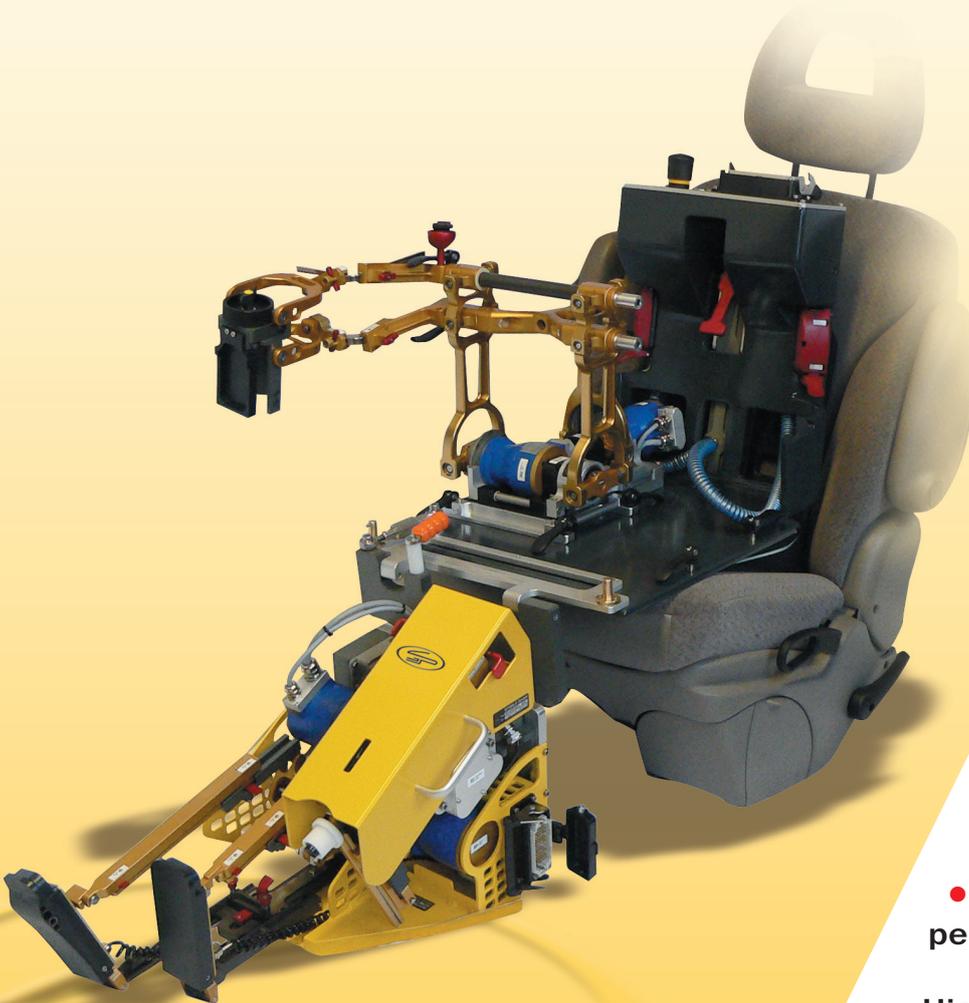


**STÄHLE**

# Autopilot System

## SAP-RAPID

for computer controlled driving of cars on test stands



- Human drive style speed control
- Different human drive styles selectable
- Extrem high repeatability
- Very fast and simple vehicle installation
- Automated geometry and performance learn modes
- High dynamic and highly accurate actuator and drive system
- For left hand drive and right hand drive M/T and A/T vehicles
- Build-in force transducers and pedal touch detection
- For combustion engine – hybrid – fuel cell – electric powered vehicles



**STÄHLE**  
ROBOT SYSTEMS

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## Robot Driver system for

- Exhaust Emission tests
- Fuel economy tests
- Mileage accumulation
- Transmission tests
- Climatic tests
- Emission correlation tests
- R & D tests
- Endurance tests
- Synchro durability tests
- ECU and TCU calibrations
- Emission certification
- Running losses tests
- Powertrain tests
- Acoustic tests

## Features

- Stand – alone operation or fully integrated to cell host computer system
- Emission system: Selectable human drive styles and highest level of repeatability and accuracy following speed traces
- Various standard drive cycles in standard delivery
- Windows User Interface (GUI) with
  - Various graphs, previews, displays, editors & dialogs for comfortable operation
  - Different user levels with restricted operation levels
  - Remote operation capability (GUI to GUI communications)
  - Integrated data acquisition and data analysis
- Automated mode / Manual drive mode / Manual Set-point mode / Remote modes
- Several safety features such as skid / shift / aux signal / vehicle status monitoring
- Several closed loop modes such as
  - Speed / engine RPM / throttle trace / throttle & clutch trace / Force / MAP / Shift force
- Shortest installation time < 4 minutes (depending on vehicle and actuator configuration)
- Left-hand-drive (LHD) and Right-hand-drive (RHD) all kinds of M/T and A/T floor shifters
- Auto teach mode for pedal actuator strokes, gear positions and ignition key (Keyboy SBE)
- Modular actuator design
- Fail safe accelerator and brake and Keyboy (SBX/SCX/SPX) to be returned to unloaded pedal position and ignition off position in case of emergency off or power failure

## Technical Data (condensed)

Accelerator	150 mm	1.0 m/sec	200 N
Brake	150 mm	0.7 m/sec	350 N
Clutch	210 mm	1 m/sec	250 N
Shift X (select)	200 mm	2.4 m/sec	250 N (peak: 320N)
Shift X (gate)	250 mm	2.4 m/sec	250 N (peak: 320N)
Operation temp. range	- 40 ... +80 ° C		

Various digital and analog input & output signals for integration and data logging

## Options

- Column shift actuator for full range and tip lever support
- Push button “dash board shift” actuator
- Ignition key actuators
  - KEYBOY SBX/SCX: rotary, Fail – safe
  - KEYBOY SPX: multiple-state Push-button, Fail – safe
- Fieldbus Interfaces for vehicle OBD, chassis dyno LifeData, Data acquisition systems
- Host computer interfaces
  - Serial or TCP/IP: Extended AK protocol
  - TCP/IP: OPC Server / Client
  - Hybrid bit - parallel & analog interface