

# KORU

## Providing the graphic industry with top quality film and plates

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### KORU, an introduction

New technologies and new focus, lead for established companies to phase-out older product lines. Konica Minolta announced to step out of the graphic film business in 2009. Example followed, surprisingly enough, by Kodak. This consolidation of the film market, leaving from 2010 on only two worldwide manufacturers for graphic arts film, creates even more opportunities for the new label Koru.

By changing the picture of the graphic film manufacturers so dramatically, this also leads to new opportunities. KORU has the intention to take that opportunity and to become an important player in supplying the graphic market with consumables.

KORU is not a manufacturer of these consumables. The products will be manufactured to KORU specifications and tolerances under a contract manufacturing agreement. The product portfolio has been standardized to fit the needs of the graphic customers. KORU has one target: supply top quality products to his customers.

Koru was launched successfully in Q2 2009. The focus was clearly to look for opportunities into the graphic film business. But there are more challenges and opportunities for this label. Dealers supplying graphic customers with film, have the possibility to combine their offer with analogue plates. This bundling creates a need to extend the Koru assortment with a positive and a negative analogue plate.

And there is more. Koru has a focus on interesting market niches. Where the big three in plate supplies are focusing on "computer-to-plate" business, there is definitely an interesting market niche in the "computer-to-conventional-plate" technology. This is a perfect opportunity for Koru to introduce a dedicated assortment for the application "computer-to-UV-plate".

This document gives you an overview of the KORU assortment. It covers the complete assortment, briefly explains the technologies and the positioning of the products. Detailed information, product comparisons, set-up procedures and conversion sheets can be obtained on [www.koru-graphics.com](http://www.koru-graphics.com).

# Film technology

## Imagesetting – Rapid Access

Customer needs can be enclosed into four core concepts:

- Easier
- Faster
- Less expensive
- High reproducibility and consistency

For years Rapid Access technology has proven to cover these needs.

Customers want **“ease of handling”**. Rapid access chemistry is easy to handle. Basic chemistries, developer and fixer, are the same as the replenishers to be used. To be used also in the same dilution ratio. Shelf live of the diluted chemistry is more than long enough to empty the replenishment tanks, even with low replenishment rates, and to guarantee a stable day-to-day production.

Customers want **“faster production”**. Rapid access technology gives you the fastest possible processing system. The new emulsions develop so fast that a developing time down to 20 sec is possible.

Customers want **“less expensive production”**. Fast processing is one element. Low replenishment rate is another corner stone and high batch-to-batch consistency is a third pillar. Rapid access technology for film and chemistry fulfils this need.

It guarantees the lowest possible replenishment rates, reducing cost of fresh chemistry as well as costs in handling waste chemistry. The superb **“batch-to-batch consistency”** guarantees stable produced quality. No need to test different batches, neither to do remakes because of quality issues.

Rapid access technology is there to produce stable good quality, always.

Product	Light source	Main imagesetters
Imagesetting KRD/ KRD7	Red Laser Diode	Dolev Series, Katana, Mako, Herkules, Accuset, Avantara
Imagesetting KIR	Infrared diode	DT-R 3100, MT-R Series, VR30/36/45, 9800
Imagesetting KLE	Light Emitting diode	Tanto Series, DT-R 3075
Imagesetting KLT	Light Emitting diode	Only Tanto 6120

## Imagesetting – Hard dot

Although the Rapid Access technology has been widely accepted by the graphic pre-press customers, certain market segments have other requirements. High quality book printers, magazine or label printers have other quality demands. They need absolute accurate dot reproduction on film, linear output, larger screen range and less dot shift in the plate copy. For these requirements KORU offers the hard dot film technology.

### Hard dot vs. Rapid access emulsion and processing technology.

After exposure, the exposed silver crystals in the film emulsion form the latent image. In processing, this latent image is transferred into a black silver image. The unexposed silver crystals are treated and removed from the emulsion in the fixer.

The fundamental difference between rapid access and hard dot technology manifest itself in the developer. In rapid access emulsions, the exposed silver crystals are developed into a black image. This is a chemical reaction between crystals and developing agents in the developer. This chemical reaction is subject of the basic rules of all chemical reactions.

Exhaustion and oxidation of the chemistry have an effect on the activity of the reactions. To maintain the stability of the reactions, you must have adequate replenishment with fresh developer.

The technology of the newest generation of hard dot films is based on chemical compounds (developer stimulators) that are embedded in the emulsion. These chemical compounds in the emulsion react with the active agents in the developer. Developer and fixer to be used are the standard rapid access developers.

This additional reaction between emulsion and developer is the basis of the hard dot effect.

It also requires additional efforts from the developer. In the first place, this chain reaction takes at least 30 sec to be finalized. Secondly, the reaction is more demanding for the activity level of the developer: Higher exhaustion, more parameters to be maintained. Optimized conditions to stable this hard dot chain reactions demand a higher level of replenishment, as well against exhaustion as against oxidation of the developer.

Oxidation of the developer has a real impact on the pH value of that liquid, and that's why hard dot films react more severe than rapid access films do. Hard dot films can be developed as stable as rapid access and run for weeks and months in the processor without problems. But the replenishment rates against exhaustion and against oxidation have to be set properly.

Product	Light source	Main imagesetters
Hard dot XRD	Red Laser Diode	Dolev Series, Katana, Herkules, Accuset, Avantra

## Flexo – Matt films

The flexographic printing industry is an important market, also for graphic film. Although this technology demands an additional feature to the film: an extra matt surface. This matt surface is needed in the first place to ensure short drawdown times and good film-plate contact. In the second place matt particles on the film surface provide a pathway that allows fume-emission to bleed away. During the long exposure of a flexo plate, the UV light releases nitrogen gas and other vapours from the photopolymer plate. These fumes need to be evacuated otherwise they would cause air bubbles and bad film – plate contact. This effect will lead towards too high dot gain and lower plate relief sections in these areas.

The main exposure of a flexo plate is carried out through a film negative in contact with the plate. The main exposure is long, 20 to 30 minutes is possible practice, and has obviously an enormous impact on the quality of the flexo dot. The quality of the contact frame and the type of light source used also have a real impact on the flexo dot. In this main exposure, also the quality of the film, density and sharpness of the dots, determine largely the shape and the quality of the flexo dot and the flexo plate uniformity. In order to avoid undercutting during the main exposure you need a film with high density and sharp images. Best choice is a hard dot film. Extreme sharp image on film guarantees the best shape of the flexo dot.

For this reason, KORU offers the flexographic printing industry the XRM and the XR7M, two hard dot films with best quality possible.

The hard dot films are especially used for high quality packaging and label printing. But there are of course also other less "image quality" demanding applications for flexo printing. Applications with lower screen rulings and screen range. The Koru GRDM completes the assortment on matt film for these applications.

Product	Light source	Main imagesetters
Hard dot XRM/ XR7M	Red Laser Diode	Dolev Series, Katana, Herkules, Avantra
Rapid Access GRDM	Red Laser Diode	Dolev Series, Katana, Herkules, Avantra

## Contact and Camera films

It is clearly not the focus, but a film assortment for the graphic pre-press industry is not complete without a contact and a camera film. KORU has three products in the assortment to cover the customer needs. Films in the rapid access technology, both negative working, The contact film CON is a film that can be handled in real daylight, no darkroom needed for the exposure and processing working room. The camera films have to be handled in darkroom under red safelight working conditions.

Product	Light source	Application
CON	UV	Rapid access daylight contact film
CAM	Xenon / Halogen	Rapid access camera for line work
CAM HD	Xenon / Halogen	Hard dot camera film for line work and projection

## Film Chemistry

KORU has only one developer and one fixer in the assortment. Both products handle rapid access and hard dot emulsions. Each emulsion technology of course to be processed corresponding to the specific processing parameters such as, processing time and replenishment rates. Optimal processing temperature and dilution remains the same, irrespective the emulsion technology.

The KORU Film Developer has a slightly yellow colour. By ageing, this colour can even change to amber. This has however no influence at all on the photographic characteristics of the developer. The yellow colour is coming from an anti-sludge additive maintaining its working strength even when the developer is aged and the colour becomes amber. Before using the Koru products it is recommended to clean the developer rack of the processor. This is needed to avoid any contamination with the developer previously used. The best way to clean a rack is to use the Koru cleaner. This will allow you to do a thorough chemical cleaning of the rack.

Product	Dilution	Optimum working temperature
Koru Film Dev	1 + 2	35°C / 95°F
Koru Film Fix	1 + 4	35°C / 95°F

## Koru: film introductions and cleaning instructions

The Koru films are compatible with most common used developers and fixers. It is however recommended to use the dedicated Koru chemicals. The procedure for converting a film customer to use the Koru chemicals is extremely easy.

- For the fixer: empty the replenisher tank thoroughly before starting to mix the Koru fixer. The fixer rack in the processor needs to be cleaned and rinsed with warm water.
- Emptying thoroughly the replenisher tank is also essential for the developer. Cleaning the developer rack is more critical. In order to avoid any contamination and to guarantee stable developing results, it is recommended to use the "Koru Chemical Cleaner" before starting to use the Koru developer.

## Film comparison charts

### Film Product comparison chart

KORU	Agfa	Fuji	Kodak	Konica
<b>Imagesetting</b>				
KRD / KRD7	HN / HNS Newsfilm	RAL	GRD	VR-100E
KLE	LD	HRL	GLE	RSE-100E
KLT	LD	HRL	RLE	SE-100E
KIR	IR	HRD	GIR	IR-100E
			RIR	SI-100E
XRD	HND	HRR	PRD	SH-100E
		Benefi		
GRDM	HNm		GRDM	VRM4
XRM	I-FRM	HRR-M	PRDM	SHM-100E
XR7M	HN7m	HRR-7M	GR7M	VRM7
	I-FR7M		PR7M	SHM-175E
<b>Contact / Camara</b>				
CON	DL	FKH	CA4	CLC-100E
		FKN		
CAM	CE	HCL	EL	OR-3
CAM HD	I-CQ		CGP	HRC

### Film Finishing comparison chart

KORU	Agfa	Fuji	Kodak	Konica
508 EI C	600D	NiM	SP 867	SP 865 S
508 EI S	600BD	Ni5 W2	SP 829 R	SP 801
508 EO S	610BD	NO 5W2	SP 829	SP 800
720 EI S	600CD	Ei W3	SP 390 R	SP 701
720 EO S	610CD	EO W3	SP 390	SP 700
720 EI H	600CDH	Ei WLDS	SP 989 R	SP 501
720 EO H	610CDH	EO WLDS	SP 989	SP 500

508: inner core diameter  
720: inner core diameter

EI: emulsion in  
EO: emulsion out

C: Cassette  
S: soft flange  
H: hard flange

## Plate technology

The Koru plates are produced according to the newest plate technology:

- Electrochemical graining and anodizing to create an aluminum plate with superb press characteristics: good and stable ink-water balance and long run-length.
- Post anodic treatment to guarantee a good adhesion of the emulsion and to ensure the good run-length
- The composition of the coating that gives the plate its properties of wavelength sensitivity, photographic speed, resolution and processing characteristics.
- For the analogue plates, a matt layer is coated on top of the emulsion, in order to avoid Newton rings during exposure.

The production lines for the Koru plates are highly monitored, permanently supervised by a very demanding Quality Control Department. The whole operations guarantees narrow quality deviations, a very stable batch-to-batch consistency, so important for the customers focusing on productivity.

## Conventional Plates

The Koru Pos plate is a general purpose high speed positive plate, suitable for a wide range of applications in medium run sheet-fed and web printing.

The Koru Neg plate is a negative plate that can be used in a variety of applications, from large newspaper or commercial web to small sheet-fed printing.

For both plates the substrate is an electrochemically grained and anodized aluminum. This technology results in smaller pores, low dot gain and a better resolution of the plates.

Some of the other strengths of the plates are:

- excellent draw-down and anti-halation properties
- short developer dwell time
- low developer consumption
- easy processing, compatible with most common plate developers
- stable ink-water balance
- low fountain consumption
- high run length
- very good chemical resistance.

The high quality light sensitive coatings of the Koru plates add also particular characteristics to the plate performance:

- Large exposure and processing latitude resulting in repeatable and consistent image quality
- After exposure and processing the plate has an excellent visible contrast, which makes its easy to inspect the plate before printing.
- Plate corrections, as well deletion as addition, are easy to do with common deletion fluids or addition pens.

Koru plates can be supplied in standard sleeves and in bulk packaging. Maximum sizes are:

- for Koru Pos: 1.640 x 2.100 mm
- for Koru Neg: 1.500 x 2.100 mm

Plates with perforations are not taken into the assortment.

## Computer-to-conventional-plates

The plates introduced for this specific market are “NOT standard conventional plates”. The plates are dedicated “digital plates”, specially developed for this market. The only links to conventional plates are the spectral sensitivity and the processing conditions.

Similarities between analogue plates and CTCP

- A wavelength of 380 to 405 nm is perfectly the same for the UV-diodes used in “computer-to-conventional-plate technology” as for the halogen lamps used in contact frames for “analogue plates”.
- In processing characteristics, use of developer, dwell time, temperature and replenishment rates, there is a perfect match between the two types of plates.

Computer-to-conventional plates are mainly in two characteristics different from normal conventional plates, in speed and in roughness.

Differences between analogue plates and CTCP

- Computer-to-conventional-plates have a much higher photographic sensitivity, needed to optimize the productivity of the equipment,
- Computer-to-conventional-plates can not be used in combination with film, because the matt layer on top of the emulsion, is not foreseen.

The Koru UV plates can be supplied in standard sleeves and in bulk packaging.

## Koru plate chemistry

The Koru developers can be used for the two technologies: conventional and computer-to-conventional.

All chemistries are “ready-to-use” and made available in 20 liter jerry-cans.

Koru Pos Dev: suitable for Koru Pos Plate and for Koru UV Pos.

Koru Neg Dev: suitable for Koru Neg Plate and for Koru UV Neg.

Koru Finishing Gum suitable for negative and positive plates.

Koru Baking Gum suitable for baked positive plates.

## KORU assortment overview

The KORU assortment contains a range of films and plates that covers most common graphic applications. Optimal photographic speed, stable processing, faithful tone reproduction and a superb batch-to-batch consistency are just a few of the advantages of the outstanding technology used to produce the films and plates. For the plates, high run length and high chemical resistance are given press characteristics.

Graphic Film			
Recording	Rapid access	<b>KRD/KRD7</b>	Red laser diode
		<b>GRDM</b>	Red laser diode
		<b>KIR</b>	Infrared laser diode
		<b>KLE/KLT</b>	Red light emitting diode
	Hard dot	<b>XRD</b>	Red laser diode
		<b>XRM</b>	Red laser diode
		<b>XR7M</b>	Red laser diode
Camera	Rapid access	<b>CAM</b>	Negative working
	Hard dot	<b>CAM HD</b>	Negative working
Contact	Rapid access	<b>CON</b>	Negative working
Chemistry	Developer	<b>K. Film Dev</b>	Fits rapid access and hard dot
	Fixer	<b>K. Film Fix</b>	
	Cleaner	<b>K. Chem Clean</b>	Bath cleaner

Analogue Plates		
Plates	Koru Pos Plate	Available in gauges 0,15 and 0,30 mm
	Koru Neg Plate	Available in gauges 0,20 - 0,30 and 0,40 mm

Computer-to-Conventional Plates		
Plates	Koru UV Pos Plate	Available in gauges 0,15 – 0,30 and 0,40 mm
	Koru UV Neg Plate	Available in gauges 0,15 – 0,20 – 0,30 and 0,40 mm

Plate Chemistry		
Developer	Koru Pos Dev	Suitable for analogue and UV positive plates
	Koru Neg Dev	Suitable for analogue and UV negative plates
Gums	Finishing Gum	Suitable for positive and negative plates
	Baking Gum	Suitable for positive baked plates