Easily operated / Light weight / Sturdily constructed for long, satisfactory service / Non-corrosive stainless steel tanks and reels / Rapid loading and rewinding / High quality, uniform development / Full control of processing times for all exposure indexes / Tanks and reels nest for compact storage / Minimum handling – film remains on reel during entire process / Time saving – films are processed, dried, and ready for viewing shortly after exposure

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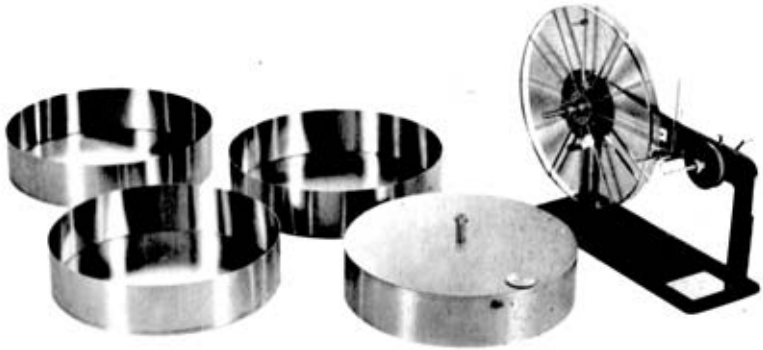


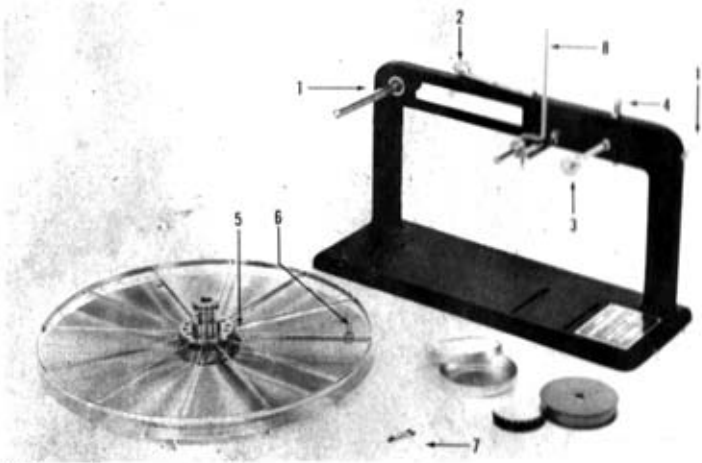
With the Honeywell Nikor machine, quick, fully controlled proccessing of film is accomplished in a few simple steps, and results are ready for viewing only a few hours after exposure.

Designed for ease of handling, compact storage, and portability, the outfit consists of a rapid loading, spiral film reel of electrically welded stainless steel, light weight loading stand, and set of nesting tanks of stainless steel.

The open construction of the reel allows free passage of solutions (to insure uniform development),– and full procedure including flashing of reversal and color films, and final drying,– **without removing the film from the reel.**

Widely used in laboratories of leading industrial concerns, universities, hospitals, television studios, U. S. Air Force, etc. for developing color or black and white film strips, microfilm, and heavy base films of automatic portrait and recording cameras,– the Honeywell Nikor Film Processing Machines serve best wherever rapid and controlled processing of high quality is required.

An adaptation of the famous Nikor stainless steel reels and tanks for roll film developing.



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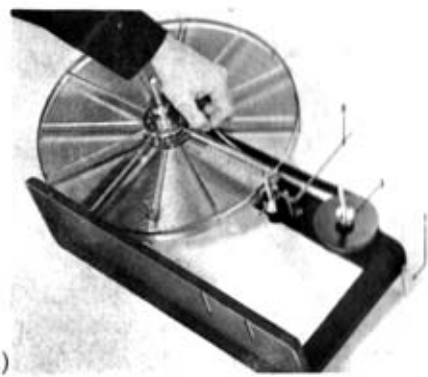
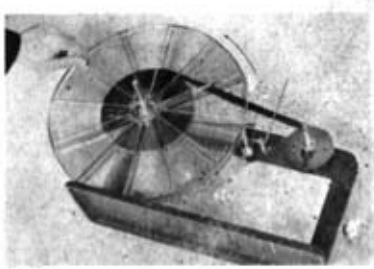


(2)



(3)

(4)

Operating Instructions

For 28, 50, 100 ft. lengths of 16mm film

1. Place the loading stand on a table with the threaded spindle to your right, as in Figure 1.
2. Swing out the two steel legs (1) at each end of the top of the loading stand, as shown in Figure 1.
3. Lean the stand backward (away from you) until the two legs (1) rest on the table top, as in Figure 2.
4. Place the 100-foot reel on the left hand (plain) spindle, with the open face of the reel toward you, and the spiral face downward. Lock the reel in position with the locking lever (2) engaged on the reel spoke marked with an "X".
5. Place the film spool to be developed on the right hand (threaded) spindle, and secure the spool tightly with the knurled nut (3) on the spindle, as in Figure 2.
6. Adjust the tension screw (4) on the film spool axle until there is a slight tension when the spool is turned.
7. Pull off a few inches of film from the spool, and twist it ONE-QUARTER TURN *TOWARD* YOU, as shown in Figure 2. With the film thus twisted, thread the film between the tines of the loading fork (8), and give film one more quarter-turn *TOWARD* you before inserting the end of the film under the hub clip at the center of the large reel. Lift the small lever (5) attached to the hub clip in order to open the clip for film insertion. Clip must be on TOP side of reel hub, so that rotation of the reel during film loading will be COUNTER-CLOCKWISE, same as for the Nikor 35mm and 70mm processing machines.
8. Turn the reel slowly and steadily, using the small handle (6) on one spoke of the reel, as in Figure 3. Be sure to keep a *light* tension on the film at all times during the loading operation. The twisted film will enter the reel at an angle, but will straighten up once it is seated in the spaces between the wires of the reel.

   NOTE: Some operators prefer to remove the tension screw entirely, and maintain tension manually with a slight finger

pressure on the film spool. When the tension screw is used, it should be slacked off a few turns after about 75% of film has been loaded onto the reel, in order to reduce friction on the film spool axle and thus maintain a constant light tension on the film. Failure to do this may result in the film jumping its groove in the reel and touching adjacent sections of film.

9. When the film is entirely wound on the reel, place the small spring clip (7) over the outer band of the reel's open side to retain the loose end of the film.
NOTE: *We strongly recommend that the reel be loaded in full daylight with an old exposed film several times,* to be sure the operator is familiar with the loading procedure. Be careful not to touch the film when on the reel in such a way that it is pushed toward the center of the reel; however, your fingers may be run radially on the open edges of the film spirals *outward from the center,* to be sure the film is properly seated on the reel before developing.

10. The loaded reel may now be removed from the loading stand and placed in the developing tank, the tank cover put in place, and the agitator screwed into the reel.

11. After the film has been washed, it may be dried on the reel by blowing air on it with an ordinary office fan. Place a good electric fan about two feet above it, letting the air blow downward through the film. The length of time required for drying varies greatly with the temperature and humidity. Drying may be greatly speeded by soaking the film in alcohol, methyl or ethyl, for about three to five minutes. Be sure the denaturant is of a kind that does not leave a deposit on the film. During drying, the film may tend to twist in the grooves of the reel, particularly if a hardener has been used. This in no way damages the film. For faster drying, with the reel replaced on the loading stand, use the *HONEYWELL NIKOR DRYING MOTOR ATTACHMENT*. (pg. 10)

12. The film may now be rewound onto the film spool. Place the loading stand normally, with reel and film spool in vertical position. Twist film *AWAY* from you ONE-QUARTER TURN before threading through the loading fork tines, and another quarter-turn *AWAY* from you before attaching it to the rewind spool. Turn the spool steadily and put a slight pressure with your index finger on the reel, as shown in Figure 4. If the reel over-spins the film spool during rewinding, the film may be kinked in the reel. Rewind at a steady moderate pace, always maintaining a light tension on the film.

Operating Instructions

For 28, 50, 100 ft. lengths of 35mm, 46mm, 70mm, 3½" and 105mm film

To Load the Reel:

Facing the stand as shown in Figure 1

1. Swing the loader (2) to the right until it rests on film spool axle (4).
2. Push the reel (3) on reel axle (1).
3. Swing the locking lever (5) to hold the arm of the reel marked "X" in its outer end.This positions the clip (6) for starting.
4. Now extinguish all bright lights and with or without a safe light, place the spool of film to be developed on the film axle (4).
5. Holding the loader (2) approximately level, slide the film through until it is firmly under the clip (6), which should be raised with clip lever (11) or with your finger on the 70mm reel.
6. Throw off the locking lever (5) and wind the film on the reel by rotating it slowly and evenly.
7. In damp weather or with thin film it will be found that the film will wind more smoothly if a little tension is applied by means of film spool brake (7) particularly toward the end of the winding. Only a little is generally needed but a few trials with an old film will quickly show whether or not tension is required.
8. Be sure to try loading the reel with an old film several times to familiarize yourself with the necessary steps.

NOTE: In the forward end of the film loader, there are two sets of holes. The lower set is for film of standard thickness (.005"), the upper set is for heavy base film (.010"). Be sure the roller is in the proper holes for the film you are using.

To Develop the Film:

1. Swing the loader (2) out of the way and pull the loaded reel off its axle.
2. Place the reel in the developing tank which has been previously filled with developer and put the cover on.
3. Bright lights may now be turned on and the agitator in the center of the cover screwed into the center of the reel (12).
4. Agitate the reel by moving it up and down in the solution. It is advisable not to rotate the reel very much as it will cause the film on the outer edge to develop slightly more than at the center.

5. If it is necessary to flash reversible or color film, rinse in clear water and place the reel back on the loading stand. The reel should be revolved slowly by hand while strong lights, preferably photo flood lamps are moved over both sides of the reel so light may shine inside the reel.
6. After the film is developed the proper length of time, turn out the light and place the reel in the rinsing tank for a few moments and then into the hypo tank. After fixing, put the reel back in the rinsing tank and run water into it vigorously until the film is washed. The film should be completely washed in 15 minutes. The use of a water spot preventer is strongly advised. Soak for five minutes in Kodak "Fotoflo", "Wondrop" or other detergent. Do not make water spot preventer stronger than the instructions advise or it may soften the film emulsion.

Drying:

1. After washing, shake the surplus water from the reel and stand it on its handle on the bench.

   Place a good electric fan about two feet above it, letting the air blow downward through the film. The length of time required for drying varies greatly with the temperature and humidity. Drying may be greatly speeded by soaking the film in alcohol, methol or ethyl, for about three to five minutes. Be sure the denaturant is of a kind that does not leave a deposit on the film.

Rewinding:

1. When the film is thoroughly dry, place the reel back on the stand, remove the loader and wind (9) the dry film back on the spool, braking the reel if necessary by placing the hand against the inside of the reel.

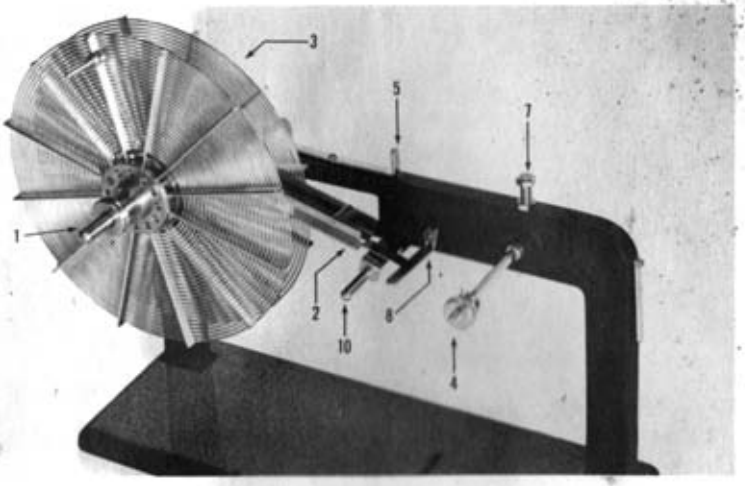
   The film is now ready to be printed or projected.

35mm 50' Reel During Loading, Showing Correct Position of Film in Loading Trough

Reel for Heavy Base Film

With the increase in the use of heavy base film in 70mm width in Portronic Cameras and others of this type, we are now making a special reel for this film. By heavy base, we mean a film thickness of approximately ten thousands of an inch. It is spooled in 60 foot lengths.

The reel for this film will take 80 feet of film to allow for leaders. The spacing of the film has been increased by 60% so that development is more uniform, loading is easier and the flashing of color film is quicker. The reel is the same size and price as the standard 100 foot 70mm type and may be used in the same tanks. Heavy base film is also used in 3½" and 105mm.


3
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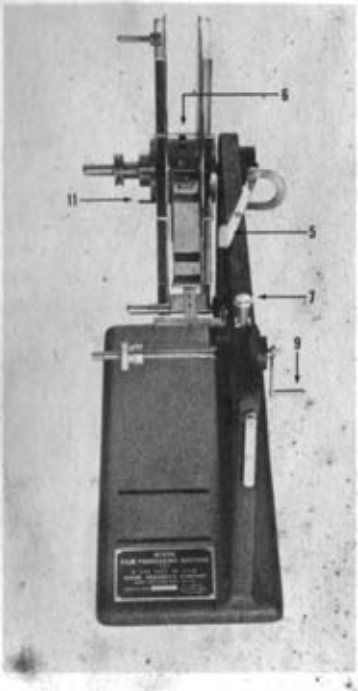
6
11
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7
9

Parts and Accessories

Extra tanks and reels may be required according to anticipated volume of production. See Production Scale Plan, page 16.

Nesting Open Tanks, inside diameters (inches): (up to70mm)

	100′	50′	28′
No. 1 – Bottom component of developing tank	16½	11 13/16	9 3/16
No. 2 – Top component of developing tank	16⅞	12	9½
No. 3 – Inner standard open tank	17	12 3/16	9⅝
No. 4 – Outer standard open tank	17⅛	12⅜	9¾

Approximate inside depth of all tanks equals width of film used (in inches) plus 3⅝ inches.

Loading chute, 35, 46, 70mm, 3½" and 105mm

If more than one size of film is to be processed, in addition to reels for each size, separate loading chutes must be used.

Loading guide fork, 16mm

Parts required to use 16mm reel on basic loading stand from 35, 46, 70mm, 3½" or 105mm:

Loading guide fork and tilting brackets

Agitator Adapter

Required when using additional Reels of smaller widths in Developing Tanks designed for larger sizes.

Three sizes, adapting:

16mm Reel to 70mm Tank
16mm Reel to 35mm Tank
35mm Reel to 70mm Tank

Drying Motor Attachment

To facilitate and promote rapid, even drying of film on the Processing Machine Reel with the aid of an electric fan

The Drying motor should be fastened to the base of the loading stand as shown in the above figure. Use the two open slots provided in the base, and place the two mounting strips underneath the base, inserting the four mounting screws into the tapped holes in the strips. Adjust the position of the motor to accommodate 16mm, 35mm, 70mm, or whatever size reel is being used, and then tighten down the four mounting screws to fasten the motor firmly in place.

On older models of the loading stand where no open slots are provided, it will be necessary to drill four clearance holes in the base to take the mounting screws. Use at least a 3/16" diameter drill.

Place the spring belt on the motor shaft pulley and the pulley groove provided on the handle of the reel, as shown in the figure. With older type reel handles not fitted with this groove, the spring belt may be placed around the smallest diameter of the handle. Some operators prefer to place shims under the base of the stand, so as to tilt the reel slightly toward the stand, thus preventing the reel from running off its spindle during rotation.

When attached and turned on, the motor will rotate the reel at approximately 120 RPM. The drying fan axis should be placed at about 45 degrees from the axis of the reel, as in the figure. A 10-inch diameter fan at 4 to 5 feet from the reel is usually satisfactory. Larger fans should be placed farther away. Bringing the fan closer to the reel will hasten the drying, but it is possible to dislodge the film from the reel if the fan is too close.

The actual drying time will vary considerably with the temperature and humidity. Under average conditions, a 35mm x 100' film will dry in 20 to 25 minutes, using a 10-inch fan placed 5 feet from the reel.

New Honeywell Nikor Equipment

Roto-Wash Tank

Special wash tank with center spindle for reel, connection for hose, and rods with multiple water outlets located so as to achieve uniform flow of clean water while rotating reel with water pressure. To use: remove hose connection, place reel with film to be washed on spindle, connect and adjust flow of water until reel turns at about fifteen revolutions per minute. The Roto-Wash Tank may be used for all reel sizes, 16mm to 105mm. Tank and fittings of stainless steel (except for brass hose connector).

Also now available – *105mm/80' and 105mm/100' Film Processing Machines.*

105mm 80' (or 100') Reel
105mm Loading Stand
105mm x 80' (or 100') Developing Tank w/Agitator
Set of two open tanks, 105mm 80' (or 100') Outfit

For use with Micromaster system, a special spindle is provided as well as a longer reel axle. Please specify when ordering if outfit is for use with Micromaster system, and also whether 80' or 100' reel is needed.

Planning Data

Minimum Space Requirement: – The basic or three tank system can be accomplished in a darkroom approximately 6 x 7 feet which contains a sink 2 x 6 feet and a table about 2 x 6 feet. The actual processing is done in the sink and area under the sink is used for storage of the solutions. The table is used as a loading area and by the addition of an electric fan can also be used as a drying area.

Maximum Efficiency Arrangement for Production Scale Processing: In addition to the darkroom area and facilities described above, about 20 feet of 2 foot wide sink area will be required. Three tanks will be used in the darkroom and ten tanks will be used in the lighted area. Separate wash compartments should be provided to avoid changing the water bath temperatures.

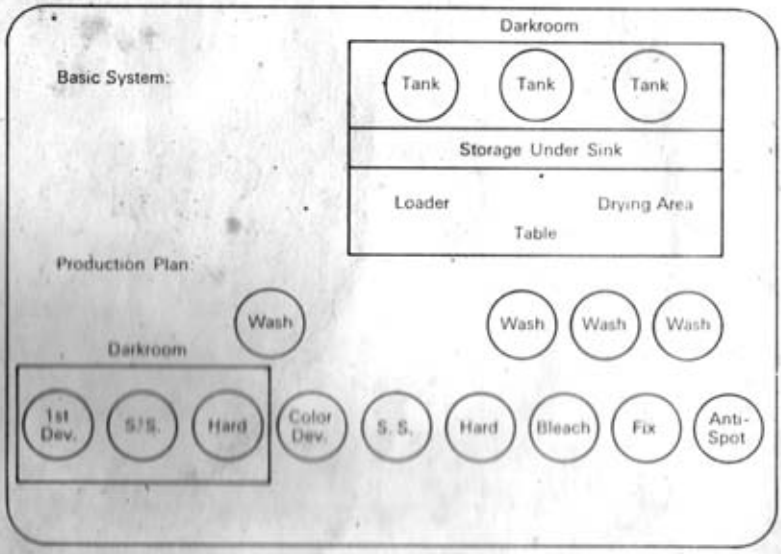
Production Scale Processing

This type of operation will require, in addition to the basic Honeywell Nikor Processing Machine, ten extra open tanks and one or more extra reels, depending on anticipated volume.

The Production Plan which consists of separate tanks for all steps of the procedure, including all the washes, has the advantage that a new reel of film can be started through the line about every 30 minutes. This means that about 13 rolls can be processed in an 8 hour day since about 90 minues is required for the complete processing procedure exclusive of drying.

Production Plan Equipment: –

Honeywell Nikor Processing Machine
10 extra open tanks
2 extra reels


Darkroom
Basic System:
Tank
Tank
Tank
Storage Under Sink
Loader
Drying Area
Table
Production Plan:
Wash
Wash
Wash
Wash
Darkroom
1st Dev.
S/S.
Hard
Color Dev.
S. S.
Hard
Bleach
Fix
Anti-Spot

Also available from Honeywell Nikor

A full line of Stainless Steel Developing Tanks and reels for roll, cut film, film pack and cine films.

Made of lifetime stainless steel to handle all amateur and professional film sizes. Good looking, easily cleaned, durable.

safety trimmers for paper, plastic and film

Safe, precise, easy to use. Honeywell Nikor Safety Trimmers feature geared rotary cutting mechanism, self-sharpening wheel* (with guards), nylon bearings, anodized board, rugged all-metal warp-proof construction. 12", 16", 20" and 24" available.

ACCESSORIES

* Pressure Plate. Spring mounted, clear lucite plate for holding material flat while cutting, to prevent smudging or marring papers and films with hands, as well as to prevent curling of thinnest papers. Width of plate 3½", thumb screw mounted.

* Accessory trimming guide bar attachment for Safety Trimmer, fastens with thumb screw, permits cutting quantities of material to fixed width desired.

* Order according to board size.

WEIGHTS AND DIMENSIONS OF PARTS

	16 MM Reel			35 MM Reel			70 MM Reel			3½"	105 MM
	28 feet	50 feet	100 feet	28 feet	50 feet	100 feet	28 feet	50 feet	*80-100	80-100	80-100
Weight (lbs.)	3½	5	7	5	7½	10	5	7½	10	8¾	8 lb.-14
Overall Diam. (in.)	9¾	11¾	16	9¾	11¾	16	9¾	11¾	16	16	16
Hub Diam. (in.)						2¾ for all sizes				2¾	2¾
Handle Diam. (in.)						1⅜ for all sizes				1⅜	1⅜
Spindle Hole Diam. (in.)						½ for all sizes				½	½
Overall Thickness at Center (in.)	3⅜	3⅜	3⅜	4	4	4	5½	5½	5½	6¾	6¾
	Tanks for 16 MM Reel			Tanks for 35 MM Reel			Tanks for 70 MM Reel			Tanks	Tanks
Single Open Tank:											
Weight (lbs.)	1⅞	2	2½	2	2¾	3½	2	3	4	4½	5
Outside Diam. (in.)	9¾	12½	16½	9¾	12½	16½	9¾	12½	16½	16½	16½
Inside Depth (in.)	4⅜	4⅜	4⅜	5	5	5	6⅜	6⅜	6⅜	7 3/16	7¾
Solution Req'd to Cover Reel (qts.)	3	3½	5	3	5¾	8½	5	8	15	19	23
Developing Tank, Complete:											
Weight (lbs.)	3	4	6	4	5½	7	4	6	8	8½	9
Outside Diam. (in.)	10	13	17	10	13	17	10	13	17	17	17
Overall Height, with Agitator (in.)	6¾	6¾	6¾	6⅜	6⅜	6⅜	8¼	8¼	8¼	9⅛	9¾
Solution Req'd to Cover Reel (qts.)	3	3½	5	3	5¾	8½	5	8	15		

Loading Stand (same for all reels):

Overall Height, without Reel	11 in.	Length of Base	19½ in.	Same
Maximum Overall Height, with 100' Reel in Place	18 in.	Width of Base	7 in.	for all
		Weight, without Reel	6½ lbs.	reels

	16 MM			35 MM			70 MM			3½"	105 MM
Complete Outfits	28 feet	50 feet	100 feet	28 feet	50 feet	100 feet	28 feet	50 feet	100 feet	80-100	80-100
Total Weights (lbs.)	15½	19	26	18¾	24	32	18¾	26	34	35	37
Approx. Shipping Weights	35	40	63	40	48	75	40	50	77	78	80
Approx. Shipping Weights, Reels Only	13	15	19	15	18	23	18	21	24	25	26

*All data for special wide-spaced 70 mm 100-foot Reel and Outfit are same as for regular 70 mm 100-foot Reel.