EPD

INTERNATIONAL EPD SYSTEM

Environmental Product Declaration

ISO 14025:2006

KP 100 HMA

Vacuum Washing Machine

from

IFP Europe S.r.l.

iFP

INDUSTRIAL
FINISHING
PLANTS

Environmental Product Declaration

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In accordance with ISO 14025:2006 for:

KP 100 HMA Vacuum Washing Machine

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IFP Europe S.r.l.

iFP INDUSTRIAL FINISHING PLANTS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0024938:001
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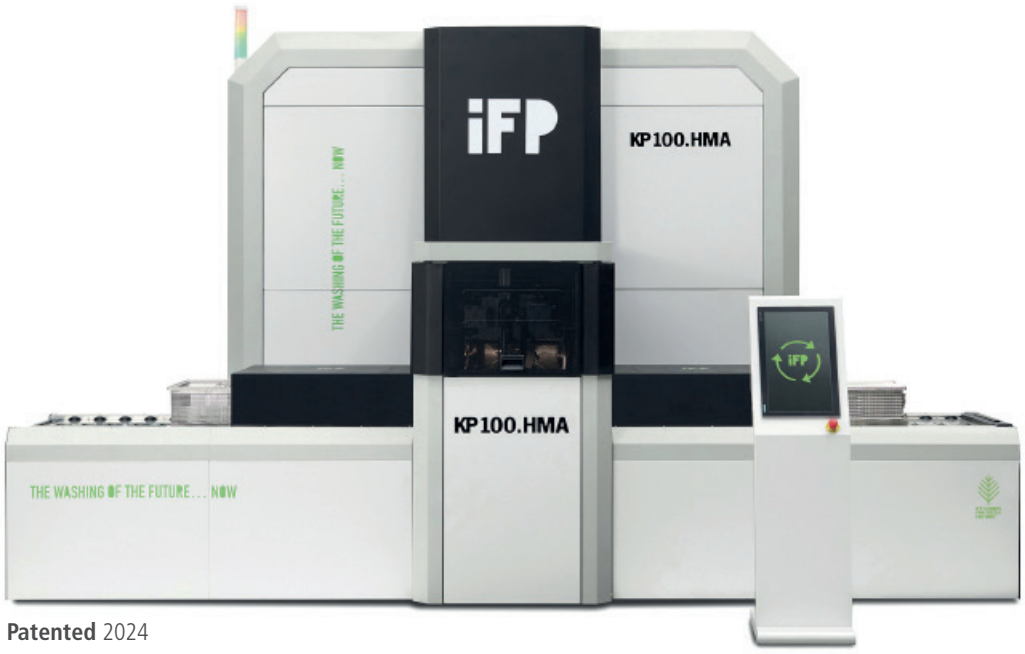
Valid until:	24 August 2030

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at ***www.environdec.com***



Patented 2024

Programme information

Programme:	The International EPD® System
Programme operator:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

PCR:	2010:08, version 4.0, "Other special - and general- purpose machinery and partes thereof"
PCR review was conducted by:	The Technical Committee of the International EPD® System. A full list of members is available at **www.environdec.com.** The review panel may be contacted via **info@environdec.com.**
Chair of the PCR review:	Lars-Gunnar Lindfors

Life Cycle Assessment (LCA)

LCA accountability: Leyton Italia S.r.l.

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006 via:

☑ EPD verification by EPD Process Certification*****

Internal auditor:	Gianni Telatin
Third-party verification:	Guido Croce, Bureau Veritas Italia Società Benefit is an approved certification body accountable for third-party verification
Third-party verifier is accredited by:	Accredia

***** *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI.*

Procedure for follow-up of data during EPD validity involves third-party verifier:

☐ **YES** ☑ **NO**

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/ functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see ISO 14025.

Company information

Owner of the EPD:	**IFP** Europe S.r.l.
Contact:	Stefano Barboglio, +39 049 5996883, s.barboglio@ifpsrl.com, Via Po, 1, 35015 Galliera Veneta (PD), Italy

Description of the organisation:

IFP Europe Srl was established in 2010 in Galliera Veneta (Padua) to meet the growing industrial demand for cleaning metallic components. Founded by Giacomo Sabbadin and Alberto Gobbo, the company immediately distinguished itself through a green and innovative approach: its aim is to combine high performance with environmental respect by offering technological solutions that fully embrace Industry 4.0 principles. With a workforce of around fifty people, IFP Europe manages every phase of the process internally, from design to commissioning of the systems .

At the core of IFP Europe's offering is the KP Kleen Power range: a series of machines capable of operating in a vacuum chamber down to one millibar, where the combined action of ultrasonics and carefully chosen solvents (modified alcohols, hydrocarbons, or aqueous solutions) ensures the removal of oils, swarf, dust, and contaminants even within the most intricate geometries. This approach prevents oxidation, promotes rapid and thorough drying, and drastically reduces cycle times, with tangible benefits for productivity: on average, cleaning times are reduced by up to 50 % compared to traditional systems, effectively doubling the production capacity per installed system. Continuous filtration and an integrated distillation system also allow recovery of up to 99 % of the solvents used, minimizing waste and overall energy consumption .

Custom design is another distinguishing feature of the company: the technical office uses CAD software and flow simulations to predefine optimal parameters for each cleaning cycle, calibrating temperature, pressure, and ultrasonic frequency according to the customer's requirements. Meanwhile, the in-house laboratory conducts tests on representative samples to verify cycle effectiveness, select the most suitable solvent, and optimize consumption. Thanks to these tools, every system is tailor-made, with the possibility of integrating automation solutions such as loading and unloading robots to simplify operations and ensure maximum consistency in performance .

On the market front, IFP Europe has built a commercial and support network covering more than twenty-five countries across Europe, America, Asia, and Africa. Its systems are installed in sectors that demand very high hygienic, precision, and reliability standards: from automotive, for cleaning cylinder heads, valves, and high-precision gears, to aerospace, medical, watchmaking, and jewelry sectors, where the removal of contaminants on extremely small parts is critical. Beyond sales, the company offers remote support through telemetry, which allows real-time monitoring of operating parameters and immediate intervention in case of anomalies. Should on-site assistance be required, the technical team guarantees intervention within 24 hours of the request, thanks to a warehouse of original and refurbished spare parts located at the headquarters. Looking ahead, IFP Europe plans to further strengthen R&D investments to integrate artificial intelligence systems into filtration and control processes, expand its support network in the Asia-Pacific and Southeast Asia regions, and develop dedicated solutions for advanced microcomponentry in the medical field. Through these initiatives, the company aims to consolidate its technological leadership, further reduce consumption, and broaden its global presence while remaining committed to quality, safety, and environmental sustainability .

Name and location of production site:	IFP Europe Srl, Via Po 1, 35015 Galliera Veneta (PD), Italy

Product information

Product name:	KP 100 HMA vacuum washing machine
Product identification:	Vacuum washing machine for cleaning and decontamination of metal components and small parts

Product description:

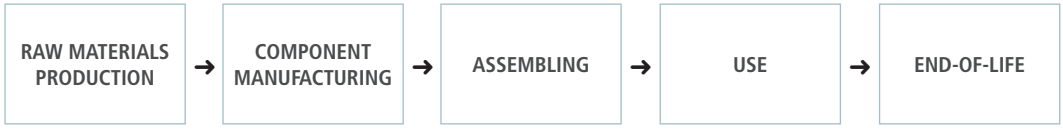
IFP Europe Srl's KP Kleen Power line represents the evolution in industrial metal washing, based on a vacuum process that guarantees excellent results in terms of quality, efficiency and sustainability. With the ability to operate up to 1 millibar of pressure, the vacuum system ensures the hermeticity of the system, preventing any dispersion of solvent or contaminant into the environment and promoting perfect drying. This approach dramatically reduces cycle times and energy consumption, effectively doubling production capacity compared to conventional atmospheric cycle washing machines, as the washing liquid is not subjected to thermal stress and retains its optimum characteristics for a long time
Within this range, for the most demanding applications, where large quantities of solvent or very stubborn contaminants are required, the KP.HMA is presented as the top of the range product: equipped with filters and integrated distillation systems, it fully meets the requirements of high productivity and maximum operational safety.

UN CPC code:	Group 449, Class 4491
Geographical scope:	Europe

LCA information

Functional unit / declared unit:	1 unit of KP 100 HMA vacuum washing machine
Reference service life:	20 years
Time representativeness:	2024
Database(s) and LCA software used:	Simapro software ver. 10.2.0.2, Ecoinvent database ver. 3.11
Description of system boundaries:	Cradle to grave
Excluded lifecycle stages:	None
More information:	Name of LCA practitioner: Emanuele Vall (evalli@leyton.com)i, Andrea Marchetti (amarchetti@leyton.com) Leyton Italia Srl

System diagram:



Content declaration

Product:

PRODUCT COMPONENTS	KG	%	ENVIRONMENTAL / HAZARDOUS PROPERTIES
Iron	2707	52,0%	
Stainless	1900,5	36,5%	
Aluminum	391,5	7,5%	
Plastic	65	1,2%	
Lubricating oil	73	1,4%	The lubricating oil used are not classified as dangerous according to Regulation 1272/2008/EC and its amendments and also not classified as dangerous for ecological systems.
Refrigerant gas	1,2	0,02%	The refrigerant gas used is the R452A which has a GWP of 2142 kgCO2eq/kg
Cast iron	13	0,2%	
Copper	55	1,1%	
TOTAL	5206,2	100,0%	

Packaging

Distribution packaging: the packaging used for the distribution of the washing machine is composed of wood and cardboard. The machine is shipped directly from IFP manufacturing site to the customer (no internal distribution) in different parts and then assembled directly on customer site.
Total wood = 60 kg/unit
Total cardboard = 29,5 kg/unit

Recycled material **Provenience of recycled materials (pre-consumer or post-consumer) in the product:** no recycled materials in the product

Results of the environmental performance indicators

Impact category indicators

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Global warming potential (GWP)	Fossil	kg CO2 eq.	3,096E+04	3,577E+01	4,208E+05	4,518E+05
	Biogenic	kg CO2 eq.	1,996E+02	1,123E-02	1,413E+02	3,408E+02
	Land use and land transformation	kg CO2 eq.	4,708E+01	3,023E-03	4,757E+01	9,465E+01
	TOTAL	kg CO2 eq.	3,120E+04	3,579E+01	4,210E+05	4,522E+05
Ozone layer depletion (ODP)		kg CFC 11 eq.	1,424E-03	7,441E-07	8,763E-03	1,019E+02
Acidification potential (AP)		mol H+ eq.	2,316E+02	1,015E-01	1,240E+03	1,472E+03
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	2,471E+01	9,673E-03	1,186E+02	1,433E+02
	Aquatic marine	kg N eq.	3,779E+01	2,220E-02	2,642E+02	3,020E+02
	Aquatic terrestrial	mol N eq.	3,879E+02	2,277E-01	2,713E+03	3,101E+03
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1,250E+02	8,417E-02	1,015E+03	1,140E+03
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	1,121E+00	1,598E-05	7,597E-01	1,881E+00
	Fossil resources	MJ, net calorific value	3,779E+05	5,129E+02	6,074E+06	6,453E+06
Water deprivation potential (WDP)*		m3 world eq. deprived	6,563E+03	1,800E+00	2,271E+04	2,927E+04

***Disclaimer:** The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Resource use indicators

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Primary energy esources Renewable	Use as energy carrier	MJ, net calorific value	6,164E+04	4,686E+00	7,325E+04	1,349E+05
	Used as raw materials	MJ, net calorific value	9,569E+03	3,191E+00	3,912E+04	4,869E+04
	TOTAL	MJ, net calorific value	7,121E+04	7,877E+00	1,124E+05	1,836E+05
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	4,758E+04	3,499E+01	4,397E+05	4,873E+05
	Used as raw materials	MJ, net calorific value	3,303E+05	4,780E+02	5,635E+06	5,966E+06
	TOTAL	MJ, net calorific value	3,779E+05	5,129E+02	6,074E+06	6,453E+06
Secondary material (optional)		kg	0,000E+00	0,000E+00	0,000E+00	0,000E+00
Renewable secondary fuels (optional)		MJ, net calorific value	0,000E+00	0,000E+00	5,296E+03	5,296E+03
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,000E+00	0,000E+00	0,000E+00	0,000E+00
Net use of fresh water (optional)		m^3	7,910E+03	1,837E+00	2,317E+04	3,108E+04

Waste indicators (optional)

PARAMETER	UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Hazardous waste disposed	kg	2,067E+00	2,580E-03	3,172E+01	3,379E+01
Non-hazardous waste disposed	kg	3,852E+03	6,296E-01	1,002E+04	1,387E+04
Radioactive waste disposed	kg	7,240E-01	5,205E-04	6,532E+00	7,256E+00

Waste indicators (optional)

PARAMETER	UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Components for reuse	kg	0,000E+00	0,000E+00	0,000E+00	0,000E+00
Material for recycling	kg	0,000E+00	0,000E+00	3,140E+03	3,140E+03
Materials for energy recovery	kg	0,000E+00	0,000E+00	1,066E+02	1,066E+02
Exported energy, electricity	MJ per energy carrier	0,000E+00	0,000E+00	0,000E+00	0,000E+00
Exported energy, thermal	MJ per energy carrier	0,000E+00	0,000E+00	0,000E+00	0,000E+00

Additional environmental information

The KP HMA line has a vacuum treatment cycle characterized by the recovery up to 99% of the alcohol-based solvent used for the cleaning process and a system filtration for the recovery of other process fluids.
The power and the energy consumption of the KP 100 HMA vacuum machine are described below, considering one hour of different operating conditions:

- *Installed power: 35 kW*
- *Energy consumption during pre-heating: 11 kWh*
- *Energy consumption during cleaning cycle (for 1 hour, approx. 4 cycle of 15 min. each): 16 kWh*
- *Energy consumption during standby: 11 kWh*
- *Energy consumption during emergency stop: 0,5 kWh*

References

General Programme Instructions (GPI) of the International EPD® System. Version 4.0

PCR 2010:08. Other special and general purpose machinery and partes thereof. Version 4.0

UNI EN ISO 14040:2021 - Environmental management - Life cycle assessment - Principles and framework;

UNI EN ISO 14044:2021 - Environmental management - Life cycle assessment - Requirements and guidelines;

UNI EN ISO 14025:2010 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures

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