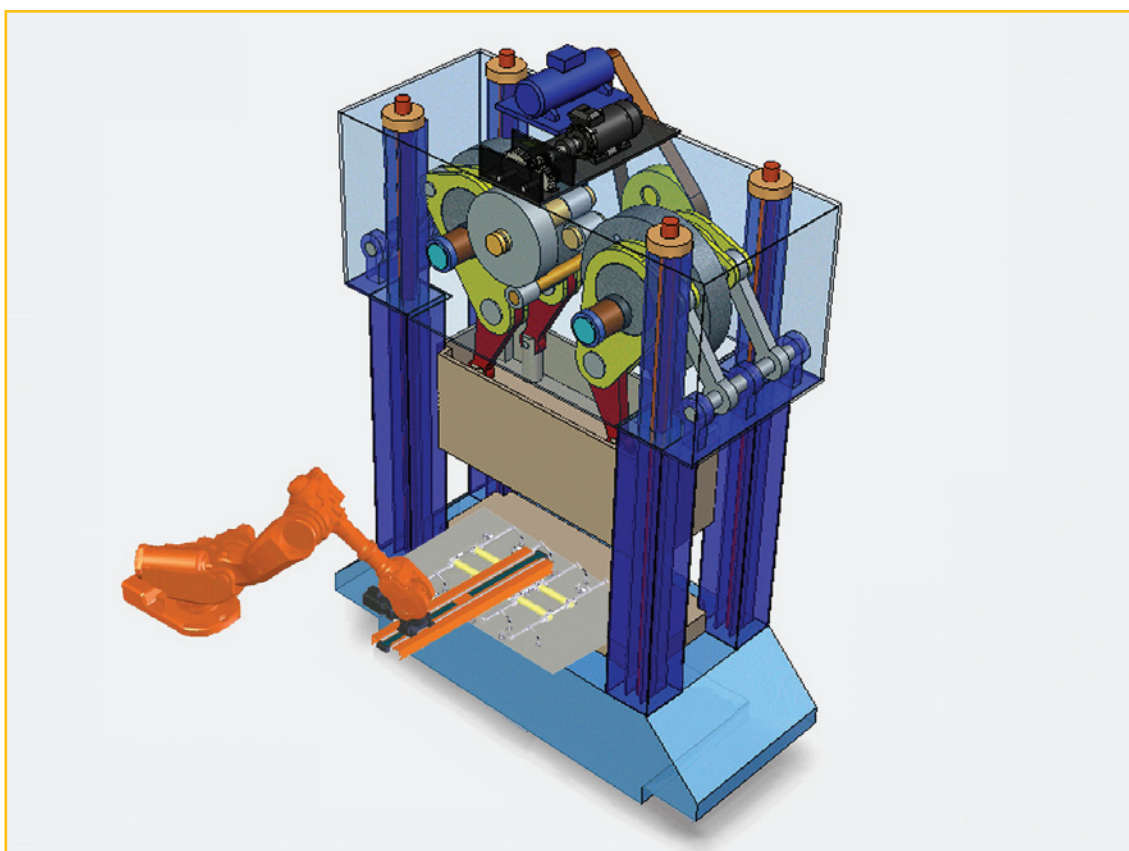


From Stack to Rack

DDC[®]

Dynamic Drive Chain

ABB's technology for servo presses



ABB

ABB offers the complete solution for Press Automation. Our standardized products and pretested modular solutions reduce project risk, time and costs. They also ensure easy installation and maintenance. In short, they give you the best return on your investment. ABB StampWorld: All that is needed to guarantee a continuous and steady flow From Stack to Rack.



Experience & Innovation

The Doppin automation system for Press Automation was developed during 1971-1973 by Volvo. The first Doppin Lines were installed in Volvo Olofström and Volvo Torslanda in 1973-1974. During the early 1990's ABB Spain developed a standard for Press Automation with Robots. Robotic Solutions offered a higher degree of flexibility with good transfer rates at a competitive cost. In 1997, the experience of VOLVO was added to ABB through the acquisition of its Press Engineering group. This combination brought together the experience and knowhow attained from the completion of more than 500 automated Press Lines worldwide.

OEE

The three factors that define the Overall Equipment Effectiveness (OEE) are Speed, Availability and Quality. Our modular, standardized solutions help our customers improve the performance rate while also maximizing the availability of the line and quality of produced parts.

Flexibility

Our customers demand reliable press automation systems that can adapt quickly and easily to whatever the production demands. Our highly flexible solutions have been engineered to allow customers to produce a large variety of parts on the same line, with minimal change in robot programs. Automatic tool change and the capability to reverse or split the line are just two available examples of process flexibility.

Easy to use

Our HMI, program wizards and supervision systems facilitate an intuitive use of the equipment. Our trouble shooting tools allow for a fast diagnosis and recovery to minimize downtime.

Safety & Environment

Our safety systems are engineered to comply with the highest EN and OSHA safety standards. Plus, we can offer further safety system enhancements tailored to your specific applications or your own company standards. These enhancements include, but are not limited to: Noise attenuating safety guarding and State-of-the-art safety technology based on a dedicated safety PLC.



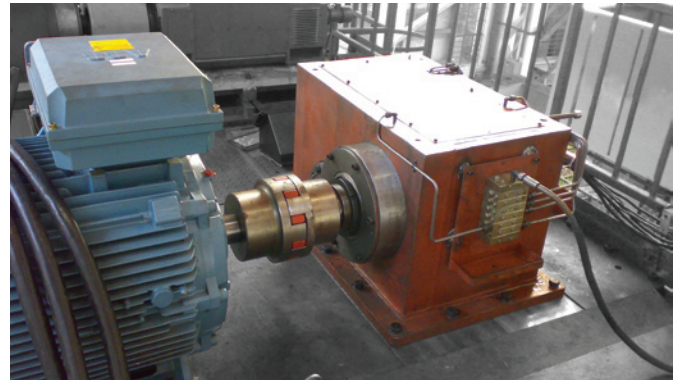
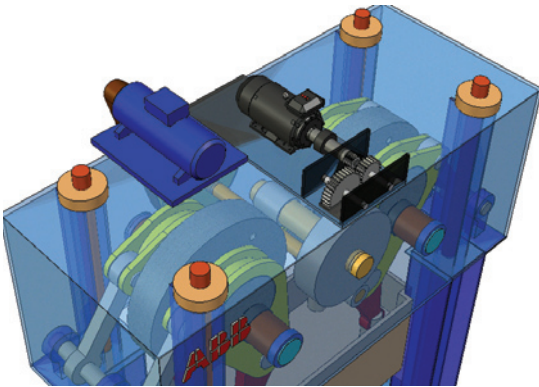
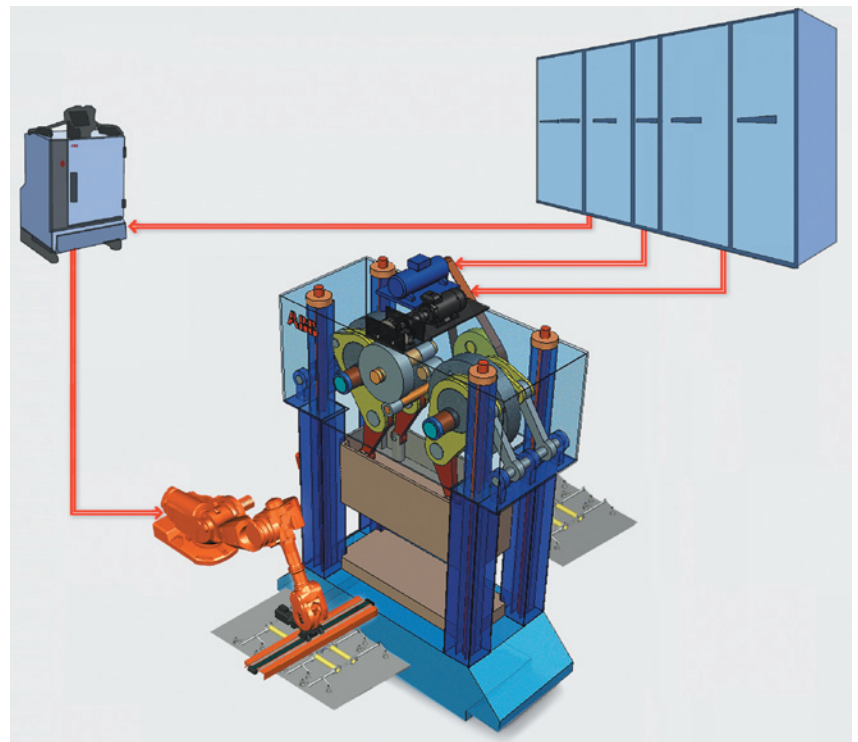
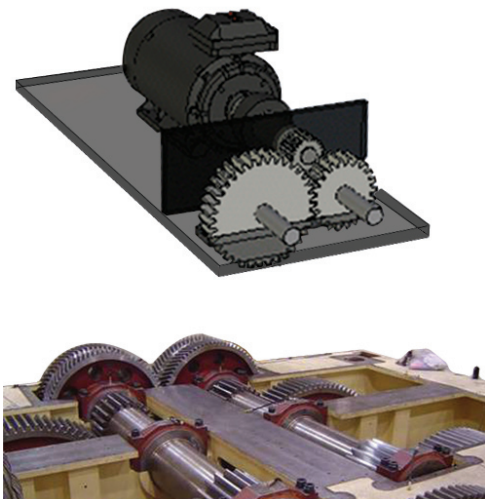
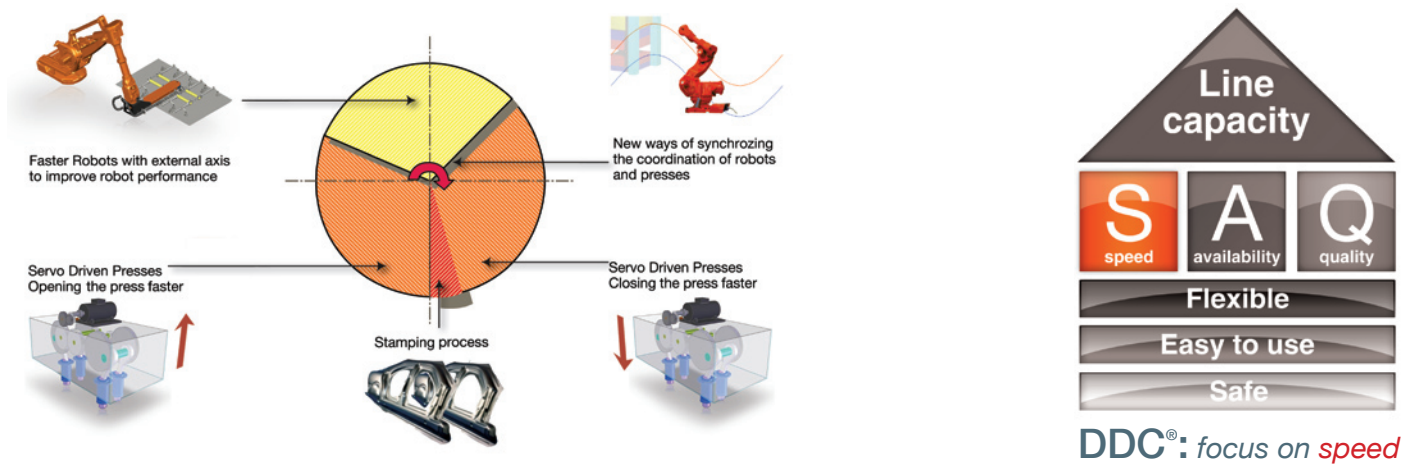


ABB has developed a new drive system for mechanical presses called Dynamic Drive Chain , DDC®.

The DDC® enhances the press performance allowing for a better cycle time at a given pressing speed, resulting in improved productivity and quality. The servo control of the press motion is also used to optimize the synchronization with the automation, while keeping a smooth part drawing process. Synchronized clutching virtually eliminates wear of the clutch and the traditional press brake is used in emergency cases only.

ABB can install DDC® into new presses or retrofit existing ones.

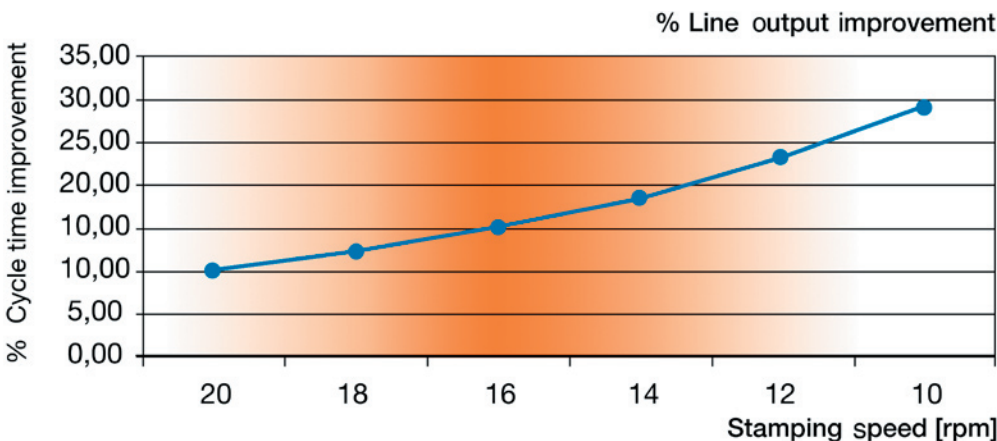
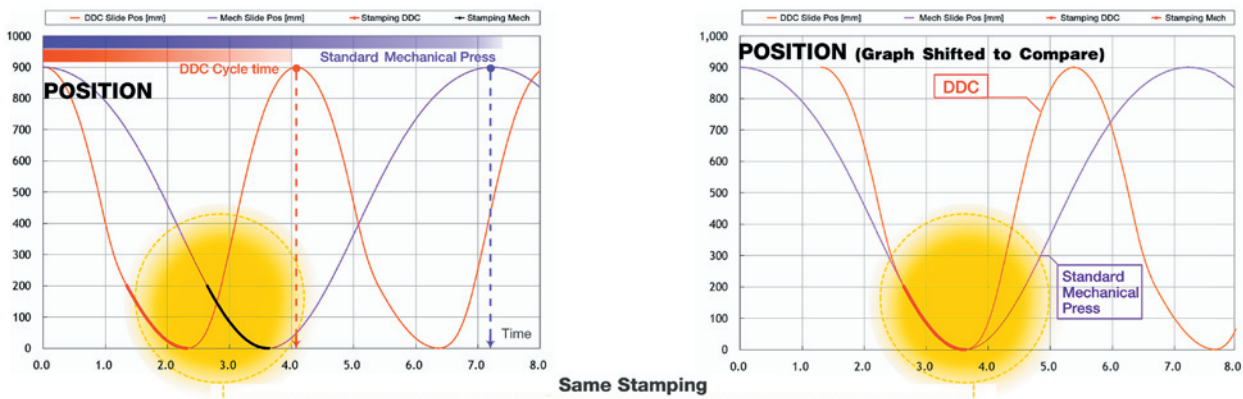




ABB's solution for high production press-lines has been developed focusing on improving every single component on the drive chain. Until recently most automation integrators have only focused on the performance of the transfer system. The development of DDC® means that ABB has now targeted press line productivity on three fronts: enhancing the transfer systems, the press drives themselves and the synchronization of both.

Opening and Closing Faster

We dramatically reduce the press cycle time by opening and closing faster while keeping the required stamping speed.

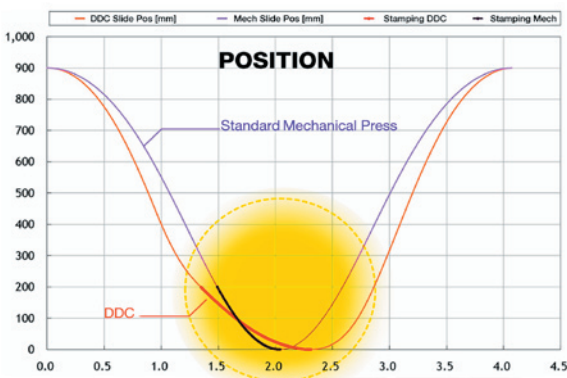


The combination of the reduced press cycle time with the enhanced synchronization with automation leads to an increase line output.

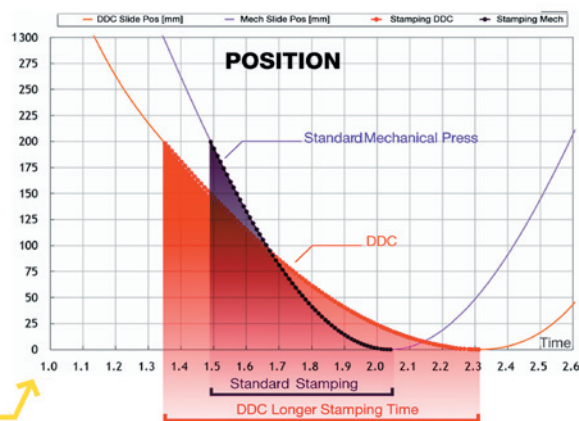


DDC®: focus on quality

The Dynamic Speed Control of the press can result in higher quality parts, by reducing the stamping speed when part quality requires it, while increasing the line production rate.



ZOOM



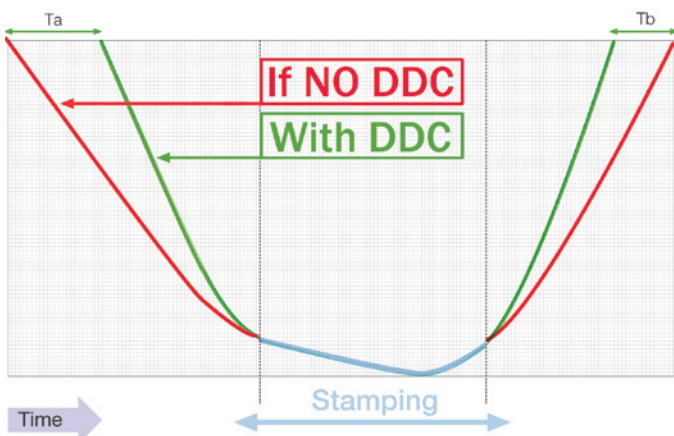
Easy to use

The Quality level is defined by just setting the Stamping speed. Then the control algorithms will optimize the motion profile to obtain the best Cycle time.



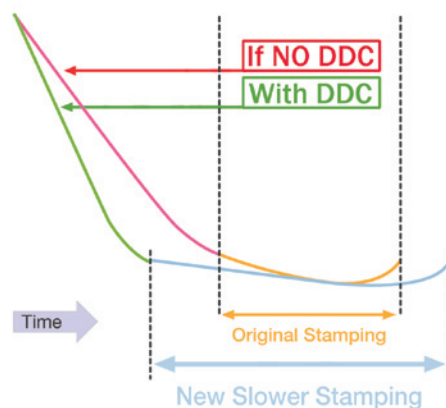
DDC Gain to Cycle Time

Same Stamping/Forming Speed Lower Cycle Time



DDC Gain to Quality

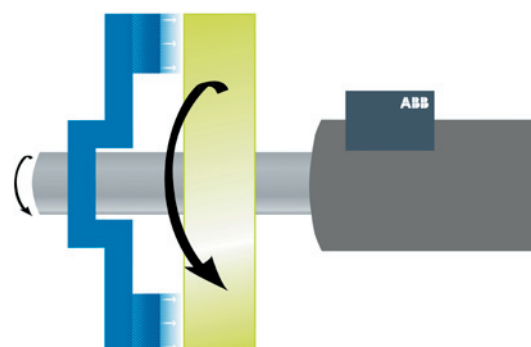
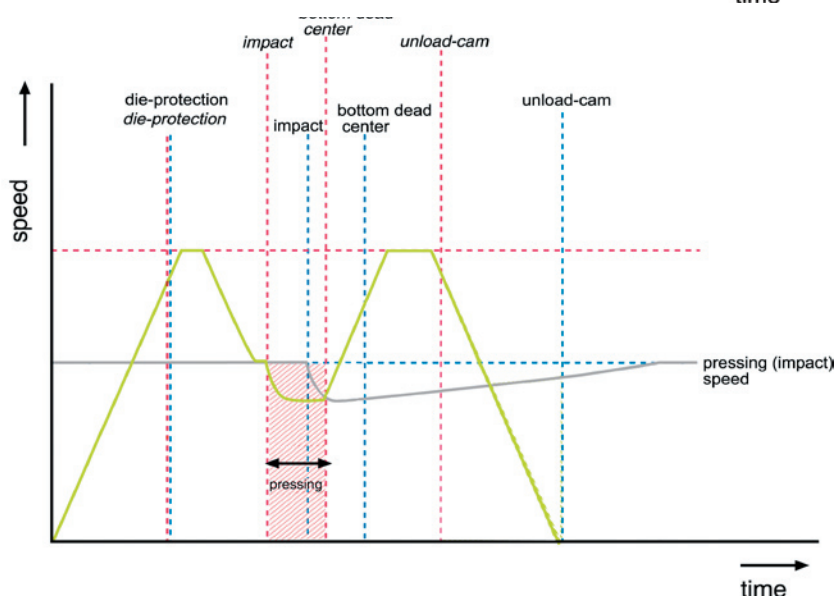
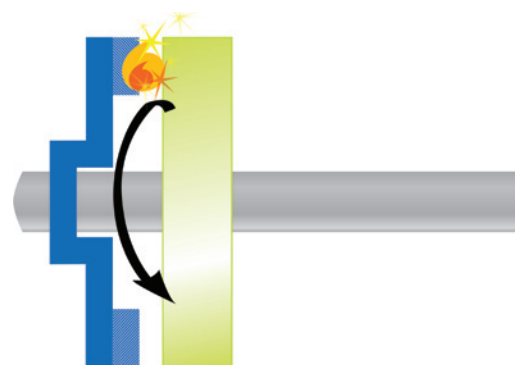
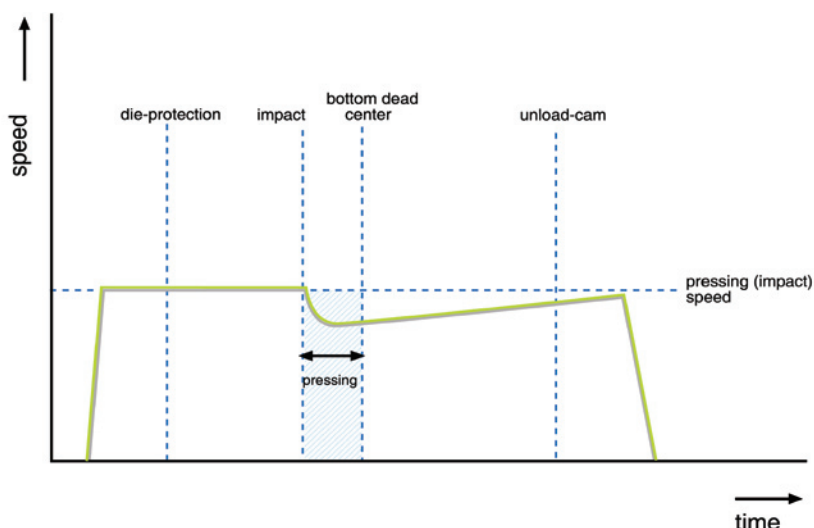
Same Cycle Time Lower Stamping/Forming Speed





Availability improvements due to DDC® implementation.

DDC®: focus on *availability*



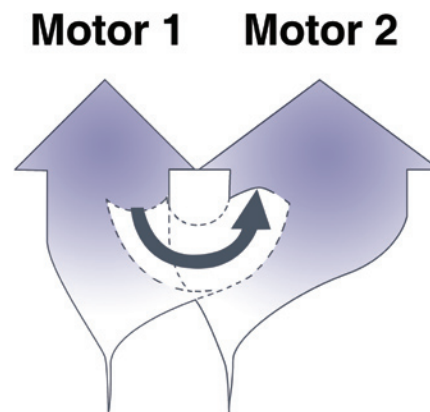
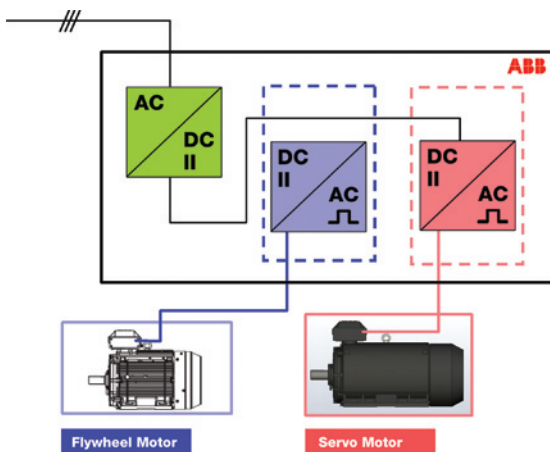
Brake wear is virtually eliminated since the brake is not used during normal press operation. Brake is used only in the event of an emergency press stoppage.

Clutch wear is virtually eliminated since the clutch engages only when the press drive train is synchronized with the flywheel speed. Less stress on gears due to reduced torques. If there is a problem with DDC it does not tie-up the press: DDC system can be turned off or disabled at anytime so that the press can run in a traditional fashion if needed.



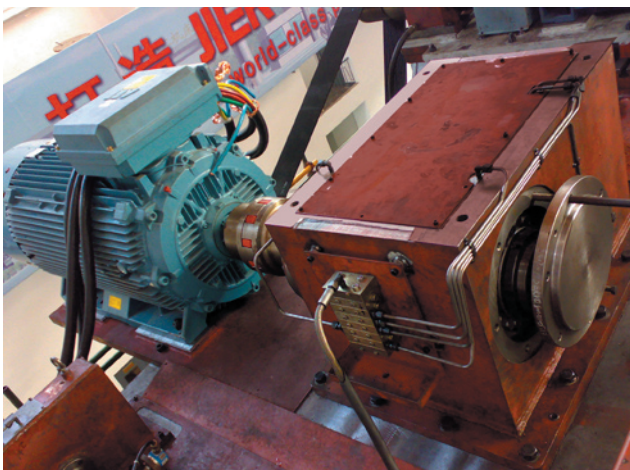
ABB Designing for the environment

Another advantage of DDC[®] is low peak power. Because DDC[®] is a hybrid servo solution that also uses the existing flywheel energy of the press, the servo motor and the grid peak power requirements are much lower than other full servo solutions.



Finally, DDC[®] brings all these benefits with a lower energy consumption than a conventional press. Energy losses are reduced thanks to regenerative braking and synchronized cluching.

Additional performance is brought by clean and efficient power technology.



Over the last three decades, ABB has remained committed to building and strengthening relationships with customers, integrators and partners throughout the world.

Underpinning this commitment is our belief that at the heart of innovative robotics lie mutual trust and confidence.



This belief has helped us to achieve clear leadership in a demanding field. Today, in the automotive, metal fabrication, foundry, plastics and consumer industries, our wide range of products and solutions help to pave the way for optimised production. Across the world our global network of sales and service centres, and our carefully selected partners make ABB products, systems and services available wherever they are needed.



www.abb.com/robotics

Technical Center

Asea Brown Boveri, S.A.
Illa de Buda, 55
Sant Quirze del valles,
Barcelona, SPAIN
T: +34 93 728 87 00
Fax: +34 93 728 8682

Technical Center

ABB Inc.
201 Westcreek Boulevard
Brampton, Ontario,
L6T 5S6, CANADA
T: +1 905 460 3000
Fax: +1 905 460 3001

Technical Center

ABB Engineering Ltd
No.31 Industrial Building 3/F,
Fu Te Dong San Road
Waigaoqiao free trade zone,
Shanghai, CHINA
T: +86 21 6105 6666
Fax: +86 21 6105 6901

Technical Center

ABB Ltd
Oksan Bldg., 9th Fl,
157-33, Samsung-dong,
Kangnam-ku
Seoul, 135-090, KOREA
T: +82 2 528 3070
Fax: +82 2 554 8725

Sales and Support Center

ABB Australia Pty Limited
601 Blackburn Road
Notting Hill, VIC 3168 (AUSTRALIA)
Post Office Address:
P.O. Box 4294
Mount Waverley, Victoria 3149, AUSTRALIA
T: +61 3 8544 0000
Fax: +61 3 8544 0001

Sales and Support Center

ABB Ltda.
Av. Dos Autonomistas,
1496- P.O. Box 975
06020-902
Osasco-Sao Paulo, BRAZIL
T: +55 11 3688 9111
Fax: +55 11 3688 9991

Sales and Support Center

ABB s.r.o.
Sokolovská 84-86
Praha 8, 186 00
CZECH REPUBLIC
T: +420 234 322 110
Fax: +420 234 322 113

Sales and Support Center

ABB MC s.a.s.
ZI des Béthunes - Rue de
l'Equerre F-95310
Saint-Ouen l'Aumône, FRANCE
T: +33 1 3440 2525
Fax: +33 1 3440 2424

Sales and Support Center

ABB Ltd
Plot#485/6, 14th Cross
4th Phase, Peenya Industrial Area
Bangalore 56 0058, INDIA
T: +91 80 2294 8362
Fax: +91 80 2294 8360

Sales and Support Center

ABB Automation GmbH
BAU Robotics
Grüner Weg 6 QR PO Box 100152
D-61169 Friedberg, GERMANY
T: +49 6031 850
Fax: +49 6031 85297

Sales and Support Center

ABB México, S.A. de C.V.
Blvd. Centro Industrial No. 12
54073 Tlalnepantla,
Estado de México, MEXICO
T: +52 5 328 1400
Fax: +52 5 329.4669

Sales and Support Center

ABB Process Solutions
& Services SpA
Via L. Lama 33 I-20099
Sesto San Giovanni (MI), ITALY
T: +39 02 24141
Fax +39 02 2414 3096