

The network of specialists, for **AM professionals**

# INTEGR<sup>AM</sup>

SurfPRO  
Multi STEP - **SteamDYEING**



## Multi STEP - STEAM-DYEING

SteamDYEING system	Tank nom. c.ty dm <sup>3</sup>	Number of nozzles - SD	Dimensions max.: LxPxH mm.	Steam Generator S.S.	Colour change	N.° Filters	Recycling tank
SurfPRO-25-MS-SD	25	1	1400x1000x2100	1 with refill H2O Man.+1P	1 Pump MF+1MK	1 PF + PneuDef.	1
SurfPRO-50-MS-SD	50	1	1500x1000x2100	1 with refill H2O Man.+1P	1 Pump MF+1MK	2 Pneu Filter	1
SurfPRO-120-MS-SD	120	1	1800x1000x2200	1 with refill H2O Aut.+1P	1 Pump MF+1MK	2 PF PneuD	1
SurfPRO-120-MS-SD2	120	2	1800x1000x2200	1 with refill H2O Aut.+2P	2 Pump MF+1MK	3 PF PneuD	2

Indicative measurements - subject to change

Final extension «-WS» complete with lining wear sensor

All the above models include **final drying**, with the exception of the 25 liter model;

## SURF PRO MS-SD

A RANGE OF 4  
SERIES MODELS  
WITH AUTOMATIC  
CYCLE PHASES

WARM-UP

Steam DYEING

RINSING

DRYING

## SURF PRO Multi STEP-Stream Dyeing

COLOR CHANGE SUPPORTED BY AN AUTOMATIC CLEANING PROCESS OF THE PROCESS MEDIA, THAT CAN ALSO BE USED AS PRE-DYEING SMOOTHING

GEL-SMOOTHING

Steam CLEANING

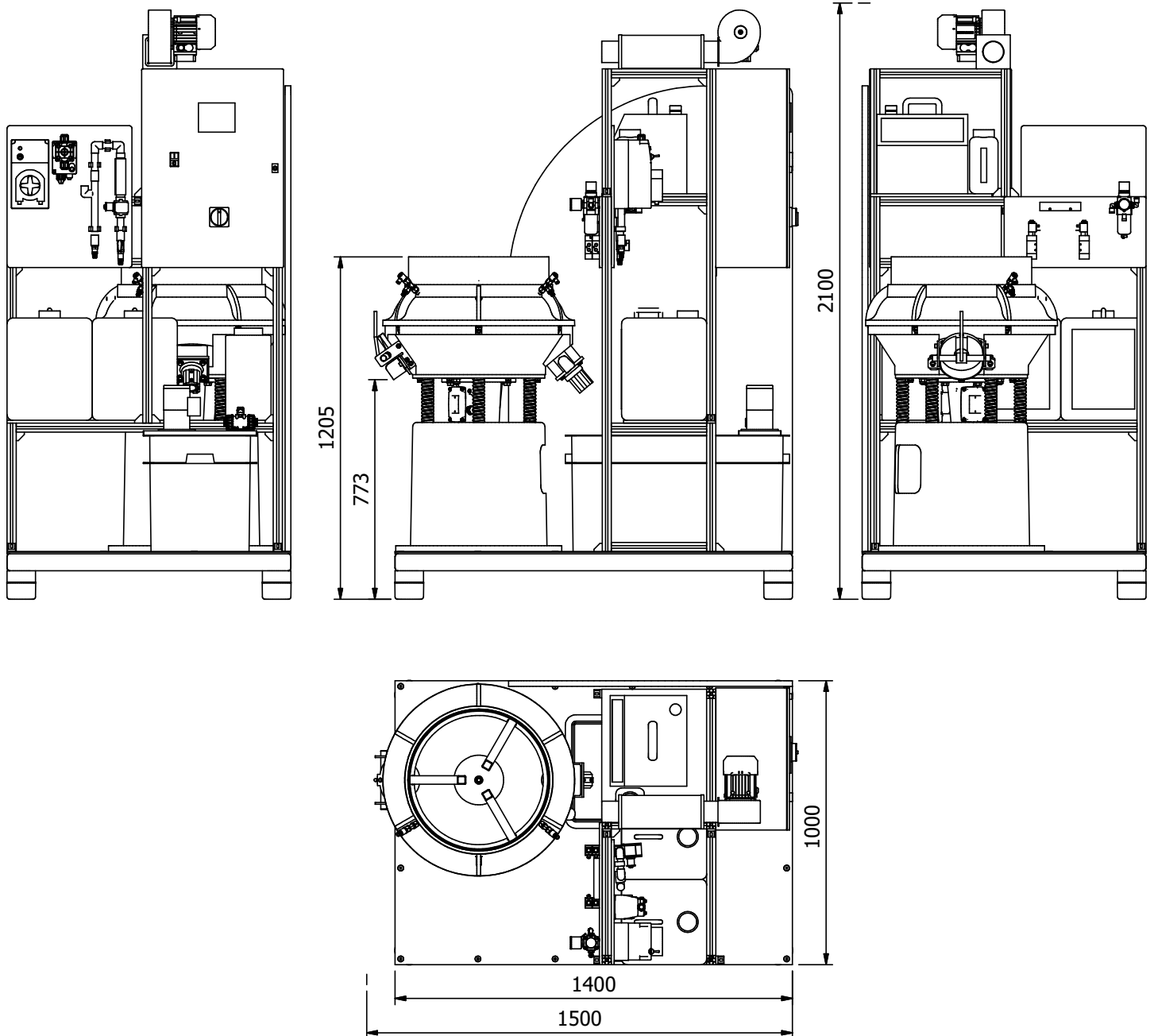
RINSING

DRYING

All SurfPRO MS-SD (Multi STEP - Steam Dyeing) systems offered by IntegrAM can work on charges of plastic components combined with special QF finishing vector "media" which allow three-dimensional movement inside the working tank.

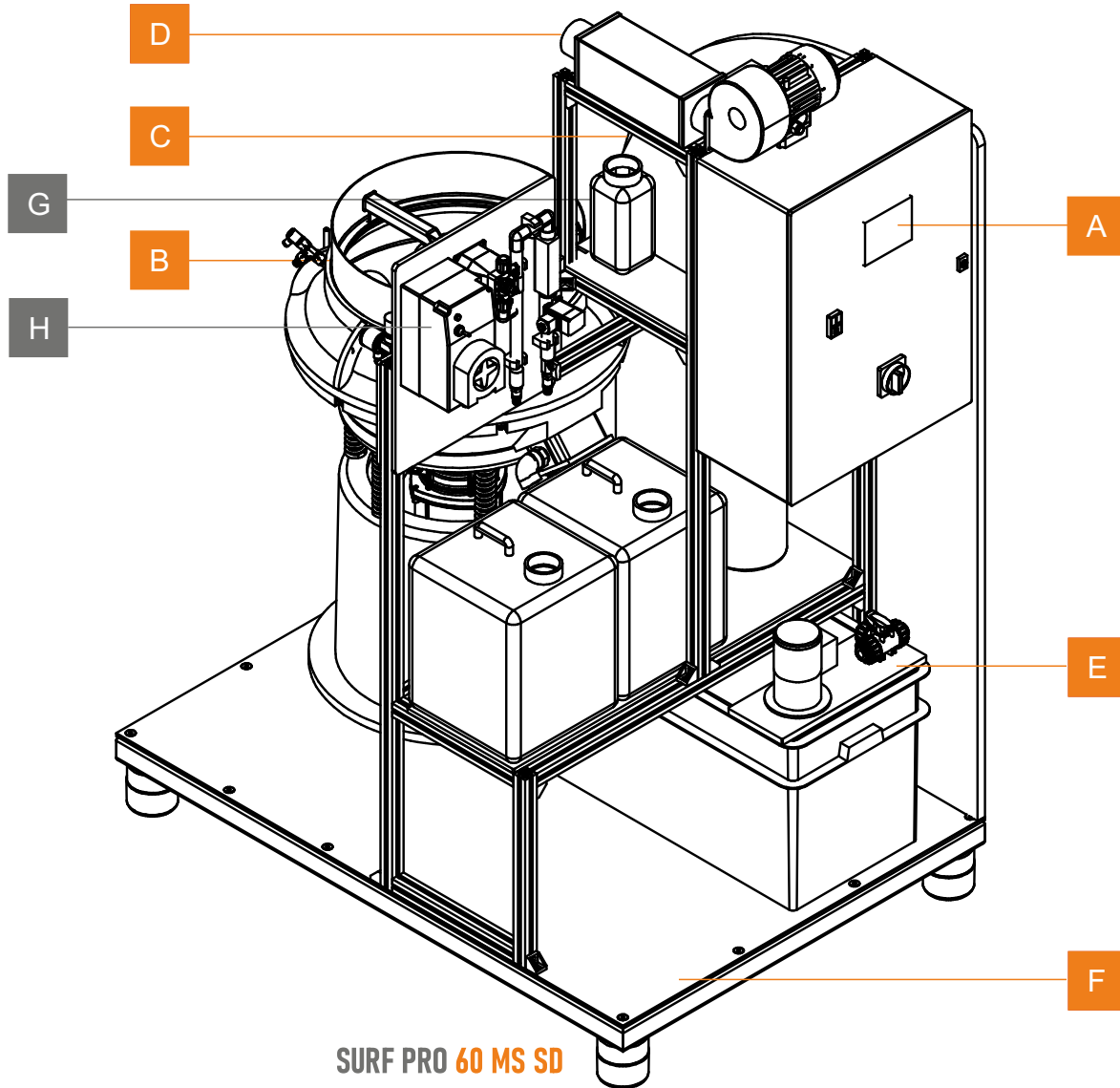
The use of QF «media» ensures evenly distributed colors and an «elastic» anti-shock action on the components to be dyed.

Thanks to the union of steam and special colors, formulated by the French partner TCN, the Steam-Dyeing process (Techno Surface patent) allows you to drastically reduce the quantity of used color, **from 10 to 20 times less** than with classic immersion processes.



The **SURF-PRO** finishing machines series is based on pre-assembled compositions on technological pallets easy to place and with the prerogative of being **PLUG & PLAY**. Depending on the preferences of the end user, the type of location in which the finishing machine is addressed or just the expected budget, all SURF-PRO machines can be supplied in the basic version or with an «AM» cabin. All basic machines are equipped with a colour touch screen HMI interface, but those with an «AM» cabin have a larger panel, ideal to manage recipes based on multiple types of «AM» processes. The SURF-PRO MS-SD Multi STEP - Steam DYEING line matches the vibratory finishing unit with a steam boiler and specific accessories for steam dyeing processes - Steam Dyeing, **Multi-Step**.

## Multi STEP - STEAM-DYEING



SURF PRO 60 MS SD

In the above picture you can see an example of **IntegrAM** medium capacity machine (60 nominal litres, 36 real litres), model **SurfPRO 60 MS SD** with:

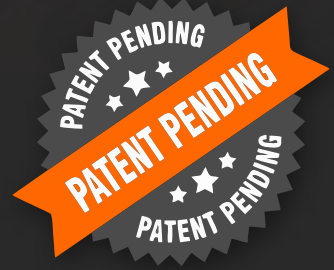
[A] HMI Touch Screen to manage the programs and the recipes; [B] 60L vibratory bowl with lid suitable for steam and hot air drying; [C] Boiler for dry saturated steam; [D] Hot air blower for drying; [E] Recycling tank with three-way control valve and electro-pump; [F] Technological pallet to support the pre-assembled and plug & play plant; [G] 1L colour container; [H] Dosing station for 1 gel compound and 1 liquid chemical compound, with water control by means of solenoid valve and flowmeter;

**IntegrAM** is available for demonstration dyeing tests;

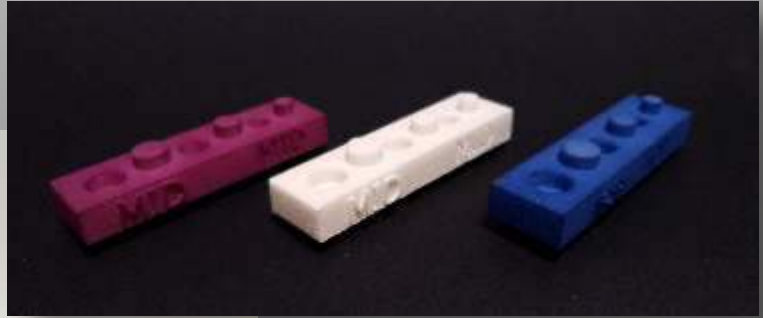
# SURF PRO

## Multi STEP - STEAM-DYEING

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# SURF PRO

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# SURF PRO

## Multi STEP - STEAM-DYEING





## Multi STEP - STEAM-DYEING



**UV filter**

Efficiency on polyamid certified according to **ISO 11507** standard

	Initial shade	Shade after 500h	Rating grey scale
Untreated part			2
Treated part			5



All SurfPRO MS SD systems offered by IntegrAM have been designed and produced to ensure maximum dyeing performance with very reduced consumption, using colors of specific formulation, as the result of a R&D program developed in many years of partnership with TCN, a Leader specialist in the colouring and dyeing world, with formulations and solutions for every chromatic need.

The testing service of IntegrAM laboratory is always available to carry out demonstrative tests on the parts, so as to highlight all the process variables, type of media, cycle times, temperatures, chemical washing compound and colour change, etc.

## Multi STEP - STEAM-DYEING



All **SurfPRO MS SD** systems offered by **IntegrAM** can be used for polymers, composites and elastomers, subject to validation with dyeing tests.

Finally, they can be considered "plug & play" as they are pre-assembled and pre-configured during the FAT (Factory Acceptance Test) phase.

Once positioned at the destination place, you only need to make the connection (electricity, water and compressed air).

The testing service of **IntegrAM** laboratory is also available to carry out demonstration tests on the parts, so as to highlight all the process variables, type of media, cycle times, temperatures, chemical washing compound, colour change, etc.

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## Multi STEP - STEAM-DYEING

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Techno  
SURFACE

Techno Surface, an Italian company founded in 2015 and specialized in various technologies, with strong convergence towards Additive Manufacturing.

As far as the Steam DYEING® technology is concerned, Techno Surface had the original idea in 2019, that has experienced the efficient interaction between dry saturated steam and dyeing colour on the surface of polymers made by 3D printing

Techno Surface decided in 2020 to protect this peculiar technology with a Patent Demand. Since the beginning the partners for this project have been, on one hand TCN, who offered important support providing dyeing colours for many hundreds of tests and, on the other hand Rollwasch®, who offered to be the manufacturer of the first prothotype and, then the machine destined to the Laboratory of TCN in France.



Rollwasch®, an Italian company founded in 1950 in Milan and specialized in surface treatment. Manufacturer of machines and consumer finishing products.

The reliable partner to produce the special range of machines dedicated to the Additive Manufacturing field for Techno Surface;

Since 2019 Rollwasch® has been one of the founding members of the IntegrAM network, being available also to provide its test room (for trials with participation to the costs), its after sales support for technical assistance and its participation to some challenging projects like the DCK ALL IN ONE, Patented from Rollwasch® and distributed by the IntegrAM network.



TCN, a French company born in 1963 following the encounter between a passionate chemist and a craftsman from Oyonnax in the Auvergne-Rhône-Alpes region of France. This close collaboration led to the development of a new chemical coloring process for eyeglass frames. Acclaimed by local users of cellulose acetate, this groundbreaking process quickly became popular among manufacturers of hairdressing ornaments, costume jewellery and tokens.

Manufacturer of dyeing colours for plastic, polymers, elastomers.

TCN has shared the vision of the Steam DYEING® technology from the beginning, providing samples to Techno Surface for the tuning of the first hundreds of trials, then signing a cooperation agreement for an R&D Plan starting with the dyeing with black colour in 2023, then passing to all other colours in 2024 and offering the first BIO formulations in 2025.

TCN will be the supplier of colours for all the investors of the machines for Steam DYEING® technology provided by IntegrAM.

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This brochure is for guidance only. Its content can change depending on the development of the product.

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**UK**

**IntegrAM**

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The IntegrAM program and network are coordinated by:  
**Techno Surface Sas** - Via Po, 12 - IT-20853 Biassono (MB)  
Tél. IntegrAM: +39 349 29 23 689  
e-mail: [integram-team@gmail.com](mailto:integram-team@gmail.com)  
web: <https://integram.eu>

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