

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

INTEGR^{AM}

SurfPRO
SteamDYEING

SteamDYEING

INTEGR^{AM}



SURF PRO STEAM-DYEING

System for SteamDYEING	Bowl nom. cap. dm ³	Number of SD nozzles	Overall dimensions max.: LxDxH mm.	Dry Sat. Steam Generator	Color Quick Shift	Nr. of Filters	Relaunch Tank+Pump
SurfPRO-GM-SD-25	25	1	1360x800x1850	1 with feed of H2O Manual	QS-SD-25 +1 CV	1 Filter + GM Valve	1x80 l.
SurfPRO-GM-SD-60	60	1	1400x800x1860	1 con feed of H2O Automatic	QS-SD-60 +1 CV	1 Pneu Filter	1x80 l.
SurfPRO-GM-SD-120	120	1	1800x1000x2200	1 con feed of H2O Automatic	QS-SD-120 +1 CV	1 Pneu Filter	1x100 l.
SurfPRO-QS2-SD-120	120	2	1800x1000x2200	1 con feed of H2O Automatic	QS-SD-120 +1 CV	2 Pneu Filter	1x100 l.

Indicative measurements - subject to change Final extension «-WS» complete with lining wear sensor
 All the above models include **MICRO DOSING PUMP**, with color bowl support;
 + 1 CV = + 1 Optional Counter-Tank PF=Optional automatic/pneumatic PneuFILTER valve (standard on 60 and 120);
GM-SD= Base for ExtraBLACK [K] or ideal for always making a single color without changing [CMY];
QS-SD= QuickShift for frequent color changes [CMY] - ideal + 1 CV for each color;
B=Blower - Optional compressed air blowing nozzle; **CF**=Carbon Filter - Outlet filter for tank steam venting - optional;
SM=Optional Siemens PLC extension instead of the standard DELTA;

SURF PRO GM-SD

A RANGE OF FOUR SERIES MODELS WITH AUTOMATIC CYCLE PHASES

WARM-UP

Steam DYEING

STEAM Rinsing

Discharge or Pick-up

SURF PRO Quick Shift-Steam Dyeing

COLOR CHANGE SUPPORTED BY THE QUICK SHIFT OF THE «COUNTER-TANK QS» FOR COLOR (ONE COUNTERTANK PER EACH COLOR CMY) - BASIC BOWL IS JUST FOR BLACK (K)

WARM-UP

Steam DYEING

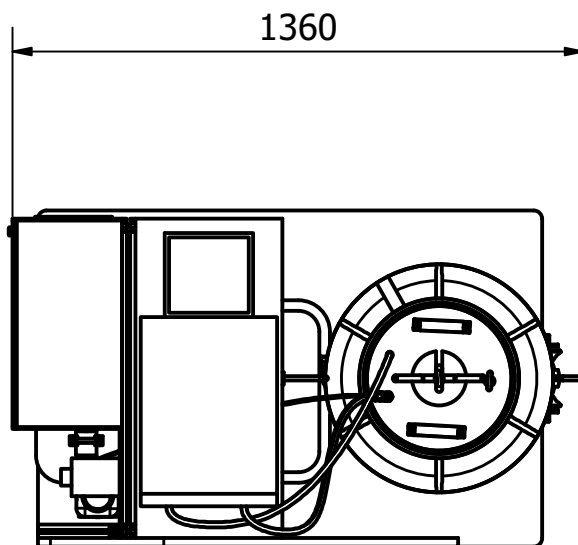
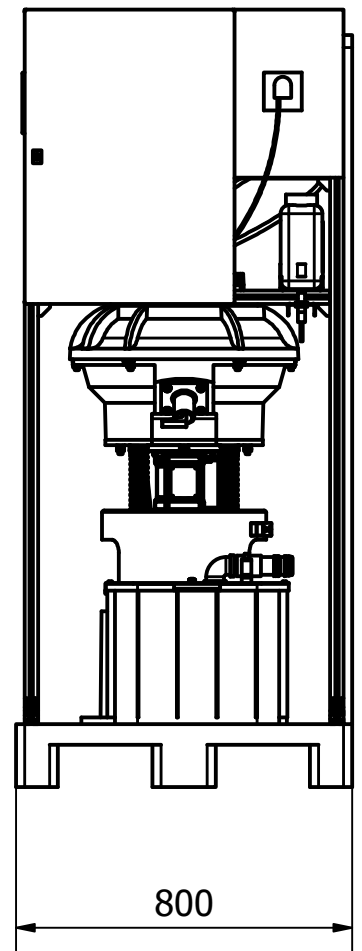
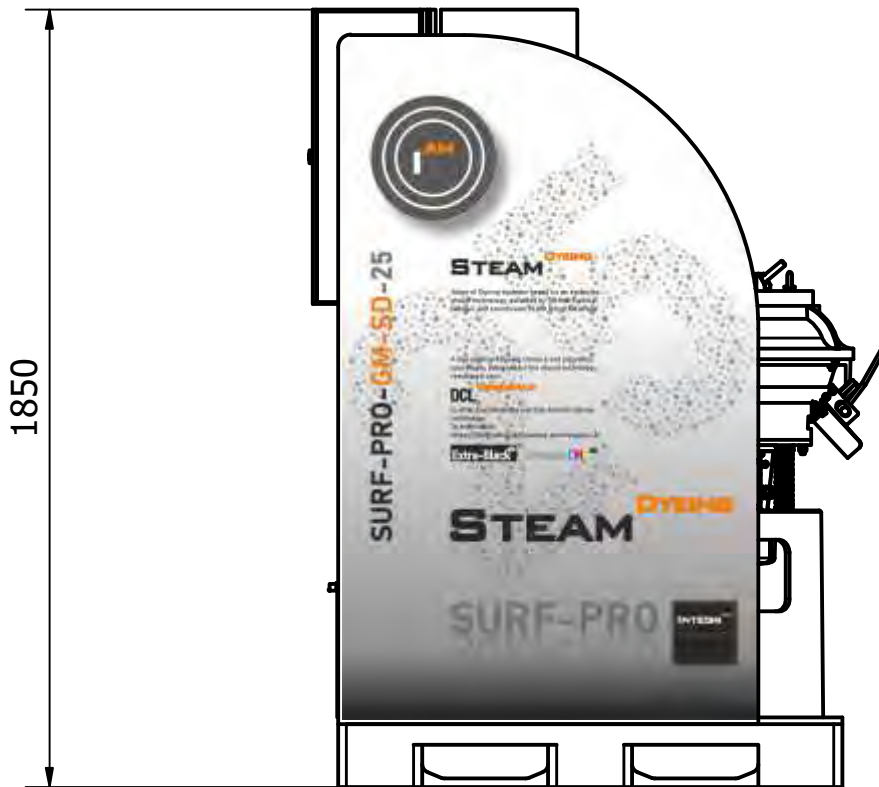
STEAM Rinsing

Discharge or Pick-up

All SurfPRO **GM-SD** or **QS-SD** systems offered by Integr**AM** can work on charges of components in PA11 - PA12 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 a new range of dyeing pigments made by DCL (Dyeing Colour Lab), 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.

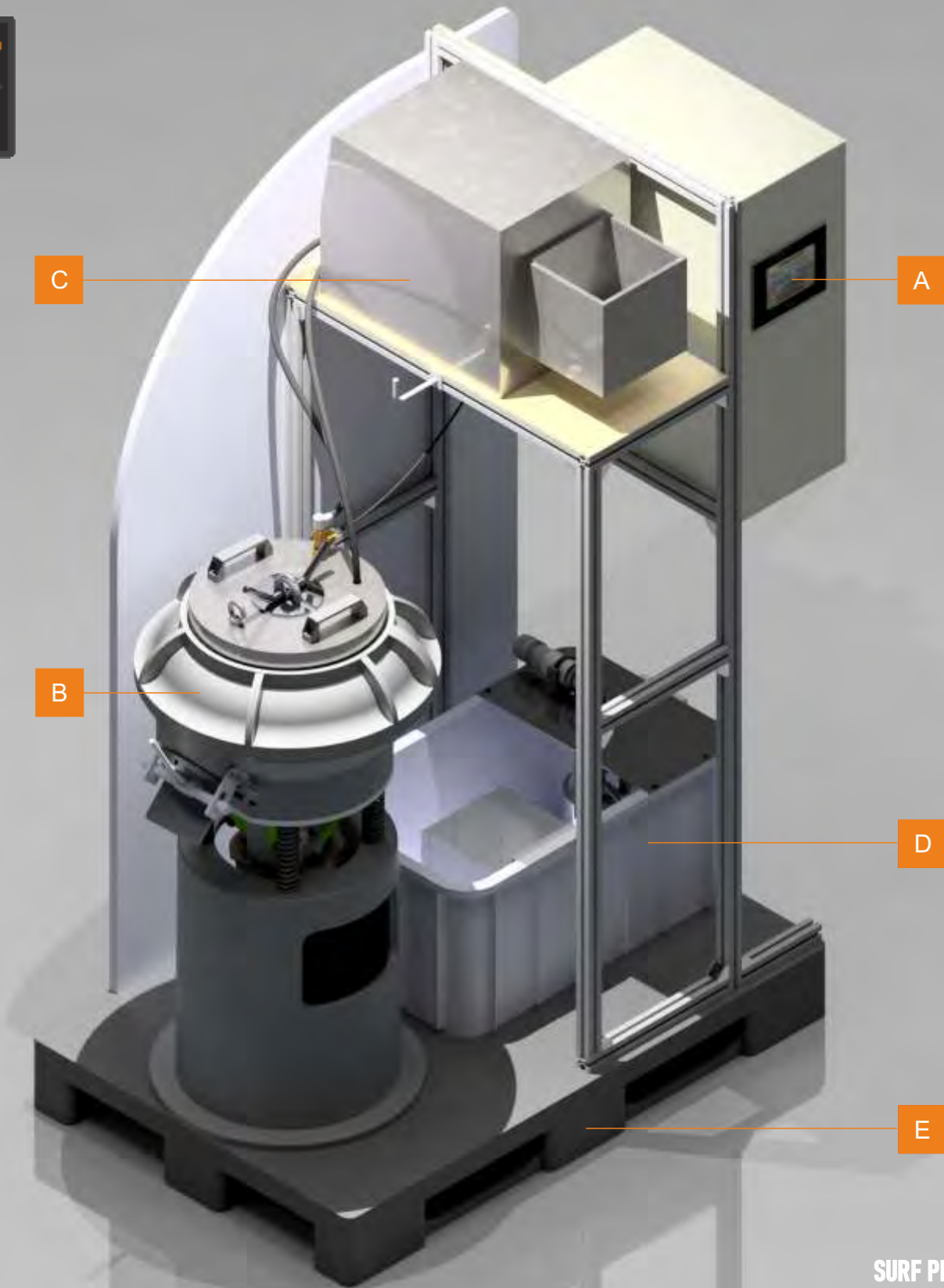


25

The **SURF-PRO** finishing machine series is based on pre-assembled compositions on technological pallets that are easy to position and have the prerogative of being **PLUG & PLAY**.

Depending on the end user's preferences, the type of environment in which the finishing machine is intended or more simply on the expected budget, all **SURF-PRO** machines can be supplied in the basic version or with an «AM» cabin.

All basic machines have a color touch screen **HMI** interface, but those with an «AM» cabin have an external HMI panel, ideal for managing recipes based on multiple types of «AM» processes. The SURF-PRO GM-SD or QS-SD line combines the vibratory finishing unit with a steam boiler and specific accessories for Steam Dyeing processes.



SURF PRO GM - STEAM-DYEING

SURF PRO GM SD 25

An example of a medium capacity machine (25 nominal liters, 20 effective) offered by **IntegrAM** with the model: **SurfPRO GM SD 25** shown above, where:

[A] HMI Touch Screen for managing programs and recipes; [B] 25 l Vibrating tank with lid suitable for steam; [C] Boiler for dry saturated steam; [D] Wastewater relaunch tank and electric pump with automatic level sensor; [E] Technological pallet supporting the pre-assembled and plug & play system;

IntegrAM is available for demonstration dyeing tests;

SURF PRO GM - STEAM-DYEING

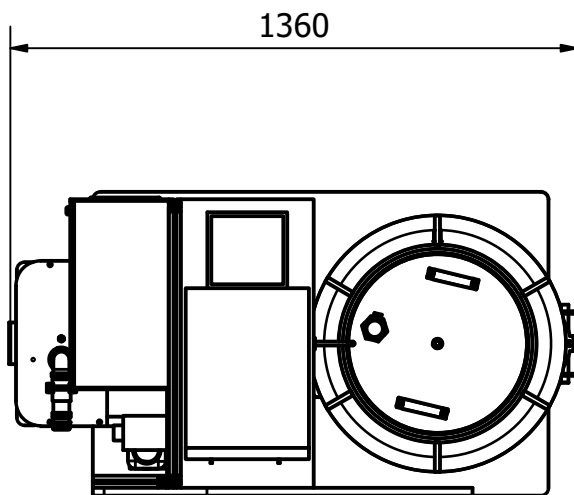
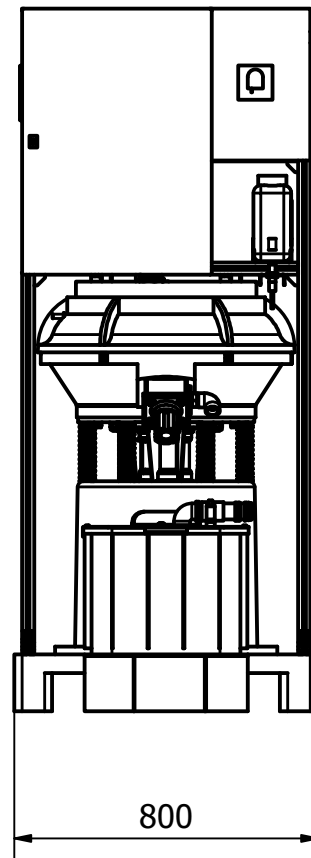
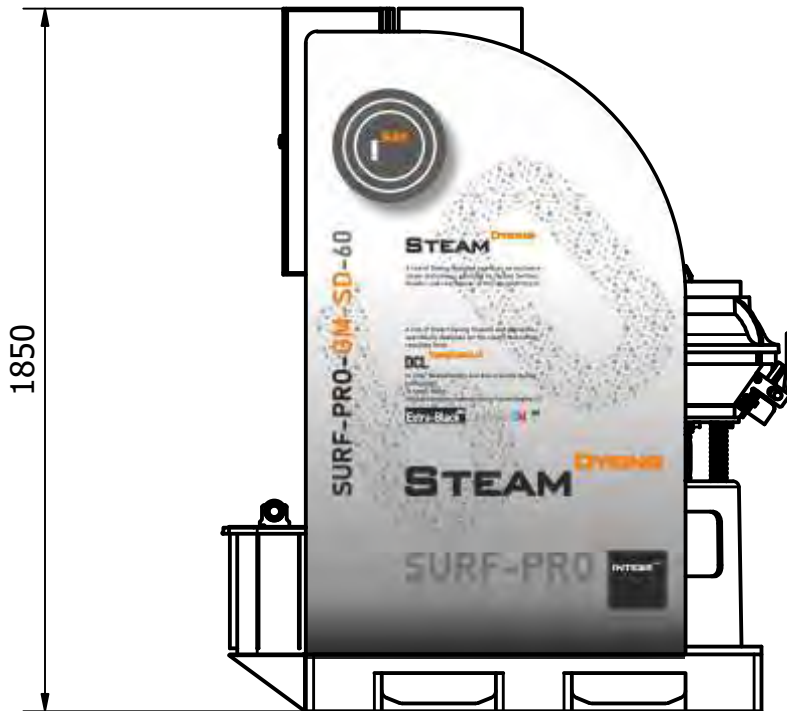


SURF PRO GM SD 25



SURF PRO

GM - STEAM-DYEING



60

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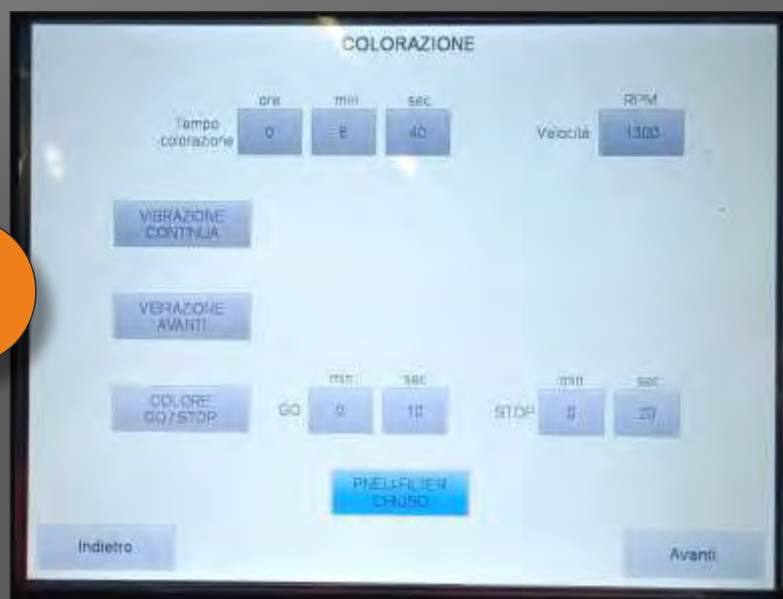
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SURF PRO GM - STEAM-DYEING

WARM-UP



Steam DYEING



All SurfPRO GM-SD or QS-SD systems offered by **IntegrAM** are supplied with HMI and proprietary software that allows you to manage, with maximum operational flexibility, a certain number of heterogeneous recipes, rich in variables and nuances ideal for customizing each Steam Dyeing process ad hoc.

During the FAT (Factory Acceptance Test) phase, before the delivery of the machine, **IntegrAM** ensures that you can verify every nuance of the system purchased, enjoying a "training" carried out with your components and with the recipes and dosages developed for you.



STEAM Rinsing



Discharge or Pick-up

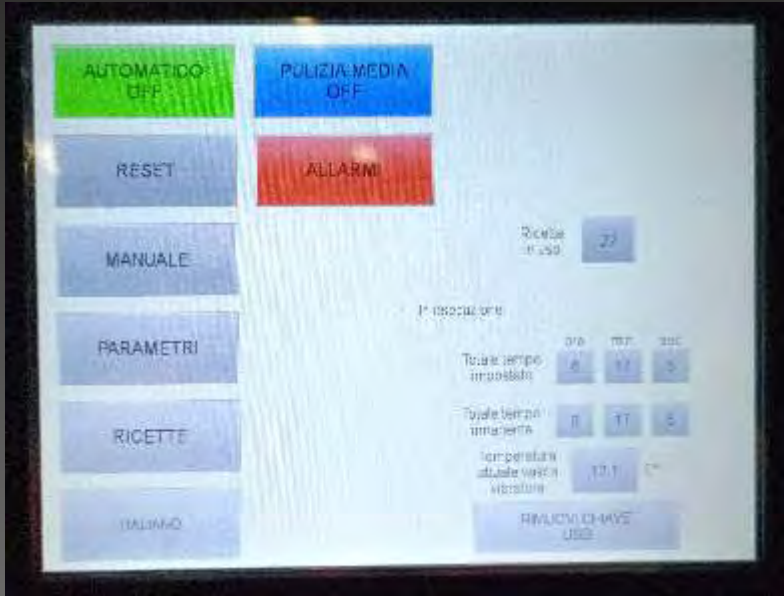
Don't hesitate to book the supply of a **SurfPRO Steam Dyeing** in the coming weeks/months: you will be happy to discover how, an excellent dyeing quality, is combined with truly sustainable and extremely limited pollutant reduction characteristics, compared to the "standard" processes known for decades. Thanks to your choices today, combined with the exclusive Steam Dyeing technology (Techno Surface Patent), you will be the protagonist of a new reference standard for the sustainable reduction of pollutants and substances that are difficult to purify, such as wastewater generated with dyeing in general.

Emitting 10 to 20 times less pollutants, in the unit of time, compared to well known technologies, could thus become the basis on which to build **new parameters of future environmental revaluation**.

SURF PRO

STEAM-DYEING

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All SurfPRO GM-SD or QS-SD systems offered by Integr^{AM} can be offered complete with an optional external accessory (220 V).

It is a Dryer with 6 Stainless Steel Trays, Adjustable Temperature 35-70°C, programmable drying time, LED touch control, black color, with 400W of total power.

The mesh trays are extremely convenient for storing the components undergoing dyeing, after the pick-up or unloading of the components.

Depending on the size, the components can be stored in the dryer conveniently, so as to dry conveniently.

On the left: the main menu page (in IT language) of the Steam Dyeing machine - **available in several languages** - allows you to record «n» recipes.



SURF PRO QS - STEAM-DYEING



SURF PRO QS SD 60
Demonstration Prothotype
in use at the «DCL Lab»



SURF PRO QS SD 60
Demonstration Prothotype
in use at the «DCL Lab»

SURF PRO STEAM-DYEING





All **SurfPRO GM SD** or **QS SD** systems offered by **IntegrAM** have been designed and built to ensure maximum dyeing performance with very low consumption, using specifically formulated colours, resulting from an R&D program in collaboration with DCL (Dyeing Colour Lab), providing for the study of a new highly sustainable solution from an economic point of view, to allow the steam dyeing of small volumes of polymer components, with low investment costs and «budget» proof!

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



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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 partner for this project has been Rollwasch®, who offered to be the manufacturer of the first prototype and, then the R&D activity assigned to **DCL - Dyeing Colour Lab**.



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.



DCL (Dyeing Colour Lab) is the competent reference point selected by the companies part of the **IntegrAM** network, to supervise and manage the innovative program of pigments and colours involved in the Steam Dyeing technology.

Rollwasch® has, inside its own organization, a very expert chemical manufacturing unit where the DCL Lab is just a specific area of its labs, destined to support all the products related to the Dyeing technology, for the full network of companies part of **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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The network of specialists, for **AM professionals**

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