



© Uwe Gaasch



Made in  
**EUROPE**

# RPX 400



## **TECHNICAL DATA ROLLEI RPX 400**

### **A) Description:**

Traditional fast speed black and white film.

A good choice for a variety of photographic and scientific applications.

Suitable for working with available light situations.

For microphotography and reproduction Rollei-Film offers a wide range of special films:

ATP 1.1; Agfa Copex Rapid, ATO 2.1 and Rollei Ortho 25.

Key properties:

General indoor and outdoor photography applications.

Fine grain.

Enables good sharpness.

Broad tonal range with good contrast.

Broad exposure latitude.

Compatible with many developers.

Panchromatic sensitised.

Sensitised from 380 to 660 nm at 2.850K

### **B) Availability:**

In 135 size on a 0.120 mm acetate base.

In 120 size on a 0.102 mm acetate base.

135-24 + 135-36: 2 rolls packed in light-tight and high class twin packs. 35 mm long rolls on core.

120: 1 roll in light-tight and high class roll film container.

Sheetfilm is not available.

### **C) Storage and Handling:**

Load and unload your camera in subdued light.

The expiry dates according to a storage at 18°C / 64.4°F and standard humidity.

Storage in the fridge at 8°C / 46.4°F doubled the expiry date.

To freeze and storage the film at -18° / -0.4°F the life time can be about 10 years.

For best results, process film as soon as possible after exposure.

Please avoid storage temperatures more than 40°C / 104°F.

### **D) Lighting Conditions:**

Light Sand, Snow, Bright Sun	Lens Opening f/16	Shutter speed 1/250
Bright Sun	Lens Opening f/11	Shutter speed 1/250
Hazy Sun	Lens Opening f/8	Shutter speed 1/125
Overcast	Lens Opening f/8	Shutter speed 1/125
Heavy Overcast	Lens Opening f/5,6	Shutter speed 1/125

### **E) Filter-Factors:**

RPX can be used with all standard types of filters. (No infrared – For this applications Rollei-Film offers superpanchromatic films). Filter manufacturers do usually indicate what correction factor will be needed.

### **F) Safelight:**

Handle unprocessed film in total darkness. Using a safelight will affect your results.

An exception are special infrared filters, used for film production. (manufacturer on request)

### **G) Processing:**

Factory speed has to be determined international in combination with Kodak D-76 developer.

This is no recommendation, it is in order to make the different emulsions of the different producers comparable.

Developers like Ilford Microphen doubled the factory speed without loss of quality.

Developers like Rollei RLS or Ilford Perceptol increases the quality of tonal range significant.

This will affect the rated speed. In this case, RPX rated at 50 ISO

## H) Development Times:

Agitate continuously for the first 30 seconds, than at 30-second intervals for the rest of the development time. Standard: 20°C / 68°F. The following tables are guidelines only.

Developer	Dilution	Meter setting			
		400/18°	800/30°	1600/33°	3200/36°
Agfa/compard					
Rodinal R09 OS	1+25	8	-	-	-
Rodinal Spezial	1+15	4	-	-	-
BKA					
Diafine	Stock	-	4+4	-	-
Acu 1	1+10	-	11 ½	-	-
Acufine	Stock	5	6 ½	9 ½	-
Champion					
Promicrol	1+9	10	-	-	-
	1+14	16	17 ½	-	-
Ilfotec DD-X	1+4	10	11	14	21
Ilfosol S	1+9	8	9	-	-
Ilfosol 3	1+9	12	18	-	-
Ilfotec HC	1+15	4	5 ½	8	11 ½
	1+31	6 ½	10 ½	15	-
Ilfotec LC29	1+19	7	10	15	-
	1+29	7 ½	11	-	-
ID-11	Stock	8	11	15	-
	1+1	13 ½	17	-	-
Microphen	Stock	7	8 ½	11 ½	16 ½
	1+1	12 ½	15 ½	-	-
Perceptol	Stock	11	-	-	-
	1+1	15	-	-	-
Kodak D-76	Stock	7 ½	11	-	-
	1+1	13	17	-	-
Kodak T-Max	1+4	6 ½	8	9 ½	11 ½
HC 110	(A)	-	-	5 ½	9 ½
HC 110	(B)	5	7 ½	-	-
XTOL	Stock	8 ½	10 ½	13	17 ½
	(1:1)	12	14 ½	18	-
Microdol X	Stock	11	-	-	-
	(1:3)	25	-	-	-
Paterson FX39	1+9	11	-	-	-
Rollei RHS	1+9	6	8	-	-
	1+15	8 ½	-	-	-
Rollei RLS	1+4 (24°C)	14	Meter setting 200/24°	-	-
Spur HRX-3	1+29	9	Meter setting 250 ASA	-	-
SD2525	1+15	6 ½	Meter setting 250 ASA	-	-
SLD	1+9	6	Meter setting 240 ASA	-	-
Tetenal					
Emofin	Stock	5 ½ + 5 ½	-	-	-
Neopress HC	1+15	-	3 ½	6	-
Neopress HC	1+31	6	-	-	-
Ultrafin Plus	1+4	7 ½	-	-	-

## Recommendations for FILM PROCESSING

### Preparations

(Some advice from a practitioner, not only for beginners) Exposed films should be processed as swiftly as possible. The stability of the latent image of standard b&w films is not as problematic an issue as that of colour films. The latent time of fast, and particularly of IR films should be kept as short as possible.

Polyester-based film can only be cut using a pair of scissors. Getting them out of the metal cartridge may prove difficult, particularly when polyester-based film is spooled into reels in a changing bag.

A red safelight is only permissible when orthochromatic film is processed. For panchromatic film, total darkness is required. Any light leads to fogging.

LABOR PARTNER exclusively offers liquid concentrates. These can be diluted in the laboratory. Where powder chemicals are to be used, these should be mixed outside the laboratory as a matter of principle.

If the darkroom is not absolutely dust-free, spraying the room with water is recommended. Water droplets act as dust scavengers. All items needed should always be stored at the same places.

### Prewashing

Some film manufacturers advise against prewashing, others recommend it.

The following is fact:

Prewashing is permissible, but not necessary, with surface developers. With depth developers, prewashing is always recommended. Prewashing removes the anti-halation backing as can be seen from the blue or green

colour of the water. This may, or may not, be an advantage. The swelling of the gelatine, however, is an advantage, as capillary action is enhanced. The action of the developing solution on the emulsion becomes more uniform.

### **Preparation of developer**

Bring tap water to the proper temperature. Fresh tap water may contain large quantities of oxygen and chlorine. This disadvantage is avoided by leaving the required quantity of water to stand for a night.

Decide on whether or not you intend to use the developer hardener LP-GELADUR.

First prepare precisely the required quantity of water.

Then measure the required quantity of developer concentrate, and add it to the water.

Mixing should not be too vigorous, as the generation of air bubbles shall be avoided at any rate. Some lab workers tap down the developing tank to dislodge any air bubbles from the film, which might otherwise register as circular white spots.

### **DEVELOPMENT (35-mm and medium format roll films)**

The film reels having been inserted and the tank safely closed, the developer working solution is poured in. Try to avoid generating air bubbles during this step, too. Start counting down the selected time on the lab timer, and regularly invert the tank for 30s.

Later, invert once every 30s for as long as the film takes.

Where the developer requires working at elevated temperature, let the tank sit in a developing tray filled with water at the right temperature. This is also recommended where room temperature significantly deviates from the processing temperature.

### **Stop bath**

As soon as the developer has been swiftly poured out of the tank, either briefly rinse the tank, or immediately pour in the stop bath.

The stop bath, either LP-CITRIN or LP-CITRODUR is filled in swiftly. Make sure that the temperatures of the baths following the developer do deviate considerably from the developer temperature. The stop bath working solution remains in the tank for approximately half a minute, or a minute. Invert regularly during this time. Stop bath is relatively inexpensive, so it should be used one-shot.

### **Fixing**

Just like the change from developer to stop bath, pour swiftly again. Here, too, invert permanently during the first 30s, then once every 30s, for as long as the film takes to fix.

Fixers are of utmost importance for the results, and for the permanence of the finished film.

Never use the same fixer working solutions for films and papers.

The only acceptable exception would be using film fixer for RC papers.

### **Washing**

The film remains in the reels. Don't take it out of them.

We are now approaching that stage of film processing which often gives disappointed lab workers faulty results. This is because the "other baths" are not given the same attention as the developer. Washing requires as much attention as developing and fixing.

Rather often, tanks are connected to hoses by which fresh tap water is injected into the tank. A very daring method! Over- and undertemperature are possible, emulsion peeling or reticulation may be the consequence.

For archival results, use the following washing procedure:

Prepare a bucket of water, as much as you may need, the day before you process a film. Often, the water will then have the right temperature when you need it, and if not, this larger quantity is much easier to get to, and hold at, the right temperature.

How much will you need?

Let us assume 260 ml of solution for one 35-mm film. The fixer working solution having been poured out of the tank, swiftly fill in 260 ml of the water prepared the evening before. The tank is then inverted regularly for one minute.

Pour out the water, refill. The tank is then inverted regularly for two minutes. 8 changes followed by 2 minutes of regular agitation each ensure optimised, i.e. archival washing.

### **Wetting agent/drying**

The film still remains in the reels. Don't take it out of them. Following the washing, a special wetting agent treatment is mandatory. As the ninth washing bath, pour the wetting agent solution, prepared with demineralised water (or Aqua Dest., or battery water from the gas station or drugstore), into the tank. Again, invert regularly, but not hectically.

When the wetting agent solution has been poured out of the tank (do not keep it, it's for one-shot use only), take the film out of the reels with utmost diligence, and attach a film hanger. The film should be hung in a dry, dust-free, and draught-free environment. Attach a weight to the bottom end for the film to dry flat. If you can dry the film in a drying cabinet, switch on the fan, but not the heating. Only then will the film dry uniformly and without drying marks. Avoid any mechanical manipulation, squeegees, leather; pulling the film through your fingers is not a good idea. Such items were probably thrown on the market by sales people who have never developed a film themselves. Flatness of the film after drying is particularly difficult to achieve with films on a polyester base. Especially for these, the lab worker should use special LP-MASTERPROOF.

### **Archival/storage of processed film**

When completely dry, films are mostly cut. Only polyester film possesses the necessary permanence to protect film for extended periods without harmful influences. Any other storage medium risks to damage the film sooner or later, particularly under humid conditions.

The acetate films which have been common for decades are in danger of disintegrating, leaving only dust. Avoid storing old and new acetate films closely together. When old films start to release ethylacetate, they tend to "infect" fresh films. Only polyester film is absolutely safe and perfectly suited for archival storage. Scratch-free film as the basis for prints

### **CHEMICAL PROTECTION**

Films are easily scratched, marked by fingerprints, or damaged by humidity.

There are several means of protecting films. Chemical protection is achieved by hardening of the emulsion by means of a hardener to be added to the developer. This may be news to quite a number of photographers/lab workers, but the method has been known under the heading "tropical developer" for a long time. An additive was mainly used for machine development, although it was not realised that it was a hardener, because it was just one part in many.

So GELADUR is not a new development by LABOR PARTNER, but learning from history.

Hardening stop baths are also common. Or hardening fixers. But what's the use of protection at later processing stages if the emulsion is already damaged in the developer?

Author: Hartmuth Schroeder  
November 2010

HANS O. MAHN GmbH & CO. KG  
MACO PHOTO PRODUCTS  
Brookstiege 4; D-22145 Stapelfeld/Hamburg  
Tel.: +49 (0) 40 237008-88  
Fax: +49 (0) 40 237008-488  
Email: [photo@mahn.net](mailto:photo@mahn.net)  
Web: [www.mahn.net](http://www.mahn.net)  
Email: [info@rolleifilm.de](mailto:info@rolleifilm.de)  
Web: [www.rolleifilm.de](http://www.rolleifilm.de)

LICENSE HOLDER AND PRODUCER OF ROLLEI FILMS, PAPER AND CHEMISTRY.