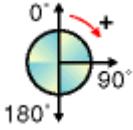# About screen systems

Screen systems contain an optimal set of screening characteristics for a particular screening requirement. Predetermining the relationship among screen angles, screen rulings, and the screens to which these are assigned reduces the occurrence of screen artifacts.

Screen angles are calculated as in the above illustration.
Set the screen angle control in the **Calibration & Screening** section of output process templates.

Maxtone

This screen system forms a rosette among black, magenta, and cyan by screening these separations at equal rulings with nominal angles of 75°, 15°, and 135°. The yellow separation is screened at 0° with a ruling slightly higher than the other separations to reduce moiré. In the default angle assignment, black, as the most dominant color, is screened at 135°.
This system is susceptible to moiré in smooth tints of two separation pairs: cyan-yellow (greens) and magenta-yellow (peach tones). Angle swapping allows moiré susceptibility to be shifted from one of these separation pairs to the other. For applications with dominant peach tones, set magenta to 135°.
This system has been formulated for best performance on output devices to provide even, low-moiré flat tints, especially on large-format devices. Screens from this system are compatible with screens generated from the Allegro workflow.

Ruling	Ranges from 40 to 240 lpi (The available values depend on the output device.)
Dot Shape	EllipticalP, Heavy Elliptical, Light Elliptical, Line, Line1, Round, Round-Square (Euclidean), Square, Square1
CMYK Default Angles	165 105 0 45
Valid Color Swaps	Cyan Magenta Black

Maxtone Y30°

This screen system is identical to HQS Classic in all but its yellow screen. It forms a rosette among black, magenta, and cyan.
The yellow separation is screened at 30° with a ruling slightly higher than the other separations. It avoids the 0° screen, which may cause interference problems in some flexography and silkscreen applications. In its default angle-to-color assignment, magenta-yellow moiré is eliminated, leaving the cyan-yellow separation pairs susceptible to moiré.
This system has been formulated for best performance on output devices to provide even, low-moiré flat tints, especially on large-format devices. Screens from this system are compatible with screens generated from the Allegro workflow.

Ruling	Ranges from 40 to 240 lpi (The available values depend on the output device.)

Dot Shape	EllipticalP, Heavy Elliptical, Light Elliptical, Line, Line1, Round, RoundSquare (Euclidean), Square, Square1
CMYK Default Angles	165 105 30 45
Valid Color Swaps	Cyan Magenta Black

Maxtone Y60°

This screen system is identical to HQS Classic in all but its yellow screen. It forms a rosette among black, magenta, and cyan.

The yellow separation is screened at 60° with a ruling slightly higher than the other separations. It avoids the 0° screen, which may cause interference problems in some flexography and silkscreen applications. In its default angle-to-color assignment, cyan-yellow moiré is eliminated, leaving the magenta-yellow separation pairs susceptible to moiré.

This system has been formulated for best performance on output devices to provide even, low-moiré flat tints, especially on large-format devices. Screens from this system are compatible with screens generated from the Allegro system.

Ruling	Ranges from 40 to 240 lpi (The available values depend on the output device.)
Dot Shape	EllipticalP, Heavy Elliptical, Light Elliptical, Line, Line1, Round, RoundSquare (Euclidean), Square, Square1
CMYK Default Angles	165 105 60 45
Valid Color Swaps	Cyan Magenta Black

Maxtone Y-fine

This screen system is identical to HQS Classic in all but its yellow screen. It forms a rosette among black, magenta, and cyan.

The yellow separation is screened at 0° with a ruling about 40% higher than the other separations. This raises the moiré frequency of yellow with all other separation pairs to the point where it is invisible at typical screen rulings for offset lithography. The increased yellow screen frequency may increase dot gain, requiring color-specific calibration to avoid a yellow cast in color reproduction.

Ruling	Ranges from 20 to 600 lpi (The available values depend on the output device.)
Dot Shape	Round, RoundSquare (Euclidean), LightElliptical, Elliptical, Heavy Elliptical, Smooth Elliptical, Checker, Line
CMYK Default Angles	75 15 0 135
Valid Color Swaps	Cyan Magenta Black

Maxtone RT01 Y0K45

This historical screen system forms a square rosette among black, magenta, and cyan by screening these separations at slightly different rulings and nominal rational-tangent angles of approximately 18°, 45°, and 72°. The yellow separation is screened at 0° with a ruling slightly higher than the black separation.
This system is susceptible to moiré in smooth tints of olive-green color.

Ruling	Ranges from 20 to 600 lpi (The available values depend on the output device.)
Dot Shape	Round, RoundSquare (Euclidean), LightElliptical, Elliptical, Heavy Elliptical, Smooth Elliptical, Checker, or Line
CMYK Default Angles	71.6 18.4 0 135
Valid Color Swaps	Cyan Magenta Black

Maxtone RT04 Y45K45

This screen system provides an alternative to rosette-forming HQS screen systems. The rosette pattern is practically invisible at typical screen rulings for offset lithography.
Cyan and magenta separations are screened at equal rulings, with rational-tangent angles of approximately 18° and 72° respectively. Yellow and black are screened at 45°. The yellow ruling is about 10% below that of cyan and magenta, and the black ruling is about 33% higher. The differing dot gains resulting from these varied rulings may require color-specific calibration.
This screen system does not exhibit the moiré susceptibility of separation pairs found in the other screen systems.
The key separation (45° fine) can be used as an additional color in combination with the HQS screen systems.

Ruling	Ranges from 20 to 600 lpi (The available values depend on the output device.)
Dot Shape	Round, RoundSquare (Euclidean), LightElliptical, Elliptical, Heavy Elliptical, Smooth Elliptical, Checker, Line
CMYK Default Angles	71.6 18.4 135 135-fine
Valid Color Swaps	Cyan Magenta Yellow Black

Staccato

Staccato screening is a stochastic, or frequency-modulated (FM), screening solution that can be purchased as an option to Prinergy. The combination of the Staccato screening software and the SQUAREspot technology gives you a level of control in the printing process that makes stochastic screening viable for routine presswork.

The demands that stochastic screening places on time and equipment mean it is not usually a practical solution for everyday print production. It is difficult for many printers to deliver stochastic screening with conventional output devices, because these devices do not offer the control required in the calibration, development, and platemaking processes. Staccato, however, makes FM screening a practical option for your routine presswork. You can also mix Staccato screens with conventional screens.

For more detailed information about Staccato screening, see the *Staccato User Guide*.

Staccato Extended Color Screens

Staccato screening is a stochastic, or FM, screening solution. Kodak Staccato Extended Color Screens (ECS) is an add-on for the Staccato 10/20/25 series. Staccato ECS includes 10 unique patterns for each screen to support extended process color printing.

For more detailed information about Staccato Extended Color Screens, see the Staccato documentation.