

# Robust production



Claes Ryttoft

## Dear Reader,

Industrial production accounts for around 31 percent of global GDP and 34 percent of global employment. Whether making a process chemical or the latest smartphone, the logistics form a complex choreography involving the interaction of numerous disciplines. Production is also close to the heart of ABB, as not only are most of its customers part of this sector (or serving it), but as a manufacturing company itself, ABB understands and shares the challenges faced.

In a fast moving world, industry is in a constant state of change as new means of production create new opportunities. One example is in the field of robotics. Until recently, the typical industrial robot toiled away behind a strictly enforced safety enclosure whose necessity was dictated both by the nature of the work and the design of the equipment. Although robots continue to be the backbone of these heavy-duty tasks, their potential is no longer restricted to such environments. Many future production lines will feature robots and human colleagues working in the same space, side by side, while each doing what they can do best and exchanging workpieces as part of the workflow. The safety of such interactions will be assured by a combination of hardware design and robotic behavioral safeguards. The lead article of this edition of ABB Review looks at ABB's groundbreaking YuMi® robot.

Raising the efficiency and robustness of production involves optimization in many areas transcending the actual design of the equipment. Notably, software and services are increasingly taking center stage. Examples discussed in this journal include transformer health management and the dynamic scheduling of tasks to save energy costs.

Further production-related contributions presented include electromagnetic stirring in arc furnaces (leading to, eg, higher efficiency

and consistency), a softstarter enabling new and valuable motor control options, a medium-voltage UPS (uninterruptable power supply) and a way to make installation work more efficient through prewiring.

A major challenge in designing and operating electrical systems lies in the oscillations and instabilities that can occur, and if not adequately mitigated, can damage equipment or lead to blackouts. Under the title "Taming the power," ABB Review is launching a series of articles centered on this theme. The first of these looks at medium-voltage power converters.

ABB's success is dependent on attracting bright minds to perform university research in our technology domain. In honor of Hubertus von Gruenberg, Chairman of ABB's Board of Directors from 2007 to 2015, the company has created an award for the best PhD thesis within the fields of power and automation. The award (with \$300,000 for funding postdoctoral research activities) will be presented every third year. You can learn more about the award in this edition of ABB Review.

I would also like to invite you to take part in a survey seeking your feedback on this journal. Your opinions are highly valued and will be used to further improve the publication.

Enjoy your reading.

A handwritten signature in blue ink that reads "Claes Ryttoft". The signature is fluid and cursive, with a prominent loop at the end of the last name.

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Chief Technology Officer and  
Group Senior Vice President  
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