained or scratched.	Too much rinse aid.	Call the technical service to reset the dispenser.
	High water hardness.	Check the water hardness, it should be less than 10 °fH.
	Traces of salt in tub.	When filling the salt deposit, take care not to spill salt in the tub and clean thoroughly.
Machine stops during operation.	Check whether the magneto-thermal circuit breaker or the differential switch has tripped.	Reset safety device and if it trips again, call technical service.
Machine stops and fills with water when it is washing.	Overflow incorrectly mounted.	Mount overflow correctly.
	Pressure switch pipe blocked.	Empty the tub and clean thoroughly.
	Pressure switch faulty.	Call the technical service to replace it.
The machine does not start with the wash cycle.	Door is not closed properly.	Close the door properly. If the door opens on its own, contact the technical service to have the tensioners tightened.
	Door closed sensor faulty.	Call the technical service to have it repaired.
	Wast actuator broken.	Contact your Technical Assistance Service.
Machine does not drain completely.	Machine not levelled correctly.	Level the machine In the event of doubt, please contact your technical service.
	Drainage pipe blocked.	Call the cleaning service.



If the fault cannot be found, call the technical support service.
The manufacturer reserves the right to modify the technical characteristics of the machine without prior warning.



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34. MOST IMPORTANT COMPONENTS

34.1. DRYING

In the CC0120, CCO-120 ECO, CCO-160, CCO-160 ECO, CCO-180, CCO-180 ECO, CCO-225 and CCO-225 ECO models, the CDT-600 drying tunnel must be used.

Characteristics of the centrifugal fan:

Referencia: CASALS BC 25/10T4I (sin marco exterior)

r./min. 1400

CARACTERISTICAS:

Potencia absorbida 3/4 C.V.
220V. 2,60A

Intensidad
380V. 1,48A

Caudal 2050m³/h.
Nivel presion sonora 64db
Termico incorporado (150°C)

In the CC0270, CCO-270 ECO, CCO-320 and CCO-320 ECO models, the CDT-800 drying tunnel must be used.

Characteristics of the centrifugal fan:

Referencia: CASALS BC 28/11T4-1.5

CARACTERISTICAS:

r./min. 1400

Potencia absorbida 1,5 C.V.
220V. 4,80A

Intensidad
380V. 2,75A

Caudal 3400m³/h.
Nivel presion sonora 68db
Termico incorporado (150°C)



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34.2. ENERGY RECOVERY SYSTEM

In the CCO120, CCO-120ECO, CCO-160 and CCO-160 ECO models, the CRS-600 energy recovery fan must be used.

Referencia: CASALS EBC 28/11T4-1

CARACTERISTICAS:

r./min. 1410

Potencia absorbida 750w.

220V. 3.66A

Intensidad

380V. 2,12A

Caudal 3500m³/h.

Nivel presion sonora 68db

Termico incorporado (150°C)

In the CCO180, CCO-180ECO, CCO-225, CCO-225 ECO, CCO-270, CCO-270 ECO, CCO-320 and CCO-320 ECO models, the CRS-700 energy recovery fan must be used.

CARACTERISTICAS:

1400 r.p.m

Potencia 0.55KW

Voltage 230/400 V

Intensidad 2.6/1.8 A

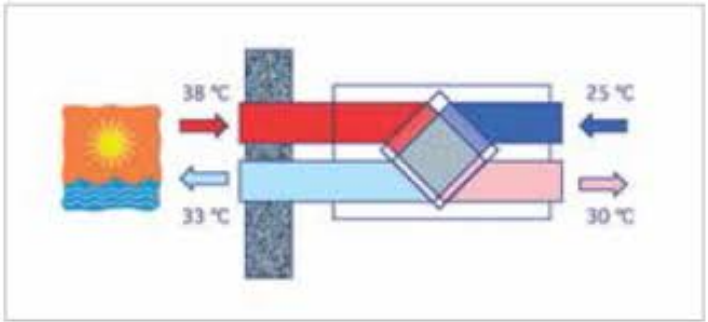
Frecuencia 50/60Hz

Caudal 2050m³/h.

Nivel presion sonora 64db

Termico incorporado (150°C)

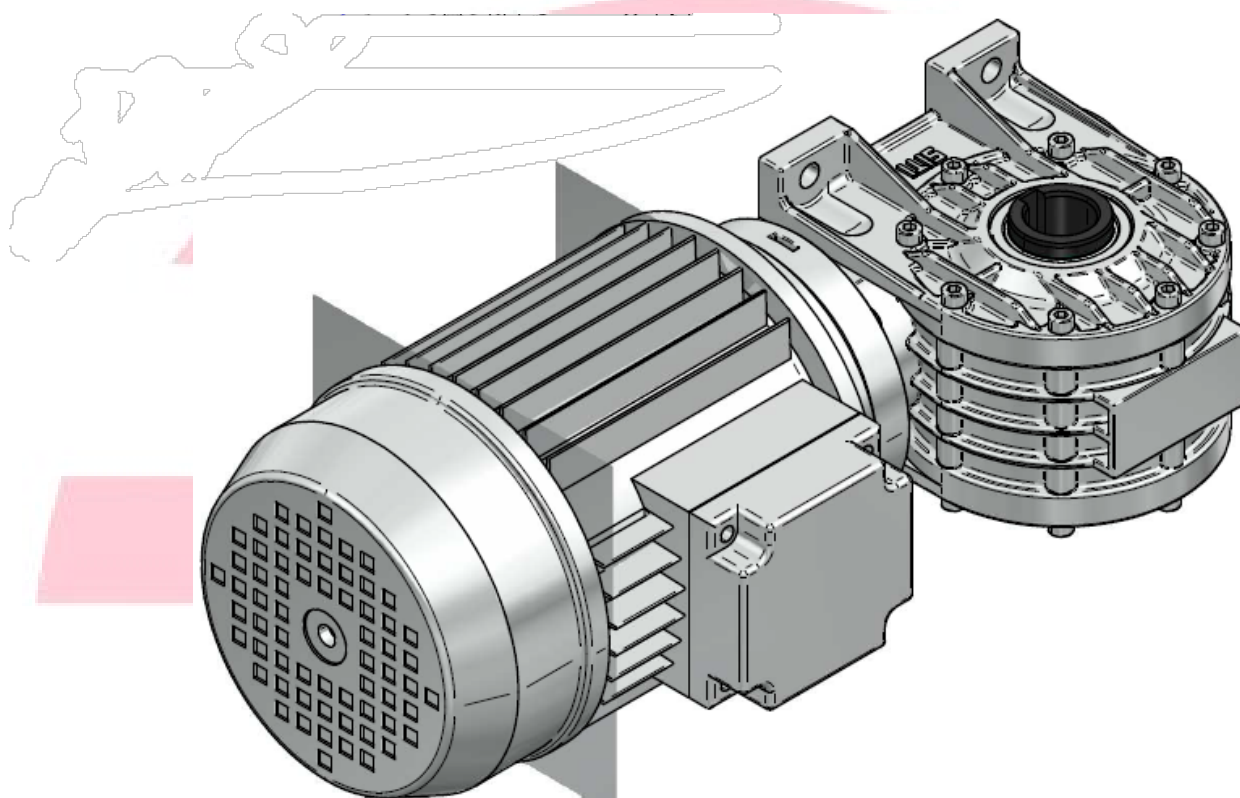
Operation of an energy recovery fan (heat exchanger)



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34.3. CONVEYOR MOTOR

The conveyor motor and its corresponding reducer are valid for all conveyor belt models. Both compact and modular models.



CARACTERISTICAS:

Motor:

Tensión: 380-420 / 440-480V estrella
220-240 / 250-280V triángulo
Frecuencia: 50 / 60Hz
Potencia: 0.35HP / 0.25kW
Velocidad de salida: 1370 / 1644 r.p.m (1 velocidad)
Cosφ: 0.77 / 0.82
Aislamiento clase F
Rigidez dieléctrica $\geq 1500V$
Corriente de fuga $\leq 0.75mA$
Aislamiento eléctrico $\geq 5M\Omega$
Conexión Tierra

Reductor:

Reducción 60/1
Agujero de eje de salida de $\varnothing 24$ mm



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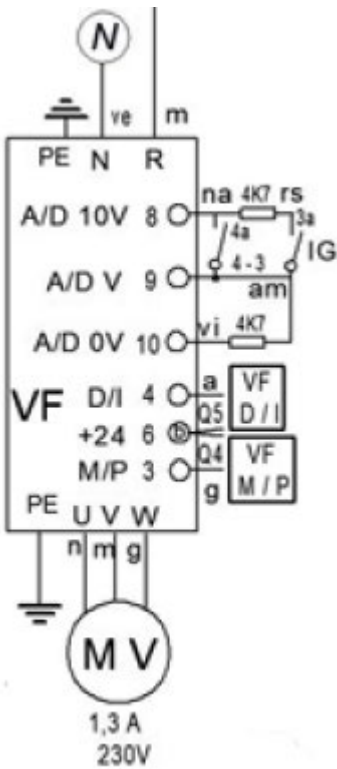


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34.4. FREQUENCY VARIATOR FOR CONVEYOR MOTOR



Programmer
keypad



Signal	Volt.	Contacts
Start	24 V	6 and 4
Stop	0 V	6 and 4
Clockwise direction	24 V	6 and 3
Anticlockwise direction	0 V	6 and 3



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34.4.1. FREQUENCY VARIATOR PARAMETERS

To access the frequency variator parameters, press “P”. To exit this option, press “P” again. If any of the “Basic” level values are modified, level “3” must be programmed again.

Parameter	Definition	Value:					
		CCO-120 + CCO-120 ECO	CCO-160 + CCO-160 ECO	CCO-180 + CCO-180 ECO	CCO-225 + CCO-225 ECO	CCO-270 + CCO-270 ECO	CCO-320 + CCO-320 ECO
P0010	Start programming	1	1	1	1	1	1
P0100	Value in kW 50 Hz	0	0	0	0	0	0
P0304	Vn (V)	230	230	230	230	230	230
P0305	IN (A)	1.4	1.4	1.4	1.4	1.4	1.4
P0307	PN (kW)	0.27	0.27	0.27	0.27	0.27	0.27
P0310	Fn (Hz)	50	50	50	50	50	50
P0311	rpm (Nom)	1395	1395	1395	1395	1395	1395
P0700	Terminal	2	2	2	2	2	2
P1000	ADC setting	2	2	2	2	2	2
P1080	F. Min. (Hz)	20.0	23.8	21.4	29.8	33.3	40.5
P1082	F. Max. (Hz)	28.6	38.1	42.9	53.6	64.3	76.2
P1120	Time ON (s)	5	5	5	5	5	5
P1121	Time OFF (s)	0	0	0	0	0	0
P3900	End programming and recording data	1	1	1	1	1	1
P0003	Expert level	3	3	3	3	3	3
P0005	Output current display	27	27	27	27	27	27
P0611	Overload activation time (seconds)	1216	1216	1216	1216	1216	1216
P0640	Current overload (%)	150	150	150	150	150	150
P1210	Automatic restart	6	6	6	6	6	6
P1300	Lineal mode (V/f)	0	0	0	0	0	0
P1800	Base f. Khz	16	16	16	16	16	16
P2000	Setting reference f. Hz	52	68	72	90	106	129
	Average frequency (Hz)	23.8	31	32.1	41.7	48.8	58.3

The frequency variator is configured at the factory and has different settings depending on the model of the machine.

- **12167527** Frequency variator programmed CCO-120 and CCO-120 ECO
- **12167528** Frequency variator programmed CCO-160 and CCO-160 ECO
- **12167529** Frequency variator programmed CCO-180 and CCO-180 ECO



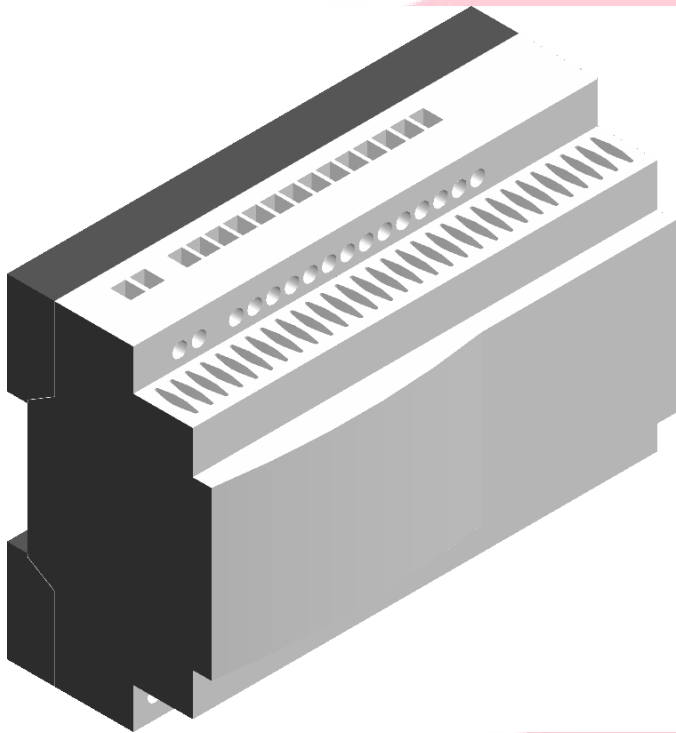
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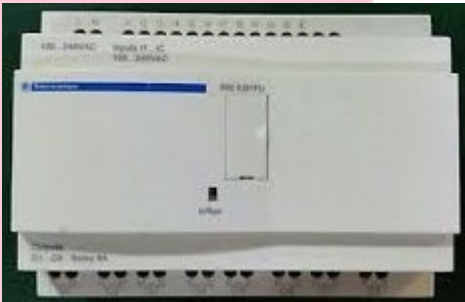
CONVEYOR BELT
DISHWASHERS

- **12167530** Frequency variator programmed CCO-225 and CCO-225 ECO
- **12167531** Frequency variator programmed CCO-320 and CCO-320 ECO
- **12167532** Frequency variator programmed CCO-320 and CCO-320 ECO

34.5. 230 V AC 50/60 HZ 8ª 8 WAY PROGRAMMABLE RELAY



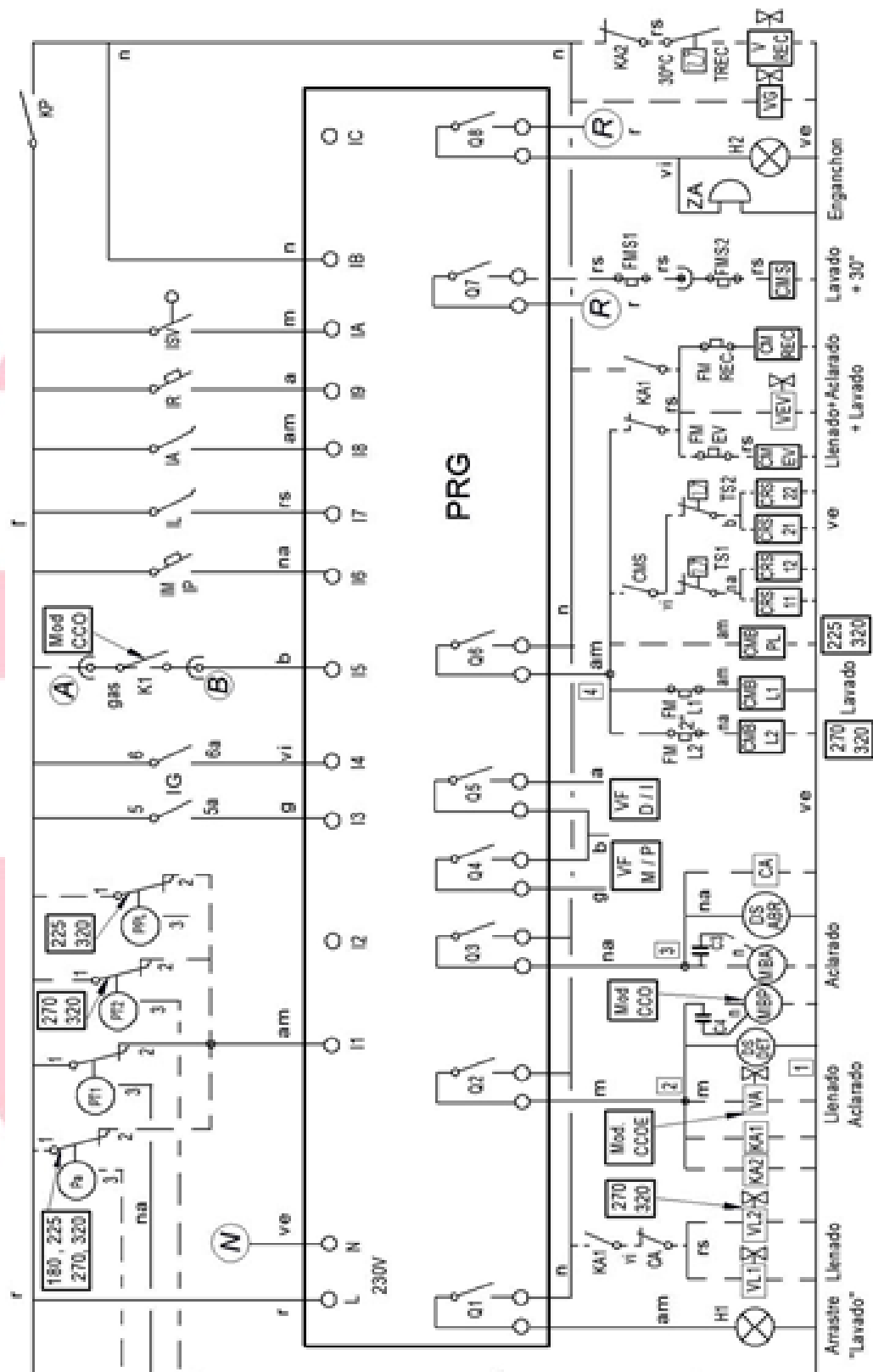
Tensión de entrada: 100...240VAC, 50 / 60 hz
Nº de entradas: 12 entradas digitales
Nº de salidas: 8 salidas digitales
Referencia: SR2 E201FU
Salidas rele 8A
Consumo Potencia 11 VA,
Homologacion UL
Vida electrica rele 500.000 ciclos a 0,9A
Endurancia mecanica 10.000.000 ciclos
Temperatura max trabajo de 55°C
Par de apriete 0.5 N.m
Tensión de aislamiento 1780 V
Número de líneas de esquema de control 120 con Ladder programac



The programmable relay controls the wash and rinse sequences. The configured references are:

- | | |
|--|-----------------|
| ▪ Configured relay CCO-120 and CCO-120 ECO | 12165945 |
| ▪ Configured relay CCO-160 and CCO-160 ECO | 12166640 |
| ▪ Configured relay CCO-180 and CCO-180 ECO | 12165947 |
| ▪ Configured relay CCO-225 and CCO-225 ECO | 12165948 |
| ▪ Configured relay CCO-270 and CCO-270 ECO | 12165949 |
| ▪ Configured relay CCO-320 and CCO-320 ECO | 12165962 |

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DISHWASHERS

34.6. 230 V AC 1 N 50 HZ 590 KW MOTORPUMP

This motor pump is used in the wash tank of the compact conveyor dishwashers (CCO-120, CCO-120 ECO, CCO-160 and CCO-160 ECO) and in the prewash tank of modular conveyor belt dishwashers (CCO-225, CCO-225 ECO, CCO-320 and CCO-320 ECO).



MATERIAL DE LA PISTA DEL RETEN

- MECFLON Y4
- Densidad.....2,05±0,05 gr/cm3
- Temperatura de trabajo.....-20°C-90°C

MATERIAL DEL GRUPO HIDRAULICO

- Cuerpo hidráulicoPP+ 30% GV
- Rodete (Impeler)NORYL (PPE)

CARACTERISTICAS DE LA MOTOBOMBA

- Tensión nominal.....230V. ~ 50 Hz.
- Type.....590W 50 Hz.
- Caudal a 230V.....220 l/min a 7m de altura
- Resistencia al aislamiento. >=50 MOhm a 500V. cc.
- Corriente de fuga max. admisible.....<=0.75mA a 240 c.a.
- Rigidez.....<=5 mA a 1500 c.a.
- Número de polos.....2
- Condensador.....10 µF
- Voltage on the terminals of the condenser in vacuum <= 380 V
- Continuous service
- Average working temperature.....<= 50 °C
- Esta bomba deberá atenerse a todas las especificaciones de la NU 711-6

IB-MEI, S.A. Madrid					
ASINCRONO MONOFASICO SERVICIO ESPECIAL-AISLAMIENTO CL.F					
TIPO - 2/123/FA30					
V ~	Hz	µf	POLOS	2	
230	50	10	W A n VL	590 3 2750 450	
20-93					



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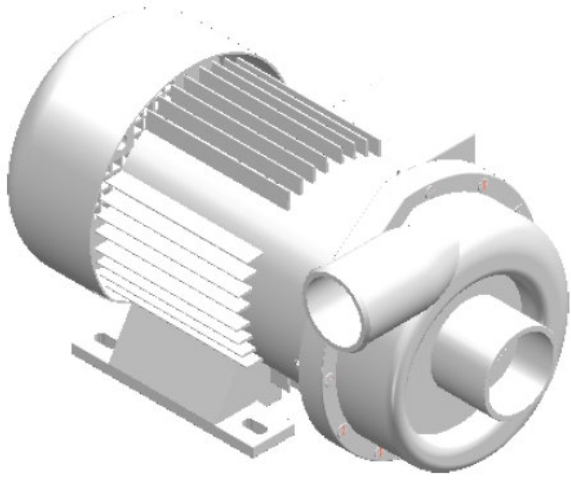
CONVEYOR BELT
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34.7. 230-400 V AC 50 HZ MOTORPUMP

This motor pump is used in the wash tubs of the modular conveyor belt dishwashers (CCO-180, CCO-180 ECO, CCO-225, CCO-225 ECO, CCO-270, CCO-270 ECO, CCO-320 and CCO-320 ECO).

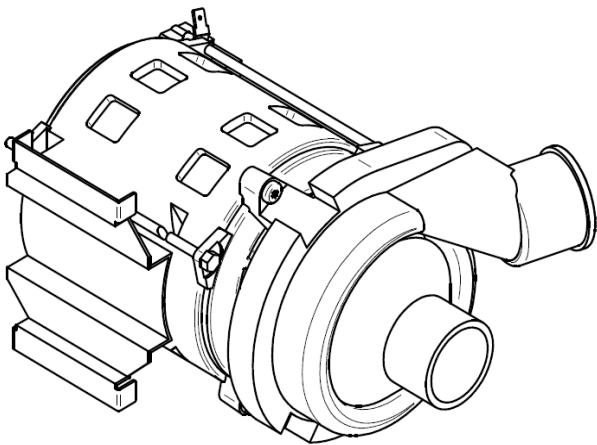
CARACTERISTICAS:

- Refer. FIR.....TYPE 1243
- Potencia.....2.2 Kw
- R.P.M.....2800
- Intensidad.....9/5.2 A.
- Caudal.....585 l/min.



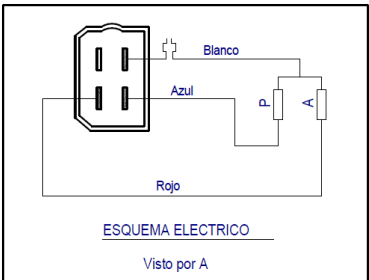
34.8. 230-400 V AC 50 HZ MOTORPUMP

This motor pump is used in the pre-rinse tubs of the modular conveyor belt dishwashers (CCO-180, CCO-180 ECO, CCO-225, CCO-225 ECO, CCO-270, CCO-270 ECO, CCO-320 and CCO-320 ECO). It is also used in the rinse in the ECO models.



CARACTERISTICAS

- Tipo 2/102/FA15
- Potencia 280 W.
- Tensión 230 V.
- Frecuencia 50 Hz / 60 Hz.
- Aislamiento Clase F.
- Protector termico { Texas 2MM } Klixon a 150° C
 { Thermik SO1 }
 { Microterm B11 }
- Par de arranque >= 2.7 Kg.cm a 220 V.
- Condensador 6 µF
- Tensión en los bornes del condensador en vacio <= 400V.
- Revoluciones del motor en vacio a 220 V. >= 2750 r.p.m.
- Caudal a 380 mm.de Hg. y tensión nominal 220 V. 104±5 l/m.
- Caudal a 380 mm.de Hg. y tensión nominal 240 V. 107±5 l/m.
- Material Turbinas : Polyamida (Nylon)



MATERIAL DEL GRUPO HIDRAULICO

- Cuerpo hidráulicoPP+ 30% GV
- Rodete (Impeler)NORYL (PPE)



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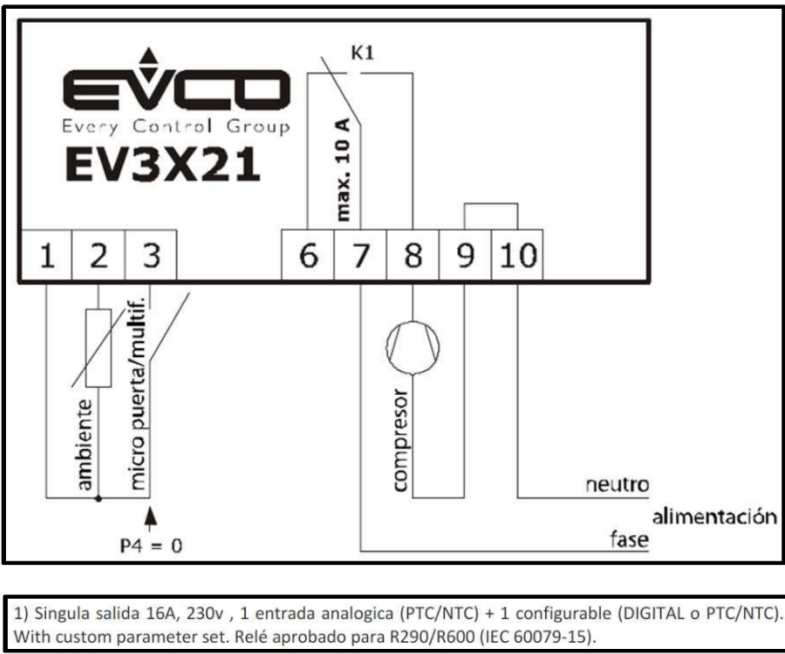


CONVEYOR BELT
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34.9. TEMPERATURE CONTROL 230 V50/60 Hz 1 REL.

This temperature control is used for the heating control of the only (for compact models) or last wash tank (for modular models) and for the boiler (rinse). Both have different programmes.

- 12165943 Temperature control configured for the wash tank
- 12165870 Temperature control configured for the boiler



CARECTERISTICAS TECNICAS:

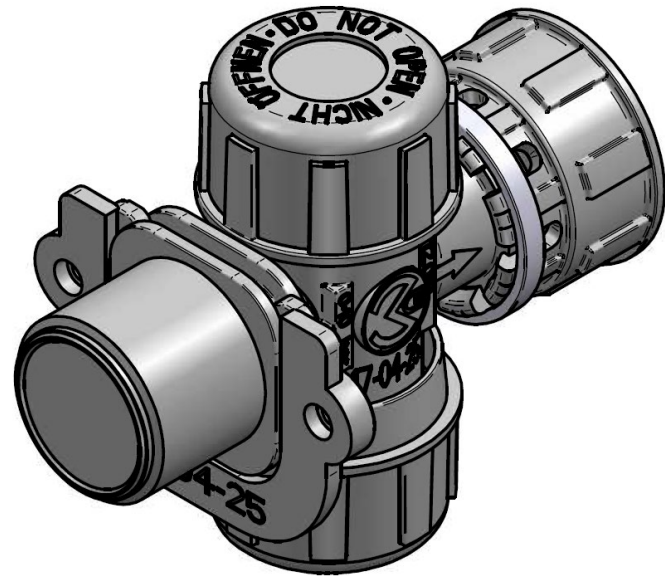
Ref: EV3X21N7
Tensión: 230VAC 50/60 HZ

34.10. E.V. FILTER WITH COMPLETE A.R. (CODE 12163937)

A solenoid valve with filter and non-return is included for the water inlet.

TECHNICAL DATA:

VALVE REF: 91811
Material PA66 (NYLON)
INLET: male 3/4"
OUTLET: female 3/4"
FILTER ID: 9428 (0.25mm / 0.10 mm)
FILTER Material: Stainless steel
MAX TEMP: 90°C max
PRESSURE OP: 10 Bar max
CV-VALUE: 17l/min
FLANGE REF: 001246
FLANGE POSITION: Position II



34.11. FLOW REGULATOR (ONLY ECO MODELS) (COD. 12164266)

The ECO models have a flow regulator for the rinse water which must be checked when the machine is placed in service.

CARACTERISTICAS TECNICAS:

Rango de medición: 2-8 L/min

Temp max: 100°C

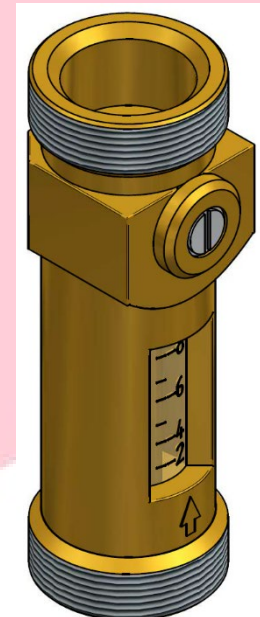
Presión max: 10 bar

Precisión de medición: ±10% del valor final

Rosca conexión según DIN 2999/ISO 7

Conexión: 3/4" M - 3/4" M

REF: 223.1238.000



35. ACCESSORIES

35.1. SPLASH GUARD SUPPLEMENT

This prevents splashes to the exterior at the basket entry zone.

- Includes anti-entrapment at the mouth of the entrance.
- Includes upper coupling for connection of steam intake or extraction pipe $\varnothing$ 200 mm.
- It can be fitted at the start or the end of the tunnel.
- Optional in compact models, fitted as standard in modular models.
- Fagor recommends it is installed.



35.2. DRYING TUNNEL

The CDT-600 drying tunnel is intended for compact models CCO-120, CCO-120 ECO, CCO-160 and CCO-160 ECO and for the modular models CCO-180, CCO-180 ECO, CCO-225 and CCO-225 ECO.

The CDT-800 drying tunnel is intended for modular models CCO-270, CCO-270 ECO, CCO-320 and CCO-320 ECO.

- Supplementary element with 9 kW/13.5 kW resistor box and upper fan for drying the washware with 0.55 kW/1.1 Kw motor.
- Module with feed system included, to be mounted at end of the machine.

CONVEYOR BELT
DISHWASHERS

35.3. ENERGY RECOVERY SYSTEM

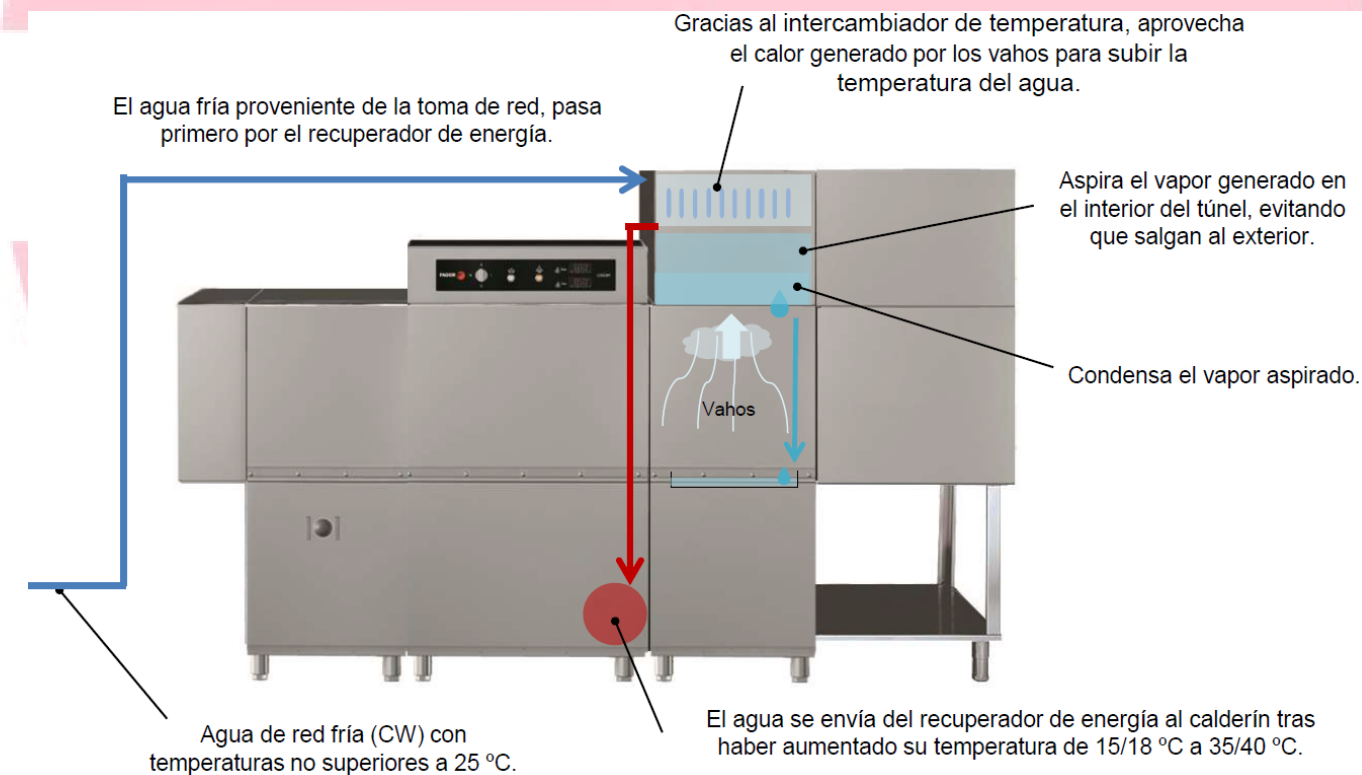
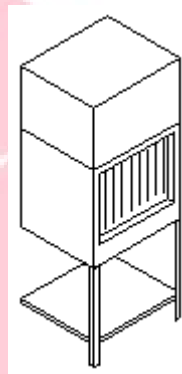
- The energy recovery fan absorbs the steam generated inside the tunnel and sends the condensed water to the machine tub, increasing the water temperature.
- It permits savings of up to 3 kW-h.
- Recommended for dishwashers with cold water inlet (CW) and temperatures of less than 25 °C. It should not be installed in machines with hot water inlet, or in ECO models with heating of the rinse water in the GWB-40 generator.

CRS-600 in COMPACT models:

- Module with feed system included.
- Mounted at the entrance.

CRS-700 in MODULAR models:

- Mounted on the high part of the dishwasher.
- Does not increase length.
- Should be used with drying tunnel.
- The CRS-700 energy recovery fan is placed over the rinse module.

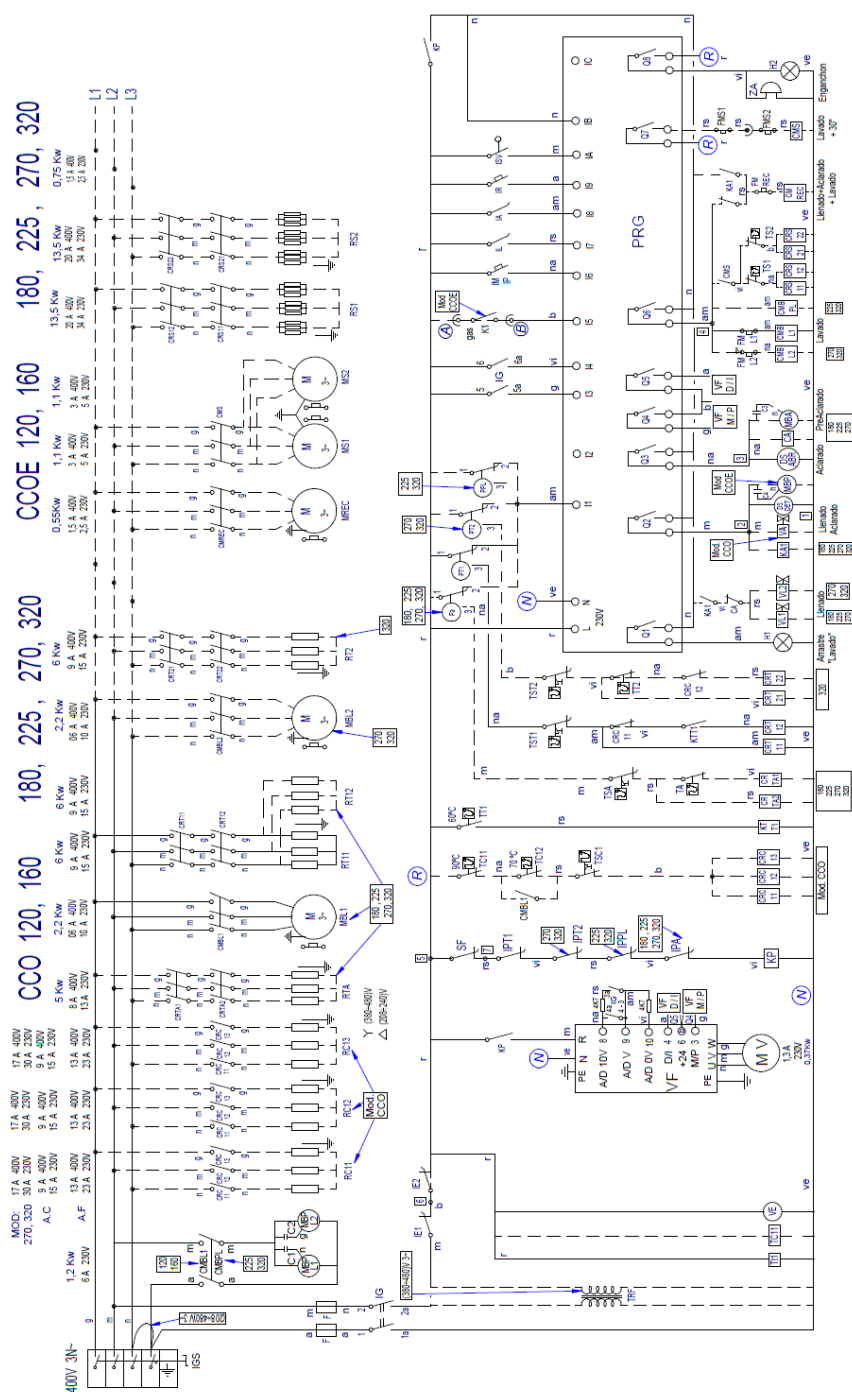


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36. ELECTRICAL DIAGRAM



12166429

ESPAÑOL	FRANCAIS	ENGLISH
color	couleur	color
a = azul	bleu	Blue
amarillo	jaune	Yellow
anaranjado	jaune / vert	Yellow / green
blanco	Blanc	White
gris	Gris	Gray
verde	Vert	Green
negro	Noir	Black
rojo	Rouge	Red
rosa	Rose	Pink
verde	Vert	Green
marino	Marin	Blue

	1	2	3	4	5	6
IG	1a	2a	3a	4a	5a	6a
0						
V_1	X	X				
V_2	X	X	X		X	
V_3	X	X		X		X

$$\begin{array}{c} V_1 \\ | \\ 0 \\ | \\ V_3 \end{array} \quad \begin{array}{c} \\ | \\ V_2 \end{array}$$

CONVEYOR BELT
DISHWASHERS

Simb / LENG	ESPAÑOL	ENGLISH	FRANÇAIS
A,B (CCO)	= Puntos de conexión con K1	Connection points with K1	Points de connexion K1
C1,C2,C3,C4	= Condensador eléctrico	Electric condenser	Condensateur électrique
CA	= Relé Auxiliar de Aclarado	Rinse Auxiliary Relay	Relais auxiliaire rinçage
CMBL1,2	= Contactor Bomba lavado 1,2	Wash 1,2 Pump Contactor	Contacteur pompe lavage 1,2
CMBPL	= Contactor Bomba PreLavado	Prewash Pump Contactor	Contacteur Pompe prélavage
CMEV	= Contactor Motor Extractor de Vahos	Steam Exhaust Motor Contactor	Contacteur Moteur Extraction vapeur
CMS	= Contactor Motor Secado	Drying Motor Contactor	Contacteur moteur Séchage
CMREC	= Contactor Motor Recuperador	Contactor Motor Recover	Contacteur moteur Recuperateur
CRC11,12,13	= Contactor Calentamiento Calderín	Boiler Heating Contactor	Contacteur Chauffage Chaudière
CRS11,12,21,22	= Contactor Calentamiento Secado 1,2	Drying 1, 2 Heating Contactor	Contacteur chauffage séchage 1,2
CRTA1,2	= Contactor Calentamiento Aclarado	Rinse heating Contactor	Contacteur chauffage Rinçage
CRT11,12	= Contactor Calentamiento Tanque 1	Tank 1 Heating Contactor	Contacteur Chauffage Cuve 1
CRT21,22	= Contactor Calentamiento Tanque 2	Tank 2 Heating Contactor	Contacteur Chauffage Cuve 2
DS.ABR	= Dosificador Abrillantador	Rinse doser	Doseur tensoactive
DS.DET	= Dosificador Detergente	Detergent doser	Doseur détergent
F	= Fusible	Fuse	Fusible
FMEV	= Termico Motor Extractor	Steam Exhaust Motor Thermal Overload	Thermique Moteur Extraction vapeur
FML1,2	= Termico Motor Bomba Lavado1,2	Wash 1,2 Pump Motor Thermal Overload	Thermique Moteur pompe lavage 1.2
FMS1,2	= Termico Motor Secado 1,2	Drying Motor Thermal Overload	Thermique du Moteur Séchage
FMREC	= Termico Motor Recuperador	Recover Motor Thermal Overload	Thermique du Moteur Recuperateur
H1	= Lampara Indicador Marcha	Operation light	Voyant de fonctionnement
H2	= Lampara Indicador Aclarado	Stuck Indicator Lamp	Voyant Bloqués
IA	= Interruptor Accionamiento Aclarado	Rinsing actuator Switch	Interrupteur d'actionneur de rinçage
IE1,2	= Pulsador Parada de emergencia 1,2	Emergency 1,2 stop push button	Bouton-poussoir Arrêt d'urgence 1,2
IG	= Interruptor general.	Power On	Interrupteur général
IGS	= Interruptor General de seguridad.	Disconnect Switch	Interrupteur Général de sécurité
IL	= Interruptor Accionamiento Lavado	Wash actuator Switch	Interrupteur d'actionneur de lavage
IM / IP	= Pulsador Marcha / Parada	Start / Stop push button	Bouton de démarrage / arrêt
IPA	= Interruptor Puerta Lavado	Washer Door Switch	Interrupteur de porte de lavage
IPPL	= Interruptor Puerta PreLavado	Prewash Door Switch	Interrupteur de porte pré-lavage
IPT1,2	= Interruptor Puerta Tanque 1,2	Tank 1,2 Door Switch	Interrupteur de porte cuve 1,2
IR	= Interruptor Retroceso Desenganche	Reverse stuck Switch	Interrupteur marche arrière à la blocage
ISV	= Interruptor Seguridad Enganchon	Overload stuck Switch	Interrupteur marche à la blocage
PRG	= Control Electronico	Electronic Control	Contrôle électronique
KA1, 2	= Relé Auxiliar Llenado y Aclarado 1, 2	Fill and Rinse 1, 2 Auxiliary Relay	Relais auxiliaire remplissage et rinçage 1, 2
KP	= Relé de Puerta	Door Relay	Relais de porte
KT1	= Relé Auxiliar Termostato Tanque1	Auxiliary Relay Tank Thermostat1	Thermostat Relais auxiliaire cuve 1
K1	= Relé Auxiliar Generador Agua Caliente	Auxiliary Relay Hot Water Generator	Générateur auxiliaire Relais eau chaude
MBA	= Moto Bomba Aclarado	Pump Rinsing	Pompe Rinçage
MBL1,2	= Moto Bomba Lavado1,2	Washed Pump 1,2	Pompe de lavage 1,2
MBP	= Moto Bomba Llenado	Filling Pump	Pompe de remplissage
MBPL	= Moto Bomba PreLavado	Prewash Pump	Pompe à pré-lavage
MEV	= Motor Extractor de Vahos	Steam extractor motor	Moteur extracteur vapeur
MREC	= Motor Recuperador	Motor Recovery	Moteur Récupérateur
MS1,2	= Motor Secado 1,2	Drying motor 1,2	Moteur de séchage 1,2
MV	= Motor Arrastre	Advance Motor	Moteur d'entraînement
PA	= Presostato Aclarado	Rinsed tank Pressure Switch	Pressostat de rinçage
PPL	= Presostato Prelavado	Prewash tank Pressure Switch	Pressostat de pré-lavage cuve
PT1	= Presostato Tanque 1	Washed tank 1 Pressure Switch	Pressostat de lavage cuve 1
PT2	= Presostato Tanque 2	Washed tank 2 Pressure Switch	Pressostat de lavage cuve 2
R.N	= Puntos conexión 230V	230V connection points	Points de connexion 230V
RC11,12,13	= Resistencia Calentamiento Calderín	Boiler Element Heating	Resistance Chauffage Chaudière
RS1, 2	= Resistencia Calentamiento Secado 1, 2	Drying Element Heating	Resistance Chauffage séchage
RTA	= Resistencia Calentamiento Aclarado	Rinse tank Element Heating	Resistance Chauffage rinçage
RT11,12	= Resistencia Calentamiento Tanque 1	Washed Tank 1 Element Heating	Resistance Chauffage lavage cuve 1
RT2	= Resistencia Calentamiento Tanque 2	Washed Tank 2 Element Heating	Resistance Chauffage lavage cuve 2
SF	= Interruptor Fin recorrido	Safety end Switch	Interrupteur fin de course
TA	= Termostato Aclarado	Rinse Thermostat	Thermostat de rinçage
TC11	= Termostato Calderín Temperatura Max.	Boiler thermostat Max. temperature	Thermostat Température max. chaudière
TC12	= Termostato Calderín Temperatura min.	Boiler thermostat min. temperature	Thermostat Température min. chaudière
TREC	= Termostato Recuperador	Recovery Thermostat	Thermostat récupérateur
TRF	= Transformador	Transformer	Transformateur
TSA	= Termostato Seguridad Aclarado	Rinse Hi-limit Thermostat	Thermostat Limiteur rinçage
TS1,2	= Termostato Secado 1, 2	Drying 1,2 Thermostat	Thermostat séchage 1, 2
TSC1	= Termostato Seguridad Calderín 1	Boiler 1 Hi-limit Thermostat	Thermostat Limiteur Chaudière
TS11,2	= Termostato Seguridad Tanque 1,2	Washed 1,2 Hi-limit Thermostat	Thermostat Limiteur lavage 1, 2
TT1,2	= Termostato Tanque 1, 2	Washed 1,2 Thermostat	Thermostat lavage 1, 2
VA	= Electrovalvula Llenado y Aclarado	Filling and Rinse Solenoid Valve	Electrovanne Remplissage et rinçage
VEV	= Electrovalvula Extractor de Vahos	Steam extractor Solenoid Valve	Electrovanne extracteur vapeur
VF	= Variador de Frecuencia	Variable frequency drive	Variateur de fréquence
VL1,2	= Electrovalvula Llenado Tanque 1, 2	Filling Tank 1, 2 Solenoid Valve	Electrovanne de remplissage 1, 2
VG	= Electrovalvula General Recuperador	Recovery Solenoid Valve main	Electrovanne général Recuperateur
VREC	= Electrovalvula Recuperador	Recovery Solenoid Valve	Electrovanne Recuperateur
ZA	= Alarma Enganchon	Buzzer alarm stuck	Alarme buzzer blocage
COLOR	= COLORES	COLOUR	COULEURS
BLK, bk, n	= Negro	Black	Noir
BLU, bl, a	= Azul	Blue	Bleu
BRN, bn, m	= Marrón	Brown	Marron
GRN, gn, ve	= Verde	Green	Vert
GRY, gy, g	= Gris	Grey	Gris
ORG, or, na	= Naranja	Orange	Orange
PNK, pk, rs	= Rosa	Pink	Rose
PRP, pr, vi	= Violeta	Purple	Violet
RED, rd, r	= Rojo	Red	Rouge
WHT, wh, b	= Blanco	White	Blanc
YEL, yw, am	= Amarillo	Yellow	Jaune
YELGRN, am/ve	= Amarillo/verde	Yellow / green	Jaune / vert

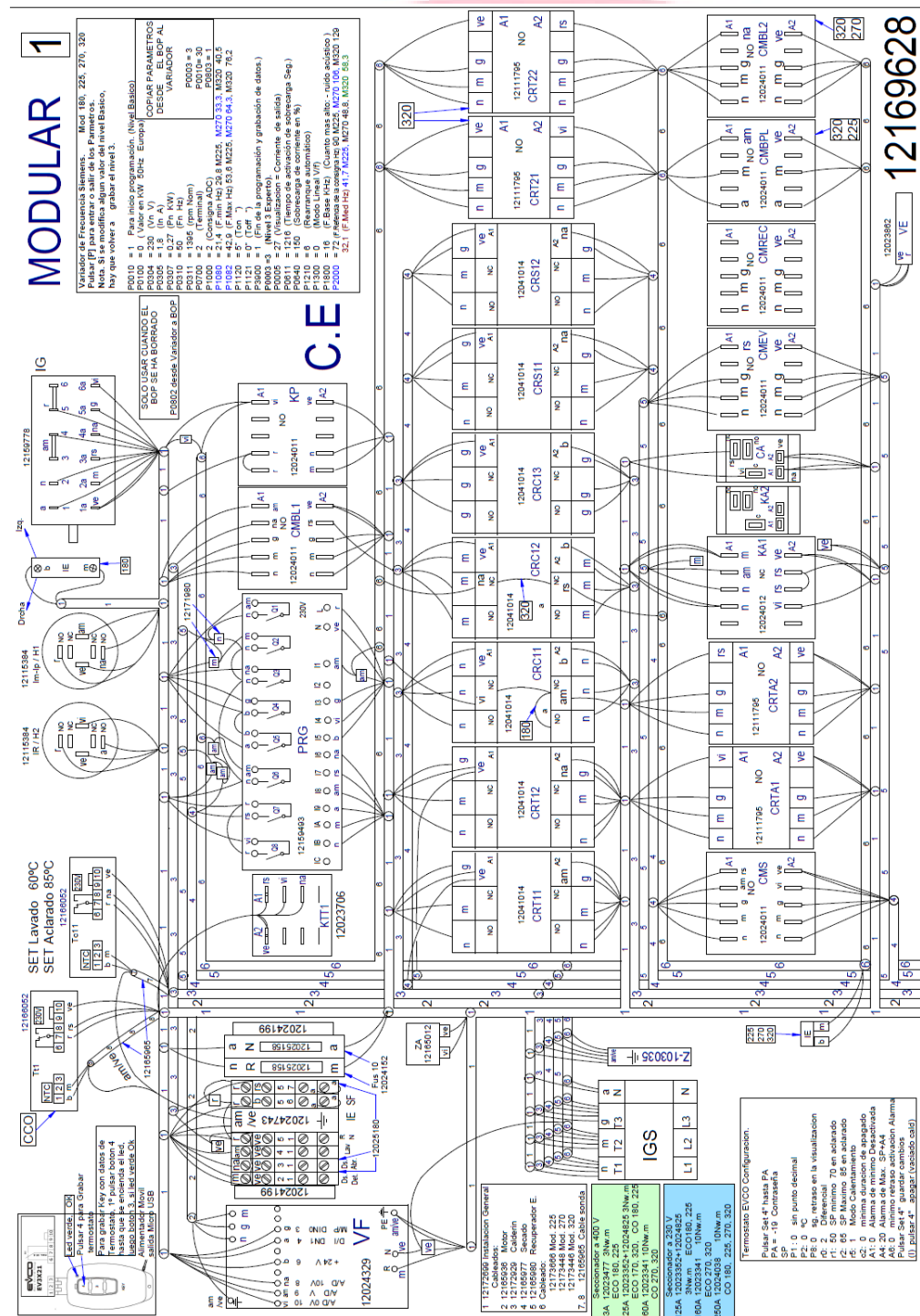
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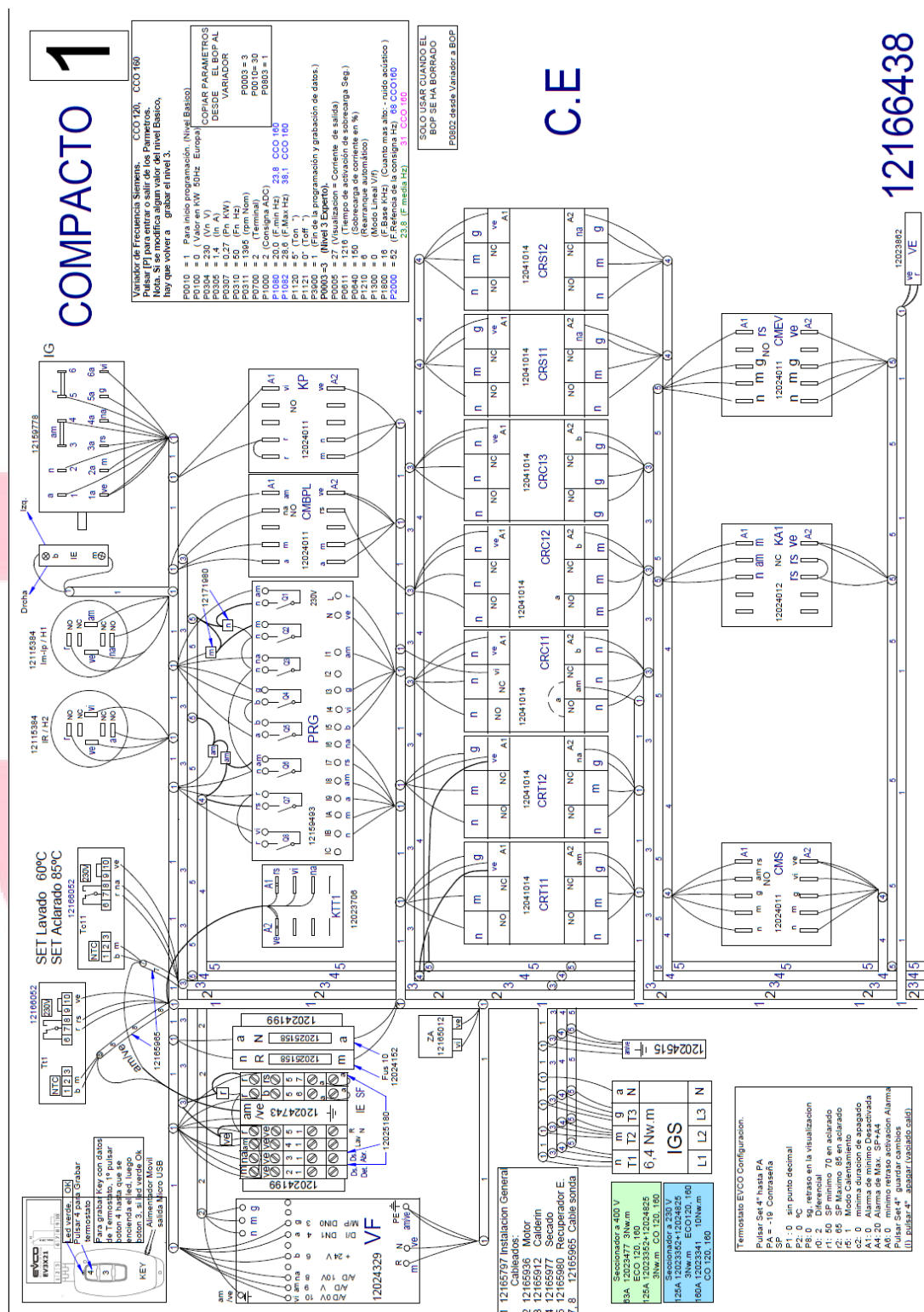
37. ASSEMBLY ELECTRIC DIAGRAM

37.1. MODULAR CCO-120, CCO-120 ECO, CCO-160 & CCO-160 ECO



CONVEYOR BELT DISHWASHERS

37.2. COMPACT CCO-180, CCO-180 ECO, CCO-225, CCO-225 ECO, CCO-270, CCO-270 ECO, CCO-320 & CCO-320 ECO



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Service Manual



ONNERA GROUP