



CONTROL SYSTEM

**D** RIVING  
**R** OBOT  
**E** A SY  
**M** OVABLE  
**S** YSTEM





## SYSTEM CHARACTERISTICS

The Control Sistem driving robot DREAMS represents a new approach to the automatic vehicle driving for tests on chassis dyno.

The more significant feature of the system is the use of a six axis standard industrial robot for gear lever operation. A six axis robot is very similar to a human arm, so it is possible to install the system virtually on any vehicle configuration without mechanical modifications; the robot arm can reach any point in the vehicle cabin and can operate the gear also in not standard configuration, like lever on the dashboard and buttons command for automatic transmission (Selespeed, Steptronic).

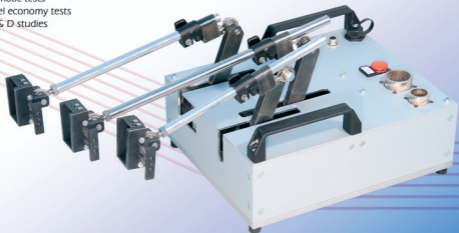
The robot can also easily operate on different command levers or buttons for test on special vehicles like farm tractors. The industrial robot has a very high reliability (more than 80.000 hours MTBF) and a very high speed and precision and repeatability; the gear-shift can be actuated in less than 0.3 sec. with a precision better than  $\pm 0.5$  mm]. The robot can be installed on the driver seat or on the passenger seat and can operate on any gear lever configuration and location; moreover the gear lever is released after the shift operation, avoiding any residual force on the knob.

The robot is installed on the seat through an intermediate frame and don't requires any mechanical adjustment; the pedals actuators are contained on a single box that is installed on the floor, in front of the driver seat; fast lock connections to the pedals allows the mechanical installation of the complete system in less than 5 minutes.

The system can be optionally equipped with a conditioning system to operate in climatic test cells down to  $-40$  °C

## APPLICATIONS:

- exhaust emission tests on chassis dynamometers.
- transmission and power train tests on chassis dynamometers or test cells.
- mileage accumulation and durability tests
- climatic tests
- fuel economy tests
- R & D studies



## FEATURES:

### Quick installation

Less than 5 minutes

### Single operator

Trolley for Robot positioning  
Pedal unit weight 20 kg

### Robot Actuator unit

Installation on driver/passenger seat  
No modifications to the vehicle

### Gears positions

Automatic detection for any configuration  
2 axis load cell for lever force measuring  
Zero force on the knob after gear shift

### Transmission types

Manual transmissions: any number of gears and positions  
Automatic transmissions  
Sequential transmission, lever or button operated

### Engine start

ignition key/button directly operated by the robot

### Software

Automatic detection of the gear positions  
Smart user interface with standard Windows graphic interface  
Vehicle configuration and drive cycles can be defined without programming experience

### Learning cycle

Only one run for each vehicle type  
All the driving parameters can be stored on files and recalled for a following use

### Cycle driving

Very high repeatability of driving sequences  
Different driving behaviour

### Data Managers

Tablet PC unit for vehicle configuration data and drive cycles

### Communication

Standard AK protocol on RS232, TCP/IP connection or Analog I/O signals



## CONTROL UNIT

### Configuration

Single rack mobile cabinet including all electronic

### Main controller

PC based with Windows XP operating system and Ethernet network for peripheral

### I/O module

Wago micro PLC with TCP/IP connection; digital and analog I/O

### Robot controller

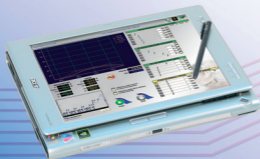
Stand alone unit with TCP/IP connection

### Manual control

Tablet PC for the complete manual control of the system

### Software

Real time robot and pedal control to follow the driving cycle.  
Vehicle or engine speed control  
Gear shift using time-table, vehicle-speed or engine-speed logic



#### SPECIFICATIONS

Control cabinet weight:	150 kg
Robot unit weight	35 kg
Pedal unit weight	20 kg
Main supply:	230 VAC single phases
Power consumption	1500 Watt
Operating temperature	5÷40 °C (-40÷70 °C with climatic option)
Actuators force:	
Accelerator	100 N
Brake	250 N
Clutch	250 N
Robot	100 N (any direction)
I/O signal	Vehicle speed (analog or pulse input) Engine speed (analog or pulse input) Digital interface for external control
Communication	AK protocol on RS232 or Ethernet TCP/IP line



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