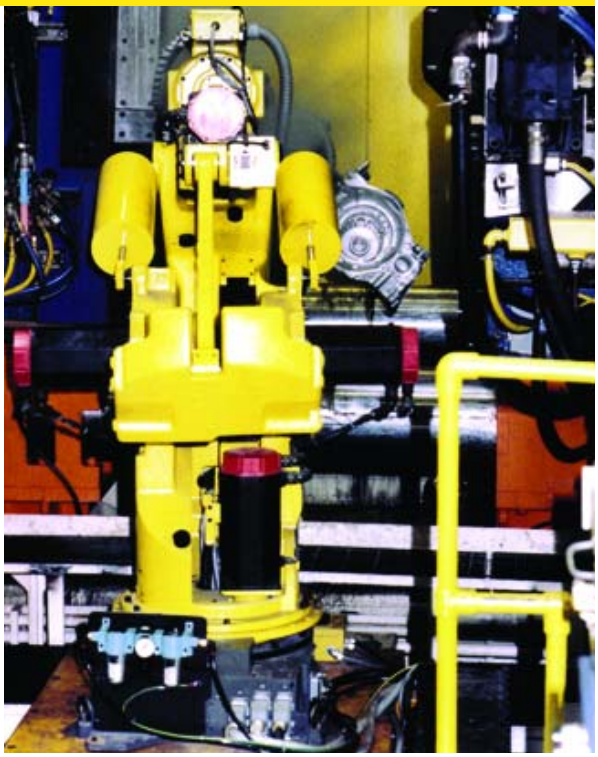
Application: Machine Tending

Industry: Metals

Products Used: (12) FANUC S-420*i*F
(12) FANUC S-420*i*R,
FANUC ACCUmist



FANUC Robots perform part extraction and die spray.

Challenges:

Eliminate the downtime caused by hard automation in the part extraction process and reduce part scrap and bulk utility usage caused by an uncontrolled die spray process in twelve, 3000-ton die casting machines that manufacture front wheel drive transmission cases.

Solution:

Twelve turnkey robotic cells with:

(1) FANUC Model S-420*i*F robots on floor mounted servo tracks performing part extraction from the die casting machine, air quench L/UL, vertical degate press L/UL, horizontal trim press L/UL and outfeed chute load.

(2) FANUC Model S-420*i*R robots mounted on the top of the fixed platens of the die casting machines performing die spray: cooling water wash, followed by a misting of die lubricant spray, ending with a high pressure air blow-off for drying the dies.

FANUC Robotics ACCUmist die spray system combines articulated robot motion with precise proportional control of flow rate, atomizing droplet size and spray gun fan width. With this robotic control of the die spray process, significantly less water wash, die lube and compressed air is used in each die spray cycle. With the ability to control the articulation of the robot's spray tool as well as the flow rate of the liquids and the width of the spray gun pattern, ACCUmist is able to significantly reduce the thermal shocking of the die steel that is conventional with all deluge style die spray systems.

Solution *(cont.)*

After one year of production with the FANUC Robotics ACCUmist die spray system, the customer documented the following improvements listed in order of financial impact:

(1) Die Rebuild costs reduced by 40%

(2) Scrapped parts costs reduced by 43%

(3) Die Lube usage reduced by 84%

(4) Labor required to meet production volume reduced by 18%

(5) Equipment Repair Labor reduced by 47%

(6) Facilities required to meet production volume reduced by 18%

(7) Waste Treatment Facility usage reduced by 90%

(8) Preventative Maintenance Labor reduced by 77%

(9) Treated Cooling Water useage reduced by 84%