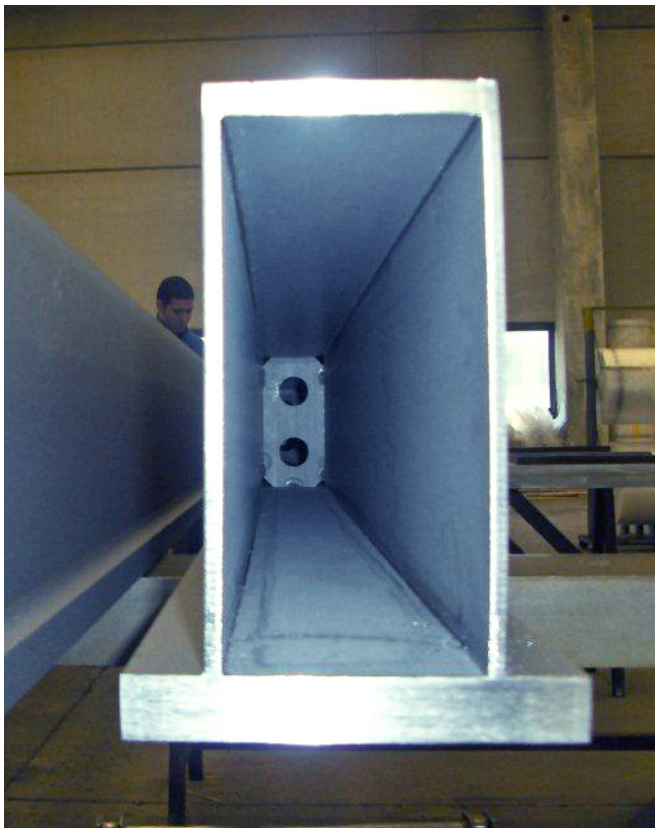
MONTANSTAHL
special profiles in steel

Robot-Arm for Aircraft Production Plant



Profile:	*Sp. Hollow Section*
Material grade:	*304L*
Execution:	*Laser fused*
Industry served:	*Manufacturing*
Destination:	*Boeing, USA*

For the aeronautical industry, in particular for aircraft production, a special section was requested for use in a corrosive environment. The section was going to be used as an arm where a linear robot was going to move along for handling components within an acid tank.
The material chosen was the austenitic stainless steel 304L, judged the best solution granting the required corrosion resistant properties, without having to select the much more expensive 316L.
The engineers did design a special section that was going to satisfy all structural requirements and ease for installation of the components of the robot.
The ideal shape was a sharp edged rectangular hollow section having the flange of one short side sticking out and different material thicknesses among webs and the two flanges (198x130/140x5x10/20mm).
The combination of full penetration weld with tight tolerances for shape dimensions, straightness and twist made the use of the laser fusion technology a must. The reduced deformation, achievable only with the laser fusion, allowed the production of this shape, respecting the needed tolerances.
For reasons of increased stiffness, gussets were MIG welded within the hollow section. In order to have electrical cabling and a hydraulic piston installed inside, holes were included in the gussets.