Standardization of Form Preparation with MDC/ArtCom Software for Gravure & Offset

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Key Words: Standardization of Digital PrePress Data for Printing Form Manufacturing

Abstract: Workflow - Automation - the need for a networked printing environment calls for generic data files for Gravure & Offset

The Networked Printing Environment requires a Workflow with Server Data Management.

The changes forced upon our Industries through Desktop Publishing, today's methods of design and creation of adds, magazines, catalogs, insert or any other print-product layouts, the digital data process of text and images, proofing and high-speed transfer of information between any two or multiple locations, in-house and external, has impacted the way we need to work, more than anything else in the last decade.

We doubt that anyone would argue, photography, PrePress for images and type, print-form manufacturing (Offset plates or Gravure cylinders) and printing are closer linked than ever before and need solutions to overcome the still existing data- software- or hardware incompatibilities, as it exists in today's world, where multiple sources provide and supply information.

Our solution to this complex challenge was created by a team of experts from the fields of Software / Application / Publishing / Art Designers / Printers and Equipment Hardware Manufacturers, with the aim to provide one single process, irrespective of the final choice of the printing process, with the highest efficiency.

The result: A Software package to address the challenges of Publications and Packaging, yet with specific features for the market application they need to serve:
IMPOSE for the Publication Market and *GRAVOCOMPLETE* for the Packaging Industries, for Gravure and Offset.

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Potential Hardware Scenario

Depicting a typical scenario of incoming data media's, ranging from Fast Ethernet to CD-ROM, SCSI shuttles to digital tapes or EXABITE drives to SCSI fixed discs, the data is networked, to correct, manipulated and massage the data to create a print-form-ready data stream, suitable for a number of output devices, such as a digital form proof, electromechanical engraving devices, laser engraver, plate setters or Flexo engravers.

Possible Digital Gravure Data Workflow

A typical Workflow, depicted here for Gravure, consists basically of three distinct components we like to name here as: SOURCES - INPUT + OUTPUT.

SOURCES, like PC or Macintosh systems, CEPS systems and equivalent such as Barco, Scitex, Crosfield, Hell and others.

INPUT, for color separations in contone and line-work format, composite CEPS data, color separated PostScript data from DTP or scanned data input.

OUTPUT, to engrave cylinders by means of electromechanical or laser engraving devices in case of Gravure, or Plate-setters devices for Offset. In case of this Gravure scenario the color separated cylinder data is in TIFF 8 bit file format.

Output devices require their own format and data file preparation, which is accomplished with the *DTG* (direct to Gravure) S. W. or CTP (computer to plate) S. W., available as an upgrade to the *DTG* or an independent package, available as *OFFSET-IMPOSE.*

Schematic of Internal Gravure & Offset Workflow

Depicting the data workflow when preparing forms for either Gravure or Offset, some specific criterion's have to be followed to suit the 'process'. In either case, single or double page data can be processed, the difference being the formats used.

For Gravure most standard formats from CEPS-native to Hell, Scitex, Crosfield or TIFF/IT, CT and LW in CMYK or monochrome can be processed. In case of Offset, page data has to be in PostScript or PDF file format as color composites or individual colors. Also JPEC, EPS or other alternative file formats can be considered, if needs arise.

In the *IMPOSE*, the relative page data is assembled and positioned to represent the required press forms, in case of Gravure depicted here as a 60 page form with 10 ribbons and six around, both front and back, totaling 120 pages, where as the Offset form shows a four-up four around, front and back totaling a 32 page form. Any form/page combination can be selected to suit press or bindery requirements.

The output data for Gravure is in form of TIFF-g or HDP, as single color and per ribbon (i.e. engraving head). Offset uses a color separated PostScript file format, CT parts receive the offset raster from the CtP (Computer to Plate) or Image setter RIP, depending on the choice or need.   .

The key being, that the same 'data processing and impositioning system' can handle both processes.

Complex Workflow Diagram of a Publishing / Printing Corporation

This diagram depicts a complex scenario as is in operation at a large Swiss publishing/printing organization. The key in this scenario is obviously the *IMPOSE* printing form server, from which three very different output devices, f.i. *DTG*, mechanical cylinder engraving units (five at Ringier) two imagesetters for film output of complete Offset forms and three plate-setters for DtP are fed. In this workflow, almost every conceivable configuration and input devices had to be made 'compatible' to work within this 'generic data environment', the goal of this hole approach, driving various output-devices.

Summary

With the development of the ' *OFFSET-IMPOSE* ' S. W., it has become feasible for the first time, to use page data prepared for any given printing process to be processed with one single 'system' to drive numerous, very different output devices in life production environments, simultaneously.

The software runs on hardware operating systems such as SOLARIS 2.x that runs all SUN products or the SOLARIS X/86 for PC systems.
The IRIX 5.X - 6.X for systems running on SILICON GRAPHICS workstations or servers are supported too. For very small system-configurations, the UNIX operating system is supported as well, where as presently the WINDOWS NT OS (operating system) is being considered to be incorporated as a further option.

The user interface is a XWindow system which can run the software from any XTerminal, MAC or PC. WindowsNT run on XClient software. This usually eliminates an additional working station, as any configuration can be composed as a complete operating area.

The S. W. is designed to drive, control and administer the total production process, starting with the entry of different databases, editing, control of job status, impositioning, proofing, archiving and numerous other automatic workflow functionality's. It lends itself too to be run in a networked environment. A built-in job-management is able to administer and distribute jobs to systems and output devices, to be called for automatically, once they are free or come on line. The 'system' is designed to gain productivity with the least man power requirements, providing most functions automatically to gain security, yet being tailored to any given production environment.

Full editing and Impositioning functions are provided, including name conventions for files, customers or jobs, page numbers for individual forms or complete jobs, allowing to have total control of any job-status, at any given time of the process. Another feature is the inspection tool of partial or full jobs, either in single color version or any combination of colors.

For proofing purposes, standard devices such as HP7507 / HP 2000 / NovaJet / Stork / IRIS and others are supported. There is no need to have a separate PC to drive these print-engines, as the described system drives these equipment in their native formats.

Last but by no means least, at the end of a job, the operator is prompted to select the desired information for back-up and/or archiving by selecting any number of combinations such as: save film / plate / engraving / input or layout data. This functionality is embedded in the system like all the other tools and can be used as desired or required by in-house workflow procedures or customer demands.
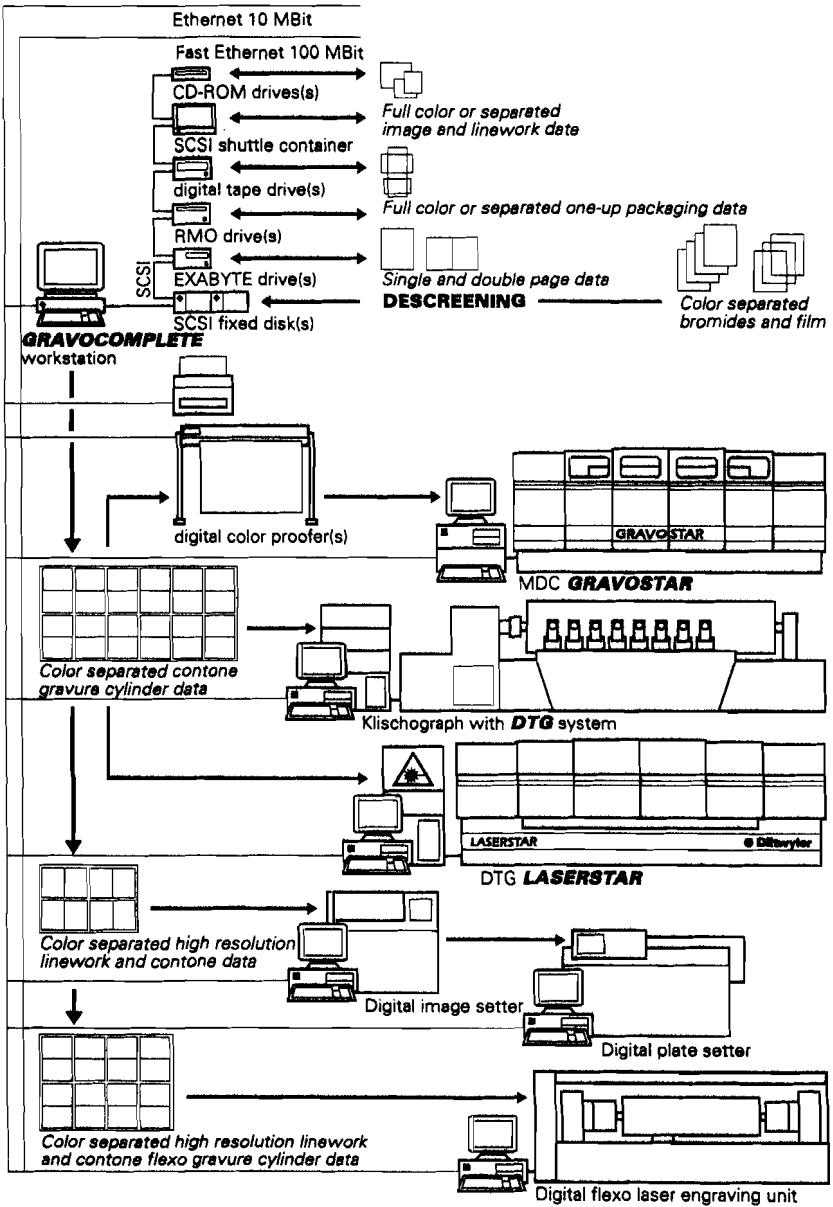
This concludes the summary of the standardization process for form preparation with ArtCom's *IMPOSE* or *GRAVOCOMPLETE*. The S. W. presently operating in several Beta-sites comes in two versions, one as an update and add-on for existing users as well as an independent package for Offset only.

References:
Andreas Bentrup, ArtCom, Bremen / Stefan Schulze, MDC Switzerland

Ethernet 10 MBit

Fast Ethernet 100 MBit

CD-ROM drives(s)

Full color or separated
image and linework data

SCSI shuttle container

digital tape drive(s)

Full color or separated one-up packaging data

RMO drive(s)

EXABYTE drive(s)

Single and double page data

DESCREENING ———— *Color separated*
bromides and film

SCSI fixed disk(s)

SCSI

GRAVOCOMPLETE
workstation

digital color proofer(s)

MDC *GRAVOSTAR*

Color separated contone
gravure cylinder data

Klischograph with *DTG* system

DTG *LASERSTAR*

Color separated high resolution
linework and contone data

Digital image setter

Digital plate setter

Color separated high resolution linework
and contone flexo gravure cylinder data

Digital flexo laser engraving unit

569

SOURCES:

PC systems | Apple Macintosh including ArtPro | CEPS systems: BARCO, Scitex, CROSFIELD, HELL etc.

CD-ROM

SCSI shuttle

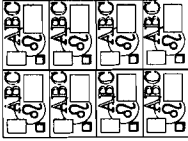*Composite color cylinder layout data*

RMO

EXABYTE, DAT, DLT

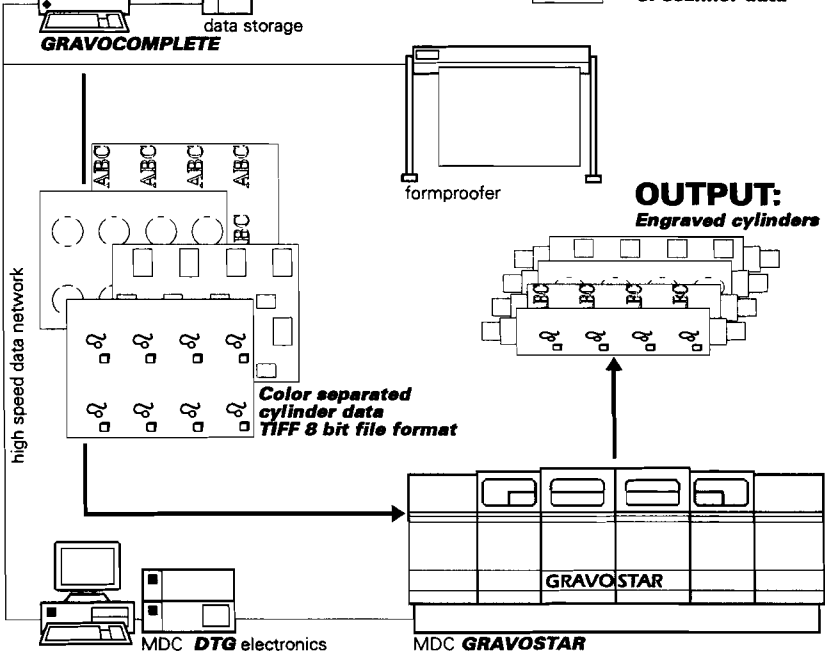HD floppy disc

TCP/IP data network

INPUT:

Color separated contone data, CMYK contone and linework data from CEPS, composite color CEPS data, color separated PostScript data, full color PostScript data from DTP or scanner data
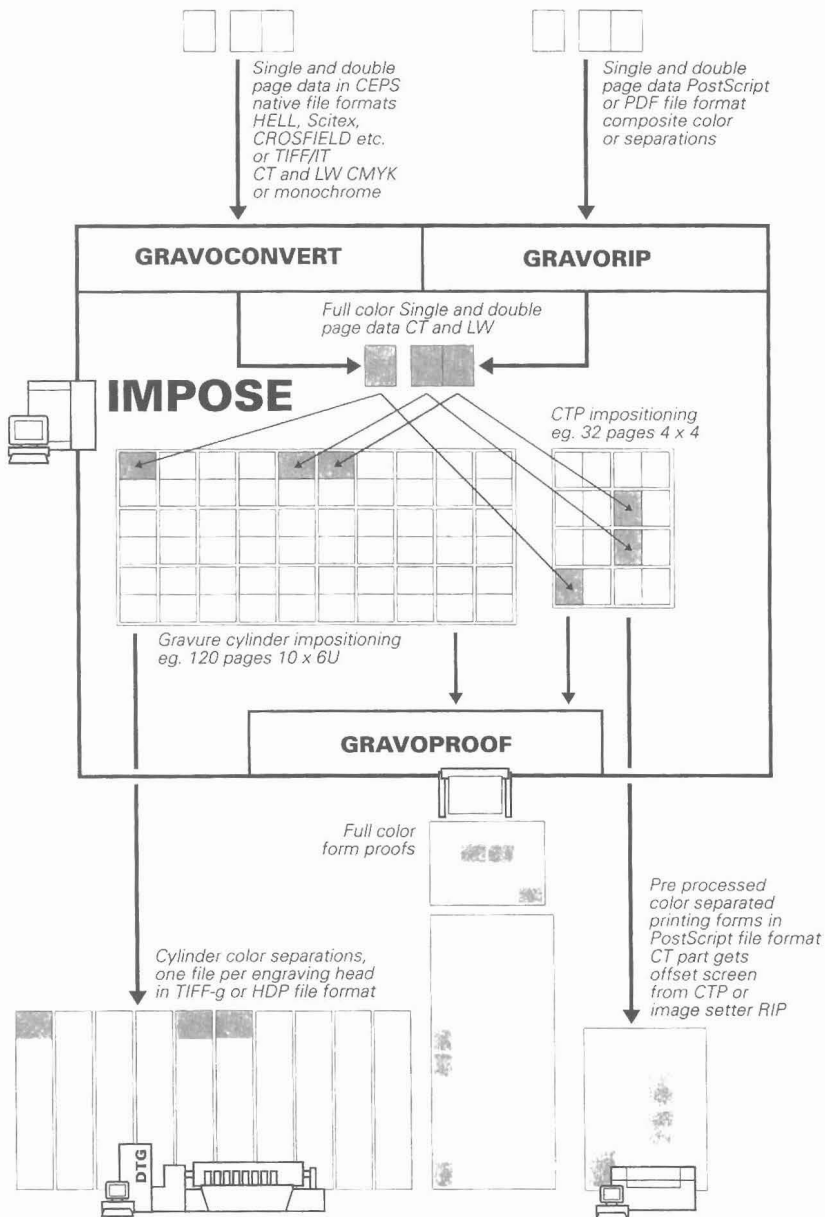
data storage

GRAVOCOMPLETE

high speed data network

formproofer

OUTPUT:

Engraved cylinders

Color separated cylinder data TIFF 8 bit file format

GRAVOSTAR

MDC *DTG* electronics

MDC *GRAVOSTAR*

570

Single and double
page data in CEPS
native file formats
HELL, Scitex,
CROSFIELD etc.
or TIFF/IT
CT and LW CMYK
or monochrome

Single and double
page data PostScript
or PDF file format
composite color
or separations

GRAVOCONVERT

GRAVORIP

Full color Single and double
page data CT and LW

IMPOSE

CTP impositioning
eg. 32 pages 4 x 4

Gravure cylinder impositioning
eg. 120 pages 10 x 6U

GRAVOPROOF

Full color
form proofs

Pre processed
color separated
printing forms in
PostScript file format
CT part gets
offset screen
from CTP or
image setter RIP

Cylinder color separations,
one file per engraving head
in TIFF-g or HDP file format

DTG

Summary of OFFSET - IMPOSE S. W.

SUN products: SOLARIS 2.x   SOLARIS X/86   PC's

SGI products: IRIX 5.X - 6.X and SGI Servers

Operating systems:
             UNIX or *WindowsNT*

Interfaces: XTerminal / MAC / PC's
                 WindowsNT on XClient S.W.

Functionality: Various data basis / editing / job control status /
                 impositioning / proofing / archiving / name conventions /
                 customer and job names / page numbers / complete or
                 partial jobs / inspection tool / in single or combination of
                 colors

Proofing: HP7507 / HP 2000 / NovaJet / STORK / IRIS

Archiving: Archiving and/or Back-up functionality