MEIKO

Models and Performance data

LEM LOW ENERGY MANAGEMENT

AWS Active Water Saver

B-Tronic

Flight type machines

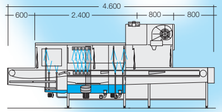
Models and dimensions

Your problems are various and demanding. Plates, bowls, cutlery, trays and dishes of various shapes and dimensions must be washed, hygienically treated and prepared for further use. All problems must be solved economically under consideration of the local conditions such as room dimensions, energy supply, operating media and work flow.

The tailor-made machine - for your individual requirements - is then put together out of a vast spectrum of available basic elements with well-proven technique.

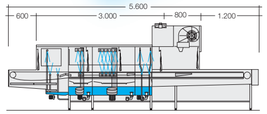
Flight type machines out of our standard series are shown here. Individual adaptations are possible.

B 190 P CSS Top

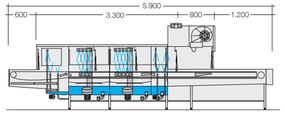


Without CSS Top the machines are shortened
by 500 mm
* by 600 mm

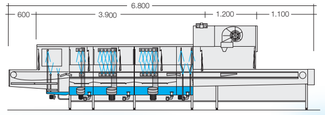
B 230 VP CSS Top



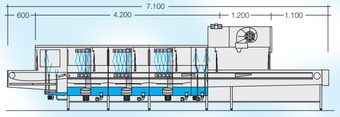
B 230 VAP CSS Top / B 350 VAP CSS Top

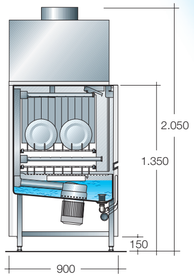


B 460 VP CSS Top

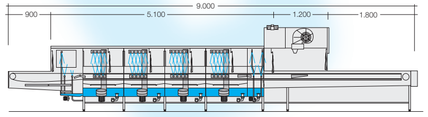


B 460 VAP CSS Top / B 580 VAP CSS Top





B 690 VAP CSS Top / B 810 VAP CSS Top*



The technical data

CSS Top = **Pre-wash zone with integrated detergent and energy saving system**
CSS = **Chemical saving system**
V/VA = **Pre-wash zone**
HW = **Main wash zone(s)**
P = **Pump final rinse**

			B 190 P 2-tank machine	B 190 P CSS Top 3-tank machine	B 230 VP 3-tank machine	B 230 VAP 3-tank machine	B 350 VAP 3-tank machine	B 230 VP CSS Top 4-tank machine	B 230 VAP CSS Top 4-tank machine	B 460 VP 4-tank machine	B 460 VAP 4-tank machine	B 580 VAP 4-tank machine	B 460 VP CSS Top 5-tank machine	B 460 VAP CSS Top 5-tank machine	B 690 VAP 5-tank machine	B 690 VAP CSS Top 6-tank machine
Number of optional belt speeds			3	3	3	3	3	3	3	3	3	3	3	3	3	3
m/min for 2 min. contact time acc. to DIN 10510			0.65	0.9	0.95	1.1	1.1	1.2	1.35	1.4	1.55	1.55	1.65	1.8	2.0	2.25
Contact distance mm			1,300	1,800	1,900	2,200	2,200	2,400	2,700	2,800	3,100	3,100	3,300	3,600	4,000	4,500
Capacity plates/h for 2 min. contact time acc. to DIN 10510			1,500	2,000	2,100	2,500	2,500	2,700	3,000	3,100	3,500	3,500	3,700	4,000	4,500	5,000
Capacity plates/h (max.) depends on the degree of contamination, drying time, type of dishes, etc.			2,000	2,500	2,700	3,000	4,000	3,200	3,600	3,700	5,300	6,000	5,500	5,700	6,700	7,500
Number of wash and rinse cycles			3	5	5	5	5	6	6	6	6	6	7	7	7	7
Chemical saving system	**CSS Basic**		●		●	●	●			●	●	●			●	
Pump capacity	**kW**	**CSS Top**		0.7				0.7	0.7				0.7	0.7		0.7
		V			0.5			0.5		0.5			0.5			
		VA				1.7	1.7		1.7		1.7	1.7		1.7	1.7	1.7
		HW I	1.7	1.7	1.7	1.7	4.0	1.7	1.7	1.7	1.7	4.0	1.7	1.7	1.7	1.7
		HW II								1.7	1.7	1.7	1.7	1.7	1.7	1.7
		HW III													1.7	1.7
		P	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Circulation l/min		**CSS Top**		300				300	300				300	300		300
		V			700			700		700			700			
		VA				1,380	1,380		1,380		1,380	1,380		1,380	1,380	1,380
		HW I	1,380	1,380	1,380	1,380	2,070	1,380	1,380	1,380	1,380	2,070	1,380	1,380	1,380	1,380
		HW II								1,380	1,380	1,380	1,380	1,380	1,380	1,380
		HW III													1,380	1,380
		P	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Connected load tank heating	**kW**	**HW I**	13	13	10	10	10	10	10	10	10	10	10	10	10	10
		HW II								10	10	13	10	10	10	10
		HW III													10	10
Filling water		**l**	180	190	260	300	300	270	310	380	420	420	390	430	540	550
Final rinse quantity (AWS)		**l/h**	240	240	260	260	280	260	260	300	300	320	300	300	340	340
Connected load final rinse		**kW** ①	13	11	13	13	16	12	12	16	16	16	13	13	18	16
Drying circulation		**m³/h**	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460
Drying: connected load heater/blower		**kW**	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3	6/0.3
Extraction volume		**m³/h** ②	1,000	1,000	1,100	1,200	1,400	1,100	1,200	1,200	1,500	1,800	1,400	1,500	1,800	1,800
Extraction air fan and drive		**kW**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Connected load motor		**kW**	3.4	4.2	4.0	5.1	7.4	4.7	5.9	5.7	6.8	9.1	6.4	7.6	8.5	9.3
Connected load heater		**kW**	33	31	29	29	32	27	27	43	43	46	39	39	55	53
LEM - Saving		**kW in %**	8%	9%	15%	16%	7%	16%	17%	12%	12%	11%	13%	13%	11%	11%
AWS - Saving of the final rinse water quantity			20%	20%	19%	19%	18%	19%	19%	17%	17%	16%	17%	17%	15%	15%

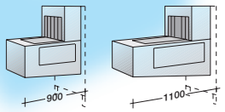
CSS Plus System in all models: pump capacity: 0.5 kW
All kW values are given for 400 V, 50 Hz current and can vary ± 5%

① The rating of the final rinse water heater foresees a heat recovery system

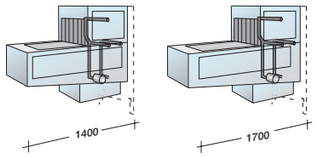
② Exhaust requirements and emissions are given on the installation plan according to precise definition of machine design

The components

Feeding sections



Feeding sections with CSS Top

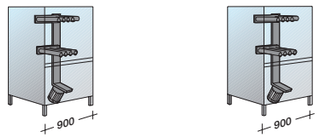


0,7 kW 0,7 kW

Pre-wash zones

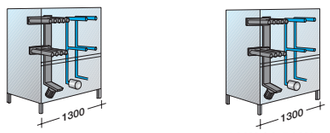
0,5 kW 1,7 kW

Main wash zones



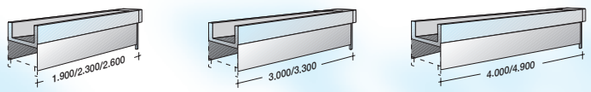
1,7 kW 4 kW

Final rinse zone with pump final rinse and fresh water final rinse (AWS)

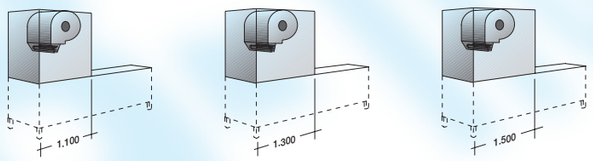


1,7 kW / 0,5 kW 4 kW / 0,5 kW

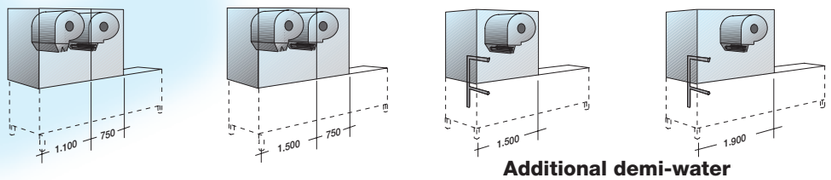
Discharge sections



Drying zones



Outblowing zones with prolonged drying zones



Additional demi-water final rinse

An excerpt of the standard machine components. Depending on the requirements, problems and demands of the customer, MEIKO flight type machines can be delivered in various executions. The designations, performance data, connected loads and dimensions vary accordingly.

The MEIKO range at a glance!

Automatic dishwashers with stationary washing processes

Dishwashers, utensil and container washers, glasswashers, universal washing machines, salad and vegetable washing machines

Automatic pass-through washing units

Dishwashers with automatic conveying systems, dishwashers with automatic basket transport systems

Special dishwashing systems

Fully automatic washing systems for crockery, trays and cutlery; flight catering systems for the removal, cleaning and resupply of crockery, utensils and transport equipment for in-flight catering; industrial washing systems for customer-specific items, automatic trolley, container and transporter washers

Conveyor systems

Tray and crockery conveyor belts, crockery sorting and stacking units, vertical conveyors

Food waste treatment systems

Plant and machinery to prepare food wastes for hygienic disposal

Industrial kitchen equipment

Equipment, fixtures and fittings for relay (satellite) and ward kitchens; transporters, tray and plate stackers, stainless steel tables, cabinets and shelving; various stacking and racking aids

Cleaning and disinfection appliances for hospitals and care homes

Cleaning and disinfection appliances for bedpans and other care utensils designed as floor, wall and built-in units, combined sluice units, plumbing blocks for the lavatories of patients' rooms, complete equipment for hospital sluice rooms

According to: DIN 10510 DIN 10512 DIN 10522

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MEIKO

Belt conveyor dishwashing machines

AWS Active Water Saver

MIKE controlled

LEM LOW ENERGY MANAGEMENT

B-Tronic

Group 2

High capacity
coming off conveyor belts

The new MEIKO B-Tronic generation is one of the most advanced, versatile and efficient dishwashing systems. The exterior: a modern, clear design. The interior: convincing technique without compromises.

An innovative combination of form and function. Provided with technologies and details fulfilling the highest demands on quality, reliability and economy.

The MIKE 3 CleanControl is one of the technologies which we developed step by step since 1985 - up to the present standard ´MIKE 3 CleanControl as integrated hygiene mangement´.

A special highlight of the MEIKO belt conveyor machine is the chemical saving system CSS, available as standard in its basic version and offering up to 80% chemical saving in its optional CSS Top version.

With the new optimised conveyor belt machine series, economical, ecological and hygienic targets have been actualised in an exemplary manner. New ideas, technologies and details provide superior advantages to the customer in an unmistakable, convincing quality.

Here illustrated a belt conveyor dishwashing machine B-Tronic B 230 VAP CSS-Top.

The CSS chemical saving system

CSSBasic

The basic version – provided as a standard saving of between 50 - 60%

With this proven cost saving system, an **additional rinse** is installed directly **behind the pre-wash zone**, flushing off – with fresh water from the pumped final rinse – most of the excess food debris left on the dishes following the pre-washing process.

The advantages at a glance:
- **reduced carry-over of food debris and therefore**
- **less contamination in the consecutive wash and rinse zones**
- **Detergent savings**

This feature is now incorporated as a standard on all MEIKO B-Tronic conveyor belt dishwashing machines.

CSSTop

Saving of up to 80 %

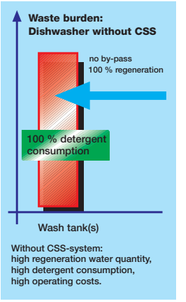
We have perfected the basic concept of the the CSS Basic, resulting in this Top-solution.

Comprising –
- an additional pre-scouring system with
- dedicated tank
- permanent wash water filtration via two cyclones and
- intermittent rinsing with fresh water from the pumped final rinse zone

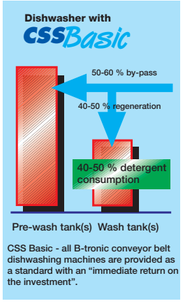
Particular features of the system:
- optimal washing patterns for effective removal of the remaining food debris
- minimal emulsifying of fats and oils
- large-dimensioned tandern filter system
- efficient flushing of the feeding section trough
- heat exchange system for the free preheating of the fresh water

The advantages at a glance:
- **virtually no food debris** transferred to the main wash tanks and final rinse zone
- **outstanding** detergent cost savings
- **a cleaner dishwashing machine** interior (self-cleaning)
- **cleaner** tank bottom of the feeding section
- **less food debris** in the waste water
- **less detergent contamination** of the waste water
- **reduced burden** of the waste water system and grease seperator
- **energy saving, therefore lower running costs**

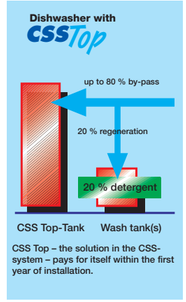
MEIKO - chemical saving system CSS-Top is not just theory;
- **proven in practice at numerous installations**
- **economically, ecologically and hygienically TOP**



Without CSS-system: high regeneration water quantity, high detergent consumption, high operating costs.



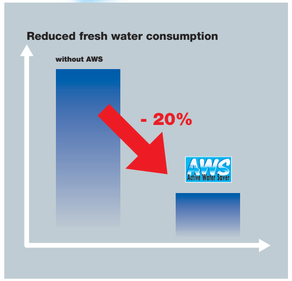
CSS Basic - all B-tronic conveyor belt dishwashing machines are provided as a standard with an "immediate return on the investment".



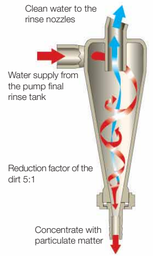
CSS Top – the solution in the CSS-system – pays for itself within the first year of installation.

AWS - Active Water Saver

Reduced fresh water consumption



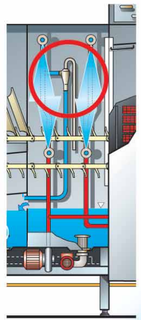
Cyclone in the pump final rinse - function:



The AWS system (Active Water Saver) for MEIKO belt conveyor machines reduces the fresh water consumption of the machines by up to 20 %.

The active cleaning of the circulation water in the pump final rinse section makes this impressive effect possible. An installed cyclone removes even the finest particulate matter, which results in clean circulation water and an improved rinsing effect in this section.

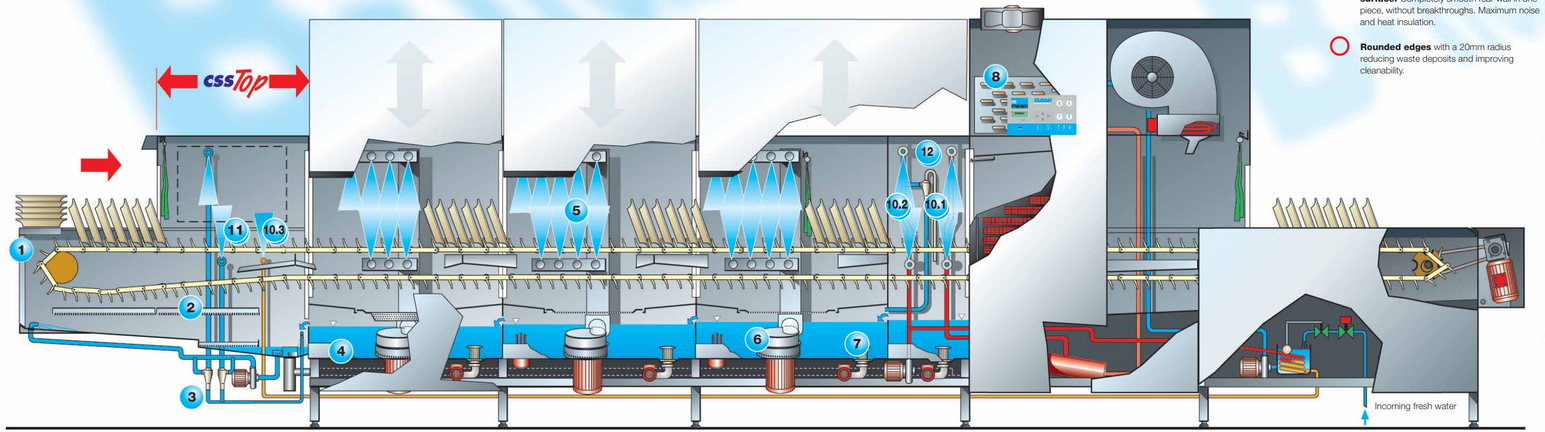
Due to this improved "preliminary work" the amount of water required can be significantly reduced in the subsequent fresh water final rinse.



AWS: An excellent basis for cutting down on operating costs!

The most important details at a glance:

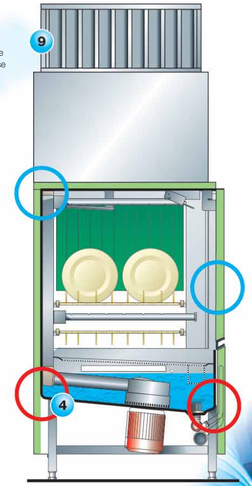
Example of the B 460 VAP CSS-Top



12 AWS Active Water Saver — An installed cyclone removes even the finest particulate matter, which results in clean circulation water.

All around insulation of the whole surface. Completely smooth rear wall in one piece, without breakthroughs. Maximum noise and heat insulation.

Rounded edges with a 20mm radius reducing waste deposits and improving cleanability.



Machine feeding section: Practical dish storage surface for ease of handling. When required, cladding elements (panels) are easily removed for access or for cleaning and maintenance purposes. Sloping wash tank with an integrated self-cleaning system.

Waste removal: The complete feeding zone bottom is covered by two coarse filters. The food debris fall directly on the coarse filter. An additional fine filter above the CSS-tank retains even the smallest food particles. The considerably reduced soilage of the wash water enables a reduction of the detergent consumption.

MEIKO CSS-Top wash water cyclone: In addition to the filter sieve system, there are integrated wash water cyclones in both the upper and lower wash arms that continually filter even the finest suspended particles from the re-circulating water. First class integration with the other CSS-Top components results in the remarkable saving of up to 80 % on detergent consumption.

MEIKO V-tank with rounded edges: Tank housing welded in one single piece, rounded at the most important points. Tank interiors designed for excellent visual inspection, no possibility of dirt build-up along the edges.

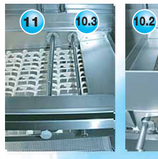
Manifold wash system: Optimized cross-section and nozzle arrangements. No troublesome penetration of rear wall – therefore no leakage even after years of service. Insertion and removing of the manifold wash system unbelievably easy.

MEIKO pump system: Pump impeller and housing all in heavy gauge stainless steel, without edges or corners, circumferal suction area on tank floor. Easily accessible pump housing. Replacement of sliding seal without removal of the pump motor.

Emptying the tank: The tank can be emptied automatically using the drain pump. The standard model is tried and tested, and absolutely reliable: a stand pipe with combined sieve drawer (a MEIKO specialty).

MEIKO heat-recovery system: Central waste air suction channelled directly to the cooling registr.. For cleaning purposes the register can be pulled easily onto the roof of the machine. The front plate also serves as trough.

TopAir-Collection: The picture shows the AirboxPlus-construction including a heat pump (without waste air connection). The air box ensures the mixing of all incoming airflows and an equal distribution of the air into the room, thus eliminating condensation on the ceiling. The louvre elements of the unit are easily removable, and can be washed routinely within the ware washing machine.



Final rinse Top3:

- 10.1: Fresh water final rinse
- 10.2: Pump final rinse
- 10.3: Top3 final rinse

▶ In the feeding tunnel of the machine ▶ Rinse arm with three nozzles ▶ covers the surface of all dishes - even bowls, cups and glasses ▶ flushing of food waste residues where it makes sense - right before the regular wash and rinse zones ▶ flushing of food waste residues with an effective water quantity

- 11: CSS-Top Pre-wash zone

Wash and save with MEIKO's Low-Energy-Management

MEIKO is the leading brand for belt conveyor and basket transport dishwashing machines. Quality, technology, outstanding customer advantages and exceptional economy have created the B-/K-Tronic's success. Now we have made the exceptionally low energy consumption of this dishwasher series even more efficient as you can see overleaf.

Five pioneering innovations create minimum dishwashing costs.

Top-Five of the Low-Energy-Managements

With the introduction of the Low-Energy-Management (LEM) we have further optimised the energy management system of our well-known B-Tronic belt conveyor and K-Tronic basket transport dishwashing machines.

5 Innovations which result in significant savings in energy distribution and consumption as well as even greater hygiene security and improvement of the working environment.

Detailed optimisation has increased the **efficiency of exhaust air heat recovery by 20 %.**

Significant improvements of the air supply in the drying zone have **reduced blower demand and heating energy consumption by 30 % up to 50 %.**

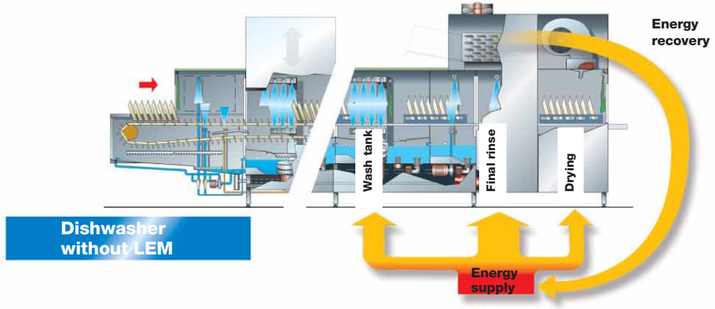
Significant reductions of heat and humidity **in the exhaust air** have led to an exceptional reduction of the demands placed on the "ambient air treatment system" (RLT).

A new process technology with **process-oriented energy distribution** ensures optimised adaptation to changing operating conditions. (Wash start-up, main wash operation, stand-by etc).

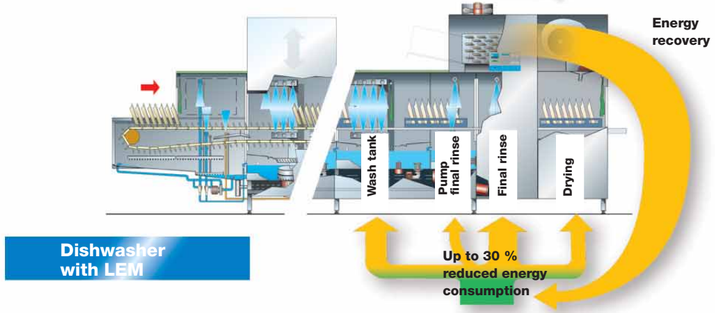
- The exhaust air is automatically controlled in line with the basket throughput.
- Permanently stable tank temperatures help to safe-guard high-quality cleaning.

Optimally pre-heating the rinsing water has reduced the **heating energy consumption in the booster heater by 20 %.**

Energy flow with Low-Energy-Management



Dishwasher without LEM



Dishwasher with LEM

LEM Low-Energy-Management

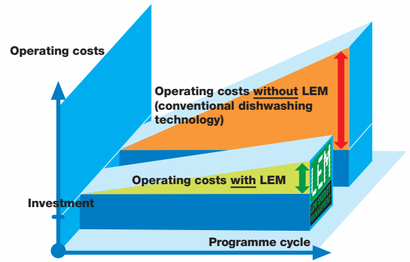
- **Reduced energy consumption and overall energy management**
- **Reduction in the connected load up to 30 % through machine optimisation**
- **Process oriented energy redistribution adapted to the current operating condition**

Your money and energy savings with LEM

Dishwashing time/day: 6 h Working time/day: 365 Electricity costs/kWh: 0,10	Belt conveyor dishwahing machine B 230 VAP CSS-Top	
	without LEM	with MEIKO-LEM
Motors (total):	6,7 kW	5,7 kW
Tank heating:	13,0 kW	10,0 kW
Booster heater:	13,0 kW	13,0 kW
Drying:	9,0 kW	6,0 kW
Total:	41,7 kW	34,7 kW

Savings per hour:	7,0 kWh
Savings per day:	42,0 kWh
Savings per year:	15.330,0 kWh

Approximate annual savings : 1.530 €



MIKE 3 CleanControl
M-Commander InVision

Innovative control concept

The Module-Integrated, Component-related Electronic control system MIKE (the hardware), combined with the extensive M-Commander-in-Vision software, is an innovative package that fulfills all wishes. With advantages ranging from its convincing user friendliness and high level of convenience to its service management with detailed analysis options, the MIKE control technology offers maximum functionality.

C-Log

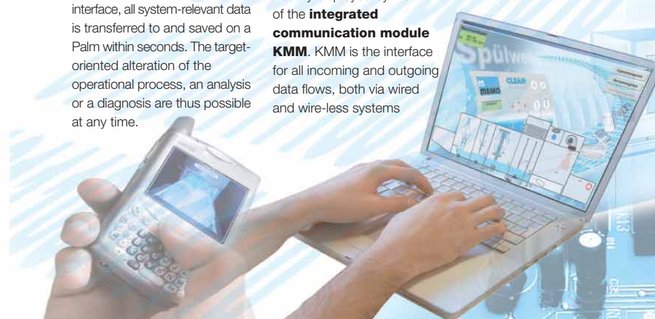
The software for the **easy and fast communication** with the MEIKO rack transport and belt conveyor machines. Through the wireless log-in to the machine control system via infrared interface, all system-relevant data is transferred to and saved on a Palm within seconds. The target-oriented alteration of the operational process, an analysis or a diagnosis are thus possible at any time.

C-Insight

The software that **supervises the work closely**. This software allows you to supervise the simultaneously working MEIKO rack transport or belt conveyor machine from your desk. All system-relevant data, functions, and operational processes are stored and visually displayed by means of the **integrated communication module KMM**. KMM is the interface for all incoming and outgoing data flows, both via wired and wire-less systems such as W-LAN/GSM/GPRS. Operating phases are analyzed and diagnosed, and can conveniently be modified on the computer. All process-relevant data for master display and building management systems can be procured through the integrated **KMM** (***CC-Insight***).

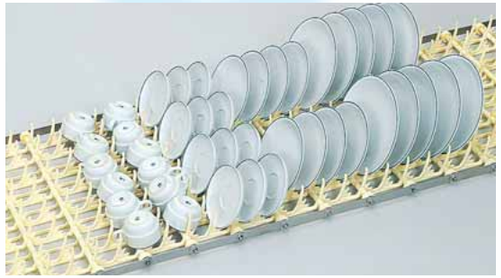
Hygiene management:
M-Commander-*InVision*: Hygiene documentation for maximum security!

Service management:
M-Commander-*InVision*: Highest-level operational security and optimization!



Transport belts
for all kinds of dishes

Crockery transport belts for the B-Tronic conveyor dishwashing machines are made of solid, wear-resistant material and offer ease of handling. You can be sure that crockery items always pass through the machine in the most technically efficient way.



Universal conveyor for the most common types of crockery items. 54 mm finger spacing, three individual placement possibities for hotel, restaurant and staff feeding applications.

Universal conveyor for a wide selection of crockery and other items. 72 mm finger spacing, three individual placement possibilities for hospital crockery, trays, and plate cloches.

Special conveyor for hotels and restaurants with laterally mounted rollers to support basketts used for glass and cutlery washing. Spacing between fingers of 54 mm.

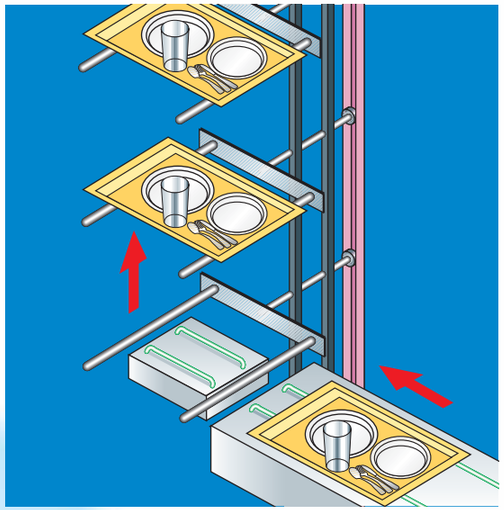
Special conveyor for hospital insulated meal sets. This conveyor is suitable and adatable for all of the varying systems available on the market. Crockery items can also be washed on this type of belt.

Automated components
for integrated washing solutions

We not only build dishwashing machines and associated appliances, but also design and manufacture handling systems that take care of what happens at both the feeding and discharge ends.

In these four examples, we illustrate how we have developed the correct handling solutions for the application.

The **MEIKO cutlery lifting magnet** automatically removes cutlery items from the trays passing below and deposits these via a cutlery slide directly onto the dedicated cutlery track of the B-Tronic conveyor washing machine.



A convincing solution for vertical systems: the **MEIKO Vertical Conveyor MVF**. It is particularly quiet in operation, requires little maintenance and is of robust construction. Its conveyor technology allows for excellent stability of the dishes and a continuous, smooth transition from vertical to horizontal, at a speed of 30 trays per minute.

As an advanced variant, for a truly rationalized automated unit, the **MEIKO Plate Stacker TS 1800** can be installed at the discharge end of the dishwash. It stacks plates automatically form the crockery conveyor onto tube type plate dispenser trollies. Capacity: 30 plates/min = 1.800 plates/hour.

The **MEIKO Waste-Star vacuum waste extract system**. In this example a feeding section with an opening for the disposal of organic kitchen waste and food waste extracts the waste automatically, simplifies the work of the wash-up staff, and is time-saving. It is available in a wide selection of installation possibilities.

Practical and thoughtful planning for optimal use

According to the individual requirement, our design and planning department will work out a tailored concept and present a proposal that is the basis for a **well thought-out solution** to the needs of the project.

Our illustrations demonstrate three individual installation examples, however there are many more variations possible.

All information and documentation is not only provided in hard paper copy, but can be issued in electronic formats – such as CD-Rom or by E-Mail.

This direct integration into CAD-systems or word processing formats enables the most efficient exchange of planning and commercial data.

Only a turnkey project offers

- Guaranteed hygiene security
- optimal ergonomics
- high level of efficiency
- economic operation

leading to the perfect solution for our customers.

“Washing technology” and “planning” - two requirements - one partner: MEIKO

A practical and workable planning of the wash-up area is necessary for optimal working of the operating staff and for a rational handling and efficient circuit of the washed products.

What you also should know

MEIKO B-Tronic conveyor dishwashing machines are not only convincing with their highly efficient washing quality, but in addition also ensure extremely attractive economical functioning of the standard versions.

Individual information leaflets provide you with more concise details on the features and advantages that make the B-Tronic series even more attractive.

MEIKO B-Tronic machines don't only save you money, but also preserve the environment and its precious resources.

Upon request we will be happy to send you the sales leaflets indicated, that contain detailed information on our B-Tronic programme and features.

Models and performance data
Model selection and performance data at a glance.

The CSS chemical saving system
The new 80% prospect of dishwashing.

The CLEAN-CONTROL
The innovative cleaning and control management.

The heat recovery systems
The 3-step model: from the simple heat recovery system up to the climatizing of the wash-up area.

The gas heating
Working economically and ecologically towards a clean future.

The economic viability
Various cost-saving features and options.

Planning
Practical and efficient planning optimises space and handling.

Our programme at a glance
For every requirement we have a dishwashing machine to suit.

Complies with the hygiene requirements of DIN 10511-H for commercial glasswashing and DIN 10512 for commercial dishwashing.

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