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ROTAMAT

THE ROTAMAT

The ideal overall solution for surface coating
of small mass produced parts

We improve surfaces

The Rotamat – suited for universal applications



Decorative coating of plastic parts



Coating with bonding agent



Coating for corrosion protection



Decorative coating of metal parts



Coating with anti-blocking or frictionless agent



Coating for electrical insulation

Efficient and economic coating of small mass produced products

The coating of small mass produced parts in a Rotamat machine is a hot air process, where small parts are coated in a closed spraying chamber.

Basic operation of this efficient and economic technology consists of the small bulk parts to be coated being loaded into the rotating drum, which is totally encapsulated.

One, or alternatively two, automatically controlled spraying nozzles then spray the coating material uniformly onto the mass produced small parts which are subject to controlled and continuous rolling movement.

Many different component materials are suitable for the process such as most types of plastic, elastomer, metal and wood. Water based as well as solvent lacquers can be processed.

The object temperature, adapted to the individual coating process, is reached by means of pre-filtered air which is heated up within a heater and measured and controlled with an IR sensor.

The low-loss applied coating material dries quickly on the heated work pieces during the process, so that an optically homogenous surface is produced. When the coating process is finished, all work pieces are easily, semi-automatically, discharged via the powered pivoting drum and are now available for further use / processes. As with conventional methods, a final drying process, i.e. in a furnace, is no longer required.



Coating process in a Rotamat machine



R 90 with IR sensor and operating panel



Rotamat discharge procedure

The drum

For perfect coating results, the work pieces have to rotate continuously, the rolling behaviour of the parts to be coated playing an important role. The special shape of the drum, the infinitely adjustable speed and inclination of the drum permit an optimum rolling and mixing of the work pieces. The coating process is carried out fully automatically, so that no time consuming positioning of the parts onto fixtures – as applies for conventional coating machines – is required.

For optimal edge coverage of complex and large work pieces, a special lining of the drum is available as an option.



View into the drum with work pieces

The drum, which is easy to disassemble and exchange is available in 5 sizes / diameters:

Ø 400 mm	1-3	litres per batch
Ø 550 mm	2-8	litres per batch
Ø 700 mm	10-30	litres per batch
Ø 800 mm	30-50	litres per batch
Ø 850 mm	40-75	litres per batch

The spraying system

In Rotamat machines, the work pieces are coated within a closed spraying chamber with a slight, adjustable, negative pressure. This avoids leaking of hazardous and harmful gases. Settings like spraying rate and spraying jet (wide and / or round jet) of the automatic spraying nozzles are process controlled in order to guarantee the best possible reproducibility and uniform results.

By the use of special HVLP automatic spraying nozzles, a low spraying mist application of lacquer and hence very little overspray is reached.



View into the spraying chamber



R 90 C



Inlet and exhaust air system; red arrow: heated inlet air, green arrow: exhaust air

Inlet and exhaust air system

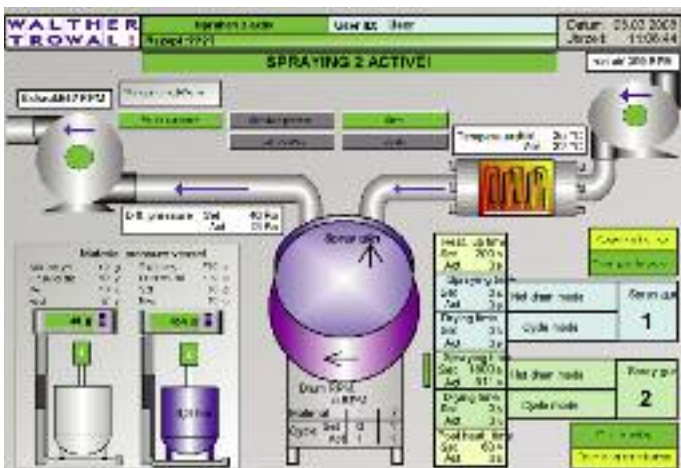
During the coating process, warm, low turbulence air is fed into the spraying drum in order to heat up the parts to be coated to the required temperature. During this process, the work piece temperature is measured and controlled directly and permanently by means of an IR sensor. Air temperature and air quantity depend on material, geometry and type of work piece as well as on the coating material. The air fed in also provides a controlled discharge of any volatile matter produced during the drying process. The set negative pressure within the system is kept on a constant level fully automatically and independently by means of the integrated filter system.



Rotamat R 90 C with opened cover

Controls

To obtain reproducible results, all process parameters, such as air quantity, air temperature, speed of the drum, as well as spraying quantity, are fully automatically controlled by an integral electrical control panel incorporating an industrial PC with touch panel control. The user has flexible control of the coating parameters and can modify them anytime. The process management in the PC stores all recipes for the different applications so that these can be selected and used quickly, as required. Due to the integrated report management, all processes run in the past can be called up again, which permits comprehensive control of the parameters of the individual batches. Each machine is also prepared for tele-maintenance.



Process visualisation with separate, optional PC



Screen of the optional PC

Equipment

Material pressure pots

A uniform, homogenous spraying pattern requires a pulsation-free transport of the coating material. For this purpose, material pressure pots in various sizes up to 45 litres are available. Additional equipment such as automatic lifting of covers and rinsing devices can also be provided.

Cold air generator

For some applications, it is – with regard to the high temperature within the spraying drum – necessary to cool down the coating material within the material hose in order to avoid blockages. For this purpose, cooled compressed air is led to the automatic spraying nozzles within a hose surrounding the material hose.

Drum cleaning device

After a certain usage time residue upon the drum (depending on the coating process) needs to be removed. For this purpose, the easy-to-disassemble drum is fixed in the motor-driven cleaning stand and cleaned with Trowal cleaning chips. The cleaning process is carried out without organic solvents or lacquer removing agent.

Automatic Spraying Nozzles

The HVLP automatic spraying nozzles used by Walther Trowal work with a low spraying mist atomisation and a large spraying angle, so that work pieces can be coated in an optimum way with only very little overspray.



Material pressure pot

The mounted adapter plate ensures a quick exchange of the nozzle assemblies for maintenance and cleaning purposes without having to undo the hose connections. The spraying system can optionally be equipped with two spraying and material supply systems. This allows coating with two different lacquers one after the other without having to interrupt the process.

PC

As an option, an external PC is available, which offers even more facilities: automated handling and visualisation of all process parameters, recipe management, creation of reports, linking up of several Rotamat machines.

Monitoring of the gas concentration

Depending on the application, the monitoring of the organic solvent concentration in the exhaust air is required. A universal measuring device is available on request.

Conditioning of the inlet air

For certain applications, it may be necessary to control the air humidity within the spraying drum. Devices for humidification and dehumidification are available on request.



Optional second automatic spraying nozzle assembly

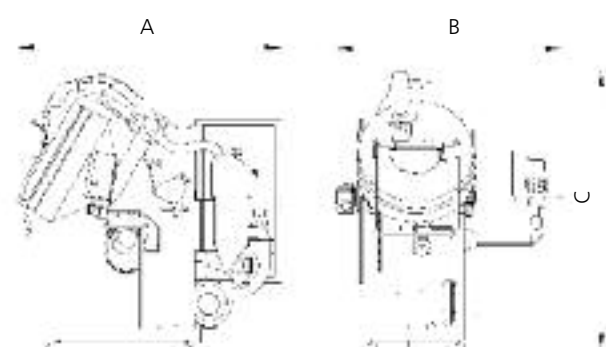
Technical Data

ROTAMAT	R 55	R 70	R 90	R 90 C
Power (kVA)	14	24	24	24
Power supply	400 V, 50 HZ	400 V, 50 HZ	400 V, 50 HZ	400 V, 50 HZ
Compressed air, dry, oil-free, in bar	6+/-1	6+/-1	6+/-1	6+/-1
Drums				
Drum in mm	400 / 550	400 / 550 / 700	400 / 550 / 700 / 800 / 900	400 / 550 / 700 / 800 / 850
Filling weight max (kg)	25	50	50	100
Speed of drum (RPM)	2 ... 30	2 ... 30	2 ... 30	2 ... 30
Inlet air system				
Transporting capacity max. (m ³ / h)	160	160	160	160
Filter class according to EN 779	G3	G3	G3	G3
Heating capacity (kW)	9	16,9	16,9	16,9
Increase of temperature max. (K)	130	130	130	130
Exhaust air system				
Transporting capacity max. (m ³ / h)	200	200	200	200
Filter class according to EN 779	G4	F5	F5	F5

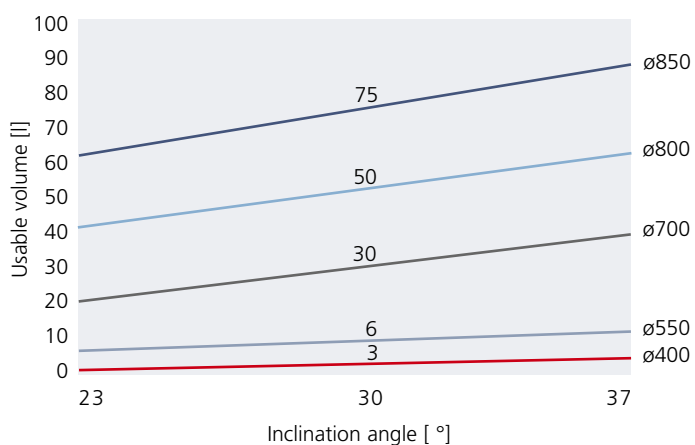
R 90 C



R 70 / R 90



Usable volumes of drums



Dimensions	R 55	R 70	R 90	R 90 C
A (depth)	1060	2140	2250	2370
B (width)	650*	1920	1920	1920
C (height)	1860	2340	2370	2020

Dimensions in mm

* Without operating station; the R 55 is only available with operating panel.

