



LMF Light Manipulator Vehicle (Radio and cable control possible)

Remote-controlled, radiation-resistant intervention vehicle for monitoring, inspection and maintenance work, for indoor and outdoor operation.

The LMF is a modular vehicle, the main components of which are an adjustable chassis, a rotatable tower, 3 work manipulators, 4 video cameras, and components necessary for transmitting data between the LMF and the control centre.

The vehicle has an adjustable chassis geometry which enables it to overcome obstacles such as stairs, pits, steps etc. The rotatable tower can be fitted with a hydraulic manipulator (MAESTRO, 6 DoF, 100 daN lifting power), or an electric manipulator (MA23, 6 DoF, 25daN lifting power).

Both work arms are supported by a master arm with power reflection. The electrically powered manipulator is supported by a hydraulic auxiliary arm (LEFT ARM, 4 DoF, 27daN lifting power). The control and working (video) signals are transmitted between command centre and LMF either by cable (100m), or by radio (DSSS system). When in radio operation mode, the energy is supplied by a Li-Ion battery (operational time min. 1 hour).

The main components of the command centre are:

- 1 x Master arm for controlling the manipulators
- 1 x Drive joystick for steering the vehicle
- 2 x Video monitors to display camera images
- 1 x Stereo monitor to display images from a stereo camera
- 2 x PC monitors to display vehicle data
- 1 x PC monitor to display an animated 3-D model of the LMF with self-collision monitoring
- 2 x Control panels with controls for steering and controlling the vehicle and the manipulators



Vehicle

Height	1900 mm
Width	850 mm
Length	variabel
Weight	
Konfig. MA23 + LINKER ARM	1120 kg
Konfig. MAESTRO	1195 kg
Speed	max 25 m/min
Climbing capacity	<=35°
Step	max high 400 mm
Ditch	Max width 400 mm

Manipulators

Typ	Freiheitsgrade	Tragkraft
MA23	6	25 daN
Left ARM	4	27 daN
MAESTRO	6	100 daN

Environmental conditions

Dose rate	<= 10 ² Gy/h
Max dose rate	<= 10 ⁴ Gy
Temperature	-20° C < T < 55° C