ZORO CLEAN

Modular Flow TWIN

NEW SUPER EFFICIENT WAY OF CLEANING AT TWICE THE CAPACITY

We developed Modular Flow TWIN washing machine for the purpose of achieving double volume high efficiency washing process. The machine has lowest cycle time of 40 seconds per pallet, serving pieces size up to 600x450x800 mm.

Machine can be fitted with special moving central registers that allows washing small and big parts simultaneously.

Machine is completely modular, and we can implement Pre-washing with Deburring function, main washing with three or more modules (and even a blow-off module), drying module, with Vacuum drying or cooling module at the end of the process.

WHY IS MF-TWIN THE RIGHT CHOICE FOR YOU?

1. Our many implemented projects showed the machine is capable to meet all industry standards in automotive sector ;BMW, SAMSUNG, WABCO, BOSCH, VW Group, Daimler etc..

2. Because of our patented design, we can achieve very high filtration and very low surface tension on the parts which are cleaned.

3. Unique feature on the market is it can run 24/7 fully automated, and wash different parts individually if the pallet is equiped with RFID which is unique feature on the market. We have implemented washing for 14 different parts, all washed simultaneously.

4, It is highly effective. Our studies has shown that compared to competition we can achieve up to 50% reduction in running costs, such as energy costs, fresh water, cleaning agent, waste water costs, maintenance labour and lower CO2 emissions.

5. It is flexible and versitile. Switching the nozzles can be made in about 30 minutes, as all the nozzles and drying knifes are attached to changeable top-lid.

6. The machine has TWICE the capacity but for only 40% more investment. We also offer many options!

7. Smallest footprint for in-line washing systems on the market. We achieve up to 30% smaller footprint than competitors. Additionaly we can provide an unique option to backfeed the pallets under the line and thus offer additional space savings when needed.

TURNKEY SOLUTIONS

SPECS

Size of a module: (Lx W x H) 1400 x 2800x 3000 mm
Footprint of a module: 3,92 m2
Weight of a module: 1500 kg
Number of standard tanks: 2
Tank capacity: 900 L
Loading height: 1000 mm or 1300 mm
Size of opening: up to 700x800 mm
Colour: RAL 7040 + RAL 5010 + STAINLESS STEEL
Pumps: up to 12 bar, depending on application
Lowest cycle time / pallet: 80 s / pallet
Working temperature: 50-70 °C
Heaters: 3 x 6 kW
Rated power: From 45kW on, depending on application

PALLET

Maximum size: 600x450 mm
Maximum weight: Up to 100kg / pallet
Option of pallet backfeed under the machine to save floorplan
Stainless steel chaindrive

DEFAULT CONFIGURATION

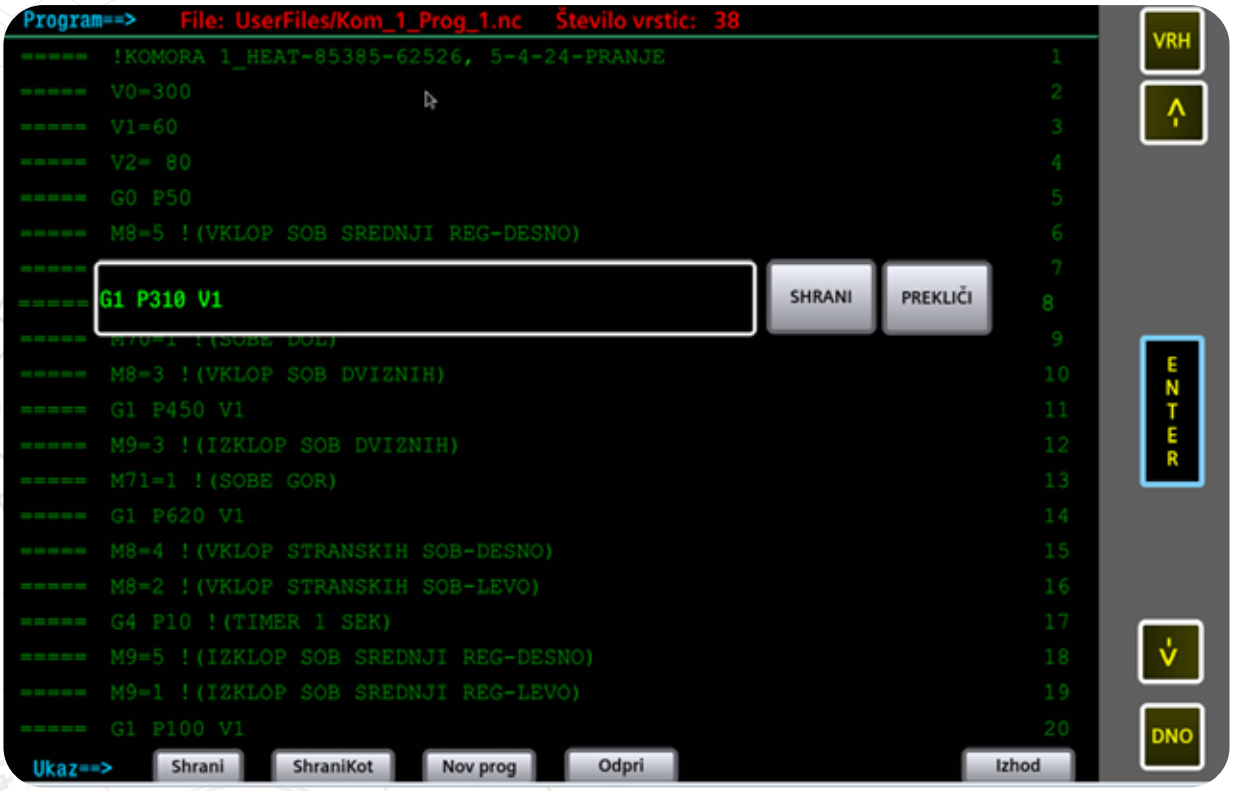
-Washing module + Rinsing module
- Drying module
- Drying turbine, power up to 12kw, heating up to 120 °C
- Industry 4.0 with web application
- Cycle counter
- Machine status light
- Three phase filtration (500, 200, 50-10 mcr)
- Siemens HMI with Siemens servo drives
- Memory for up to 15 different programs
- Pressure switch (leakage detection system)
- Steady water level automation
- Modular design - add more modules later!

ADDITIONAL OPTIONS

- Additional washing modules (pre-washing with deburring)
- Blow off modules
- Module with Robot for pre-wash or deburring
- Vacuum module
- Cooling / Ventilation module
- Anti corrosion module
- Additional pumps up to 200BAR
- Double heaters
- Clean heated DEMI water tank for fine rinsing
- Fresh water cycle optimation
- Pallet automation (inbound / outbound)
- Automated pre-wash bath
- Auto power-ON for preheating
- Auto cleaning agent dosing system

- Additional double-filtering systems
- Oil separators
- Oil skimmers
- Filtermist water mist extraction units
- Thermal insulation option
- Internal LED Lightning
- Pallet construction
- Flooding prevention system
- Service plans
- Individual colour scheme

RELIABLE AND USER FRIENDLY WASHING LINE



Example of a program user interface. Programming is possible using G and M codes, simmilar to CNC machining centers.

COST EFFICIENCY CASE STUDY

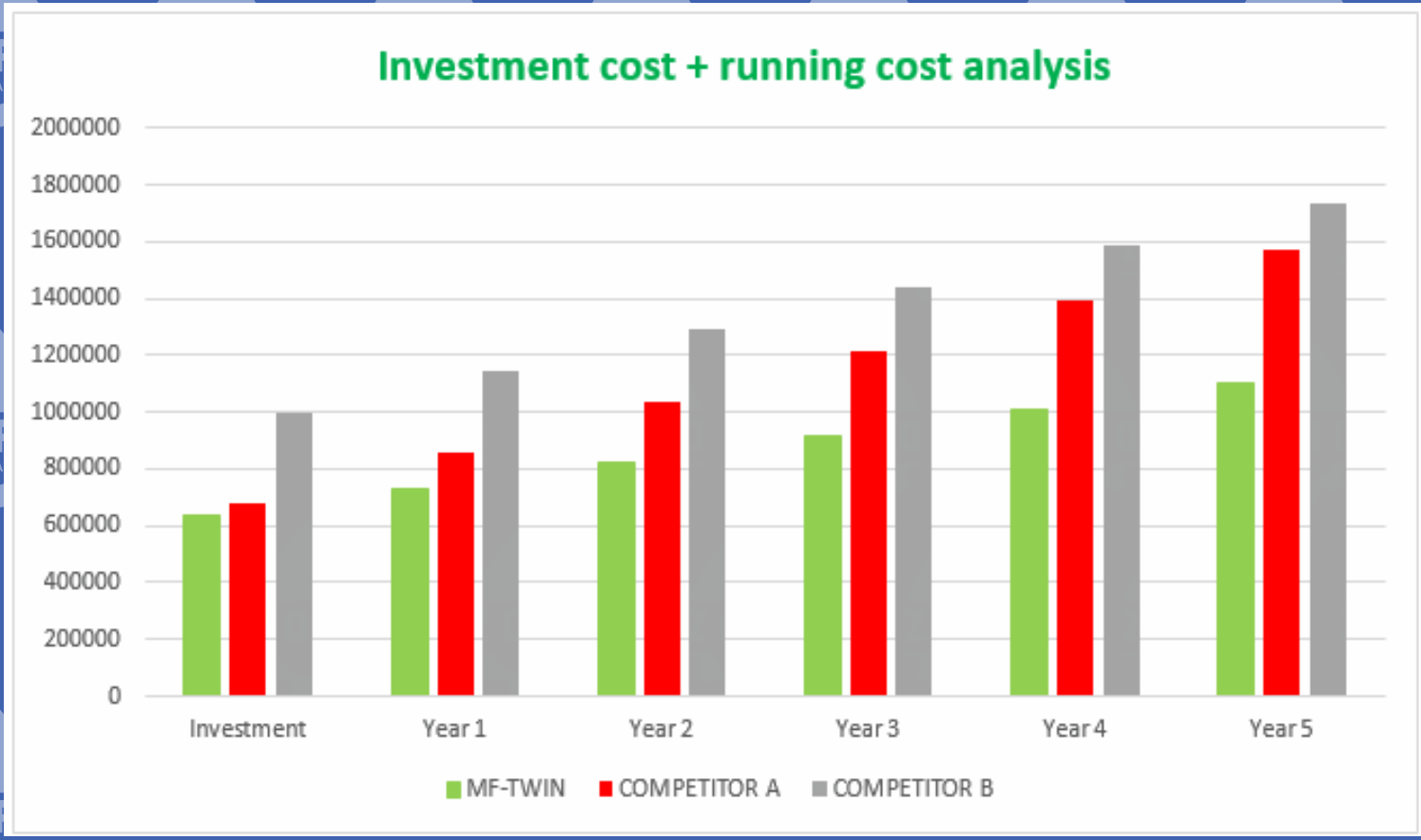
Below we are presenting interesting case study based on direct comparsion between our flagship model MF-5000 TWIN, running with both vacuum module and cooling module and well-renowed competitors A and B. Competior A is a "traditional" continous cleaning system, and Competitor B is semi-advanced continous cleaning system with doors, but only one chaindrive.

All machines are running 24/7 in at least 300 days / year condition. OEE is calculated at 80%. Both machines wash similar parts for Automotive sector, pallet size is 600x450 mm, with 2 die-cast aluminium parts of weight 2kg/part.

Cyle time is 20 seconds per part. Cleanliness requirement are no metallic particels above 400µm and surface tension of at least 38mN/m. In the described study both washing lines met the criteria.

COST COMPARISON STUDY	ZORO MF - TWIN	COMPETITOR A	Difference	Cost (in €)	Savings	SUM
Energy (kW/h)	70	120	50	0,15	7,5 €/h	43200
Fresh DEMI Water (L/part)	0,4	0,9	0,5	0,03	0,015 € / part	15552
Cleaning agent (L/day)	3	7,5	4,5	7	31,5 € /day	8190
Waste water (L / part)	0,08	0,25	0,17	0,05	0,0085 € / part	8812,8
Maintenance cylce (per week)	0,5	1	0,5	396	198 € / week	9900
					TOTAL YEARLY SAVINGS	85654,8
Total cost of Energy	60480	103680	43200			
Total cost of DEMI Water	12441,6	27993,6	15552	SUM is calculated by time: 50 work weeks, 18 work days, 24/7		
Total cost of Cleaning agent	5460	13650	8190	SUM is calculated by parts: 4 parts / 80 seconds, 1,03 million parts		
Total cost of Waste water	4147,2	12960	8812,8	SUM is reduced by factor 0,8		
Total cost of Maintenance	9900	19800	9900			
		TOTAL YEARLY SAVINGS	85654,8			

COST COMPARISON STUDY	ZORO MF - TWIN	COMPETITOR B	Difference	Cost (in €)	Savings	SUM
Energy (kW/h)	70	96	26	0,15	3,9 €/h	22464
Fresh DEMI Water (L/part)	0,4	0,72	0,32	0,03	0,01 € / part	9953,28
Cleaning agent (L/day)	3	6	3	7	21 € /day	5460
Waste water (L / part)	0,08	0,2	0,12	0,05	0,006 € / part	6220,8
Maintenance cylce (per week)	0,5	1	0,5	396	198 € / week	9900
					TOTAL YEARLY SAVINGS	53998,1
Total cost of Energy	60480	82944	22464			
Total cost of DEMI Water	12441,6	22394,88	9953,28	SUM is calculated by time: 50 work weeks, 18 work days, 24/7		
Total cost of Cleaning agent	5460	10920	5460	SUM is calculated by parts: 4 parts / 80 seconds, 1,03 million parts		
Total cost of Waste water	4147,2	10368	6220,8	SUM is reduced by factor 0,8		
Total cost of Maintenance	9900	19800	9900			
		TOTAL YEARLY SAVINGS	53998,1			



Based on our patented design we calculated 7 year savings that can add up to 599.578 €. That means the ROI on the machine comparable to “competitor A” is 7 years!

Special option with robot for pre-wash / deburring

Pogled za stroj z vhodne strani

MADE BY SONET PLUS

ZORO CLEAN

Sonet plus d.o.o.
Kidričeva cesta 101, 4220 Škofja Loka
Slovenia
Tel: +386 41 541 535
E-mail: info@zoro-clean.com
WEB: www.zoro-clean.com