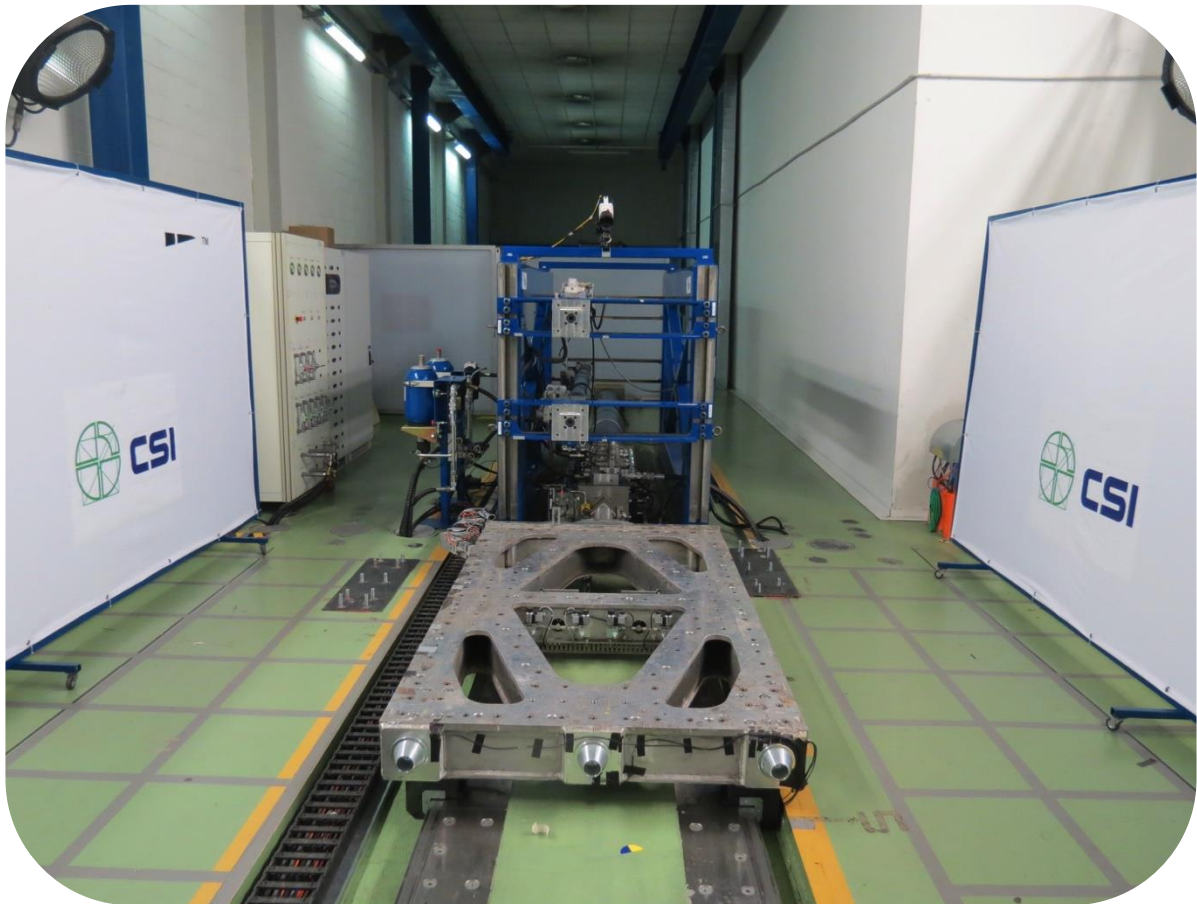


## 60 to 700kN Catapult & Intrusion System



- Modular & Upgradeable
- Full loop control
- High dynamic for crash pulses
- Modular system
- Pneumatic Actuator
- Hydraulic controlled
- Industrial floor mounting

## DSD mini/midi catapults

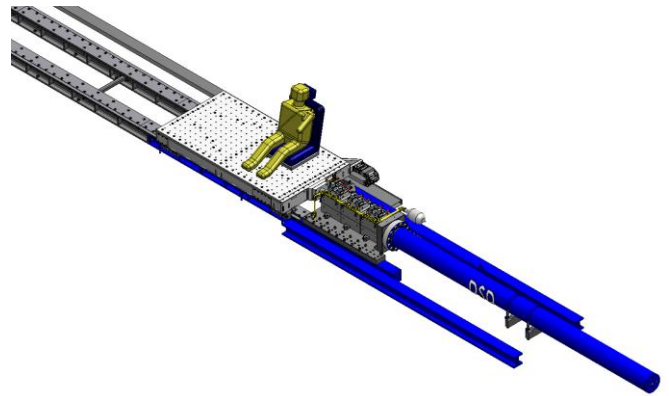
The DSD 60 to 700kN catapults are mini to midi catapult system for operation of a high variety of acceleration tests.

It is the **first system**, which **integrates** to a catapult an advanced **intrusion simulation system (ASIS)**.

The **upgrade-ability** from 350 to 700kN (60 to 180kN) as well as **extension up to 8 intrusion actuators** makes it an investment for the future.

It can be mounted on an **existing industrial floor**, or be **floor-integrated** to have a convenient use without a pit between the rails.

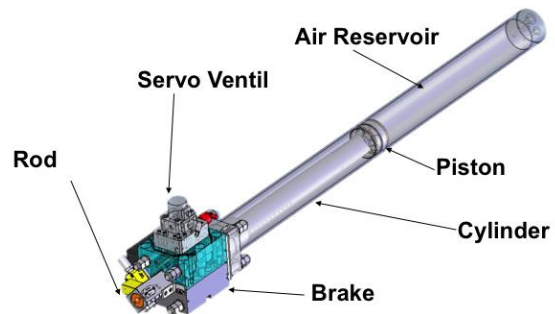
The modularity of the DSD system also allows mini catapults with nominal forces beginning from 60kN using the Intrusion cylinder system.



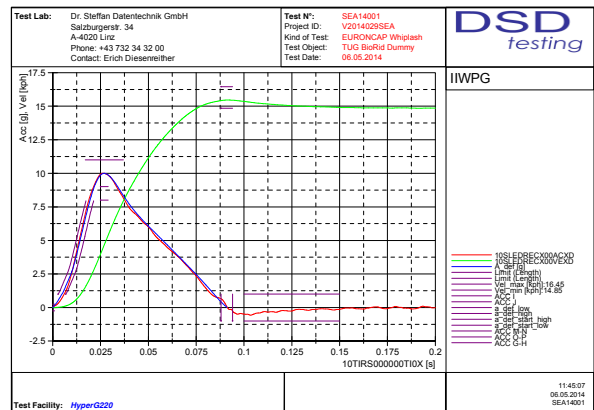
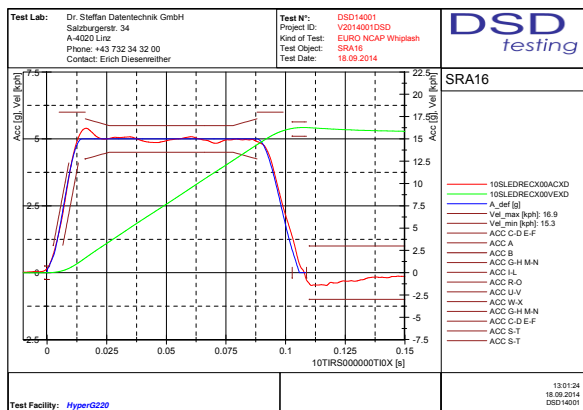
According to the application and size of the catapult, **different sled sizes** are available. The rail system uses milled elements and with its novel levelling system be adopted to your laboratory. This high precision allows to perform acceleration pulses with an accuracy never seen before.

The **controller unit** uses a novel **predictor control algorithmic** to optimize the pulse automatically. The controller works with the latest industrial PC solutions and allows also **open interfaces** for your own extensions.

The supply units are delivered in a compact CSU (central supply unit), which integrates the supply of compressed air from the storage as well as the hydraulic. The DSD system uses a minimum of oil due to its servo system.



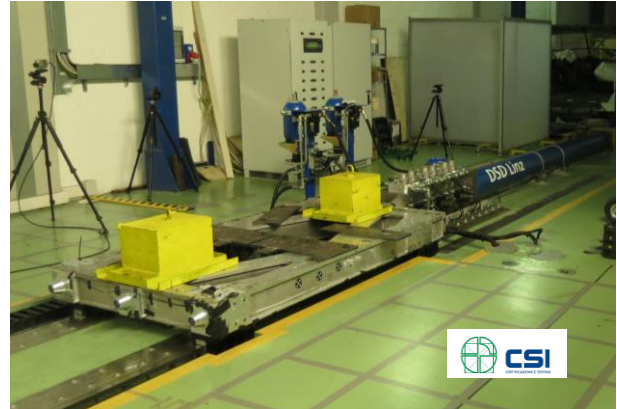
## Example Tests



## System example and components



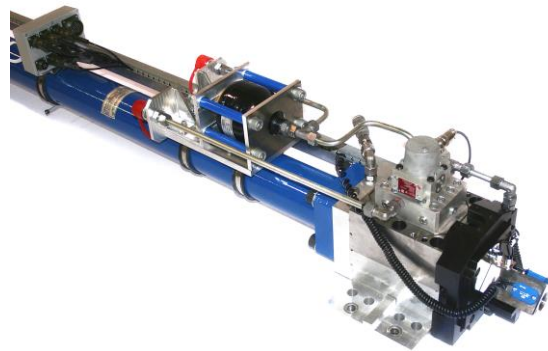
Mini Catapult top-floor mounted



HyperG 70 System, floor-integrated



CSU (Central supply unit)



HyperActuator for Intrusion simulation



ASIS (Advanced Side Impact) upgrade  
on floor-integrated catapult



iSize Child Restraint testing with one  
intrusion cylinder on HyperG catapult

## Key points

- Small oil volumes assure a very quick opening and closing operation of servo hydraulic valves
- 2 closed loop systems (brake pressure and acceleration) assure a real-time operation
- During test operation: compensating change of masses +/- 10%, as well as oscillations of masses
- System HyperG50/70 possible to mount on industrial floor
- HyperG50/70 upgradeable to "ASIS"
- ASIS useable separately e.g. airbag-deployment tests and structure tests (B-pillar)
- HyperG modular developable: 1./ 2./ 3. brake
- Integration at floor level (without pit between rails), by compact rail and sled design – integrated sled brakes (traversable by forklift)
- More than 15 years' experience in facility construction/engineering and test execution with own *HyperG* and own laboratory
- High flexibility on customization with short delivery time
- Modular system (brakes, rail length, stroke)



## Testing possibilities

Seat belt	ECE R 16, ECE R 80	Front Impact:	FMVSS 213
Rear impact	NCAP, IIHS	Seat testing:	NCAP, FMVSS 202a, IIHS, ECER17
Aeronautic	FAR 23.562, 25.562, AS8049	Sport seats:	NASCAR 038, FIA 8855
Child restraint	ECE R 44, ECE R 129 (incl. iSize with DSD Intrusion System)	Loading:	ISO 11154 (roof girder), DIN ISO 27955, 75410/2 (cargo)

## Facts

Nominal acceleration force	60 / 120 / 180 / 350 / 500 / 700kN	Max. stroke ca.	1,4 m
Payload nominal (max. peak accel.)	500 kg @ 64g 1000 kg @ 35 g	Sled (m)	1,3 x 2,0
Rail length (effective)	14 meter (customizable)	System length approx.	22 meter
<i>Intrusion system (opt.)</i>			
Number of cylinders	up to 8 independent intrusions	Intrusion force	60, 120, 180 kN
Max. intrusion acceleration	150g		