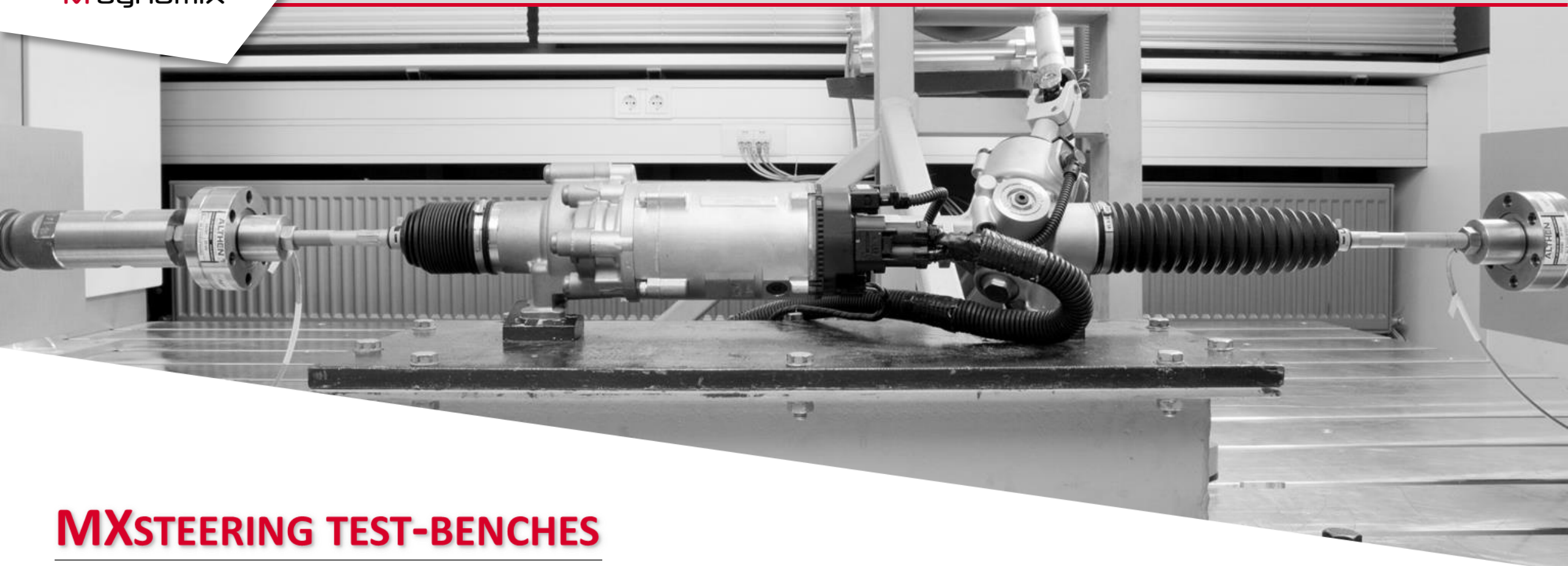


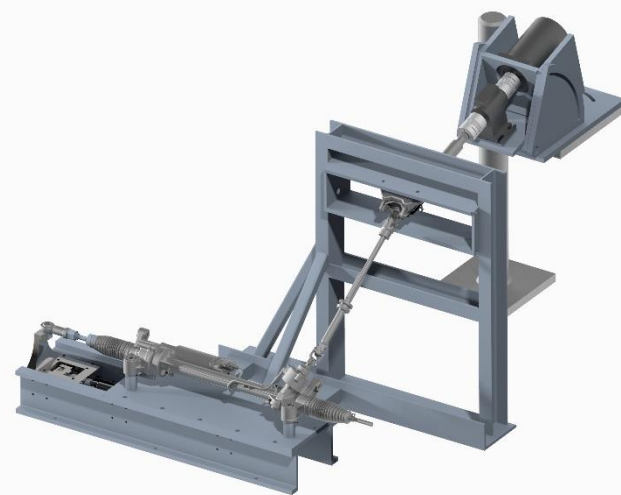
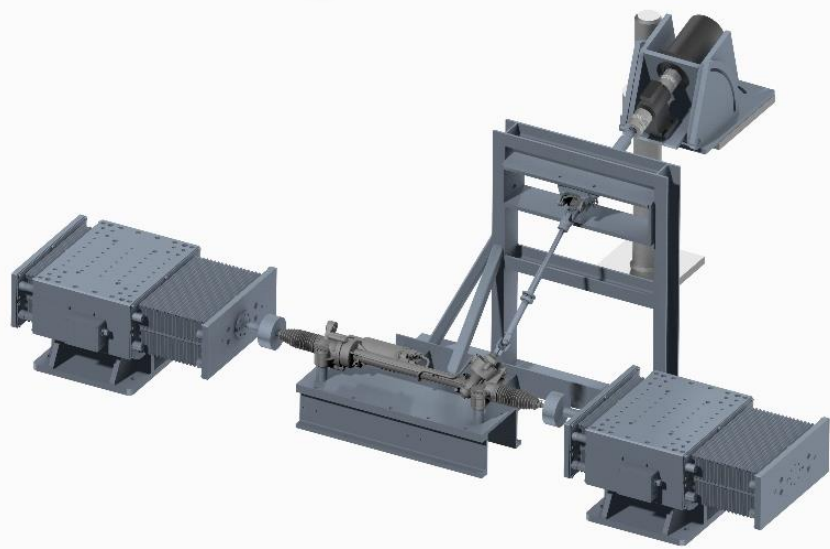


## **MXSTEERING TEST-BENCHES**

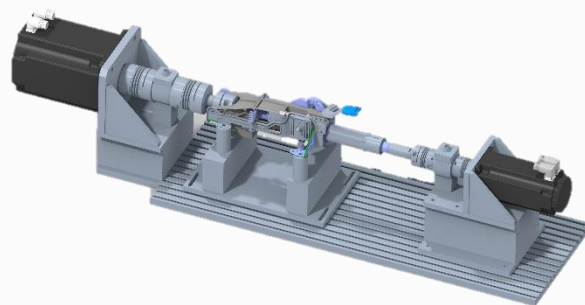
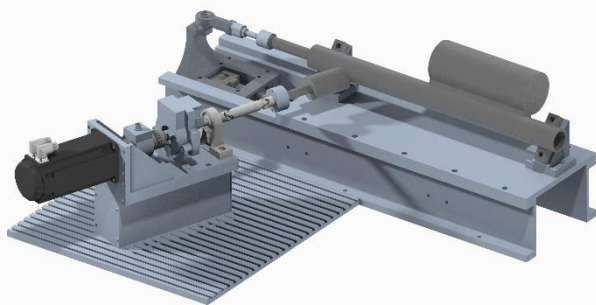
### **OVERVIEW**

# 测试台解决方案

用于转向系统



用于转向组件（机架，立柱）



etc.

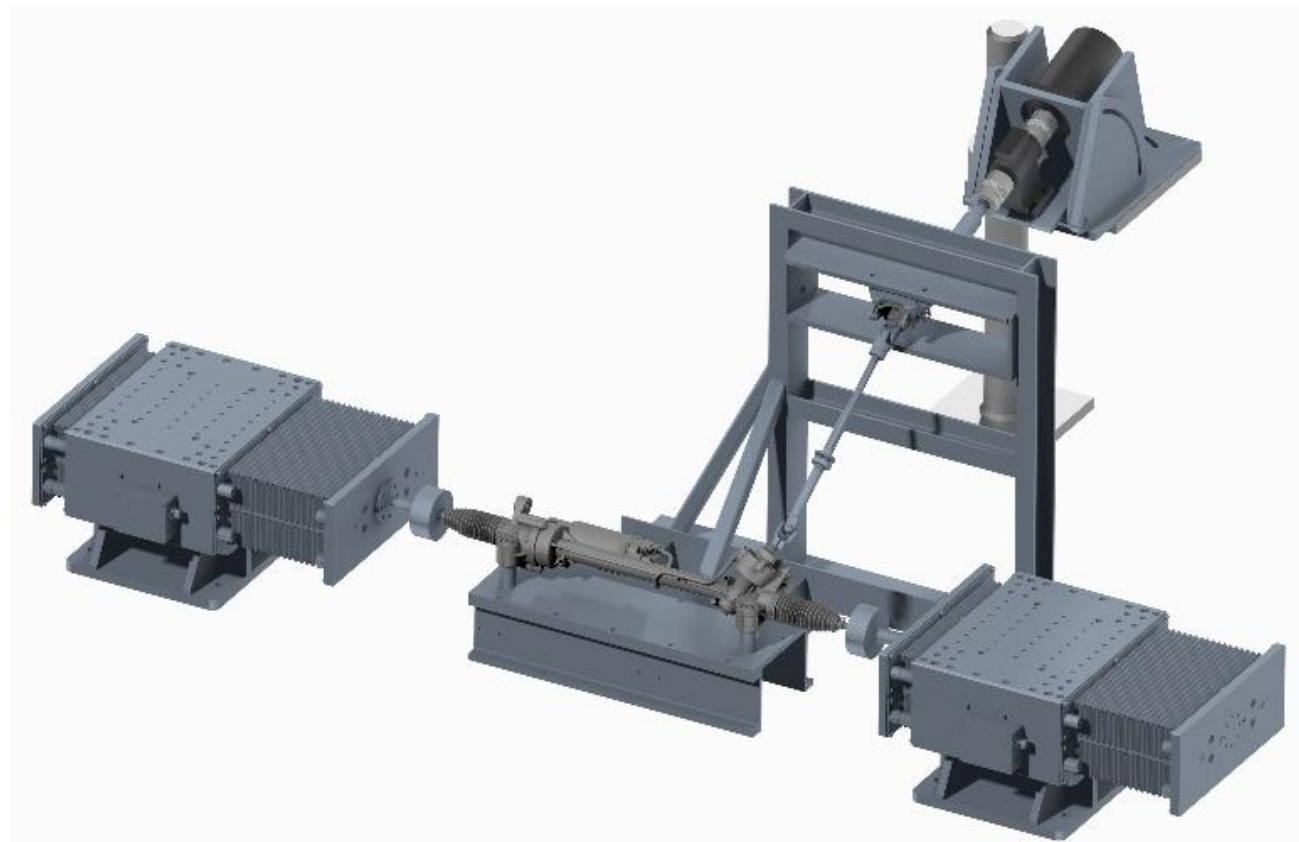
# 带有线性执行器的转向系统测试台

## 电动线性执行器

|                                                          |                                                     |
|----------------------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Type                            | Fanless air-cooled<br>parallel PSM linear motor     |
| <input type="checkbox"/> Nominal force (of one actuator) | $\pm 6.0 \text{ kN}$                                |
| <input type="checkbox"/> Maximum force (of one actuator) | $\pm 12.6 \text{ kN}$                               |
| <input type="checkbox"/> Maximum velocity                | $\pm 1000 \text{ mm/s}$                             |
| <input type="checkbox"/> Stroke                          | 200 mm                                              |
| <input type="checkbox"/> Integrated devices              | Absolute position<br>encoder ( $\pm 1 \text{ nm}$ ) |

## 方向盘致动器

|                                             |                                          |
|---------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Type               | AC servo motor                           |
| <input type="checkbox"/> Continuous torque  | $\pm 14.3 \text{ Nm}$                    |
| <input type="checkbox"/> Maximum torque     | $\pm 37.8 \text{ Nm}$                    |
| <input type="checkbox"/> Maximum velocity   | $\pm 1000 \text{ }^\circ/\text{s}$       |
| <input type="checkbox"/> Integrated devices | Position encoder<br>( $\pm 0,05^\circ$ ) |



Dimensions (l, d, h): 3.0m, 1.8m, 1.5m  
without electrical components (power supply, control tower, ...) and housing

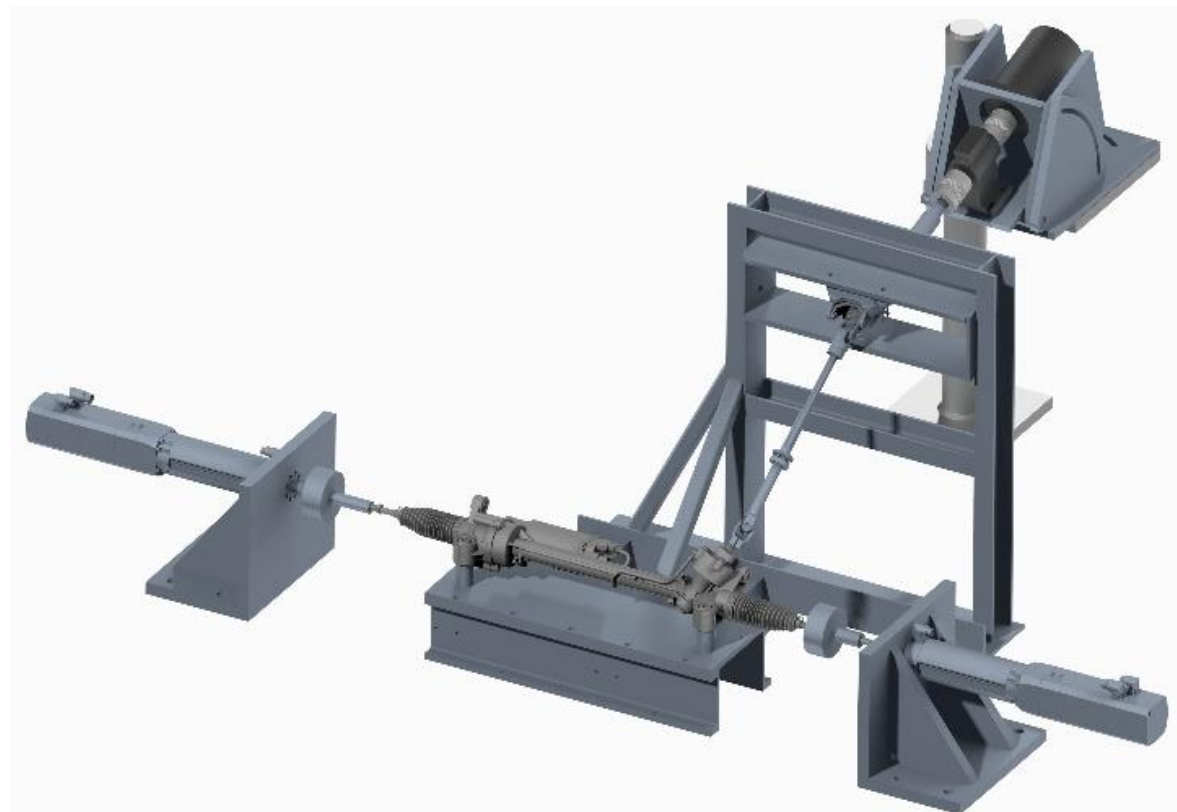
# 带有主轴驱动器的转向系统测试台

## 主轴驱动

|                                                          |                                                  |
|----------------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Type                            | Ortlieb Serac LH 30                              |
| <input type="checkbox"/> Nominal force (of one actuator) | $\pm 12.0 \text{ kN}$                            |
| <input type="checkbox"/> Maximum force (of one actuator) | $\pm 30.0 \text{ kN}$                            |
| <input type="checkbox"/> Maximum velocity                | $\pm 340 \text{ mm/s}$                           |
| <input type="checkbox"/> Stroke                          | 200 mm                                           |
| <input type="checkbox"/> Integrated devices              | Absolute position encoder ( $\pm 5\mu\text{m}$ ) |

## 方向盘致动器

|                                             |                                       |
|---------------------------------------------|---------------------------------------|
| <input type="checkbox"/> Type               | AC servo motor                        |
| <input type="checkbox"/> Continuous torque  | $\pm 14.3 \text{ Nm}$                 |
| <input type="checkbox"/> Maximum torque     | $\pm 37.8 \text{ Nm}$                 |
| <input type="checkbox"/> Maximum velocity   | $\pm 1000 \text{ }^\circ/\text{s}$    |
| <input type="checkbox"/> Integrated devices | Position encoder ( $\pm 0,05^\circ$ ) |



Dimensions (l, d, h): 3.0m, 1.8m, 1.5m  
without electrical components (power supply, control tower, ...) and housing

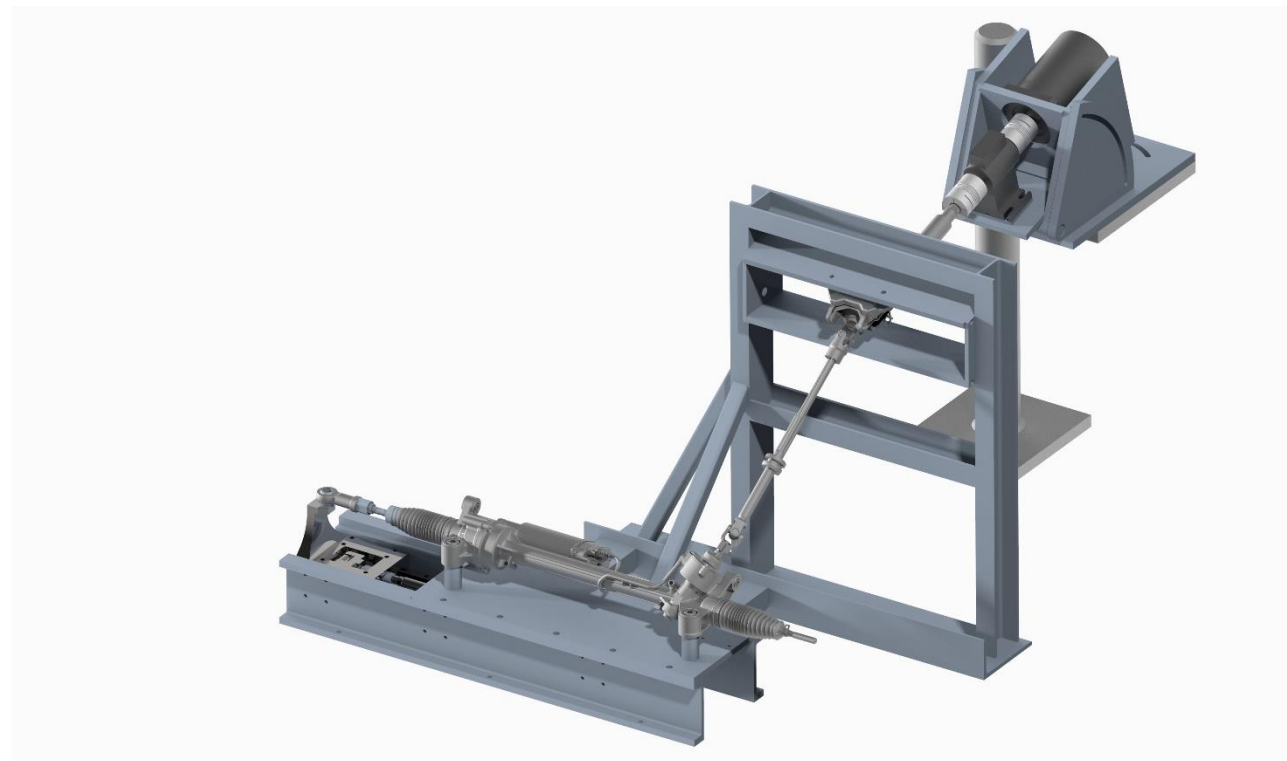
# 转向系统测试台----紧凑型

## 主轴驱动

|                                             |                                                  |
|---------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Type               | Exlar GSX                                        |
| <input type="checkbox"/> Nominal force      | $\pm 8.8 \text{ kN}$                             |
| <input type="checkbox"/> Maximum force      | $\pm 13.0 \text{ kN}$                            |
| <input type="checkbox"/> Maximum velocity   | $\pm 250 \text{ mm/s}$                           |
| <input type="checkbox"/> Stroke             | 200 mm                                           |
| <input type="checkbox"/> Integrated devices | Absolute position encoder ( $\pm 5\mu\text{m}$ ) |

## 方向盘致动器

|                                             |                                       |
|---------------------------------------------|---------------------------------------|
| <input type="checkbox"/> Type               | AC servo motor                        |
| <input type="checkbox"/> Continuous torque  | $\pm 14.3 \text{ Nm}$                 |
| <input type="checkbox"/> Maximum torque     | $\pm 37.8 \text{ Nm}$                 |
| <input type="checkbox"/> Maximum velocity   | $\pm 1000 \text{ }^\circ/\text{s}$    |
| <input type="checkbox"/> Integrated devices | Position encoder ( $\pm 0,05^\circ$ ) |



Dimensions (l, d, h): 1.5m, 1.8m, 1.5m  
without electrical components (power supply, control tower, ...) and housing

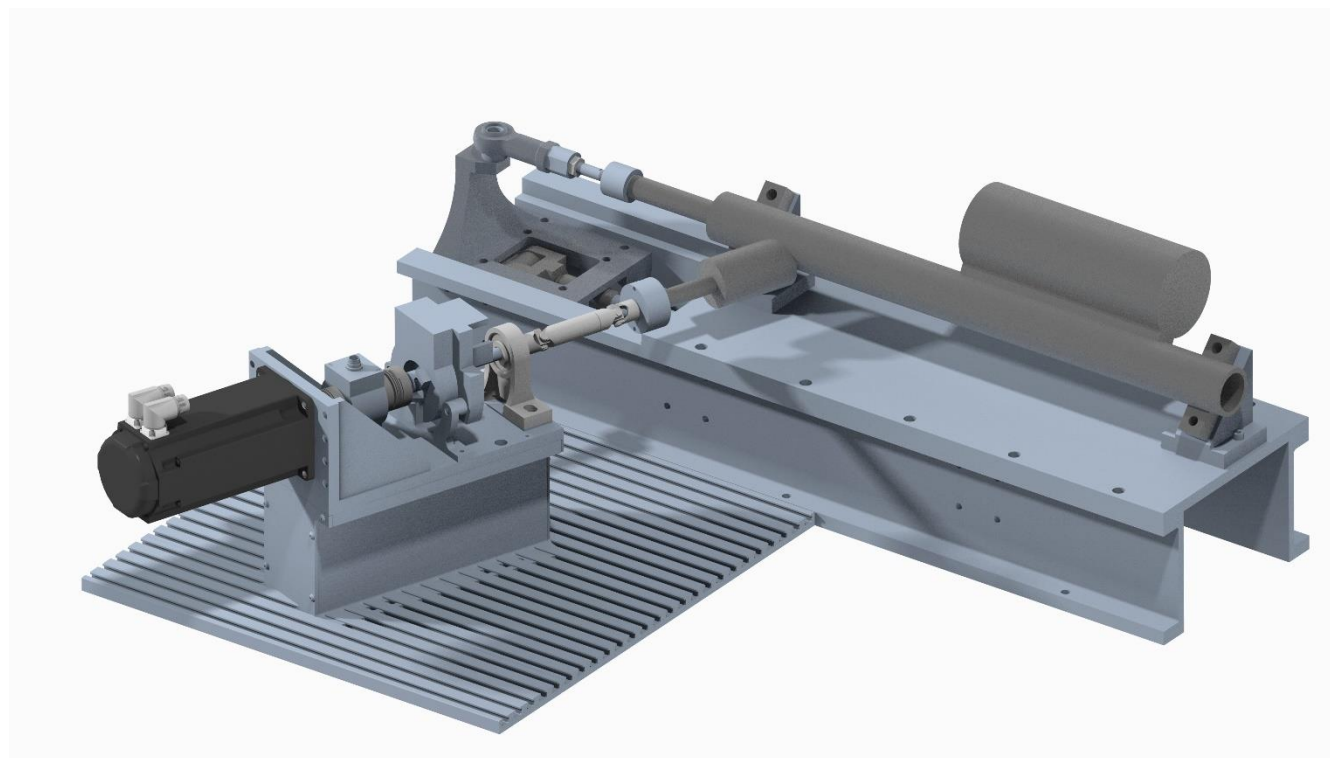
# 测试台—机架

## 主轴驱动

|                                             |                                                  |
|---------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Type               | Exlar GSX                                        |
| <input type="checkbox"/> Nominal force      | $\pm 8.8 \text{ kN}$                             |
| <input type="checkbox"/> Maximum force      | $\pm 13.0 \text{ kN}$                            |
| <input type="checkbox"/> Maximum velocity   | $\pm 250 \text{ mm/s}$                           |
| <input type="checkbox"/> Stroke             | 200 mm                                           |
| <input type="checkbox"/> Integrated devices | Absolute position encoder ( $\pm 5\mu\text{m}$ ) |

## 方向盘致动器

|                                             |                                       |
|---------------------------------------------|---------------------------------------|
| <input type="checkbox"/> Type               | AC servo motor                        |
| <input type="checkbox"/> Continuous torque  | $\pm 14.3 \text{ Nm}$                 |
| <input type="checkbox"/> Maximum torque     | $\pm 37.8 \text{ Nm}$                 |
| <input type="checkbox"/> Maximum velocity   | $\pm 1000 \text{ }^\circ/\text{s}$    |
| <input type="checkbox"/> Integrated devices | Position encoder ( $\pm 0,05^\circ$ ) |



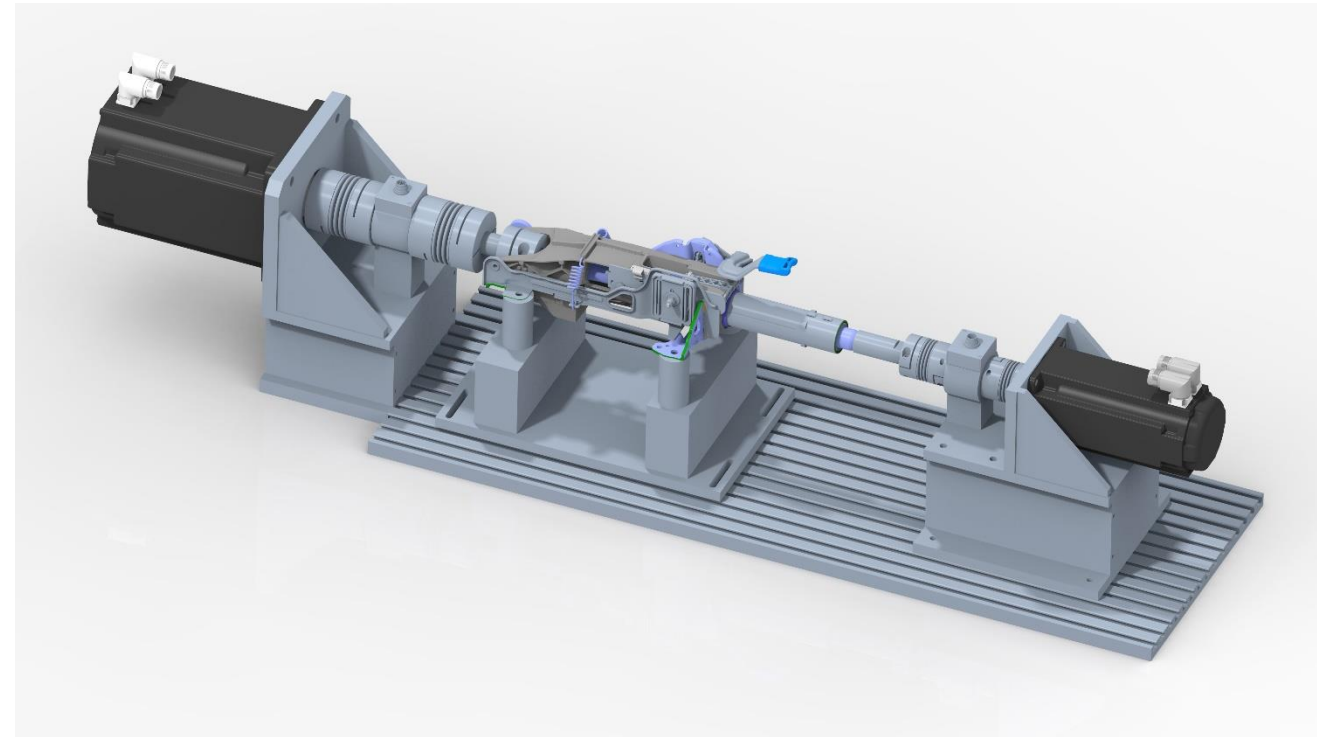
Dimensions (l, d, h): 1.2m, 1.2m, 0.4m  
without electrical components (power supply, control tower, ...) and housing

## 载荷执行器

- ☐ Type AC servo motor
- ☐ Continuous torque  $\pm 53 \text{ Nm}$  (5.6kN\*)
- ☐ Maximum torque  $\pm 121 \text{ Nm}$  (12.8kN\*)
- ☐ Maximum velocity  $\pm 400 \text{ }^\circ/\text{s}$
- ☐ Integrated devices Position encoder ( $\pm 0,05^\circ$ )

## 方向盘致动器

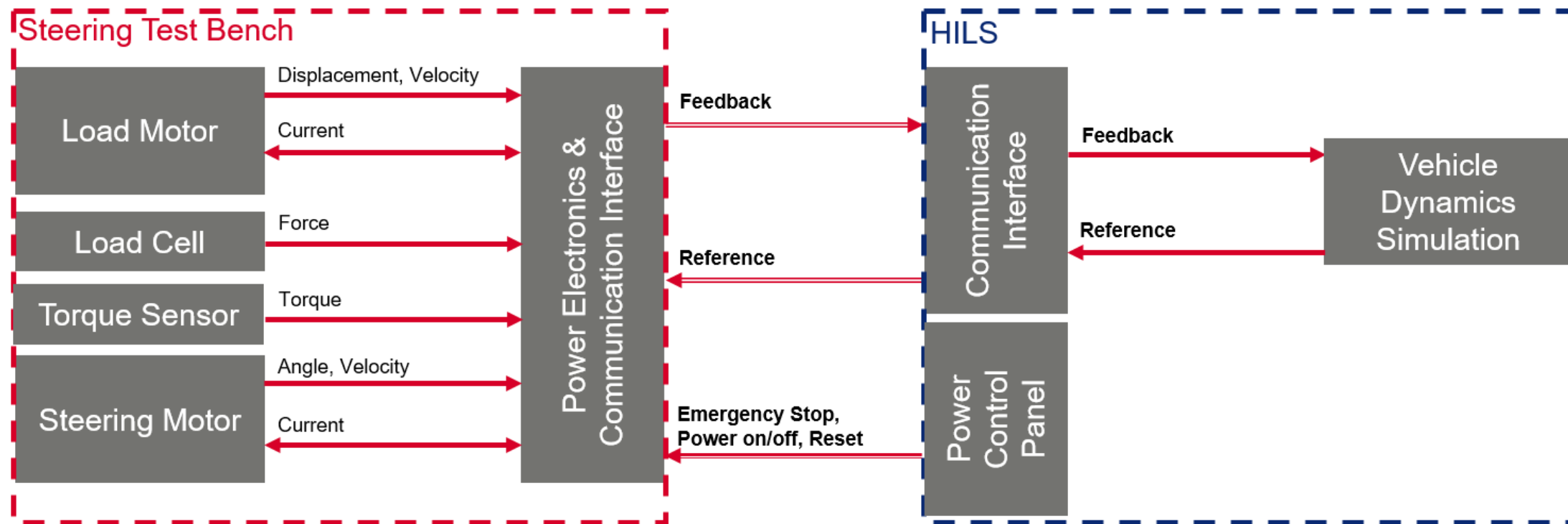
- ☐ Type AC servo motor
- ☐ Continuous torque  $\pm 14.3 \text{ Nm}$
- ☐ Maximum torque  $\pm 37.8 \text{ Nm}$
- ☐ Maximum velocity  $\pm 1000 \text{ }^\circ/\text{s}$
- ☐ Integrated devices Position encoder ( $\pm 0,05^\circ$ )



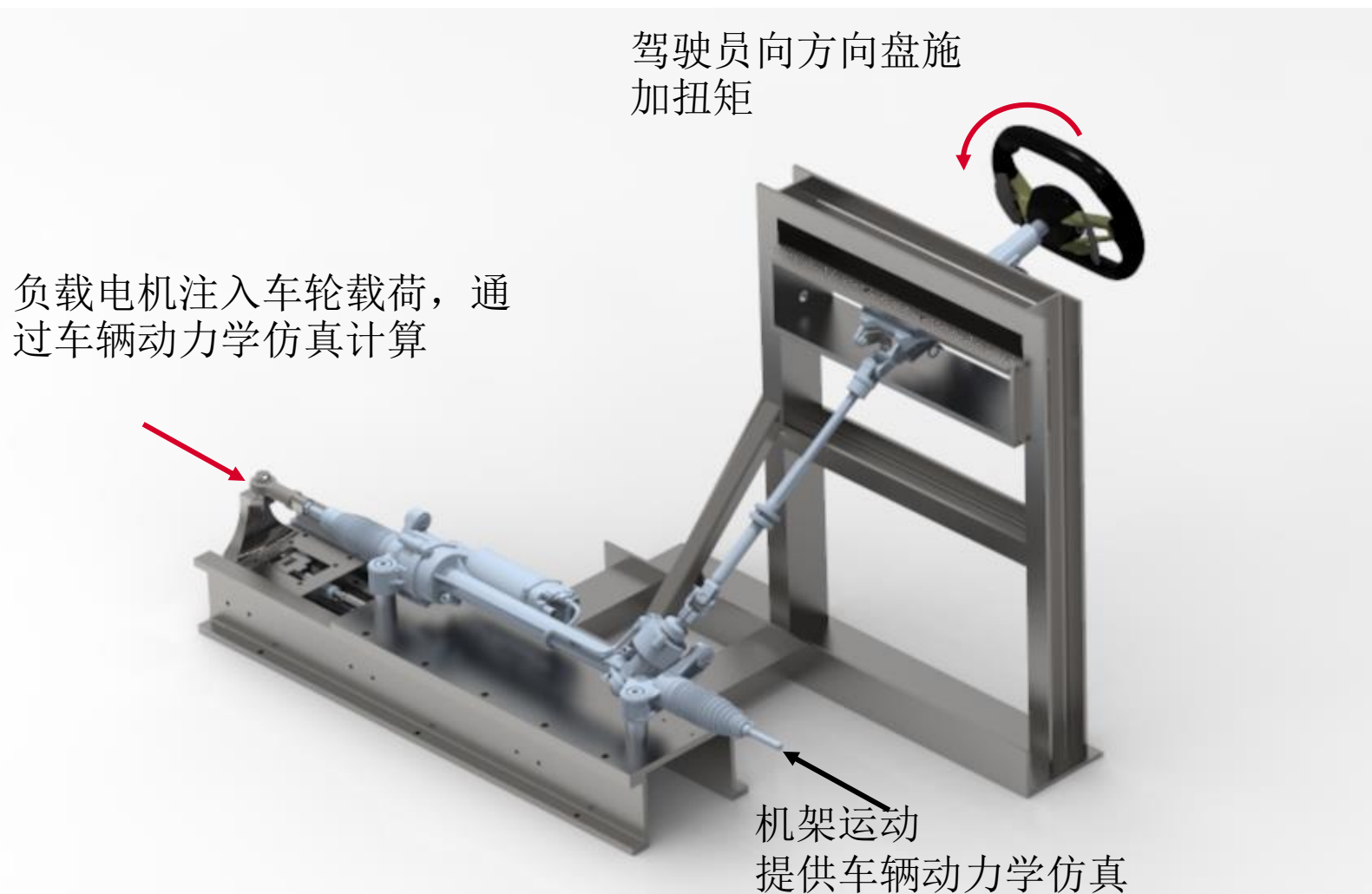
Dimensions (l, d, h): 1.6m, 0.4m, 0.4m  
without electrical components (power supply, control tower, ...) and housing

\* Based on typical rack pinion transmission of 105rad/m

# 拓扑与通讯



# 硬件在环交互

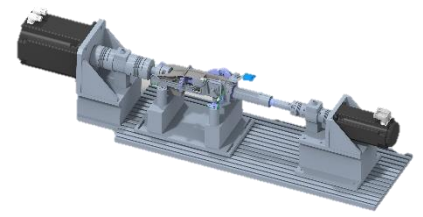
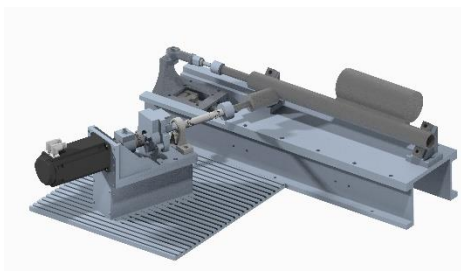
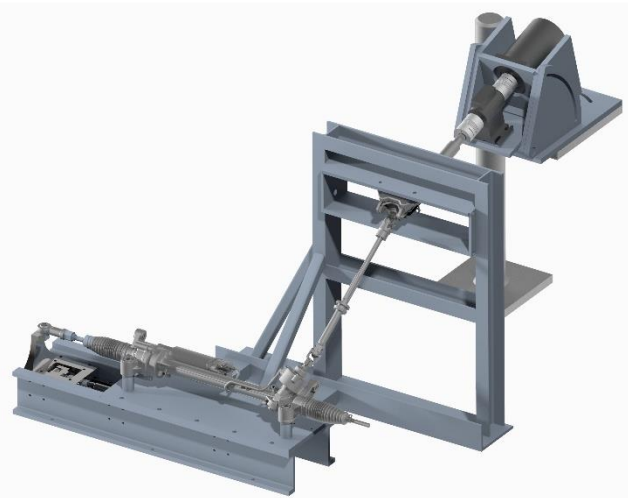
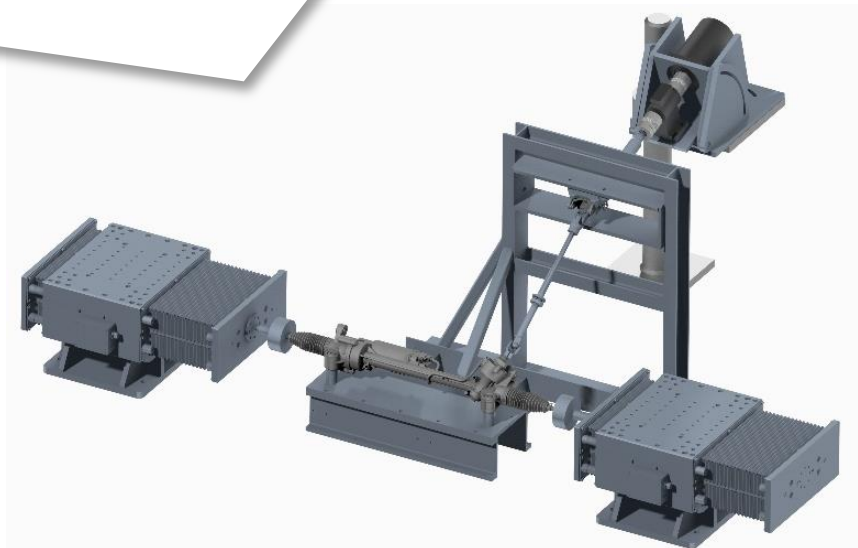




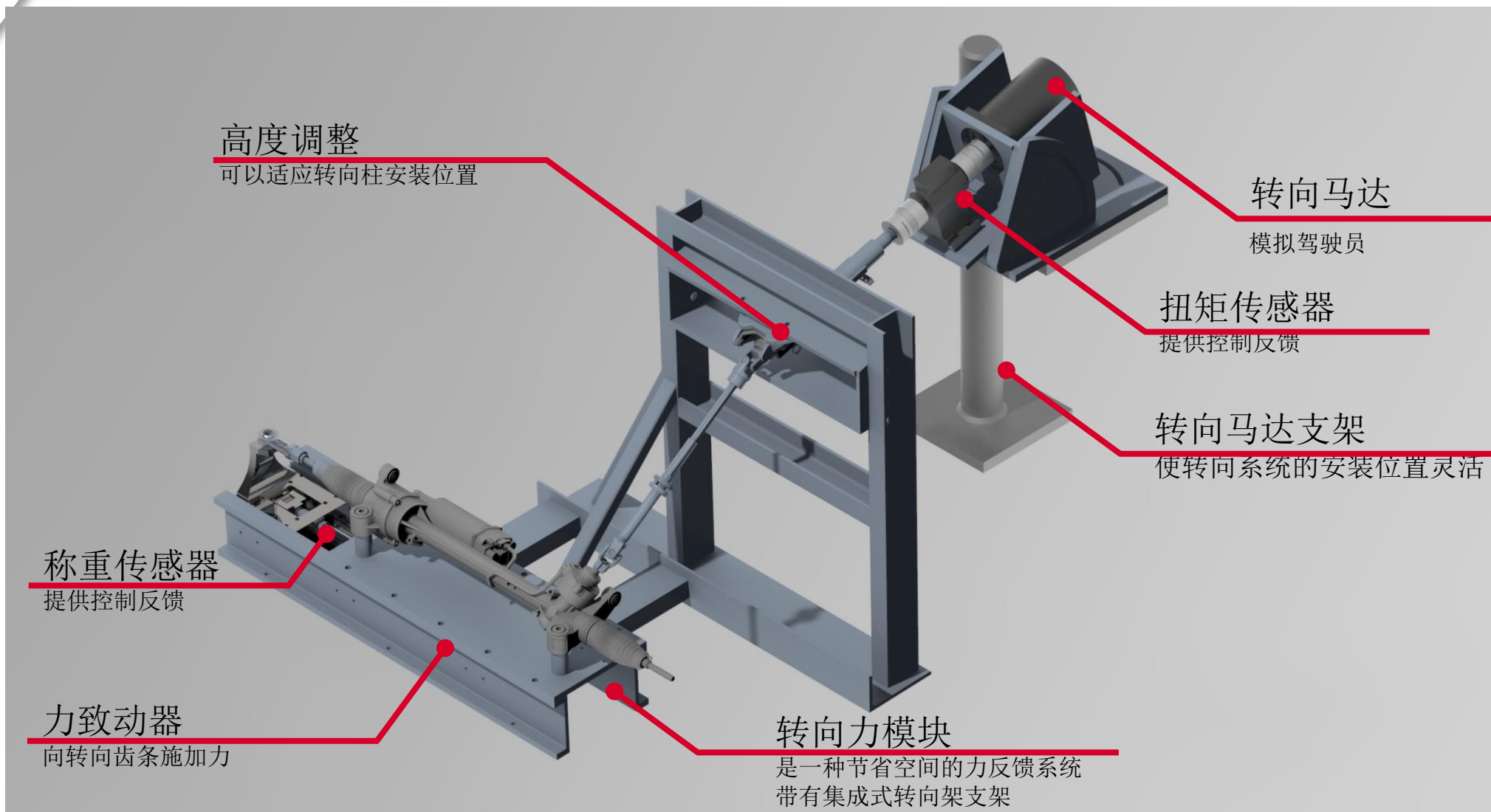
# OPTIONS

所有显示的测试台都是示例性的。  
执行器的规格可适应客户需求.

# 测试台尺寸比较



# 机械概述-自动驾驶



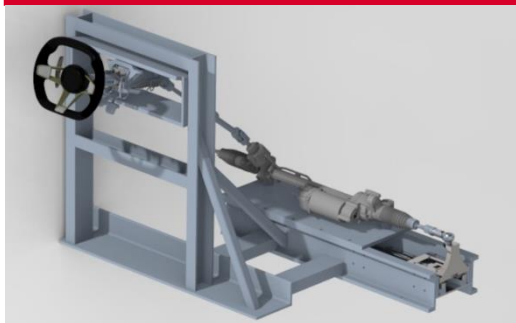
## 电力电子与通讯接口

- 硬件在环应用中的高速CAN或EtherCAT通信，循环时间为1ms
- 车载控制器，用于位置，力，角度和扭矩。
- 远程电源控制



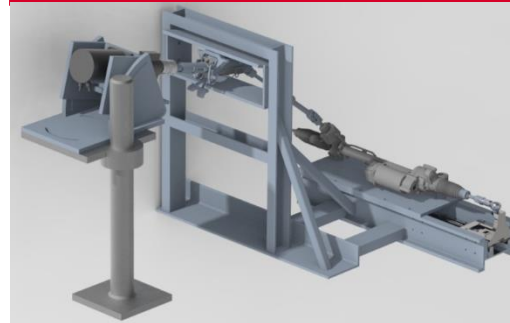
# 规格示例-旋转驱动

机械零件（手动驾驶）



- Length 1500mm
- Depth 1200mm
- Height 1050mm
- Weight 110kg

机械零件（自动驾驶）



- Length 1500mm
- Depth 1800mm
- Height 1100mm
- Weight 250kg

电器零件



- Power 16/32A 3x400VAC
- Length 650mm
- Depth 520mm
- Height 450mm
- Weight 37kg

- 重量近似,转向系统支架材料为铝。用钢加63kg。不考虑动力转向系统的重量（额外约15kg）
- 尺寸不算外壳
- 电流取决于电机选择

- 广州神通信息科技有限公司是德国*MdynamiX AG*公司在中国地区唯一指定区域合作伙伴。代理销售其所有模拟软件以及转向操控实验平台。
- 联系电话：020-87518317 /13570945668
- E-mail: [james.sun@x-tong.com](mailto:james.sun@x-tong.com)

欢迎垂询!

