



Under Counter Machines



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Introduction

CAREFULLY READ THESE INSTRUCTIONS, BEFORE INSTALLING AND OPERATING OR REPAIRING THIS APPLIANCE.

INCORRECT INSTALLATION, ADAPTATIONS OR ALTERATIONS COULD RESULT IN INJURY OR DAMAGE TO PROPERTY.

MALICIOUS DAMAGE, DAMAGE DUE TO NEGLIGENCE, OR FAILURE TO COMPLY WITH THESE INSTRUCTIONS AND LOCAL LEGISLATION, OR UNAUTHORISED TAMPERING WILL INVALIDATE ANY WARRANTY AND RELIEVE THE MANUFACTURER OF ALL LIABILITY

DAMAGE CAUSED DUE TO THE LACK OF, OR INCORRECT USE OF A WATER SOFTNER, OR LIMESCALE DAMAGE WILL NOT BE COVERED BY THE MANUFACTURERS WARRANTY

Introduction

Prior to reading this manual, it is essential that you are familiar with the contents and subject matter covered within the **'Installation & Operators Manual'**.

Installation:

Installation should only be carried out by a **'Classeq'** approved / trained technician, and in accordance with current regulations and within our instructions.

Repairs and spare parts:

The appliance must only be repaired by a **'Classeq'** approved / trained technician, using genuine **'Classeq'** spare parts, failure to do so could invalidate any warranty and relieve the manufacture of all liability.

Modification:

'Classeq' reserves the right to modify either the appliance or the contents of these instructions without notice

Recommended Tool Kit

Recommended hand tools	
	5.5mm - Spanner / nut runner / socket
	7.0mm - Spanner / nut runner / socket
	8.0mm - Spanner / nut runner / socket
	10.0mm - Spanner / nut runner / socket
	10mm to 18mm - Adjustable spanner
	Pliers
	2.5mm - Alan key
	4.0mm - Alan key
	No. 2 - Pozi screw driver
	Electric screw driver (small)
	Flat bladed screw driver (large)
	Wire cutters
	Wire crimpers
	Multi meter Capable of measuring Volts (10v ~ 240v AC) Amps (0 ~ 20 Amps) Ohms (0 ~ 30MΩ)

Machine Specifications

Specification		Eco 1	Eco 2	Eco 3
Width		410mm	450mm	550mm
Depth		510mm	535mm	625mm
Depth - door open		870mm	870mm	990mm
Height		640mm	740mm	825mm
Rack size (square)		350mm	400mm	500mm
Maximum pints per rack		12	16	25
Door opening height		330mm	330mm	360mm
Maximum clear entry height		315mm	315mm	345mm
Operating level		<70 db	<70 db	<70 db
Net weight		27 kg	35 kg	60 kg
Full weight		45 kg	61 kg	105 kg
Detergent pump		✓	✓	✓
Rinse aid pump		✓	✓	✓
Double skin door		✓	✓	✓
Cycle time		2 minute	2 minute	2 minute
Water connection		3/4" BSP	3/4" BSP	3/4" BSP
Water inlet height from floor		40mm	40mm	40mm
Drain type	Gravity	✓	✓	Optional
	Pumped	Optional	Optional	✓
Drain size		Ø 35mm	Ø 35mm	Ø 35mm
Operating voltage	220~240V (1ph)	✓	✓	✓
	380~415V (3ph)	✗	✗	Optional
Total Amps required	13A	✓	✓	Optional
	20A	✗	✗	Optional
	30A	✗	✗	✓
	13A per phase (3ph)	✗	✗	Optional
Total load		2.92 kW	2.92 kW	6.84 kW
Wash tank element		2.0 kW	2.0 kW	2.0 kW
Rinse tank element		2 x 1.3 kW	2 x 1.3 kW	3 x 2.0 kW
Wash pump size		0.22 kW	0.22 kW	0.74 kW
Wash pump capacity		220 litres / min	220 litres / min	380 litres / min
Wash tank capacity		10 litres	12 litres	18 litres
Wash water operating temperature		55°C	55°C	55°C
Rinse boiler capacity		6.5 litres	6.5 litres	7.5 litres
Rinse water operating temperature		70°C	70°C	70°C
Rinse water consumption		2.75 to 3.5 litres	2.75 to 3.5 litres	2.75 to 3.5 litres

Specification		Duo 2	Duo 3
Width		470mm	570mm
Depth		535mm	625mm
Depth - door open		870mm	990mm
Height		750mm	835mm
Rack size (square)		400mm	500mm
Maximum pints per rack		16	25
Door opening height		330mm	360mm
Maximum clear entry height		315mm	345mm
Operating level		<70 db	<70 db
Net weight		38 kg	65 kg
Full weight		64 kg	110 kg
Rinse pump + WRC approved air break		✓	✓
Detergent pump		✓	✓
Rinse aid pump		✓	✓
Double skin door		✓	✓
Cycle time		2 minute	2 minute
Water connection		3/4" BSP	3/4" BSP
Water inlet height from floor		40mm	40mm
Drain type	Gravity	Optional	Optional
	Pumped	✓	✓
Drain size		Ø 35mm	Ø 35mm
Operating voltage	220~240V (1ph)	✓	✓
	380~415V (3ph)	✗	Optional
Total Amps required	13A	✓	Optional
	20A	✗	Optional
	30A	✗	✓
	13A per phase (3ph)	✗	Optional
Total load		2.92 kW	6.84 kW
Wash tank element		2.0 kW	2.0 kW
Rinse tank element		2 x 1.3 kW	3 x 2.0 kW
Wash pump size		0.22 kW	0.74 kW
Wash pump capacity		220 litres / min	380 litres / min
Wash tank capacity		12 litres	18 litres
Wash water operating temperature		55°C	55°C
Rinse boiler capacity		6.5 litres	7.5 litres
Rinse water operating temperature		70°C	70°C
Rinse water consumption		2.75 to 3.5 litres	2.75 to 3.5 litres

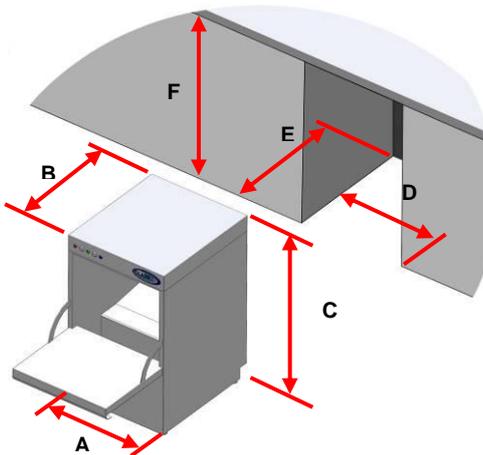
Specification		Hydro 400	Hydro 700	Hydro 750
Width		450mm	550mm	550mm
Depth		535mm	625mm	625mm
Depth - door open		870mm	990mm	990mm
Height		740mm	835mm	835mm
Rack size (square)		400mm	500mm	500mm
Maximum plates per rack		9	18	18
Door opening height		330mm	360mm	360mm
Maximum clear entry height		315mm	345mm	345mm
Operating level		<70 db	<70 db	<70 db
Net weight		35 kg	65 kg	65 kg
Full weight		61 kg	110 kg	110 kg
Detergent pump		✓	✓	✓
Rinse aid pump		✓	✓	✓
Double skin door		✓	✓	✓
Cycle time		2 minute	3 minute	3 minute
Water connection		3/4" BSP	3/4" BSP	3/4" BSP
Water inlet height from floor		40mm	40mm	40mm
Drain type	Gravity	✓	✓	Optional
	Pumped	Optional	Optional	✓
Drain size		Ø 35mm	Ø 35mm	Ø 35mm
Operating voltage	220~240V (1ph)	✓	✓	✓
	380~415V (3ph)	✗	✗	Optional
Total Amps required	13A	✓	✓	Optional
	20A	✗	✗	Optional
	30A	✗	✗	✓
	13A per phase (3ph)	✗	✗	Optional
Total load		2.92 kW	2.92 kW	6.84 kW
Wash tank element		2.0 kW	2.0 kW	2.0 kW
Rinse tank element		2 x 1.3 kW	1 x 2.0 kW	3 x 2.0 kW
Wash pump size		0.22 kW	0.74 kW	0.74 kW
Wash pump capacity		220 litres / min	380 litres / min	380 litres / min
Wash tank capacity		12 litres	18 litres	18 litres
Wash water operating temperature		55°C	55°C	55°C
Rinse boiler capacity		6.5 litres	7.5 litres	7.5 litres
Rinse water operating temperature		82°C	82°C	82°C
Rinse water consumption		2.75 to 3.5 litres	2.75 to 3.5 litres	2.75 to 3.5 litres

Specification		Duo 400	Duo 750
Width		470mm	550mm
Depth		550mm	630mm
Depth - door open		870mm	990mm
Height		760mm	825mm
Rack size (square)		400mm	500mm
Maximum plates per rack		9	18
Door opening height		330mm	360mm
Maximum clear entry height		315mm	345mm
Operating level		<70 db	<70 db
Net weight		38 kg	65 kg
Gross weight		43 kg	70 kg
Rinse pump + WRC approved air break		✓	✓
Detergent pump		✓	✓
Rinse aid pump		✓	✓
Double skin door		✓	✓
Cycle time		3 minute	3 minute
Water connection		3/4" BSP	3/4" BSP
Water inlet height from floor		40mm	40mm
Drain type	Gravity	Optional	Optional
	Pumped	✓	✓
Drain size		Ø 35mm	Ø 35mm
Operating voltage	220~240V (1ph)	✓	✓
	380~415V (3ph)	✗	Optional
Total Amps required	13A	✓	Optional
	20A	✗	Optional
	30A	✗	✓
	13A per phase (3ph)	✗	Optional
Total load		2.92 kW	6.84 kW
Wash tank element		2.0 kW	2.0 kW
Rinse tank element		2 x 1.3 kW	3 x 2.0 kW
Wash pump size		0.22 kW	0.74 kW
Wash pump capacity		220 litres / min	380 litres / min
Wash tank capacity		12 litres	18 litres
Wash water operating temperature		55°C	55°C
Rinse boiler capacity		6.5 litres	7.5 litres
Rinse water operating temperature		82°C	82°C
Rinse water consumption		2.75 to 3.5 litres	2.75 to 3.5 litres

Site Requirements

Front Loading Eco Glass washers:

Dimensions:



Dimensions (mm)		Eco 1	Eco 2	Eco 3
Machine	'A' = Width	410	450	550
	'B' = Depth	510	535	625
	'C' = Height (Min)	640	740	825
Recess	'D' = Width	430	470	570
	'E' = Depth	550	575	665
	'F' = Height	670	770	855

Weights (kg)	Eco 1	Eco 2	Eco 3
Empty	27	35	60
Full	45	61	105



Electric Supply:

Electrical connection:

Electrical connections MUST be carried out in accordance with local regulations. As a minimum **Classeq** recommends the following standards are maintained:

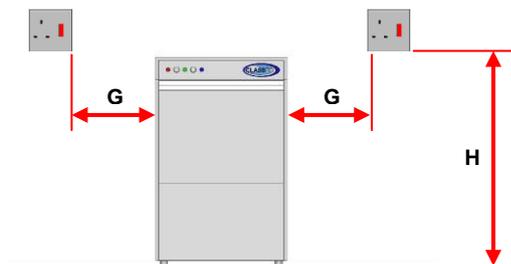
All appliances are connected via a residual current device (R.C.D.) or earth leakage protection device.

Supply isolator switch has all pole separation of more than 3mm.

Connect to a equi-potential conductor, connection stud located at rear of appliance, this is in addition to the earthed electrical supply.

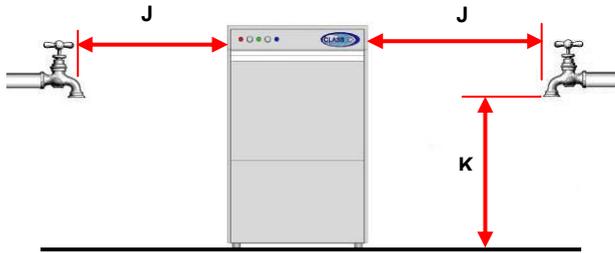
Prior to connecting the appliance, ensure voltage and supply fuse comply with rating plate.

Electrics		Eco 1	Eco 2	Eco 3
Volts	220~240V (1 Phase)	✓	✓	✓
	380~415V (3 Phase)	✗	✗	Optional
Amps	13 Amps	✓	✓	Optional
	20 Amps	✗	✗	Optional
	32 Amps	✗	✗	✓
	13 Amps per phase	✗	✗	Optional
Max total load		2.92kW	2.92kW	6.84kW



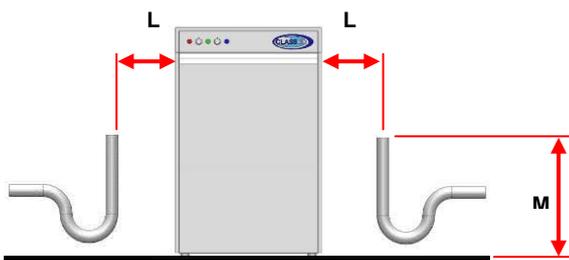
Supply socket (mm)		Eco 1	Eco 2	Eco 3
Max. position of electrical supply socket	'G' = Width	950	950	700
	'H' = Height	1450	1500	1550

Water Inlet:



		Eco 1	Eco 2	Eco 3
Temperature range		5 - 55°C		
Pressure	0-2 bar	Booster pump req'd		
	2-4 bar	No modification		
	4-6 bar	Flow restrictor req'd		
	6 bar +	Pressure reducing valve req'd		
Flow rate		11 litres / min		
Water connection		3/4" BSP		
Max. position of water supply (mm)	'J' = Width	700	650	600
	'K' = Height	700	700	650

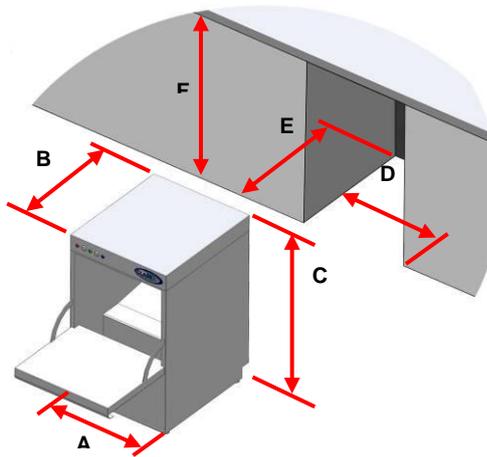
Waste outlet:



Drainage dimensions (mm)	Eco 1	Eco 2	Eco 3
Drain stand pipe diameter	35		
'L' = Max. distance from machine	750	750	400
'M' = Drain pipe height (Gravity drain)	0 - 40		
'M' = Drain pipe height (Drain pump)	0 - 390		0 - 600

Front Loading Hydro Dishwashers:

Dimensions:



Dimensions (mm)		Hydro 400	Hydro 700	Hydro 750
Machine	'A' = Width	450	550	550
	'B' = Depth	535	625	625
	'C' = Height (Min)	740	825	825
Recess	'D' = Width	470	570	570
	'E' = Depth	575	665	665
	'F' = Height	770	855	855

Weights (kg)	Hydro 400	Hydro 700	Hydro 750
Empty	35	60	60
Full	61	105	105

Electric Supply:



Electrical connection:

Electrical connections MUST be carried out in accordance with local regulations. As a minimum **Classeq** recommends the following standards are maintained:

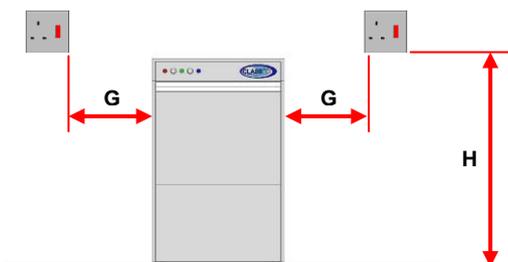
All appliances are connected via a residual current device (R.C.D.) or earth leakage protection device.

Supply isolator switch has all pole separation of more than 3mm.

Connect to a equi-potential conductor, connection stud located at rear of appliance, this is in addition to the earthed electrical supply.

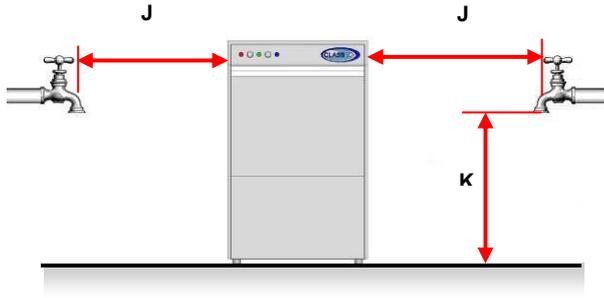
Prior to connecting the appliance, ensure voltage and supply fuse comply with rating plate.

Electrics		Hydro 400	Hydro 700	Hydro 750
Volts	220~240V (1 Phase)	✓	✓	✓
	380~415V (3 Phase)	✗	✗	Optional
Amps	13 Amps	✓	✓	Optional
	20 Amps	✗	✗	Optional
	32 Amps	✗	✗	✓
	13 Amps per phase	✗	✗	Optional
Max total load		2.92kW	3.44kW	6.84kW



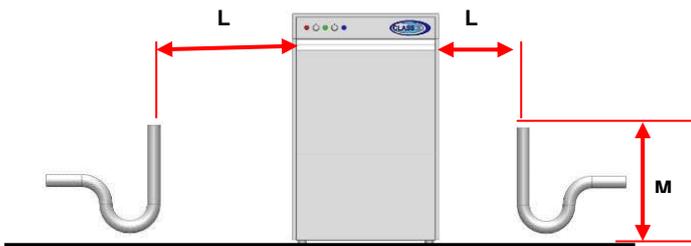
Supply socket (mm)		Hydro 400	Hydro 700	Hydro 750
Max. position of electrical supply socket	'G' = Width	950	700	700
	'H' = Height	1500	1550	1550

Water Inlet:



		Hydro 400	Hydro 700	Hydro 750
Temperature range		5 - 55°C		
Pressure	0-2 bar	Booster pump req'd		
	2-4 bar	No modification		
	4-6 bar	Flow restrictor req'd		
	6 bar +	Pressure reducing valve req'd		
Flow rate		8 litres / min		
Water connection		3/4" BSP		
Max. position of water supply (mm)	'J' = Width	650	600	600
	'K' = Height	700	650	650

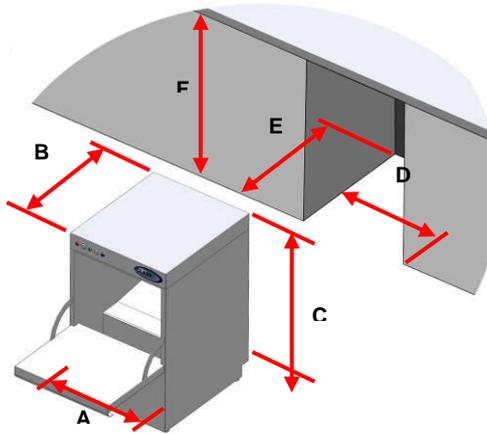
Waste outlet:



Drainage dimensions (mm)	Hydro 400	Hydro 700	Hydro 750
Drain stand pipe diameter	35		
'L' = Max. distance from machine	750	400	400
'M' = Drain pipe height (Gravity drain)	0 - 40		
'M' = Drain pipe height (Drain pump)	0 - 390	0 - 600	

Front Loading Duo Glass washers:

Dimensions:



Dimensions (mm)		Duo 2	Duo 3
Machine	'A' = Width	470	570
	'B' = Depth	535	625
	'C' = Height (Min)	750	835
Recess	'D' = Width	490	590
	'E' = Depth	575	665
	'F' = Height	780	865

Weights (kg)	Duo 2	Duo 3
Empty	38	65
Full	64	110

Electric Supply:



Electrical connection:

Electrical connections MUST be carried out in accordance with local regulations. As a minimum **Classeq** recommends the following standards are maintained:

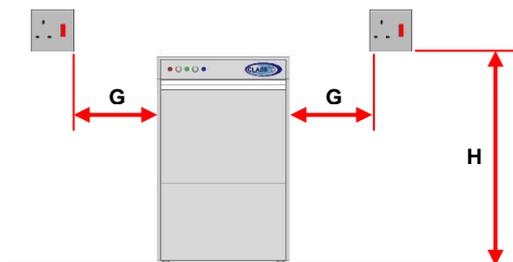
All appliances are connected via a residual current device (R.C.D.) or earth leakage protection device.

Supply isolator switch has all pole separation of more than 3mm.

Connect to a equi-potential conductor, connection stud located at rear of appliance, this is in addition to the earthed electrical supply.

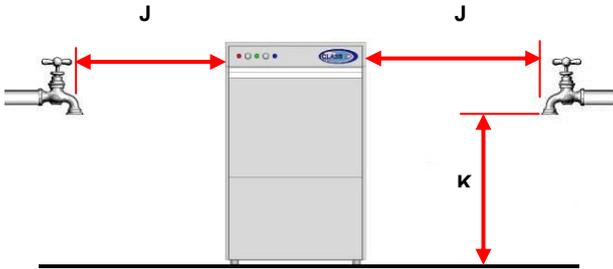
Prior to connecting the appliance, ensure voltage and supply fuse comply with rating plate.

Electrics		Duo 2	Duo 3
Volts	220~240v (1 Phase)	✓	✓
	380~415v (3 Phase)	✗	Optional
Amps	13 Amps	✓	Optional
	20 Amps	✗	Optional
	32 Amps	✗	✓
	13 Amps per phase	✗	Optional
Max total load		2.92kW	6.84kW



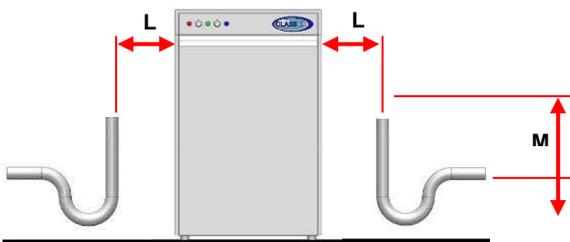
Supply socket (mm)		Duo 2	Duo 3
Max. position of electrical supply socket	'G' = Width	950	700
	'H' = Height	1500	1550

Water Inlet:



		Duo 2	Duo 3
Temperature range		5 - 55°C	
Pressure	0-2 bar	Booster pump req'd	
	2-4 bar	No modification	
	4-6 bar	Flow restrictor req'd	
	6 bar +	Pressure reducing valve req'd	
Flow rate		8 litres / min	
Water connection		3/4" BSP	
Max. position of water supply (mm)	'J' = Width	650	600
	'I' = Height	700	650

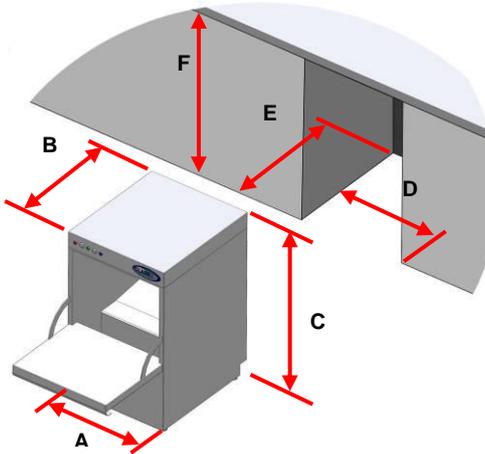
Waste outlet:



Drainage dimensions (mm)	Duo 2	Duo 3
Drain stand pipe diameter	35	
'L' = Max. distance from machine	750	400
'K' = Drain pipe height (Gravity drain)	0 - 40	
'K' = Drain pipe height (Drain pump)	0 - 390	0 - 600

Front Loading Duo Dishwashers:

Dimensions:



Dimensions (mm)		Duo 400	Duo 750
Machine	'A' = Width	470	570
	'B' = Depth	535	625
	'C' = Height (Min)	750	835
Recess	'D' = Width	490	590
	'E' = Depth	575	665
	'F' = Height	780	865

Weights (kg)	Duo 400	Duo 750
Empty	38	65
Full	64	110

Electric Supply:



Electrical connection:

Electrical connections MUST be carried out in accordance with local regulations. As a minimum **Classeq** recommends the following standards are maintained:

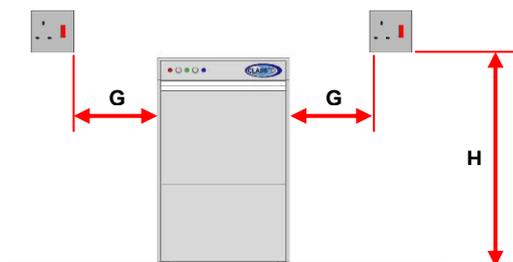
All appliances are connected via a residual current device (R.C.D.) or earth leakage protection device.

Supply isolator switch has all pole separation of more than 3mm.

Connect to a equi-potential conductor, connection stud located at rear of appliance, this is in addition to the earthed electrical supply.

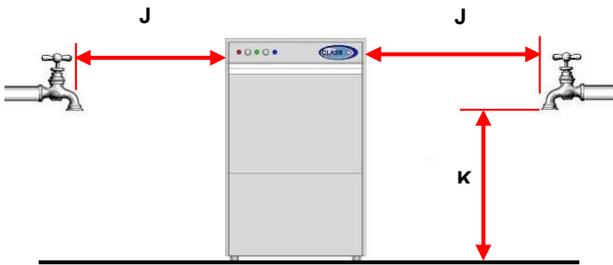
Prior to connecting the appliance, ensure voltage and supply fuse comply with rating plate.

Electrics		Duo 400	Duo 750
Volts	220~240v (1 Phase)	✓	✓
	380~415v (3 Phase)	✗	Optional
Amps	13 Amps	✓	Optional
	20 Amps	✗	Optional
	32 Amps	✗	✓
	13 Amps per phase	✗	Optional
Max total load		2.92kW	6.84kW



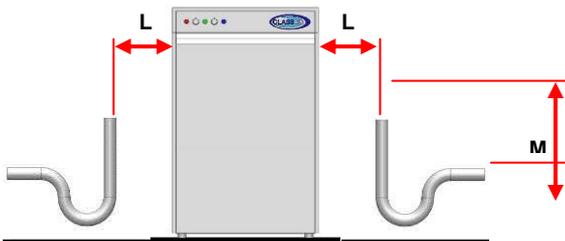
Supply socket (mm)		Duo 400	Duo 750
Max. position of electrical supply socket	'G' = Width	950	700
	'H' = Height	1500	1550

Water Inlet:



		Duo 400	Duo 750
Temperature range		5 - 55°C	
Pressure	0-2 bar	Booster pump req'd	
	2-4 bar	No modification	
	4-6 bar	Flow restrictor req'd	
	6 bar +	Pressure reducing valve req'd	
Flow rate		8 litres / min	
Water connection		3/4" BSP	
Max. position of water supply (mm)	'J' = Width	650	600
	'I' = Height	700	650

Waste outlet:



Drainage dimensions (mm)	Duo 500	Duo 750
Drain stand pipe diameter	35	
'L' = Max. distance from machine	750	400
'K' = Drain pipe height (Gravity drain)	0 - 40	
'K' = Drain pipe height (Drain pump)	0 - 390	0 - 600

Installation Instructions

The site:

Ensure that there is sufficient space for the installation, servicing and easy access to all mains isolator switches / valves (i.e. electricity and water).

Ensure that the surface the appliance is going to be installed onto is adequately stable and capable of supporting the appliance during normal operation (*see site requirements*).

Once installed ensure the appliance is stable, with its weight being distributed equally and does not tilt more than 3° in any direction.

Electrical connection:

All electrical connections **MUST** be carried out by an authorised technician and in accordance with local regulations.

As a minimum '**Classeq**' recommends that the following standards are maintained:

All appliances are connected via a residual current device (R.C.D.) or earth leakage protection device.

EN 60204

Supply isolator switch must have all pole separation of more than 3mm.

EN 60335

The appliance must be connected to a equi-potential conductor, the connection stud is located at the rear of the appliance (a suitable ring terminal shall be required), this is in addition to the earthed electrical supply.

Prior to connecting the appliance, ensure that the voltage and the supply fuse complies with the rating plate on the appliance.

Electrical rating and terminal block layout:

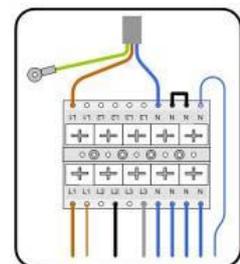
Within the '**Classeq**' range several of the 500mm² basket appliances can be either down rated or up rated electrically, such a procedure **MUST** be carried out by a '**Classeq**' approved technician.

The down / up rating of the machine is carried out by configuring the terminal block within the appliance to the following

13 Amp – Single phase

Links removed between L1, L2 and L3

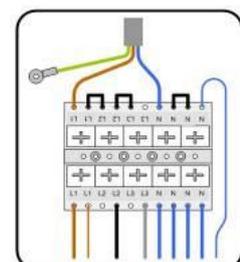
Ensure link remains between neutrals (N)



30 Amp – Single phase

Ensure all link remains between lives terminals (L1, L2 and L3)

Ensure link remains between neutrals (N)



Three phase

Only Eco3 and H750 appliances can be converted to three phase, this is performed by removing electrical links at the terminal between L1 L2 & L3, then installing a new 5 core supply cable, i.e. L1, L2, L3, N and Earth (PE).

Water connection:

The appliance comes with a water supply hose requiring a G $\frac{3}{4}$ " ($\frac{3}{4}$ " BSP) male threaded connection at the mains water supply, upon installation and commissioning all water joints must be checked for leaks).

Commercial appliance wash results will be affected by external conditions such as incoming water temperature, pressure, water hardness and choice of chemicals

For the longevity of any water related devices and to ensure you get consistently good results it is essential your machine is either fed from a soft water supply, or your Classeq appliance is connected to an appropriate water softener



IMPORTANT:

All supplier warranties are void if lime scale is present within an appliance

Water supply restrictions:

Water supply constraints must be adhered to:

Incoming water temperature:

4°C minimum

55°C maximum

Supply water dynamic pressure:

0 to 2 bar (0 to 200kPa)

2 to 4 bar (200 to 400kPa)

4 to 6 bar (400 to 600kPa)

6 bar plus (600kPa plus)

Rinse booster pump required.

No modifications required.

Flow restrictor required.

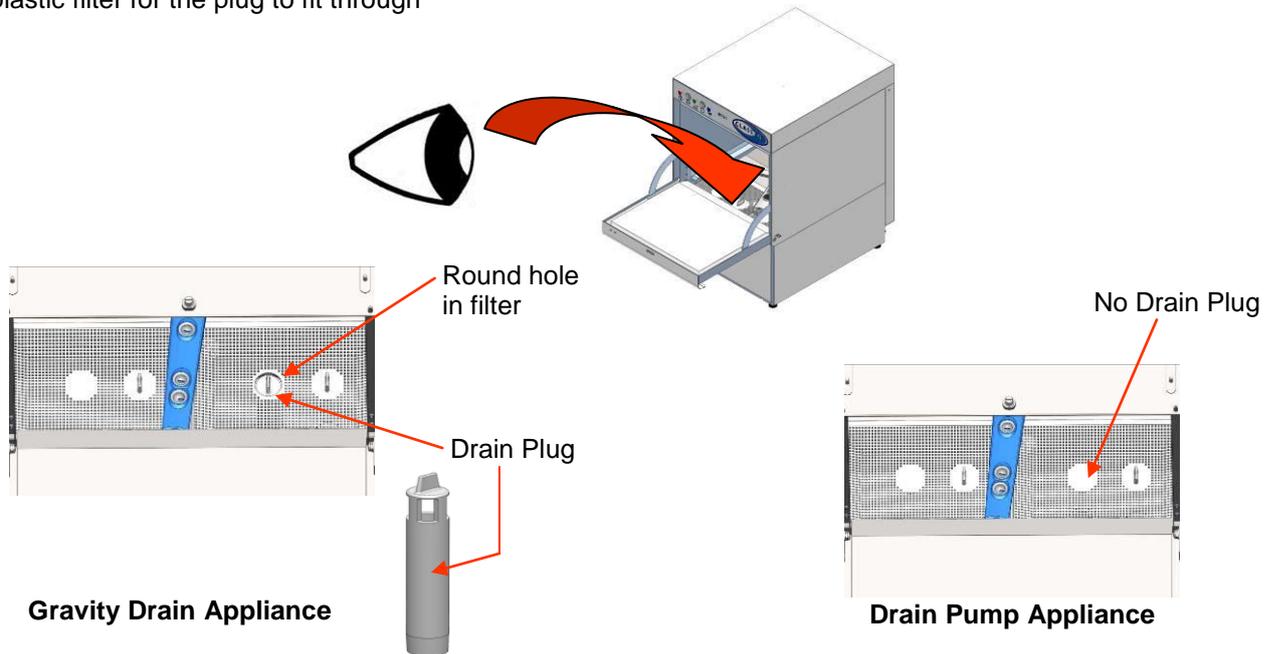
Pressure reducing valve required.

If the above requirements are not adhered to, the performance of the appliance will be impaired

Drainage systems:

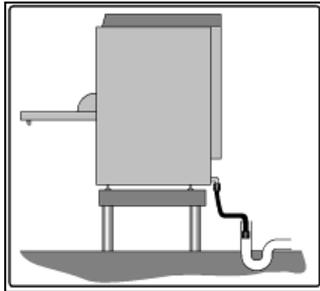
Differentiating between gravity and pump drain appliances:

Gravity drain appliances have a long cylindrical plug in the bottom of the wash tank and a hole in the plastic filter for the plug to fit through



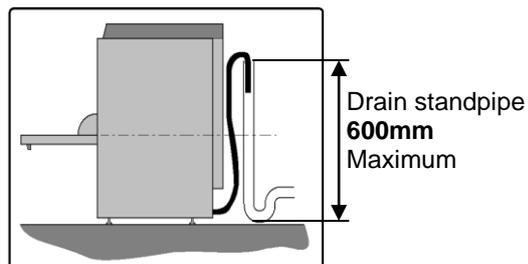
Gravity drain appliances:

Waste hose must flow down from the waste outlet to the drain.
 Ø40mm (1 ½") standpipe required, must be lower than the baseline of the appliance.
 Joint between standpipe and waste hose must be water tight.



Pump drain appliances:

Waste hose can either flow down from the waste outlet to the drain or go into a standpipe with a maximum height of 600mm
 Ø40mm (1 ½") standpipe required, must be no lower than the baseline of the appliance.



If you have any doubts about the drainage system on the machine, please contact either **Classeq** or your dealer/agent.

Commissioning Instructions

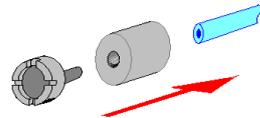
Rinse aid & detergent:

Chemical pump(s) are located behind the front lower panel, prior to removing any panels all electrical supplies **MUST** be isolated. An Allen key is required for this operation.

A coil of PVC hose is attached to each chemical pump, un-coil PVC hose and feed through either the right or left hand slots located at the front of the base of the machine.

Prior to feeding the PVC hose into the chemical bottle, push the bottle weight supplied onto the end of each PVC hose.

Ensure the correct chemical tubes now go to the corresponding chemical bottles. (*I.e. rinse aid hose into rinse aid bottle*).



WARNING: Only rinse aids and detergents developed for commercial glass and dishwashers are to be used, rinse aids must be suitable for water temperatures down to 40°C.

Priming of Rinse aid & Detergent:

This procedure is only required when commissioning the machine and not in normal operation

Ensure the machine is empty of water

Switch the water supply OFF

Now switch the machine ON at both the mains supply and at the fascia for 90 seconds only

Now switch the machine at the OFF at the fascia

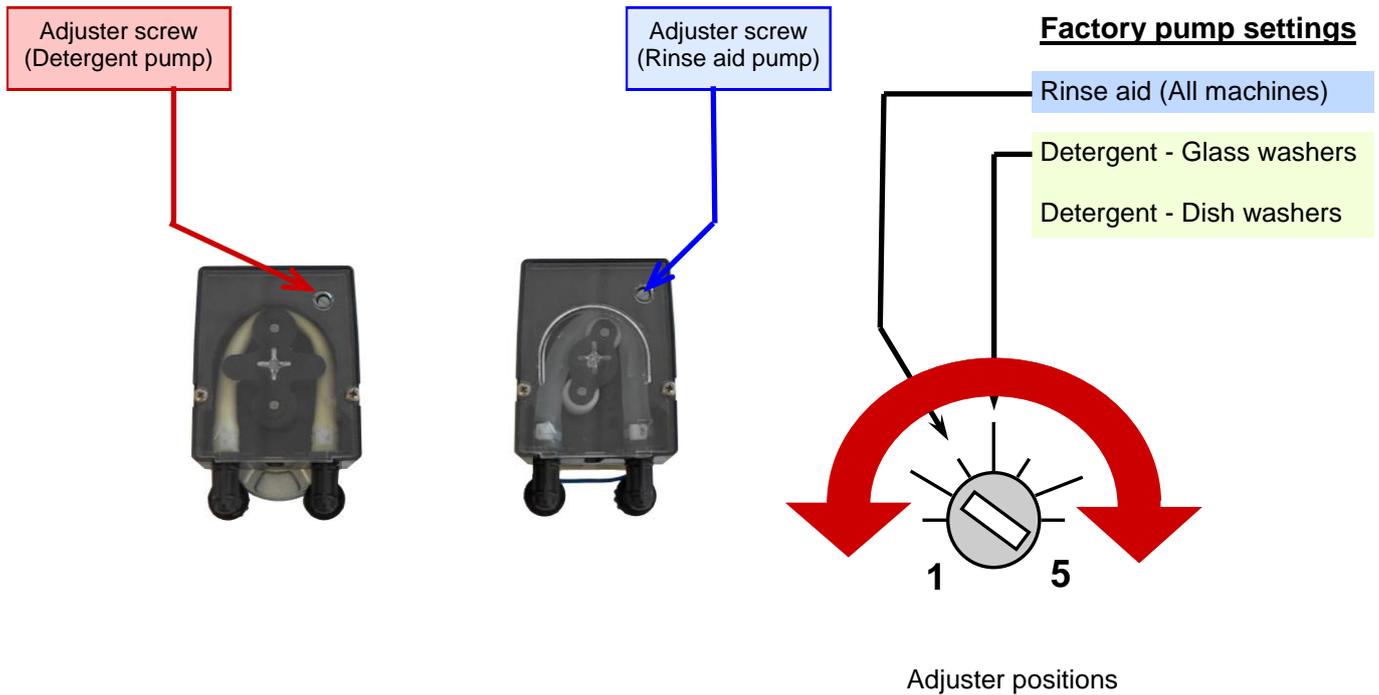
Turn the water supply ON

The rinse aide will now be primed, the machine can now be switch ON and allowed to fill & heat as normal.

Chemical dosage:

Chemical doses are pre-set, however they can be adjustment to suit the Individual sites requirements, and such adjustment is made by turning an adjuster screw on each chemical pump

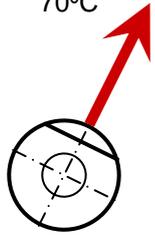
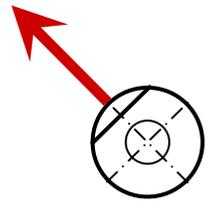
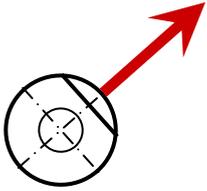
Chemical Pumps:



		Min	PUMP SETTINGS			Max
Pump run times	Run (seconds)	0	1.5	3	4.5	6
	Stop (seconds)	6	4.5	3	1.5	0
Rinse aid	Dose rate (ml/sec)	0.00	0.05	0.09	0.14	0.18
	Dose rate (litres / hour)	0.00	0.16	0.32	0.49	0.65
	Dose per 6 seconds (ml)	0.00	0.30	0.50	0.8	0.9
	Dilution rate	-	1 : 3009	1 : 1641	1 : 1165	1 : 903
	Dilution as parts per litre	-	0.33	0.61	0.86	1.11
	Dilution as %	-	0.03 %	0.06 %	0.09%	0.11 %
Detergent	Dose rate (ml/sec)	0.00	0.35	0.69	1.04	1.39
	Dose rate (litres / hour)	0.00	1.25	2.5	3.75	5.00
	Dose per 6 seconds (ml)	0.00	2.10	4.20	6.30	7.00
	Dilution rate	-	1 : 390	1 : 213	1 : 151	1 : 117
	Dilution as parts per litre	-	2.57	4.70	6.63	8.55
	Dilution as %	-	0.26 %	0.47 %	0.66 %	0.86 %

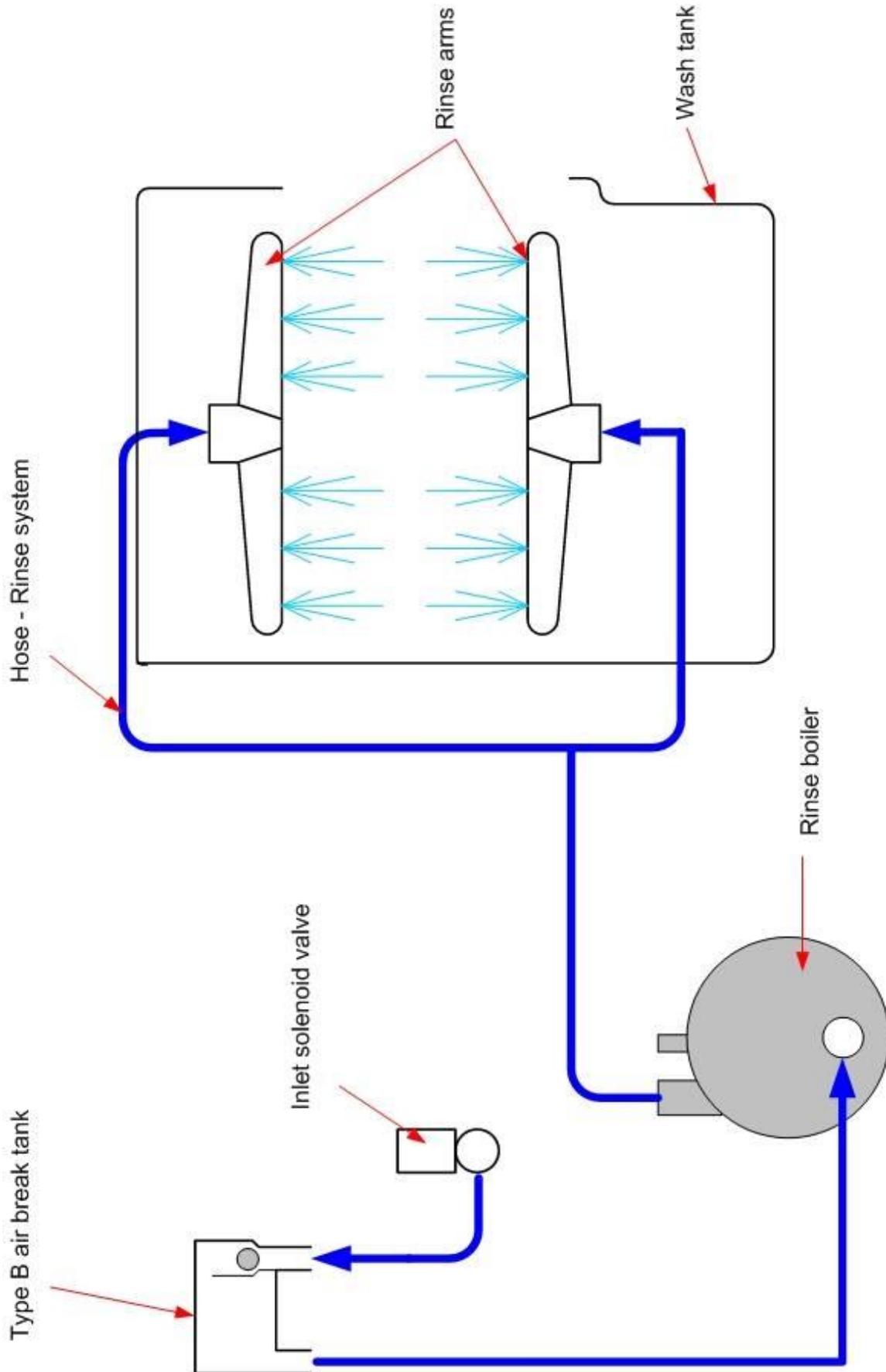
Temperature settings:

The water temperatures on '*Classeq*' range of machines are adjustable, but have been preset to:

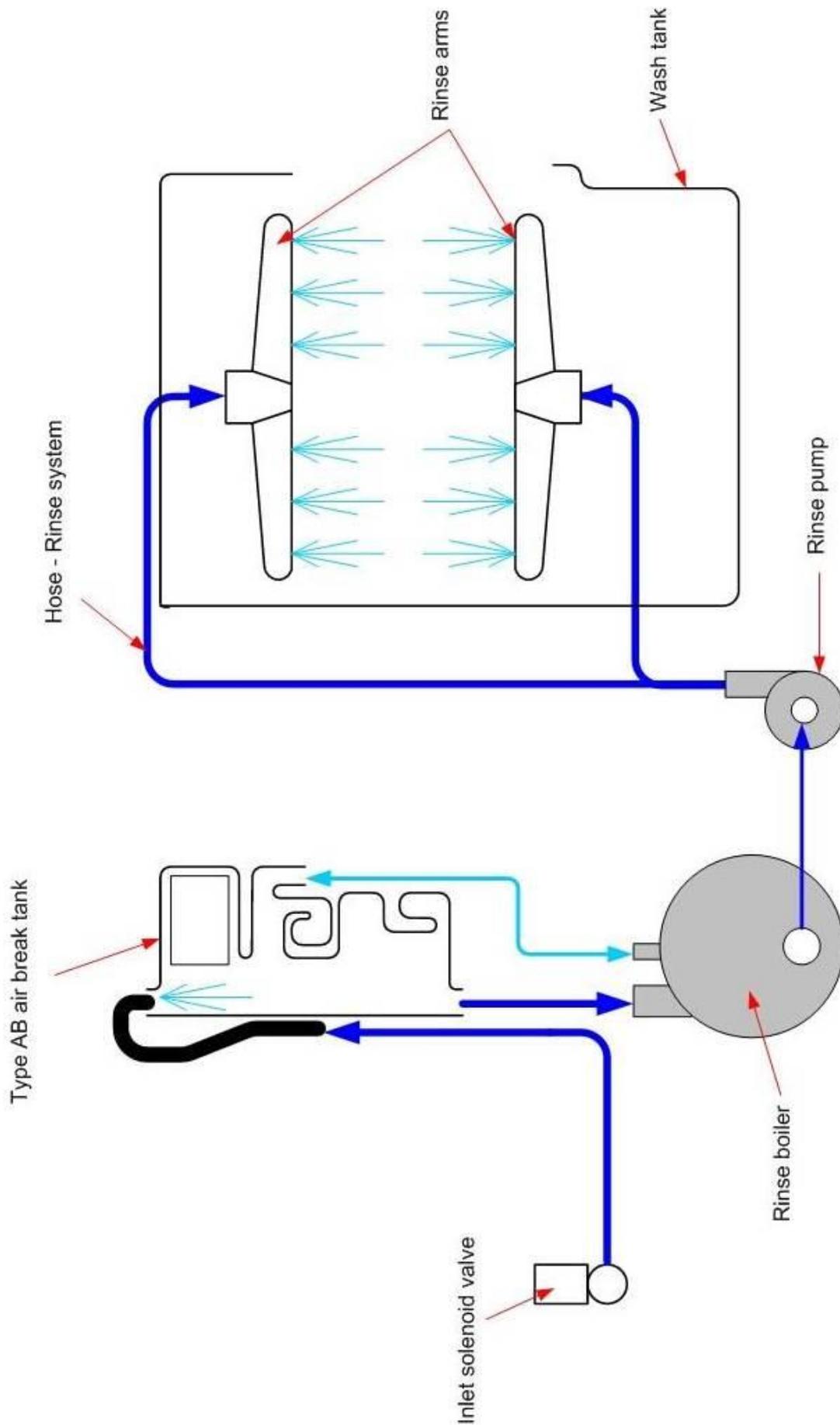
	105°C Thermostat positions	
	Rinse thermostat	Wash thermostat
<p>Glass washers</p> <p>ECO1 ECO2 ECO3</p> <p>DUO 2 DUO 3</p>	<p>Rinse temp 70°C</p> 	<p>Wash temp 55°C</p> 
<p>Dishwashers</p> <p>HYDRO 400 HYDRO 700 HYDRO 750</p> <p>DUO 400 DUO 750</p>	<p>Rinse temp 82°C</p> 	

Water Systems

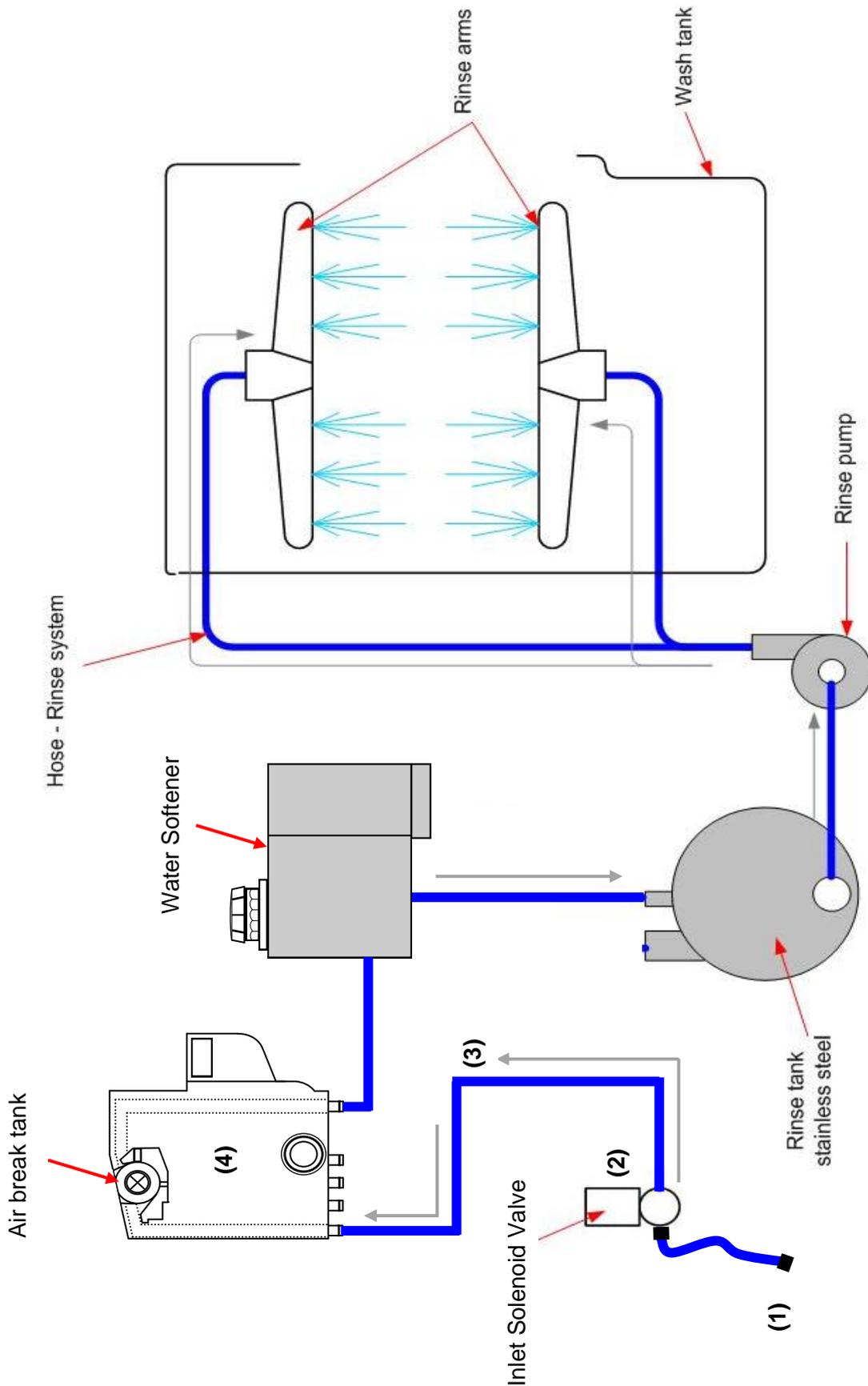
Rinse system (ECO and HYDRO series):



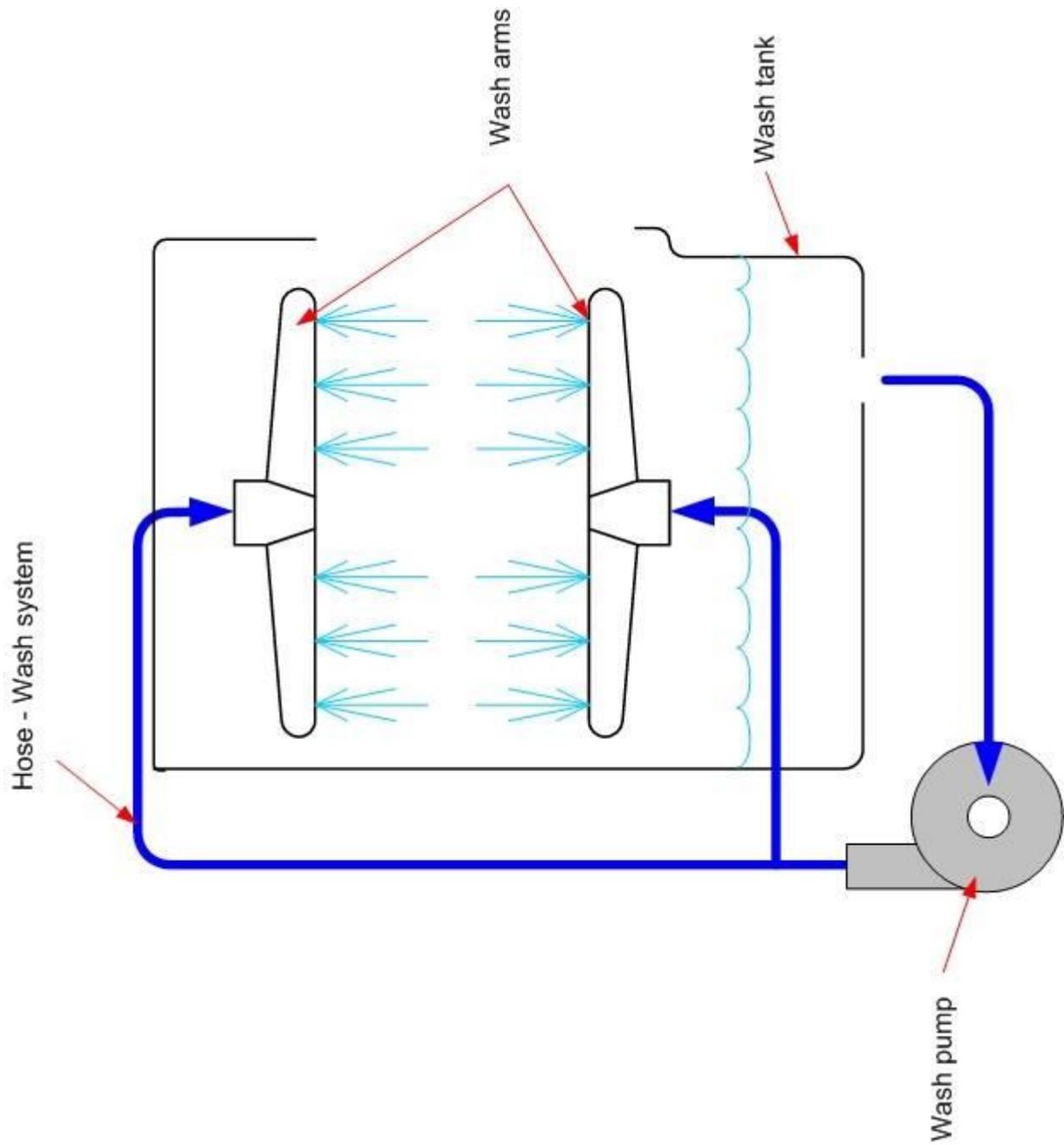
Rinse system (DUO series only):



Rinse system (Water softener)



Wash system (all machines):

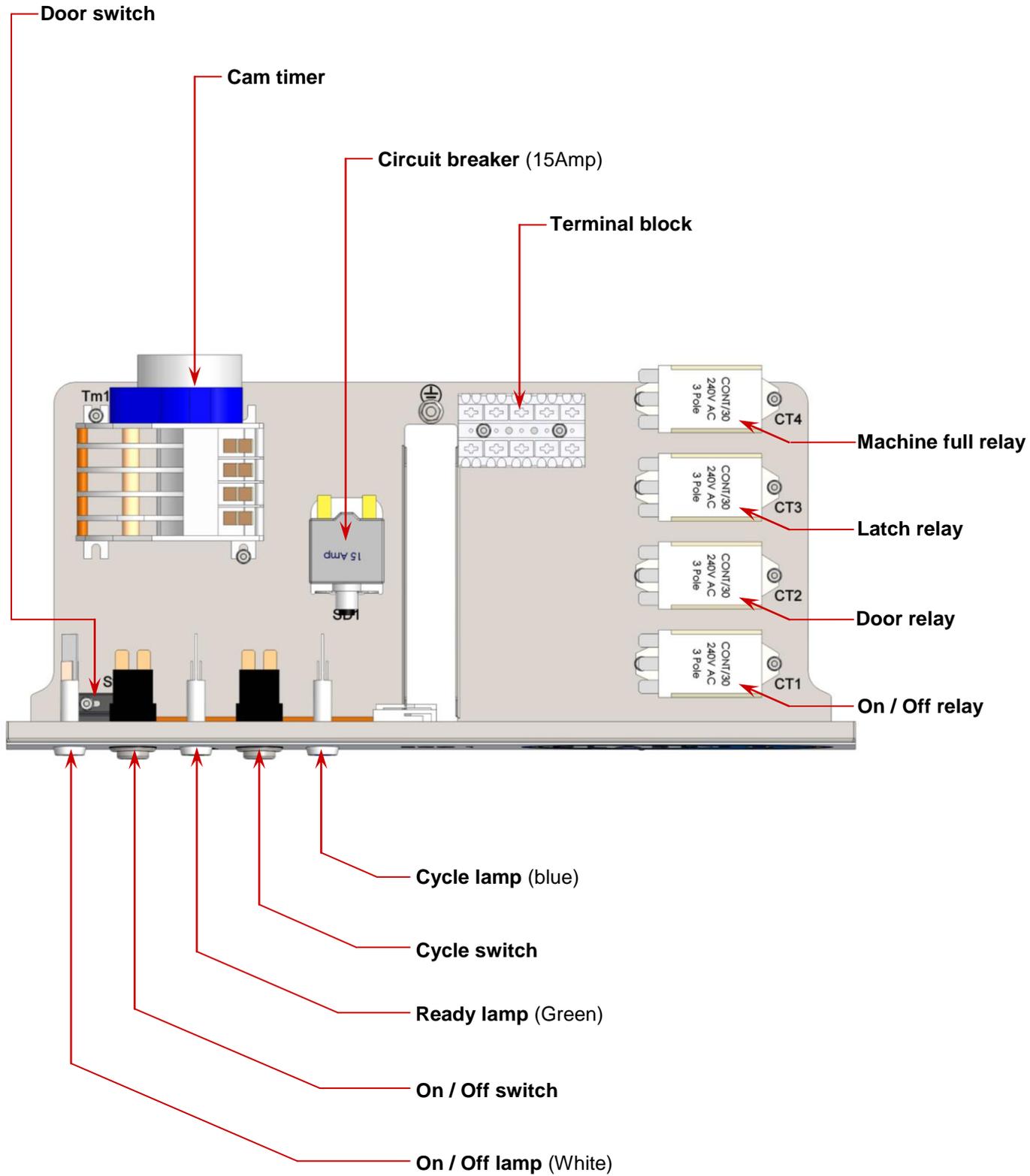


Electrical Component Data

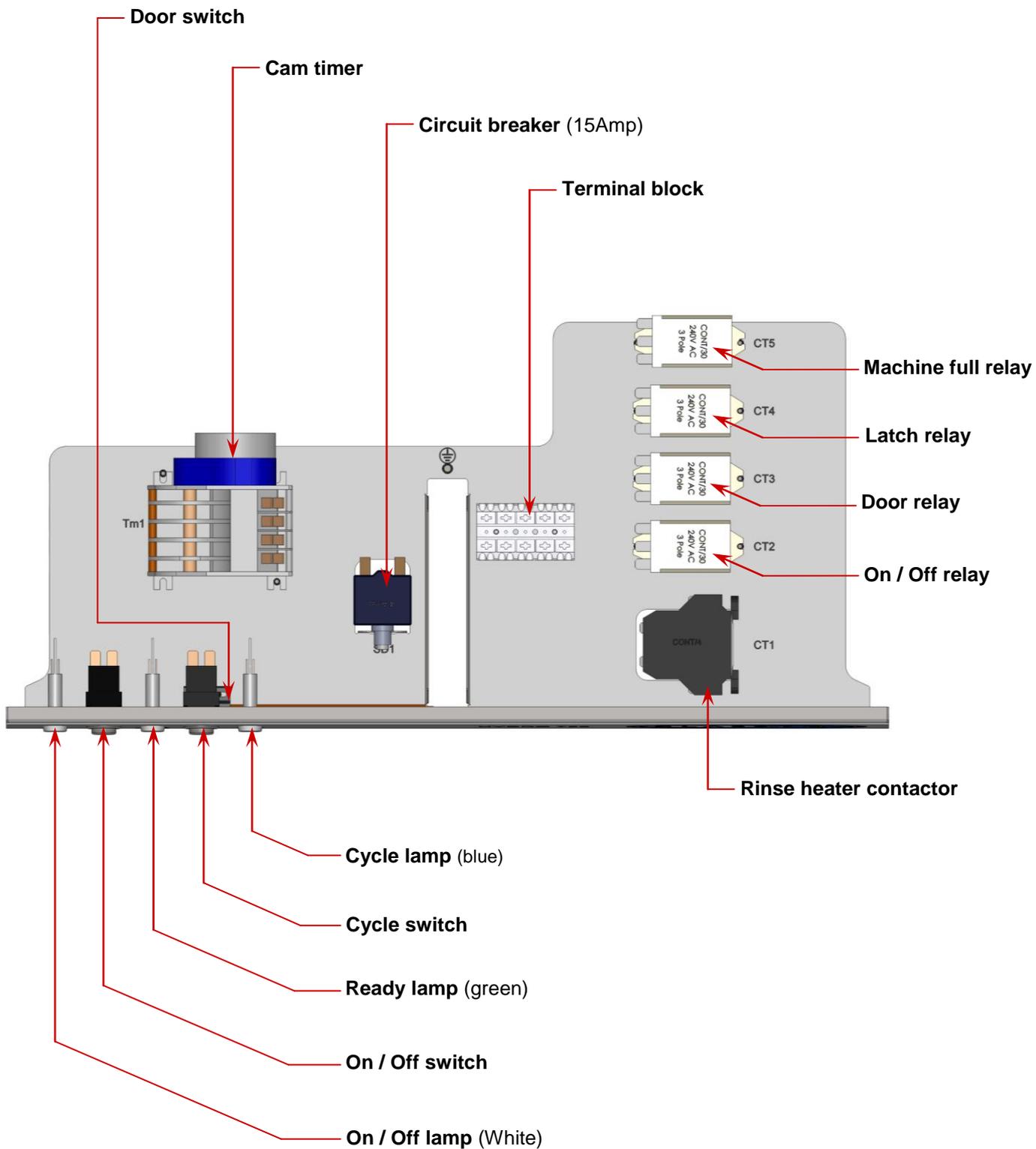
Component		Volts	Hertz	Amps	Watts	Ohms
Inlet solenoid valve	All models	220 ~ 240v	50~60 Hz	-	-	-
Rinse element	1 x 2.0 kW	220 ~ 240v	-	8.69 A	2,000w total	26.45 Ω total
	2 x 1.3 kW	220 ~ 240v	-	5.65 A per leg 11.30 A total	1,300w per leg 2,600w total	40.69 Ω per leg 20.34 Ω total
	3 x 2.0 kW	220 ~ 240v	-	8.69 A per leg 26.09 A total	2,000w per leg 6,000w total	26.45 Ω per leg 8.82 Ω total
Rinse pump	Duo 2 & Duo 500	220 ~ 240v	50 Hz	0.52 A running	120 w	440 Ω
	Duo 3 & Duo 750	220 ~ 240v	50 Hz	1.17 A running	270 w	196 Ω
Wash element	1 x 2.0 kW	220 ~ 240v	-	8.69 A	2,000w total	26.45 Ω total
Wash pump	350 & 400mm machines	220 ~ 240v	50 Hz	0.96 A running	220 w	240 Ω
	500mm machines	220 ~ 240v	50 Hz	3.8 A running	740w	71.49 Ω
Drain pump	All sizes	220 ~ 240v	50 Hz	0.13 A	30w	1,763 Ω
CAM timer	2 minute	220 ~ 240v	50 Hz	-	-	-
	3 minute	220 ~ 240v	50 Hz	-	-	-
Contactors (Siemens)	Rinse element contactor 30 A & 3ph machines only	220 ~ 240v	50~60 Hz	-	-	-
Relays (Finder)	On / Off relay	220 ~ 240v	50~60 Hz	-	-	-
	Door relay	220 ~ 240v	50~60 Hz	-	-	-
	Cycle relay	220 ~ 240v	50~60 Hz	-	-	-
Rinse aid pump	All models	220 ~ 240v	50~60 Hz	0.02 A	5.5w	9,918 Ω
Detergent pump	All models	220 ~ 240v	50~60 Hz	0.02 A	5.5w	9,918 Ω
Indicator lamps	Red	220 ~ 240v	50~60 Hz	-	-	-
	Green	220 ~ 240v	50~60 Hz	-	-	-
	Blue	220 ~ 240v	50~60 Hz	-	-	-
	Amber	220 ~ 240v	50~60 Hz	-	-	-

Control Panel Layout

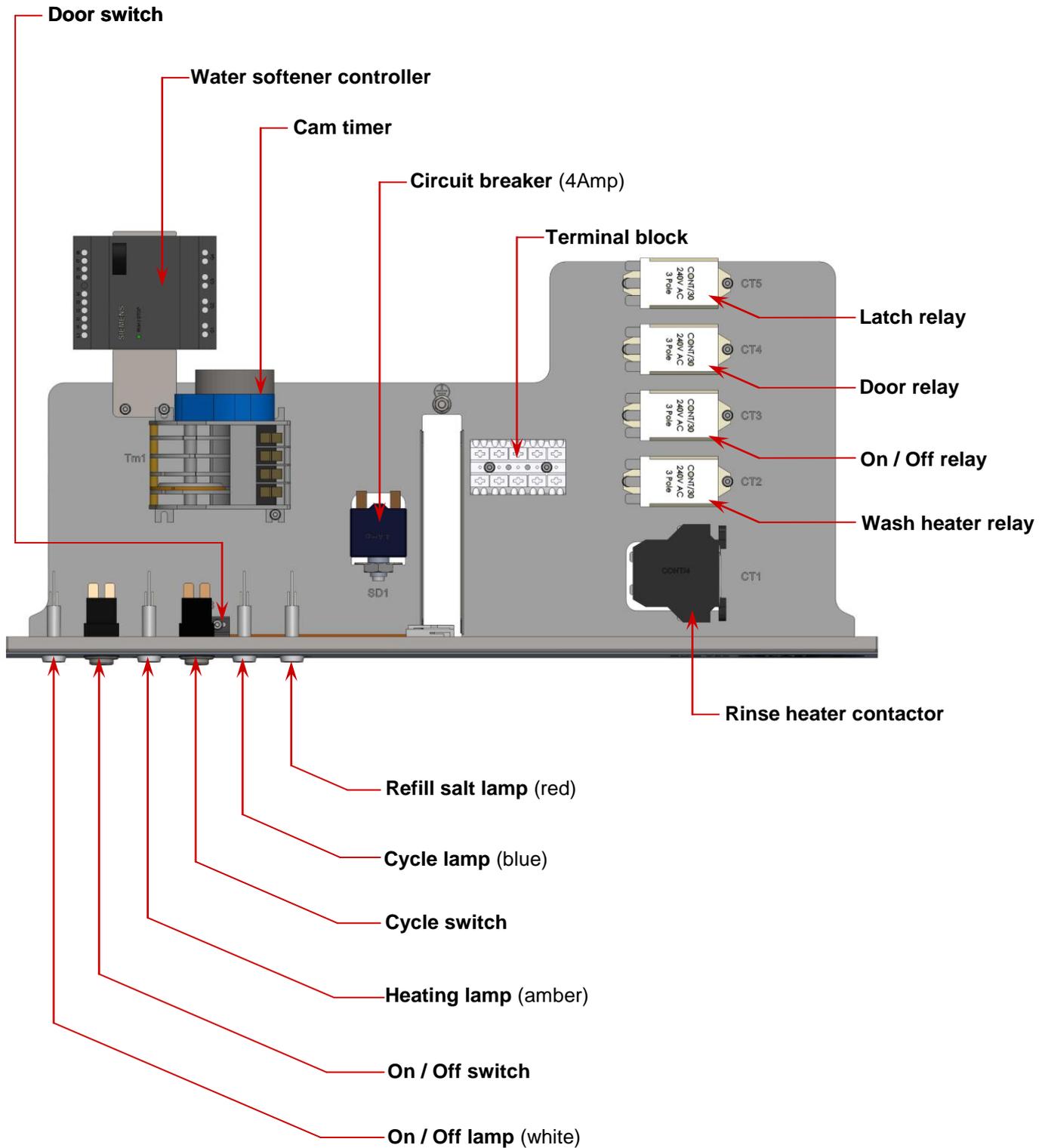
13 Amp MACHINES



30 Amp MACHINES

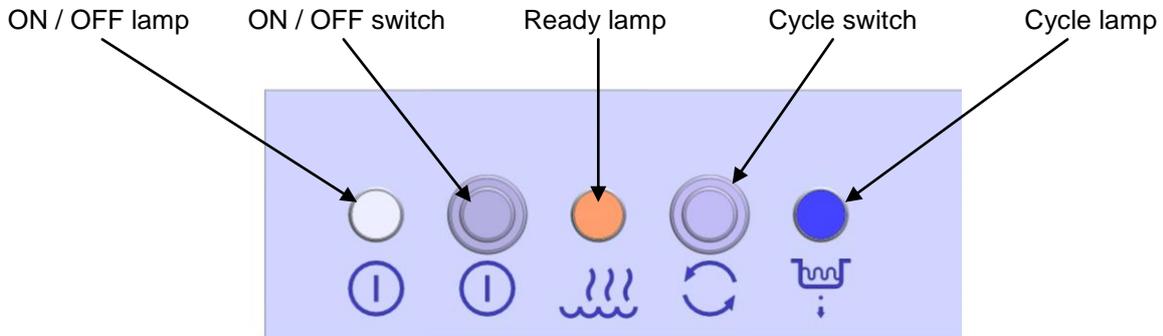


WATER SOFTENER MACHINES



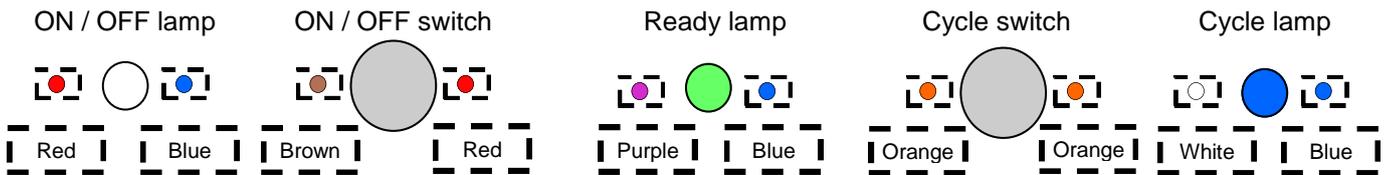
Switch Panels

Standard machines - Lamp and switch wiring:

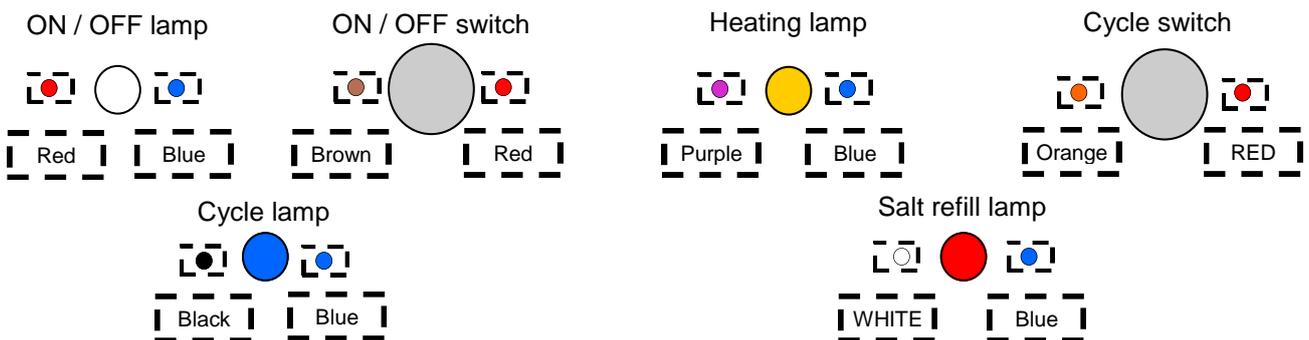
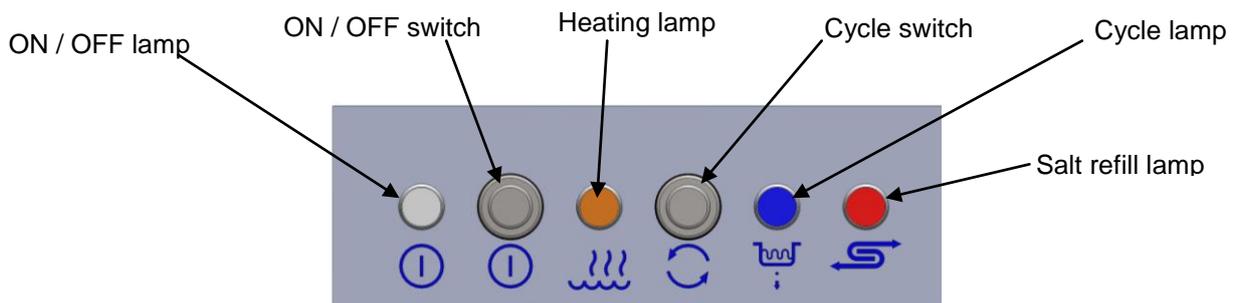


Note!

Wiring colours shown as if looking at rear of switches & light

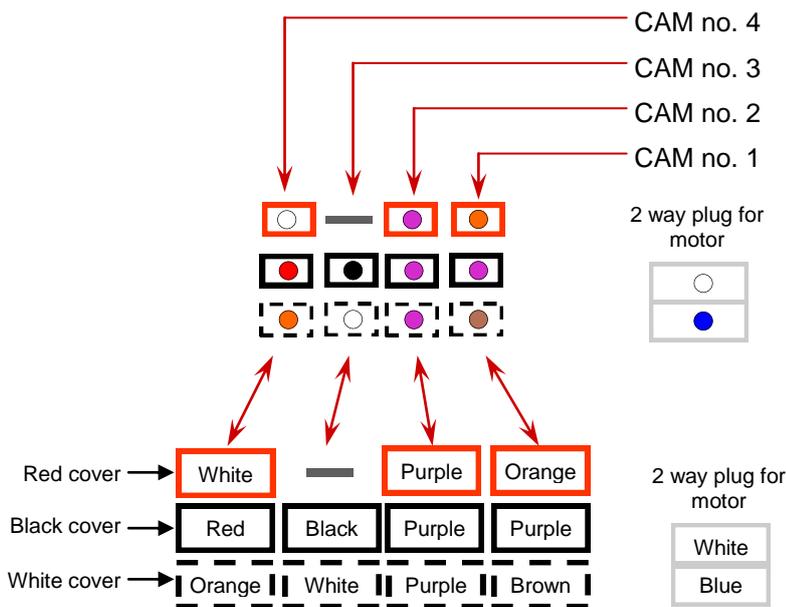
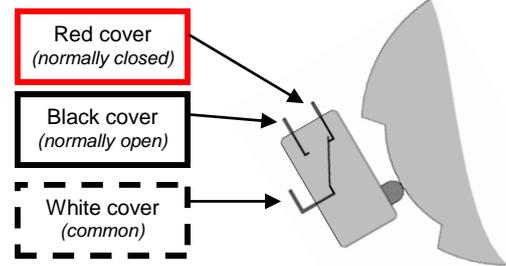
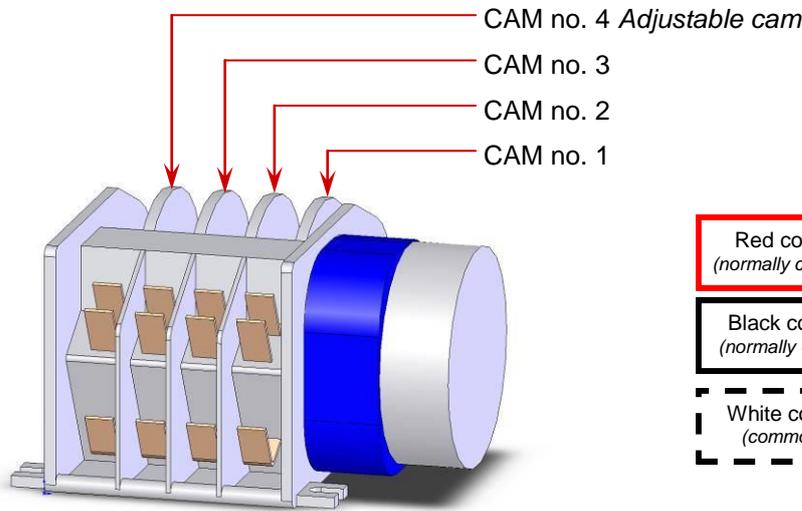


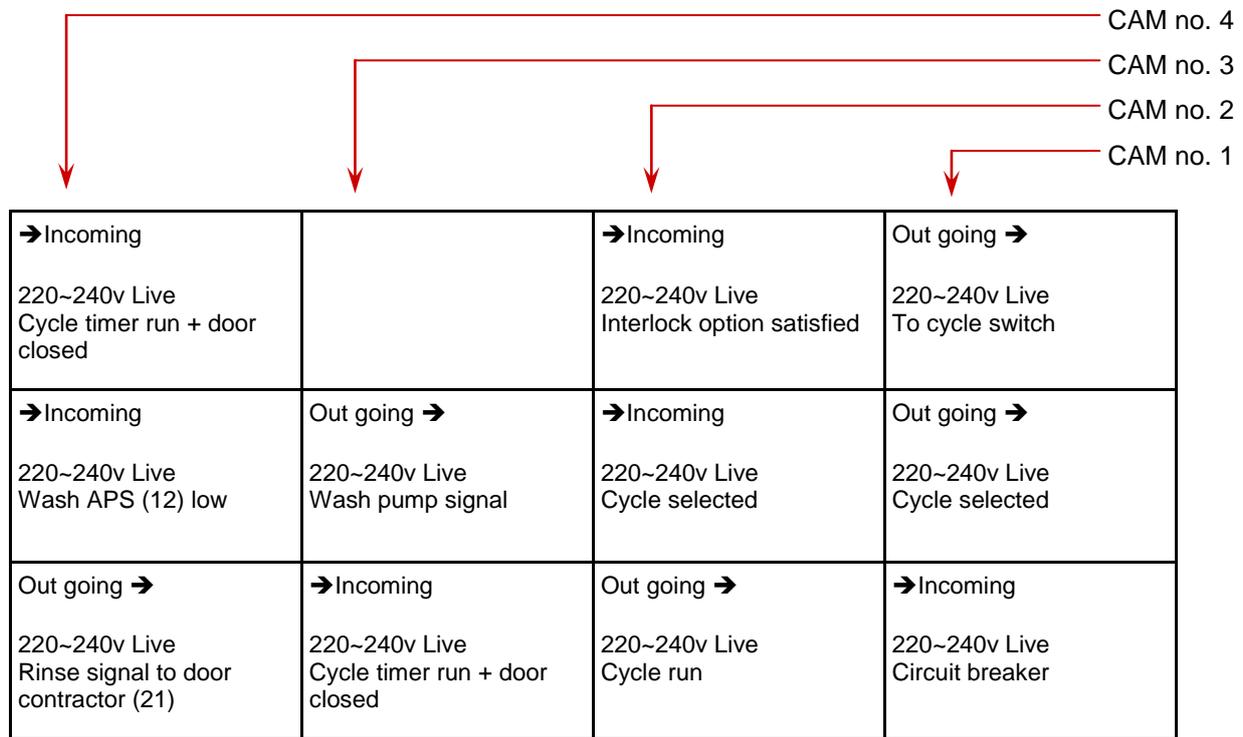
Water softener - Lamp and switch wiring:



CAM Timers

Standard machines:

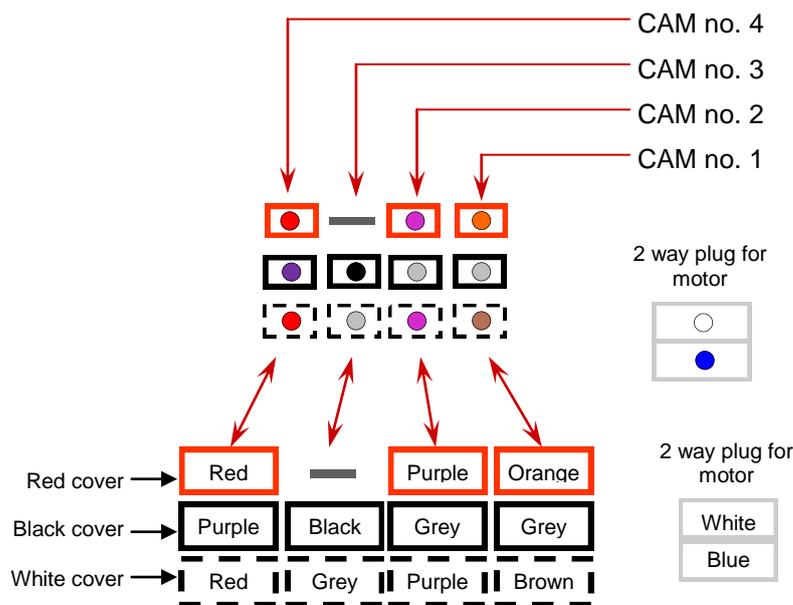
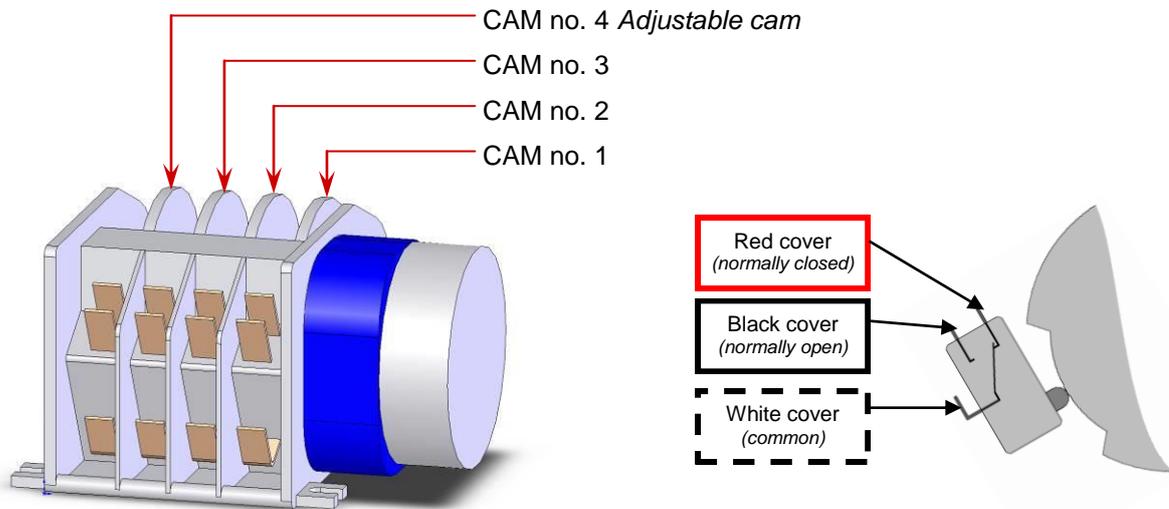


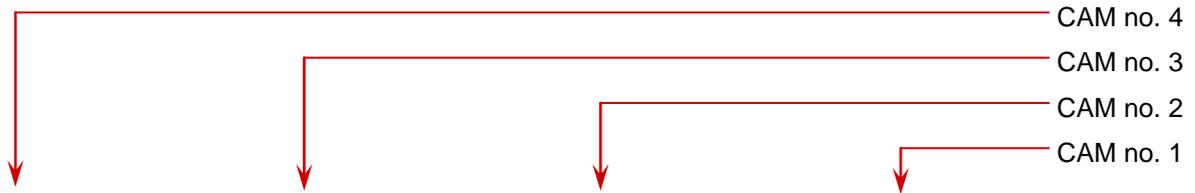


→Incoming 220~240v Live Run cycle, signal from door contractor (14)	Neutral 220~240v Neutral Terminal block
---	---

2 way plug for motor

Water softener machines:

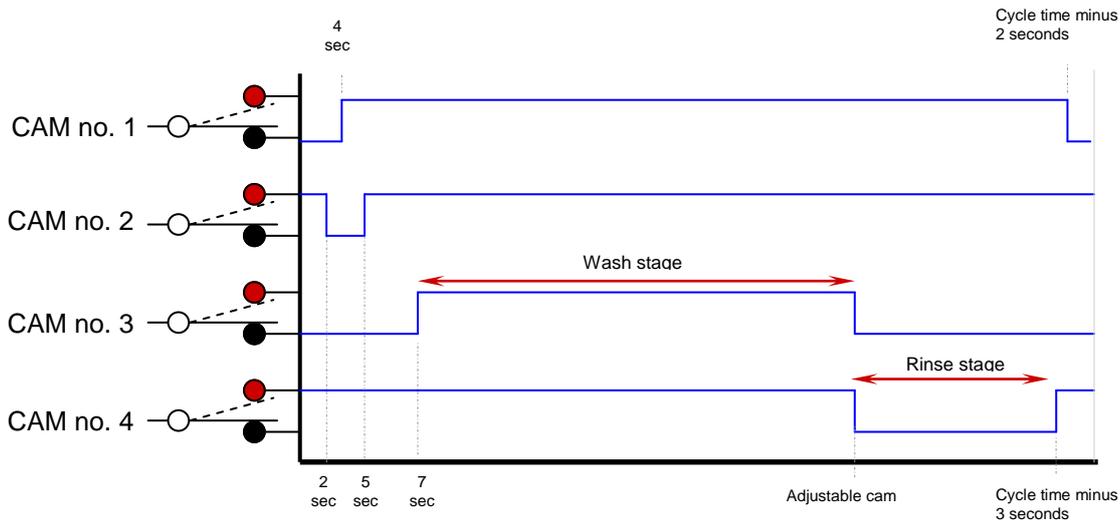




→Incoming 220~240v Live Cycle timer run + door closed		→Incoming 220~240v Live Interlock option satisfied	Out going → 220~240v Live To cycle switch
→Incoming 220~240v Live Wash APS (12) low	Out going → 220~240v Live Wash pump signal	→Incoming 220~240v Live Cycle selected	Out going → 220~240v Live Cycle selected
Out going → 220~240v Live Rinse signal to door contractor (21)	→Incoming 220~240v Live Cycle timer run + door closed	Out going → 220~240v Live Cycle run	→Incoming 220~240v Live Circuit breaker

→Incoming 220~240v Live Run cycle, signal from door contractor (14)	Neutral 220~240v Neutral Terminal block
---	---

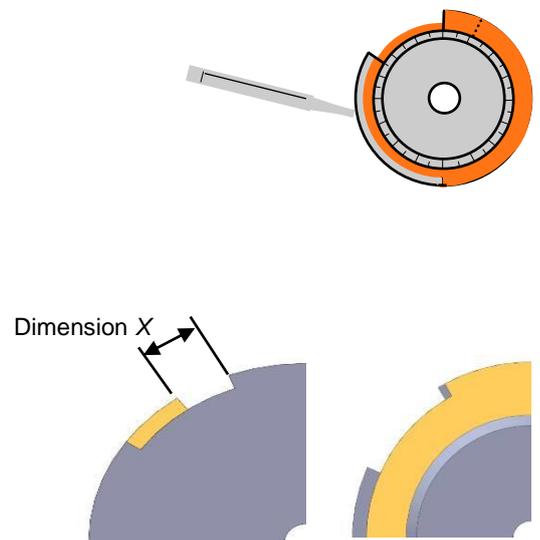
2 way plug for motor



Adjusting Cam 4

Cam 4 can be adjusted to increase and decrease the length of the rinse cycle for the optimal finished quality without wasting water. To do this use an Allen key to turn the screw on the orange section to adjust "Dimension X" as follows:

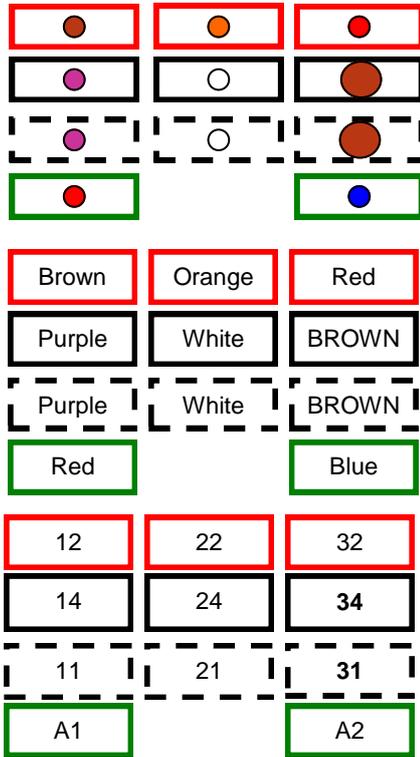
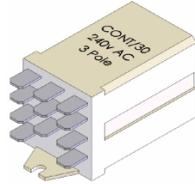
Defaults to give 3 - 3.5 litre rinse volume		
MACHINE	Timer Type	Dimension X
Eco 1 / 2 / 3	2 Minute	22.5 mm
Hydro 400 / 700 / 750	3 Minute	17mm
Duo 400	3 Minute	12.5mm
Duo 2	2 Minute	20mm
Duo 3	2 Minute	9mm
DUO 750	3 Minute	8mm



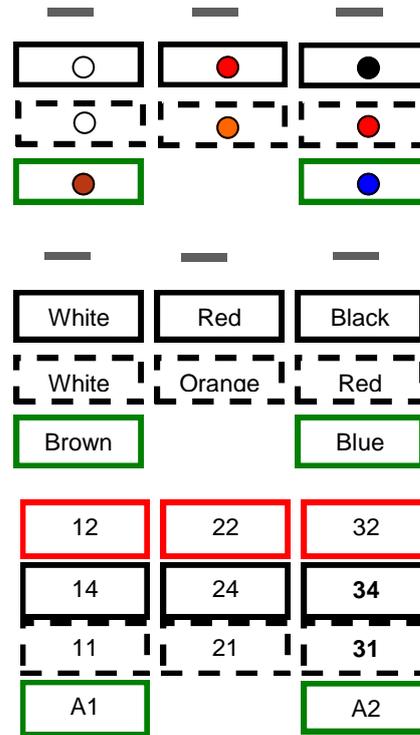
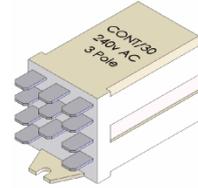
Contactors & Relays

LM-P2-13A

On/Off Relay CT1



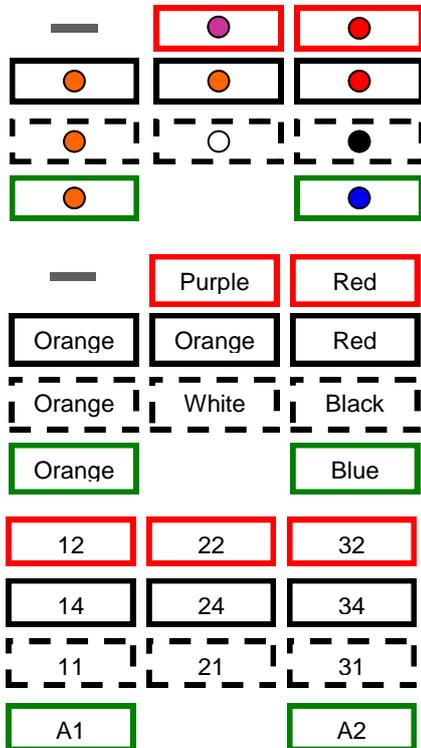
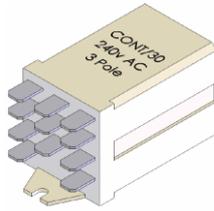
Door Relay CT2



→12	22→	32→
220~240v Live Circuit breaker	220~240v Live Drain down	220~240v Live Machine Off - Latch relay (34)
→14	24 →	34→
220~240v Live Interlock achieved	220~240v Live Cycle timer run + machine On	220~240v Live Machine On - Wash APS (11)
11→	→21	→31
220~240v Live OK to run cycle	220~240v Live Cycle timer run + door closed	220~240v Live Terminal block
→A1		A2
220~240v Live On / Off switch		220~240v Neutral Terminal block

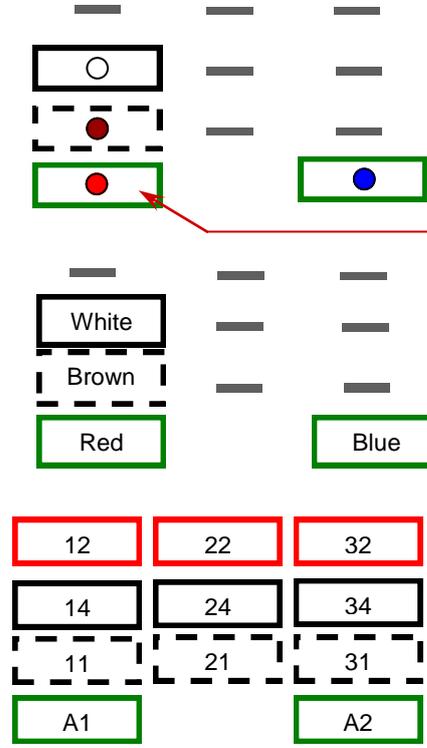
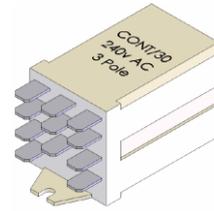
12	22	32
14→	24 →	→34
220~240v Live Door closed run cycle	220~240v Live Door closed run rinse	220~240v Live Latch Relay (34)
→11	→21	31 →
220~240v Live OK to run cycle	220~240v Live Rinse Cam	220~240v Live Rinse Pump
→A1		A2
220~240v Live Door switch		220~240v Neutral Terminal block

Latch Relay CT3



12	→22	→32
	220~240v Live Interlock achieved + cycle selected	220~240v Live Fill or cycle rinse
→14	→24	→34
220~240v Live First 5 seconds of a cycle	220~240v Live First 5 seconds of a cycle	220~240v Live Machine off rinse down
11→	21→	31→
220~240v Live Not in a cycle or first 5 seconds of a cycle	220~240v Live Cycle timer run + cycle light On	220~240v Live Rinse pump signal
→A1		A2
220~240v Live Cycle switch and/or Terminal 11 of this relay		220~240v Neutral Terminal block

Machine full Relay CT4

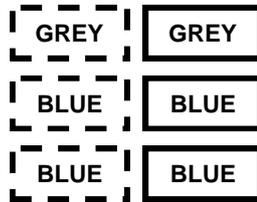
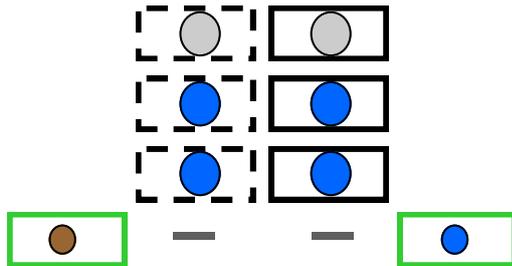
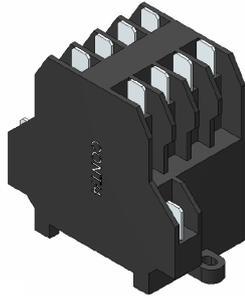


Note!
 Red wire for pressurised rinse boiler
 Purple for air break machines

12	→22	→32
→14	→24	→34
220~240v Live To rinse thermostat		
11→	21→	31→
220~240v Live From on/off relay		
→A1		A2
220~240v Live APS to this relay		220~240v Neutral Terminal block

LM-P2-30A

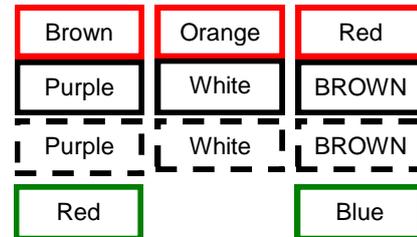
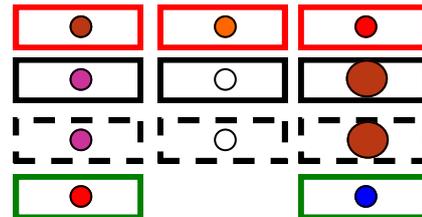
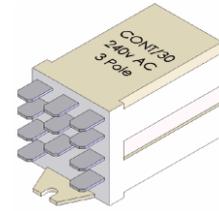
Rinse Heater Contactor CT1



→5L3	6T3→
220~240v Live Terminal Block	220~240v Live Rinse Element
→3L2	34→
220~240v Neutral Terminal Block	220~240v Neutral Rinse Element
→11	31→
220~240v Neutral Terminal Block	220~240v Neutral Rinse Element

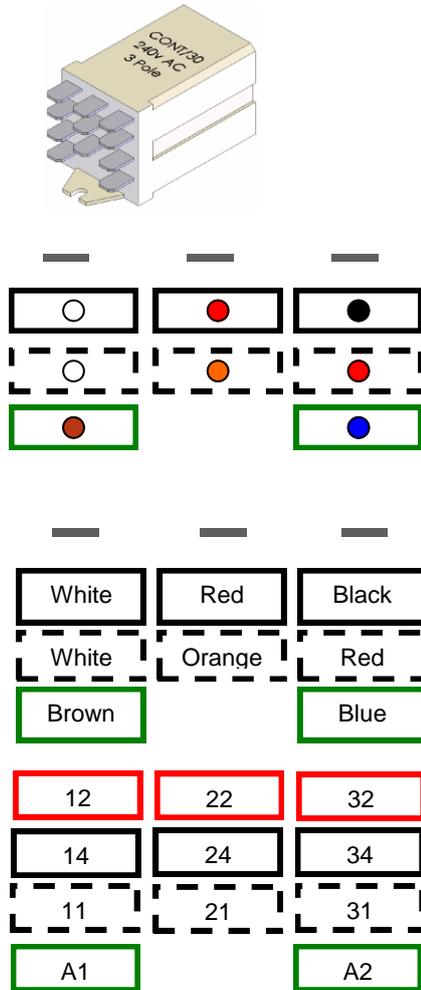
→A1	21NC	22NC	A2
220~240v Live Rinse APS1			220~240v Neutral Terminal block and Rinse safety thermostat

On/Off Relay CT2



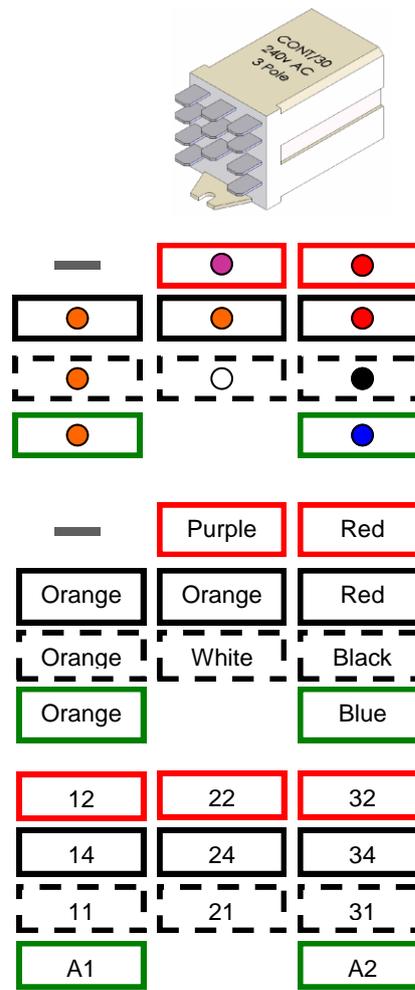
→12	22→	32→
220~240v Live Circuit breaker	220~240v Live Drain down	220~240v Live Machine Off - Latch relay (34)
→14	24 →	34→
220~240v Live Interlock achieved	220~240v Live Cycle timer run + machine On	220~240v Live Machine On - Wash APS (11)
11→	→21	→31
220~240v Live OK to run cycle	220~240v Live Cycle timer run + door closed	220~240v Live Terminal block
→A1		A2
220~240v Live On / Off switch		220~240v Neutral Terminal block

Door Relay CT3



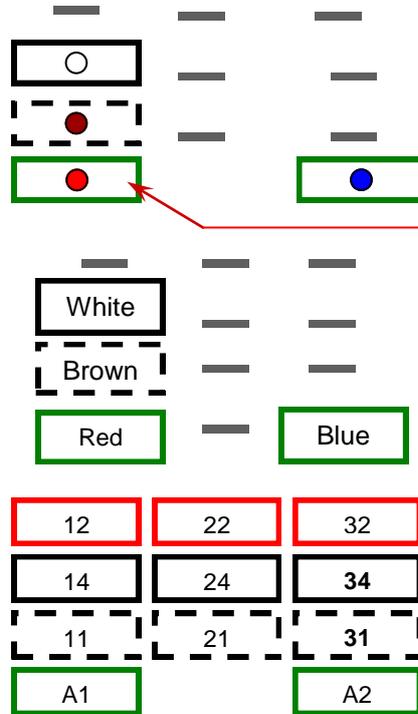
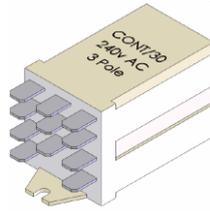
12	22	32
14 →	24 →	→34
220~240v Live Door closed run cycle	220~240v Live Door closed run rinse	220~240v Live Latch Relay (34)
→11	→21	31 →
220~240v Live OK to run cycle	220~240v Live Rinse Cam	220~240v Live Rinse Pump
→A1		A2
220~240v Live Door switch		220~240v Neutral Terminal block

Latch Relay CT4



12	→22	→32
	220~240v Live Interlock achieved + cycle selected	220~240v Live Fill or cycle rinse
→14	→24	→34
220~240v Live First 5 seconds of a cycle	220~240v Live First 5 seconds of a cycle	220~240v Live Machine off rinse down
11 →	21 →	31 →
220~240v Live Not in a cycle or first 5 seconds of a cycle	220~240v Live Cycle timer run + cycle light On	220~240v Live Rinse pump signal
→A1		A2
220~240v Live Cycle switch and/or Terminal 11 of this relay		220~240v Neutral Terminal block

Machine full Relay CT5



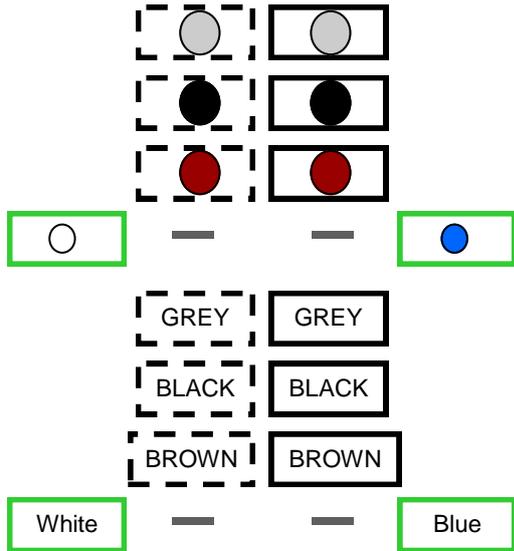
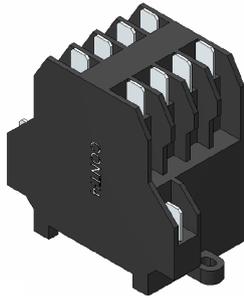
Note!

Red wire for pressurised rinse boiler
Purple for air break machines

12	→22	→32
→14	→24	→34
220~240v Live To rinse thermostat		
11→	21→	31→
220~240v Live From on/off relay		
→A1		A2
220~240v Live APS to this relay		220~240v Neutral Terminal block

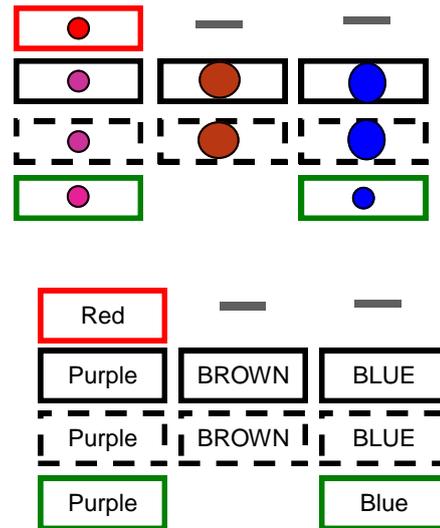
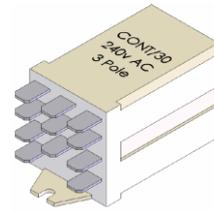
LM-P2-STD-09

Rinse Heater Contactor CT1



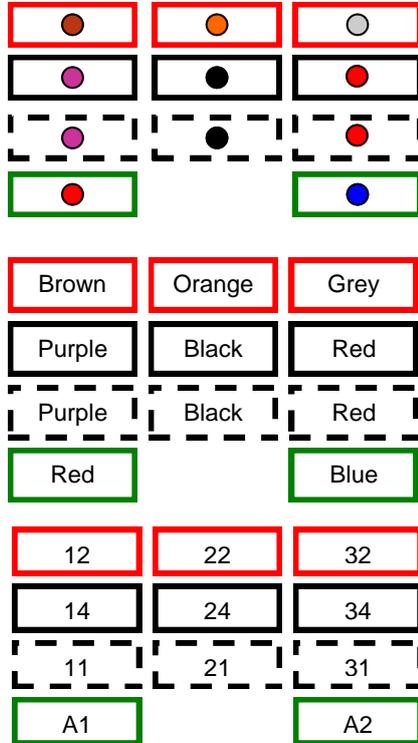
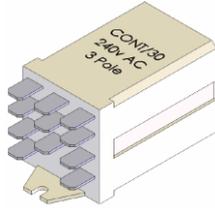
	→5L3	6T3→	
	220~240v Live Terminal Block	220~240v Live Rinse Element	
	→3L2	4T2→	
	220~240v Live Terminal Block	220~240v Live Rinse Element	
	→1L1	2T1→	
	220~240v Live Terminal Block	220~240v Live Rinse Element	
→A1	21NC	22NC	A2
220~240v Live Rinse APS1 High			220~240v Neutral Terminal block and Rinse safety thermostat

Wash Heater Relay CT2

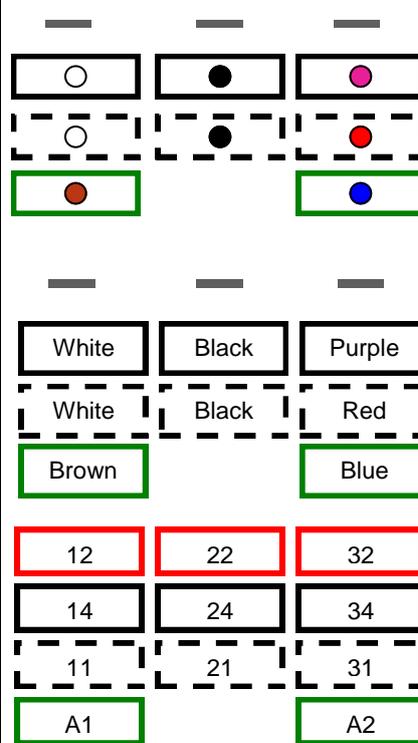
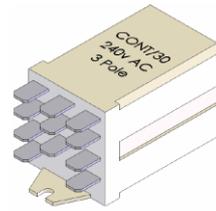


12	→22	→32
220-240v live wash APS1 high and rinse thermostat		
→14	→24	→34
220~240v Live Wash APS1 high and wash thermostat	220~240v Live Wash element	220~240v Neutral wash element
11→	21→	31→
220~240v Live Heating lamp	220~240v Live Terminal block	220~240v Neutral terminal block
→A1		A2
220~240v Live wash APS1 High		220~240v Neutral Terminal block

On/Off Relay CT3



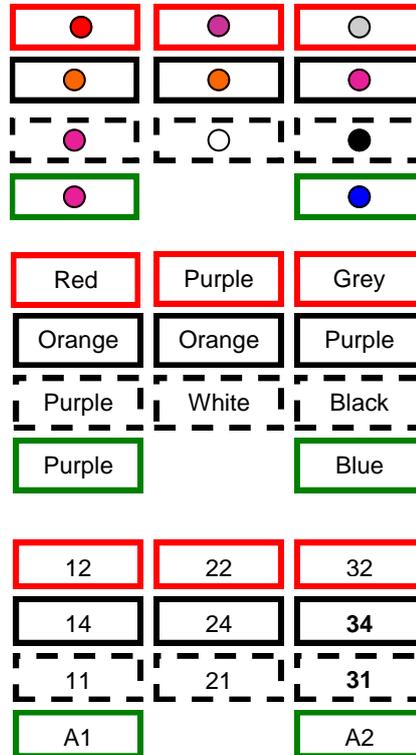
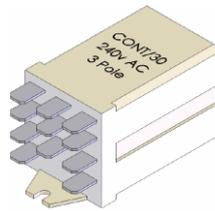
Door Relay CT4



→12	22→	32→
220~240v Live Circuit breaker	220~240v Live Drain down	220~240v Live Wash APS1
→14	24 →	34→
220~240v Live Interlock achieved	220~240v Live wash pump door relay closed	220~240v Live Machine On - Wash APS (11)
11→	→21	→31
220~240v Live OK to run cycle	220~240v Live Cycle timer run + door closed	220~240v live rinse pump door relay closed
→A1		A2
220~240v Live On / Off switch		220~240v Neutral Terminal block

12	22	32
14→	24 →	→34
220~240v Live Door closed run cycle	220~240v Live Door closed run wash	220~240v Live Door closed run rinse
→11	→21	31 →
220~240v Live OK to cycle motor	220~240v Live Rinse Cam	220~240v L APS drain signal
→A1		A2
220~240v Live Door switch		220~240v Neutral Terminal block

Latch Relay CT5



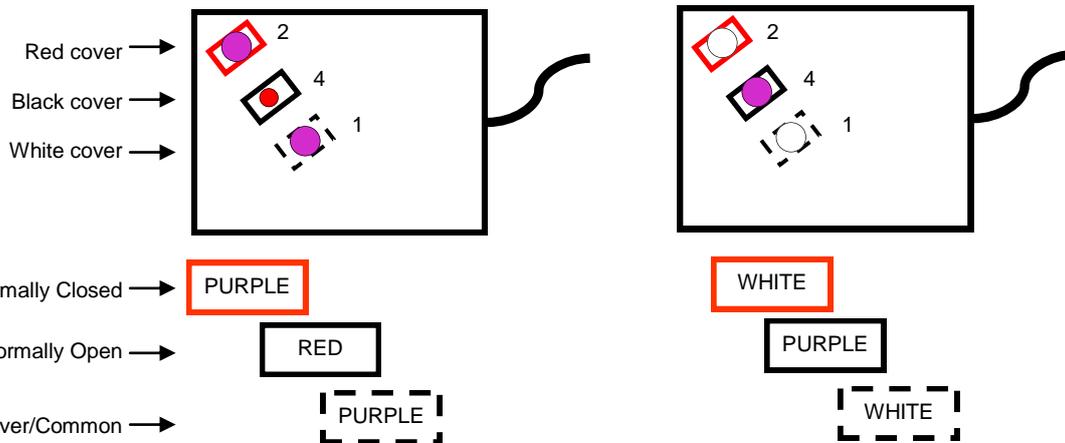
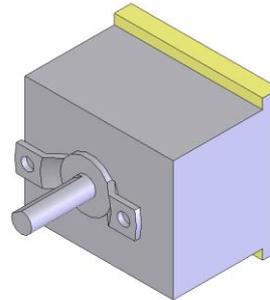
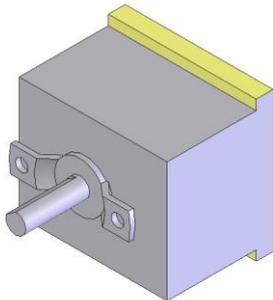
12	→22	→32
220-240v cycle switch	220~240v Live Interlock achieved + cycle selected	220~240v Live Fill or cycle rinse
→14	→24	→34
220~240v Live First 5 seconds of a cycle	220~240v Live First 5 seconds of a cycle	220~240v Live Machine off rinse down
11→	21→	31→
220~240v Live Not in a cycle or first 5 seconds of a cycle	220~240v Live Cycle timer run door relay closed	220~240v Live Cycle lamp on
→A1		A2
220~240v Live Cycle switch and/or Terminal 11 of this relay		220~240v Neutral Terminal block

Thermostat wiring

LM-P2-13A and LM-P2-30A

Wash thermostat

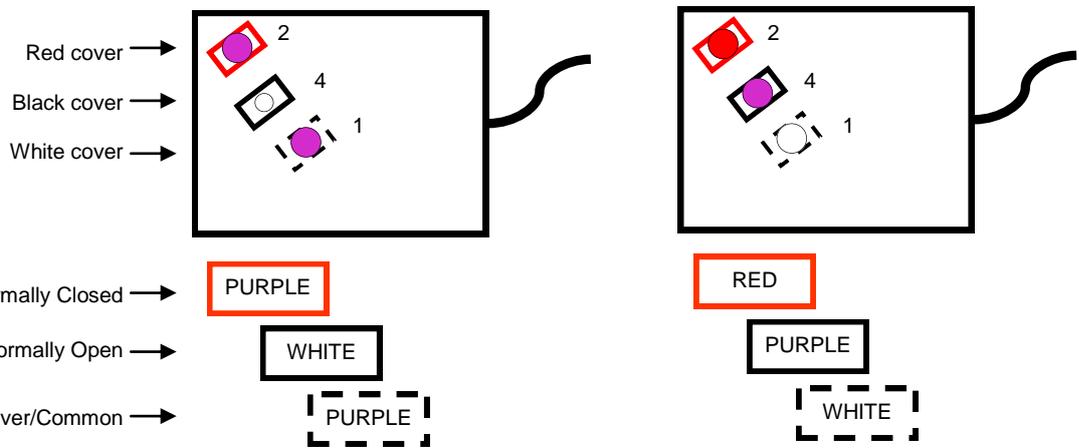
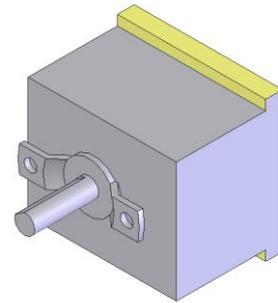
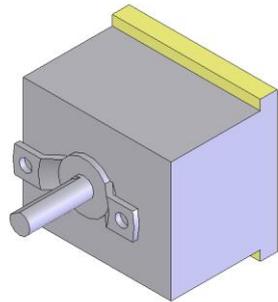
Rinse thermostat



LM-P2-STD-09

Wash Thermostat

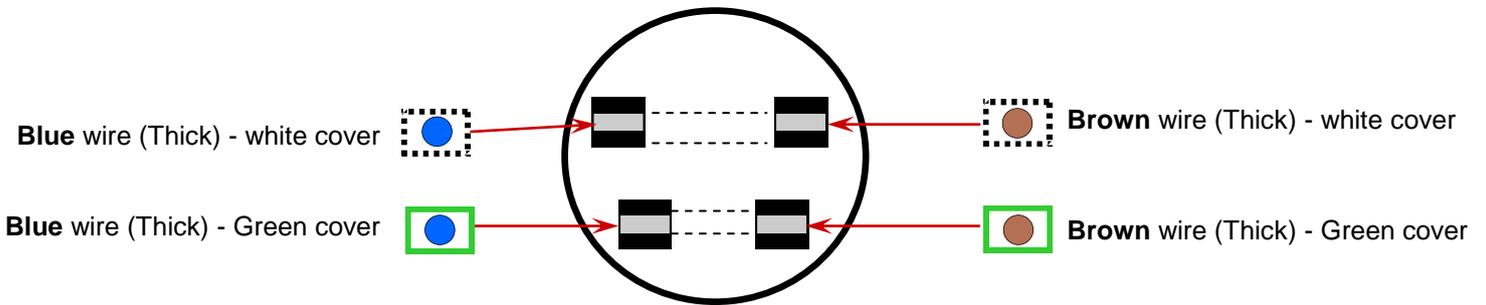
Rinse Thermostat



Element & Safety Thermostats Wiring

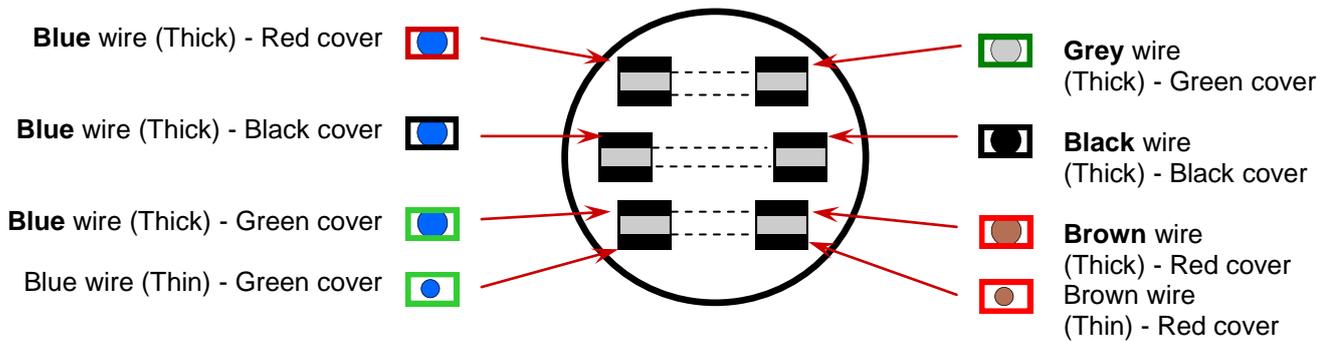
Rinse element wiring 13A

2.6 kW Rinse elements, using loom LM-P2-13A



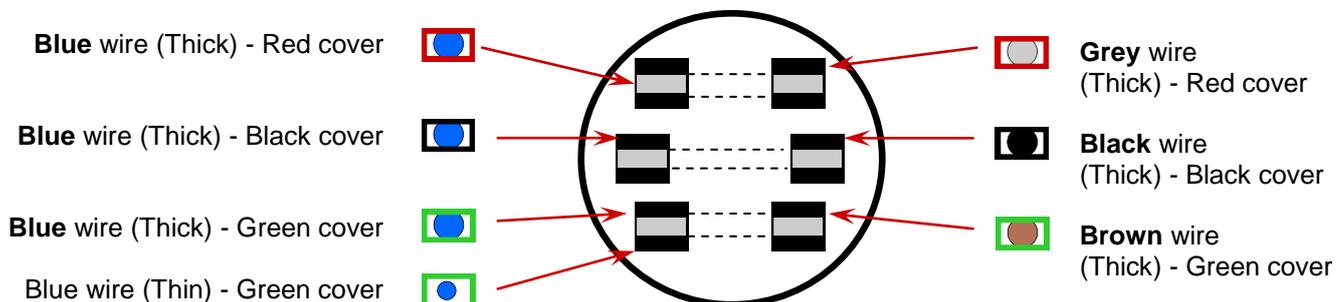
Rinse element wiring 30A

6.0 kW - Rinse elements, using loom LM-P2-30A

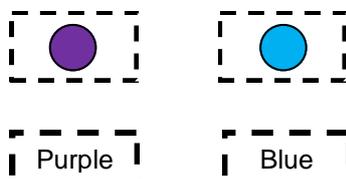


Rinse element wiring 30A - Water Softener

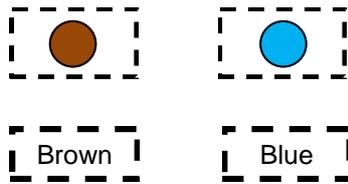
6.0 kW - Rinse elements, using loom LM-P2-STD-09



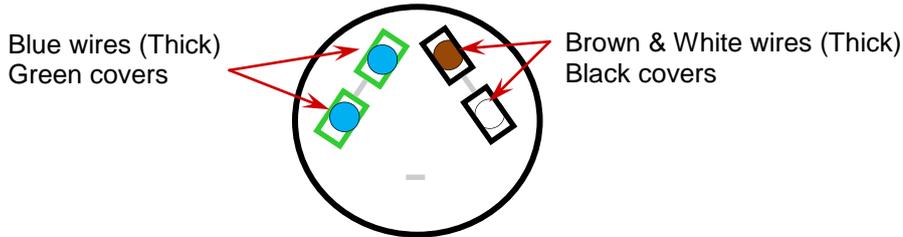
2.0 kW - Wash elements, using loom LM-P2-13A and LM-P2-30A



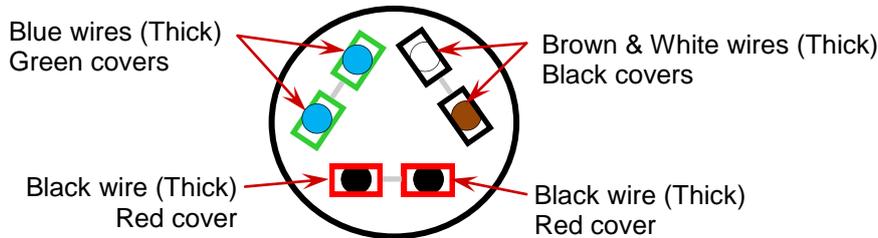
2.0 kW - Wash elements, using loom LM-P2-STD-09



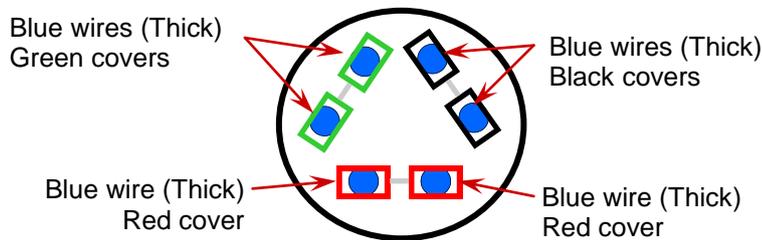
Rinse safety thermostat LM-P2-13A



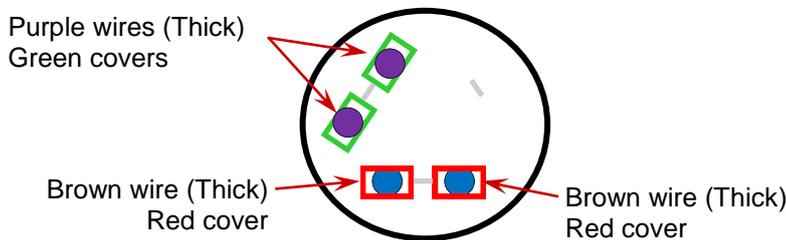
Rinse safety thermostat LM-P2-30A



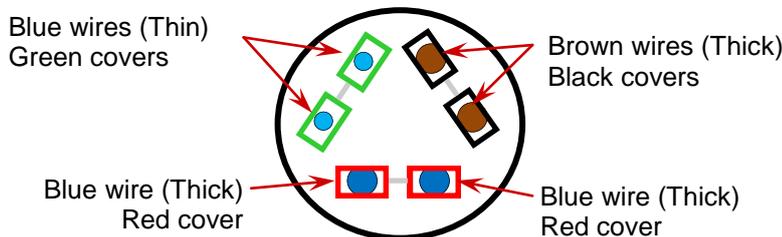
Rinse safety thermostat LM-P2-STD-09



Wash safety thermostat LM-P2-13A and LM-P2-30A



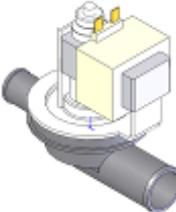
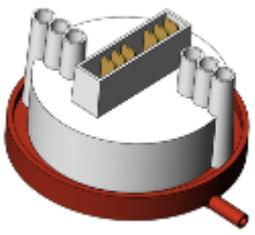
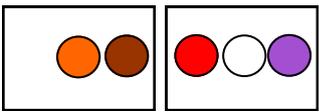
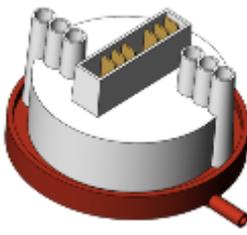
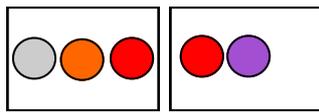
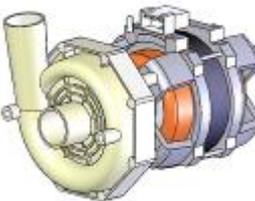
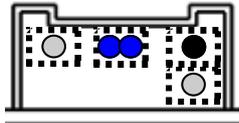
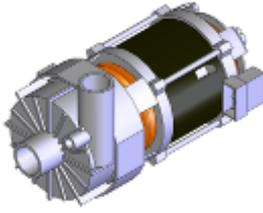
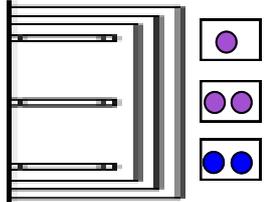
Wash safety thermostat LM-P2-STD-09

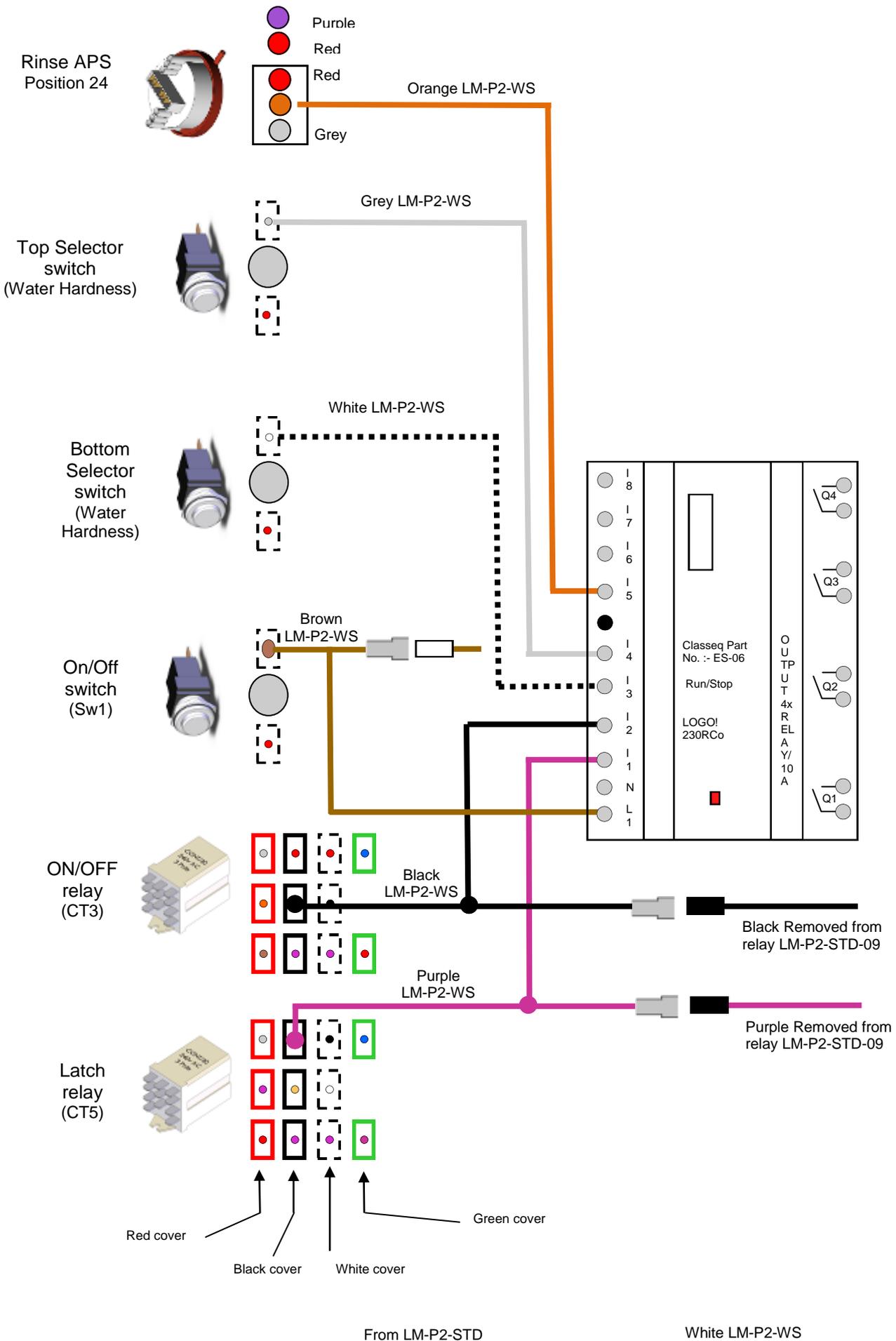


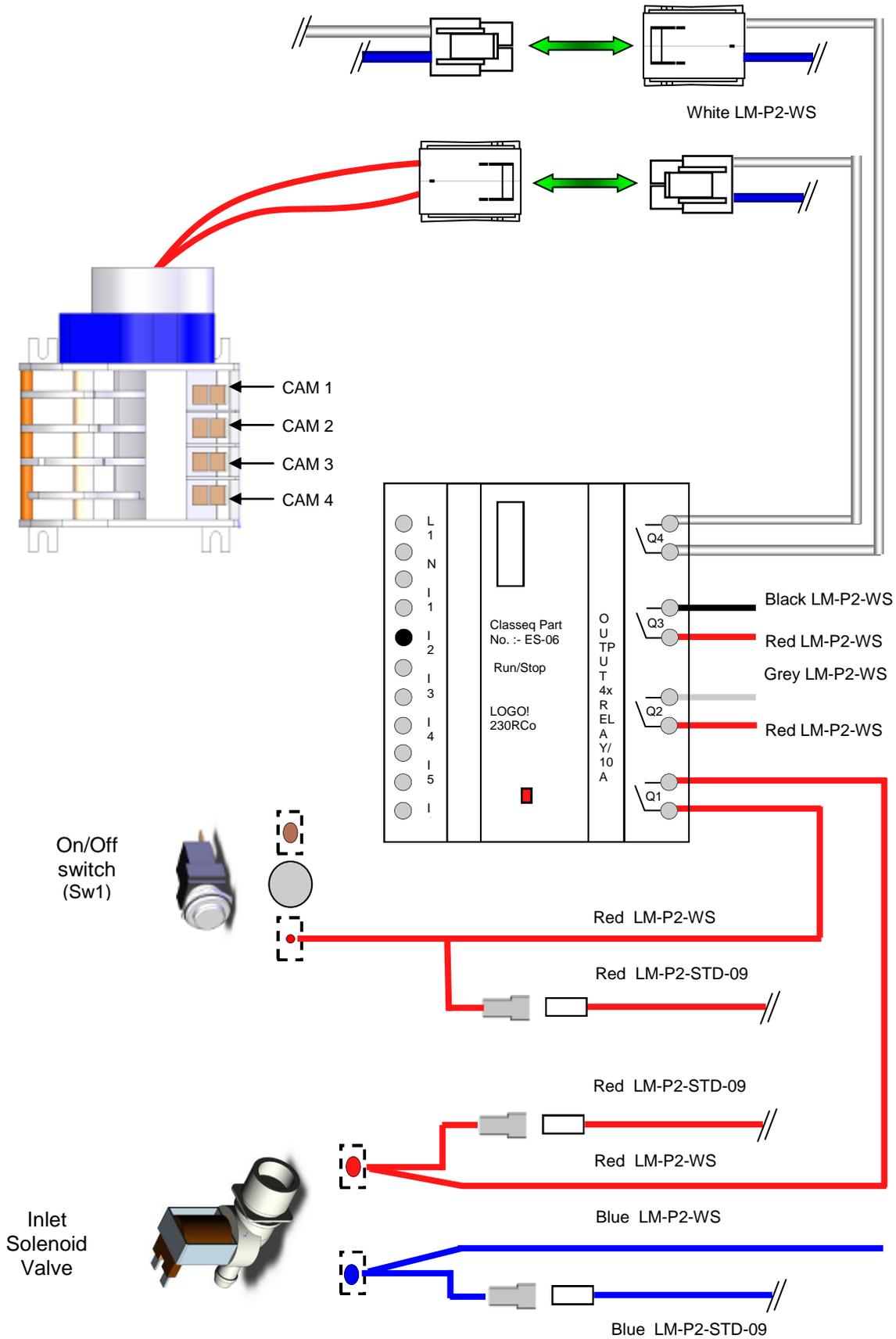
Solenoid Valve Wiring

	Type of machine		
	Air break (i.e. Duo's)	Water softener machines	Pressurized tank (i.e. standard Eco & Hydro's)
Inlet solenoid valve	White & Blue  	Red & Blue  	Red & Blue  

Softener Machines

component	Part number & description	Wiring configuration												
	Drain Pump DP2	 <p>Blue Wire / White Crimp Orange Wire / White Crimp</p>												
	Wash Air pressure Switch 530.0002	22 / 24 / 21 11 / 14 / 12 												
	Rinse Air pressure Switch 530.0002	22 / 24 / 21 11 / 14 / 12 												
	Inlet Solenoid Valve 7.12.12/1	 <p>Blue Wire / White Crimp Red Wire / White Crimp</p>												
	Rinse Aid & Detergent Pumps R/A — 526.0007 DET — 526.0008	<table border="0"> <tr> <td colspan="2" style="text-align: center;">Detergent</td> <td colspan="2" style="text-align: center;">Rinse Aid</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">Blue Wire / White Crimp</td> <td style="text-align: center;">Purple Wire / White Crimp</td> <td style="text-align: center;">Blue Wire / White Crimp</td> <td style="text-align: center;">Purple Wire / White Crimp</td> </tr> </table>	Detergent		Rinse Aid						Blue Wire / White Crimp	Purple Wire / White Crimp	Blue Wire / White Crimp	Purple Wire / White Crimp
Detergent		Rinse Aid												
														
Blue Wire / White Crimp	Purple Wire / White Crimp	Blue Wire / White Crimp	Purple Wire / White Crimp											
	Wash Pump	 <p>Grey Blue Black</p> <p style="text-align: center;">Grey</p>												
	Rinse Pump	 <p>Purple</p> <p>Double Purple</p> <p>Double Blue</p>												





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