

OMAC

CAPRARA

apparecchi fotocinematografici

GERMIGNAGA Varese

via 4 novembre

IL NOSTRO PROGRAMMA DI PRODUZIONE

PER LABORATORI SVILUPPO E STAMPA FILM CINEMATOGRAFICI

- sviluppatrici continue per film bianco-nero e colore negativo, positivo e invertibile 9,5 mm., 16 mm. 2x8 mm., 35 mm., 70 mm.
- sviluppatrici a spruzzo alta velocità per film bianco-nero positivo e invertibile 16 mm. e 35 mm.
- stampatrici per film bianco-nero e colore 16 mm. e 35 mm.
- pulitrici per film 16 mm. e 35 mm.
- laccatrici per film 16 mm. e 35 mm.

PER LABORATORI SVILUPPO E STAMPA GRAFICI E FOTOGRAFICI

- sviluppatrici a telai per pellicole a colore e bianco-nero
- tavoli per acidatura e lavaggio pellicole
- mobili per trattamento lastrini sensibilizzati
- mobili per lavaggio vernici
- turbovasche per lavaggio stampe
- tavoli stabilizzati per stampa su carta
- tavoli da ritocco per cromisti

PER PELLICOLE MICROFILM

- sviluppatrici per pellicole 16 mm. e 35 mm. perforate e non perforate
- stampatrici per pellicole 16 mm. e 35 mm. perforate e non perforate

ALTRI PRODOTTI DI NOSTRA FORNITURA

- tavoli di montaggio per pellicole positive e negative
- attrezzature per automazione laboratori di sviluppo
- impianti di recupero argento
- agitatori di soluzioni chimiche
- recipienti in PVC per la preparazione e la riserva delle soluzioni chimiche, di svariate forme e dimensioni
- impianti di raffreddamento soluzioni chimiche ed acqua
- impianti di termoregolazione soluzioni chimiche
- impianti di agitazione e circolazione soluzioni chimiche
- tutto il materiale relativo all'installazione di impianti di circolazione soluzioni chimiche (tubazioni, rubinetterie, ecc.).

OMAC PRODUCTION PROGRAMME

PROFESSIONAL MOVIE FILM LABORATORIES

- continuous processors, for positive, negative, reversal, black and white and colour 35 mm., 16 mm., 9,5 mm.
- black and white high speed spray processing machines for 16 mm. and 35 mm.
- printing machines for black and white and colour 16 mm. and 35 mm.
- machines for additional treatments on movie films (washing, cleaning, waxing etc.)

PROFESSIONAL PHOTOGRAPHY AND GRAPHIC ARTS

- rack processing machines for colour and black and white films
- print washers
- units for additional treatments on sensitized materials (varnishing retouching, reducing, washing etc.)

MICROFILM

- microfilm processing machines
- microfilm printers

PHOTOGRAPHIC AND CINEMATOGRAPHIC LABORATORY EQUIPMENT

- finishing units for negative and positive films
- silver recovery equipment
- chemical mixing equipment
- containers in PVC for all chemical solutions
- refrigeration units for water and chemicals
- temperature control units
- circulation and agitation units for chemicals
- all accessories for installation of processing equipment (pipes, valves, etc.)

OMAC - PRODUKTIONS PROGRAMM

GERÄTE FÜR KINOFIL-LABORS

- Entwicklungsmaschinen für Negativ- und Positivfilme, Umkehrfilme, Schwarzweiss oder in Farbe, 35 mm., 16 und 9 1/2 mm.
- Schwarz-weiss Hochleistungs-Sprüh-Entwicklungsmaschinen 16 mm. und 35 mm.
- Kopiermaschinen für Schwarz-weiss und Farbe, 16 mm. und 35 mm.
- Maschinen für Nachbehandlung der Filme: Waschen, Reinigen und Regeneration

MIKROFILM-VERARBEITUNG

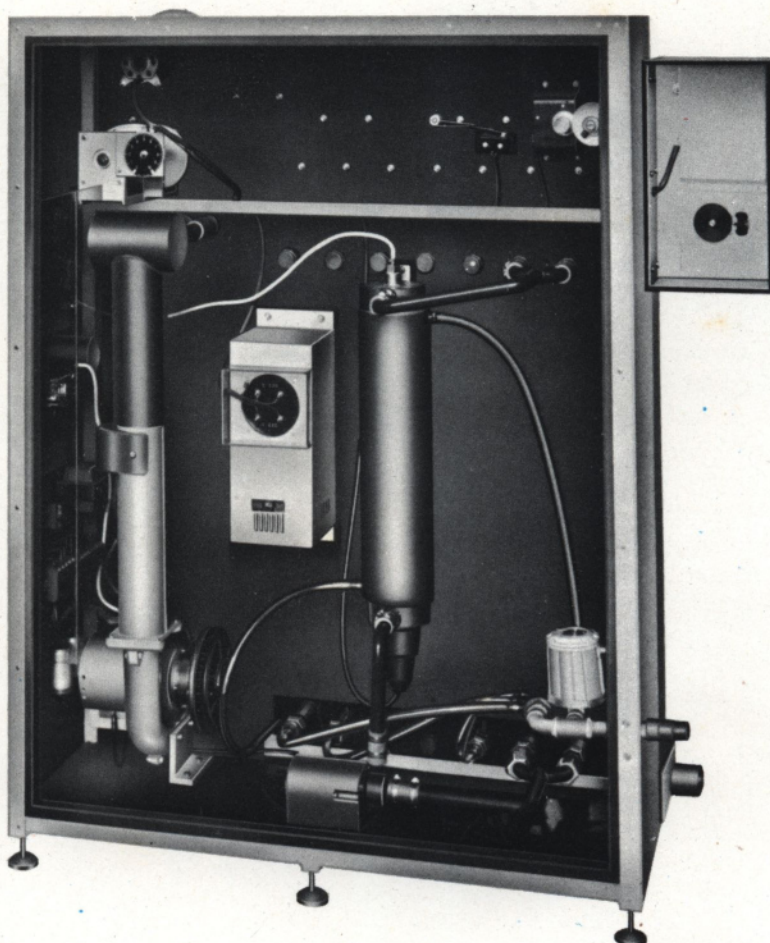
- Mikrofilm-Kopiermaschinen
- Mikrofilm-Entwicklungsmaschinen

GERÄTE FÜR DIE BERUFSFOTOGRAFIE UND GRAPHISCHE BETRIEBE

- Rahmen-Entwicklungsmaschine für Schwarz-weiss und Farbe. Arbeitstische zur Nachbehandlung von lichtempfindlichen Materialien (Retouche, Abschwächen, Lackieren etc.)
- Wässerungsanlagen
- Geräte für die Fertigung von Negativ- und Positivfilmen
- Geräte für die Silber-Rückgewinnung
- Ansatzgeräte für die Bäder (fahrbare Bottiche mit elektrischen Rührwerk und Pumpen)
- Behälter zum Aufbewahren der Lösungen aus PVC
- Kühlanlagen für das Wasser und der Lösungen
- Temperatur-Kontrollgeräte
- Rundpumpen für die Bäder
- Zubehör für die Installation von Maschinen



Continuous processing Machines for Microfilm Model Micromac 2/F



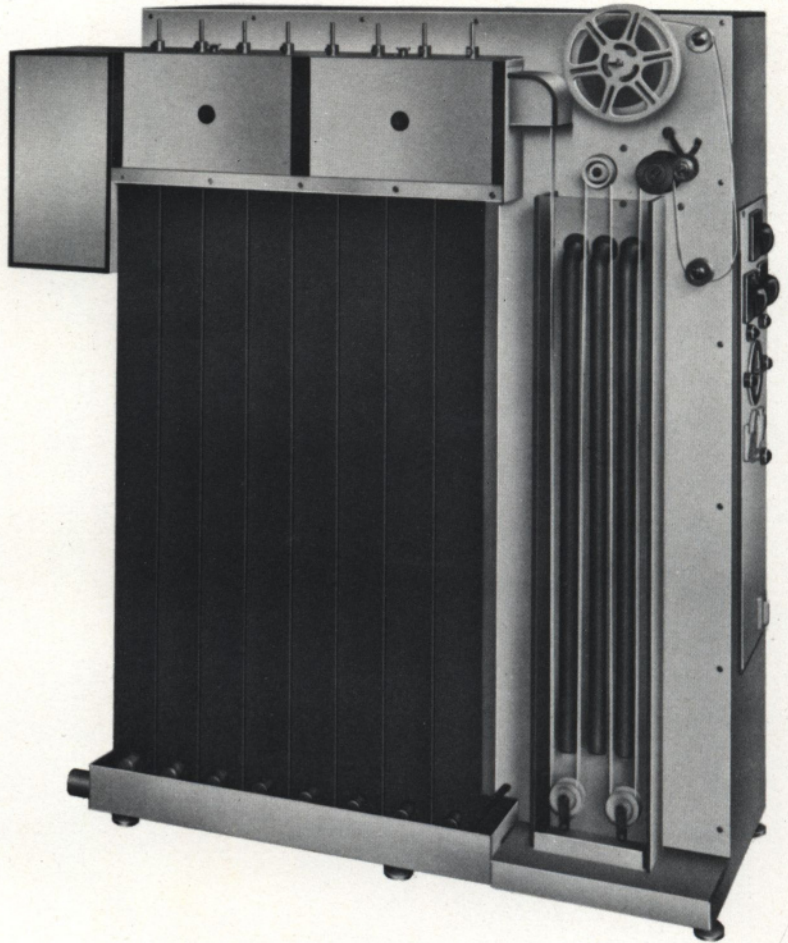
SPECIFICATIONS

size	: length 1210 mm, width 455 mm, height 1320 mm
tank capacity	: approx. 6 liters
installed power	: approx. 1 KVA
water consumption	: approx. 150 liters/hr
loaded film on the machine	: approx. 20 meters
weight of machine empty	: 130 kg
weight of machine with liquids	: 180 kg
power supply	: the machine is normally supplied for operation on 220 V. 50 Hz. a.c. current

For perforated and unperforated film,
16 or 35 mm or combined -

Designed for daylight operation and very reduced in dimensions, our "MICROMAC 2/F" microfilm processor can be delivered for productions of 30 ÷ 60 meters/hr or 60 ÷ 120 m/hr and is complete with:

- feed unit with spindle taking either 16 or 35 mm film spools
- reserve tank allowing spool changing while the machine is running
- 7 processing tanks
- 2 shafts for drying
- 1 plastic pump to recirculate developer
- 1 automatic temperature control unit for developer (control with a tolerance of $\pm 0,2^{\circ}\text{C}$)
- 1 low pressure ventilator and heating elements for drying of the film
- 1 gear reduction motor with two pulleys for two different speeds
- electric controls mounted on one side of the machine



CONSTRUCTIONAL FEATURES

Film drive: the machine has a friction drive (patent n° 779.627) which ensures an absolutely constant tension on each shaft during operation, spool changing and stopping -

Tanks and fittings: tanks, tubes and connecting valves and unions are of PVC material, while any other part that comes in contact with the solutions is made of 316 stainless steel, rubber, plastic -

Wash water and overflow solutions are collected in a common drain trough which will be connected with the floor drain -

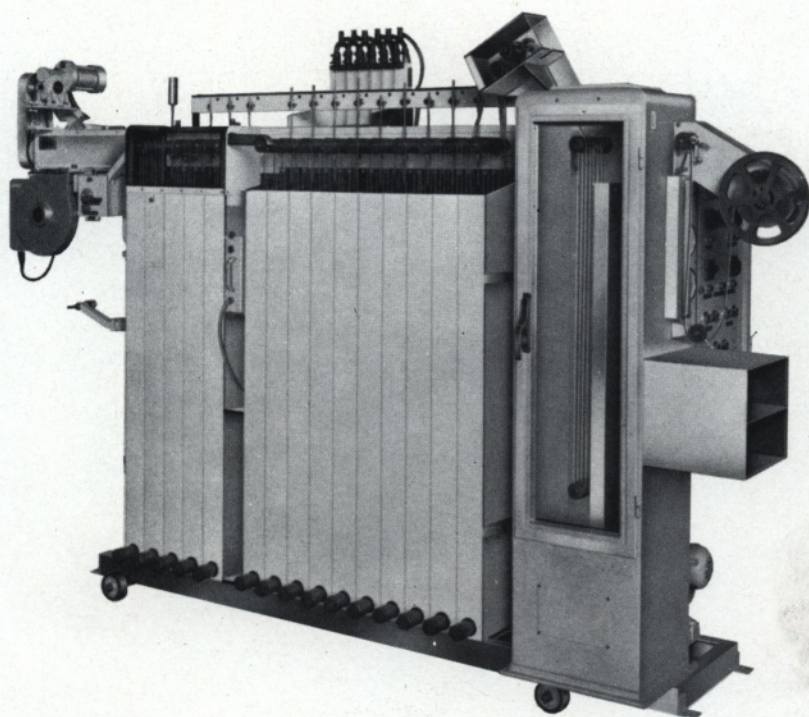
Each tank is provided with a drain cock for easy removal of tank content -

Easy and absolutely reliable in operation, the machine requires only a minimum of maintenance -

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OMAC Processing Machine

Mod. SVC 16/5



– For reversal colour or black and white films 16/2x8 or 16/2x8/Super 8

– Reduced in dimensions, it is particularly suitable to laboratories with low or medium production and can be easily installed in small rooms

– The tanks which are identical and therefore interchangeable, allow any type of film to be processed

Output: – 90 ÷ 150 meters/hr of reversal colour film

– up to 300 meters/hr of reversal black and white film

– It is supplied complete with all accessories for recirculation, filtration, temperature control and replenishment of chemical baths

– Can be friction or sprocket driven

Materials

Hard PVC for film rollers, processing tanks and heat exchangers, 316 type stainless steel for the metallic parts which come in contact with the solutions; valves, unions and general plumbing made of PVC rubber or other acid proof material. Supporting frame insulated against chemical attack by antiacid lacquers.

Maintenance

All components of the machine, filters, valves etc. are accessible at the rear side of the machine for easy maintenance.

Wash water and overflow solutions are collected in a common drain trough which can be connected with the floor drain. All tanks are easily removable and each one is provided with a frontal drain cock for removal of contents.

Specifications

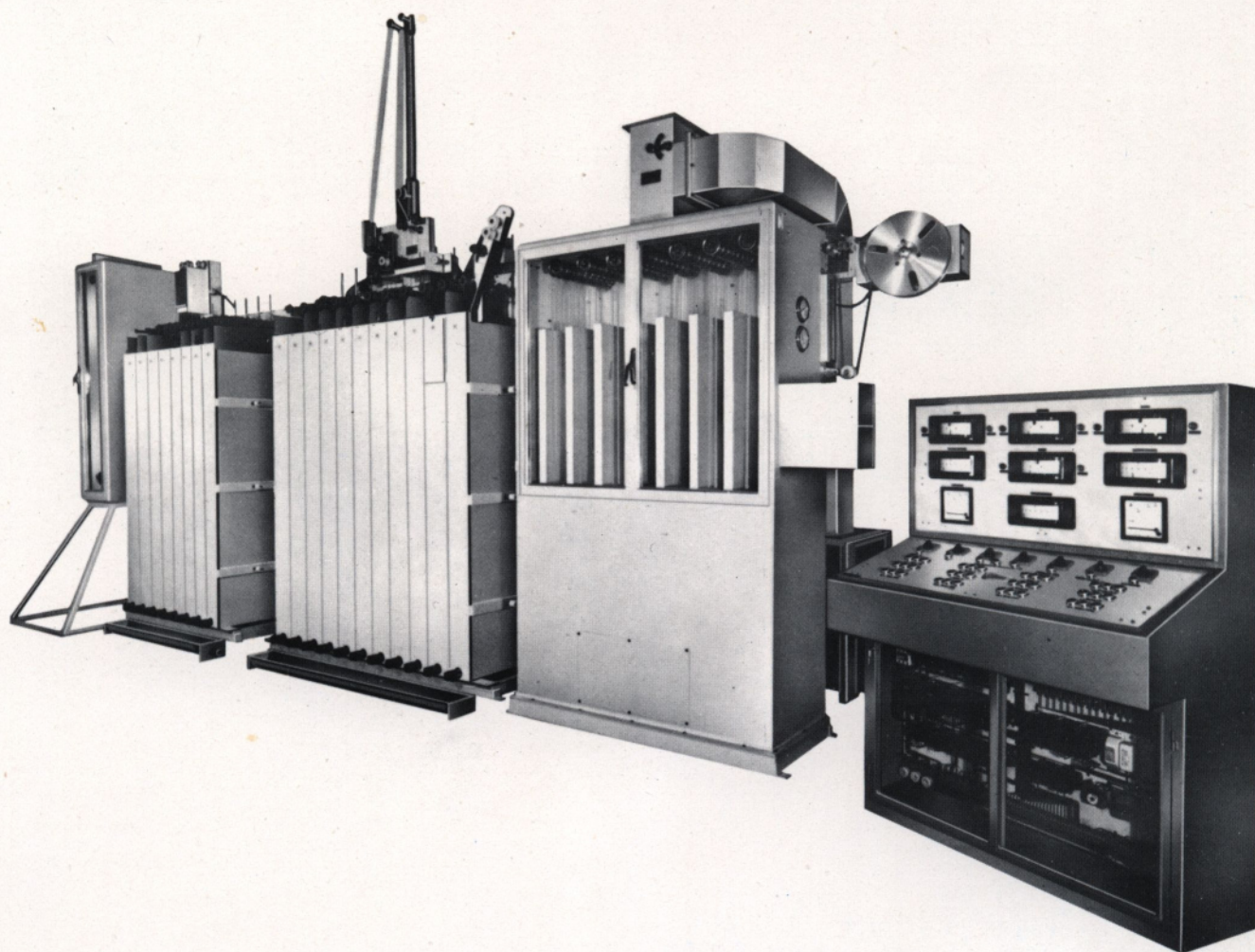
Installed power : approx. 8 KVA
Water consumption : approx. 900 lt/hr
Tank capacity : approx. 40 lt

Loaded film on the machine : approx. 250 mt
Weight of machine empty : approx. 1100 Kg.
Weight of machine with liquids : approx. 1700 Kg.

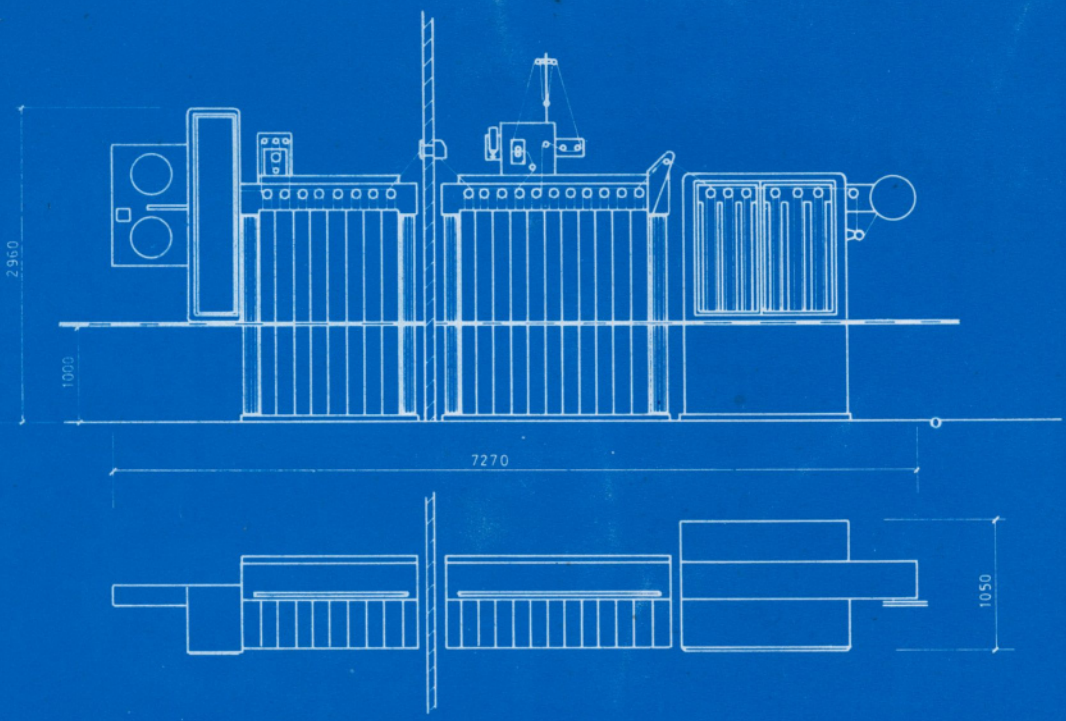
OMAC

Model SVC 26/1

OMAC PROCESSING MACHINE FOR 35 & 16 mm. COLOUR POSITIVE FILMS - OUTPUT 900 m/hr - SPROCKET DRIVE



SVILUPPATRICE OMAC PER PELLICOLE 35 & 16 mm. POSITIVE A COLORI - PRODUZIONE 900 m/h - TRAZIONE A ROCCHETTI DENTATI



OMAC

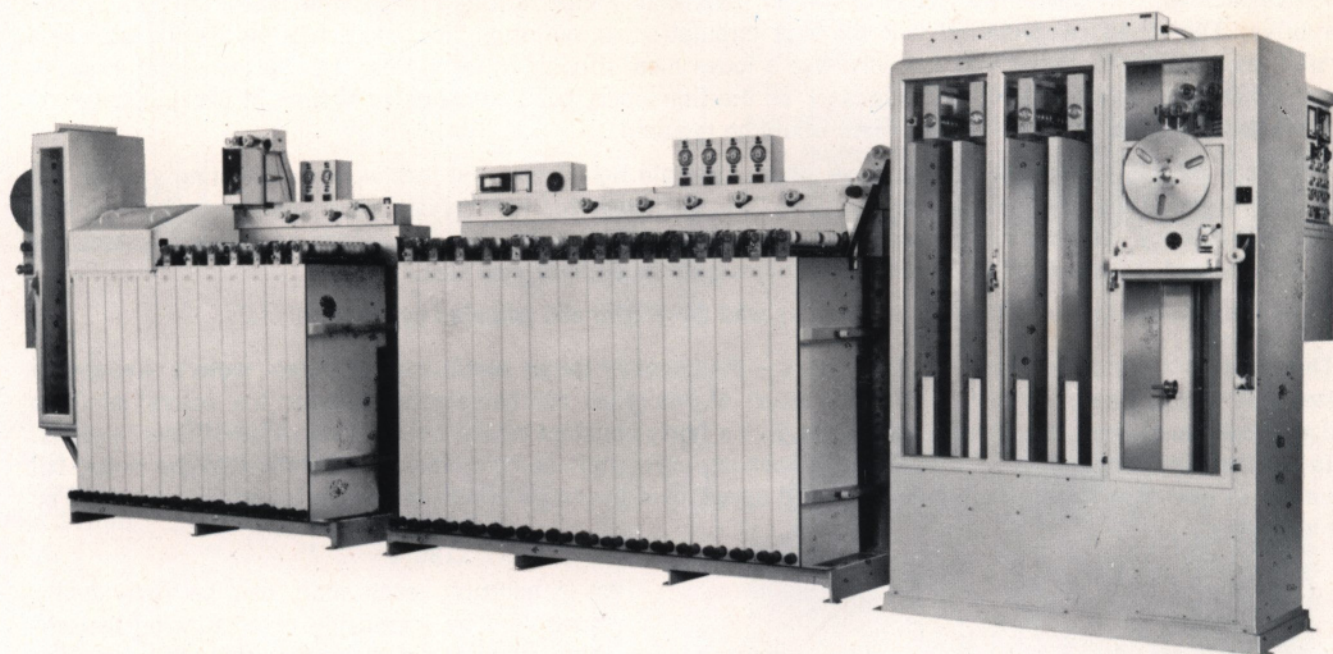
Friction Drive for Motion Picture Film Processing Machines

By T. H. Chatwin, * MBKS.

FOR many years a knowledge of many friction drive systems has existed, and although there are tremendous advantages in the use of a friction drive system for film processing, a certain amount of nervousness has always existed in utilizing such machines for everyday processing.

Some machines have seemed successful on the draughtsman's board, and in many forms. However, under the stress and strain of professional continuous processing, the maintenance and general problems of everyday running have become apparent, and in some cases the machines proved completely impracticable.

May I first state some of the advantages of a friction drive machine, given that its reliability presents no problems.



Machine illustrated Model CSV/CT 3 is now working in the test department of KODAK LTD., England, for C.R.I. n° 1 and is friction driven at 60 ft. per minute. We can now offer friction drive machines for any process up to 200 ft. per minute output.

In theory, if the machine is giving a perfect drive to the film, and that each loop in the film tank is under equal tension, the transport of the film is generally more gentle, and provided a system of slipping roller is not used, scratch free. Of course, most obvious of all, there being no sprocket rings on the machine, damage or distortion to the sprocket holes in the film itself is completely eliminated.

Another and important advantage with friction drive systems is that any gauge of film (provided the film is less than the width of the rollers on the machine) can be processed, and in the case of one particular machine recently installed at Rutherford High Energy Laboratories, Harwell, all gauges from 70 mm downwards were successfully processed on the same machine; 70 mm was followed by 50 mm, 35 mm, 16 mm and finally Super 8. Although it is obvious that using Super 8 on a 70 mm machine is quite ridiculous from the speed output point of view, it is all the same a useful facility.

When considering the various advantages of friction drive, we must not forget one particular asset that is sometimes overlooked, as explained later; if a break occurs for any reason, the machine automatically stops, a red light indicates where the break has occurred over the particular tank, an alarm bell rings, and an indicator board on the wall (remote from the machine) shows at what point the break has occurred in the machine.

Friction Drive for Motion Picture Film

The operation for dealing with a break is more simple than with sprocket drive machines, as it is only necessary to retrieve the ends on the particular bank where the break has occurred, join the ends together, and whilst holding the loop above the tank, start the machine. As the linear speed in the forward part of the machine is greater than the pacer, the loop will be taken up, and normal processing can then be continued, bearing in mind that one loop has been lost from one tank.

However, the important thing is that no film has been lost, and also that this operation can be carried out in approximately 10-15 seconds. In our own laboratory the film has been joined whilst the machine has still been running.

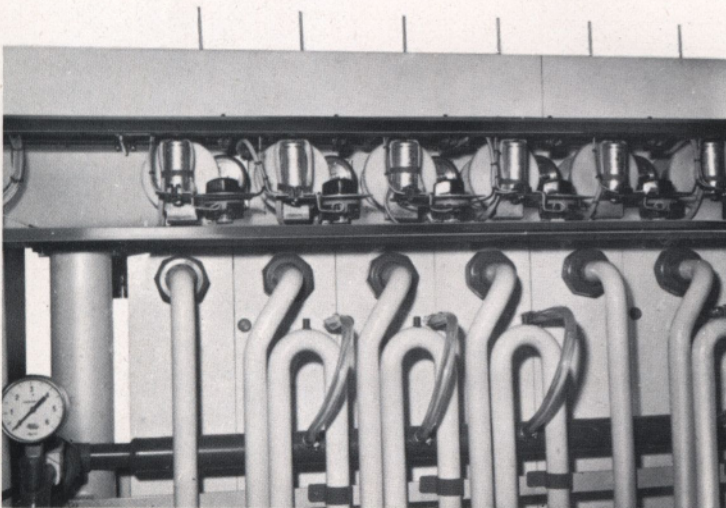
It seems strange that our company was not particularly involved with friction drive machines until the advent of Super 8 m, whereupon it became quite obvious as a result of considerable work done by the Research Department, 3M Ferrania, Savona, into the problems of transporting Super 8 successfully with say a maximum of between 8-10 sprockets, machines using large tanks with many spirals of film and a great number of Super 8 sprockets caused strain and distortion to the Super 8 sprocket holes. The sprocket rings are less than 25 thou (0.025 ins.) in width and, of course, can act as a very fine saw, resulting in considerable damage to the film.

It was decided, that the only successful way of transporting Super 8 film through large machines was by friction drive. The added complication that the best turbulence, or agitation, for colour film processing was by a form of submerged jets meant that not only was a loose loop slipping roller system (i.e. bottom drive) impracticable, as the jets cause considerable pressure on the film loops, but a complicated system of backing rollers to support the film under pressure of these jets would be required.

There are various systems of friction drive which maintain tight loops, but they work on a hunting system, i.e. the linear speed of the film varies anywhere up to 25%. Although this hunting is compensated in as much as it is a regular frequency, and the overall processing time is probably maintained, the mechanics of such systems are very complicated. It was decided, therefore, to investigate an entirely new idea.

Thus the constant torque friction drive machine was developed and patented by OMAC of Italy.

This utilizes a principle, known for many years – the constant torque electric motor. These motors have a very convenient torque graph, whereby a straight portion of this graph can be selected between the motors' minimum and maximum revolutions per minute, that would give a fairly constant torque over a wide range of linear speeds. This system was built into a film processing machine, each shaft being driven by a constant torque motor, but the motor is geared down to give the correct shaft speed over the range of normal speeds for processing, used on the machine.

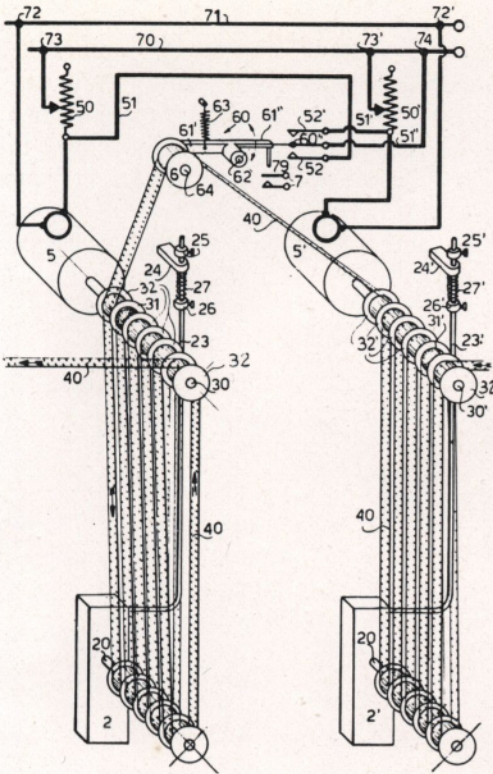


In addition, each shaft can be individually controlled by increasing or decreasing the tension or voltage of the motor, which will have the effect of increasing or decreasing directly the weight or tension, in grams or ounces, of all the loops in that particular tank.

In setting out the requirements for a friction drive machine originally, it was considered a great advantage to have means to increase or decrease the tension of each individual tank. This, in addition to an overriding voltage tension on the whole machine, allows the weight on every film loop in the machine to be increased or decreased, irrespective of the speed of the machine.

Therefore, there are two systems, one giving individual adjustment on each tank, the other on the whole machine. Irrespective of the speed of

the machine, of course, the balance of tension and speed of machine are also important, and graphs are produced to give these particular speeds, plus voltage adjustments.



A great advantage of this system is that if Sound Track Applicators, Backing Removal Units, Twin Silver Track Applicators, or any device that would cause additional friction on any part of the machine are introduced, it is only necessary to increase the tension of the following shaft to overcome the friction in the particular unit employed.

Now I come to the question of control of the speed of the film, as the torque motors are not accurately speed conscious, and will only run against some form of back pressure, to utilize their characteristic of constant torque. This is accomplished quite simply by the first shaft, following the feed elevator, being driven positively by a variable speed motor, which means that this shaft becomes a pacer, and measures the film introduced into the rest of the machine. The torque motors are always endeavouring to drive the film faster than the pacer, hence by utilizing this pull back on the torque motors, a straight line operation of the torque motor curve can be utilized.

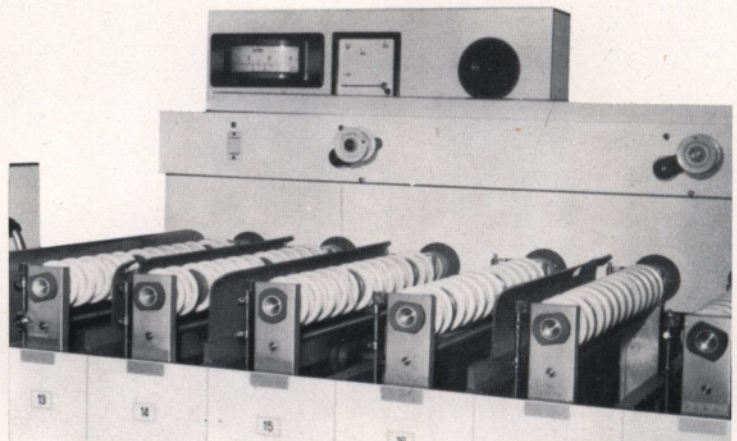
Principle of Torque Motor Friction Drive.

Italian	Patent No.	779/627
France	Patent Pending	122568
Germany	" "	12279-1XA/57
Great Britain	" "	41360/67
U.S.A.	" "	670612

One disadvantage of torque motors, is that they do not allow great diversity of speeds on any one machine, and the usual formula of 5:1 is used. This means a machine will run successfully, say from 10-50 ft per minute still using the best part of the motor curve, or at any ratio of speeds fulfilling the 5:1 rule.

A further sophisticated device on the machine plays a dual role. It consists of a jockey arm with roller attached, one being situated between every other drive shaft. This small arm is arranged so that the roller is dead centre of two shafts. The film passing from one tank to the other does pass over the roller, which is situated higher than the level of the shafts. This simple system gives a very convenient way of adjusting the speed of the torque motors, and also of sensing film breaks.

If loose loops, or loops under less tension form in a tank, the jockey roller will rise, operating a microswitch which shorts out the control rheostat of that particular motor, thereby imparting for a fraction of a second an additional impetus to that particular shaft, 'taking up the slack'.



OMAC

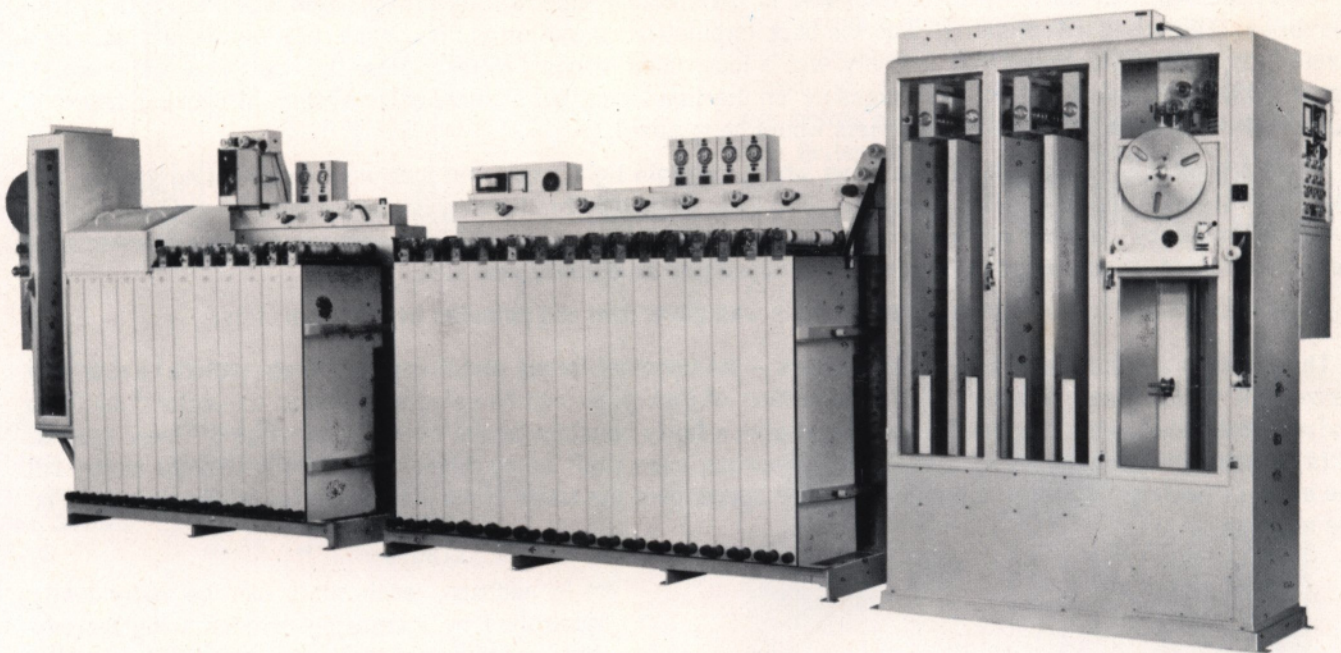
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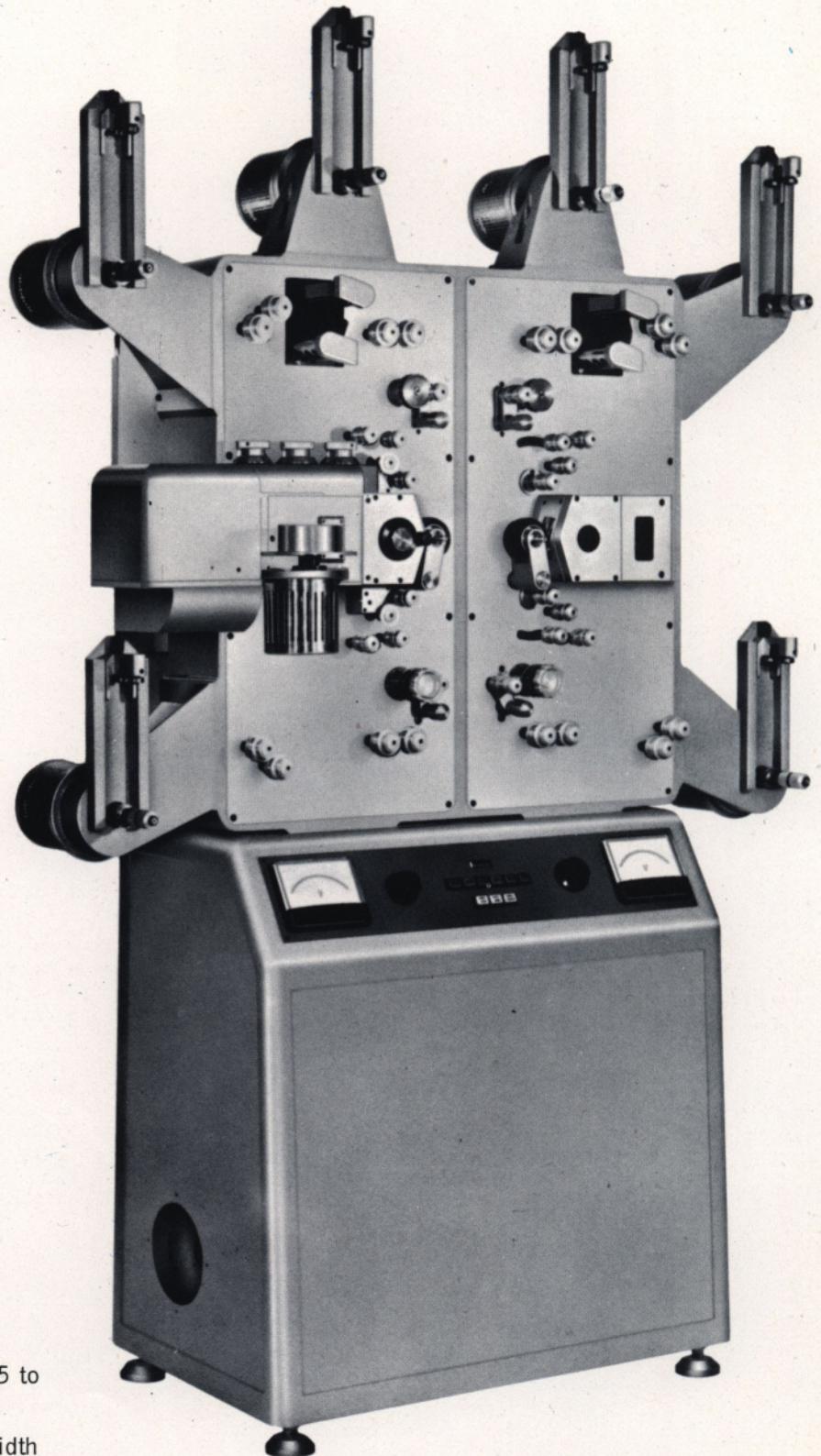
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**OMAC High speed continuous additive printer
for 35 and 16 mm. colour and
black and white film**

mod. A16 - A35



FEATURES

Production 2500 metres per hour

Continuous printing system

Additive print

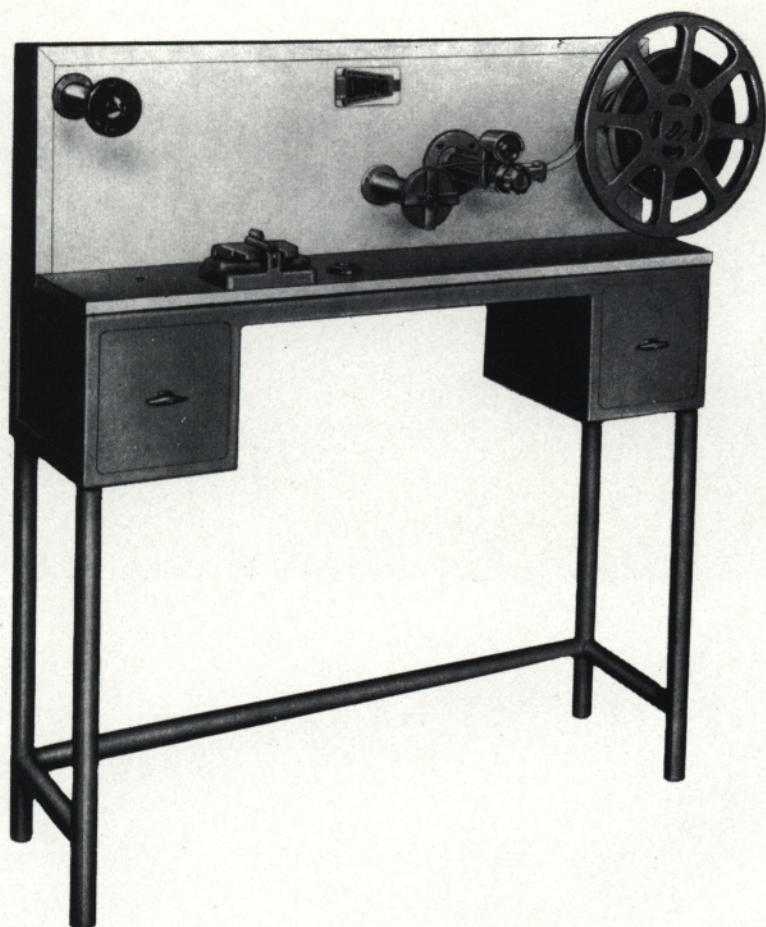
Backward and forward running

Easy possibility for conversion from 35 to
16 mm and from 16 to 35 mm

Overall dimensions: height mm 2000 width
mm 1500 depth mm 500

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OMAC Automatic splitting machine for 2 x 8 mm. film mod. AC 4

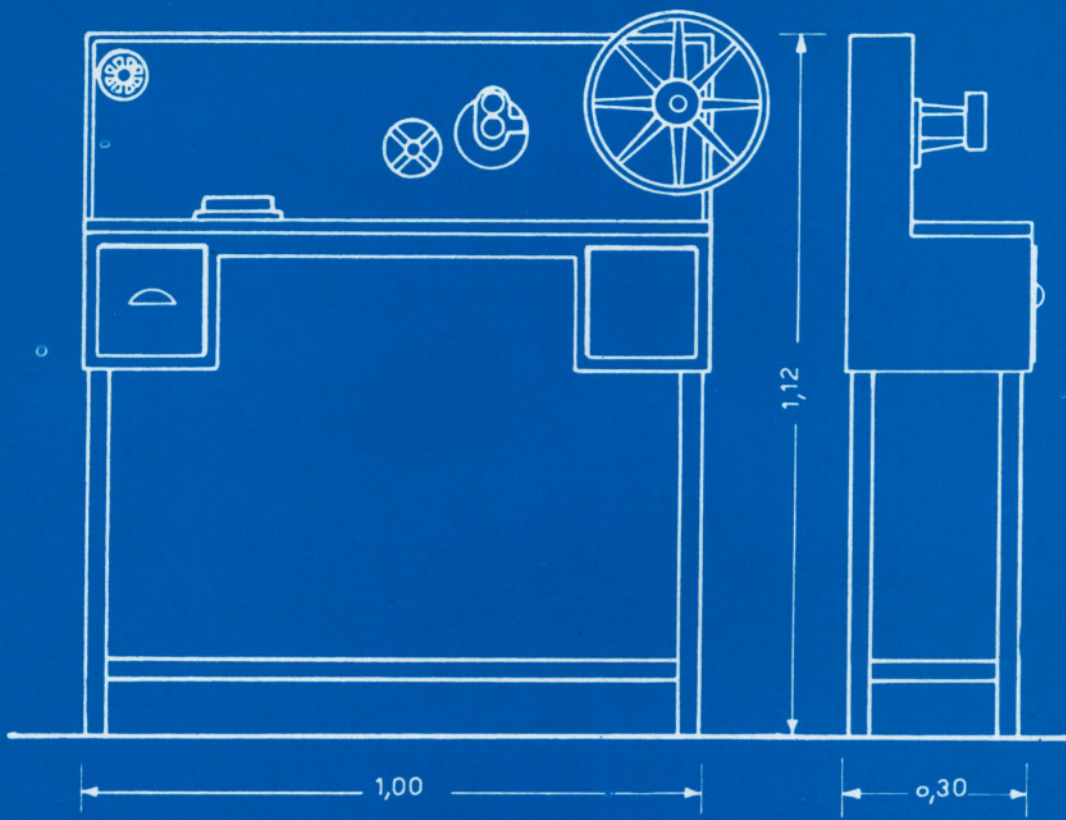


The OMAC automatic splitting machine allows a rapid and precise splitting of the 2 x 8 mm. film.

The machine is composed of the splitting device itself and a winding unit with splicer. After the film has been cut in two sections 1 x 8 mm., these are wound onto two different spools and brought into correct position for splicing.

After splicing, the first section is wound on the same spool as the second section and the film is ready for projection.

The machine is driven by a motor and is suitable for laboratories with high production, since it reduces considerably the finishing time for 2 x 8 mm. film.





Patents:

Italy n° 714944 Germany n° DAS 1.267.978
France n° 1424671 England n° 1092121
U.S.A. n° 3346898

OMAC Cleaning Machine for Negative and positive Motion Picture Films Model NOA

The NOA cleaning machine allows film processing and printing laboratories, editing departments, libraries etc. to keep positive and negatives copies in a perfectly clean condition.

It is well known that good film projection depends on maintaining the film in the best possible way. Oil or grease are not only visible on the screen, but the effect of drying through the heat of projection can cause scratches and lines on the film.

In the NOA machine, cleaning is accomplished by a pressure tape on both the emulsion and support sides of the film. This Politex tape is imbued with a solvent similar to Trichloretilene, tetrachloride etc.

The tape moves at the same time as the film but at lower speed, and in the opposite direction, so that there is always a clean tape area in contact with the film. The tape is in contact with the film under a very light pressure around half the diameter of the cleaning drum.

The constant pressure of the tape on the film plus the continuous renewal of tape and solvent, which are automatically ensured by mechanical and electrical devices, guarantee good and constant cleaning.

The fumes of the solvent are extracted through an opening at the bottom of the machine and then they are conveyed outside by a fan.

The drying of the film, after cleaning, is very rapid because of the extremely volatile characteristic of the solvents which are used in minimum quantities, and is also favoured by a filtered air flow kept at constant temperature.

The operation of the NOA machine is extremely simple and does not require specialized personnel.

The cleaning costs are very low.

The NOA can also be used for protective and self lubricating type treatments, with a view to extending the useful life of film.

It can be supplied either for 16mm. or for 35mm. Special gauges can be quoted on request.

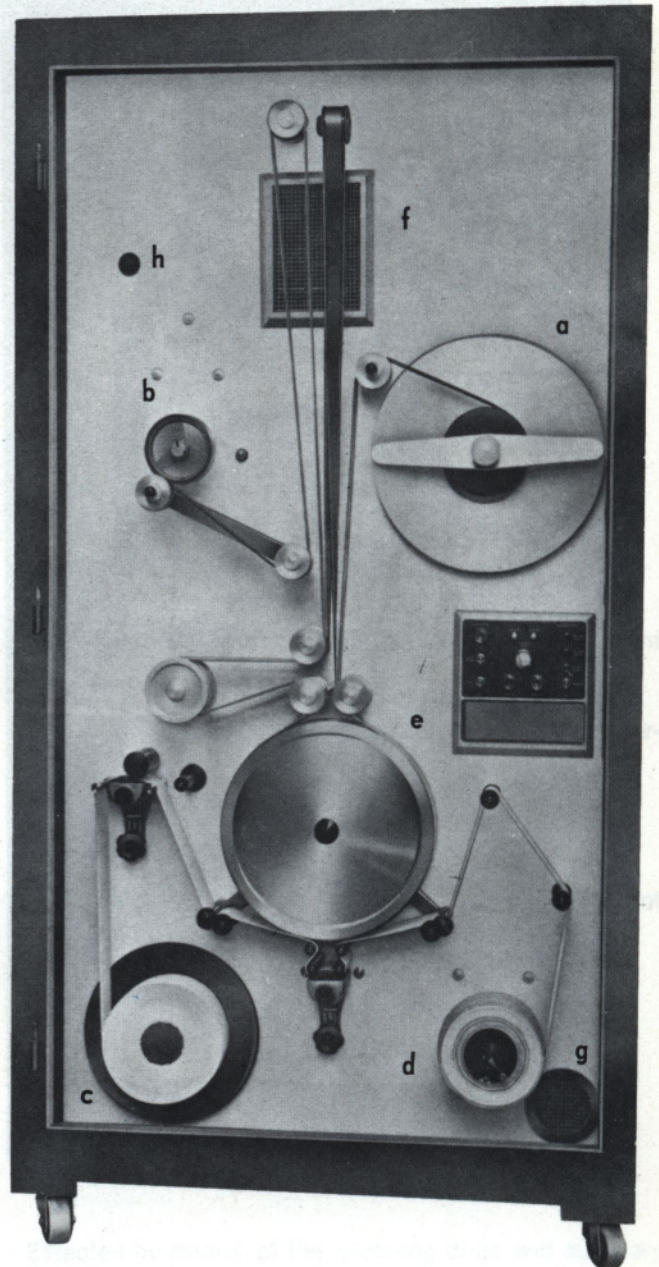


Figure 1

Front view of the machine: a) film feeding spool - b) film takeup spool - c) politex tape feeding spool - d) politex tape takeup spool - e) cleaning drum - f) drying air intake - g) suction point - h) solvent level indicator

TECHNICAL SPECIFICATIONS

FILM SPEED:

2.400 meters per hour (7.880 ft. per hour) for negatives to be cleaned or dusted inbetween subsequent printing runs, and for positives which are not very soiled.

1.200 meters per hour (3.940 ft. per hour) for positives, marked with grease particles, stained with oil etc.

TAPE SPEED:

constant at 15 meters per hour – the tape is supplied in rolls of approx. 100 - 120 meters (328 - 370 ft), sufficient for cleaning 8.000 meters (26.200 ft) at 1200 m/hr film speed or 16.000 meters per hour (52.400 ft) at 2.400 m/hr film speed –

The soiled tape is expendable being at very low cost.

CAPACITY OF SOLVENT TANK:

16 liters (4.2 US gallons) sufficient for cleaning 80.000 meters (262.000 ft) of very soiled 16mm. film or 160.000 meters (524.000 ft) of average 16mm. film

For 35mm. film, the solvent consumption is twice as much

The level of the solvent is shown by an indicator lamp

The used solvent evaporates, therefore is not recovered nor it is necessary to clean the machine.

POWER CONSUMPTION:

500 KVA maximum

WEIGHT:

205 Kgs

DIMENSIONS:

100 x 55 x 193 cm (39.4" x 21.6" x 763)

MAXIMUM FILM CAPACITY:

700 meters (2.300 ft) of 35mm. film

550 meters (1.815 ft) of 16mm. film

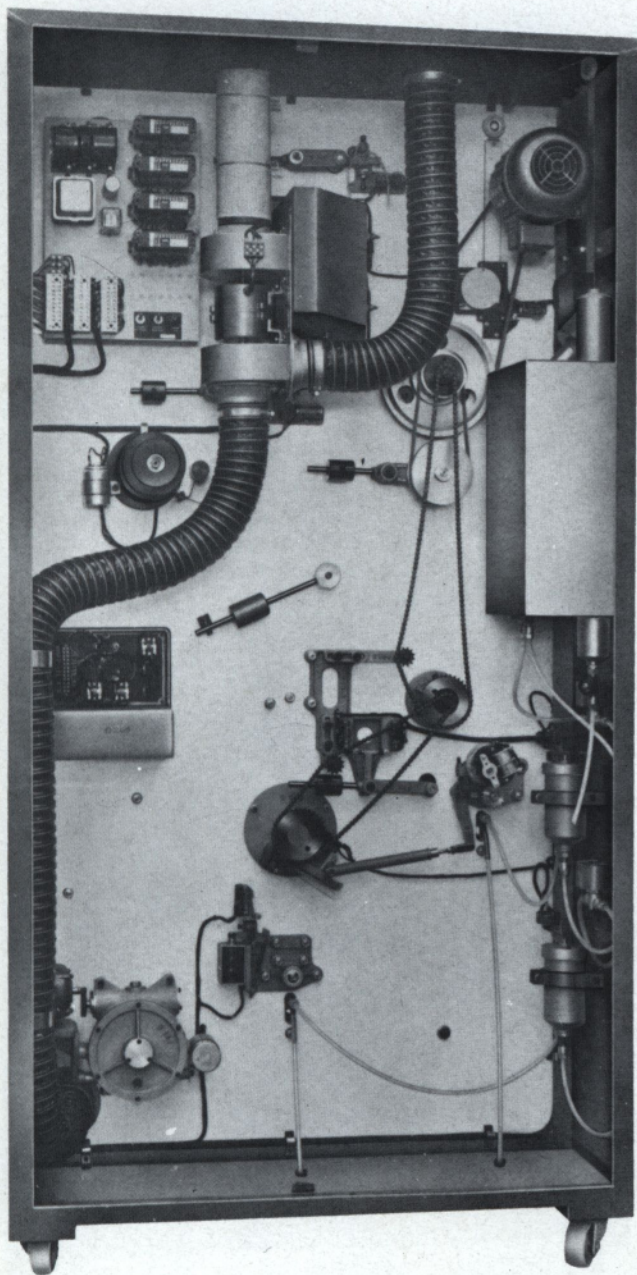


Figure 2

Rear view - See fume extraction system, consisting of extraction fan and fume duct - The fumes are sucked from the left side on the bottom and are ejected to the exterior on the top right side - The air is inducted from the top and after filtering and conditioning passes into the front side of the cabinet

SAFETY DEVICES

The machine stops automatically when

- the film breaks
- the film roll is at an end
- the solvent tank is empty

The starting of the machine is impossible when

- the electromagnetic valve controlling the solvent inlet does not work
- the politex tape pressure rollers are not in the correct position
- the film loaded has insufficient tension

The film cannot move if the tape traction motor is not switched on

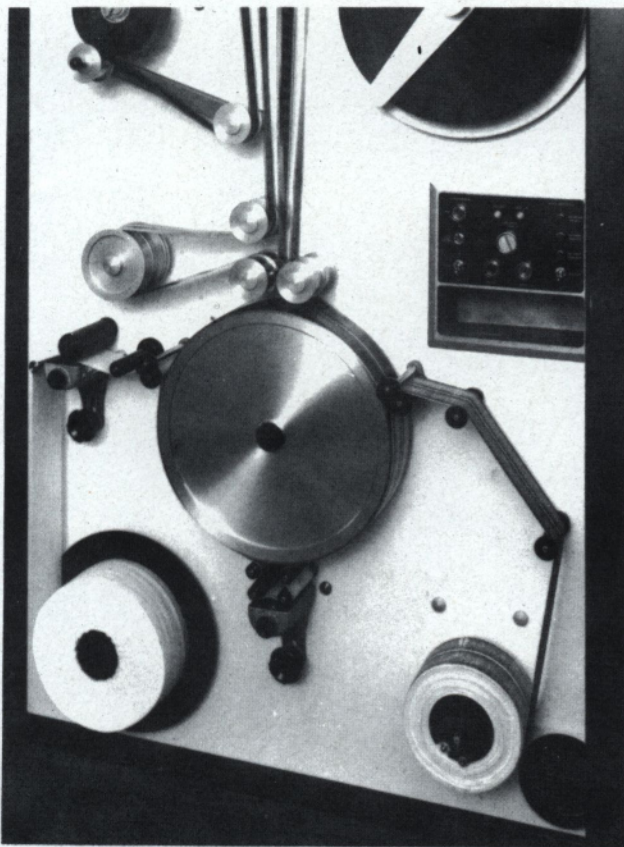


Figure 3

On the right the control panel - On the center the cleaning drum made of polished stainless steel - On the left and under the drum the solvent trays - The machine is shown in operation, with the tape pressure rollers in position

FILM TRANSPORT

Effected by means of the cleaning drum and auxiliary drum, assisted by the takeup spool, without sprockets, this contributing to the film preservation as no strain is caused on the perforation

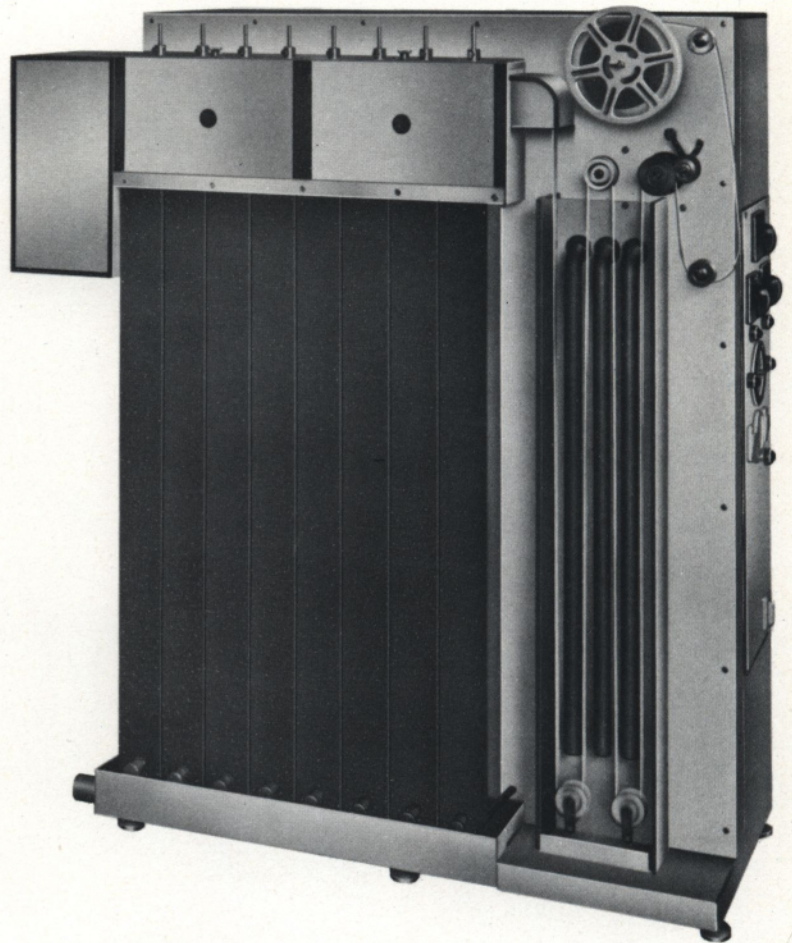


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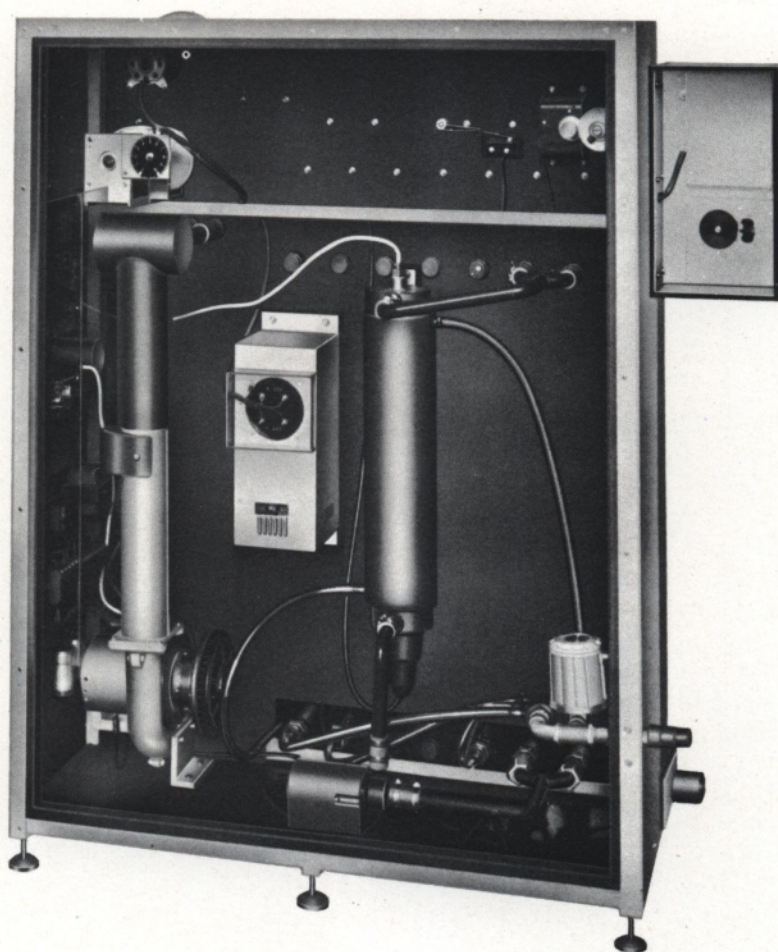
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weight of machine with liquids	: 180 kg
power supply	: the machine is normally supplied for operation on 220 V. 50 Hz. a.c. current

"Up and Over" Processing Machines

Designed for processing of rollfilms and sheet films of any size, in colour and black and white.

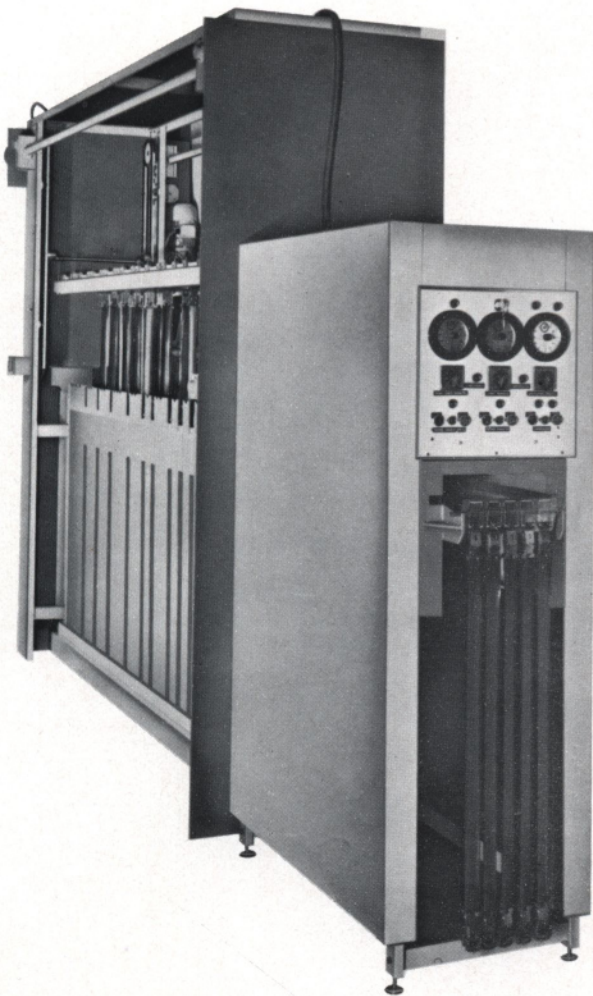
Can be adapted to individual requirements.

They are delivered complete with

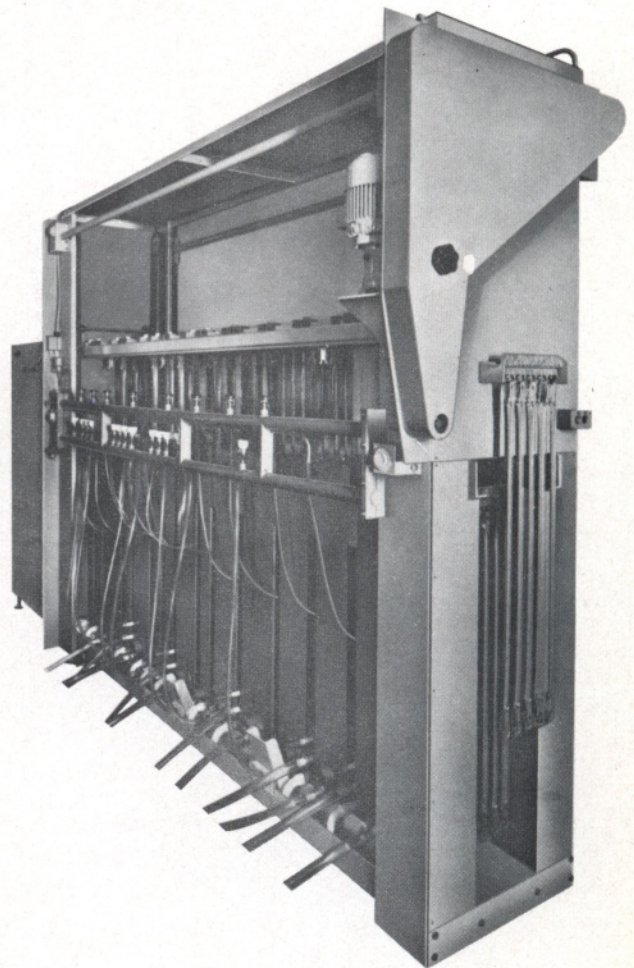
- circulation, filtration and temperature control of the chemical baths
- automatic replenishment system
- automatic gas and air agitation system

Built on solid PVC covered frame - All tanks made of hard PVC - All metal parts coming in contact with the chemicals made of 316 type stainless steel

Self contained and easy to install, these processors are an addition to our range of machines giving reliable performance



Model SVT 3/1

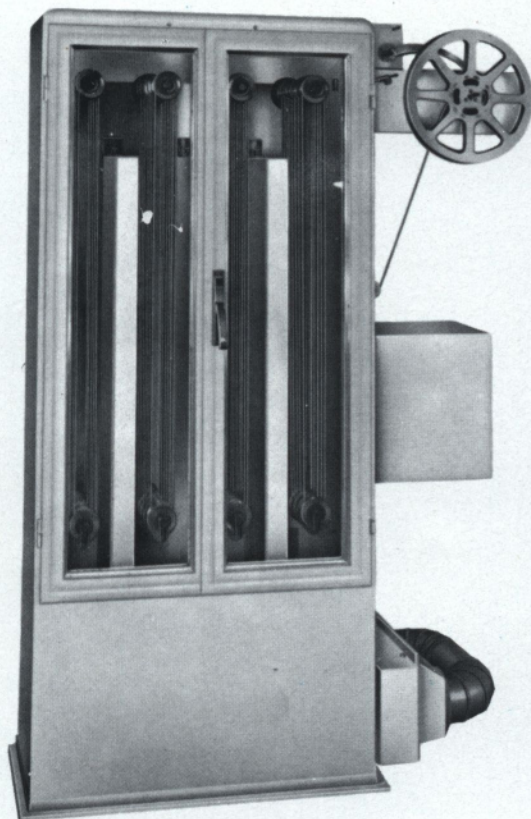


Model SVT 3/1

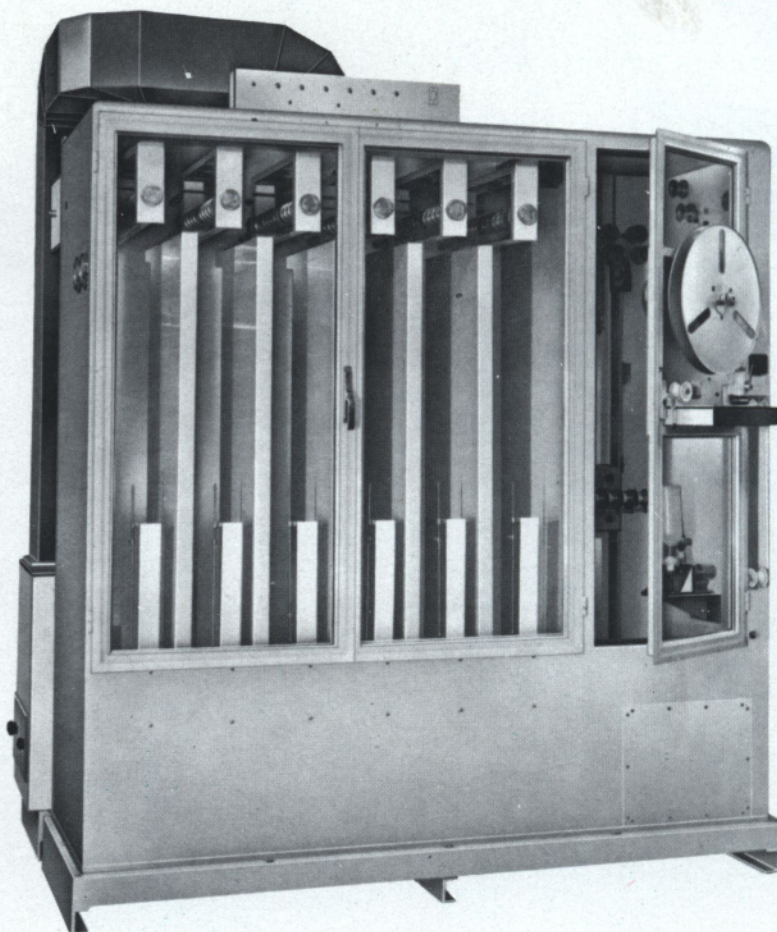
General characteristics of the OMAC drying cabinets is the efficient drying obtained by the use of conditioned air impinging on the film surface – This system has proved far superior to the conventional methods used previously

On request they may be supplied with air dehumidification, partly recirculated air or open type

Can be constructed to give any output, and be friction or sprocket driven



Model AES/5



Model AEF/3



Unimac Film Developing Machines

Unimac/1 for 16mm

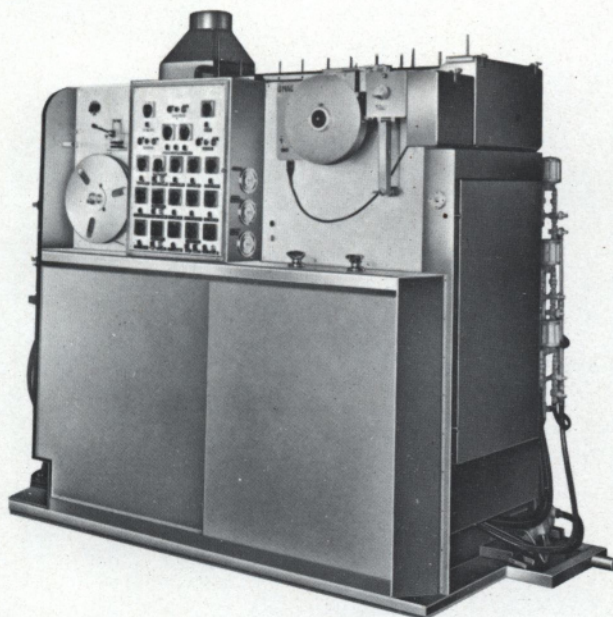
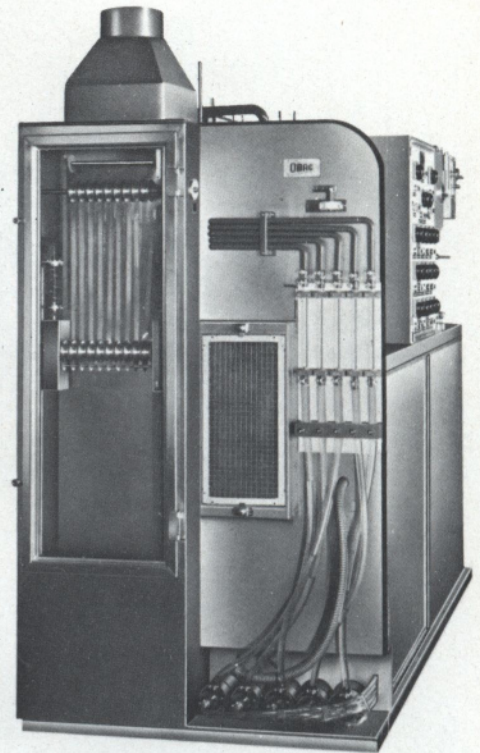
Black and White Reversal Film

Replenishment - From the storage tanks contained in the machine, replenishment is made by means of pumps and flowmeters, regulating the replenishment rates - The storage tanks are filled manually and are provided with level indicators and drain cocks for removal of their contents.

Bath recirculation - Provided by centrifugal pumps of adequate delivery, connected to filters and individually controlled from the main panel

Construction - Frame, drying box with reserve, drive shafts etc. are made of stainless steel 316 or 304 type - Processing tanks and replenishment tanks are made of PVC. - Valves, unions and general plumbing made of PVC, rubber or other acid proof material

Maintenance - All components of the machine, filters, valves etc. are accessible at the rear side of the machine for easy maintenance - Wash water and overflow solutions are collected in a common drain trough which can be connected with the floor drain - All tanks are easily removable and each one is provided with a frontal drain cock for removal of contents



SPECIFICATIONS

Dimensions	: overall length 2240 mm.
	» width 1095 mm.
	» height 2120 mm.
Weight of machine empty	: approx. 850 Kg.
Power consumption	: » 11 KVA.
Water consumption	: » 1500 liters/hr
Capacity of processing tanks	: 1st developer approx. 61 liters
	reversal bath » 37 »
	bleach » 37 »
	2nd developer » 37 »
	fixer » 37 »
Capacity of replenishment tanks	: 1st developer approx. 37 liters
	reversal bath » 24 »
	bleach » 24 »
	2nd developer » 24 »
	fixer » 24 »
Loaded film on the machine	: approx. 350 meters

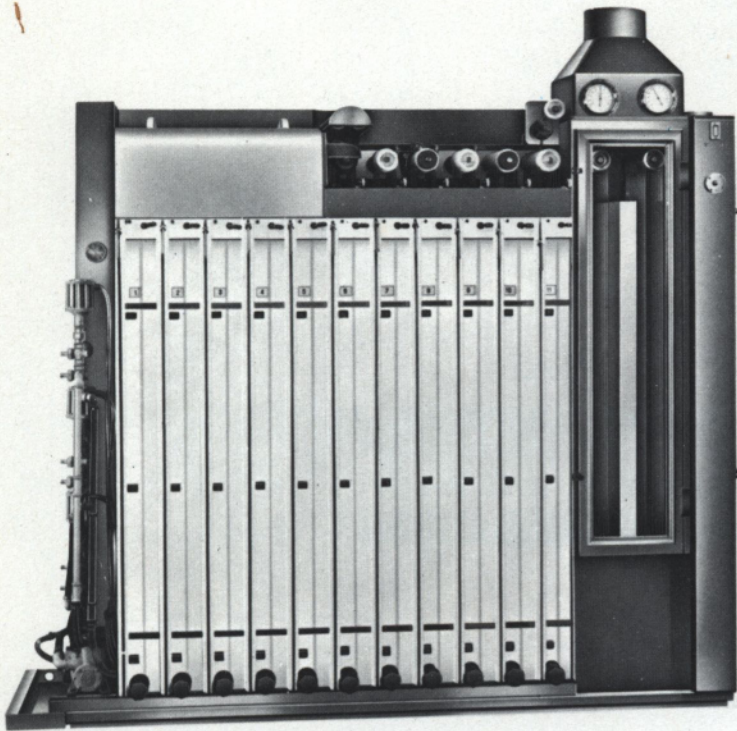
The machine is normally supplied for operation on 220/380 V. 50 Hz.
It can be constructed to process any substantive colour stock on request.



Unimac Film Developing Machines

Unimac/1 for 16mm

Black and White Reversal Film



Output: 900 meters/hr by 2' dev. time with bath temperature at 28°C.

Longer developing times are obtainable by changing the position of the belt on the three-step pulley of the main drive motor for 750 and 600 meters/hr

- self contained unit, reduced dimensions, simple installation
- no dip rods used, therefore no height restriction - the unit can be installed in vehicle or in confined space
- daylight operation and magazine loading
- recirculation of solutions
- automatic replenishment
- automatic bath temperature control

Designed for easy operation requiring only a minimum of attention - Automatic controls through the processing cycle considerably reduce the operator's supervision - All controls are arranged on a main panel conveniently situated on the feed side -

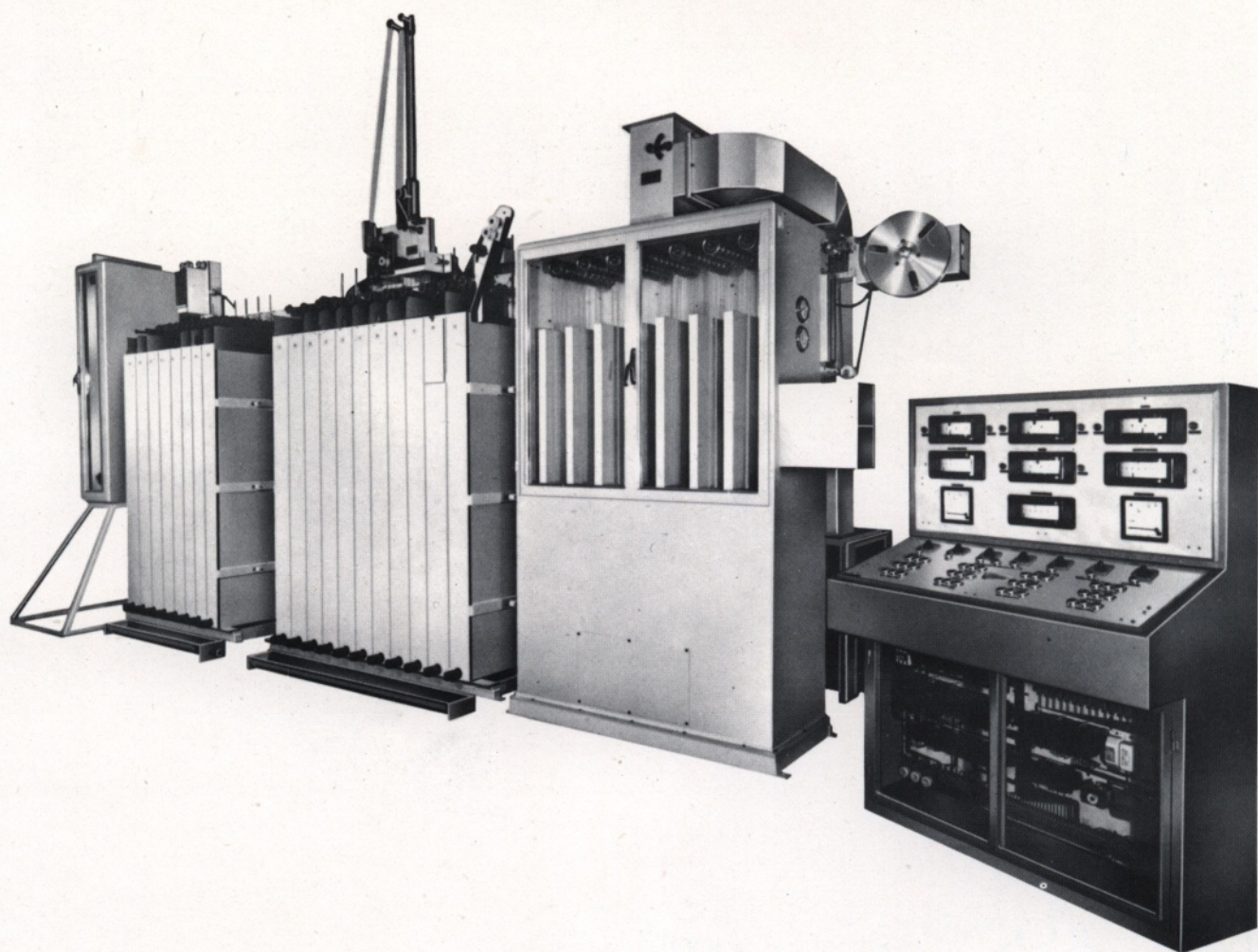
Bath temperature control - Temperature control of the solutions is obtained by means of a hot water heat exchange system - Thermostatic controlled hot water is recirculated into stainless steel "U" tubes fitted inside the solution tanks - Indication of bath temperature is given by dial type thermometers mounted on the main control panel - If the ambient temperature is above the temperature required for the baths, the cold water circuit can be switched on by a simple manual operation

Drying - Impingement drying takes place in the self contained cabinet by means of filtered air heated by fin type heaters, arranged in three sections, one of which is thermostatically controlled - Thermometer, hygrometer and thermostat are provided - A takeup reserve permits the operator to change spools in plenty of time

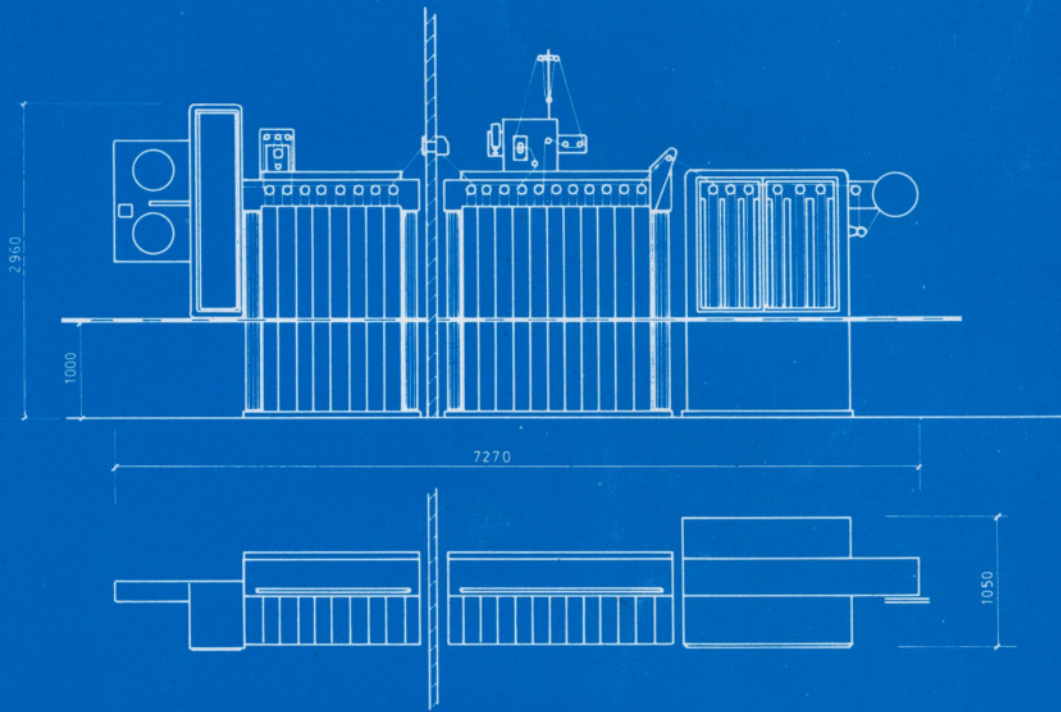
OMAC

Model SVC 26/1

OMAC PROCESSING MACHINE FOR 35 & 16 mm. COLOUR POSITIVE FILMS - OUTPUT 900 m/hr - SPROCKET DRIVE



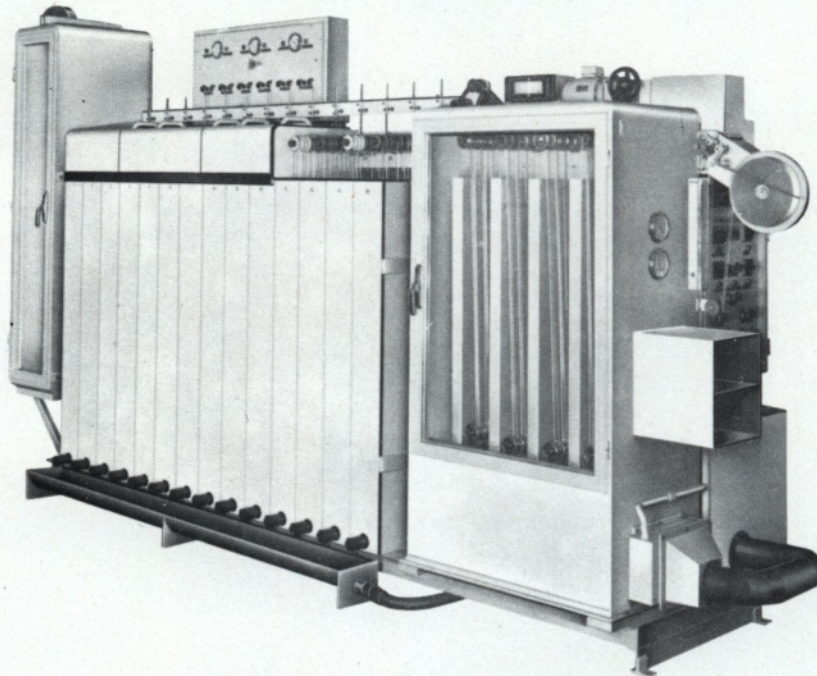
SVILUPPATRICE OMAC PER PELLICOLE 35 & 16 mm. POSITIVE A COLORI - PRODUZIONE 900 m/h - TRAZIONE A ROCCHETTI DENTATI



OMAC

OMAC Film Processing Machine

Mod. SVC 19/5

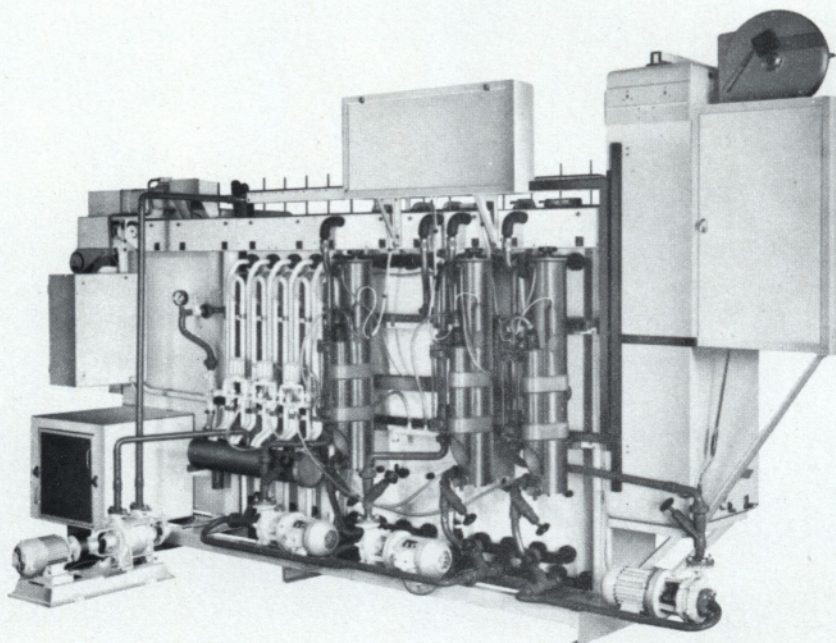


High speed processing machine for black and white negative and positive film 16 mm. or 35 mm. or combined, ideally suited for television laboratories.

Completely selfcontained. For its installation it is only necessary to connect water and electricity.

Output: from 800 to 2000 meters/hr

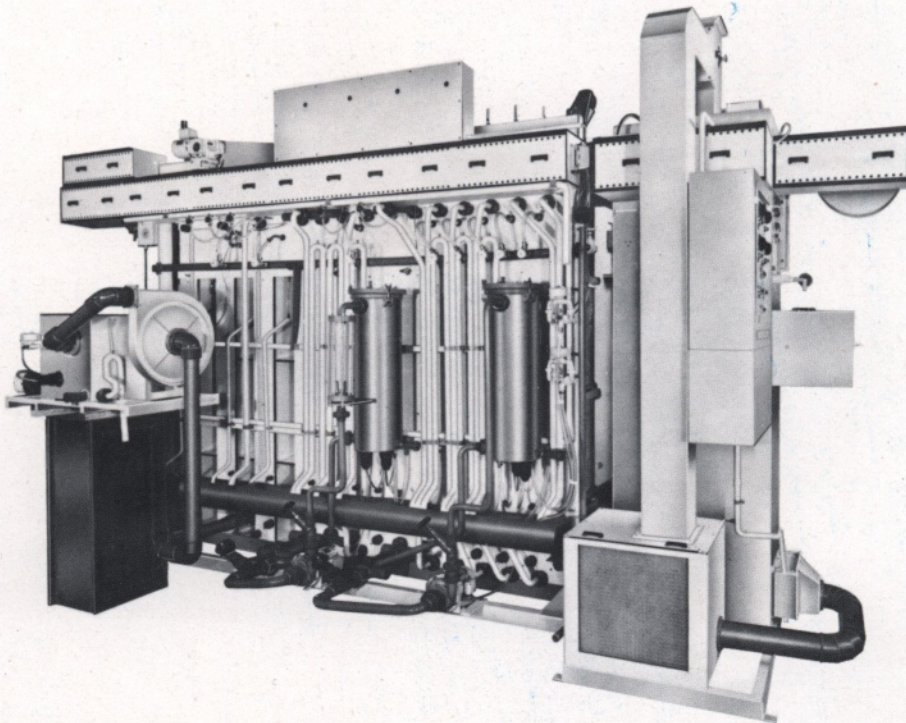
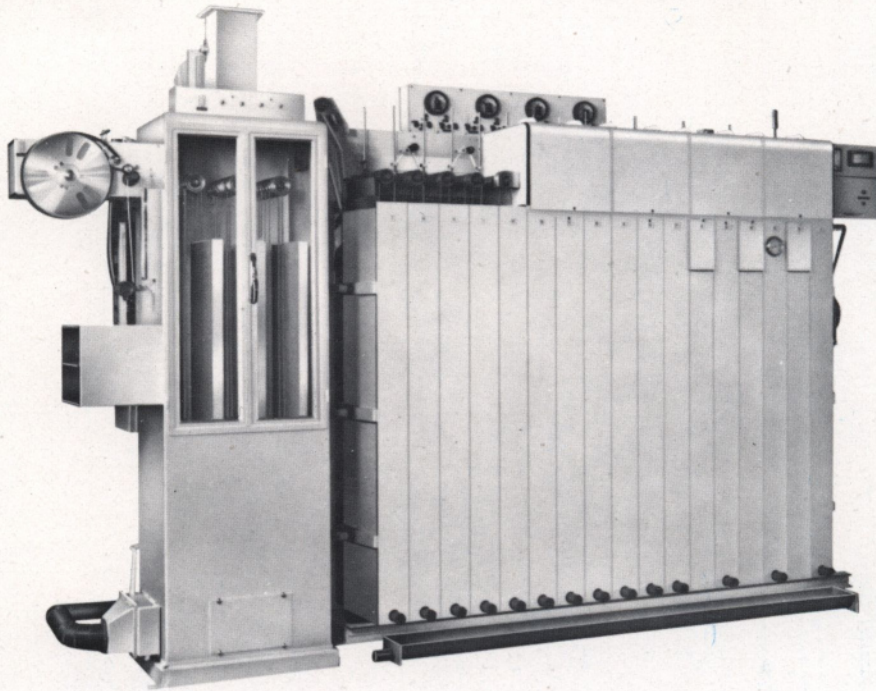
Can be delivered with friction drive or standard sprocket drive.





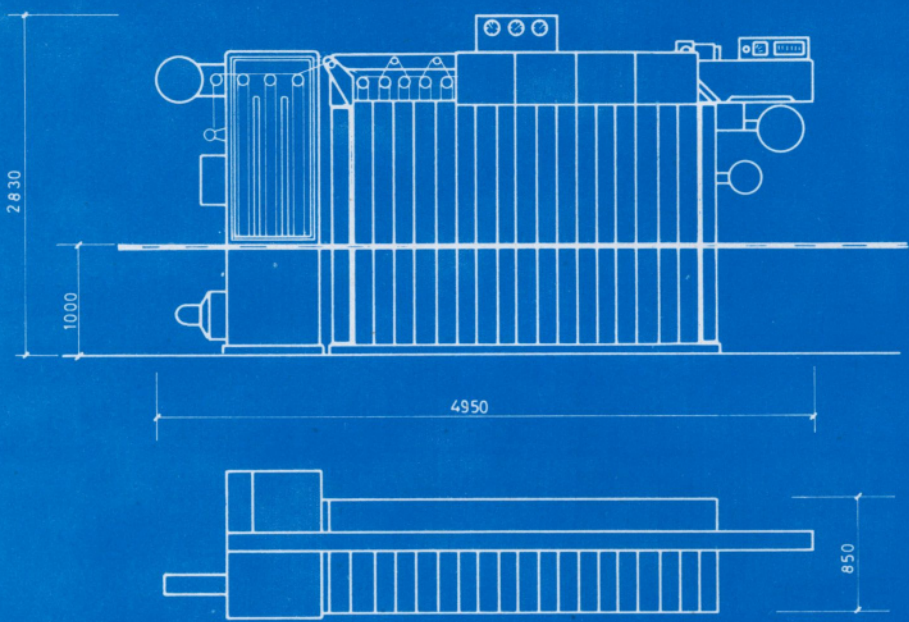
Model CSV/CT1/6VD

OMAC FRICTION DRIVE PROCESSING MACHINE FOR 35 & 16 mm. BLACK & WHITE POSITIVE FILMS
- WITH VISCOUS DEVELOPER UNIT - OUTPUT 600 m/hr by 9 min. developing time



SVILUPPATRICE OMAC A FRIZIONE PER PELLICOLE 35 & 16 mm. BIANCO-NERO POSITIVE - COMPLETA DI GRUPPO PER SVILUPPO VISCOZO - PRODUZIONE 600 m/h a 9 minuti di sviluppo

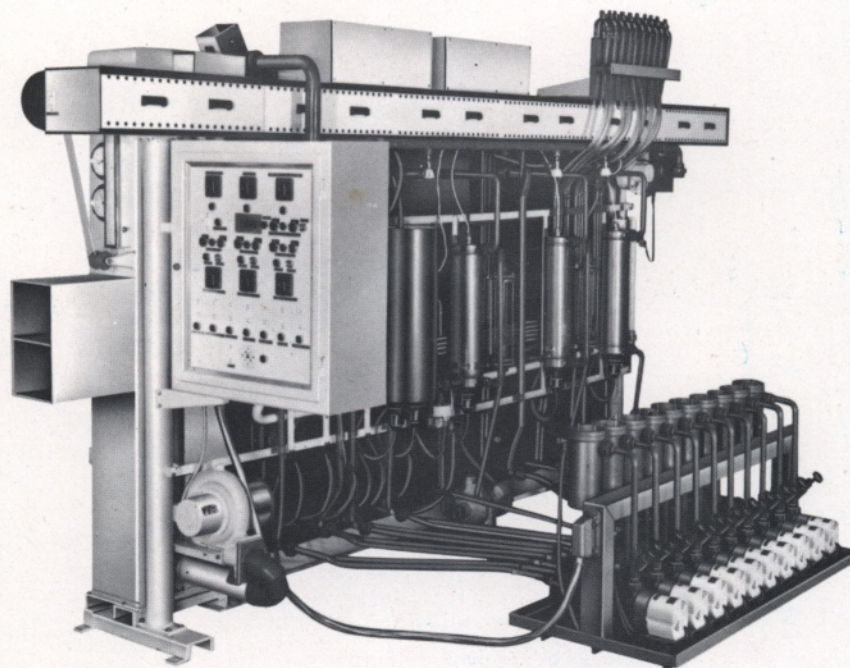
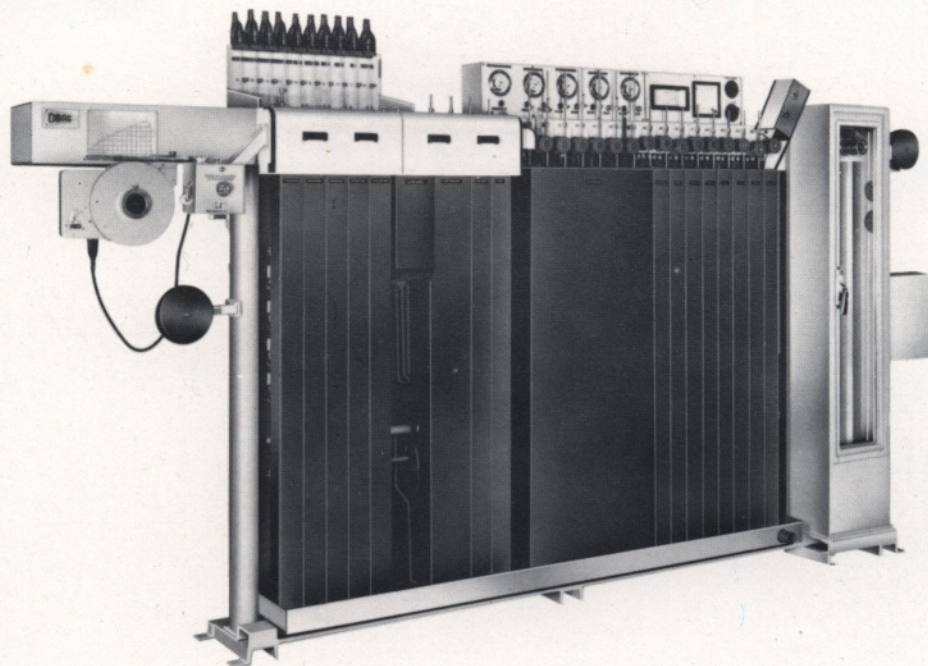
TECHNICAL DRAWING



OMAC

Model SVC 17/2-F

OMAC FRICTION DRIVE PROCESSING MACHINE FOR 35 & 16 mm. EKTACHROME FILMS – ME 4 PROCESS – OUTPUT 110 m/hr

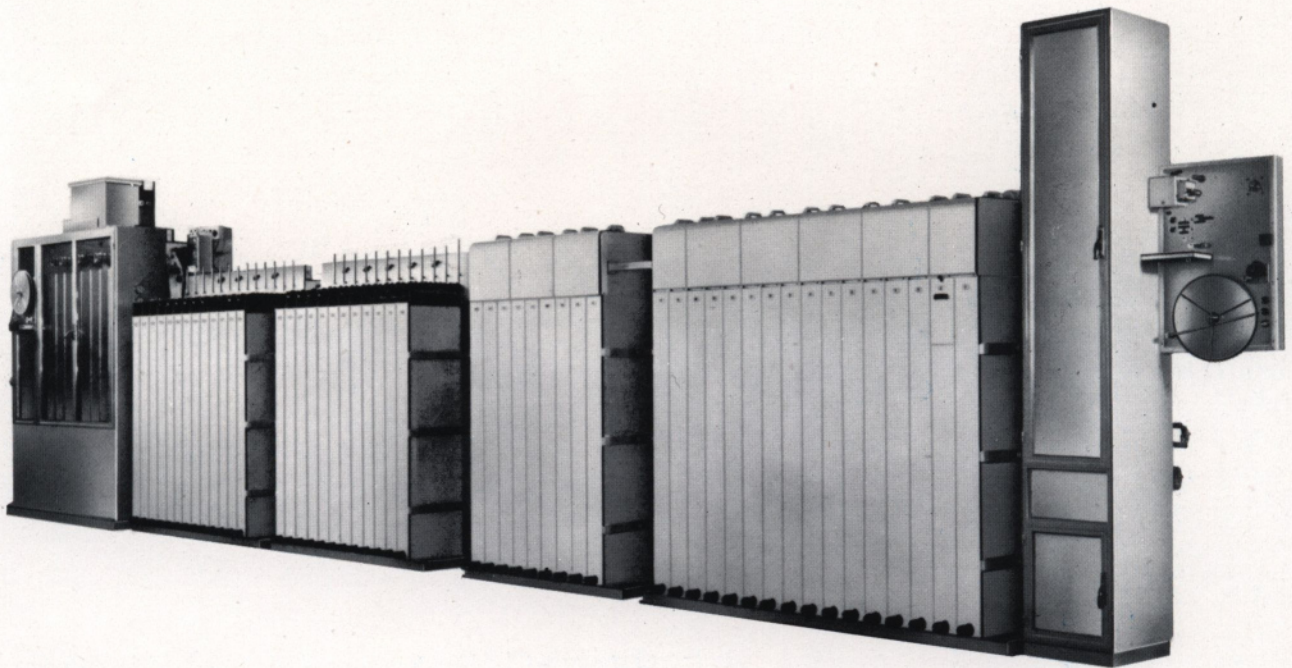


SVILUPPATRICE OMAC A FRIZIONE PER PELLICOLE EKTACHROME 35 & 16 mm. – PROCESSO ME 4 – PRODUZIONE 110 m/h

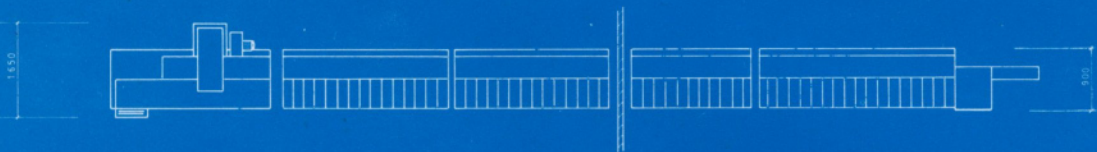
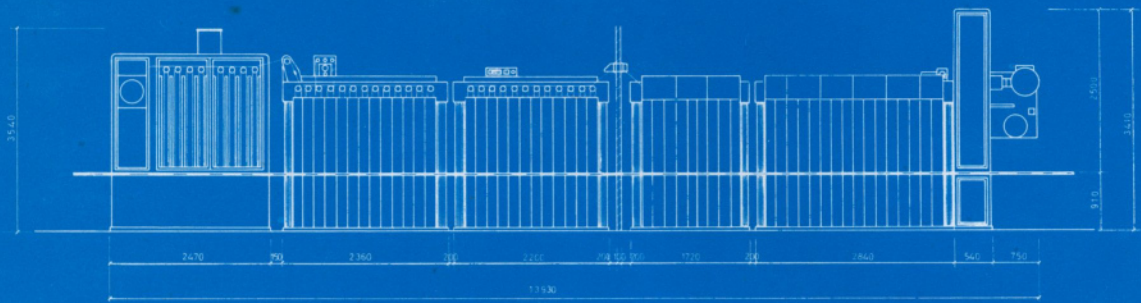
OMAC

Model CSV/CT1/3

OMAC FRICTION DRIVE PROCESSING MACHINE FOR 35 mm. COLOUR NEGATIVE FILMS - OUTPUT
2000 m/hr by 14 min. developing time



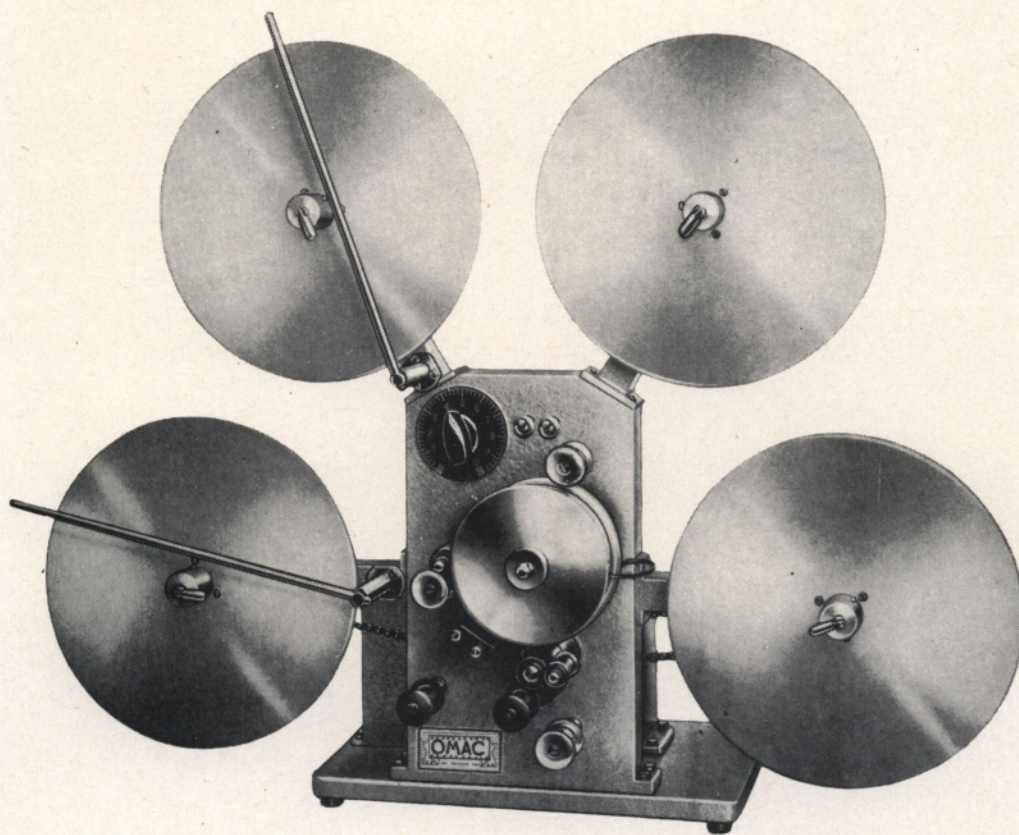
SVILUPPATRICE OMAC A FRIZIONE PER PELLICOLE NEGATIVE A COLORI 35 mm. - PRODUZIONE
2000 m/h a 14 minuti di sviluppo



OMAC

OMAC microfilm printer

mod. STM I

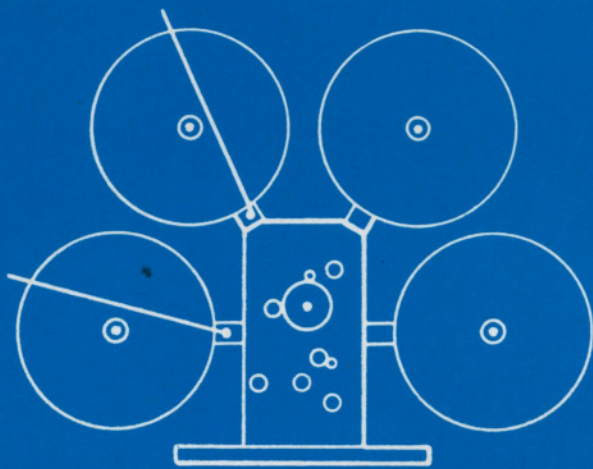


This continuous printer is designed to produce 16 mm. and 35 mm. prints. The 35 mm. model enables without any adjustment also 24 x 36 and 18 x 24 mm. films to be printed.

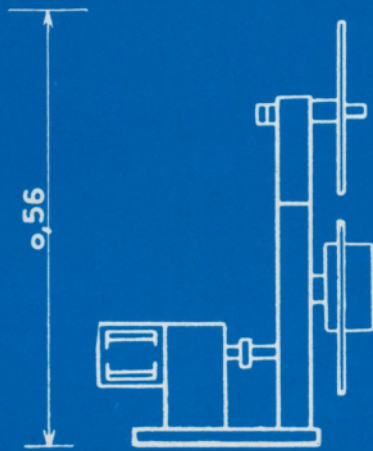
Perfect protection of the negative is ensured even after many prints.

The printer can also be employed for obtaining slides from black and white or colour negatives if these are sufficiently balanced to be printed with the same printing light. In this case, by splicing a strip of approximately one meter length and making it revolve repeatedly, it is possible to obtain any number of prints.

The machine is also available for 16 mm. and 35 mm. negatives without perforation.



o,76



o,56

o,40



OMAC Device for Dusting 35mm and 16mm films

Model AC 5/S 55

This device, which is built for 35mm, 16mm. and for 35/16mm. combined, allows the rewinding and dusting of cinematographic film.

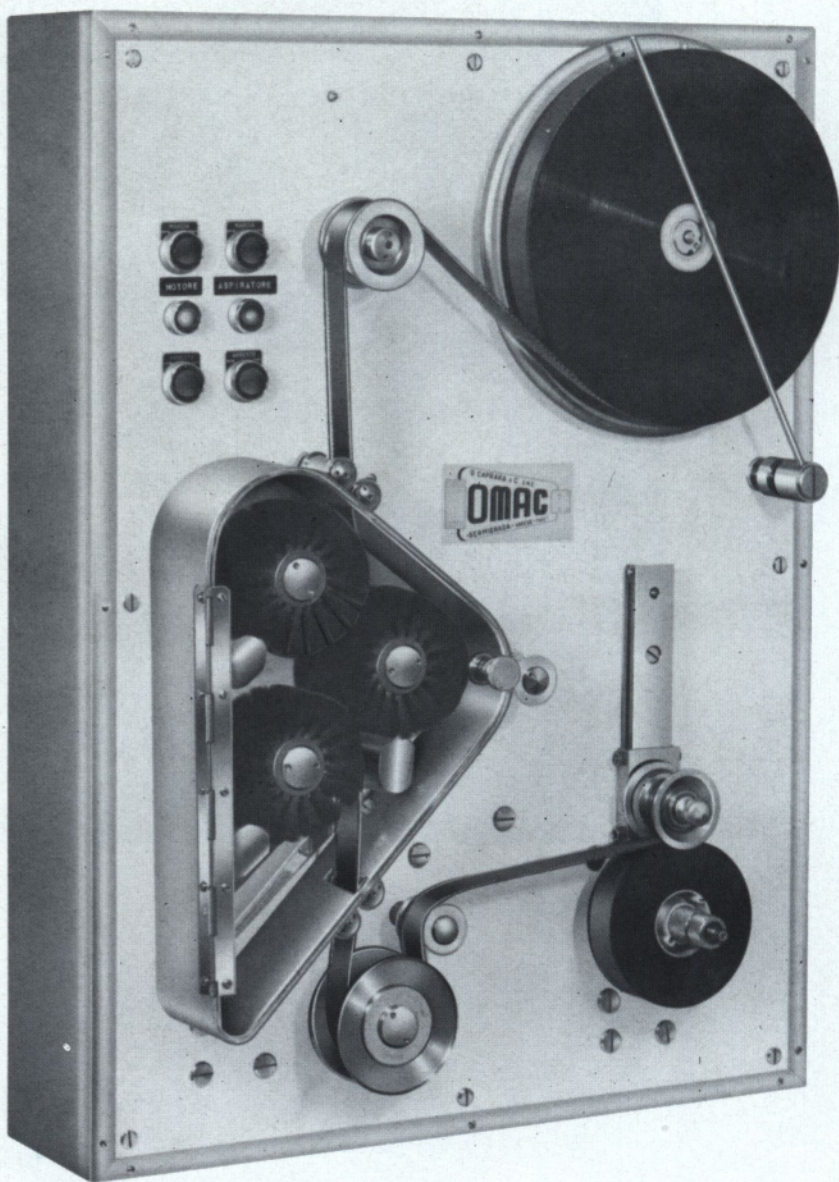
It is particularly suited for dusting the negative during the rewind between printing operations – Dust is removed by means of special soft brushes and then aspirated.

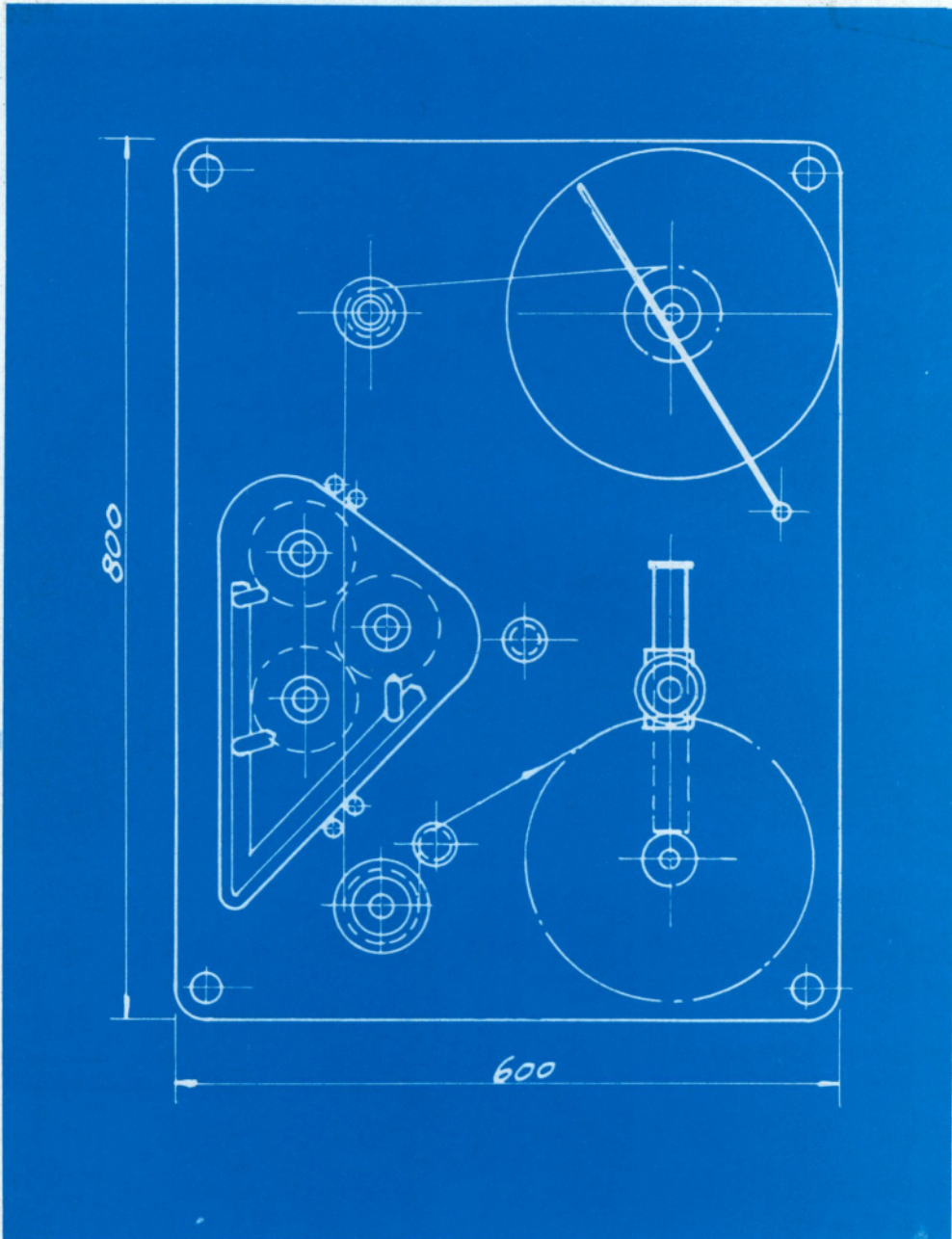
A very precise rewinding of the film is ensured by guide rollers and hydraulic clutch.

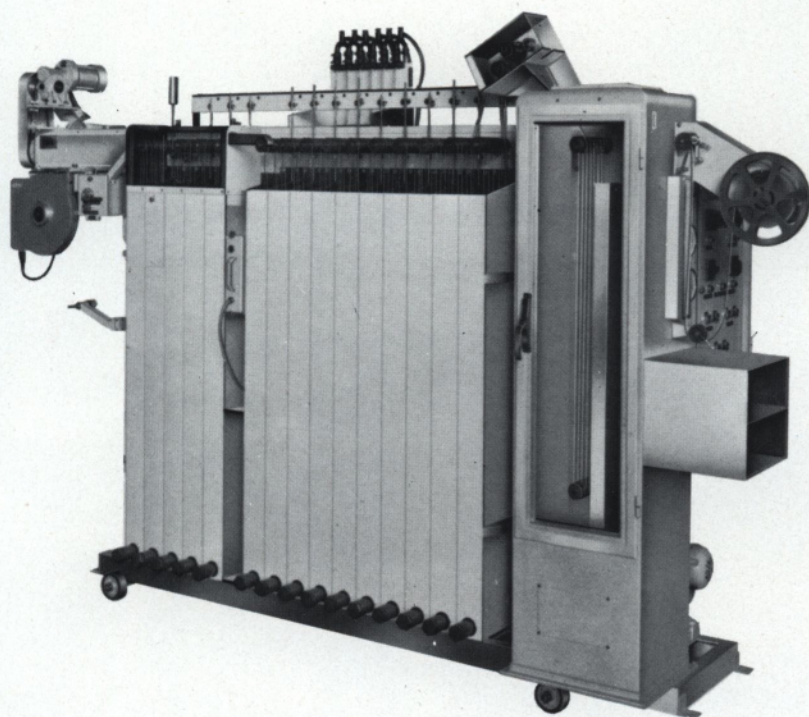
No sprockets.

Automatic stop at film end –

Rewinding speed: 2000 meters/hr







- For reversal colour or black and white films 16/2x8 or 16/2x8/Super 8
 - Reduced in dimensions, it is particularly suitable to laboratories with low or medium production and can be easily installed in small rooms
 - The tanks which are identical and therefore interchangeable, allow any type of film to be processed
- Output: - 90 ÷ 150 meters/hr of reversal colour film
- up to 300 meters/hr of reversal black and white film
- It is supplied complete with all accessories for recirculation, filtration, temperature control and replenishment of chemical baths
 - Can be friction or sprocket driven

Materials

Hard PVC for film rollers, processing tanks and heat exchangers, 316 type stainless steel for the metallic parts which come in contact with the solutions; valves, unions and general plumbing made of PVC rubber or other acid proof material. Supporting frame insulated against chemical attack by antiacid lacquers.

Maintenance

All components of the machine, filters, valves etc. are accessible at the rear side of the machine for easy maintenance.

Wash water and overflow solutions are collected in a common drain trough which can be connected with the floor drain. All tanks are easily removable and each one is provided with a frontal drain cock for removal of contents.

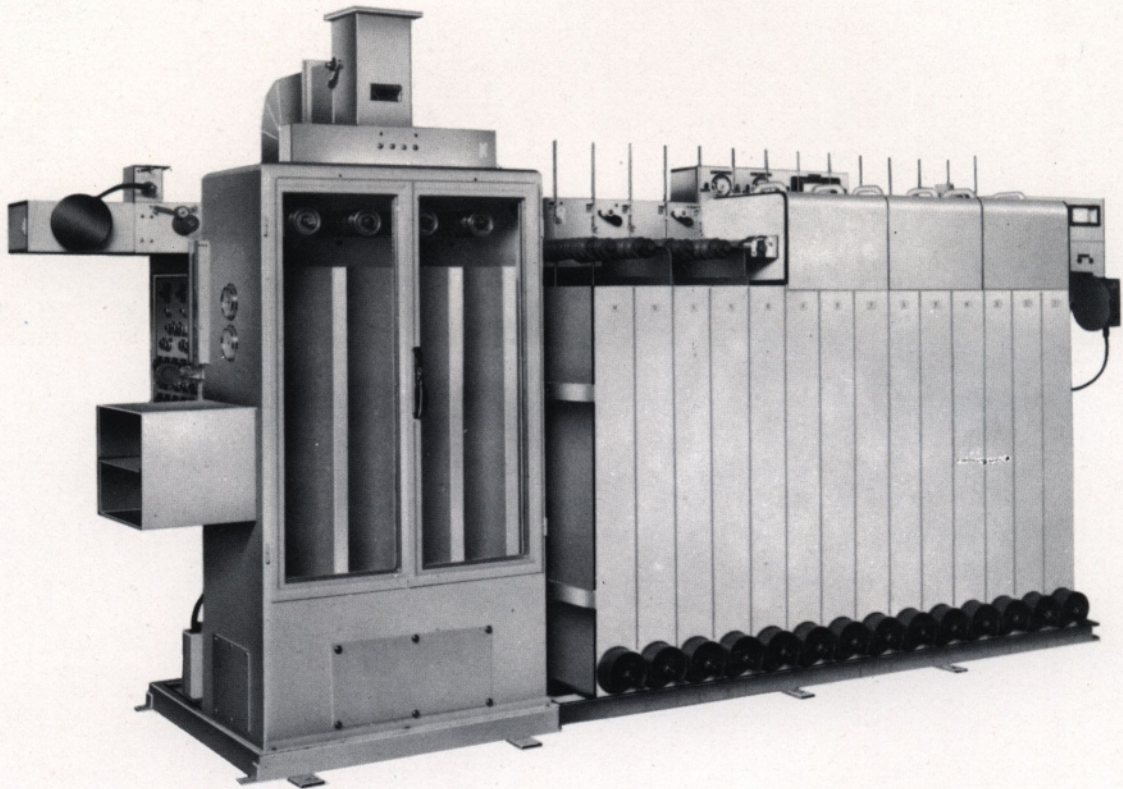
Specifications

Installed power	: approx. 8 KVA	Loaded film on the machine	: approx. 250 mt
Water consumption	: approx. 900 lt/hr	Weight of machine empty	: approx. 1100 Kg.
Tank capacity	: approx. 40 lt	Weight of machine with liquids	: approx. 1700 Kg.

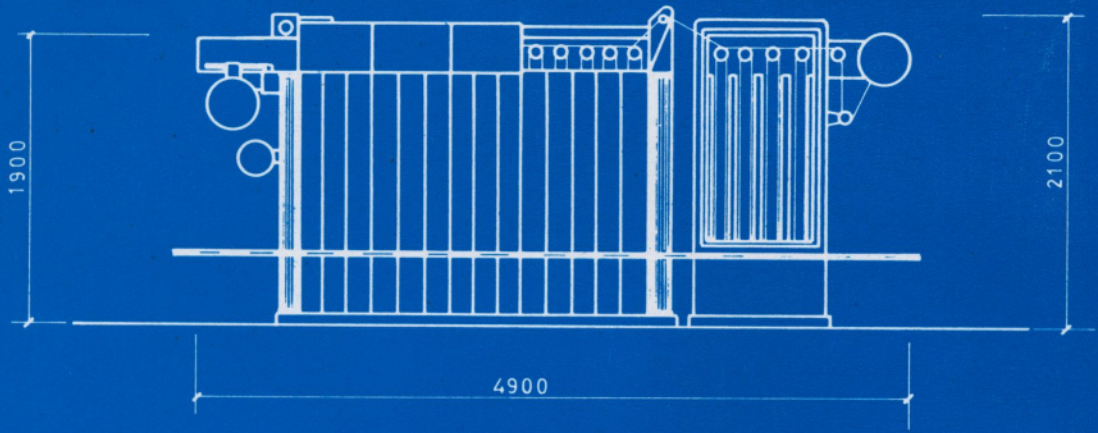
OMAC

Model FSVC/CT1

OMAC PROCESSING MACHINE FOR 35 mm. PHOTOGRAPHIC COLOUR FILMS – OUTPUT 340 m/hr by 12 min. developing time



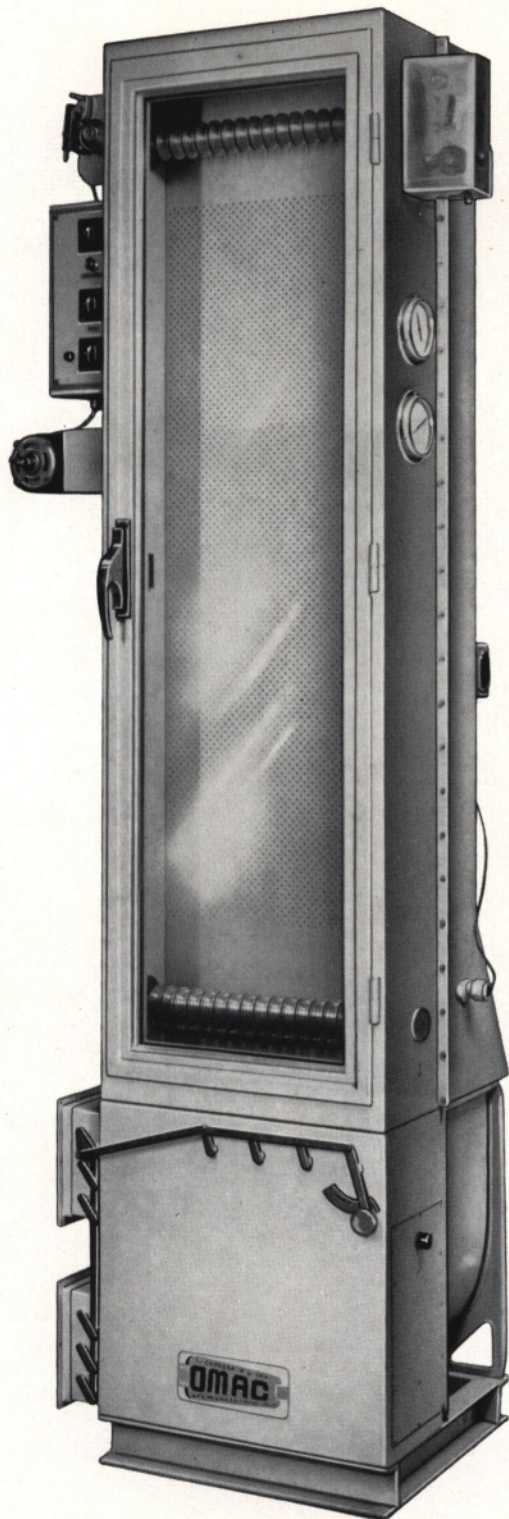
SVILUPPATRICE OMAC PER PELLICOLE FOTOGRAFICHE A COLORI 35 mm. – PRODUZIONE 340 m/h a 12 min. di sviluppo



OMAC

armadio di essiccamento OMAC

mod. AE 2/16



MOD. AE 2/16

Armadio di essiccamento rapido a getti d'aria (impingement dryer) per pellicole 16 mm. bianco-nero e colore.

Produzione da 1000 a 2000 metri/ora, secondo i tipi di pellicola.

Tempo di essiccamento da 2 a 4 minuti. Questo tipo di essiccatoio, di dimensioni molto ridotte, funziona con assenza assoluta di rocchetti dentati. Il moto viene dato da motori speciali indipendenti dal moto della sviluppatrice. Questa caratteristica permette di adattare l'essiccatoio a tutte le sviluppatrici già installate con armadi di essiccamento di vecchio tipo.

Riteniamo che il ns. essiccatoio AE 2 sia indispensabile a tutti i laboratori di sviluppo con grande produzione, in particolare laboratori di sviluppo per la televisione.

MOD. AE 3/35

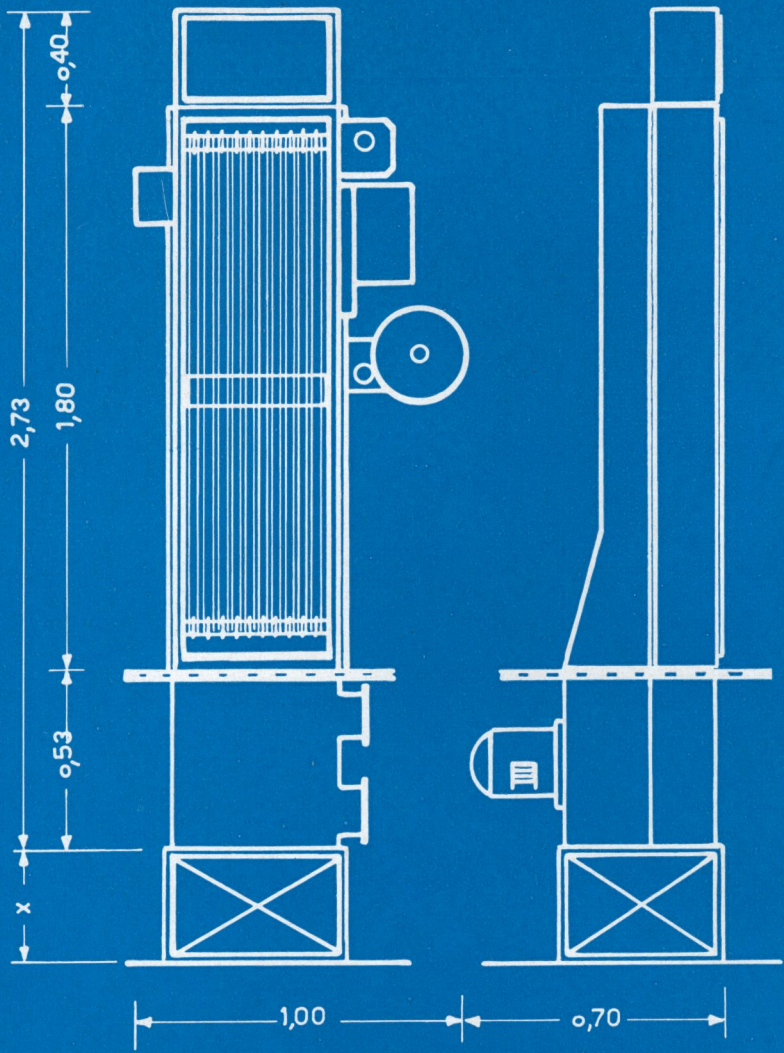
Di dimensioni leggermente maggiori a quelle del tipo AE 2/16.

Con uguale produzione e caratteristiche, per pellicole 35 mm. bianco-nero e colore.

MOD. AE 4/35

Essiccatoio montato sulla nostra sviluppatrice a spruzzo per pellicole bianco-nero. Produzione fino a 4000 metri/ora.

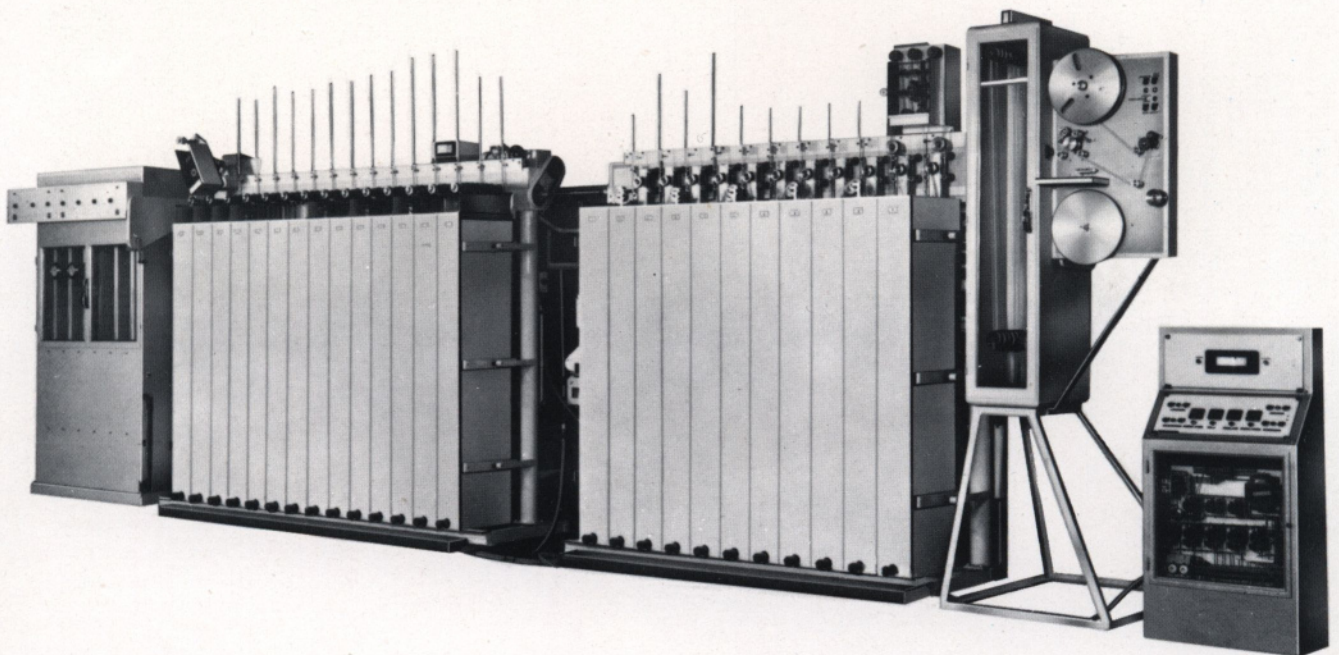
A richiesta può essere fornito separato.



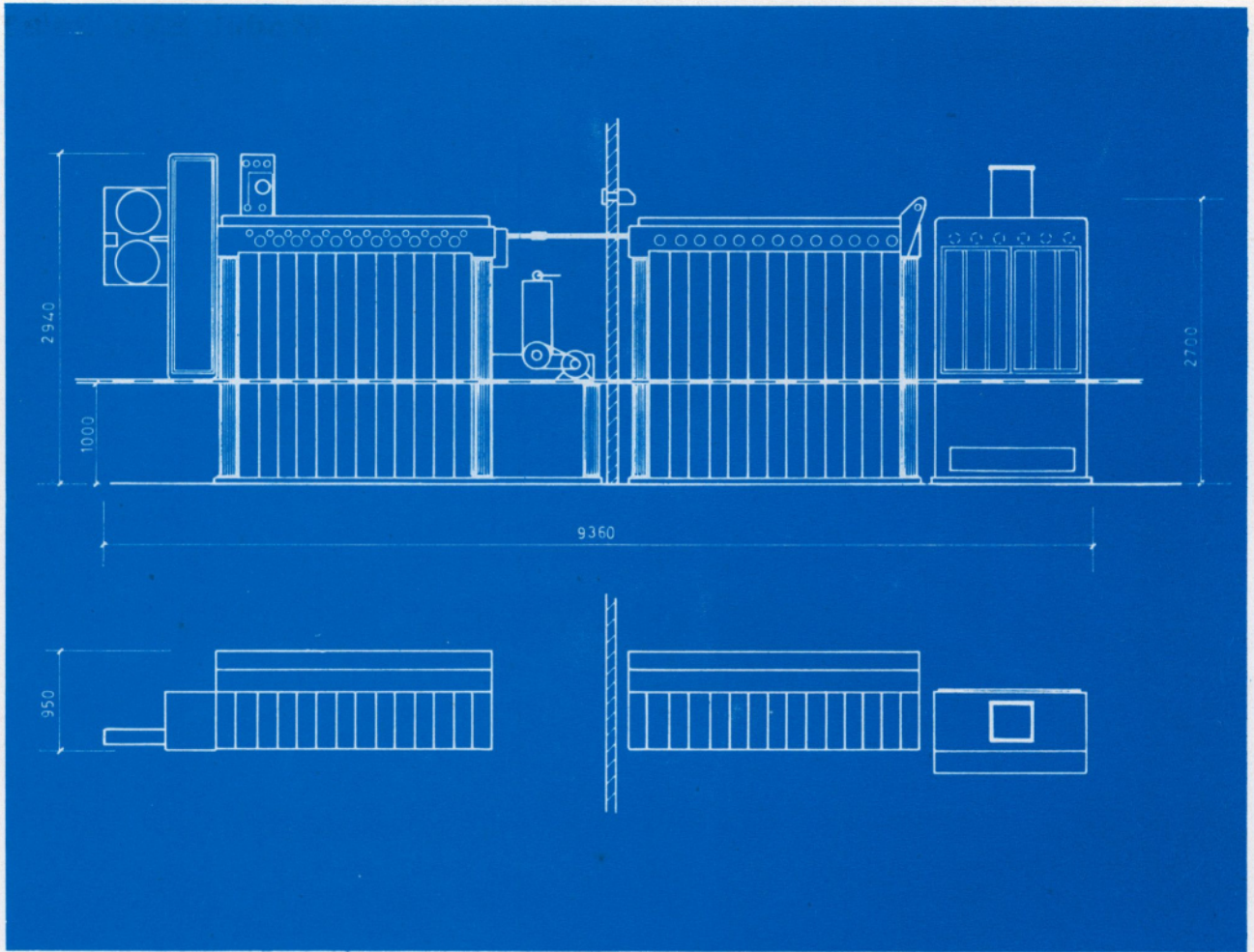
OMAC

Model SVC 26/2T

OMAC PROCESSING MACHINE FOR 35 & 16 mm. EASTMANCOLOR NEGATIVE & INTERMEDIATE FILMS
- OUTPUT 1000 m/hr



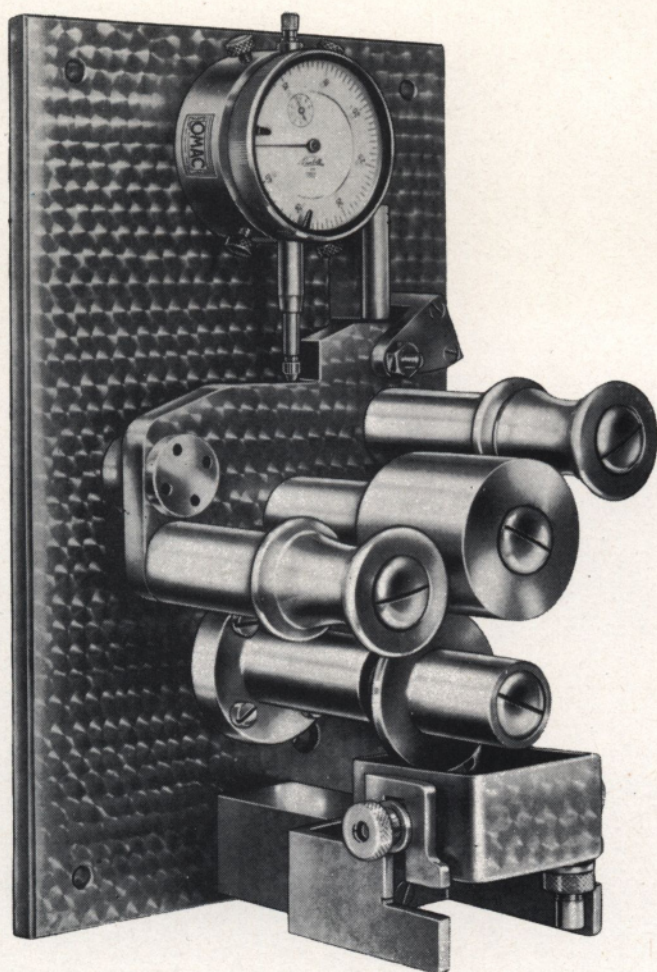
SVILUPPATRICE OMAC PER PELLICOLE NEGATIVE & INTERMEDIATE 35 & 16 mm. - PRODUZIONE
1000 m/h



OMAC

OMAC - Sound Track redevelopment unit

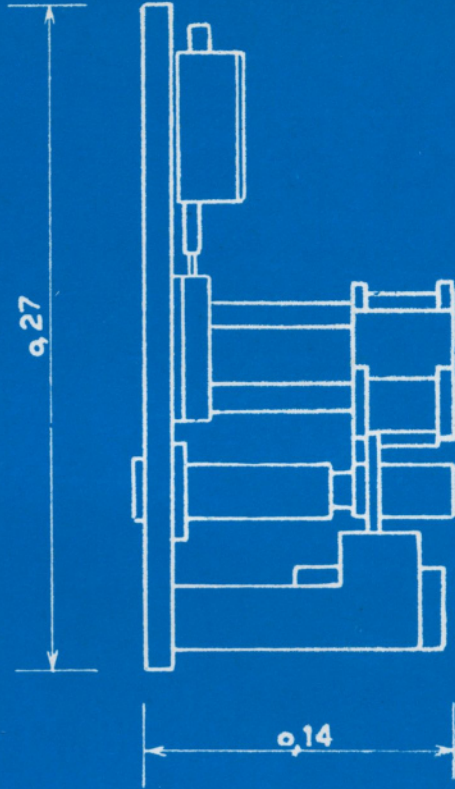
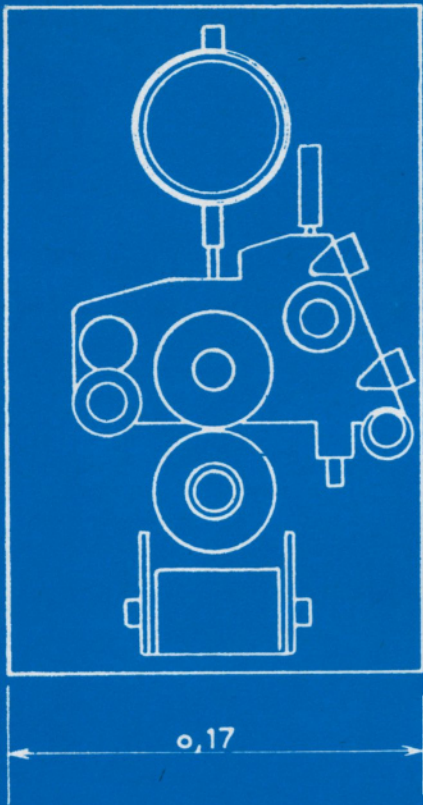
mod. AC 3



This unit for the application of the solution for redevelopment of sound track on colour films, is designed for machines of high capacity. It is built entirely of stainless steel which assures maximum precision in application of the solution and easy maintenance.

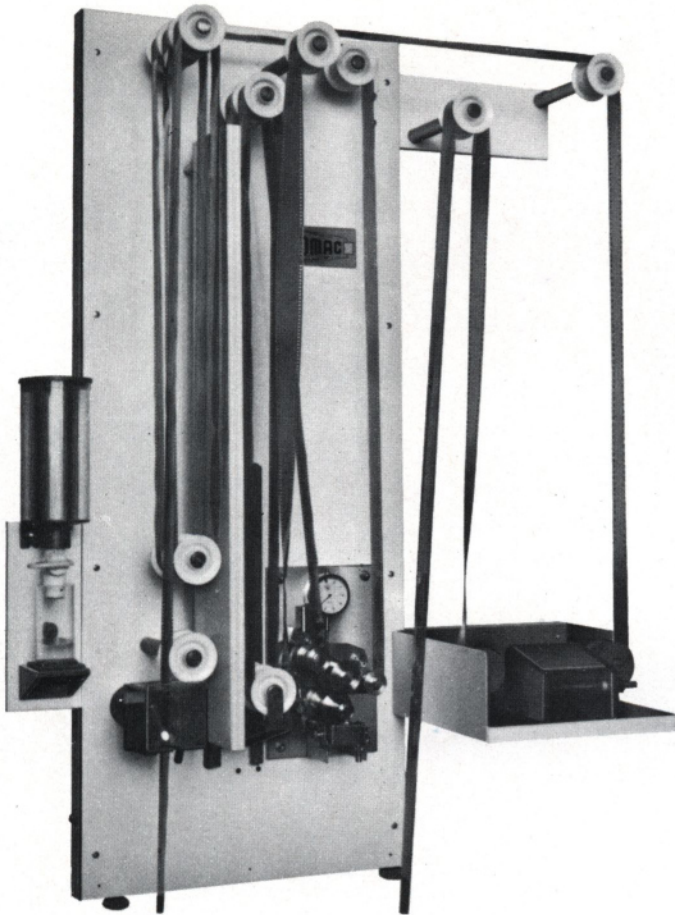
A constant distance of 1/100 of mm. between the disc applicator and the film is assured.

The applicator is moved directly by the processing machine. On request an electronically controlled motor with variable speed can be supplied.



OMAC

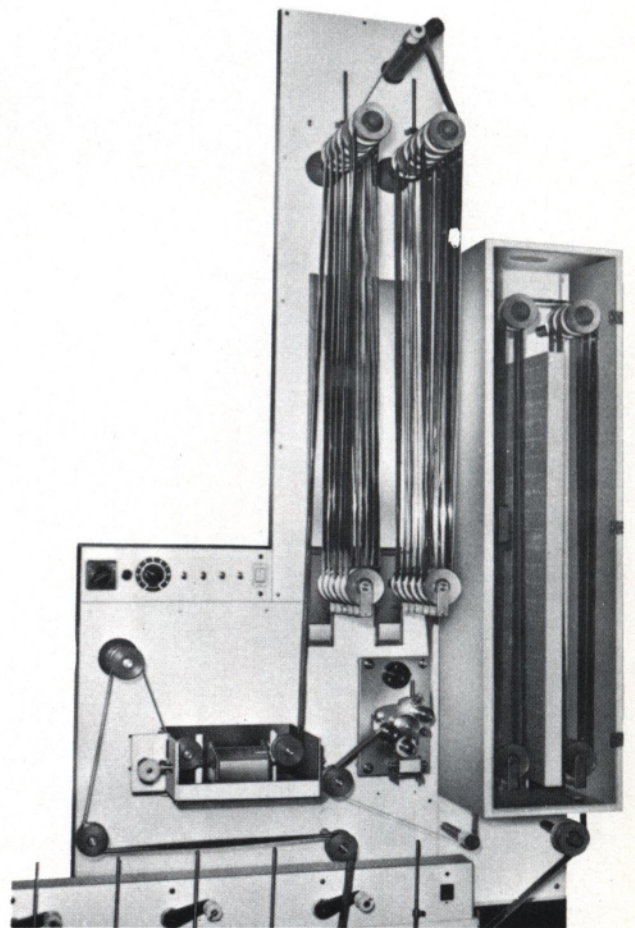
OMAC Sound Track Redevelopment Devices Models ARC 2 - ARC 3



Model ARC 2/2

For low, medium or high speed processing machines –
Built with the maximum care and precision, they are
supplied for 16 mm. or 35 mm. or combined –

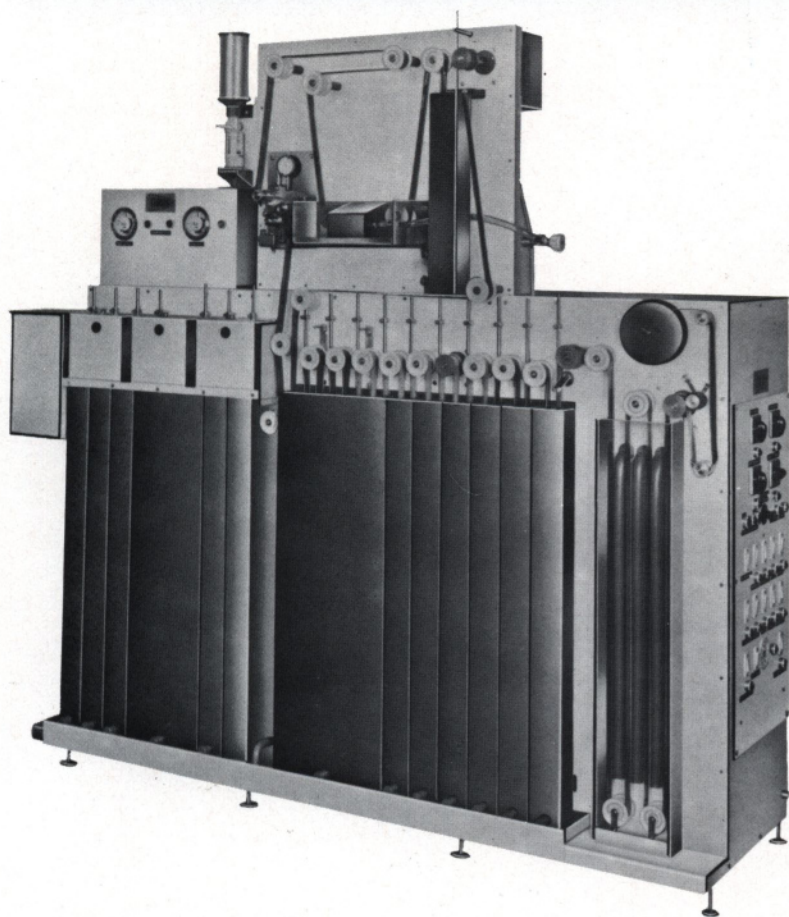
The track applicator wheel is moved directly by the
processing machine if this is sprocket driven, or on
the other hand, if the machine is friction driven, an
independent variable speed motor can be fitted



Model ARC 3/1

OMAC

Continuous processing Machines Model Micromac



CONSTRUCTIONAL FEATURES

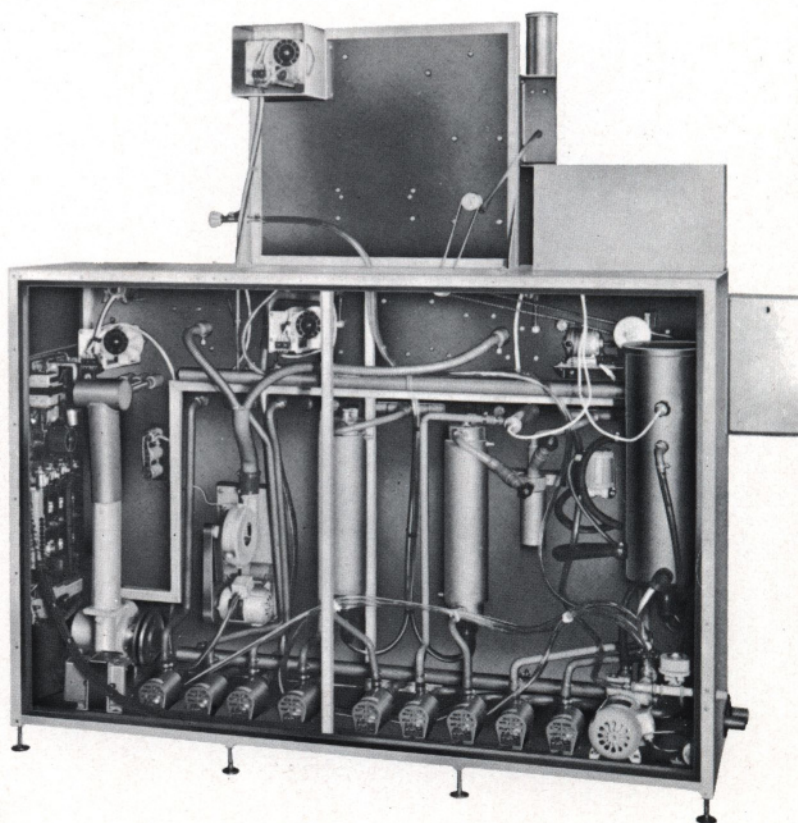
Film drive: the machine has a friction drive (patent n° 779.627) which ensures an absolutely constant tension on each shaft during operation, spool changing and stopping –

Tanks and fittings: tanks, tubes and connecting valves and unions are of PVC material, while any other part that comes in contact with the solutions is made of 316 stainless steel, rubber, plastic –

Wash water and overflow solutions are collected in a common drain trough which can be connected with the floor drain –

Each tank is provided with a drain cock for easy removal of tank content –

Easy and absolutely reliable in operation, the machine requires only a minimum of maintenance –

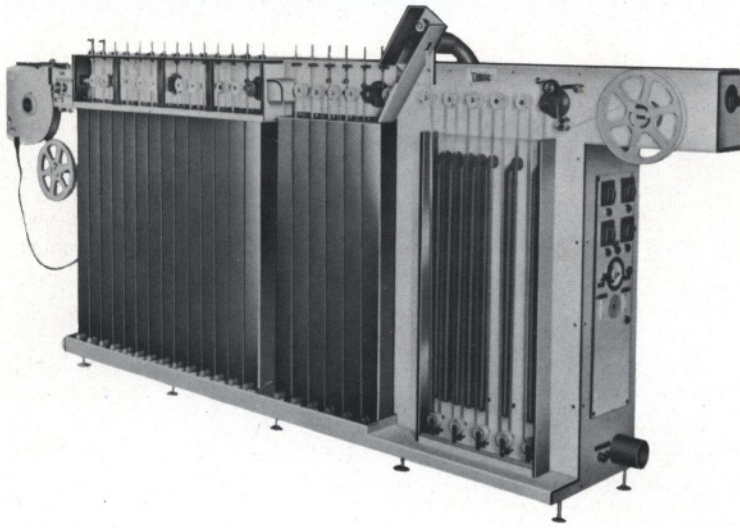


Micromac 2/FR

for 16 and 35 colour films – The illustration shows a machine adapted for Ektachrome process

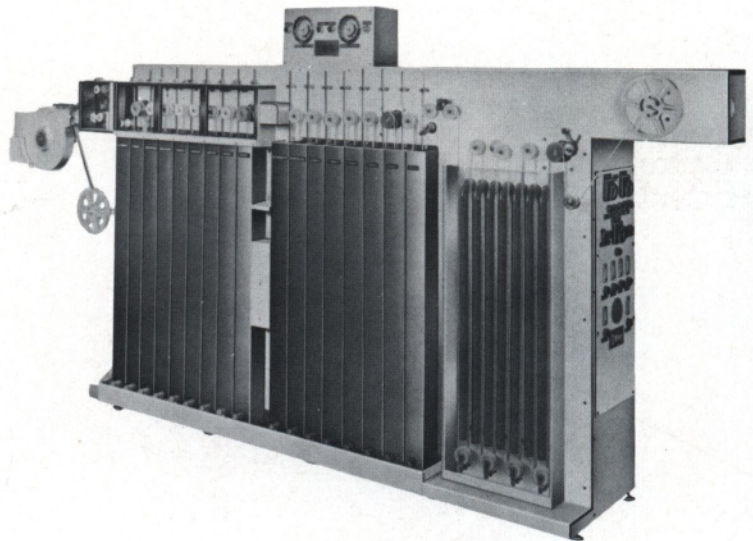


Continuous processing Machines Model Micromac



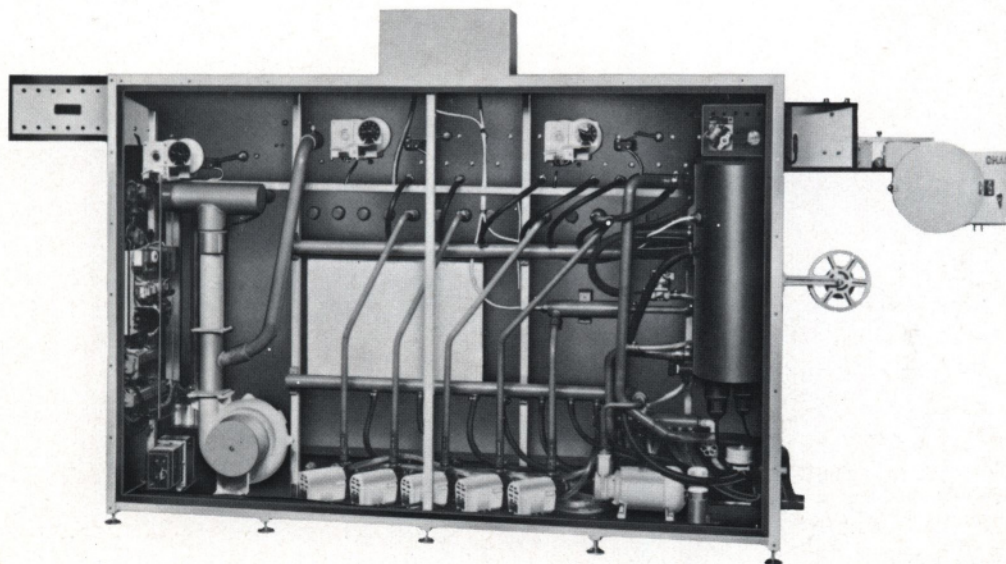
Micromac 3/F

for 16 and 35 mm black and white negative and positive films – Output 30 ft/min. by 1 min. development



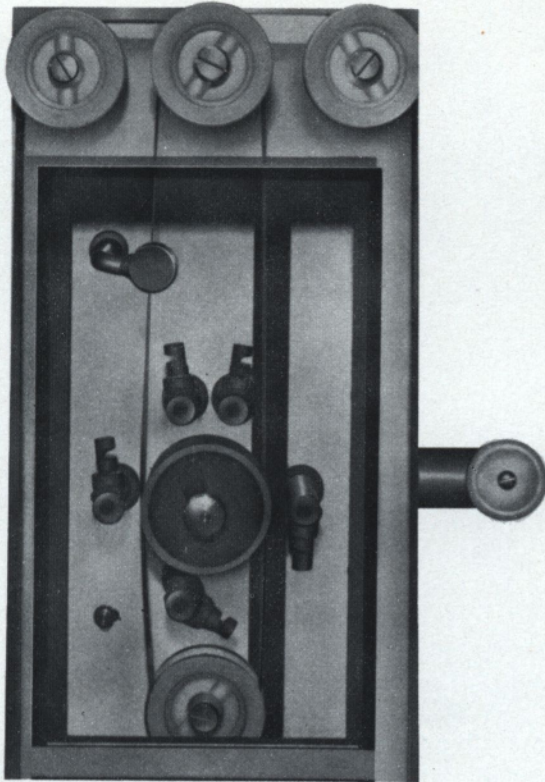
Micromac 2/FR

for 16/8/Super 8 mm black and white reversal films – Output 7 ft/min. by 2 min. development





OMAC
Antihalation Backing Remover
Mod. AC 11/2



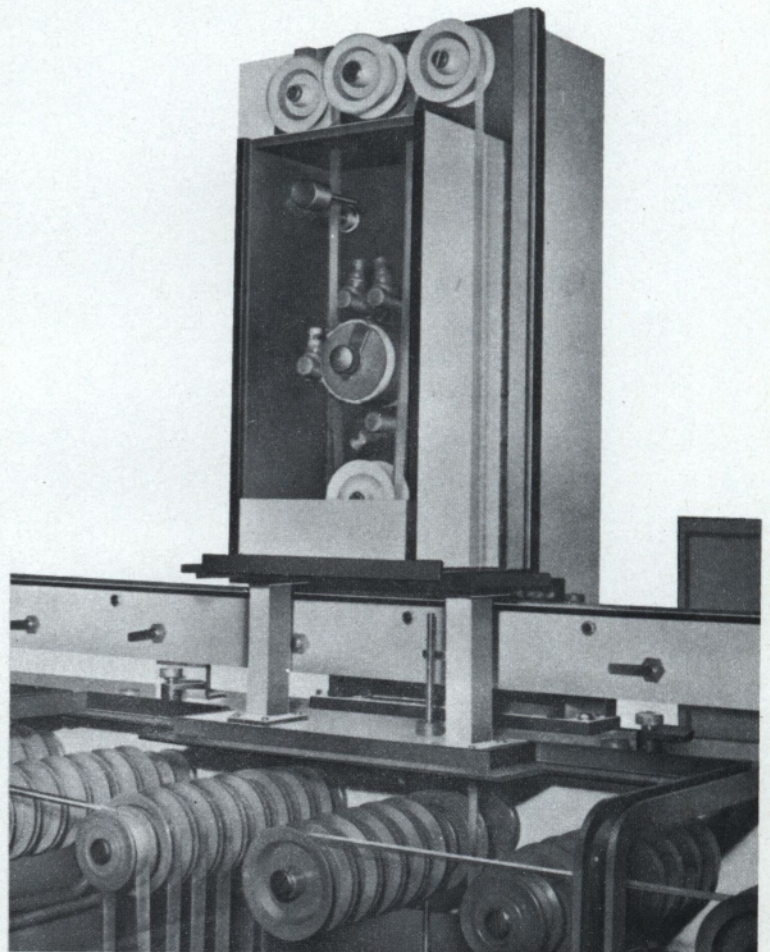
Mod. AC 11/2

This device is absolutely necessary when processing film with antihalation backing. After immersion in alkaline solution (pre-bath) the film goes through this unit, where a rotating sponge eliminates the antihalation layer. At the same time a spray wash removes the residues.

In order to use this device, the film must pass a tank with alkaline solution before reaching the developer.

In some processes, it is possible to use the developer as pre-bath. In this case the antihalation backing remover is placed in an intermediate position and after elimination of antihalo, the film returns into the developer.

This device is easily adaptable to any processing machine.

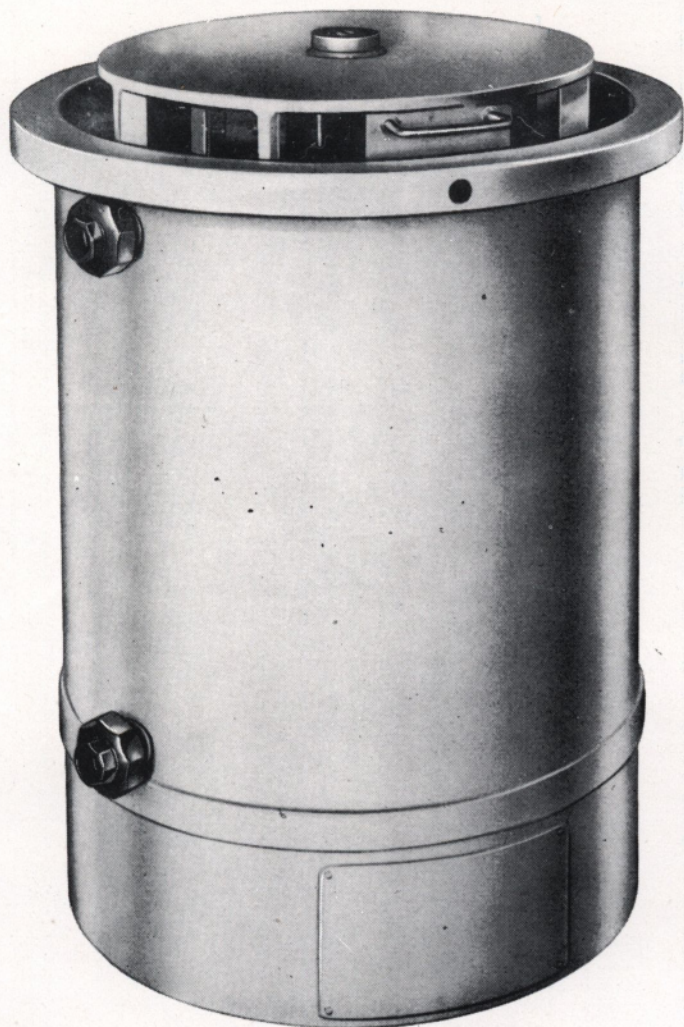


Mod. AC 11/2

OMAC

Apparecchio per il recupero dell'argento per via elettrolitica

mod. VRAg1



È adatto per il recupero dell'argento dalle soluzioni di fissaggio; è completamente autonomo e non richiede nessuna apparecchiatura accessoria. Esso può venire usato sia inserendolo nel circuito di circolazione delle soluzioni di fissaggio (ove esiste) sia per il recupero dell'argento ad esaurimento.

CARATTERISTICHE:

- Agitazione della soluzione brevettata mediante rotazione di pale in PVC con elettrodi immobili. Assenza completa di contatti elettrici striscianti.
- Costruzione interamente in PVC con la sola esclusione degli elettrodi e dell'albero di comando dell'agitatore. Quest'ultimo, in acciaio inossidabile, è contenuto in una guaina in PVC e non può in nessun caso venire in contatto con la soluzione o interessato da spruzzi della medesima. Il motore è contenuto nel basamento completamente al riparo da fughe o esalazioni della soluzione.
- La vasca è aperta verso l'alto e tanto l'anodo che il catodo sono in vista ed accessibili direttamente. L'estrazione del catodo per staccare l'argento depositato si effettua dall'alto, togliendo due viti, senza dover vuotare la vasca né spostare o togliere altri organi.
- Quadro elettrico di dimensioni ridotte applicabile a parete. Contiene tutti i comandi di regolazione e controllo dell'ampereaggio e del Voltaggio per il recupero dell'Argento da soluzioni contenenti da 7 a 0,5 grammi di argento per litro.

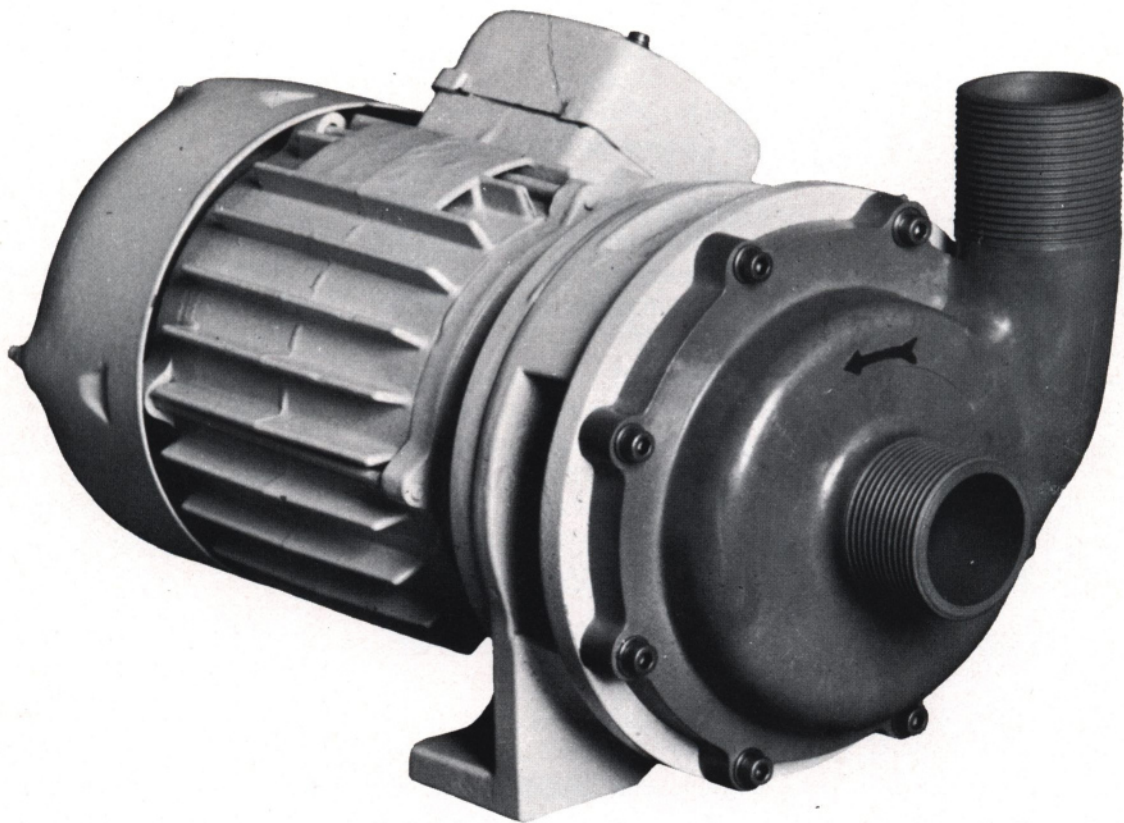
MANUTENZIONE:

Una volta determinate inizialmente le condizioni di funzionamento, l'impianto non richiede alcuna sorveglianza e manutenzione.

Modello	Capacità litri	Amperaggio	Deposito Argento gr/ora	Produzione Sviluppatrice m/h	Diametro cm.	Altezza cm.
VRAg 1/1	150	25 Amp.	80	800	60	80
VRAg 1/2	250	50 Amp.	150	1500	80	80
VRAg 1/3	550	100 Amp.	300	3000	100	120

OMAC

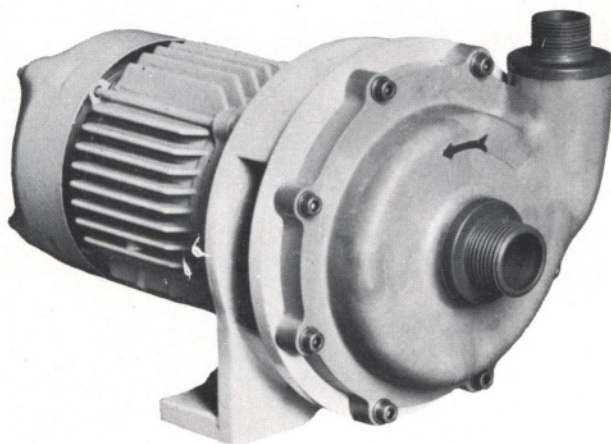
**Elettropompe
Pompes Electriques
Motor Driven Pumps**



ELETTROPOMPE
PER PRODOTTI CHIMICI
SERIE «MF»
BREVETTATE

POMPES ELECTRIQUES
POUR PRODUITS CHIMIQUES
SERIES «MF»
BREVETES

PATENT MOTOR-DRIVEN
PUMPS FOR CHEMICALS
SERIES «MF»



GENERALITA'

Le elettropompe della serie «MF» sono state studiate per risolvere in modo sicuro ed economico il problema del trasporto e della miscelazione di prodotti chimici, quali acidi o basi, deboli e forti, o comunque liquidi altamente corrosivi.

Sono particolarmente adatte per la industria chimica, enologica, alimentare, fotografica e tessile.

CARATTERISTICHE COSTRUTTIVE

- Pompe del tipo centrifugo ad asse orizzontale.
- Tenuta meccanica ad effetto speciale con assenza di gocciolamento.
- Girante aperta del tipo a palette radiali montata direttamente sull'asse motore.
- Bocca di mandata orientabile a giro d'orizzonte ogni 45°.
- Basso costo di esercizio.

Il particolare sistema di costruzione impiegato fa sì che nessuna parte metallica venga a contatto diretto del liquido, ma solo con materie plastiche aventi particolari doti di inerzia chimica ed elevata resistenza meccanica.

Il motore ed il lanternotto sono trattati con vernici antiacide.

GENERALITES

Les pompes électriques série «MF» ont été conçues de façon à résoudre sûrement et économiquement tout problème de transport et de mélange de produits chimiques tels que acides et bases, faibles ou forts, également que pour les liquides hautement corrosifs.

Elles sont particulièrement employées dans l'industrie chimique, oenologique, alimentaire, photographique et textile.

CARACTERISTIQUES DE CONSTRUCTION

- Pompes type centrifuge à axe horizontal.
- Garniture mécanique à effet spécial avec absence d'égouttement.
- Roue ouverte, type à palettes radiales montée directement sur l'axe moteur.
- Bouche de refoulement réglable à tour d'horizon chaque 45°.
- Bas coût d'exercice.

Le système de construction tout à fait spécial ne permet au liquide de venir en contact direct avec aucune partie métallique, mais seulement avec des parties en matière plastique ayant des caractéristiques d'inertie chimique et résistance mécanique élevées.

Moteur et lanterne sont traités avec vernis antiacides.

GENERALITIES

The motor-driven pumps «series MF» have been studied so as to solve economically and simply the problem of transporting and mixing chemicals such as acids and bases, strong or weak, or highly corrosive liquids.

They are particularly suitable for chemical, oenological, alimentary, photographic and textile industry.

CHARACTERISTICS

- Pumps of centrifugal type, with horizontal axis.
- Mechanical seal, with absence of dripping.
- Open type impeller, with radial blades, directly fixed on the driving axle.
- Inlet revolving every 45°.
- Low running cost.

A special system has been employed so that the liquid does not come in direct contact with the metallic parts, but only with plastic materials having special qualities of chemical inertia and high mechanical resistance.

Motor and spider have been treated with a special antiacid paint.

CARATTERISTICHE TECNICHE

Tipo MF 53

- prevalenza : da 4 a 12 mt.
- portata : da 200 a 400 l/minuto
- motore : 1 HP
- mandata : Ø 1"½ GAS
- aspirazione : Ø 1"½ GAS

Tipo MF 52

- prevalenza : da 5 a 11 mt.
- portata : da 100 a 335 l/minuto
- motore : 0,75 HP
- mandata : Ø 1"½ GAS
- aspirazione : Ø 1"½ GAS

Tipo MF 48 H

- prevalenza : da 3 a 8 mt.
- portata : da 25 a 90 l/minuto
- motore : 0,25 HP
- mandata : Ø 3/4" GAS
- aspirazione : Ø 1" GAS

Tipo MF 42

- prevalenza : da 3 a 9 mt.
- portata : da 65 a 270 l/minuto
- motore : 0,50 HP
- mandata : Ø 1" GAS
- aspirazione : Ø 1"½ GAS

Tipo MF 38

- prevalenza : da 3 a 6,5 mt.
- portata : da 70 a 180 l/minuto
- motore : 0,33 HP
- mandata : Ø 1" GAS
- aspirazione : Ø 1" GAS

Tipo MF 35

- prevalenza : da 2 a 5 mt.
- portata : da 60 a 180 l/minuto
- motore : 0,25 HP
- mandata : Ø 3/4" GAS
- aspirazione : Ø 1" GAS

CARACTERISTIQUES TECHNIQUES

Type MF 53

- hauteur d'élévation : de 4 à 12 m.
- débit : de 200 à 400 l/min.
- moteur : 1 HP
- refoulement : Ø 1"½ GAS
- aspiration : Ø 1"½ GAS

Type MF 52

- hauteur d'élévation : de 5 à 11 m.
- débit : de 100 à 335 l/min.
- moteur : 0,75 HP
- refoulement : Ø 1"½ GAS
- aspiration : Ø 1"½ GAS

Type MF 48 H

- hauteur d'élévation : de 3 à 8 m.
- débit : de 25 à 90 l/min.
- moteur : 0,25 HP
- refoulement : Ø 3/4" GAS
- aspiration : Ø 1" GAS

Type MF 42

- hauteur d'élévation : de 3 à 9 m.
- débit : de 65 à 270 l/min.
- moteur : 0,50 HP
- refoulement : Ø 1" GAS
- aspiration : Ø 1"½ GAS

Type MF 38

- hauteur d'élévation : de 3 à 6,5 m.
- débit : de 70 à 180 l/min.
- moteur : 0,33 HP
- refoulement : Ø 1" GAS
- aspiration : Ø 1" GAS

Type MF 35

- hauteur d'élévation : de 2 à 5 m.
- débit : de 60 à 180 l/min.
- moteur : 0,25 HP
- refoulement : Ø 3/4" GAS
- aspiration : Ø 1" GAS

TECHNICAL CHARACTERISTICS

Type MF 53

- head : from 4 to 12 m.
- delivery : from 200 to 400 l/min.
- motor : 1 HP
- inlet : Ø 1"½ GAS
- outlet : Ø 1"½ GAS

Type MF 52

- head : from 5 to 11 m.
- delivery : from 100 to 335 l/min.
- motor : 0,75 HP
- inlet : Ø 1"½ GAS
- outlet : Ø 1"½ GAS

Type MF 48 H

- head : from 3 to 8 m.
- delivery : from 25 to 90 l/min.
- motor : 0,25 HP
- inlet : Ø 1" GAS
- outlet : Ø 3/4" GAS

Type MF 42

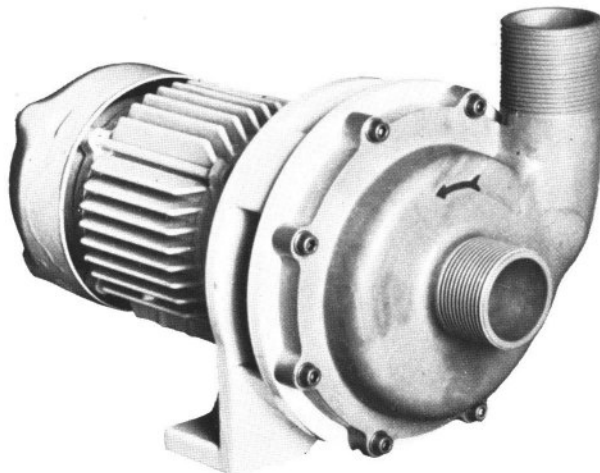
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Type MF 35

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- inlet : Ø 1" GAS
- outlet : Ø 3/4" GAS



ELETTROPOMPE SERIE « CM »

POMPES ELECTRIQUES SERIE « CM »

MOTOR DRIVEN PUMPS SERIES « CM »

Pompe centrifughe ad asse orizzontale, senza organo di tenuta, azionate da un campo magnetico rotante

Tipo CM 56

- prevalenza : 3,5 mt.
- portata : 21 l/minuto
- motore : monofase 2800 giri – 50 Hz. 220 V.
- mandata : Ø 1/2" GAS
- aspirazione : Ø 1/2" GAS

Pompes centrifuge avec axe horizontal, sans organes d'étanchéité, actionnées par un champ magnétique tournant

Type CM 56

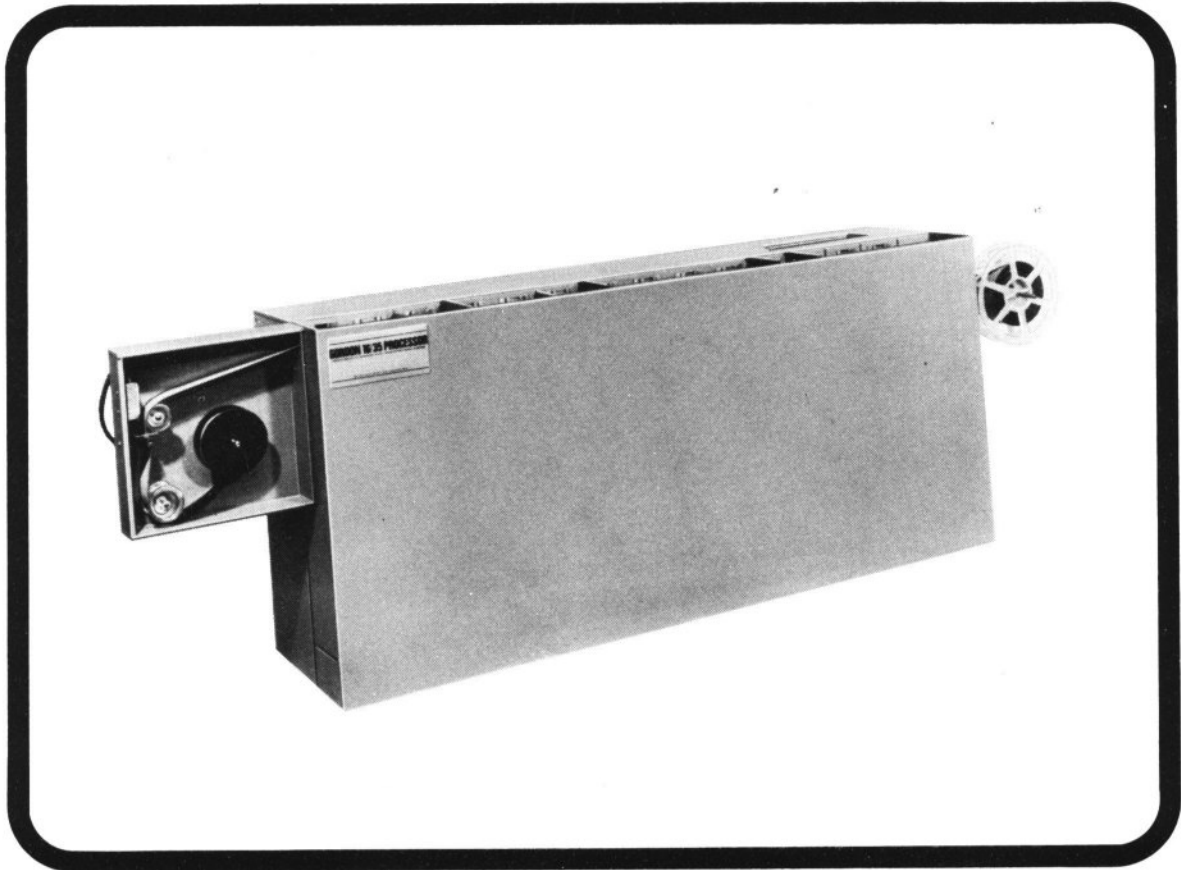
- hauteur d'élévation : 3,5 mt.
- débit : 21 l/minute
- moteur : monophasé 2800 t/minute – 50 Hz. 220 V.
- refoulement : Ø 1/2" GAS
- aspiration : Ø 1/2" GAS

Centrifugal glandless rotating magnetic field flux actuated pumps, with horizontal axis

Type CM 56

- head : 3,5 mt.
- delivery : 21 l/minute
- motor : single phase, 2800 rpm – 50 Hz 220 V.
- inlet : Ø 1/2" GAS
- outlet : Ø 1/2" GAS

Gordon 16/35 Motion Picture Processor



The Gordon 16/35 Processor is British built and combines portability with flexibility. A revolutionary solution heater/circulation system ensures even development and fixation, particularly at low processing speeds. Using this system temperatures can be controlled to $\pm 1^\circ\text{F}$ (0.5°C) provided the solution temperatures are set higher than ambient temperatures.

Operating at 21°C (70°F) to 43°C (110°F) all 16mm and 35mm film materials can be processed to full laboratory standards.

Despite its small size, any black and white negative process can be used at speeds of 1" to 10' per minute (25mm – 3 metres per minute) including Kodak RAR and 2485 recording films with Easter base.

High quality "Darvic" material is used throughout. The integral construction includes the developer, fixer and spray wash/rinse tanks. Where rapid access to results is vital, static washing can be given with the machine "on location". All solutions have light and leak-proof lids permitting processing to be carried out on board aircraft, in mobile laboratories or ships, without the risk of spillage.

TECHNICAL DATA

Dimensions:

Film – 16mm or 35mm
Length – 43" (111cms) for transporting
62" (159cms) in running mode with 400' (120M) magazine.

Electrical

Requirements:

200-240 volts 50/60 cycles @ 7.5 amps maximum

Film Transport:

Non sprocket friction drive for 16mm and 35mm perforated or non-perforated film.

Construction:

All "Darvic" ** integral construction with Developer Fixer and Spray Wash layout.
Capacity – Developer and Fixer – 80 litres water required – 3 litres per minute.

** Darvic is a rigid poly vinyl chloride sheet with excellent impact strength and weathering properties. The combined high strength, light weight and non-corrosive properties make this material ideal for use as factory and office building material, particularly where hard or rough treatment is expected, combined with good appearance.



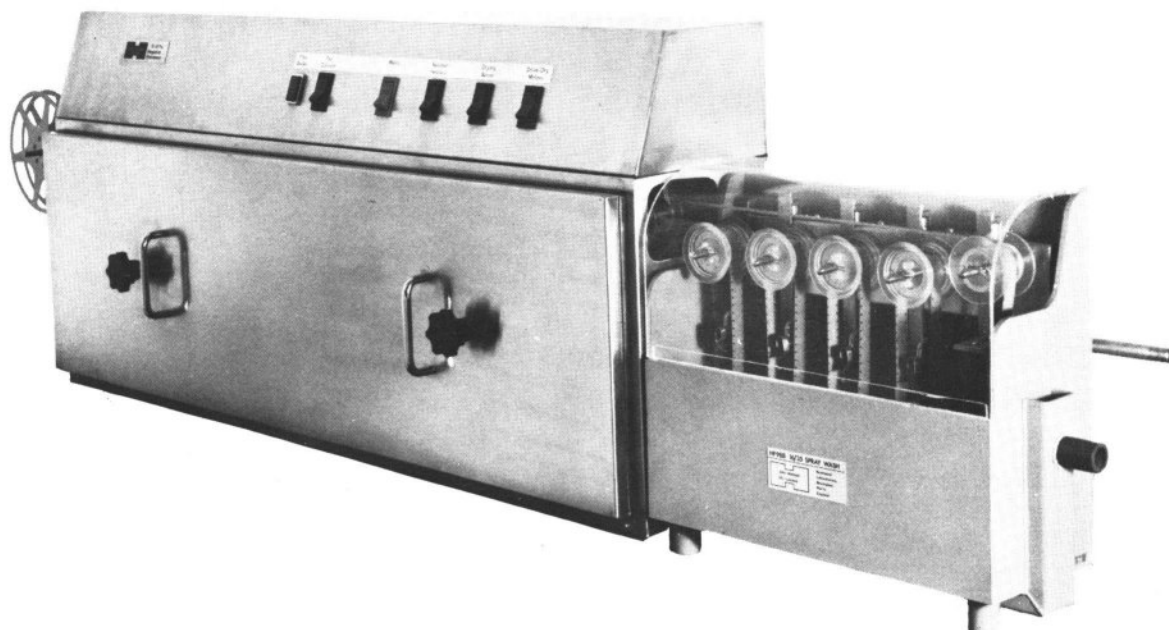
Gordon Audio Visual Ltd.

28/30 Market Place, Oxford Circus, London W1N 8PH. Tel: 01-580 9694/6839 Telex: 264413



16/35 Negative Processor Manufactured by
John Hadland (P.I.) Ltd.

DATA
SHEET



The 16/35 portable negative processor is designed for simple on the spot negative processing. A 100' roll of 16mm film may be taken from a camera and be ready for projection in 40 minutes. No plumbing is required with the standard machine, and the normal 5 amp or 13 amp socket will provide adequate power.

The machine can handle either 16 or 35mm film, perforated or unperforated, and speeds of 2ft per minute, 3½ft per minute for 16mm and 2ft per minute for 35mm.

The machine is constructed of stainless steel and all parts are specially corrosion resistant. Inside the machine there are 4 tanks, the first which normally contains developer, the second fix, the third washing water, and the fourth washing water plus a little photoflo to prevent drying marks. All tanks are heated from a heater pad built into the base of the machine, thermostatically controlled from an adjustable thermostat at the rear of the machine. The machine will take 400ft of film in one loading, and the film passess successively through each chemical tank on the surface of a large plastic wheel and finally after the fourth tank through a rubber squeegee which also acts as a light trap and then into a drying tunnel to be dried by hot air, before passing around the friction drive, and so to the final take-up spool on the outside of the machine. All processing is dry to dry and material is wound correct for immediate projection.

John Hadland (Photographic Instrumentation) Ltd., Newhouse Laboratories, Bovingdon, Herts., U.K.

Telex: 82344

Telephone: Hemel Hempstead 2303

Once the machine has been initially threaded there is no need to rethread for each film, a microswitch is provided so that the machine will stop as the tail of each film passes through the gate allowing a further film, or just blank leader to be attached with a stapler and the machine to continue processing. This may be over-ridden by a special switch should it be required to clear the machine completely before solutions are rejected. Solution life is approximately 1,000 ft of 16mm film. Recommended chemicals are May & Baker, Taknol or Exprol and May & Baker Amfix plus a drop of Kodak photoflo.

High Temperature Machine

A special variable speed high temperature machine is available particularly designed for the processing of the Kodak rapid access recording films.

The machine has a variable drive speed from ½ft per minute to 8ft per minute, and a temperature range of up to 130°F. It is essential that this machine be used in conjunction with the spray wash attachment which is available for both machines.

Spray Wash Unit

Film processed on the normal 16/35 without running wash will last approximately 5 to 7 years.

For archival permanence we have designed a spray wash unit which will simply stand against the end of any existing processor. The washer requires a normal hose connection for water supply, and must stand over a bench sink and be attached by a hose to nearby sink. The film is taken from the end of the machine where it emerges from the dark section squeegees, passed over a small roller to enter the spray wash. The machine is then looped up and down and sprayed with fishtail jets of clean running water. The film then passes into a static tank with added photoflo, through a pair of squeegees and then back along the top of the machine, through the hot air exit on the machine and back into the normal drying tunnel, to be taken up in the normal way. No alterations are required to use this unit with any existing machine.

Physical Dimensions

Length 53"
 Width 12"
 Height 21"
 Weight 55 kilos.

Spray Wash

Height 22"
 Depth 12"
 Length 20"
 Weight 4 kilos.