Schulthess Maschinen AG have roots as far back as the year 1845, when Kaspar Schulthess founded the Swiss company. In 1949 Schulthess presented the first punched-card control for washing machines, and in 1951 the first automatic washing machine in Europe came off the production line in Wolfhausen near Zurich. With its manufacturing innovations, the company has stayed ahead in the washing machine and tumble drier markets, and one of the recent vital contributing factors to its success has been the introduction of a MULTIBEND-CENTER by RAS Reinhardt Maschinenbau which automatically bends the sheet metal parts and unloads them with the help of an intelligent robot.

Schulthess are committed to a steady growth, and this requires the desire and the faculty for innovation. Schulthess Maschinen AG interprets this concept as not solely relating to its products but also as an all-embracing commitment to innovation. Quality, speed and versatility are the main aims production has to fulfill. Yesterday's orders are manufactured today and dispatched tomorrow, and this is where Gion A Huonder, director of production and logistics and member of the board, sets his benchmark.

The Schulthess group uses sophisticated production and control systems with a high level of flexibility. Line production with the use of Kanban cards is a pioneering example. Several Swiss trade associations have recognized this innovative logistics concept and have awarded Gion A Huonder, seen as its spiritual father, with the renowned innovation prize for logistics. Due to the Kanban principle there are no production orders or follow-ups of orders. Equipment supply for all user stations is self-controlling. Even external suppliers are fully integrated into the Kanban principle.
In its strongest segment in terms of volume and turnover, domestic appliances, Schulthess manufactures washing machines and tumble dryers.

The commercial machines are designed with communal and commercial use in mind. The industrial washing machines, tumble dryers and mangles are built for hotels, residential homes and hospitals. 80% of production output is sold on the Swiss home market. Mostly under its own brand name Schulthess. A not insignificant number of machines though are sold under different brand names. The Schulthess engineering team’s latest technological achievement is a washing machine which measures the load’s level of soiling and then automatically sets the washing program accordingly.

In addition to its laundry technology department, the Schulthess group also has a department for temperature management technology. Alpha-Innotec, located in the north of Bavaria, stands out and is counted among the market leaders in terms of heat pump production. The sheet metal parts required at Alpha-Innotec are also produced at the Schulthess Wolfhausen plant.

The RAS metal folding center slots perfectly into the integrated manufacturing approach with combined processing and operational technology. The RAS FlexiFeeder loading system automatically feeds the blanks from the punch press into the metal folding center. A blank turner flips the sheets to ensure that the punching burrs are on the inside of the folded component. Loading grippers pull the blank into the machine where it is first measured. The main manipulator then clamps on to the part and feeds it into the folding area where it is folded up and down and the part leaves the metal folding center, for example as a finished appliance housing. At the machine exit a robot takes over the finished part and stacks it either lying down on a palette or standing up in boxes.

Asked about his experience with the system, Martin Spahr, director of sheet metal production, spontaneously makes the following comparison; “Previously if we needed to service a rush order it usually meant a huge amount of retooling and several setting changes on our Press Brakes, and resultant long throughput times. This is why we usually would wait until a production batch was completed. Nowadays, with the RAS folding center, we simply interrupt a run. So, for instance, if a side panel gets damaged during assembly we can make one up and ship it virtually instantly.”
"Added flexibility was the main criterion for Schulthess when investing in a metal folding center. The reason for this is the motley mix of hugely varied production requirements. Batches for industrial machines come in at between 6 and 36 parts each. For heat pumps they are at about 80 parts and for domestic washing machines and tumble driers about 300 pieces are needed. At any time there are also rush orders which need to be produced without causing delays to the scheduled production.

"As the robot was stacking the finished parts without any problems and very reliably indeed, we rapidly went over to having all stackable parts stacked automatically," adds Martin Spahr. In this way, Schulthess benefits from the robot's full integration into the metal folding center's control. Meaning: the robot does not need to be taught or programmed. It automatically recognizes on the basis of size and shape where to grip the part. All the operator has to do is enter the required stacking order, i.e. stacked straight or staggered, off-set or standing up, and the robot automatically calculates its route from the pick up to the drop off point.

"Initially we only intended to use the stacking robot to tide us over during breaks," Gion A Huonder explains. "The thinking behind it was relatively simple. With breaks taking 60 minutes, personal staff allowances of 30 minutes and an unmanned run time at the end of the second shift of 60 minutes the robot adds another 2.5 hours of production time. This means the investment pays off very quickly."

"But what were the actual reasons Schulthess were looking for an automated folding solution? Before, the production volume was easily managed with four Press Brakes. However, due to the enormous capacity requirements that went with the heat pumps and, at the same time, increased washing appliances sales, the conventional production line had reached its limits. Furthermore, for large parts to be folded often two operators were needed on one press and they needed to be able to work together hand and glove. "It takes a year of experience before a press operator is able to carry out his work well in this way", Gion A Huonder reveals. "With the metal folding center we mastered the most complex parts within three months. In addition, due to the automatic process, the parts are absolutely identical and quality is no longer dependent on the skill of operators."

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"With the old presses it used to take three to four retooling steps to finish the top of a washing machine. This used to mean picking up parts, bending them, putting them down, retooling, picking the parts up again, bending and putting them down again etc. etc. This was enormously time consuming. Whereas the metal folding center automatically retools itself in a matter of seconds and even retooling steps within a folding cycle are carried out by the tool changer without interrupting production. "Producing identical pieces is 70% faster with the metal folding center," is the unanimous verdict at Schulthess.

Now those who think that the metal folding center resulted in staffing cuts are emphatically wrong. Since the metal folding center went into operation, Schulthess has purchased three additional brake presses. "Production is now more target-oriented. Parts with larger surface areas are processed by the RAS. The majority of smaller, internal parts are produced on the press brakes," Martin Spahr informs us. Gion A Huonder remembers, "As part of our market research we had looked at a number of folding center. The complexity and the bending geometry that can be achieved with the MULTIBEND-CENTER, as well the flexible integration of robot-controlled stacking finally swung it for us in favor of RAS."