HOBART

NEW C-LINE

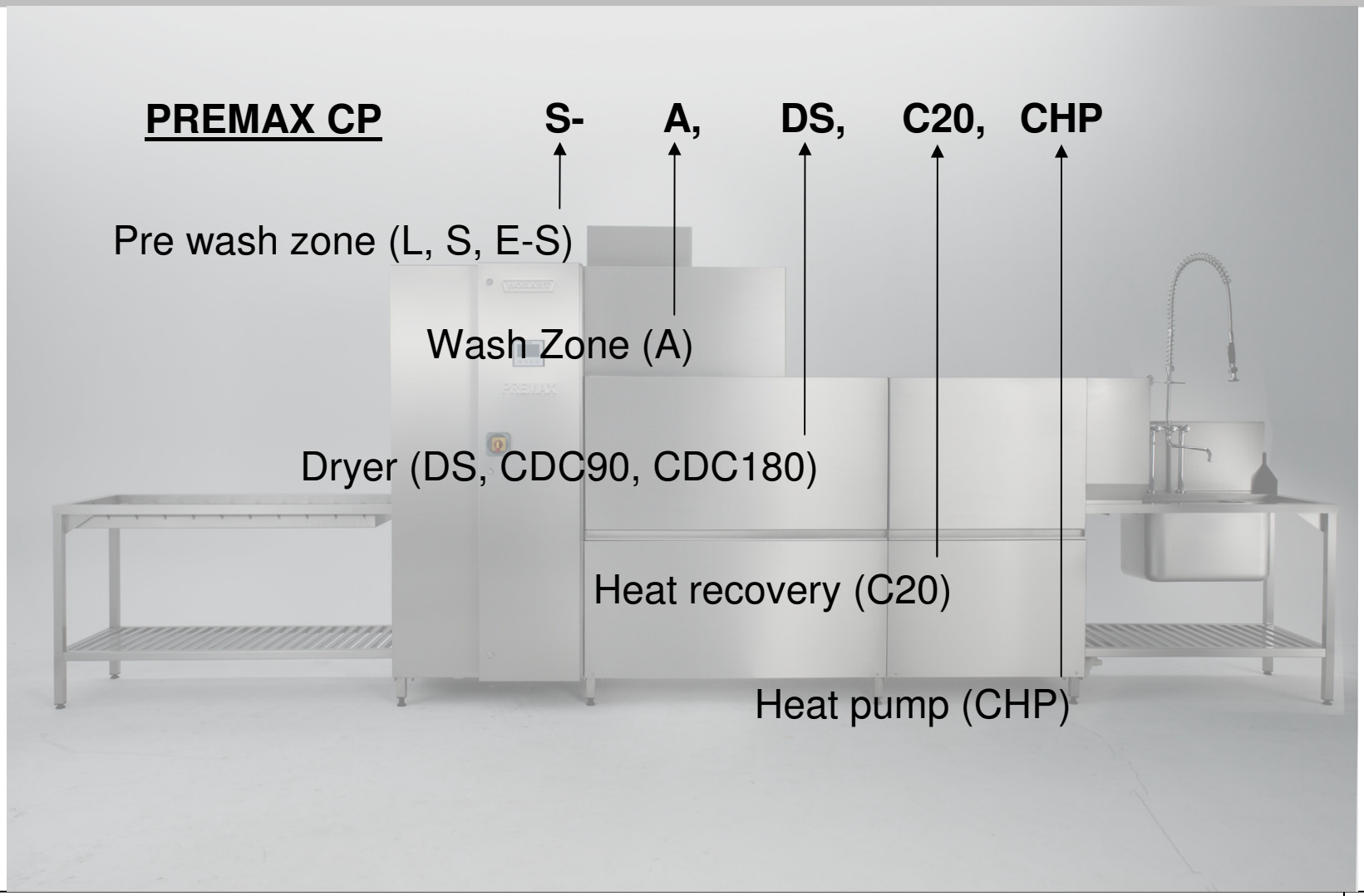
EFFICIENT – RELIABLE – INNOVATIVE

PRODUCT-LINES

EFFICIENT – RELIABLE – INNOVATIVE

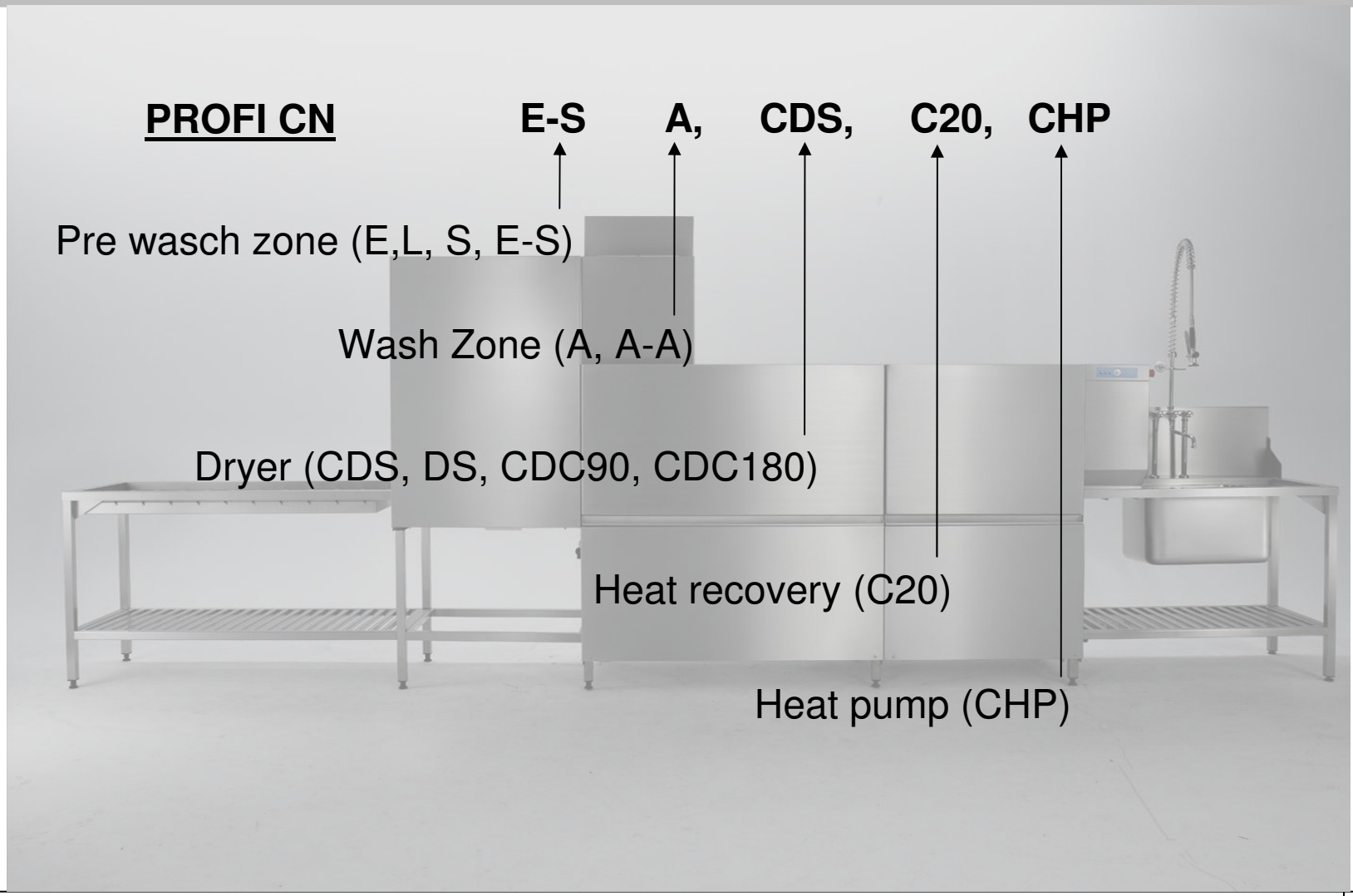
NOMENCLATURE PREMAX CP

EFFICIENT – RELIABLE – INNOVATIVE



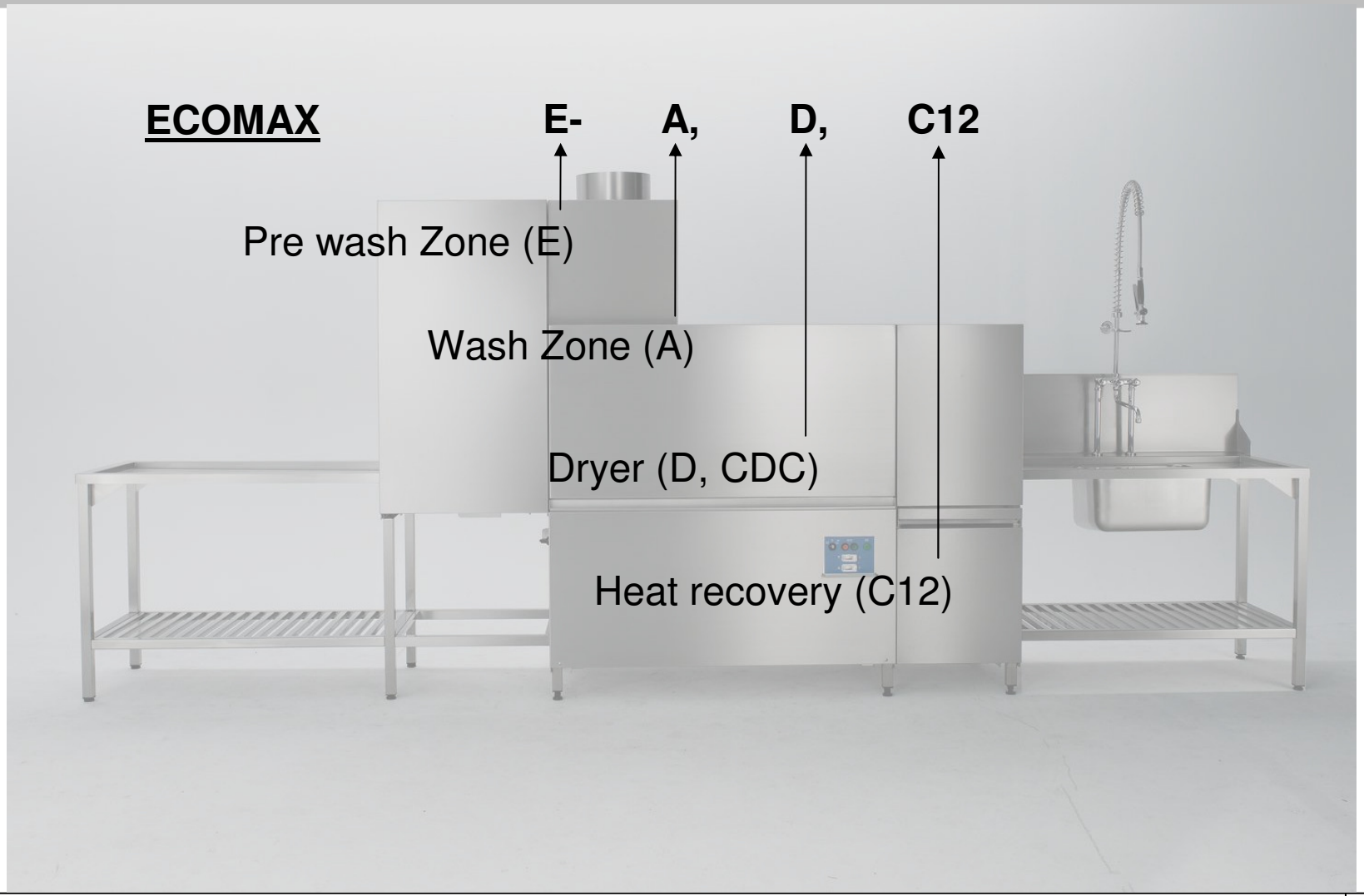
NOMENCLATURE PROFI CN

EFFICIENT – RELIABLE – INNOVATIVE



NOMENCLATURE ECOMAX

EFFICIENT – RELIABLE – INNOVATIVE



HOBART

CUSTOMER BENEFITS

EFFICIENT – RELIABLE – INNOVATIVE

“Easy to clean & handle“

Only one condenser:
- less parts to clean
- without relocation
- top down splash-out

Easy sliding doors:
- easy operation

No exhaust channel:
- cleanability

Single button control:
- easy handling

Automatic drain:
- drain by pushing a button

Deep drawn wash/rinse tank:
- all surfaces with slope to drain
- No edges / corners

“Serviceability / reliability“

All „80“-Parts on front side:
• easy to service

Wash pump & manifold inside wash tank:
• reliability / less risk of leakages
• serviceability / easy shaft seal change

“Operational cost”savings CP“

- Fresh water (40-50%)
- Detergent (40-50%)
- Rinse aid (40-50%)
- Energy (10-15%)

Less exhaust volume:
• energy saving

Wash arm configuration:
• uniform distribution
• energy saving

Temperature profile:
• energy saving

Low flow rinse:
• water saving
• chemistry saving

Operational cost savings 2650,-€/year (L-A machine / 4h/day)

HOBART

PRODUCT-FEATURES

EFFICIENT – RELIABLE – INNOVATIVE

Fresh Water Rinse 50PERCENT

The task of the fresh water rinsing is to remove detergent from the wash ware. The distribution of the fresh water is decisive for the water volume used.

The **Fresh Water Rinse 50PERCENT** has special precision nozzles, which disperses the rinse water like a curtain and forms a thin film of water on the wash ware. As a result of the optimized water distribution this micro-thin film is sufficient to rinse off the suds from the wash ware. In addition to the conventional rinsing from above and below the Fresh Water Rinse 50PERCENT rinses the wash ware also laterally. The optimized arrangement of the nozzles enables a precise spraying of the wash ware.

The Fresh Water Rinse 50PERCENT reduces the necessary fresh water volume by up to 50%. As a result the consumption of rinsing aid and energy is reduced accordingly.

PATENT PENDING

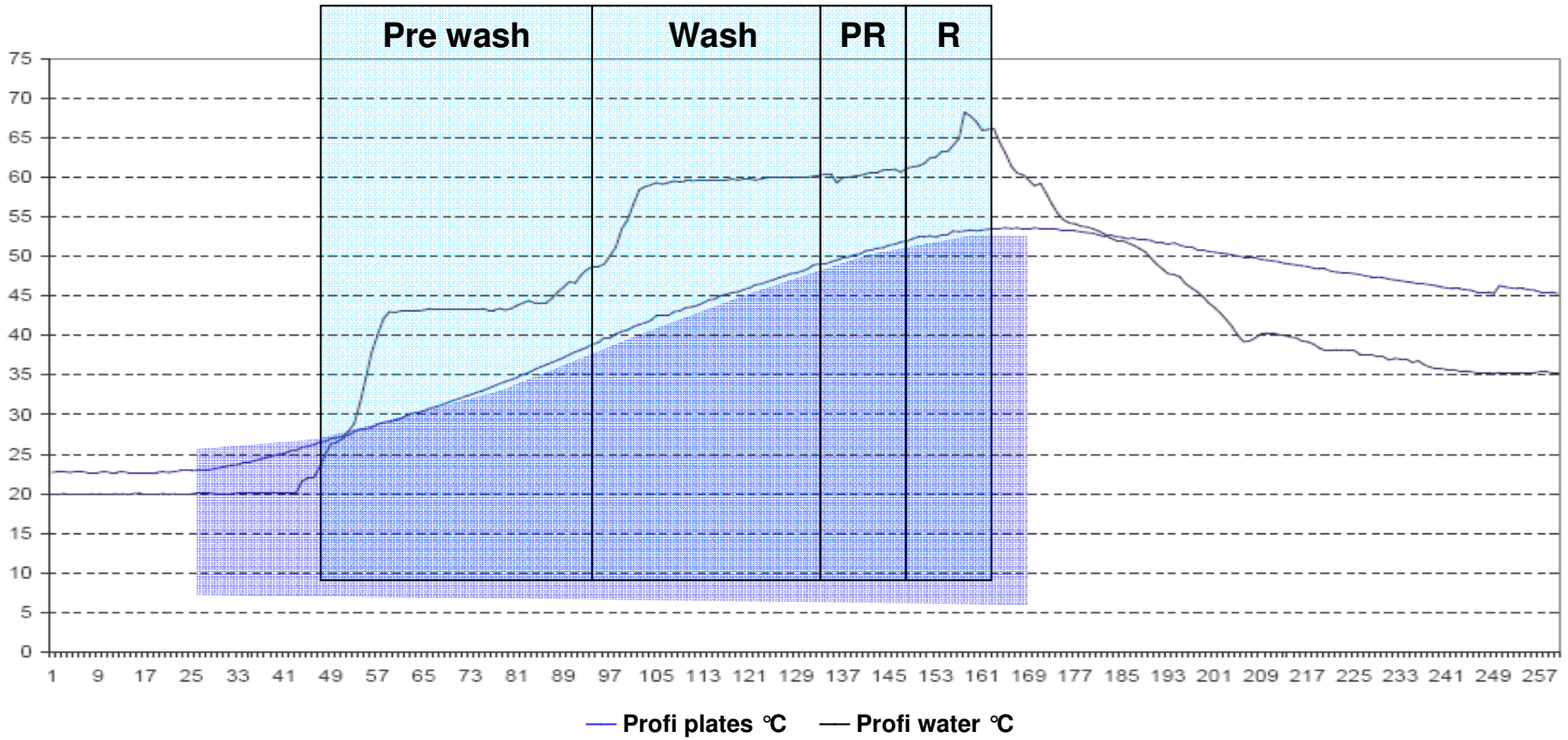
For CP only

Task of the final rinse

- Removal of detergent ..... ✓
- Heating wash ware
- Disinfection with
  rinse water temperature > 80 °C

Heating dishes / Hygiene

EFFICIENT – RELIABLE – INNOVATIVE



The temperature increase to the wash ware in the pumped- and final rinse is low.

Consequently the influence of the pumped- and final rinse regarding hygienic result is not fundamentally.

Remove detergent

EFFICIENT – RELIABLE – INNOVATIVE

Requests to the nozzle:

- Low water consumption
- Water film on the total dish surface to remove the detergent

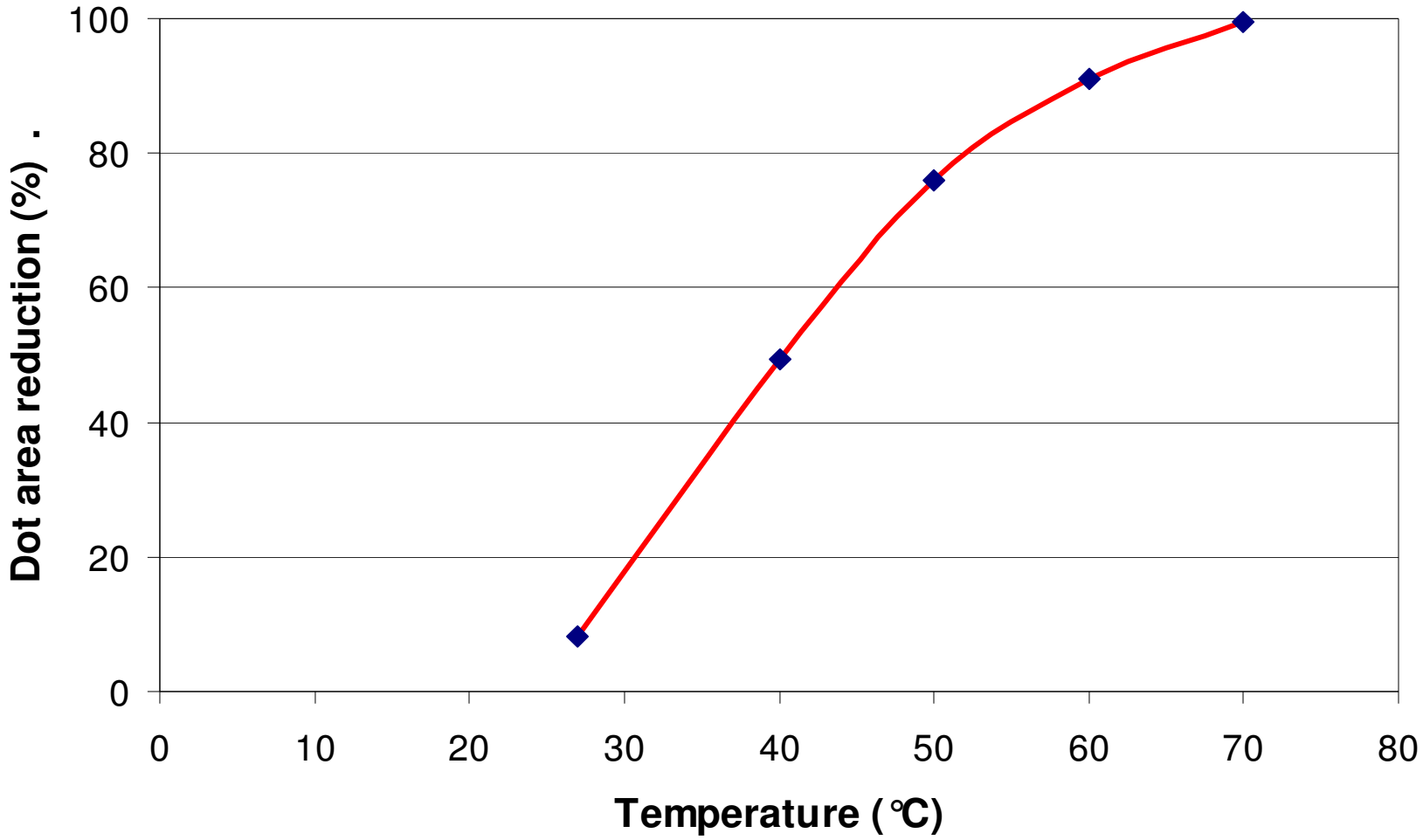
Findings

- Misty spray generates thin film on the dish surface and removes deterent

= 50% Water saving

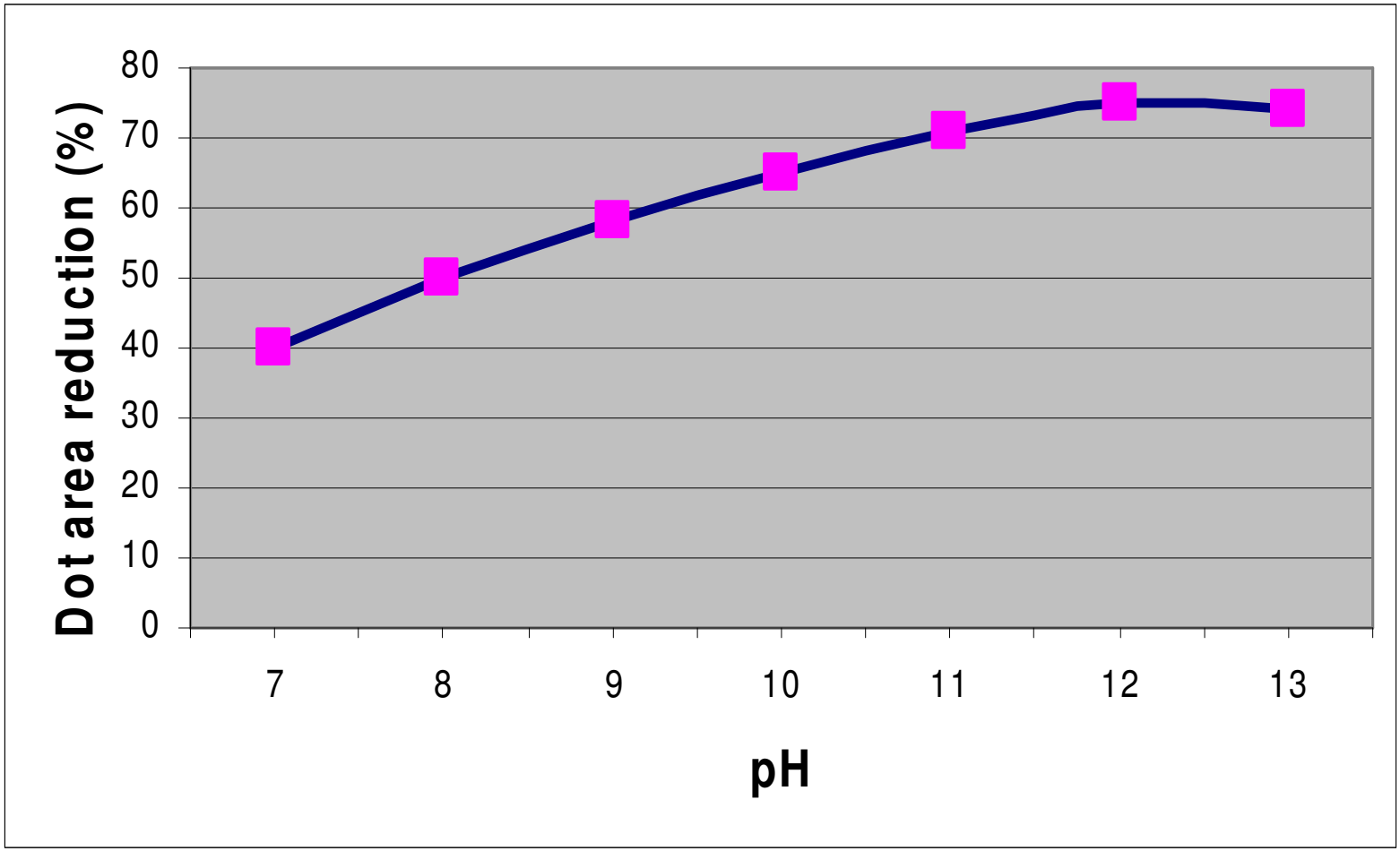
Influence temperature

EFFICIENT – RELIABLE – INNOVATIVE



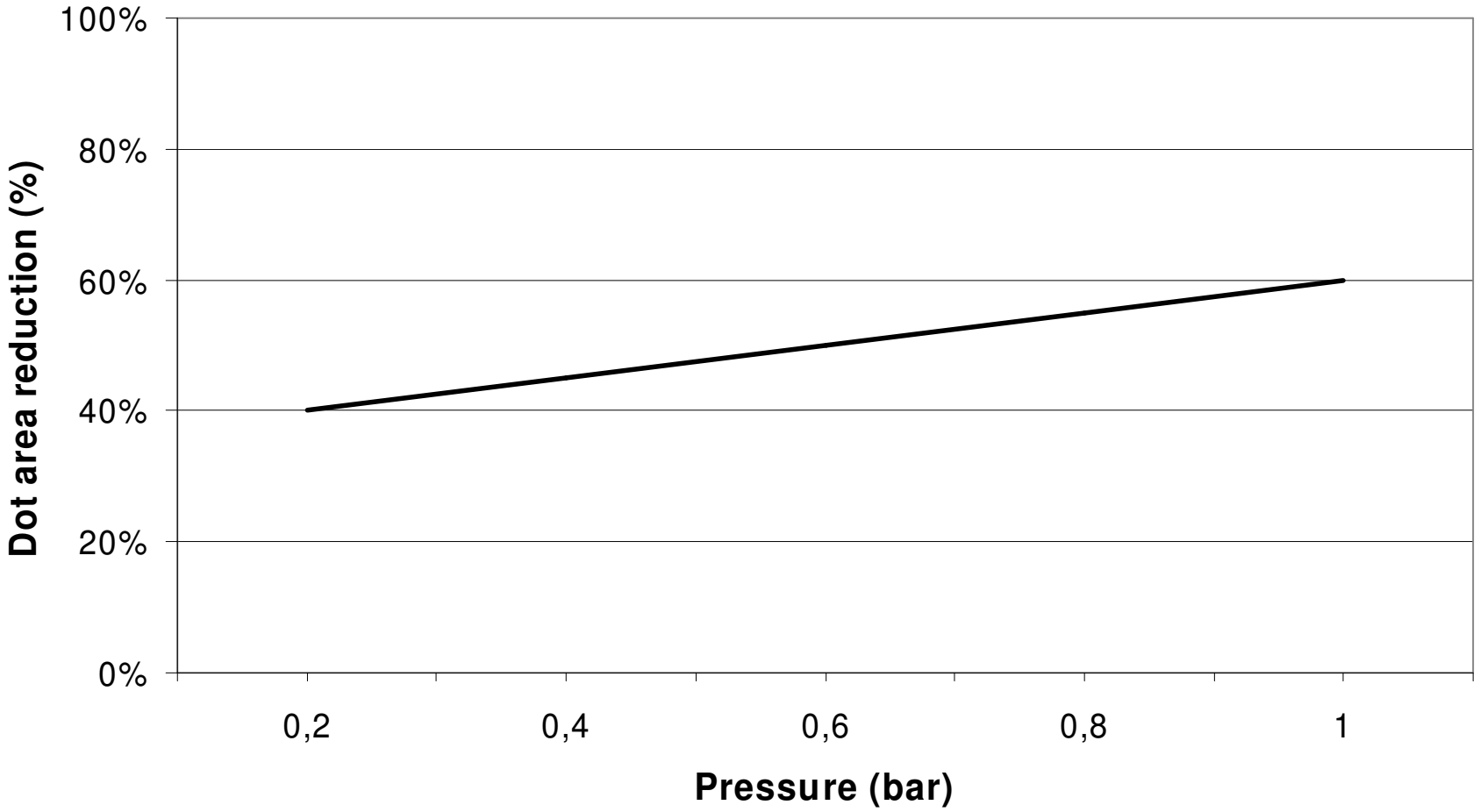
Influence chemistry / pH

EFFICIENT – RELIABLE – INNOVATIVE



Influence wash pressure

EFFICIENT – RELIABLE – INNOVATIVE



Level of importance

EFFICIENT – RELIABLE – INNOVATIVE

How important is each driver

- Temperature ☆☆☆
- Detergent / pH ☆☆
- Wash pressure ☆
- Circulation rate

Temperature has the main influence

to the wash result and the wash time !

Washing HOT-TEMP

The washing is the result of the cooperation of temperature, time mechanic and chemistry. The water temperature has the biggest influence on the wash result – noticeable more than wash pressure. In conventional dishwashers the wash temperature is at approximately 60°C.

With the **Washing HOT-TEMP** the wash ware is at first washed at up to 67°C. This improves the efficiency of the detergent – the wash ware is faster clean.

With the **Washing** HOT-TEMP the capacity of the machine is raised by up to 40%. And as a reverse reaction a smaller machine can be used.

Standard feature for: CP

PATENT PENDING

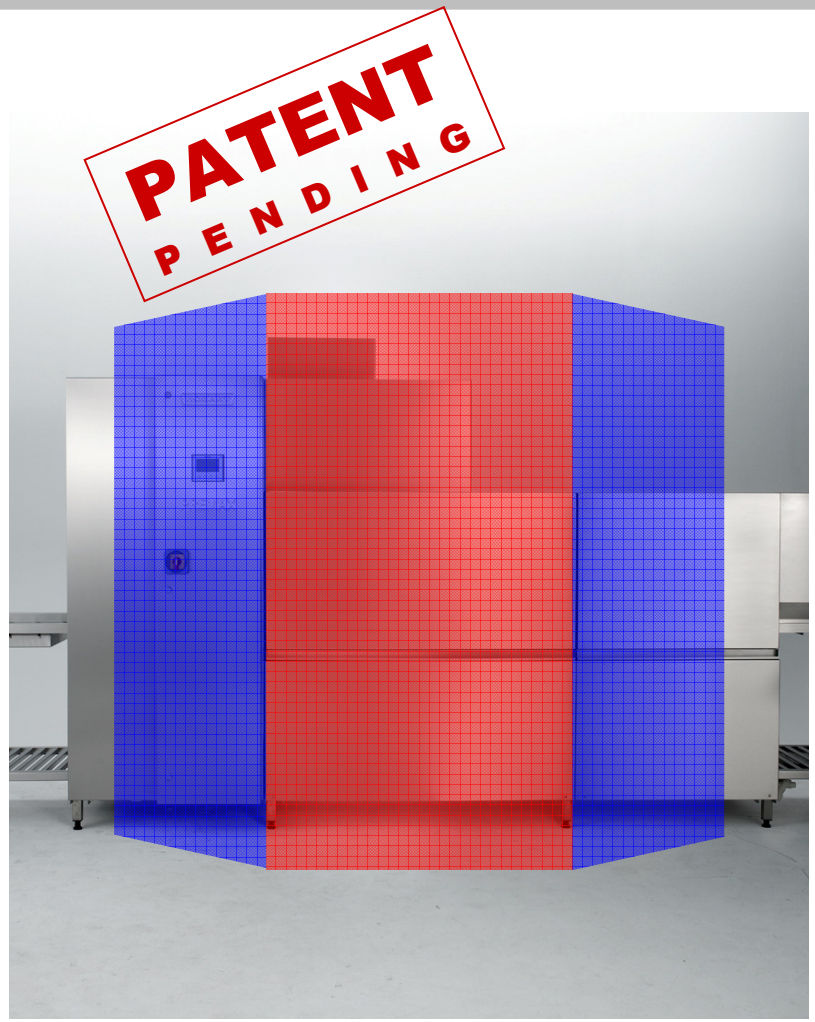
Energy-Management TOP-TEMP

A conventional conveyor dishwasher loses about 40 % of the energy already available in the machine by sensible and latent heat emission. The hot fresh water rinsing has a considerable influence . The heat loss of the fresh water rinsing takes place at the end of the machine. The heat energy escapes via drying to the outside.

The **Energy- Management TOP-TEMP** avoids these losses before they occur. In the centre of the machine the hot water zone is embedded in the low temperature pre-wash zone and the fresh water rinsing 50PRERCENT. Here the pre-wash zone and the rinsing have the effect of a temperature barrier.

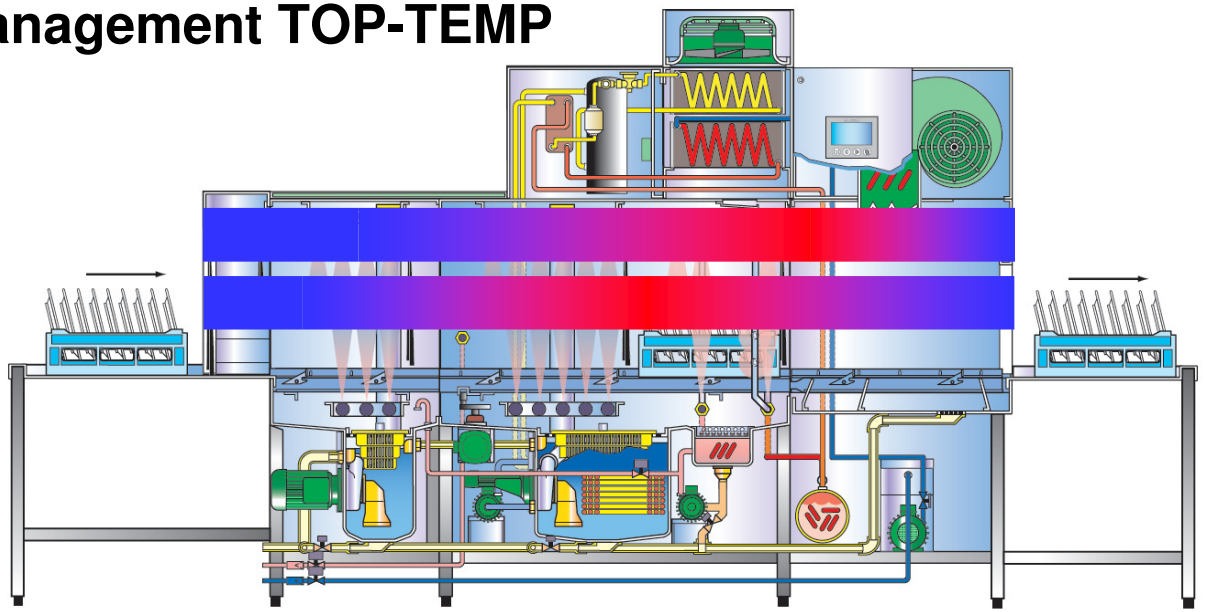
The temperature equalization takes place within the machine and so the heat energy can be saved. Energy loss – and costs are reduced by up to 15%.

For CP only



Energy-Management TOP-TEMP

Patent filed



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Pump Rinse 80DEGREES

The temperature is an important factor for the drying of the wash ware. In conventional dishwashers the highest temperature is in the fresh water rinsing. For heating up the wash ware, there is only the volume of the fresh water consumption available.

In the **Pump Rinse 80DEGREES** the hot water is circulated several times (720 l/h) and increases the temperature input on the wash ware.

The better heating up of the wash items supports the self-drying effect. The drying result is considerably improved and the energy used for drying is reduced.

PATENT PENDING

for CP only

Energy-Management EFFICIENT

A conventional conveyor dishwasher loses 40% of the energy already available in the machine via the exhaust system. Here the distribution of water and the air stream have a considerable influence.

The new **Energy-Management EFFICIENT** reduces the loss of evaporation. The improved arrangement of the wide angle nozzles FAN and the orientation of the wash arms reduce the air flow within the machine. The **wide angle nozzle FAN** spreads out a 65% wider and more even spray-fan. So the circulation performance need is reduced with same wash result. In order to keep the system in balance less air/water steam has to be exhausted.

The new **Energy-Management** reduces the energy loss of the conveyor dishwasher by up to 15 %.

Standard feature for: CS, CN, CP

Where do we find energy loss

EFFICIENT – RELIABLE – INNOVATIVE

Technology Analysis in 2003 !

Energy-output = energy loss

- 20% energy lost by wash ware (dishes)
- 25% energy lost by drain water
- 15% energy lost on the machine surface
- 40% energy lost by evaporation

Why?

High air movement in the machine supports heat lost (evaporation)

How to reduce heat lost ?

By reducing the air exchange of different temperature zones

This works by optimizing the water distribution

Managing the energy balance means reducing of energy lost

The technical solution

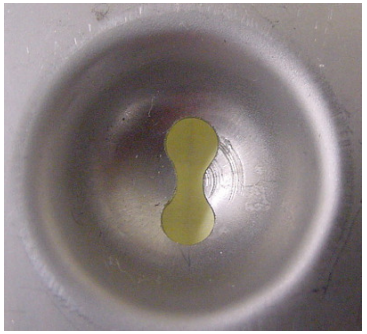
EFFICIENT – RELIABLE – INNOVATIVE

Best Result

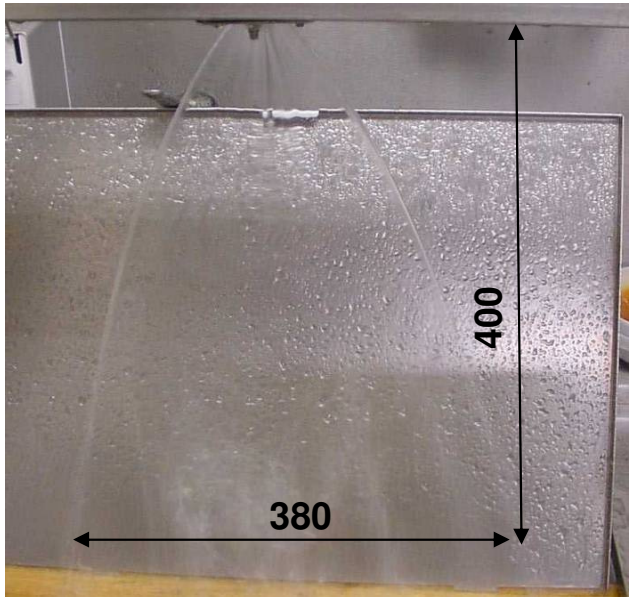
Spray angle ✓

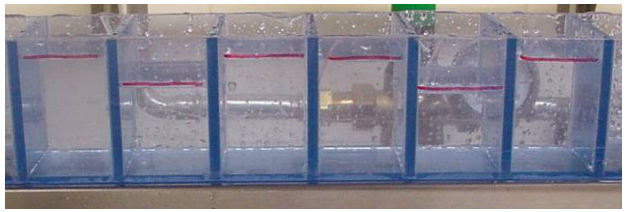
Uniform water/pressure distribution ✓

Water film ✓



Patent filed





Wash system CONTACT-PLUS

The impact with detergent solution via the wash arms is, apart from the temperature, the main factor influencing the cleaning result .

The precision of the **FAN wide angle nozzles** makes it possible to reduce the distances between the wash arms. The wash arms are located very close to one another and so achieving full cleaning performance. In connection with the 65% wider wash jets the new configuration of the **FAN wide angle nozzles** washes the items three times per wash arm.

The 11 wash arms of the new wash system **CONTACT-PLUS** increases the capacity up to 10% in a similar sized machine and with optimal wash results.

PATENT PENDING

Standard feature for: CN, CP

Wide Angle Nozzle FAN

Washing efficiency depends largely on the distribution of the detergent solution and the avoidance of any masked areas. Spraying angles and the precision of the wash jets are vital factors in achieving a powerful, searching wash action and the new HOBART designed **nozzles FAN** provide a substantially broader and more precise spraying pattern.

PATENT PENDING

Standard feature for: CS, CN, CP

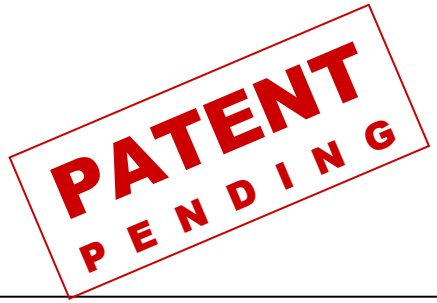
Reduced Exhaust

The water flow decisively influences the heat balance of the machine. The CONTACT-PLUS wash system in the C-Line comprises 6 wash arms above and 5 wash arms below.

The optimized configuration and orientation of the wash arms above and below – in combination with the new FAN wide angle nozzle – reduces the movement of air in the machine and consequently the volume of exhaust.

The up to 40 per cent reduced volume of outgoing air remains as heat in the machine, reducing the fresh air intake in the room according to VDI 2052.

Standard feature for: CP / CN



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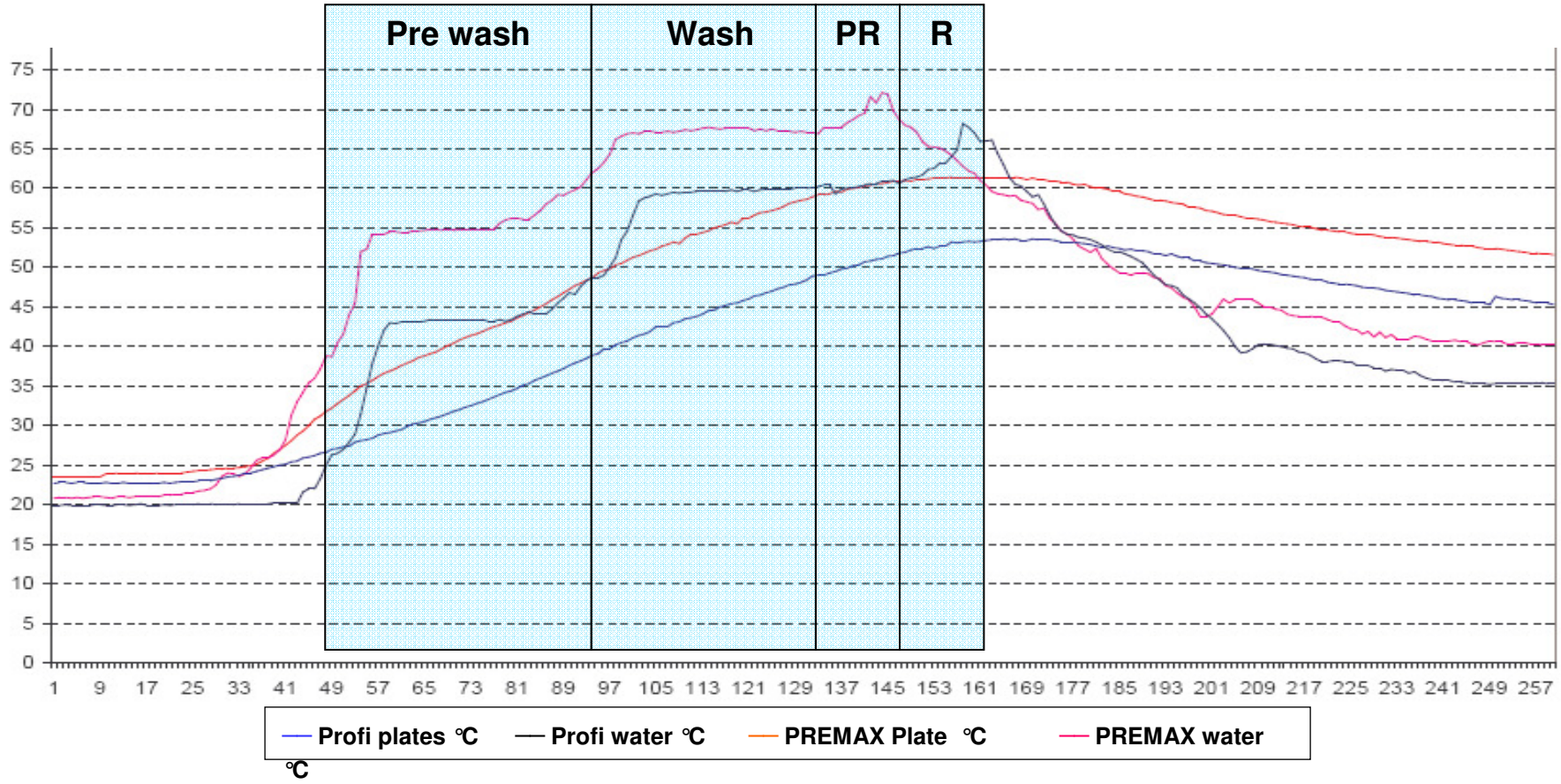
Best drying result

EFFICIENT – RELIABLE – INNOVATIVE

Effect of wash temperature

EFFICIENT – RELIABLE – INNOVATIVE



The Premax-Process leads to a higher plate temperature.

The self drying effect of the plate is better!!

Pump Rinse 80DEGREES

The temperature is an important factor for the drying of the wash ware. In conventional dishwashers the highest temperature is in the fresh water rinsing. For heating up the wash ware, there is only the volume of the fresh water consumption available.

In the **Pump Rinse 80DEGREES** the hot water is circulated several times (720 l/h) and increases the temperature input on the wash ware.

The better heating up of the wash items supports the self-drying effect. The drying result is considerably improved and the energy used for drying is reduced.

Patent filed

The benefits

- **You save up to 50% Water** ✓
- **You save up to 50% detergent & up to 80% Rinse aid** ✓
- **You reduce Energy lost up to 15% in the wash tank** ✓
- **You increase the plate capacity by up to 40%** ✓
- **You achieve the best drying result** ✓
- **You exceed the DIN 10510 hygienic result**

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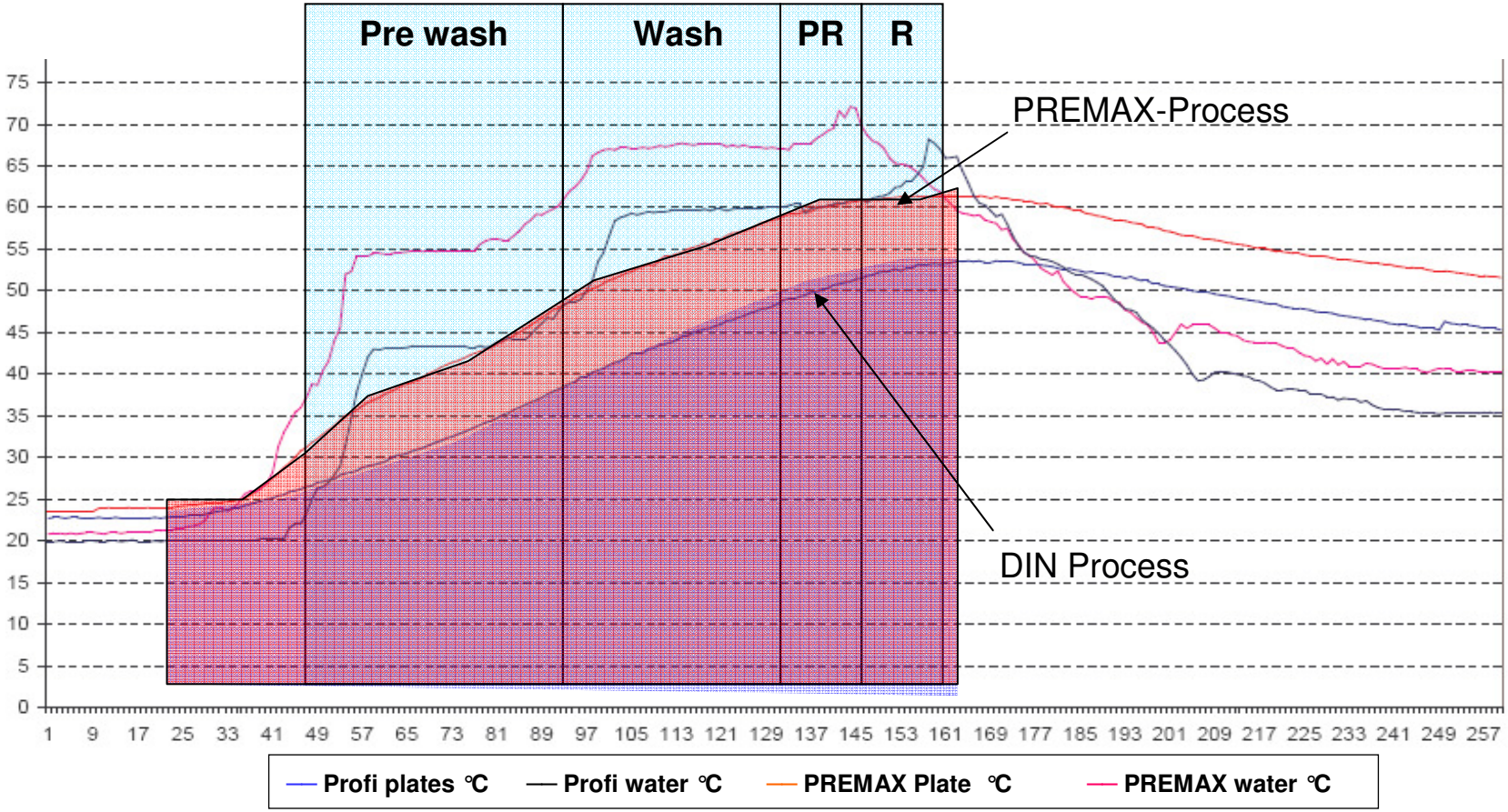
Hygienic result

EFFICIENT – RELIABLE – INNOVATIVE

Temperature development

EFFICIENT – RELIABLE – INNOVATIVE



The PREMAX-Process leads to a better result than DIN requires!

BERATUNGSZENTRUM FÜR HYGIENE

ZERTIFIKAT

CERTIFICATE

The multi-tank rack-type dishwasher model
„Premax CP"
by Hobart GmbH

complies with the requirements which have to be made on multi-tank rack-type dishwashers from the hygienic point of view regarding germ reduction (analogous to DIN 10510)*.

March 2nd, 2009

Prof. Dr. med. Markus Dettenkofer
Leitung wissenschaftlicher Beirat

Dr. med. Thomas Hauer
Facharzt für Hygiene und Umweltmedizin
Infektiologe (DGI)
Ärztl. Leiter „Krankenhaushygiene" und „Antibiotikamanagement"
BZH Freiburg

Expert's report by Prof. Dr. M. Dettenkofer of February 2nd, 2009
This certificate is valid until March 2012.
In case of technical changes validity is cancelled.

BZH GmbH Beratungszentrum für Hygiene · Wissenschaftl. Leiter Prof. Dr. med. Franz Daschner · Mehrheitsgesellschafter Universitätsklinikum Freiburg · Zert. nach DIN EN ISO 9001: 2000
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Geschäftsführer Dipl.-Kfm. Dirk Welsch · Sitz der Gesellschaft: Freiburg/Breisgau · Amtsgericht Freiburg HRB 5923 · Umsatzsteuer-Ident-Nummer DE 201 386 562

Heat recovery

The easy to clean mono-block condenser is recovering up to 11,5 kW/h without any additional consumption of water or electricity.

Standard feature for: CP

HOBART Heat Pump

A conventional conveyor dishwasher loses 40% of the energy already available in the machine via the exhaust system. The HOBART Heat Pump uses the energy in the exhaust air by cooling down to 20°C.

The energy is given to the wash tank and the final rinse water. Due to the high efficiency of the Heat Pump, the wash tank needs not to be heated with electrical heaters – the booster heaters have reduced loads.

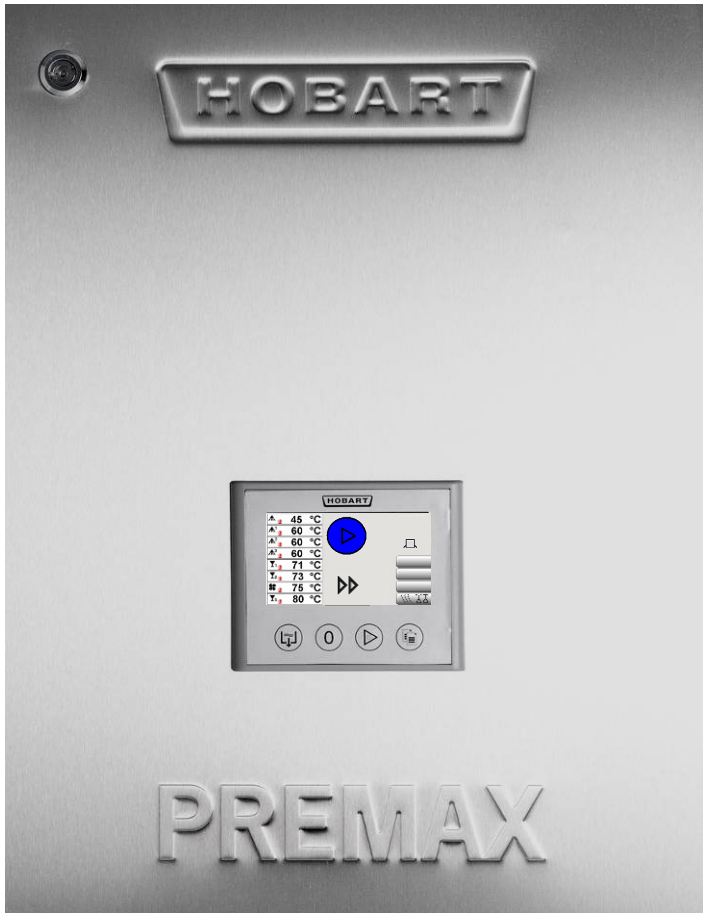
By using a HOBART Heat Pump, the energy saving is up to 11,5 kW/h compared to a Heat recovery.

Optional feature for: CN, CP

PROTRONIC control

Easy use of the machine due to clear indication symbols on the touch screen. By touching the screen all symbols are explained.

All important informations are displayed constantly. Further levels allow to get additional informations same as activation of automatic start of the machine.



Standard feature for: CP, from CN-E-S-A

Optional feature for: smaller CN

SMARTRONIC control

Easy use of the machine due to single button control.

Constant display of wash and rinse temperature. Other temperatures callable. Colour indication of faults and operation status.

Indication of selected rack speed.

Standard feature for: CN up to CN-S-A

EASYTRONIC control

Control with basic functions guarantees an easy use of the machine.

Temperature display as Option.

Standard feature for: CS

RINSE TRI

The HOBART triple rinse comprises the **RADIUS pre-rinse nozzle**, pump rinse and fresh water rinse.

The new **RADIUS** pre-rinse nozzle is ranged in front of the pump rinsing. It rinses the suds from the wash items. The suds is led back via diverters into the wash tank. The concentration of the cleaning agent in the subsequent pump clear rinsing is minimized. HOBART rinses the wash items 3 times.

PATENT

Standard feature for: CP

Optional feature for: CN

Detergent saving system LOW-CHEM

Detergent is dosed directly into the wash tank. The detergent suds is continuously regenerated by the fresh water from the clear rinse. Detergents are subsequently dosed for the fresh water supply.

The enhanced **LOW-CHEM Detergent saving System** directs 75 litres of fresh water for regeneration of the detergent solution into the wash tank. Via the RADIUS pre-rinse nozzle, detergent solution from the items being washed is already rinsed off in advance and returned via diverters into the wash tank.

The dosing of detergent depends on the regeneration water volume. So the **LOW-CHEM Detergent saving System** reduces cleaning agent consumption by up to 80% compared with conventional systems.

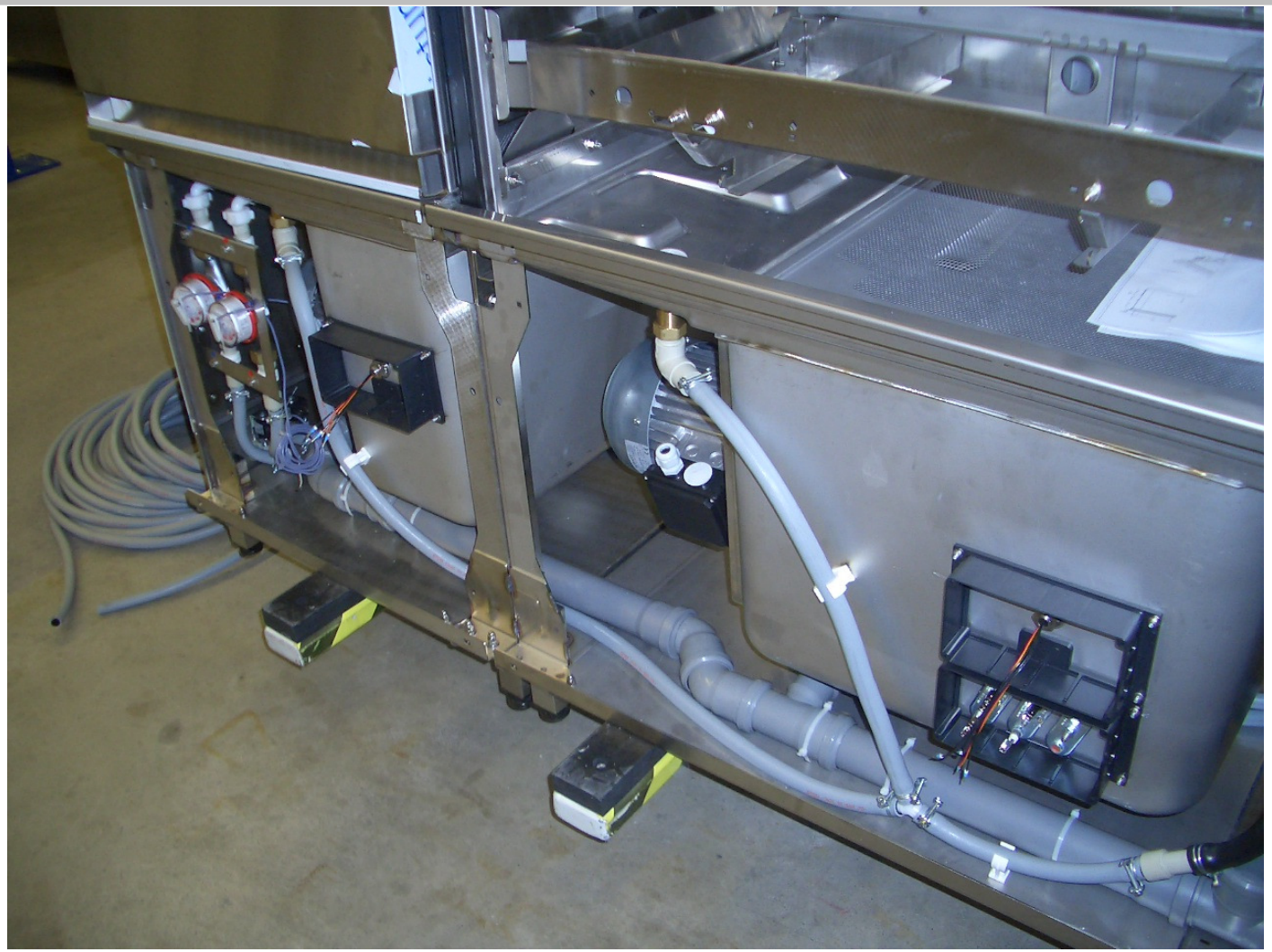
PATENT

Standard feature for: CP

Optional feature for: CN

Hydraulic Bypass

EFFICIENT – RELIABLE – INNOVATIVE



FEATURES I

EFFICIENT – RELIABLE – INNOVATIVE

MODEL	PREMAX CP	PROFI CN	PROFI CS
Fresh Water Rinse 50PERCENT	✓	-	-
Detergent saving system LOW-CHEM	✓	optional	-
Energymanagement TOP-TEMP	✓	-	-
Heat recovery	✓	optional	optional
Heat pump	optional	optional	-
Wash system CONTACT-PLUS	✓	✓	-
Washing HOT-TEMP	✓	-	-
RINSE TRI	✓	optional	-
Pump Rinse 80DEGREES	✓	-	-
Reduced exhaust	✓	✓	✓
Door insulation	✓	optional	optional
Insulation of top and rear side	✓	optional	-

FEATURES II

EFFICIENT – RELIABLE – INNOVATIVE

MODEL	PREMAX CP	PROFI CN	PROFI CS
Wide Angle Nozzle FAN	✓	✓	✓
Dual Rinse	-	optional	optional
Side wash	optional	optional	-
DROP-IN Wash system	✓	✓	✓
Deep drawn wash tank	✓	✓	✓
Control EASYTRONIC	-	-	✓
Control SMARTRONIC	-	✓	-
Control PROTRONIC	✓	optional *	-
1 Speed	-	-	✓
2 Speeds	-	✓	optional
3 Speeds	✓	- *	-

* Standard for CN-E-S-A, CN-S-A-A

Rack capacity / h with hygienic result according DIN10510

	Racks / h									
	10	20	30	40	50	60	70	80	90	100
PREMAX CP	CP-L-A									
PROFI CN	CN-A								CN-E-A	
PROFI CS	CS-A								CS-E-A	

	Racks / h									
	110	120	130	140	150	160	170	180	190	200
PREMAX CP	CP-L-A								CP-S-A	CP-E-S-A
PROFI CN	CN-L-A		CN-S-A			CN-E-S-A			CN-S-A-A	
PROFI CS										

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TECHNICAL DATA

EFFICIENT – RELIABLE – INNOVATIVE

TECHNICAL DATA Premax CP

EFFICIENT – RELIABLE – INNOVATIVE

MODEL	PREMAX		
	CP-L-A	CP-S-A	CP-E-S-A
Racks/h (min.) [#]	120	120	150
Racks/h (DIN) [#]	180	190	200
Racks/h (max.) [#]	240	300	320
Plates/h (min.) [#] ****	2.160	2.160	2.700
Plates/h (DIN) [#] ****	3.240	3.420	3.600
Plates/h (max.) [#] ****	4.320	5.400	5.760
Conveyor speed (DIN) [m/min]	1,50	1,58	1,67
Fresh water consumption [l/h]	160	190	220
Fresh water consumption [l/Rack]	0,67	0,63	0,69
Fill water [l]	180	230	240
Regeneration water [l/h]	75	75	75
Wash temperature ~ [°C]	67	67	67
Pumped rinse temperature ~ [°C]	75-80	75-80	75-80
Final rinse temperature ~ [°C]	62-65	62-65	62-65
Wash pump [kW; l/min]	2,2/550	2,2/550	2,2/550
Tank heating [kW]	9	9	9
Booster heater (with Heat recovery / Heat pump) [kW]	4,5/3	4,5/3	6/4,5
Total load (with Heat recovery / Heat pump) [kW] **	36/30,8	36,7/31,5	38,5/33,3
Total consumption (with Heat recovery / Heat pump) [kW] **	30,5/22,0	31,5/22,0	32,5/23,0
Useable heigth [in mm]	440	440	440
Useable widh [in mm]	510	510	510
Total length [in mm] ***	2.000	2.250	2.750

** Incl. Dryer

*** excl. Dryer

**** Theoretical plate capacity: Plates diameter 240 - 260 mm according VGG

HOBART

TECHNICAL DATA Profi CN

EFFICIENT – RELIABLE – INNOVATIVE

MODEL	PROFI						
	CN-A	CN-E-A	CN-L-A	CN-C-A *	CN-S-A	CN-E-S-A	CN-S-A-A
Racks/h (min.) [#]	-	-	-	-	-	120	120
Racks/h (DIN) [#]	80	100	120	120	150	180	190
Racks/h (max.) [#]	120	150	180	180	220	250	280
Plates/h (min.) [#] ****	-	-	-	-	-	2.160	2.160
Plates/h (DIN) [#] ****	1.440	1.800	2.160	2.160	2.700	3.240	3.420
Plates/h (max.) [#] ****	2.160	2.700	3.240	3.240	3.960	4.500	5.040
Conveyor speed (DIN) [m/min]	0,67	0,83	1,00	1,00	1,25	1,50	1,58
Fresh water consumption [l/h]	230	240	260	260	260	260	330
Fresh water consumption [l/Rack]	1,92	1,60	1,44	1,44	1,18	1,04	1,18
Fill water [l]	105	115	160	160	215	225	325
Regeneration water [l/h]	105	105	105	105	105	105	105
Wash temperature [°C]	>60	>60	>60	>60	>60	>60	>60
Final rinse temperature [°C]	>80	>80	>80	>80	>80	>80	>80
Wash pump [kW; l/min]	2,2/550	2,2/550	2,2/550	2,2/550	2,2/550	2,2/550	2x2,2/2x550
Tank heating [kW]	12	12	12	12	12	12	2x9
Booster heater (without C20 / with C20 / with CHP) [kW]	21/12/9	21/12/9	24/15/12	24/15/12	24/15/12	24/15/12	30/18/15
Total load (without C20 / with C20 / with CHP) [kW] **	40,5/31,5/21,8	40,8/31,8/22,1	45/36/26,3	45/36/26,3	45,7/36,7/27	47,5/38,5/28,8	61,4/49,4/42,7
Total consumption (without C20 / with C20 / with CHP) [kW] **	34,5/28/20,0	35,5/28,0/19,0	40,5/32,0/22,0	40,5/32,0/22,0	42/33,5/23,5	42,0/33,5/24,0	56/44,5/35,0
Useable heigth [in mm]	440	440	440	440	440	440	440
Useable widh [in mm]	510	510	510	510	510	510	510
Total length [in mm] ***	1.350	1.850	2.000	2.375	2.250	2.750	3.150

* Launch July 2009

** Values incl. Dryer

*** Values excl. Dryer

**** Theoretical plate capacity: Plates diameter 240 - 260 mm according VGG

HOBART

TECHNICAL DATA CS

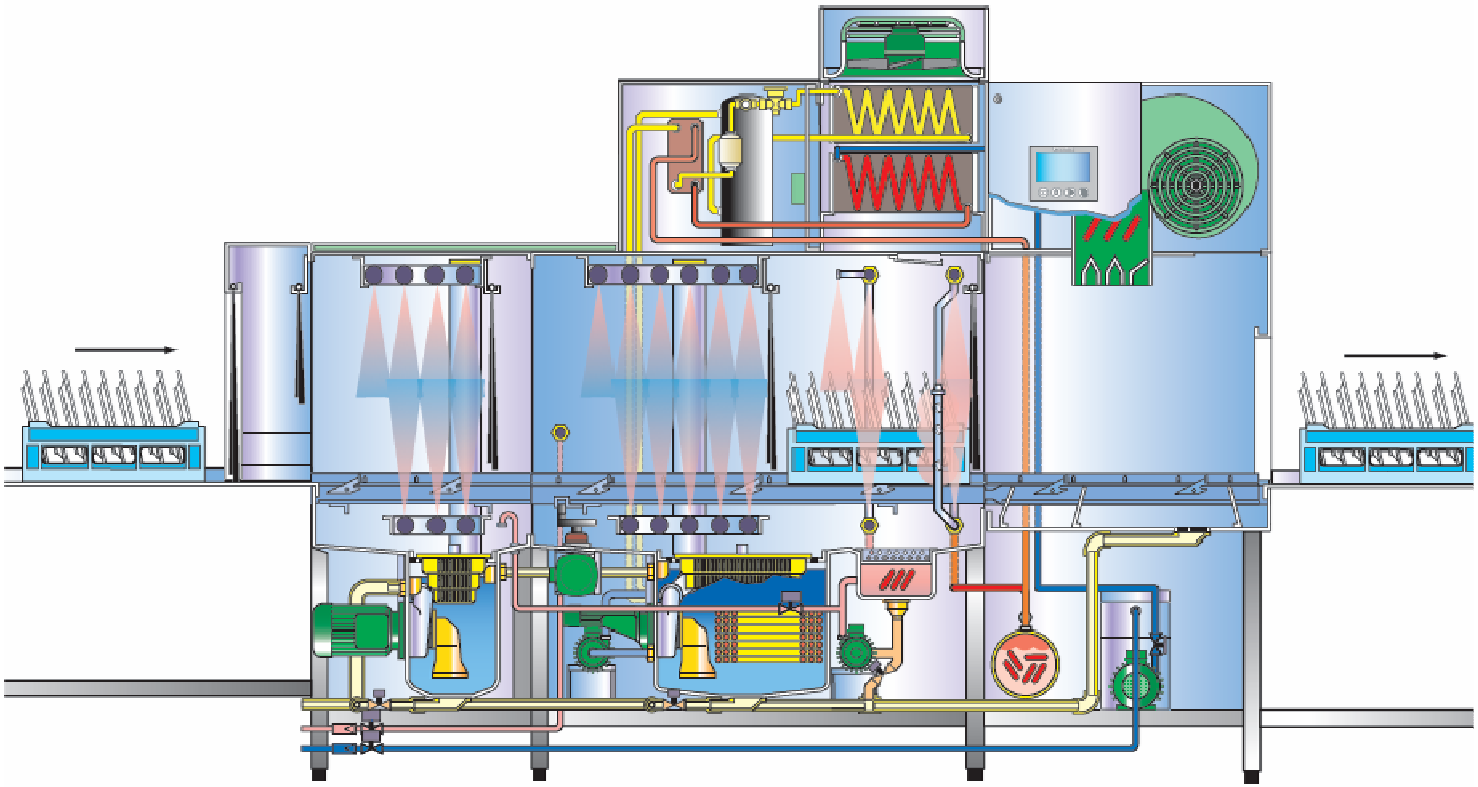
EFFICIENT – RELIABLE – INNOVATIVE

MODEL	PROFI	
	CS-A	CS-E-A
Racks/h (min.) [#]	-	-
Racks/h (DIN) [#]	80	100
Racks/h (max.) [#]	-	-
Plates/h (min.) [#] ***	-	-
Plates/h (DIN) [#] ***	1.440	1.800
Plates/h (max.) [#] ***	-	-
Conveyor speed (DIN) [m/min]	0,67	0,83
Fresh water consumption [l/h]	230	240
Fresh water consumption [l/Rack]	2,88	2,40
Fill water [l]	105	115
Regeneration water [l/h]	230	240
Wash temperature ~ [°C]	>60	>60
Final rinse temperature ~ [°C]	>80	>80
Wash pump [kW; l/min]	1,5/350	1,5/350
Tank heating [kW]	12	12
Booster heater (without C12 / with C12) [kW]	21/15	21/15
Total load (without C12 / with C12) [kW] *	39,8/33,8	40,1/34,1
Total consumption (without C12 / with C12) [kW] *	37,2/31,0	38,0/31,0
Useable heigth [in mm]	440	440
Useable widh [in mm]	510	510
Total length [in mm] **	1.350	1.850

** Values incl. Dryer
*** Values excl. Dryer
**** Theoretical plate capacity: Plates diameter 240 - 260 mm according VGG

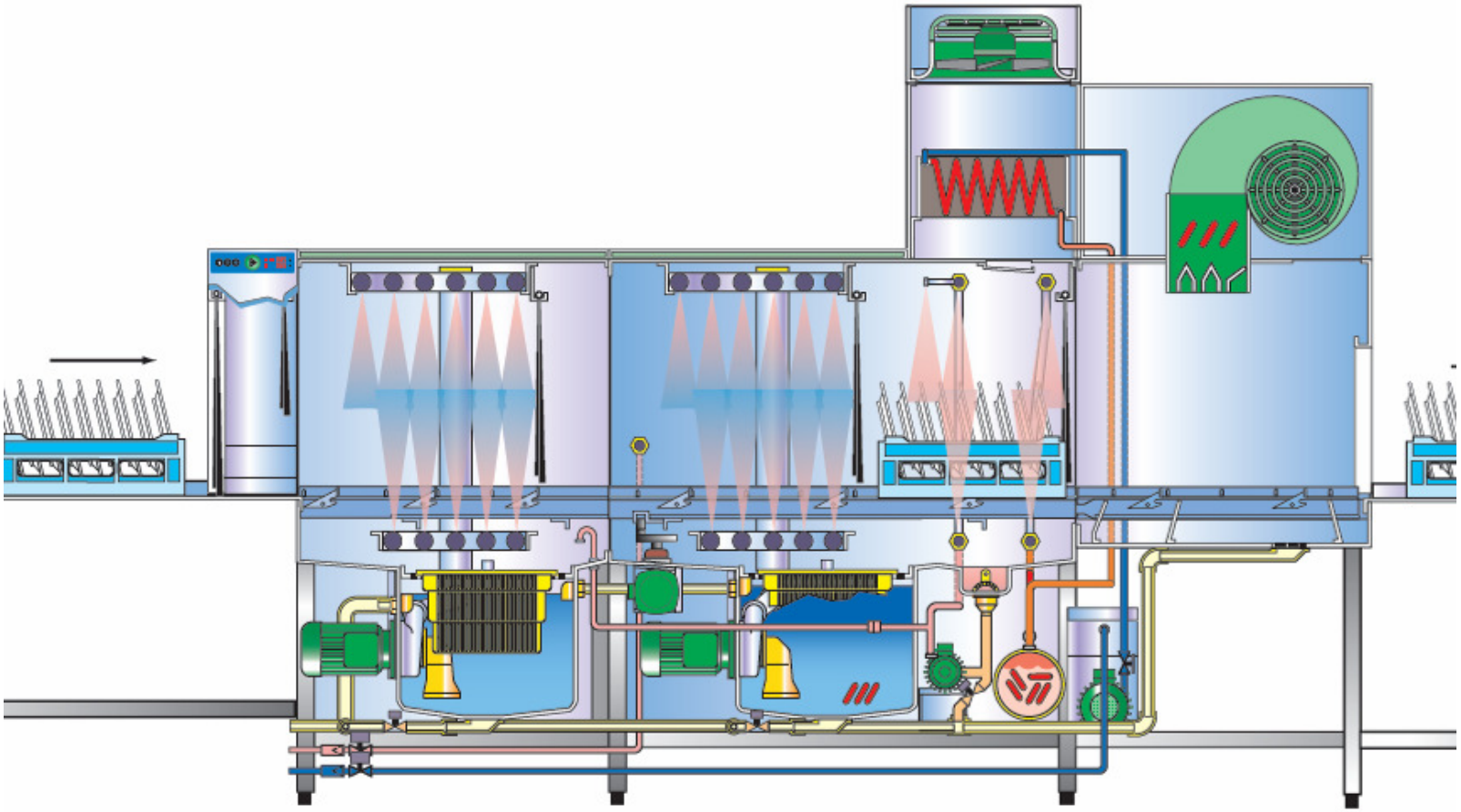
CP LA

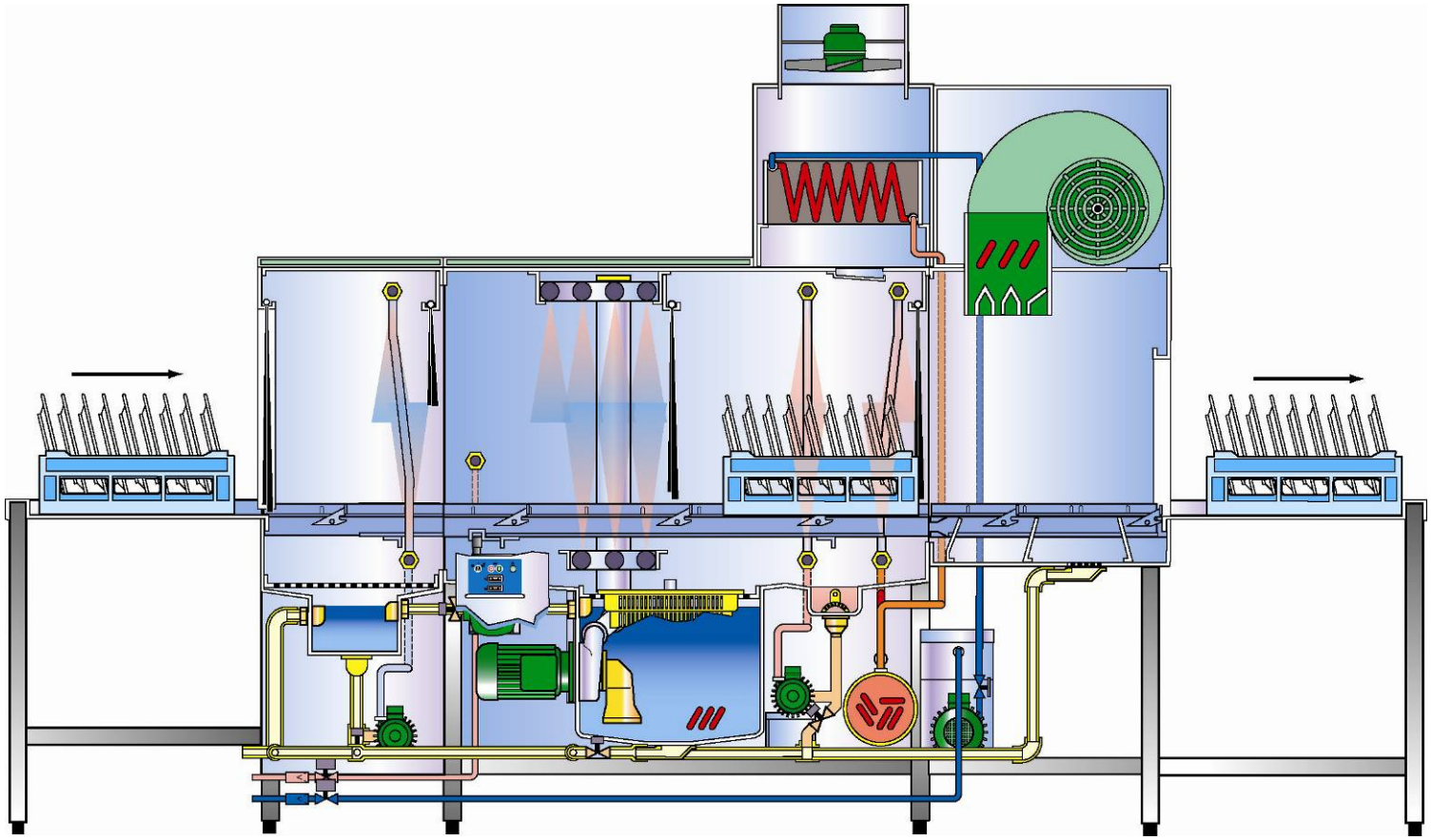
EFFICIENT – RELIABLE – INNOVATIVE



CN SA

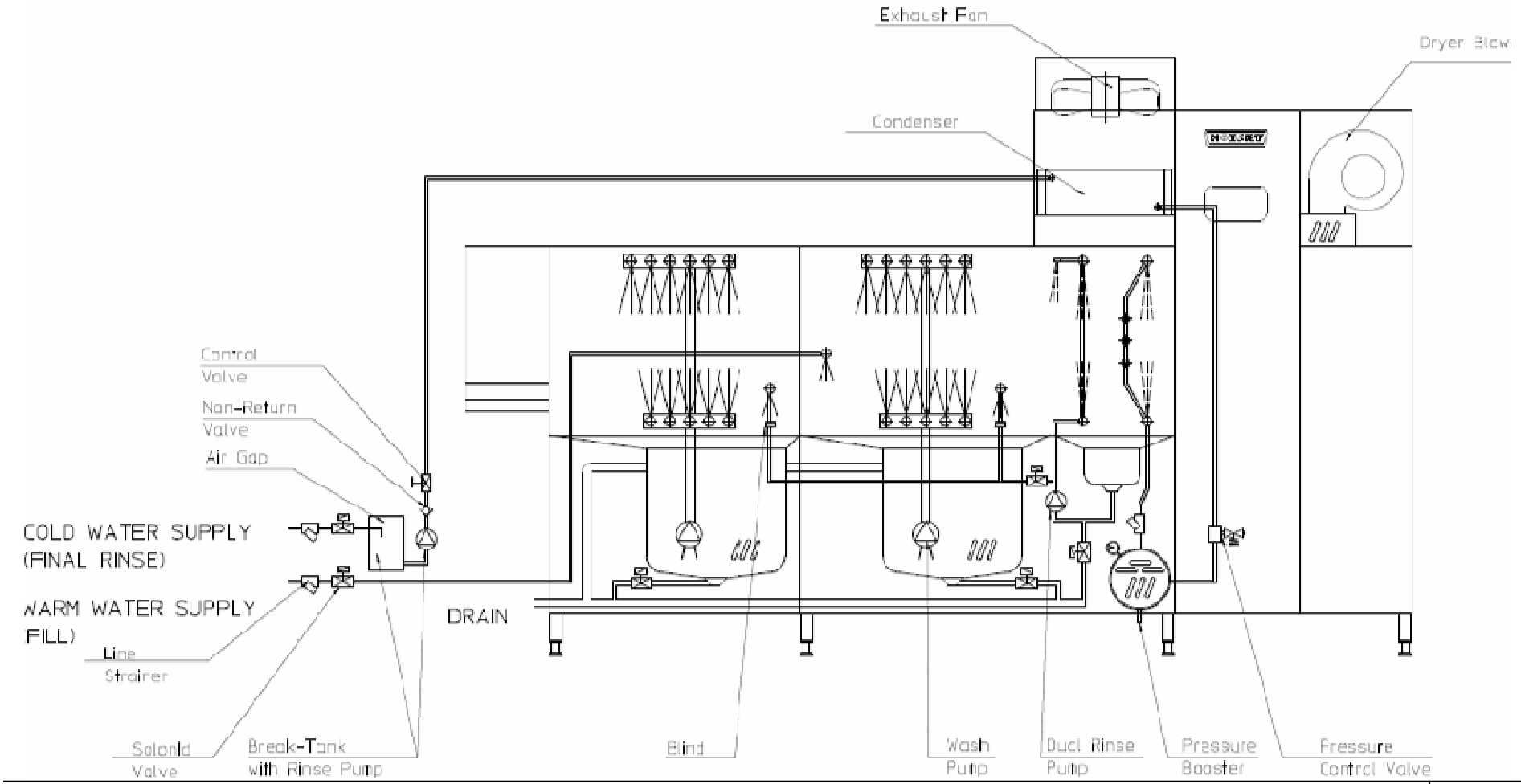
EFFICIENT – RELIABLE – INNOVATIVE





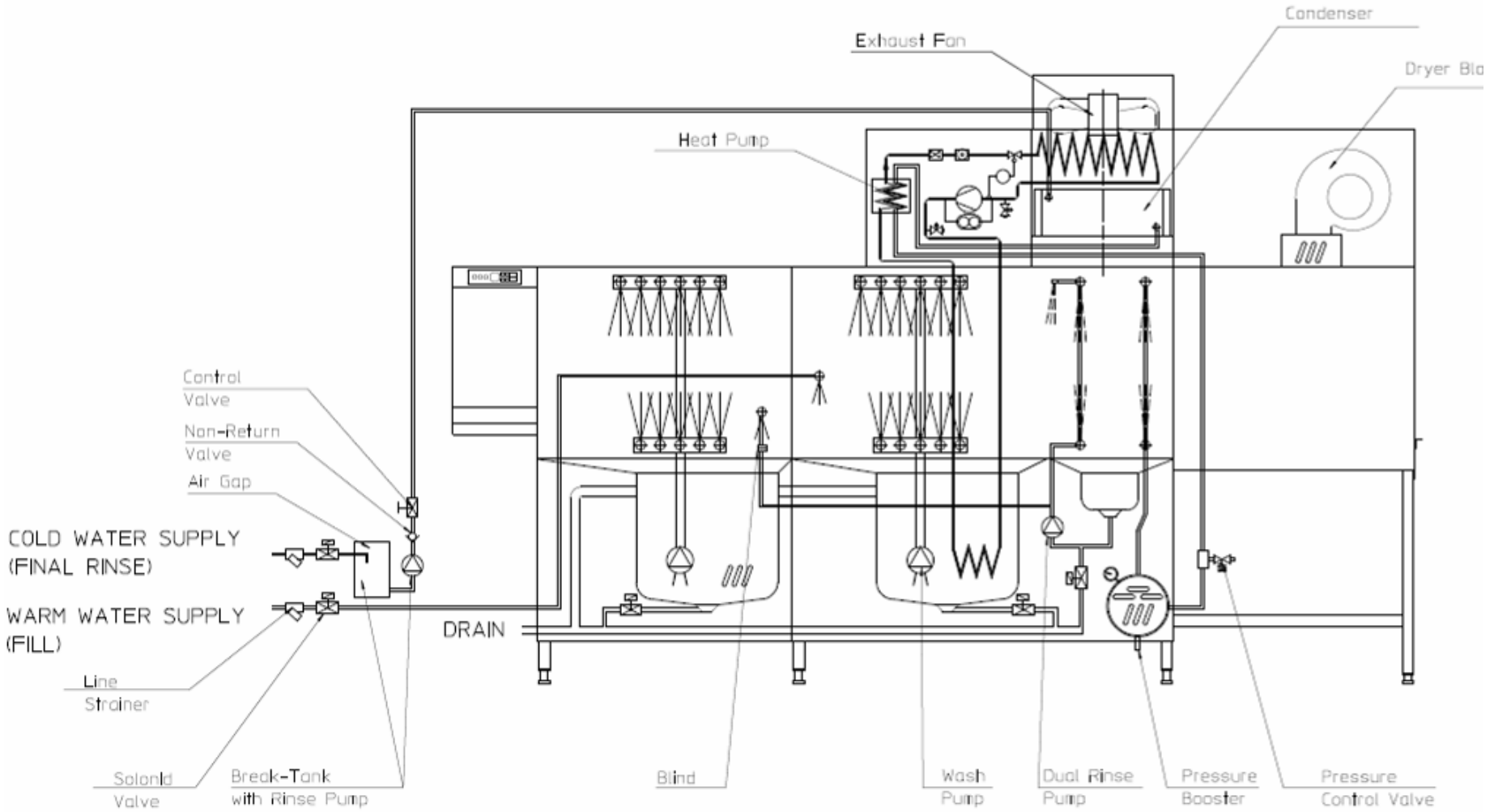
Hydraulic Sketch CP SA

EFFICIENT – RELIABLE – INNOVATIVE



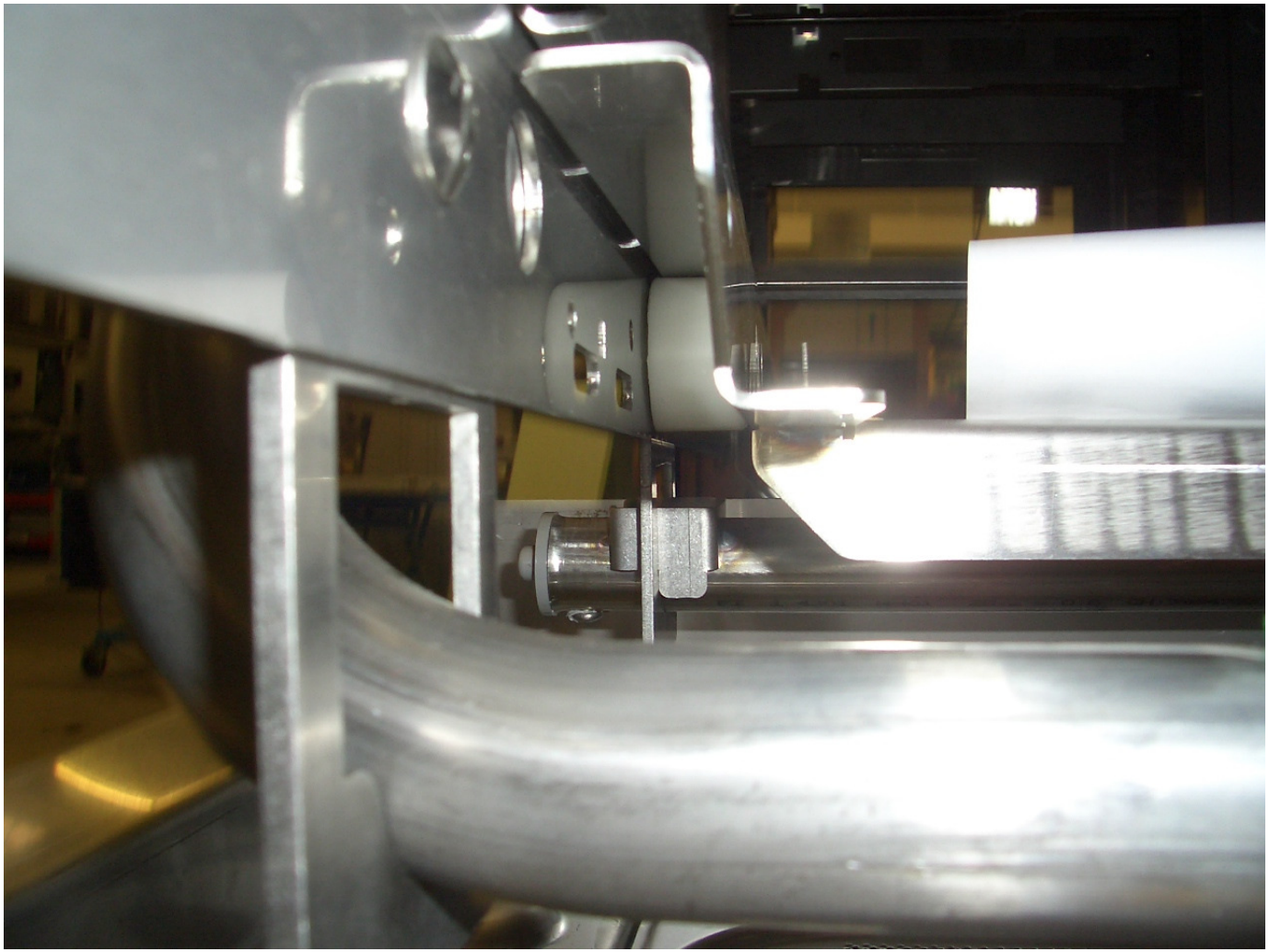
Hydraulic Sketch CN SA CHP

EFFICIENT – RELIABLE – INNOVATIVE



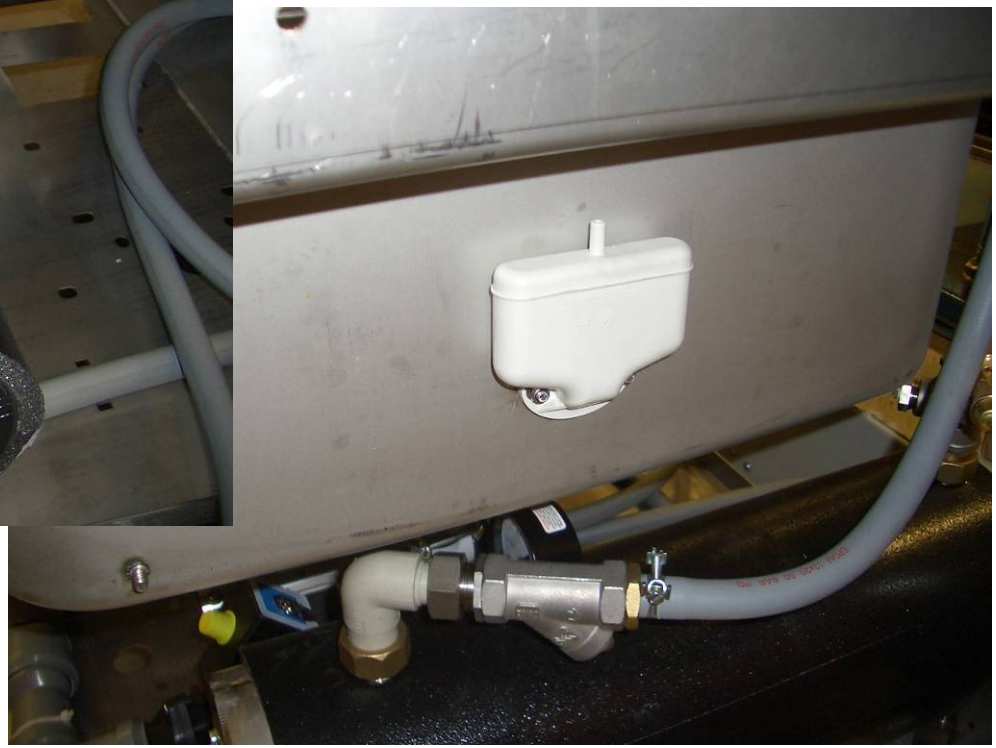
Roller Drive

EFFICIENT – RELIABLE – INNOVATIVE



Booster pressure limiter / Dosing / Filter

EFFICIENT – RELIABLE – INNOVATIVE



Incoming water filter CP

EFFICIENT – RELIABLE – INNOVATIVE

THANKS FOR YOUR ATTENTION

EFFICIENT – RELIABLE – INNOVATIVE