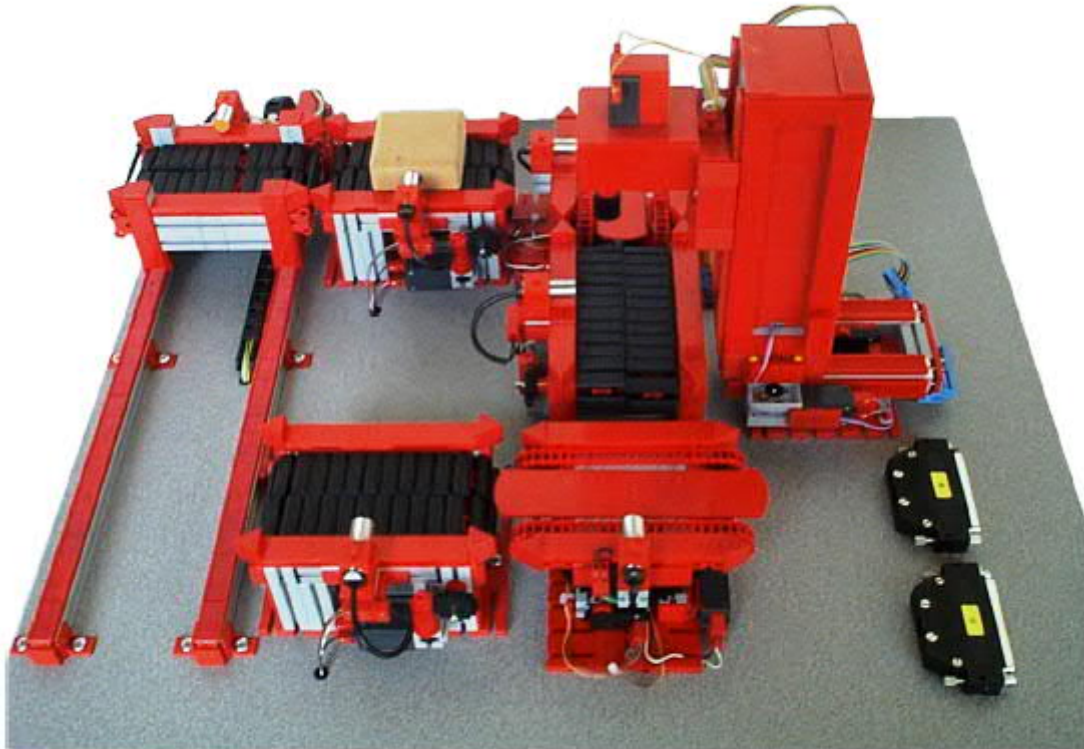


Production Cell



The model process cell simulates a process cell with an integrated circular store, as used for example in industrial metal cutting processes. The process cell consists of a rail led carriage with a conveyor belt, two slewing tables with conveyor chains, a vertical milling machine and three conveyor belts. The different means of transport are arranged in a closed circuit. Mechanical switches control the end positions of the moveable conveying units and inductive proximity switches check positions of parts. The simulated process shows a part being brought into the circular store, then being clockwise transported to the vertical milling machine, where it gets machined, and finally being brought out to a discharge station. The unmachined part is laid onto the conveyor belt and is brought to the rail led carriage. The carriage brings it to the next conveyor belt. There the part is transported to the slewing table, which executes a 90°-turn to bring the part to the next conveyor belt. This conveyor belt transports it to the milling machine. The upright housing executes a motion forward to draw near the part. The spindle starts rotating and gets moved down to intimate a machining sequence. After finishing this sequence, the upright housing and the spindle are brought back to their starting position and the machined part is conveyed to the second slewing table that brings it back again onto the first conveyor belt, ready to be withdrawn.

Inputs / Sensors		
Variable	Name	Direction
x0	carriage at conveyor belt 3	Input
x1	carriage at conveyor belt 1	Input
x2	carriage workpiece present	Input
x3	conveyor belt 1 workpiece present	Input
x4	turntable 1 at pos. conveyor belt 2	Input
x5	turntable 1 at pos. conveyor belt 1	Input
x6	turntable 1 workpiece present	Input
x7	conveyor belt 2 workpiece present	Input
x8	turntable 2 at pos. conveyor belt 3	Input
x9	turntable 2 at pos. conveyor belt 2	Input
x10	turntable 2 workpiece present	Input
x11	conveyor belt 3 workpiece present	Input
x12	machine tool pos. back	Input
x13	machine tool pos. front	Input
x14	machine tool pos. up	Input
x15	machine tool pos. down	Input

Outputs / Actuators		
Variable	Name	Direction
y0	carriage drive to conveyor belt 3	Output
y1	carriage drive to conveyor belt 1	Output
y2	carriage conveyor belt to conveyor belt 1/3	Output
y3	carriage conveyor belt from conveyor belt 1/3	Output
y4	conveyor belt 1	Output
y5	turntable 1 to conveyor belt 2	Output
y6	turntable 1 to conveyor belt 1	Output
y7	turntable 1 conveyor belt	Output
y8	conveyor belt 2	Output
y9	turntable 2 to conveyor belt 3	Output
y10	turntable 2 to conveyor belt 2	Output
y11	turntable 2 conveyor belt	Output
y12	conveyor belt 3	Output
y13	machine tool backwards	Output
y14	machine tool forwards	Output
y15	machine tool up	Output
y16	machine tool down	Output
y17	tool drive	Output

