Robotics

Function Package IRB 6620 Force Control for Machining

The Force Control Function Package IRB 6620 for machining applications enables customers and system integrators to exploit a new dimension of robot intelligence for finishing processes such as deburring, grinding and polishing (e.g. for work pieces made of steel, stainless steel, aluminum, magnesium, wood, plastics, glass, etc.).

New functionality

To activate the new functionality of force control for machining more easily and much faster for users this special Function Package was developed and can be provided for various manipulator types.

Integrated solution

The basic Function Package includes the software FC Base including a dedicated GUI (Graphical User Interface) for machining for the FlexPendant, a special axis computer plus, a DAQ board, the Force-/Torque-Sensor and the sensor cable which is integrated in a hose package.

Ready to use package

With this Function Package main advantages can be obtained, which enables customers to concentrate on the present application and process. By reason that the Function Package is delivered fully assembled, tested and verified – meaning that the basic set-up of the system is already done before delivery – valuable savings of ressources like manpower, time and costs are given.

Higher productivity

The revolutionary technology of force control for machining in combination with the Function Package IRB 6620 enables a faster integration (because of minimized programming and optimizing efforts) and a quality improvement (because of reduced risks for damaging tools, workpieces or even the robot) in the production. This leads to fewer costs, higher productivity and better process results due to the fact that not the position but the process itself gets controlled

Function Package IRB 6620

Technical Data

Function Package Elements	
Hose Package:	upper hose package The integration of additional media is enabled.
Valve Plate:	The force sensor cable is spread across the valve plate. The assembly of additional components is possible.
Base Cable (Sensor):	7m, 15m, 22m, 30m (= corresponding to manipulator cable length)
Controller Hardware:	738-1 Prepared for Force Control
Controller Software:	661-2 Force Control base
	877-1 Machining FC GUI
	617-1 FlexPendant Interface
Mechanical assembly of hose package, force sensor, DAQ board and cabling is included if ordered together with a robot system. Equipment is fully tested and verified delivered.	

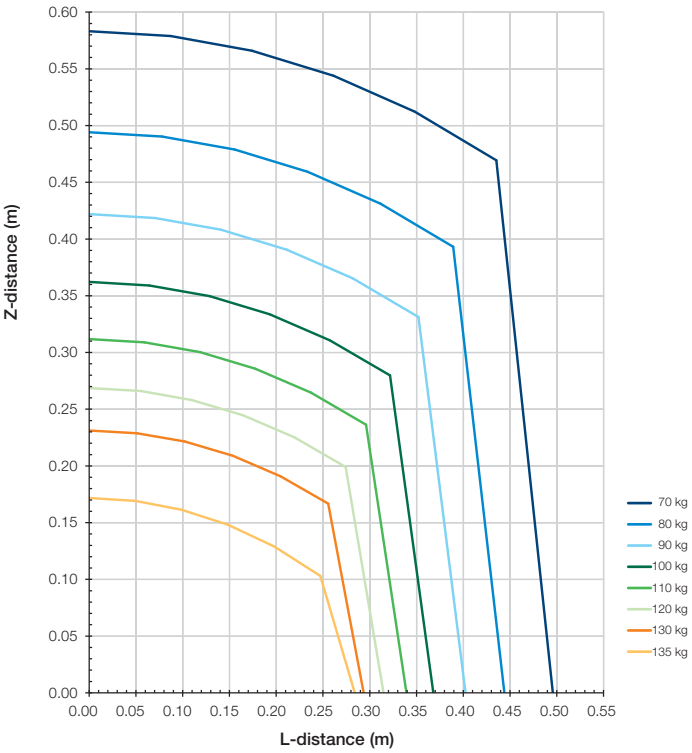
Application area	
Available for manipulator:	IRB 6620-150/2.2
Available for controller:	IRC5 (RW 5.09 and higher)
Available for:	Single Robots
	MultiMove Robots (independent)
Not available for:	MultiMove Robots (coordinated)

Force Sensor Specification (Metric)	
Omega 160 IP65	
Sensor Diameter:	170 mm
Sensor Height:	66 mm
Sensor Weight:	7.26 kg
Degree of protection:	IP65
Max. Force (Fx, Fy):	±2500 N
Max. Force (Fz):	±6250 N
Max. Torque (Tx, Ty, Tz):	±400 Nm
Single Axis Overload (Fx, Fy):	±18000 N
Single Axis Overload (Fz):	±48000 N
Single Axis Overload (Tx, Ty):	±1700 Nm
Single Axis Overload (Tz):	±1900 Nm
Resolution (Fx, Fy):	1/4 N
Resolution (Fz):	1/2 N
Resolution (Tx, Ty):	1/20 Nm
Resolution (Tz):	1/40 Nm

Load diagrams IRB 6620 (including the force sensor)

IRB 6620-150/2.20

Sensor: 18,22 kg, Length 107,41 mm; Armload: Upperarm 50 kg



ROB0075EN_B January 2010