

Concept[®] - UNIVERSAL TEST SYSTEM



Functional Description

The Concept Technologie developed Universal Test System (UTS) replaces 4 different individual test systems. Using this multi-functional system, vehicles are tested according to the following legislations or test regulations:

FMVSS201 (Free Motion Headform [FMH])
EEVC WG17 (Pedestrian Safety Tests [PST])
ECE R12 (Airbag- Tests)
ECE R21 (Pendulum Tests)

WITH THIS UNIQUE SOLUTION DEVELOPED BY CONCEPT, THE CUSTOMER IS OFFERED A HIGHER INVESTMENT PROTECTION, AS WELL AS THE POSSIBILITY TO CARRY OUT 4 LEGISLATIVE TESTS IN A SMALL SPACE!

Technical Data:

➔ Work and Control Medium:	Nitrogen
➔ Supply Pressure:	10 bar
➔ Repeat Precision:	up to $\pm 0,1$ km/h
➔ Total Weight:	ca. 8.000 kg
➔ Control System:	SPS Siemens S7
➔ E- Connection Power:	ca. 4 kW

FROM USER TO USER

As a user and system developer, we offer our customers our know-how.

Benefits at a Glance:

- ✓ Reproducible measuring results (repeat precision $\pm 0,1$ km/h) due to backlash-free axes, hydraulic brake assembly and patented launch mechanism
- ✓ Simple visual positioning and testing possibilities due to the options: CONCEPT PPA or FPT Tools
- ✓ Large cost savings due to the „comparison matrix“ and thereby avoiding comparison tests
- ✓ Long lifespan due to robust construction, symmetrical force diversion via patented pillar design and resistance moments of all axes
- ✓ Simple adjustment to the test points using a compact canon-form with 6 positioning possibilities
- ✓ All room angles are reachable
- ✓ High strike rate and avoidance of repeat testing due to the optimized test specimen retainer

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System Description

- 2 electrically powered rack and pinion gears (Y- axial)
- 3 electrically powered spindle stroke gears (X and 2 x Z- axes)
- 1 electrically powered chain gearing (330° tower rotation around Z- axial)
- 1 Servo-axial with hydraulic clamping at the launch mechanism FMH (rotation around Y-axial)
- 1 Servo-axial with safety brake at pedestrian protection launching mechanism (vertical rotation)
- 1 Manual worm gear (vertical FMH test head positioning)
- 2 Proportional valves for regulating the launch speed
- 1 Wireless remote control with digital traverse path indicator (optional) - continuous adjustability of all transverse paths via FC / rapid transverse 50%, as well as incremental relative measuring – path measurement system

System Measurements:

Positioning:

Transverse paths for testing according to ECE-R12/ ECE-R21/ EEVC WG17:

X-Direction (Longitudinal Vehicle Axis)	to 5.000 mm
Y-Direction (Diagonal to Vehicle)	to 2.000 mm
Z-Direction (Height Adjustment)	to 2.500 mm

Transverse paths for testing according to FMVSS 201u:

X- Direction (Longitudinal Vehicle Axis)	to 5.000 mm
Y- Direction (Diagonal to Vehicle)	to 3.000 mm
Z- Direction (Height Adjustment)	to 2.500 mm

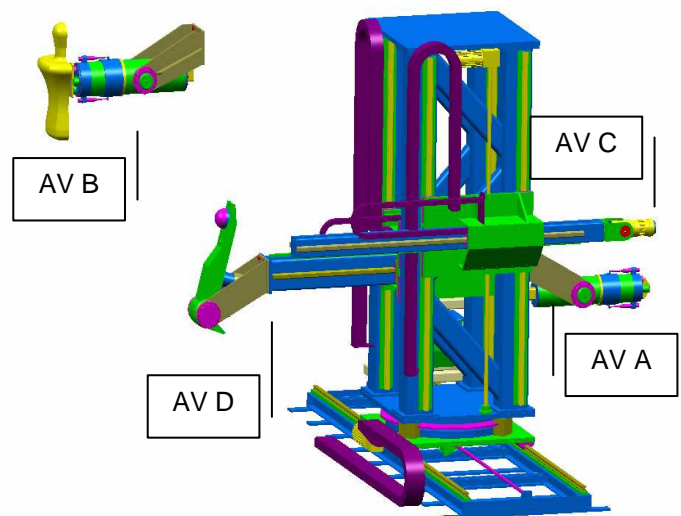
Technical Data of Launch Mechanism:

Launch Mechanism A (EEVC WG17):

Test Speed:	8 km/h up to 50 km/h
Precision:	± 0,2 km/h
Repeat Precision:	± 0,2 km/h
Test Specimen Weight:	4 - 20 kg
Angle Area:	± 90°

Launch Mechanism B (ECE-R12):

Test Speed:	8 km/h up to 45 km/h
Precision:	± 0,2 km/h
Repeat Precision:	± 0,1 km/h
Test Specimen Weight:	20 - 40 kg
Angle Area:	± 90°



Launch Mechanism C (FMVSS 201u):

Work and Control Medium:	Nitrogen
Maximum Piston Stroke:	ca. 115 mm
Test Speed:	up to 30 km/h
Precision:	± 0,2 km/h
Repeat Precision:	± 0,1 km/h
Vertical Angle Area:	± 125°
Rotation Area Retainer AV:	± 170°

Pendulum Mechanism D (ECE-R21):

Work and Control Medium:	Nitrogen
Test Speed:	8 km/h to 28 km/h
Precision:	± 0,1 km/h
Reduced Test Specimen Weight:	6,8 kg ± 0,5 kg