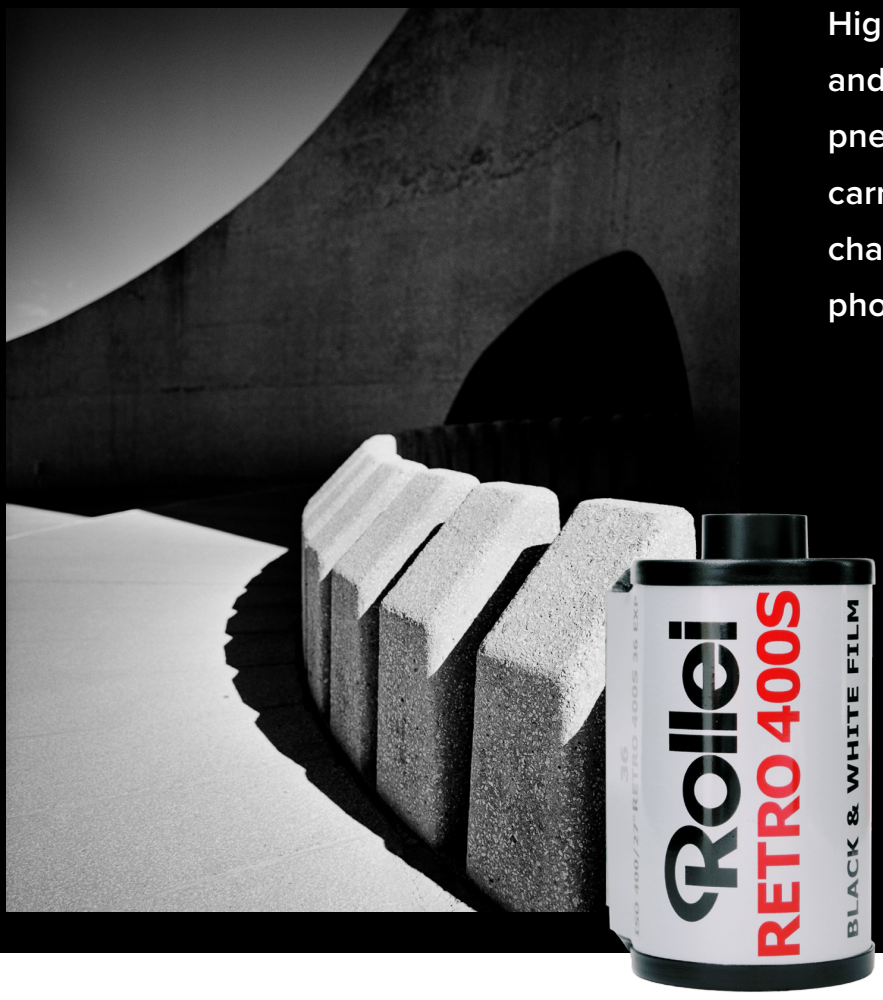
RETRO 400S

DATA SHEET



Highly sensitive, panchromatic black-and-white negative film, with high sharpness performance on a transparent carrier. It is a reliable film, even under changing light conditions (Available Light photography).

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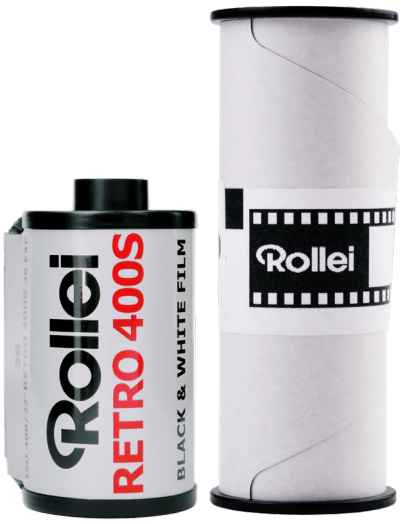
ROLLEI RETRO 400S

With a nominal sensitivity of ISO 400/27°, Rollei Retro 400S is a highly sensitive black-and-white film. Despite its high sensitivity it can be easily pushed to ISO 800/30°. It also performs well and reliably in borderline areas such as available light photography.



	− +	
Nominal Sensitivity:	●●●●○	highly sensitive
Sharpness	●●●●○	very high sharpness
Exposure Latitude	●●●○○	± 2 apertures
Resolving Power	●●●●○	very high resolving power
Suitable for BW Reversal	●●●○○	very suitable

AVAILABLE AS

35 mm
(DX coded)

120
Roll Film

Bulk Ware:
35 mm × 30,5 m
35 mm × 17 m

FACTS:

- Panchromatically sensitized
- ISO 400/27° from 380 to 730 nm spectral sensitivity
- Resolution Contrast 1000 : 1 = 160 lp/mm
- Fine grain | Granularity RMS (× 1000) = 11
- Coating thickness of 10 mμ
- Unrestricted use in daylight as well as in artificial light
- Very good tone reproduction
- Very good maximum blackness (D-Max)
- Optimal flatness & special coating to improve the transport properties in cameras
- Application as SW slide film possible due to the crystal clear PET carrier material

STORAGE AND HANDLING:

- Always protect from direct sunlight
- Minimum shelf life as indicated on package: Storage at below Ø 24°C
- develop at short notice after exposure
- avoid high storage temperatures of more than 40°C

FILTER FACTORS:

By using yellow or red filters, you can increase the tonal values in the respective wavelengths. In general, filters of all kinds, i.e. color, pole, neutral density filters, can be used as usual.
Please follow the manufacturer‘s recommendations.

- Yellow filter for contrast enhancing cloud rendering
- Orange filter for clearer long-distance vision
- Red filter for a more dramatic image mood

The loss of sensitivity is taken into account during a TTL measurement of the camera. If external light meters are used, the filter factors listed below are used to adjust the effective film speed in order to obtain a correct measurement.

LABORATORY LIGHTING:

The film can be processed in absolute darkness and should not be exposed to sunlight or darkroom lighting! We recommend to use a change bag.

LAYER STRUCTURE OF THE FILM:

- Protective coating
- Emulsion layer
- Antihalation layer (AHU)
- Carpet pad PET
- Back Layer

DEVELOPMENT:

As is well known, the development result is not only dependent on time, temperature and developer type, but also on the development method (tank, dish, processor). In order to achieve reproducible results, the following instructions must be observed:

- When processing in developing cans, the can must be moved (tipped) continuously during the first minute and then every 30 seconds. Development times of less than three minutes should be avoided!
- When processing in development drums (rotary development), the speed of rotation should be greater than 30 rpm (with changing direction of rotation). Development times of less than three minutes should be avoided.

CAN DEVELOPMENT

When developing and fixing the film in a tank with a reel, the following applies: Agitate in the first 60 seconds continuously, then for 5 sec every 30 seconds. Hint: After each tilting rhythm, there should be a short push on the table top. This releases air bubbles adhering to the film. Compared to developing trays in open containers, the advantage is that work can be carried out in ambient light. In addition, the agitation of the tank can be mechanized.

ROTATION DEVELOPMENT

In general, the processing conditions of rotary development (e.g. Jobo) are very similar to those of manual can development. The advantages of rotary development are:

- Reduced chemical consumption
- Shorter development times
- More constant working conditions (temperature)
- Higher reproducibility of the result

Due to the permanent agitation, a rough rule of thumb for rotary development applies: 10 to 15% shorter development times than in manual hand development (can).
Processing times are given by the respective manufacturer of the machine.

MACHINE DEVELOPMENT

Rollei films can be processed in all common developing machines (e.g. rotary, hanger, drag belt or roller transport machines).

DEVELOPMENT TIME TABLE:

Agitate in the first 60 seconds continuously, then for 5 sec every 30 seconds. **Process temperature: 20°C**

The development times given below are to be understood as approximate values and refer to an average contrast of γ = 0.65. Due to individual processing conditions, deviations in the times are possible.

DEVELOPER	ISO	DILUTION	TIME (min) | 20°C
Rollei Supergrain	400/27°	1 + 9	8
		1 + 12	10
		1 + 15	14
Rollei RLS	100/21°	1 + 4	18 (24°)
Rollei RPX-D	400/27°	1 + 11	11
	800/30°	1 + 7	13 (22°C)
R09/Rodinal	400/27°	1 + 25	10:30
		1 + 50	22
R09 Spezial/Studio	400/27°	1 + 15	8:30
ILFORD ID-11	400/27°	Stock	12
		1 + 1	16
ILFORD MICROPHEN	400/27°	1 + 1	16
ILFORD ILFOTEC DD-X	400/27°	1 + 4	10
	800/30°		13
ILFORD ILFOSOL 3	400/27°	1 + 9	12
	800/30°		16
	400/27°	1 + 14	18
	800/30°		24
ILFORD ILFOTEC LC29	400/27°	1 + 9	4:30
	800/30°		8
	400/27°	1 + 19	6:30
	800/30°		12:30
Kodak D-76	400/27°	Stock	12
		1 + 1	16
Kodak X-TOL	400/27°	1 + 1	17
Kodak HC-110	400/27°	B (1 + 31)	10
Kodak T-MAX	400/27°	1 + 4	7
	400/27°	1 + 9	10
	1600/33°		18
Paterson FX-39	400/27°	1 + 9	11
Tetenal Ultrafin Plus	400/27°	1 + 4	8
Tetenal Neofin Blau	400/27°	Stock	20
		1 + 10	13
Moersch Finol	320/26°	1 + 1 + 100	15

PRE-WATERING

- Pre-watering is recommended for short development times, still developments, and films with a pronounced anti-halo layer (antihalation layer). To do this, soak the film for approx. 1 min in a water bath at process temperature before development.

DEVELOP

- Development times can be taken from the adjacent table
- Agitate constantly within the first 60 seconds, then for 5 sec every 30 seconds
- Recommended developer: Rollei SUPERGRAIN
- Temperature: Processing temperature

STOP

- Duration of the stop bath: about 60 seconds
- Recommended stop bath: Rollei RCS Citrin Stop
- Dilution: 1 + 19
- Temperature: Processing temperature

FIX

- Duration of fixation: between 3 to 8 minutes
- Recommended fixing bath: Rollei RXA Fix Acid
- Dilution: 1 + 7
- Temperature: Processing temperature

WASH

- To remove all chemical residues:
  · Rinse approximately 8 – 10 times with clear water.
  · Time interval: 6 to 10 minutes
- Temperature: Processing temperature

FINAL RINSE

- To shorten drying time and support uniform drying; acts as a fungicide and antistatic;
- Demineralized water with wetting agent
- Recommended wetting agent: Rollei Wetting Agent c
- Dilution: 1 + 100
- Temperature: Processing temperature

DRYING

- Hang in a dry and dust-free room, with sufficient distance from the floor.
- Carefully remove the water drops that are on the lower corners of the carrier with a tissue/absorbent paper.
- We recommend never to strip the film if a wetting agent is used

PUSH & PULL

Pushing is the deliberate underexposure of the film, subsequently accompanied by overdevelopment. The film loses shadow detail, but can effectively be exposed 1 – 2 stops lower. Highlights and midtones thus stand out with less contrast. Rough push time formula:

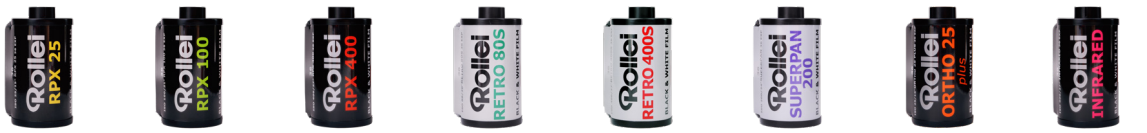
- + 1 f-stop: Base time × 1.33
- + 2 f-stops: Base time × 1.33^2

Pulling is the opposite and means the deliberate overexposure of the film, subsequently accompanied by underdevelopment. The shadow drawing is raised - extreme highlights and an „overexposure“ can disturb the photo. Rough pull-time formula:

- - 1 f-stop: Base time : 1.33
- - 2 f-stops: Base time : 1.33^2

ALL ROLLEI FILMS AT A GLANCE

	RPX 25	RPX 100	RPX 400	RETRO 80S	RETRO 400S	SUPERPAN 200	ORTHO 25 *plus*	INFRARED
ISO	25	100	400	80	400	200	25	400
Carrier	Polyester	Triacetate	Triacetate	Polyester transparent	Polyester transparent	clear Triacetate	Acetate	Polyester transparent
Sensitivity	panchromatic	panchromatic	panchromatic	super-panchromatic	panchromatic panchromatic	panchromatisch	orthochro-matic	panchromatic extended IR sensitivity
35 mm	✓	✓	✓	✓	✓	✓	✓	✓
120 Roll Film	✓	✓	✓	✓	✓	✓	✓	✓
Sheet Film	4 × 5 inch | 25 sh.	–	–	–	–	–	4 × 5 inch | 25 sh. 5 × 7 inch | 25 sh. 8 × 10 inch | 25 sh.	4 × 5 inch | 25 sh.
35 mm × 30,5 m	✓	✓	✓	✓	✓	✓	✓	✓
35 mm × 17 m	✓	✓	✓	✓	✓	✓	–	–



	RPX 25	RPX 100	RPX 400	RETRO 80S	RETRO 400S	SUPERPAN 200	ORTHO 25 *plus*	INFRARED
Nominal Sensitivity	●○○○○	●●○○○	●●●●○	●◐○○○	●●●●○	●●●○○	●○○○○	●●●●○
Sharpness	●●●●●	●●●●○	●●●●○	●●●●◐	●●●●○	●●●●○	●●●●●	●●●●○
Belichtungsspielraum	●●○○○	●●●○○	●●●●○	●●●○○	●●●○○	●●●●○	●●○○○	●●●○○
Exposure Latitude	●●●●●	●●●○○	●●●○○	●●●●○	●●●●○	●●●●○	●●●●○	●●●●○
Suitable for BW Reversal	●●●○○	●○○○○	●○○○○	●●●●◐	●●●○○	●●●●●	●●●●●	●●●●○

GENERELLE NOTIZEN:

CHEMIE | VERDÜNNUNG | ZEIT | INTERVALL: