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CARTRIDGES

The Innovative Industry Solution

Ink Cartridges by Ritter

Acting economically and environment-friendly with ink cartridges by Ritter

Meet the challenges – with a flexible system

Significant advantages of the cartridge systems by Ritter

- Considerably reduced set-up time.
- Dramatically less ink residues requiring disposal.
- No ink loss in case of intermediate storage.
- No ink loss when re-using opened ink cartridges.
- Noticeably reduced workload of press operators.
- Lower investment costs result in relatively fast ROI.

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The open and innovative solution for the branch

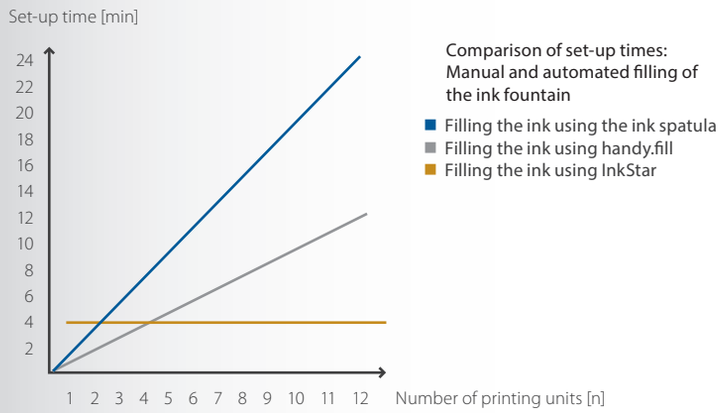
Feeding printing ink by ink cartridges is an established part of diversely designed machines and ink cartridges by Ritter are the ideal and reliable solution.
In some cases it may still be appropriate to fill the ink into the ink fountain using a spatula, however, personnel and material costs continue to rise, just as new environment regulations and demands on the print quality. Also, the competitive pressure contributes significantly to the automation of feeding and filling the ink. For this reason, the Ritter ink cartridge was specifically designed as an innovative solution for this branch. It is an open system for all that would like to participate and allowing all parties to ultimately benefit from its advantages.

Read on to get an idea of the versatile system solutions we offer. We are looking forward talking to you.

Andreas Ruf, VP Sales

System advantages with Ritter Ink Cartridges

You can lower set-up times, optimize ink usage, work efficiently, dispense precisely, ensure quality, act environment-friendly and simply convert to the entire system. Based on reliable figures and confirmed by users, the cartridge offers economic advantages.



Set-up times The set-up time by filling the ink fountain of a 6-color printing machine of the Design Class 3B usually takes approximately 12 minutes. The set-up time can be reduced to 6 minutes by using "handy.fill", and even to 4 minutes by using "InkStar".

Potential ink savings By comparing several 3B printing presses ink saving potentials with the R1 Ritter ink cartridge are demonstrated by its brillant dispensing behavior. The basis for this calculation is the ink residue left in the cartridge as specified in the table below.

Potentials for saving ink by completely emptying the cartridge

No. of printing units	Annual ink consumption with 2-shift operation (gross)	Total loss of residual ink		Annual ink saving with the Ritter R1 cartridge
		2.5 kg ink can	Ritter R1 ink cartridge	
4	8 000 kg	approx. 320 kg	approx. 40 kg	approx. 280 kg
6	12 000 kg	approx. 480 kg	approx. 60 kg	approx. 420 kg
8	16 000 kg	approx. 640 kg	approx. 80 kg	approx. 560 kg

Comparison of ink loss: 2.5-kg-ink can – Ritter ink cartridge.	Container Type	
	2,5 kg ink can	Ritter ink cartridge R1
Residual ink quantity left after use	approx. 100 g (approx. 4 %)	approx. 10 g (approx. 0,5 %)
Ink loss after intermediate storage of opened container	approx. 100 g (approx. 4 %)	0 g (0 %)
Ink loss as a result of changing the ink in the inking system	approx. 500 g (approx. 20 %)	approx. 500 g (approx. 25 %)

R1 & R2 Ink Cartridge

The Ritter ink cartridges R1 and R2 consist of three parts:

- Cartridge body with integrated valve
- Sealing cap
- Plunger for pressing out the ink

The cylindrical cartridge body is filled with printing ink. The integrated valve is a special feature: it opens when pressure is applied to the ink, and automatically closes again when the pressure eases off.
The ink cartridge is equipped with a sealing cap that is very easy to remove by hand. The cap makes sure that the valve stays closed while the cartridge is being filled with ink, and also provides security during transport. The cap can also be used to tightly reseal a partially emptied ink cartridge after use. Both full and partially emptied ink cartridges have a very long shelf life. Even after being stored for a long time, they can be opened and used without any loss of ink.
The plunger has special air channels that ensure reliable venting of the cartridge while pressing the ink out. Ink penetrates the air channels, where it hardens to seal them off airtight. The special geometry of the plunger ensures perfect wiping off so that the cartridge can be emptied virtually 100 %.
The cartridge can be filled with any offset ink or varnish. For use of UV inks, there are special cartridge versions.
Numerous ink-feed systems based on these proven, established Ritter ink cartridges are now available on the market.

8lbs (3,6-Liter) R2-ink cartridges
offer the following features:

- Automatic, tried and tested outlet valve May be used for pressure 0.5 – 2.5 bar (7 – 35 psi)
- Transparent material
- Visible color and fill level
- Plunger scraper rings for maximum efficiency
- Long shelf life
- Easy recycling (shredder)
- Available with stand cap and in black (for UV colors and varnish)

R2 with stand cap

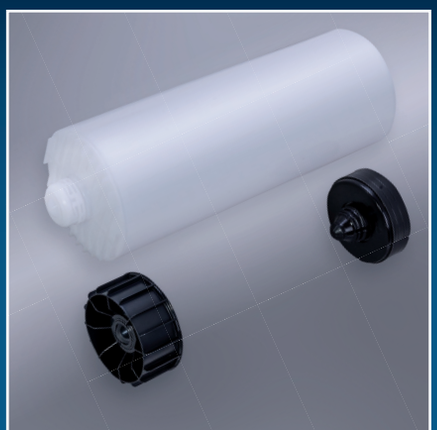
The market offers numerous ink feeding, filling and recycling systems which are all based on the reliable and established Ritter ink cartridges. You will find more information on pages 9 to 11.

Information on how to use and insert the plunger can be downloaded at www.ritter-online.de

R1 with bayonet cap

R2 with stand cap

R2-ink cartridge with plunger and stand cap



Cartridges & Variations

An overview of the current RS, Karat, R1 and R2 cartridge versions.

Alternative versions are available on request.

R1 with bayonet cap. 10128 - 0000

R2 with bayonet cap. 10160 - 0000

R1 with stand cap. 10139 - 0000

R2 with stand cap. 10160 - 0010

RS with cross-lid. 10118 - 0000

R1 black with bayonet cap. 10129 - 0000

R2 black with bayonet cap. 10161 - 0000

Karat cartridge with round hole. 10114 - 0000

R1 black with stand cap. 10140 - 0000

R2 black with stand cap. 10161 - 0010

Special version:
R2 black with sealing ring for use in ink blending equipment SPEC RPT 3000,
Art.-No. 10162 - 0000

Technical Data

Cartridge outlets
Cross-lid opening: RS-cartridge
Round-hole opening: Karat cartridge.
Calotte valve with integrated automatic closing mechanism: R1 cartridge, R2-cartridge.

Processed plastics
The cartridge is made of polypropylene (PP). The valve lid of the R1-and R2 cartridge is made of polyoxymethylene (POM) to make sure that it is leakage proof

Color versions
The filling level of the ink cartridge is visible at a glance because of the inherently stable and moisture resistant transparent polypropylene. As shown in the illustrations the cartridge is also available in black.

UV ink versions
Cartridges for UV inks are also available in UV suitable versions. Please note that the respective ink filling systems also have to be UV-resistant. Information must be obtained from the respective supplier

	RS, Karat, R1	R2
Maximum capacity:	2 l (approx. 4.4 lbs)	3.6 l (approx. 8.0 lbs)
Dimensions (outside diameter x height):	99 mm x 366 mm (approx. 3.9 in x 14.4 in)	131 mm x 380 mm (approx. 5.2 in x 15 in)
Height with assembled bajonet cap:	368 mm (14.5 in)	382 mm (15 in)
Height with assembled stand cap:	373 mm (14.7 in)	387 mm (15.3 in)
Weight incl. plunger:	200 g (approx. 0.44 lbs)	292 g (approx. 0.65 lbs)
Residual ink after emptying:	approx. 10 – 20 g (0.02–0.05 lbs) or approx. 0.5 – 1 % of total	25 – 65 g (0.05 – 0.15 lbs) or approx. 0.5 – 2 % of total
Packaging units for empty cartridges:	48 cartridges per cardboard box 480 cartridges per pallet	35 cartridges per cardboard box 350 cartridges per pallet
Packaging size (length x width x height) and packaging volume of pallet holding empty cartridges:	1.20 m x 0.80 m x 2.15 m = 2.064 m^3 (approx. 47.3 in x 31.5 in x 84.7 in = 72.9 cu ft)	1.20 m x 1.00 m x 2.35 m = 2.82 m^3 approx. 47.3 in x 39.4 in x 92.6 in = 99.7 cu ft)
Special transport requirements:	Empty and filled cartridges must be shipped with the valve side facing down in specially prepared cartons. Recyclable trays can be used for this purpose.	Empty and filled cartridges must be shipped with the valve side facing down in specially prepared cartons.

Ink feeding systems for Ritter ink cartridges

When using Ritter ink cartridges different ink feeding systems are available, which cover the application from ordinary cartridge guns to fully automated ink feeding systems. The described ink feeding systems are only a small selection to illustrate modes of function as based on Ritter cartridges.
For additional information, please call +49 8232 5003-27

Matrix showing compatibility of the different cartridge versions with commonly used ink feeding systems

ink feeding system	R1	R2	RS	Karat
InkStar	●	⊙	○	○
InkStar 8-lbs	○	●	○	○
handy.fill	●	○	●	○
Pamarco Sentinel	●	●	○	○
easy.fill	●	○	⊙	○
Karat	○	○	●	●
ink catridge gun	⊙	○	●	○

● Suitable cartridge type ⊙ Cartridge type suitable within limits ○ Cartridge type not suitable

Ink Cartridge Gun Besides automatic ink feed systems exist on the market also a range of pneumatic or manually driven guns. Owing to its compact design and integrated, ball-bearing transport mechanism, this gun is mainly intended for use on small- and mid-size-format presses.

easy.fill The technotrans easy.fill is the ideal solution for simple, universal and extremly cost-effective dispensing from Ritter ink cartridges. The decisive factor for the printer ist the rapid and controlled availability of the desired level of ink discharge. Quick-release safety catches, integrated pressure regulator and operating pressure of max. 6.5 bar makes easy.fill a sound and reliable tool for ink discharge at the touch of a button that can be used on any printing machine. For uncompromising universal application easy.fill is allways fully equipped with bracket, long spirale cable, rapid-action coupling and connection socket.

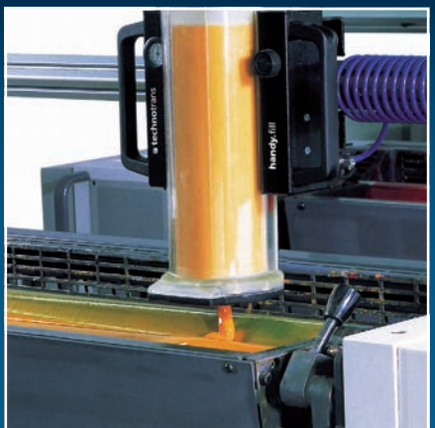
handy.fill The "little brother" of InkStar is handy.fill from technotrans, a semi-automated ink feed system that is a convenient way to get started with Ritter cartridges.

handy.fill boasts a compact, robust design and is available for all common makes and models of sheetfed offset presses.
The system is pneumatically driven, with compressed air directly acting on the plunger of the ink cartridge. The ink can either be continuously or intermittently dispensed. Like with InkStar, the cartridge holder is transparent so it is easy to see how much ink is left in the cartridge at all times.
A crossbar with an integrated carriage makes possible to reposition the handy.fill and ensures a precise, neat dispensing of ink onto the fountain roller of each printing unit. handy.fill is particularly suited for less highly automated presses.
For the first time a special version of the handy.fill under the name InkStar Compact has been used as an integral part on a printing machine: the Heidelberg Speedmaster SM 52 und XL 75 Anicolor.
The printing ink is centrally dispensed into the ink fountain and evenly distributed by the rotational movement of the anilox roll in the innovative Anicolor inking system.

Compressed air gun LO-2000/K

easy.fill – dispensing at the touch of a button

handy.fill – the compact ink feeding system



Fully Automatic

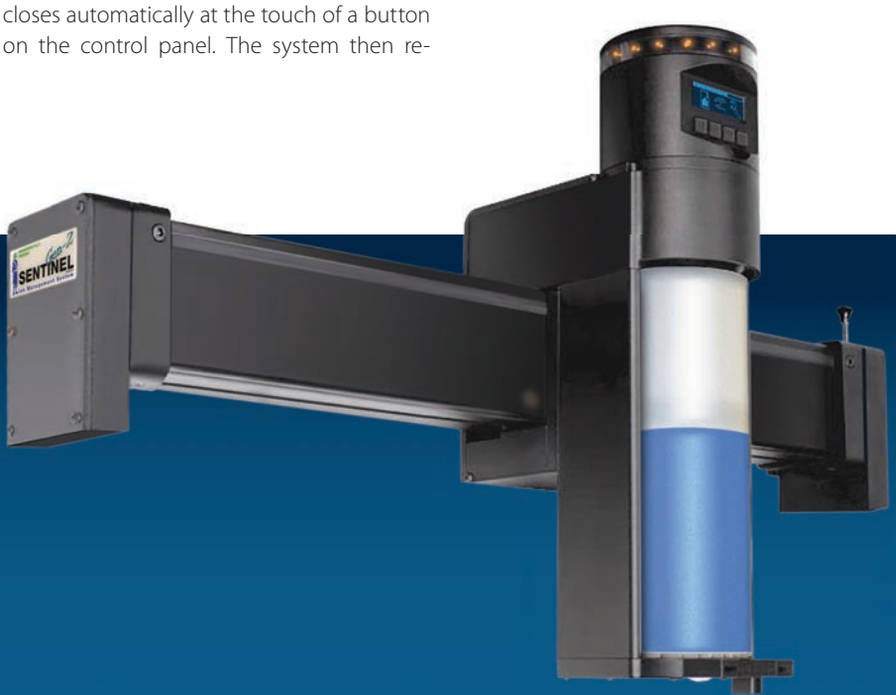
InkStar is a fully automated ink feeding system of Heidelberger Druckmaschinen AG developed in cooperation with technotrans AG.

The system comprises three components:
- A crossbar mounted above the printing unit.
- A dosing unit with a transparent cartridge holder and a microprocessor-controlled metering, measuring, and control device.
- A Ritter ink cartridge.

The cartridge holder is driven by an electric motor and travels back and forth on the crossbar. Pressurised air from the air compressor of the printing press is used to extrude the ink out of the cartridge. Ultrasound sensors are used to continuously monitor the ink levels in the ink fountain and the cartridge. When required, the ink in the fountain is automatically replenished. An individually settable, constantly maintained fill level ensures a highly stable printing process. When the ink cartridge is empty, visual and audio signals on the printer let the operator know that the cartridge needs changing. In addition, the fill level of cartridges and ink fountains is shown on the wall screen and on the touch screen display of the machine control center Prinect Press Center.
When the ink cartridge is empty the dosing unit goes to a reference position and automatically opens the container. When the simple cartridge change procedure has been completed, the top of the cartridge container closes automatically at the touch of a button on the control panel. The system then reverts to fully automated dosing operation. A mechanical ink agitator, which is supplied as standard and easy to mount on the cartridge holder in a few simple manual steps, keeps the ink flowing freely. The amount of time needed for makeready of the press is significantly reduced. Whereas it takes two minutes to fill each ink fountain by hand from a can using a spatula, filling by InkStar – independently of the number of printing units – takes about 4 minutes. All of the printing units are filled at the same time.
InkStar can be operated from the control panel of the device and from the control console of the printing machine through the electronic CANbus connection. At the same time it is possible to preset individual printing ink levels for each ink fountain.
The CANbus connection also enables operating data to be recorded. For example, the ink consumption of print jobs can be individually noted. It is also possible to use InkStar purely as an ink agitator without printing ink dosing. This mode of operation is suitable for instance when ink take-up is low or when using conventional and UV printing inks, which tend not to flow readily.
The use of InkStar improves the quality of printed items whilst relieving the operator of timeconsuming routine duties.
InkStar is available for 3b format (Speedmaster XL 105, SM 102 and CD 102) as well as midsize format (Speedmaster XL 75 and SM 74).

InkStar – the fully automated ink feeding system

The Gen 2 Sentinel ink feeding system by Pamarco is not only suitable for the 8-lbs ink cartridge R2 but also for the 2-liter ink cartridge R1.
The Gen 2 Sentinel is equipped with programmable microprocessors and a display control system. The fill level of the cartridge is monitored and shown on an LED display. Print jobs can be mapped and stored in the system. In contrast to ink-feed by means of vacuum dosing, the Gen 2 Sentinel provides real savings in terms of printing ink and deployment of personnel.



Gen 2 Sentinel ink feeding system

Filling and sealing systems

Just as for ink cans, filling systems are also needed to fill Ritter cartridges. From manual filling and plunger setting devices up to fully automated cartridge-filling and plungering machines a complete range of systems is available.
No additional vacuum equipment is required, e.g. to seal ink cans.

Dispensing small quantities of ink By using small devices manufacturers of ink as well as print shops are in the position to fill small to medium amounts of ink into empty cartridges.
A major component of these machines is the mechanism for air-free insertion of the plunger into the filled cartridge.

Semi-automatic plunger insertion unit for the R2 ink cartridge Type S8-VDMK/R2

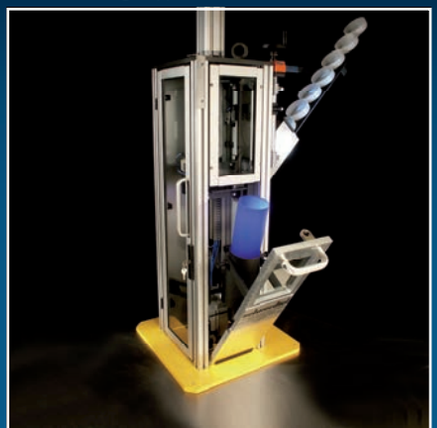
Dispensing larger quantities of ink Semi and fully-automated cartridge filling systems are available for efficient filling of larger amounts of ink.

A highly experienced supplier of such systems is Schwerdtel with its cartridge filling system series S8-VD and S8-VDH. These systems are available in following configurations:

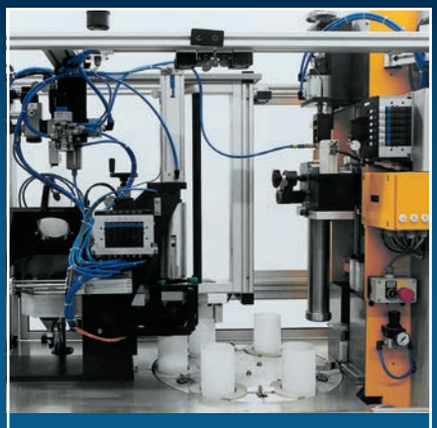
- as semi-automated version with throughput of six to eight Ritter ink cartridges per minute,
- as fully automated version with throughput of up to twenty Ritter ink cartridges per minute.

The cartridge filling units are in modular design. When production requirements increase they can be flexibly enhanced or upgraded at a later date.
Because the viscosity of the ink differs the cartridges are always filled in vertical position. Volumetric metering systems ensure that filling takes place within a tolerance of less than 0,5 % by volume. A special cut-off system after the dispensing procedure is completed prevents the ink from pulling threads which could contaminate the cartridge or filling unit. The depth the plunger of the cartridge has to pushed down can be varied depending upon the fill level.
This ensures air-free sealing of the ink cartridge.
The cartridge filling systems can be optionally equipped with supplementary units, such as an antioxidant spray station.

Semi-automatic plunger insertion unit for the R1 ink cartridge Type S8-VDM/K



Semi-automatic filling and plungering machine Type S8-VDH



Transport & Disposal

Secure Delivery of Filled Ink Cartridges
Ritter provides an optional tray for the R1 ink cartridge, which can be used for maximum protection of the valve area of the full ink cartridge.
The tray can subsequently be used for storage in the printing works. Ritter also provides clamps for this purpose to attach several trays to mats.

Cartridge shredder
The Erdwich cartridge shredder has been specially developed to reduce the volume of waste cartridges. This is a robust, slow-running singleshaft shredder of proven Erdwich quality. The easy-to-operate device reduces waste by up to 75 %. The shredded cartridges are disposed of directly into standard waste bags.

The cartridge cutter has also been developed so that the relatively clean lower section of the cartridge can be separated from the top section, which is contaminated with ink residues. This device cuts off the top of the cartridge and throws it into a garbage can. The remaining cartridge cylinder is removed from the cutter and thrown manually into the cartridge shredder to be broken down further.

The valve part with the residual ink is normally fed into a thermal recycling system. The cartridge cylinders are usually so clean that they can be resold after shredding as high-grade recycled plastic material. In times of high crude oil prices this is a potential earning opportunity for the printer.

Cartridge shredder

Side by side: Cartridge-cutter and shredder

R1-cartridges in the Ritter-Tray

Cardboard boxes for Ritter ink cartridges

Ritter GmbH
Kaufbeurer Str. 55
86830 Schwabmünchen
Germany

phone: +49 8232 5003-68
www.ritter-cartridges.de

Ritter is one of the world´s leading manufacturers of cartridges for adhesives and sealants.
We will be happy to provide more detailed product information and consultancy.

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We would like to thank a number of sheetfed offset ink manufacturers for providing us with filled cartridges as well as specifically for the friendly support by:

Heidelberger,	www.heidelberg.com
Technotrans,	www.globalprint.com
Schwerdtel,	www.schwerdtel.de
Pamarco,	www.pamarcoglobal.com
Erdwich,	www.erdwich.eu
Otto Products,	www.otto-products.com
PC Cox Ltd.,	www.pccox.de

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