Retrofit: small investment – great results

Systems for retrofitting

Concepts and solutions

Examples

References
Why retrofit?

Cost optimized and long-term reliability of machine- and plant investment by keeping your automation- and drives-equipment on a high technical level

Increase of productivity through increase of availability

Reducing production downtimes and maintenance costs through new technology and media

Retrofit: small investment – great results
Systems for retrofitting
Automation, drives, motors, services

Totally Integrated Automation

- DC motors and AC servomotors
- Drive systems for DC- and AC-applications
- Scaleable automation
- Monitoring and operating systems (HMI)
- Services

Increase your compatibility

Retrofit Industry DT MC PM BR
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## Systems for retrofit: AC-drives systems

**SIMOTION / SINAMICS: servo motors**

<table>
<thead>
<tr>
<th></th>
<th>3,7 ... 37 kW</th>
<th>51 ... 385 kW</th>
<th>85 ... 630 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power $P_{(1500 \text{ 1/min})}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated torque</td>
<td>24 ... 310 Nm</td>
<td>265 ... 2480 Nm</td>
<td>370 ... 3600 Nm</td>
</tr>
<tr>
<td>Shaft height</td>
<td>100 / 132 / 160</td>
<td>180 / 225 / 280</td>
<td>180 / 225 / 280</td>
</tr>
<tr>
<td>Maximum speed (1/min)</td>
<td>9000 / 8000 / 6500</td>
<td>5000 / 4500</td>
<td>5000 / 4500</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP55</td>
<td>IP55</td>
<td>IP23</td>
</tr>
<tr>
<td>Build</td>
<td>IMB3, IMB5</td>
<td>IMB3, IMB35</td>
<td>IMB3, IMB35</td>
</tr>
<tr>
<td>Integrated encoder system:</td>
<td>ohne, HTL-Impulsgeber</td>
<td>Encoder (ERN, EQN)</td>
<td></td>
</tr>
<tr>
<td>Rated voltage:</td>
<td>3 AC 400 V ... 460 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated speed (1/min):</td>
<td>400, 1150, 1750, 2900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload capability:</td>
<td>2 x $M_n$ up to 20 min. (dependent upon load cycle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration level:</td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air flow direction:</td>
<td>BS -&gt; AS</td>
<td>AS -&gt; BS</td>
<td></td>
</tr>
</tbody>
</table>

**The motor spectrum covers all drive requirements**
# Systems for retrofit: AC-drives systems

**SIMOTION / SINAMICS**: torque motors

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Torque $M_N$</td>
<td>100 ... 7000 Nm</td>
<td>109 ... 4950 Nm</td>
</tr>
<tr>
<td>Maximum Torque $M_{max}$</td>
<td>$2 \times M_0$ (short-term)</td>
<td>$1.5 \ldots 1.8 \times M_0$ (short-term)</td>
</tr>
<tr>
<td>Rated speed</td>
<td>150 ... 800 min$^{-1}$</td>
<td>40 ... 430 min$^{-1}$</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP54</td>
<td>IP21</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Integrated water-cooling</td>
<td>Integrated water-cooling</td>
</tr>
</tbody>
</table>

Motors with lower or higher torque on request

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**Torque motors – the right twist for high torque**
SIMOREG converters are fully digital controllers for three-phase-feed and supply rotor and field of speed variable DC motors.

rated power: 6,3kW bis 1900kW

DC motors are available from size 100 to 630 and cover power requirements up to 1610 kW
## Systems for retrofit: AC-drives systems

**SINAMICS**: inverters / converters

<table>
<thead>
<tr>
<th>Blocksize</th>
<th>Booksize</th>
<th>Chassis</th>
<th>Cabinet</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.12 – 90kW</td>
<td>1.6 – 107kW</td>
<td>110 – 800kW</td>
<td>110 – 560kW</td>
</tr>
</tbody>
</table>

**SINAMICS** covers the entire range for printing machines
Systems for retrofit: automation
Totally Integrated Automation

SIMATIC S7-400 und S7-300
for all automation applications

Distributed I/Os and HMI panels will be interfaced to PLCs via PROFIBUS / Ethernet networks
Systems for retrofit: services
Consulting, engineering, installation and commissioning, service

- Consulting in our worldwide offices
- Our applications centers got the right solution with competence, great experience and tradition for your best convenience
- We offer all necessary services like installation and commissioning with trained and experienced staff
- Our worldwide service network provides always the right solution over the entire product life cycle
Concepts and solutions:
Automation- and drives-concepts with PROFINET

Solution with:
- PRINTAMAT 400
- PRINTAMAT Retro
- SIMATIC S7 PLC
- SIMATIC ET200
- SIMOTION / SINAMICS
Concepts and solutions:
Automation- and drives-concepts with PROFINET / PROFIBUS

Solution with:
- PRINTAMAT 400
- PRINTAMAT Retro
- SIMATIC S7 PLC
- SIMATIC ET200
- SIMOTION / SINAMICS
Concepts and solutions: Press overview: automation concept

Remote I/O with PROFIBUS / PROFINET

Drives level

Automation level

Control level PRINTAMAT

Production planning with PRINTAMAT
Concepts and solutions:
Automation- and drives-structure on a printing tower

Description of bus systems:

PROFIBUS:
Transfer of remote I/O signals to the PLCs of the printing units, remote control of ink keys, registers.

PROFINET:
Fast, serial real time bus for synchronization of distributed drives systems and data exchange with automation systems.
Concepts and solutions:
Mixed application “real master“ and “virtual master“
Concepts and solutions:
Retrofit at a commercial press: after Retrofit

Retrofit:
- Multi drive system at the folder
- Digital control main motor
- State of the art PLC with monitor
- Electronic pull-units
- Real master application
Concepts and solutions: Digital multi drives concept with DC motors

Retrofit:
- Multi drives with DC technology
- Digital DC main drive controller
- Position control with SIMOTION
- Real master as position setpoint
- Cutoff register accuracy
Example:
Retrofit of a commercial press

Retrofit project at the KBA commercial press Compacta of Watchtower in Selters / Germany.
Entire substitution of automation and drives, replacement of control consoles and prepress PC through modern computers, equipped with SIEMENS control and presetting system PRINTAMAT Retro.
Examples: Retrofit of control consoles

Ink- and water setting via 37” flat screen. The width of TFT screen matches with the web format.

Demo PRINTAMAT

existing

after retrofit
Examples:
Upgrading of automation and drives at customer site

Mounting of preconfigured panels into the cabinets which are installed right at the press.
Example:
Expansion of a conventional (shafted) press with AC-technology

Retrofit project with Graphic Web Systems (GWS)
Out of an used MAN UNIMAN U-type GWS constructed an 8-height tower for 4/4 printing. Each "bridge" is individually driven by AC-motors with real master application. Interface to existing press with 1:1 gateway.
An used WIFAG tower has been mechanically integrated to an existing offset press. Siemens was delivering engineering, installation, start-up and was manufacturing a new power supply for PLCs and auxiliary drives. Remote operation has been realized with a PRINTAMAT Mini console.

Key features:
- Auxiliary drives with digital control Micromaster 440 (7kW + 5,5kW)
- Tower PLC SIMATIC S7-315-2DP with ET200 distributed I/Os and Ethernet link to PRINTAMAT Mini control desk
- Data exchange with existing 3rd control via 1:1 hardware interface
Example:
KBA Commander offset press at Scottish Daily Record (SDR)

Extension:
Shaftless towers for 4/4 printing with AC-technology

Extension of a H-type tower with AC-technology
Real master (external encoder) at existing printing unit for position reference
Upgrade from mechanical pull-out units to electronic drag rollers
Upgrade of mechanical infeed units to electronic infeed with dancer control
Example:
MAN Uniman in Biel (1. step)

- Upgrade of master PLC S5-150U through S5-135U with PROFIBUS interface to DC drives system SIMOREG DC Master
- Existing SINEC L1 communication and automation bus system was integrated in this new automation system
- Installation of a new operating, monitoring and message system
- Register actuation, product selection and press overview with PRINTAMAT technology
- Old 3rd party DC drives system has been substituted by SIMOREG DC Master 6RA70.
Example: MAN Uniman in Biel (final upgrade)
Example:
Tetra Pak printing machine for packaging

Mechanical modernization and electrical upgrade as well as new equipment for a Offset –packaging-printing-press

- Press manufacturer Chambon (F)
- Mechanicals parts upgraded by TetraPak
- Dimensioning and multi drive technology engineered by Siemens

- Increase in production speed up to 60%, on special productions up to 80%
- Increase in product quality
- Less waste at start up
- Shorter mounting times
- ROI within 12 months
References

1998-2003 Hannoversche Allgemeine / Hannover - Germany / MAN-Roland Colorman
Upgrade SPS, new remote I/Os with ET200, new PLCs and
digital drive control for reel stands

1999 South China Morning Post / Hong Kong – China / MAN-Roland Colorman
New prepress computer system PRINTAMAT Retro

2000 El Pais / Valencia – Spain / MAN-Roland Uniman
After mechanical overhaul
complete new electrical equipment with electronic line shaft

2000 ABC / Seville – Spain / KBA Express
Recommissioning after moving of press

2001 Sydost Pressarna / Växjö – Sweden / MAN-Roland Uniman
After mechanical overhaul
complete new electrical equipment with electronic shaft

2001 Mirandella / Lissabon – Portugal / PPSI
Shaftless multi drives equipment for newspaper press (footprint)

2001 Oberösterreichische Nachrichten / Linz – Austria / KBA Express
New presetting system PRINTAMAT Retro
References

2002 Scottish Daily Record / Glasgow – Scotland / KBA Commander
New presetting system PRINTAMAT Rettro, PLC upgrade and modernization of distributed periphery to SIMATIC ET200

2002 Imprimerie Moderne Sion / Sion – Switzerland / MAN-Roland Uniman
New digital drive control SIMOREG DC-Master 6RA70

2002 Corriere della Sera Rom / Rom – Italy / MAN-Roland Uniman
PLC upgrade and new digital drive controllers for reel stands

2003 SIIES Mailand / Mailand – Italy / WIFAG OF470
New electrical equipment for additional WIFAG tower

2004 Yedioth Ahronoth / Tel Aviv – Israel / MAN-Roland Colorman
Upgrade of safety functions

2003 Imprimerie Les Journaux / Chalon – France / MAN-Roland Mediaman
Upgrade SPS auf S5-155U CPU948
Upgrade of drive control to SIMOREG DC Master 6RA70

2003 Danzig / Danzig – Poland / MAN-Roland Colorman
PLC upgrade and PRINAMAT control desk
References

2003  Bieler Tagblatt / Biel – Switzerland / MAN-Roland Uniman
PLC Upgrade, new operating and monitoring system,
new digital drive control SIMOREG DC Master 6RA70

2003  Blic / Belgrad – Serbia / MAN-Roland Colorman
Recommissioning after moving, upgrade of electrical equipment
for ink and water actuation

2004  De Telegraaf / Amsterdam – Netherlands / MAN-Roland Colorman
New PLC SIMATIC S7 and digital drive control system for reel stands
SIMOREG DC-Master 6RA70

2005  Druck- und Verlagshaus W. Gassmann AG / Biel – Switzerland / MAN-Roland Uniman
2006  Press extension with a shaftless tower, PLC systems with SIMATIC S7 and Masterdrives
PRINTAMAT production planning and prepress computer system with CTP Interface

2005  Wachtturm Bibel- und Traktatgesellschaft / Selters – Germany/ KBA Compacta
Complete new electrical equipment: PLC upgrade with SIMATIC S7, remote I/OS
SIMATIC ET200, electrical drag rollers, digital main drive control with
SIMOREG DC Master 6RA70, commercial printing control console PRINTAMAT Retro
References

2006  Yedioth Ahronoth / Tel Aviv – Israel / MAN-Roland Colorman
Upgrade of control desks with PRINTAMAT R

2007  Graphische Großbetriebe Poessneck / Poessneck – Germany / MAN-Roland Lithoman
Reconfiguration of an imprinter unit
Press automation retrofit with SIMATIC S7 and PRINTAMAT Retro.
AC multi drives (6 AC motors per printing unit with Masterdrives MC)

2007  Printer Columbiana / Bogota – Columbia / MAN-Roland Lithoman
Press control retrofit with SIMATIC S7 and ET200S.
Visualization upgrade with SIMATIC Panel MP370.
Modernization of existing DC dives to SIMOREG DC Master 6RA70.

2007  CTP / Durban – Southafrica / Cerutti Gravure press
Complete new electrical equipment with SIMATIC S7 and ET200, digital drive controllers with SIMOREG DC Master, control system WIN CC, engineering, installation and start-up.

2007  CTP / Johannisburg – Southafrica / WIFAG Gravure press
Complete new electrical equipment with SIMATIC S7 and ET200, digital drive controllers with SIMOREG DC Master, control system WIN CC, engineering, installation and start-up

2007  Bidasoa / Valencia – Spain / KBA Express
New configuration of press with new PLC system SIMATIC S7 und ET200.
Multi drives with Masterdrives MC and new control consoles with PRINTAMAT Retro.

2007  Distasa / Seville – Spain / KBA Commander
Press extension with a shaftless 8-hieght printing tower (Masterdrives MC) and upgrade to new automation with SIMATIC S7 and ET200

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References

2008  Distasa / Sevilla – Spain / KBA Express, KBA Commander
      Installation of product planning and prepress computer system PRINTAMAT Retro.
      Upgrading of control consoles to PRINTAMAT.

2008  Severotisk / Usti – Czech Republic / MAN-Roland Lithoman
      Modernization of shaftless DC-drive system with SIMOTION D and SIMOREG DC Master

2008  Printer Columbiana / Bogota – Columbia / MAN-Roland Rotoman
      Drive control upgrade to digital controller SIMOREG DC Master.
      Modernization of PLCs to SIMATIC S7 and ET200 with SIMATIC Touch Panels MP370.
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2003  South China Morning Post / Hong Kong - China
MAN Colorman
PRINTAMAT production planning and prepress computer system

2003  Österreichische Nachrichten / Linz - Österreich
Koenig&Bauer Express
PRINTAMAT production planning and prepress computer system with CTP Interface

2003  Scottish Daily Record / Glasgow - Schottland
Koenig&Bauer Commander
PRINTAMAT production planning and prepress computer system
with CTP Interface

2003  Danzig / Danzig - Polen
MAN Colorman
Retrofit control desk with PRINTAMAT R

2003  Blic / Belgrad - Serbien
MAN Colorman
Retrofit control desk with PRINTAMAT R

2004  SIES / Mailand - Italien
WIFAG OF5
Retrofit control desk with PRINTAMAT R
PRINTAMAT references

2005  Druck- und Verlagshaus W. Gassmann AG / Biel - Schweiz
      MAN Uniman
      PRINTAMAT production planning and prepress computer system
      with CTP Interface

2005  Wachturm Bibel- und Traktatgesellschaft / Selters - Deutschland
      Koenig&Bauer Compacta
      Commercial press retrofit control console with PRINTAMAT Retro

2006  Scottish Daily Record / Glasgow - Schottland
      Koenig&Bauer Commander
      PRINTAMAT production planning and prepress computer system
      with CTP Interface

2006  Yedioth Ahronoth / Tel Aviv – Israel
      MAN Colorman
      retrofit control console with PRINTAMAT Retro

2007  Graphische Großbetriebe Pößneck / Pößneck – Deutschland
2008  MAN Lithoman with KBA folder
      Commercial press retrofit control console with PRINTAMAT Retro