Kodak Graphic Communications Canada Company
3700 Gilmore Way
Burnaby, B.C., Canada
V5G 4M1
Tel: 1.604.451.2700
Fax: 1.604.437.9891

Request support:
ecentral.Kodak.com
http://graphics.kodak.com

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White Paper

Contact Name
Michael Joy
michael.joy@kodak.com

Magnus VLF Throughput

Overview

Throughput of the Magnus™ VLF is specified in the machine specification documents (Kodak documents 707-00176A, 707-00177A and 707-00178A), supplemented by the Magnus VLF throughout estimations which can be generated using the Kodak's media calculator.

This white paper provides guidelines for understanding and interpreting throughput on a Magnus VLF device.

Throughput Measurement Procedure

Throughput measurements should be made according to the document *Magnus VLF Throughput Measurement*. It is important to note that the throughput is calculated by determining the "pipeline time" of a fully loaded device. Measuring the end-to-end time for a single job is not representative of the actual device throughput, because it does not consider the parallel processing abilities on the Magnus VLF device (for example: loading, imaging and unloading of successive jobs may all be performed in parallel).

Factors Affecting Throughput

Machine, system and workstation configuration

Several factors related to the configuration of the machine and the workstation may affect the machine throughput. These include:

- Workstation processing power. The workstation must be sized appropriately to supply raster data to the machine at full speed, and thus avoid carriage "retraces" during images. The required processing power on the workstation is dependent on the machine speed and size.
- Temporarily degraded operation. In some situations Kodak service personnel may place the machine in a temporary "degraded" state which reduces machine throughput. This is typically done in order to keep the machine operational and avoid hard-down situations while waiting for an onsite visit and/or spare part delivery. For example, a failed sensor may be remotely disabled, temporarily reducing throughput, but allowing the machine to continue operation until the sensor can be replaced by Kodak service personnel onsite.

- Processor speed: The processor must run at a speed which allows it to keep up with the device speed, without becoming a bottleneck to system throughput.

Operational considerations

Several operational factors may affect the total machine throughput. These include:

- Mix of jobs and plate sizes. The Magnus VLF throughput specification assumes a consistent flow of jobs through the system -- in particular the plate size, orientation and single or dual plate imaging. Changing this mix from job to job will affect the throughput of jobs through the system.
- Full job queue. The Magnus VLF throughput specification assumes that there is always a full queue (or "pipeline") of jobs waiting to run on the machine. In order to maintain pipelined operation, each job must be queued during the loading cycle of the previous job.
- Machine downtime. The machine throughput is specified assuming that the machine is constantly available to process jobs. Downtime for maintenance, shift change or other factors, is not included in the Magnus VLF throughput specification.
- Operator suspend prompts. The Magnus VLF throughput spec does not account for extended time to respond to machine operator prompts, either for normal operations (e.g. manual plate loading), or anomalous conditions (e.g. media handling problems, machine errors). Most such conditions can be quickly handled if an operator has sufficient training and is available at the machine; however the specified throughout does not include extended delays in handling such events.

Each of these operational factors will affect different printers in different ways. These factors should be taken into account when planning machine utilization and calculating total plate output over longer periods of time (e.g. when using the Magnus VLF "plates per hour" specification to estimate "plates per week" or "plates per month" for planning purposes).

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