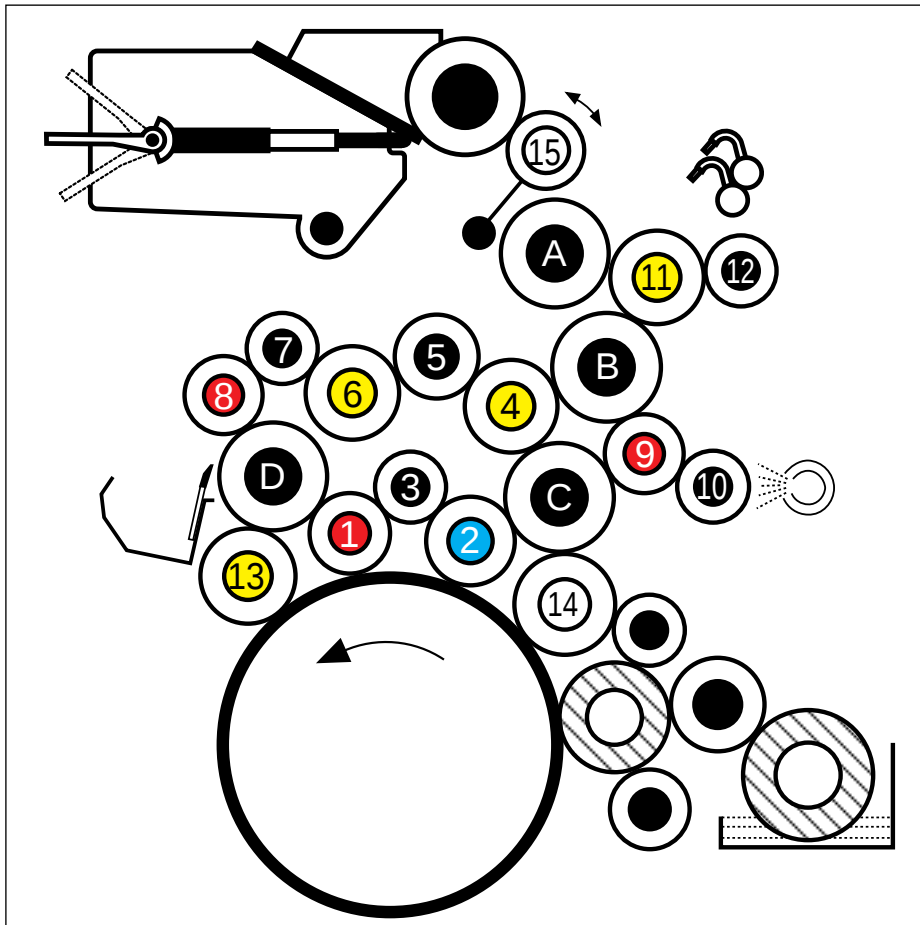


Heidelberg Speedmaster SM 74

Roller diagram



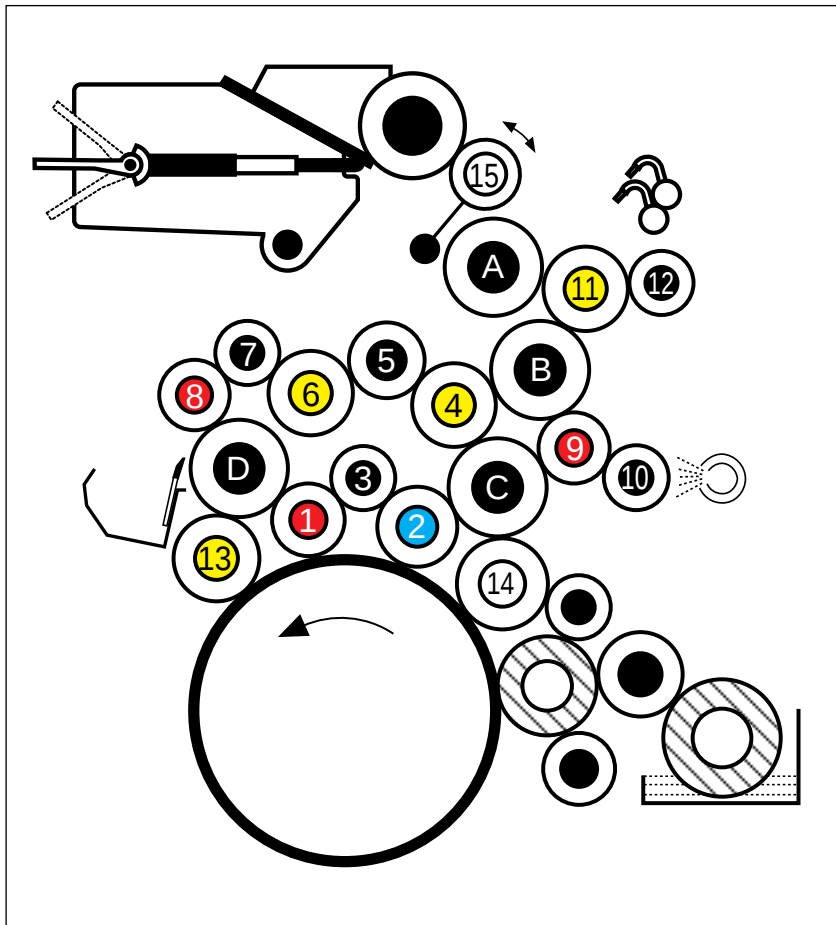
The numbering 1 - 15 denotes the recommended installation sequence.

A - D are not removable.

-  rubber roller ø 54 mm
-  rubber roller ø 60 mm
-  rubber roller ø 64 mm
-  rubber roller ø 70 mm
-  dampening form roller and water pan roller

Heidelberg Speedmaster 74

Inserting and adjusting inking system



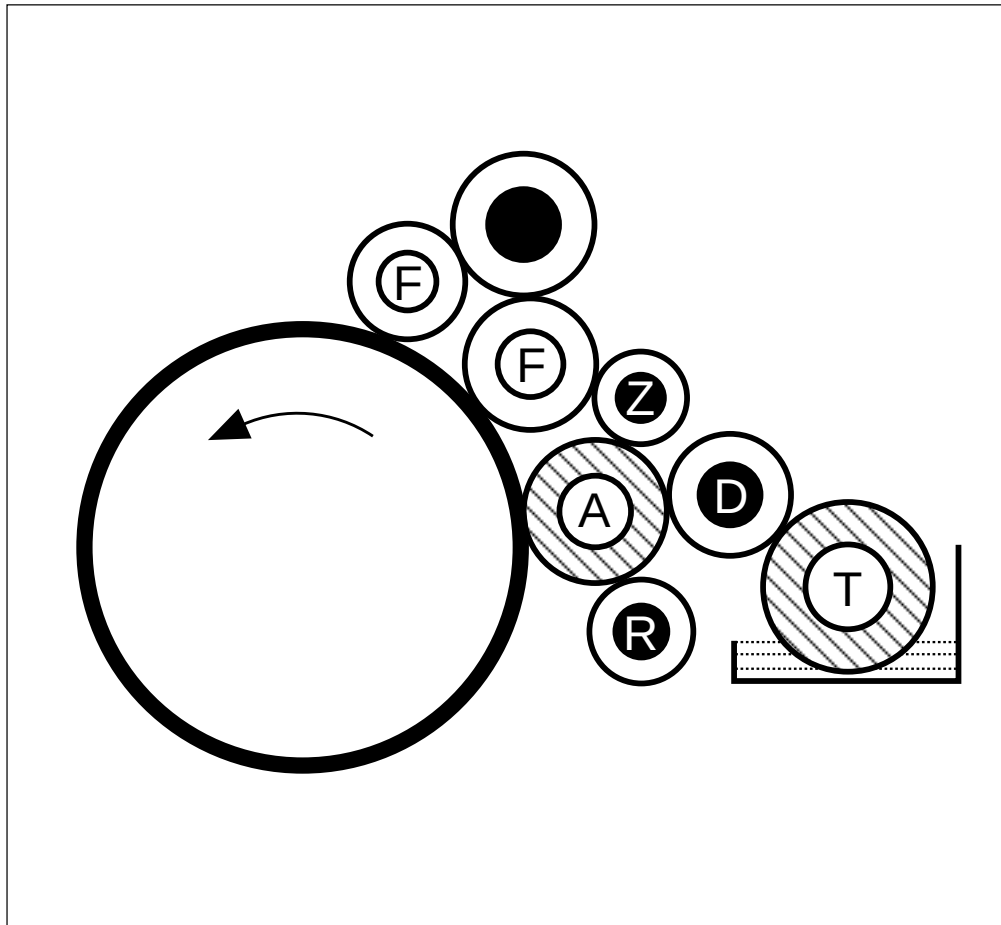
On all adjustments more contact clockwise, counter-clockwise the contact will be reduced.
Silver screws for adjustments of the inking system, brass screws for adjustments of the dampening system. Long screws for adjustment to the distributors, short screws for adjustments to the plate, except 2nd inking form roller with adjusting rod to the plate.

Inserting and adjusting:

- Step 1:** Insert rollers 1-12, and vibrator (15).
- Step 2:** Adjust 1 to D = 3-4 mm, 2 to C = 3-4 mm.
- Step 3:** Insert rollers 13 and 14, then adjust 13 to D = 3-4 mm, and 14 to C = 3-4 mm.
- Step 4:** Adjust 10 to 9 with 6 mm Allen screw = 4 mm (12 to 11 with spring tension).
- Step 5:** Adjust vibrator (15) to duct and to A = 3-4 mm. The adjustment of the vibrator results from turning the eccentric (direction duct more contact).
- Step 6:** Adjust inking form rollers to plate = 3 mm.

Heidelberg Speedmaster 74

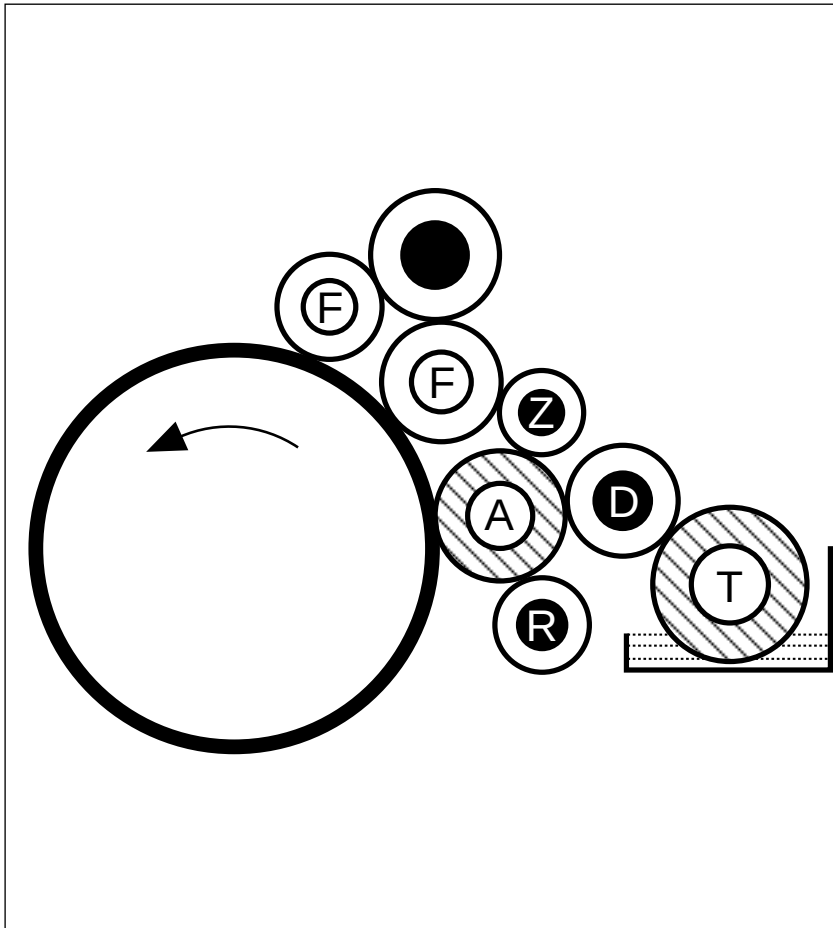
Alcolor dampening system



- T Water pan roller
(rubber, crown ground)
- D Metering roller
(chromium-plated)
- Z Intermediate roller
(Rilsan)
- A Dampening form roller
(rubber)
- R Dampening distributor
cylinder
(chromium-plated,
not removable)
- F 1st and 2nd inking form roller

Heidelberg Speedmaster 74

Alcolor dampening system



The adjustment of the Alcolor has to be done by means of two paper slips, O.S. and D.S. a broad slip to the rubber roller and a narrow slip as a feeler gauge to the steel roller. Turn all adjustment screws clockwise only in order to eliminate the slackness of the screws.

Requirements:

- inking form rollers are adjusted
- plate on the plate cylinder

Step 1: Insert A. Adjust A to R with paper slips O.S. and D.S., after parallel light contact + 1 1/4 turns clockwise.

Step 2: Adjust A to the plate with paper slips on contact, therefore engage dampening system. Cylinder gap outside adjustment area, then disengage dampening system.

Step 3: F and A disengaged from the plate, now insert Z. Adjust Z to A with paper slips on **light contact**.

Step 4: Put ink on the rollers and adjust A to R=5 mm (inch backward), then check adjustment Z to A=3 mm (inch forward).

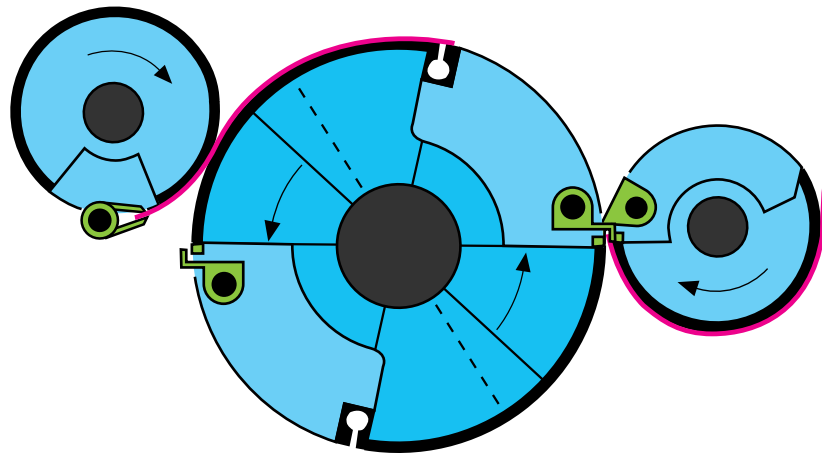
Step 5: Insert D and T. Adjust D to T with water until the glossy water film on the roller becomes matte + 1/4 turn clockwise (fine adjustment if necessary when starting production).

Step 6: Adjust D to A on **light contact** + 1 1/2 turns (check with ink = 6 mm).

Step 7: Adjust A to the plate = 5 mm and check inking form roller. If the intermediate roller (Z) has been engaged or disengaged from the inking unit, check the first inking form roller again.

Perfecting Device for Convertible Heidelberger Offset Presses

Sheet travel multicolor printing

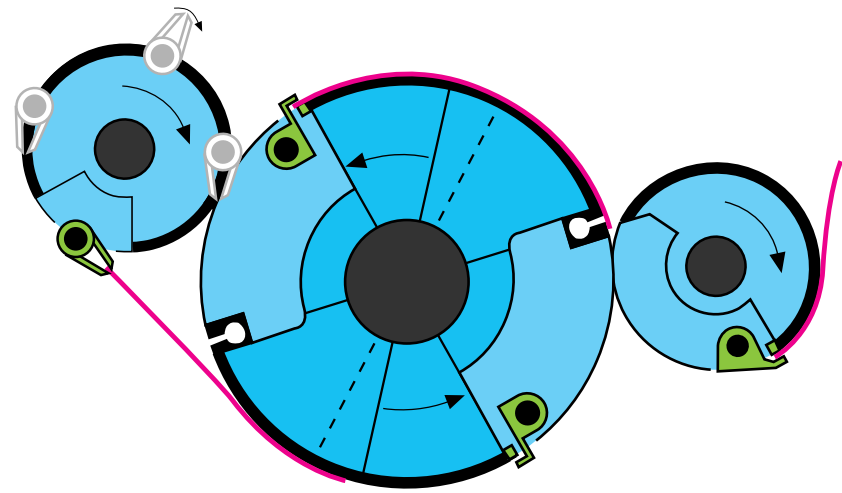


Reversing drum
with pincer grippers

Transfer drum

Storage drum

Sheet travel perfecting



Reversing drum
with pincer grippers

Transfer drum

Storage drum

Perfecting Device for Convertible Heidelberg Offset Presses

All Heidelberg multicolor presses, with the exception of the Quickmaster and S-Offset can, on request, be equipped with one or two perfecting devices between the individual printing units, depending on the press type. This permits simultaneous printing of both the front and reverse side of the sheet in one pass. The continuous development on convertible Heidelberg offset presses permits up to five colors in one pass on both sheet sides.

Sheet travel in multicolor printing

In multicolor straight printing and in perfecting, the sheet is taken up by the first transfer drum after printing and is passed on to the double-diameter storage drum. This storage drum is equipped with two gripper systems. In multicolor printing the storage drum transfers the sheet by the front edge to the pincer grippers of the third drum (reversing drum). This, in turn, transfers it to the grippers of the impression cylinder of the next printing unit. All grippers pick up the sheet only by the front edge (leading).

Sheet travel in perfecting

As in straight printing, the sheet is taken up after printing by the grippers of the first transfer drum and passed with the front edge in the grippers of the storage drum. The front edge of the sheet is not passed on to the pincer grippers of the storage drum but is fed past the reversing drum until the sheet end is picked up by the pincer grippers. While the pincer grippers revolve by 180°, the storage drum grippers let go of the sheet leading edge. The pincer grippers now pass the reversed sheet by its original tail edge to the next impression cylinder to be printed on the reverse side. The double-diameter storage drum has, at each trailing edge, a bar with eccentric turning suckers. These pull the sheet smooth in a circumferential and in a lateral direction to ensure that originally wavy stock lies flat on the storage drum before being reversed and transferred to the next printing unit in perfect register. In the case of narrow sheet sizes, unnecessary suckers of the storage drum are to be switched off. The gap between impression cylinder and transfer drum can be altered by changing the packing height below the Superblue base blanket, or the alternatively available structure chrome jacket.

Measuring method blanket and plate cylinder

Measuring plate and blanket underlay height

For exact measurement of both plate and blanket packing on the press, a special packing gauge is available. Such a packing gauge can be supplied as accessory equipment under parts number:

Packing gauge 09.465.000/1 K1 (metric system)
Packing gauge 09.465.100/1 K1 (Imperial system)

Measuring method blanket cylinder

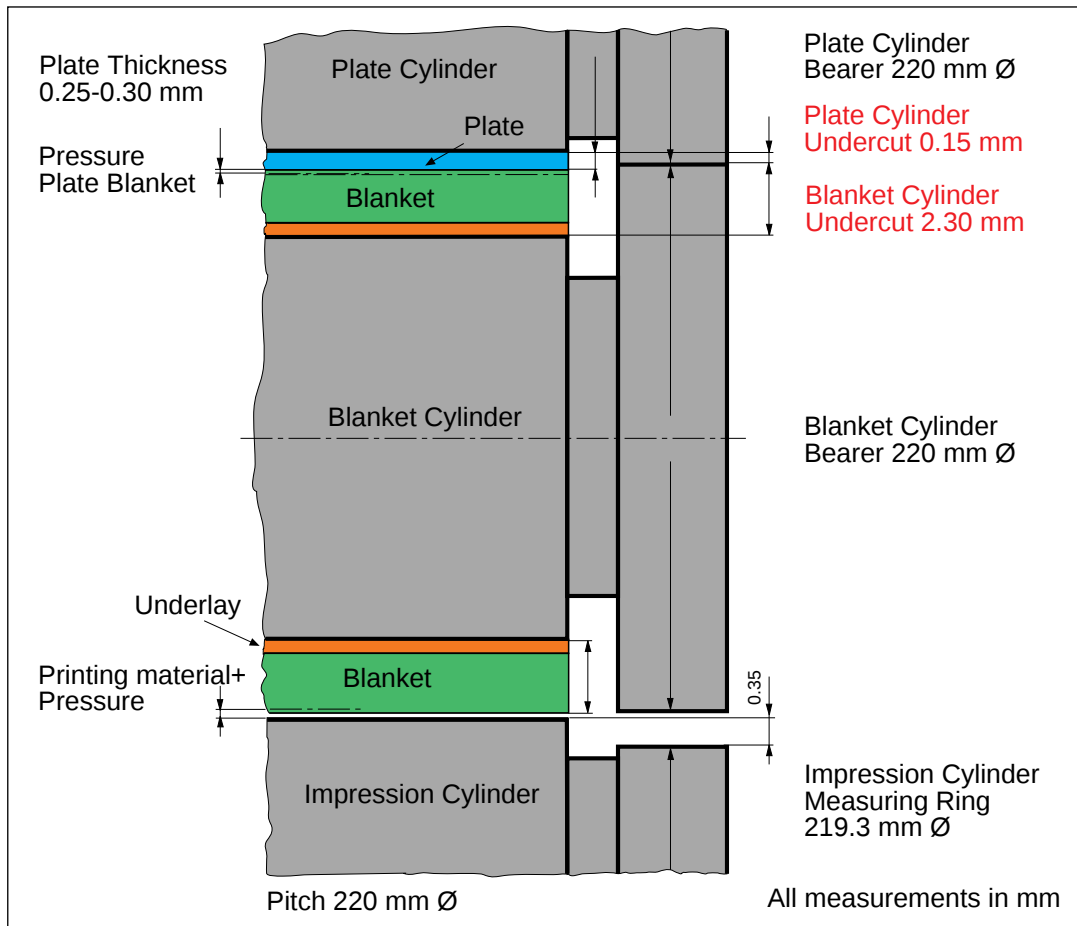
After mounting and tightening the blanket, the press should run on impression a short time. As rubber blankets have the tendency to settle somewhat, the blanket must be retightened. To provide a more suitable surface for the gauge to slide on, a sheet of paper is first placed on the blanket, extending onto the cylinder bearers. The packing gauge must be placed onto the blanket cylinder parallel with the cylinder shaft, until the indicator pin of the exterior dial rests on the cylinder bearer. After the gauge is seated correctly on the cylinder, the three dials are turned to read "0". The gauge is then moved sideways until the indicator pin is positioned on the blanket surface.

Care must be taken that the dials immediately beside the red button indicate "0" again, otherwise the gauge has been tilted or edged. The exterior dial will now show the packing height of the blanket in comparison to the bearers. After a few hundred impressions, the blanket must be retightened and its height rechecked. The reading on the dial could vary from the last result, in this case the packing must be increased if necessary.

Measuring method plate cylinder

The measuring method for the packing height of the plate cylinder is similar to the method for the blanket cylinder. A sheet of paper should be placed on the plate also to avoid damage to the plate surface. Retightening of the plate is not necessary. To make reading easier place the sheet of paper underneath the last inking form roller and engage the inking form roller on the plate. The sheet does not displace anymore.

Heidelberg Speedmaster SM 74 Cylinder Packings



Calculation:

Plate thickness	+ 0.27 mm
Plate cylinder undercut	- 0.15 mm
Plate above bearer	+ 0.12 mm

Blanket thickness	+ 1.95 mm
Underlays	+ 0.35 mm
Blanket cylinder undercut	- 2.30 mm
Blanket on bearer height	0.00 mm

Plate above bearer	+ 0.12 mm
Blanket on bearer height	0.00 mm
Pressure plate blanket	+ 0.12 mm

Blanket on bearer height	0.00 mm
Printing material	+ 0.10 mm
Adjustment on the scale	+ 0.00 mm
Pressure	+ 0.10 mm

Heidelberg Speedmaster SM 74

Ink flow and inking

Inking unit surface

One way of measuring the size of an inking unit is to compare the largest print format with the inking unit area. The size can be calculated from the sum of the surfaces of all rollers and distributor cylinders, from the ductor to the inking form rollers. A good inking unit should have a large storage capacity on the one hand, but should also react to corrections as quickly as possible.

Ink flow

Another important factor is the roller arrangement. This determines the ink flow and directly affects inking of the plate. Heidelberger sheet offset presses have front-heavy inking units. The main ink stream is directed at the first inking form rollers. These transfer up to 90 % of the required ink volume onto the print form, depending on the type of press. The main task of the last two inking form rollers is to smooth out the ink film on the plate.

Inking

The number and scope of inking form rollers significantly influence even inking of the printing plate. We know in practice that it is easier to apply a thin ink film on the plate using several form rollers in sequence and then to smooth it out, than to apply an even volume of ink with fewer rollers.

Different inking form roller diameters ensure uniform inking, even for difficult shapes. If all inking form rollers had the same diameter, the ink from the print image would coincide exactly due to the same roller movement and would appear as an ink transfer error (ghosting).

Heidelberger sheet offset presses guarantee good inking with 4 inking form rollers with correctly staged roller diameters.

The Speedmaster SM 74 offers the following ink transfer values:

1st inking form roller:	51 %
2nd inking form roller:	37 %
3rd inking form roller:	7 %
4th inking form roller:	5 %

Heidelberg Speedmaster

Lateral distribution and feeding point

Lateral distribution

Apart from ink distribution in the circumferential direction, the ink is also distributed laterally by traversing distributor cylinders. This is necessary for the following reasons:

- Lateral distribution distributes the ink evenly on the page; the ink also stays more supple.
- It removes ink accumulations which get into the inking unit as a result of uneven ink trapping by the print image.
- Furthermore, lateral distribution helps when adjusting the ink zones since these are not always arranged according to the subject.
- Lateral distribution also makes it easier and faster to wash the inking unit.

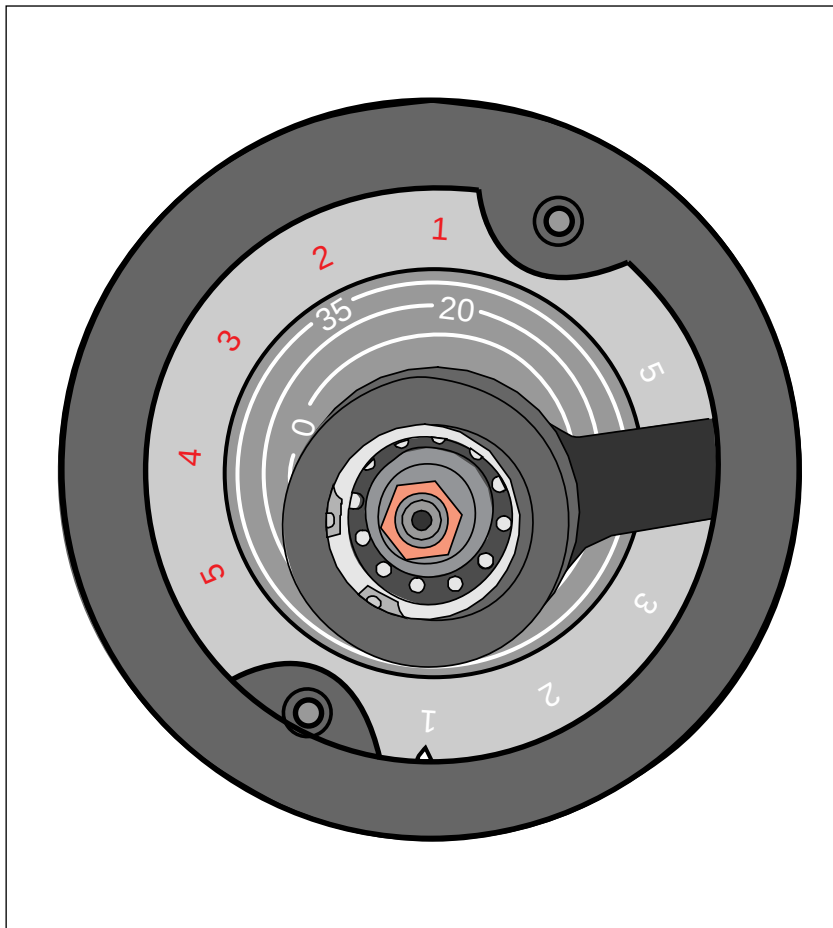
On Heidelberg Speedmaster presses, the lateral distribution path can be adjusted. The basic setting of the distribution path is 35 mm, this can be altered infinitely if necessary. To do this the pin is inched downward, then the locking nut is opened and the pin is pushed to the center until the desired position is reached. Then the locking nut is tightened again. This adjustment facility has the advantage that the printer can act on problem cases, e.g. fine font beside an area, or rainbow printing from a divided ink fountain.

Lateral distribution feeding point

Minor differences in ink application from the front edge to the tail end of the sheet (ink fading) cannot be avoided completely in sheet offset. In the case of large areas and copy work (labels), this may be noticeable in the print result. On Heidelberg Speedmaster presses, both the path and the return time point of lateral distribution can be adjusted. This means changing the point of time at which a particular distributor roller starts to cross from its end position at one side of the press to the opposite side. This change influences the ink supply and affects ink fading. In order to balance out ink fading in the circumferential direction, the pin is inched into the lowest position and the locking screw is opened. Inching the plate cylinder forward moves the ink accumulation towards the rear edge, while inching it backward moves the ink accumulation towards the front edge. There are numbers on the adjusting disk to ease adjustment: 1 - 6 for SM 52 and SM 74, 0 - 710 mm for SM/CD 102. The locking nut must be tightened after carrying out the adjustment. Adjustment from a white number to the same number in red reverses the lateral distribution direction.

Speedmaster SM 74

Setting lateral distribution



Setting the lateral distribution feeding point:

- Inch pin into the lowest position
- Open locking screw
- Inch press forward -> Ink accumulation moved towards rear edge
- Inch press backward -> Ink accumulation moved towards front edge
- Tighten locking screw
- The number on the scale under the pin has changed.

Reversing lateral distribution:

- Inch pin into the lowest position
 - Open locking screw
 - Inch plate cylinder by one whole revolution (the scale turns by half a revolution, the number setting thus remains the same but the ink range changes from red to white or vice versa.)
- In this manner, the main lateral ink flow direction can be changed from drive side to operator side (necessary for shapes which are problematic on one side).

Speedmaster 74

Lateral distribution feeding point

