Hydraulic Component Test Bench

>PHKL2-405<

Universal test bench for hydraulic components of various aircraft types such as TORNADO and EUROFIGHTER.

It can also be adapted to other aircraft types.

Three independent testing stations, each one with an individual computer control and one central hydraulic power unit.

Testing station 1 with horizontal loading mechanism for actuator testing and an external, vertical loading mechanism for chassis testing.

Testing station 2 with load unit for steering motor and UUT’s with wide flow.

Testing station 3 with hydraulic quick fixing plate including seven internal, free connectable joints.

Quick disconnect couplings without oil leakage.
GENERAL INFORMATION

- Manual, semi- and fully automatic testing is possible
- Data acquisition and storage of flow, pressure, leakage, force, temperature usw.
- Prepared for integration of EC&MU into the test bench computer system for Eurofighter flight control testing
- A proximity switch testing device is installed into the test bench
- Each testing station consists of a moveable control panel, equiped with a monitor

TECHNICAL DATA

**Hydraulic parameter testing station 1 to 3:**

- **2x HP circuit:**
  - max. 310bar (4.496psi)
  - max. 160lpm (42.3USgpm)
- **1x HP circuit:**
  - max. 560bar (8.122psi)
  - max. 10lpm at 410bar (2.6USgpm at 5.947psi)

**Hydraulic parameter testing station 1:**

- **LP circuit:**
  - max. 10bar (145psi)
  - max. 40lpm (10.6USgpm)
- **Measuring circuit (2x):**
  - max. 310bar (4.496psi)
  - 0.2 - 40lpm (0.05 - 10.6USgpm)
  - 10 - 160lpm (2.6 - 42.3USgpm)
- **2 connecting blocks**
- **Leakage measuring circuit:**
  - 0.01 - 2lpm (0.003 - 0.53USgpm)
  - 0 - 400ccm/min
- **Horizontal load unit:**
  - max. 250kN (tension/pressure)
- **Stroke measurement:**
  - 2.300mm (7.55ft)
- **Stroke measurement free of load:**
  - 700mm (2.30ft)

**Nitrogen circuit:**

- max. 250bar (3.626psi)

**Hydraulic parameter testing station 2:**

- **LP circuit:**
  - max. 10bar (145psi)
  - max. 220lpm (58.1USgpm)
- **Measuring circuit (3x):**
  - max. 310bar (4.496psi)
  - 0.2 - 40lpm (0.05 - 10.6USgpm)
  - 10 - 160lpm (2.6 - 42.3USgpm)
- **Measuring circuit (1x):**
  - max. 550bar (7.977psi)
  - max. 1lpm (1.3USgpm)
- **Connecting block**
- **Hand pump test circuit:**
  - max. 1.000bar (14.504psi)
- **Leakage measuring circuit:**
  - 0.01 - 2lpm (0.003 - 0.53USgpm)
  - 0 - 400ccm/min
- **Load unit for steering motor:**
  - Angle meas.: 0 - 360°
  - Torque: 0 - 2000Nm
  - Rotary actuator: ± 1.500Nm ± 70°
## TECHNICAL DATA

### Hydraulic parameter testing station 3:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</table>
| LP circuit | max. 10bar (145psi)  
max. 220lpm (58.1USgpm) |
| Measuring circuit (2x) | max. 310bar (4.496psi)  
0.2 - 40lpm (0.05 - 10.6USgpm)  
10 - 160lpm (2.6 - 42.3USgpm) |
| Measuring circuit (1x) | 0 - 310bar (4.496psi)  
5 - 80lpm (1.3 - 21.1USgpm)  
0.05 - 15lpm (0.01 - 3.9USgpm) |
| Connecting block | with 7 joints on the quick fixing plate |
| Vacuum test circuit | max. 0.15bar abs.  
(2.18psi abs.) |
| Leakage measuring circuit | 0.01 - 2lpm  
(0.003 - 0.53USgpm)  
0 - 400ccm/min |
| Nitrogen circuit | max. 250bar (3.626psi) |

### Electrical parameter testing station 1 to 3:

#### Electrical parameter testing station 1:
- 8-way limit switch analysis
- 3-way proximity switch analysis
- 4-way LVDT analysis
- Digital multimeter

#### Electrical parameter testing station 2:
- 2-way limit switch analysis
- 2-way proximity switch analysis
- 2-way LVDT analysis
- 2-way LVDT analysis

#### Electrical parameter testing station 3:
- 8-way limit switch analysis
- 2-way LVDT analysis

### Electrical parameters (requirements):
- 3/N/PE AC 50Hz 400V
- Nominal current: 570A
- Power: 395kVA
- Back-up fuse: 630A

### Dimensions and weight:

#### Test bench:
- Length: 7.700mm (25.3ft)
- Width: 6.500mm (21.3ft)
- Height: 2.200mm (7.2ft)
- Weight: approx. 9.500kg (20.944lb)

#### Hydraulic power unit:
- Length: 3.300mm (10.8ft)
- Width: 2.200mm (7.2ft)
- Height: 2.260mm (7.4ft)
- Weight: approx. 7.500kg (16.534lb)

#### Vertical load unit:
- Length: 1.470mm (4.8ft)
- Width: 2.100mm (6.9ft)
- Height: 2.340mm (7.7ft)
- Weight: approx. 1.720kg (3.792lb)
Vertical load unit

Hose trolley

Hydraulic power unit

Technical data are subject to change!