safety in test > safety in flight

TEST-FUCHS

Test Equipment for Aircraft Production

WWW.TEST-FUCHS.COM

Test Equipment for Aircraft Production

HYDRAULICS

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SCS Leakage Test Equipment >STE350SNZ-SCSL<
SCS Rinsing Equipment >STE350SNZ-SCSR<
Vacuum Test Equipment >STE350SNZ-VAC<
Waste Water Test Equipment >STE350SNZ-WW<
Hydraulic supply and flushing system (for Boeing 787) >HSFS787<

PNEUMATICS

Engine Fire Extinguishing System Test Tool >EFESTT1<
Mobile Nitrogen Test Set >MSTS1<
Cabin pressure tester >KDP4AF<
Cabin Pressurization Trolley >KDP8<
Wing Tank Test System >WTS1<
Cabin Pressurization Trolley >KDP14<
Cabin pressure test equipment >KDP5<

AIR CONDITION

Stationary Air Conditioner, Electric Motor Powered >BKG4E<

ELECTRICAL

Generator drive for DC-generators >GA1-5<
Test system for Cargo Hold and Tunable Vibration Absorber System >TS-CH-TVAS1<
Test system for the Door Ramp Actuation System >TS-DRAS1<
Passenger Door Modular Test Equipment >MDTE1-1<
Cargo Door Modular Test Equipment >MDTE1-3<
Bulk Cargo Door Modular Test Equipment >MDTE1-4<
Passenger Door Modular Mobile Measurement Test Equipment >MDTE1-MOB1<
Passenger Door Modular Mobile Measurement Test Equipment >MDTE1-MOB2<
Passenger Door Modular Mobile Measurement Test Equipment >MDTE1-MOB3<
Test equipment for anti-skid systems >PA-ASG2-XX<

DIFFERENT

Disinfection And Conservation Tool >DCT2<
Media Supply Module >MSM6-380<

SPECIFIC TOOLING

Chevre Interface Unit >77000D272.01010.300<
Avionic Ventilation Test Set >77000D216.01002.0XX<
Loop Controller >77000D361.01001.000<

Hydraulic test- and pressure test unit

>HPS380S<

Developed for pressure test with Skydrol, flushing, particle counting and insufflation with compressed air for pipes of Airbus A380-sections 13 and 18/19.

Can be adapted for other aircraft types

- Automatic test stand with predefined test sequences
- Fully automatic control of the complex test runs and display of all necessary measuring parameters (flows, NAS Class, pressure, temperatures, electric-parameters, etc.) on the monitors
- Use of dummy valves for the tests as replacement for the aircraft valves
- Hydraulic supply with pressure-, flow- and temperature controlled medium (Skydrol)

GENERAL INFORMATION

- Compressed air supply for the unit with high storage capacity
- High versatility due to automotive ground trolley
- Test trolley for selftest of the unit
- Low length of lines and pipes due to a separate control trolley close to the UUT with radio transmission
- Three filters for high exhaust air cleaning
- 2 operation stations

TECHNICAL DATA

Hydraulic parameters:

Hydraulic supply:
Medium: Skydrol LD4
Tank: approx. 500 liter (132.1USgal)

Radial-piston pump for high pressure circuit:
p_{max}: 500bar (7251.9psi)
Q_{max}: 10lpm (2.6USgpm)

Internal-gear pump for circulation circuit:
p_{max}: 5bar (72.5psi)
Q_{max}: 170lpm (44.9USgpm)

Two axial-piston pumps for circulation circuit:
p_{max}: 75bar (1087.8psi)
Q_{max}: each 80lpm (21.1USgpm)

Two particle counting devices for purity grade instruction according NAS

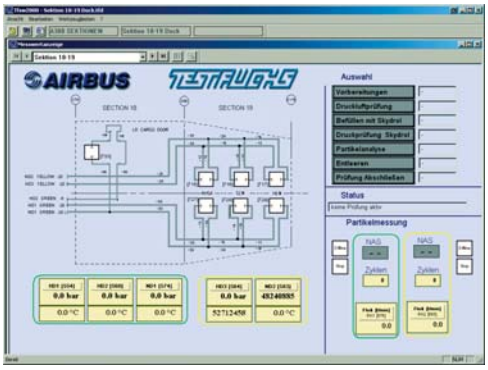
Compressed air supply:
Output pressure: 25bar (362.6psi)
Air flow: max. 4000lpm (1056.7USgpm)
2 pressure tanks, capacity: 2000 liter (528.3USgal)

Measurement range:

Pressure:	0 - 100bar ± 0,5% o.m.r.
	(0 - 1450.4psi ± 0,5% o.m.r.)
	0 - 500bar ± 0,5% o.m.r.
	(0 - 7251.9psi ± 0,5% o.m.r.)
Flow:	0 - 100lpm ± 0,5% o.m.r.
	(0 - 26.4USgpm ± 0,5% o.m.r.)
Temperature:	0 - 100°C ± 1K
	(0 - 212°F ± 1K)

Electrical parameters (requirements):

3/N/PE AC 50Hz 400V
Nominal current: 210A
Power: 145.5kVA



> User software:

General survey of the test circuit

Display of important parameters

Choice of preassigned test sequences

Printing of protocols

> Components of the pressure station with electrostatic-precipator:

Compressed air supply of the unit via on-site connection

Humidity sensor in the inlet pipe

> Test trolley for the self test of the unit:

Simulation of the resistance of the pipes of the aircraft sections

Electric and pneumatic control of the dummy valves

> Control trolley and operation unit of the dummy valves:

Enabling of the performance of test runs close to the UUT´s

OPTIONS

Many options are possible for adaption,
e.g.adaption to other aircraft types, different operation stations etc.

Technical data are subject to change!

Fill And Drain Device

>SCSFD380<

AIRBUS CERTIFIED

Developed to fill and drain both circuits of the Supplymental Cooling System (SCS) in the AIRBUS A380, i.a.w. ATA Chapter 21.
AIRBUS number of certificate: GCA D21010

- Fully automatic fill, drain and top up of the Supplemental Cooling System
- Communication between SCS - control and unit during automatic runs (with parameter monitoring)
- Integrated fill-pump for possible external fill of the hydraulic reservoir
- Supply of nitrogen with internal bottles or external
- Electric driven hose drums
- Fully automatic water separation with coleascer filter
- Easy operation via Touch - Panel

TECHNICAL DATA

> Electrical supply:

Mains supply:	3/N/PE AC 50/60Hz 400V
Power:	approx. 14.6kVA
Nominal current:	approx. 21A
Preliminary fuse:	32A

> Main reservoir:

Capacity:	approx. 450l
Medium:	H-Galden HT135 / ZT130

> High pressure-radial pump:

Fluid quantity: 90lpm at 30bar
Flow and pressure adjustable

> Ambient temperature:

-20°C to +55°C

> Connections (A/C, 15m hose each):

Fill Port:	NW 25
Drain Port 1:	NW 25
Drain Port 2:	NW 25
Vent Port:	NW 12
Gas Charging Port:	NW 6

> Measurement range:

Pressure measurements:

Galden pressure (supply):	0 to 40bar	Cl. 0.5
N_2 - Pressure (output):	0 to 10bar	Cl. 0.25
N_2 - Pressure (input):	0 to 400bar	Cl. 2.5
N_2 - Pressure (reservoir):	0 to 1bar	Cl. 2.5

Flow measurements:
0 to 90lpm

> Dimensions and weight:

Length:	approx. 3,090mm
Width:	approx. 1,410mm
Height:	approx. 1,635mm
Weight:	1,800kg

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for other aircraft types, different touch-screens, etc.

Technical data are subject to change!

Test Stand For A380 Cargo Door Actuation System

>TCD1<

For testing of the cargo door actuation system under nominal and error operation conditions.

- Mechanical construction according to the aircraft geometry with original aircraft components and a cargo door dummy
- Simulation of wind loads via adjustable load cylinder
- Simulation of contact force of the door sealing
- Manual, semi- and fully automatic test run
- Computer controlled via movable operator desk
- High-dynamic measuring data acquisition and -recording of pressure, flow, stroke, force, current and voltage
- Hydraulic supply unit is sound proof to 75dB(A)

TECHNICAL DATA

> Main supply:

3/N/PE AC 50Hz 400V 115A
3/MP/PE AC 400Hz 200V 80A

> Hydraulical supply:

Load cylinder: 280bar, 50lpm
Cargo Door Actuation System: 350bar, 28lpm

> Compressed air supply:

min. 5bar, max. 8ar

> Test medium:

Skydrol LD4 resp.
Skydrol LD5

> Measurement range:

High pressure:	0 to 500bar
Low pressure:	0 to 70bar
Flow:	0 to 50lpm
Stroke:	0 to 1,000mm
Force load-/test cylinder:	±100kN
Force door simulation:	±2kN
Current:	0 to 5ADC
Voltage:	0 to 40VDC

> Dimensions and weight:

Width:	approx. 7,200mm
Depth:	approx. 6,000mm
Height:	approx. 5,000mm
Weight:	approx. 4,500kg

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.

Technical data are subject to change!

Electric and Hydraulic Test Stand

>EHP380T2<

For A380 vertical tail in tact 2 of the production line

Automatic test stand

- Hydraulic unit in noise protection chamber with windows and leak proof collecting tray
- Complete measuring equipment remote controlled via test stand computer
- Measuring values store-and recordable
- Automatic control of the complex test runs

GENERAL INFORMATION

> Display of all necessary measuring parameters (flows, NAS Class, pressures, temperatures, electric-parameters etc.) on the monitor;

> Hydraulic supply with pressure-, flow- and temperature controlled medium (Skydrol);

> The test stand contains also a test chamber and mobile test units;

> Hydraulic testing:
- Pressure test with compressed air
- Pressure test with Skydrol
- Flashing
- Particle counting

Electric testing:
- Bonding test
- Impedance test
- Cable tree test
- Beam waveguide test

TECHNICAL DATA

> **General information:**

Main supply:	3/N/PE AC 50Hz 400V
Nominal output:	79,7kVA
Nominal current:	115A

> **Hydraulic supply:**

Tank approx. 300 Liter

Axial piston pump for test pressure supply:

$P_{max.}$:	420bar
Capacity:	5 to 75lpm

Internal gear pump for circulation circuit:

$P_{max.}$:	160bar
Capacity:	145lpm

> **Measurements:**

Pressure	Accuracy: 0.5% o.m.r.
	Range: 0 to 500bar
Humidity	Accuracy: ± 5%
	Range: 0 to 100%
Flow	Accuracy: ± 1% o.m.r.
	Range: 1 to 80lpm
Temperature	Accuracy: ± 1K
	Range: -10 to 100°C

> **Filling and draining:**

Pressure test with-compressed air	to 6bar
Low pressure tests	to 70ba
High pressure tests	to 420bar
Flashing	to 75lpm

Particle counting device for purity grade instruction according NAS

>EHP380T2<

Bonding test device for quick and easy testing of electric connections.

TECHNICAL DATA:

Test currents:	0.01A to 10A (adjustable)
Test output voltage:	0.1V to 24V (adjustable)
Power output:	240W
Method of measurement:	2 or 4 conductors
Accuracy:	0.5%

Impedance measuring equipment for quick and easy testing of mass loop´s impedance.

TECHNICAL DATA:

Nominal current:	max. 2.5A
Nominal output:	575VA
Measuring range:	2mΩ; 20mΩ; 200mΩ
Accuracy:	± 5% ± 5Digit

Cable tester for testing the cables in regard of continuity, short circuit, insulation and electrical strength.

TECHNICAL DATA:

Operation:	Laptop via wireless LAN
Channels:	1200 test points
Test current:	max. 2A
Test voltage:	max. 1300VDC

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

>EHP380T2<

Technical data are subject to change!

Electrical And Hydraulical Test Stand

>EHP380T4<

For A380 vertical tail in tact 4 of the production line

Automatic test stand

- Hydraulic unit in noise protection chamber with (leak proof) collecting tray
- Complete measuring equipment remote controlled via test stand computer
- Test stand computer remote controllable
- Automatic control of the complex test runs

GENERAL INFORMATION

> Display of all necessary measuring parameters (flows, pressures, temperatures, electric-parameters etc.) on the monitor

> Hydraulical supply with pressure-, flow- and temperature controlled medium (Skydrol)

> Remote control with touch screen

> The test stand contains also a test chamber and mobile test units

> Hydraulical testing:
- Pressure test with compressed air
- Pressure test with Skydrol

Electrical testing:
- Bonding test
- Impedance test
- Angle test
- Antenna test

TECHNICAL DATA

> General information:

Main supply:	3/N/PE AC 50Hz 400V
Nominal output:	156 kVA
Nominal current:	225 A

> Hydraulic supply:

Tank approx. 300 liter

2 axial piston pumps for test pressure supply:

$P_{max.}$:	420bar
Capacity:	5 to 75lpm

2 internal gear pumps for circulation circuit:

$P_{max.}$:	160bar
Capacity:	160lpm

> Measurements:

Pressure	Accuracy: 0.5% o.m.r.
	Range: 0 to 500bar
Flow	Accuracy: ± 1% o.m.r.
	Range: 1 to 80lpm
Temperature	Accuracy: ± 1K
	Range: 0 to 100°C

> Filling and draining:

Pressure test with-compressed air	to 6bar
Low pressure tests	to 70bar
High pressure tests	to 420bar

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Bonding test device for quick and easy testing of electric connections.

TECHNICAL DATA:

Test currents:	0.01A to 10A (adjustable)
Test output voltage:	0.1V to 24V (adjustable)
Power output:	240W
Method of measurement:	2 or 4 conductors
Accuracy:	0.5%

Impedance measuring equipment for quick and easy testing of mass loop´s impedance.

TECHNICAL DATA:

Nominal current:	max. 2.5A
Nominal output:	575VA
Measuring range:	2mΩ; 20mΩ; 200mΩ
Accuracy:	± 5% ± 5Digit

Angle indication device to determine the angular travel on the rudder.

TECHNICAL DATA:

Channels:	2
Accuracy:	±0.02°
Range:	0-360°
Type of protection:	IP 67 (on the cover)

Antenna test

TECHNICAL DATA:

Channels:	2
Frequency:	108 - 118 MHz
Accuracy:	±1dB
Power:	max. 15 W

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

>EHP380T4<

Technical data are subject to change!

Electrical And Hydraulical Test Equipment Tact 5

>EHP400T5<

Figure of a similar equipment

Developed for providing an electrical and hydraulical supply for testing the electrical and hydraulical systems of the tail fin of the A400M

> The following tests can be carried out on the vertical fin:

- Bonding test
- Loop resistance measurement
- Antenna test
- Angular movements of the rudder
- Pressure test by compressed air or hydraulic oil
- Filling, draining and purging of the hydraulic system
- Particle measurement

GENERAL INFORMATION

- Fully automatic test sequence ensures significant time saving
- All castors, cables and hoses in the power unit are resistant to Skydrol
- Controlled shutdown is carried out when errors or failures occur
- Good accessibility is ensured for maintenance and service
- Test results can be saved in test reports formatted by the user
- Calibration is carried out by software
- All measurements are shown on the monitor as well as warning and error messages

TECHNICAL DATA

Hydraulic parameters:

Main tank:
Volume: 300l
Leakage warning, safety valve, cleaning access, temperature monitoring

Medium: SKYDROL LD4
SKYDROL 5

Circulating and supply circuits:
Internal gear pump
Output 145l/min

High pressure circuits:
Three separate circuits
Axial piston pump
Output: 5 to 75l/min at max. 350bar

Return circuits:
Pressure transducer 0 to 100bar

Electrical supply (requirements):

Mains supply:	3/N/PE AC 50Hz 400V
Nominal current:	225A
Power:	max. 156kVA
Back-up fuse:	250A

Pneumatical supply (requirements):

Pressure:	8bar

Dimensions and weight:

Power unit:

Width:	approx. 5170mm (17ft)
Depth:	approx. 2150mm (7.1ft)
Height:	approx. 2250mm (7.4ft)

Rack no.1:

Width:	approx. 610mm (2ft)
Depth:	approx. 640mm (2.1ft)
Height:	approx. 1730mm (5.68ft)

>EHP400T5<

TECHNICAL DATA

> **Measurement range:**

Temperature sensors:

(9-off):	0 to 100°C (32 to 212°F)
	±1K (1.8°F) absolute
(1-off):	-20 to +80°C (-4 to 176°F)
	±1K (1.8°F) absolute

Pressure sensors:

(2-off):	0 to 10bar (0 to 145psi)
	±0.5%m.v.
(3-off):	0 to 100bar (0 to 1450psi)
	±0.5%m.v.
(4-off):	0 to 500bar (0 to 7251psi)
	±0.5%m.v.
(1-off):	1 to 500bar (15 to 7251psi)
	±0.5%m.v.
(1-off):	800 to 1.200mbar (11.6 to 17.4psi)
	±0.5%m.v.

Flowmeters:

(3-off)	0 to 80l/min (0 to 21gpm)
	±1% o.f.s.

Angular measurement:

(1-off)	0 to 360l°
	±0.02° absolute

Humidity:

(1-off)	0 to 100%
	±5% o.f.s.

m.v. .... measurement value
o.f.s. .... of full scale

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

>EHP400T5<

Technical data are subject to change!

Pulse pressure test bench

>DP2A<

Universal test bench for computer-controlled testing of A380 components up to 8000psi dynamic and 26000psi static testing

- Temperature simulation -60°C to +110°C
- Dynamic and static pressure testing of hydraulic components, e.g. housings, tubes, connecting devices, etc.
- Quick-clamping system for UUTs pre-mounted on a trolley

GENERAL INFORMATION

- Quick-deaeration using vacuum
- Stainless steel construction

TECHNICAL DATA

Main circuits:

HP pump circuit	max. 25lpm max. 550bar with highly dynamic servovalve for curve generation
Test outputs	5 to 540bar
Static pressure test circuit	max. 1800bar
Vacuum circuit with separator	up to 900mbar
Air circuit	max. 10bar
Control pressure circuit	max. 5lpm max. 160bar
LP pump circuit	max. 30lpm max. 20bar
Main tank	approx. 100litres
N2 circuit	N2 connector max.300bar
N2 reservoir	max. 550bar
Cooling water circuit	max. 105lpm max. 5bar

Scavenge - leakage measurement circuit level approx. 2l, scavenge tank approx.28l

Flushing/temperation circuit	max. 30lpm, max. 20bar
Cooling machine for test medium	-60°C to +20°C
Conditioning unit, test chamber	-60°C to +110°C
Test medium	Hydraulic oil Skydrol LD4, Skydrol 5 HyJet 5

Supplies:

Mains supply	3/N/PE AC 50Hz 400
Nominal current	115A
Nominal power	65kVA
Preliminary protection	125A
Air supply	min. 5bar, max. 10bar
Water supply	min. 1bar, max. 5bar

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, different touch-screens, etc.

>DP2A<

Technical data are subject to change

Pulse Pressure Test Rig

>DP3A900<

Designed for dynamic and static pressurization of hydraulic assemblies for EUROFIGHTER, such as pipes, connection elements, housing of components etc..

Can be adapted for other aircraft types.

- Manual and automatic tests (e.g. tests of life cycle) i.a.w. current test standards
- Temperature simulation between -60°C and +110°C
- Quick change system for UUT´s
- Quick dearation by vacuum

TESTS I.A.W. THE FOLLOWING TEST STANDARDS

DIN ISO 6772	prEN 2624	DIN 20024	DIN EN ISO 6803
SAE ARP 1383	SAE SA 1227	SAE AS 620	SAE ARP 603

GENERAL INFORMATION

> It is possible to perform tests i.a.w. other test standards

> Remote maintenance via modem

TECHNICAL DATA

> Hydraulic parameters:

HD-pump circuit:	max. 50l/min (13.2USgpm) max. 315bar (4.570psi)
Static pressure circuit:	max. 2.000bar (29.000psi)
Dynamic pressure circuit:	max. 900bar (13.050psi)
Evacuating circuit with separator:	up to -900mbar (-13psi)
LP-pump circuit:	max. 5lpm (1.3USgpm) max. 20bar (290psi)
Main reservoir:	approx. 160Liter (42.3USgal)
Leakage reservoir:	approx. 10Liter (2.6USgal)
Climate power unit:	-60 to 110°C
N2-circuit:	N2-connection max. 200bar (2.900psi)
N2-accumulator:	max. 315bar (4.570psi)

> Dimensions and weight:

Test rig:	
Length:	3.150mm (124inch)
Width:	2.470mm (97.2inch)
Height:	2.250mm (88.6inch)
Weight:	ca. 3.420kg (7.540lb)
Power unit:	
Length:	1.670mm (65.7inch)
Width:	1.670mm (65.7inch)
Height:	2.250mm (88.6inch)
Weight:	ca. 1.560kg (3.440lb)

> Measurement range:

Druck:	0 - 2000bar (0 - 29.000psi) Kl. 0.5 0 - 1000bar (0 - 14.500psi) Kl. 0.5 0 - 400bar (0 - 5.800psi) Kl. 0.5 0 - 100bar (0 - 1.450psi) Kl. 0.5 0 - 23bar (0 - 334psi) Kl. 0.5 0 - 16bar (0 - 232psi) Kl. 0.5 0 - 10bar (0 - 145psi) Kl. 0.5
Strom:	0 - 20mADC Kl. 0.5
Spannung:	0 - 10VDC Kl. 0.5
Temperatur:	-60 bis 160°C Kl. 0.5 0 bis 100°C Kl. 0.5

> Test medium (selectable):

MIL-H-5606, MIL-H-87257, MIL-H-83282, Exxsol D110, Shellsol D100, Varsol 110

> Pneumatic supply (requirements):

Druck:	min. 5.5bar, max. 10bar (min. 80psi, max. 154psi)
Durchfluss:	20Nm³/h

> Cooling water supply (requirements):

Temperatur:	12°C
Druck:	10bar (145psi)
Durchfluss:	100l/min (26.4USgpm)

> Electrical supply (requirements):

3/N/PE AC 50Hz 400V

Nennstrom:	95A
Leistung:	65.8kVA

Technical data are subject to change!

Hydraulic Test Equipment For A350 (Pre-Fal)

>HTE350<

>HTE350HAM<
Hamburg

>HTE350GTF<
Getafe

>HTE350SEL<
Saint-Éloi

>HTE350STD<
Stade

>HTE350BRE<
Bremen

>HTE350BRO<
Broughton

>HTE350SNZ<
Saint-Nazaire

Developed for testing hydraulic systems on the aircraft type AIRBUS A350.

Fully automatic operation of the following procedures:

- pressure tests with hydraulic medium
- pressure tests with air or nitrogen
- flushing and cleaning
- filling
- emptying
- drying

Can be adapted for aircraft types of very different manufacturers.

Main components:

- HPU - Hydraulic Power Unit
- HDS - Hydraulic Distribution System
- HMI - Human Machine Interface

Accessories:

- Tablet Panel-PC
- Electrostatic precipitator
- Return unit
- Compressed air supply
- Hose box and hose reels
- Control unit for aircraft components and satellites
- Transport trolley

Hydraulic Test Equipment For A350 (Pre-Fal) - Hydraulic Power Unit >HTE350=HPU<

> Hydraulic Power Unit (HPU) for low and high pressure supply

MISCELLANEOUS

- Particle measuring device to measure oil parametres (1)
- Internal gear pump and axial piston pump to generate the required pressure (2)
- Hydraulic filter with electrical contamination indication for test medium purity (3)
- Compressed air filter to clean and drain the compressed air (4)
- Oil/air cooler to cool the test medium (5)
- Chassis with turntable steering, solid rubber tyres and parking brake (6)
- Main tank with approx. 500l capacity and fill level monitoring (7)
- Easy accessibility for maintenance via access openings and cover (8)
- Drip pan to catch leaking medium during maintenance tasks or to catch any occuring leakage (9)
- Provided with openings for forklift and lashing points for transport by crane (10)

Mobile frame with cover
large version (high flow)

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Mobile frame with cover
small version (low flow)

Setup frame with HPU and HDS

Frame without cover

Mobile frame with cover and integrated HMI

Mobile frame with
stainless steel cover

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TECHNICAL DATA

> Hydraulic parameters:

Medium:	Skydrol Type V Fluid
Pressure and flow ranges:	max. 150bar (2,175psi) at 80l/min (21.1USgal/min) max. 420bar (6,090psi) at 40l/min (10.6USgal/min)
Return pressure:	max. 13bar (189psi)

> Pneumatic parameters (requirements):

Medium:	compressed air
Pressure:	min. 6bar (87psi) to max. 8bar (116psi)
Flow:	max. 1,000Nl/min (264USgal/min)
Air temperature:	max. 40°C (104°F)

> Electric supply (requirements):

Mains supply:	3/N/PE AC 50Hz 400V
Nominal current:	100A
Performance:	69.3kVA
Prefuse:	250A GL

> Operating conditions

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) above MSL
Air humidity:	5 to 95% (non-condensing)

> Dimensions and weight:

Length:	3,800mm (149.6inch) with vertical towbar 4,800mm (189inch) with horizontal towbar
Width:	1,790mm (70.5inch)
Height:	1,740mm (68.5inch) cover closed 3,160mm (124.4inch) cover open
Weight:	approx. 2,050kg (4,520lb)

> Measurements:

Pressure: (3-off)	2 x 0 to 600bar ± 0.5% o.f.s. (0 to 8702psi ± 0.5% o.f.s.) 1 x 0.8 to 1.2bar ± 0.5% o.f.s. (11.6 to 17.4psi ± 0.5% o.f.s.)
Return: (1-off)	0 to 16bar ± 0.5% o.f.s. (0 to 232psi ± 0.5% o.f.s.)
Flow: (2-off)	0 to 80l/min ± 0.4l/min (0 to 21.1USgal/min ± 0.1USgal/min)
Temperature: (4-off)	3 x 0 to 100°C ± 1K (0 to 212°F ± 1K) 1 x -40 to +80°C ± 1K (-40 to 176°F ± 1K)
Air humidity: (1-off)	0 to 100% ± 4% o.f.s.

o.f.s. ... of full scale

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Hydraulic Test Equipment for A350 (Pre-Fal) - Hydraulic Distribution System

>HTE350=HDS<

- Hydraulic Distribution System (HDS) to supply the provided hydraulic circuits in the hydraulic system of the aircraft.
- The distribution circuit divides the supply of the HPU into various outputs and connects the inputs to the return to the HPU.

MISCELLANEOUS

- Electrically and pneumatically operated ball valves for opening or closing the inputs and outputs
- Opportunity for internal flushing by means of a bypass
- Pressure gauge in the supply and return line for analog pressure indication (1)
- Sight glass to monitor the return (2)
- Drip pan to catch leaking medium during maintenance tasks or to catch any occuring leakage (3)
- Easy accessibility for maintenance tasks via openings (4)
- Provided with openings for forklift (5)

large version (high number of inputs and outputs)

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small version (low number of inputs and outputs)

TECHNICAL DATA

> Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) above MSL
Air humidity:	5 to 95% (non-condensing)

> Dimensions and weight:

Width:	980mm (38.6inch)
Depth:	780mm (30.7inch)
Height:	1,000mm (39.4inch)
Weight:	approx. 220kg (485lb)

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Hydraulic Test Equipment for A350 (Pre-Fal) - Human Machine Interface >HTE350=HMI<

> Human Machine Interface (HMI) to control and operate the test equipment and to print test reports

MISCELLANEOUS

> Computer for central control and monitoring of the test equipment

> Printer to print test reports (1)

> Keyboard with trackball for text input, to quit failure messages, to query commands and for software operation (2)

> Monitor to indicate and monitor all digital measurements and switching states of valves and control variables (3)

> Transport wheels with parking brakes (4)

>HTE350<

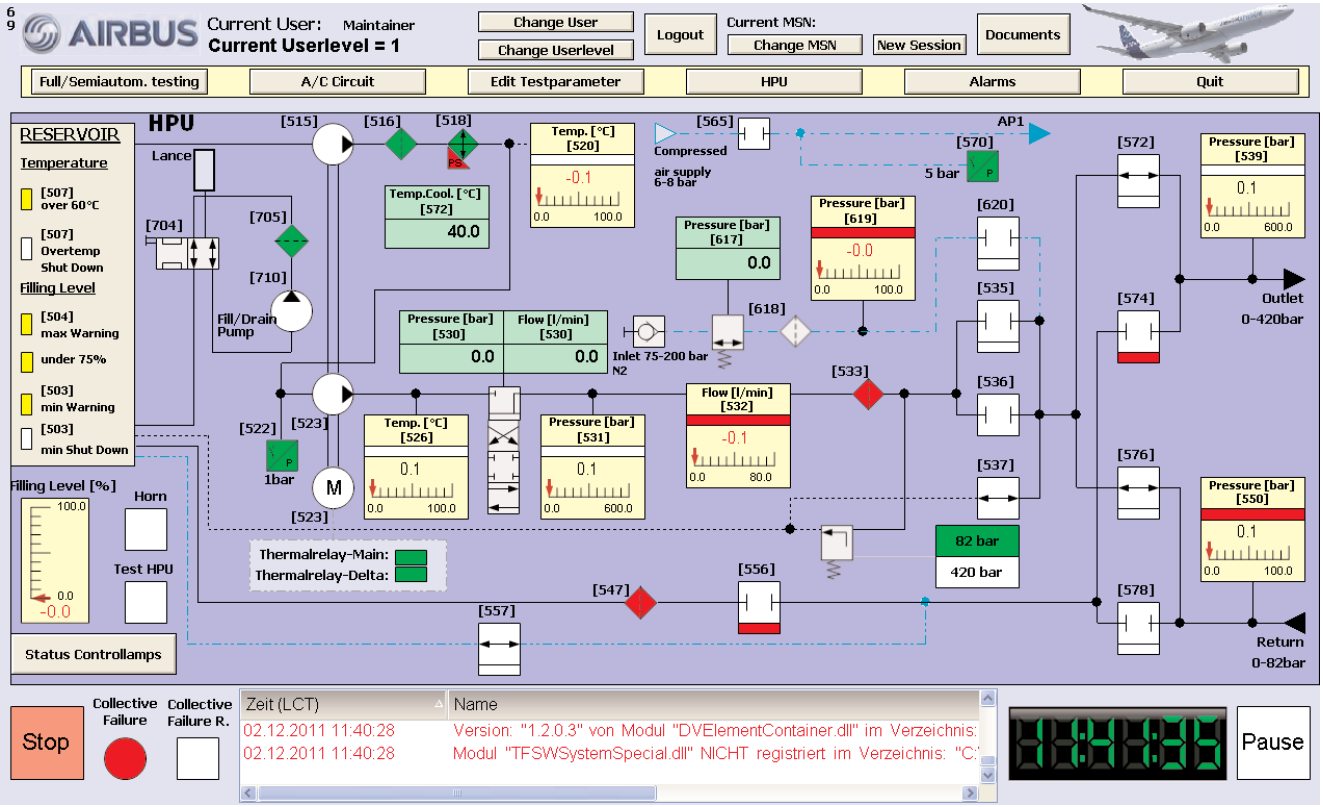
TECHNICAL DATA

> Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storing temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) above MSL
Relative air humidity:	5 to 95% (non-condensing)

> Dimensions and weight:

Width:	830mm (32.7inch)
Depth:	750mm (29.5inch)
Height:	1,630mm (64.2inch)
Weight:	approx. 100kg (220lb)



User Machine Interface of the Software

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Accessories

Tablet Panel-PC

> Tablet Panel-PC for cableless control and operation of the test equipment

Electrostatic precipitator

> Electrostatic precipitator for precipitation of oil vapors out of the main tank of the HPU

Return unit

> Return unit for returning the hydraulic medium into the main tank of the HPU

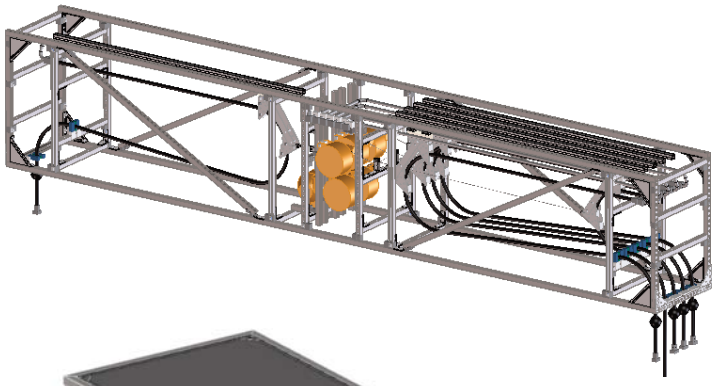
>HTE350<

Compressed air supply

> Compressed air supply consisting of a compressor, compressed air container and a switch cabinet to supply the HPU with compressed air up to 25bar

Hose box and hose reels

> Hose box and hose reels for hydraulic connection of the test equipment components and to connect to the aircraft - hydraulic system



>HTE350<

Control unit for aircraft - components and satellites

> Control unit to supply satellites and dummies and to store the test cables

Transport trolley

> Transport trolley to transport and to store loop valves, satellites, dummies, cables and hoses

OPTIONS

A wide range of options is available to fulfil our customers´requirements.
e.g.: Adaption for different aircraft types, etc...

>HTE350<

Technical data are subject to change!

Wing Test Equipment
>STE350BRE-WI<

The equipment is developed for testing at the AIRBUS A350 Pre-FAL in Bremen.

Operated tests:

- -ATA28: Fuel Jettison
- -ATA36: Bleed Air Ducting
- -ATA47: Inerting System

The equipment can be adapted for different aircraft types.

- Fully automated test procedure
- Integrated injector vacuum pump
- Operation via tablet PC
- Quick release connector on supply and return hoses
- Mobile design ensures high level of operational flexibility

GENERAL INFORMATION

- Maintenance friendly by means of openings and doors
- Low maintenance
- Integrated drawer
- Hose storage facilities
- Fixed and swivelling castors

TECHNICAL DATA

Medium:

Compressed air

Pneumatical supply (requirements):

Flow:	min. 1,000l/min (35.3scfm)
Pressure:	6 to 8 bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2
Compressed air temp.:	max. 40°C (104°F)

Electrical supply (requirements):

1/N/PE AC 50Hz 230V

Nominal current:	max. 2A
Power:	0.46kVA

Dimensions and weight:

Width:	1,160mm (45.7inch)
Depth:	1,500mm (59.1inch)
Height:	1,360mm (53.5inch)
Weight:	approx. 350kg (772lb)

Measurements:

Pressure:	0 to 16bar abs ± 0.5% o. m. r. (0 to 232psi abs ± 0.5% o.m.r.)
Pressure:	0 to 6bar ± 1.5% o.m.r. (0 to 87psi ± 1.5% o.m.r.)
Flow:	150 to 3,000Nl/min ± 5% o.m.r. (5.3 to 105.9SCFM ± 5% o.m.r.)

o.m.r. ... of measuring range

Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) MSL (main sea level)

OPTIONS

Various options are available to adapt the device to our customers' requirements.
e.g.: Adaption for other aircraft types, etc.

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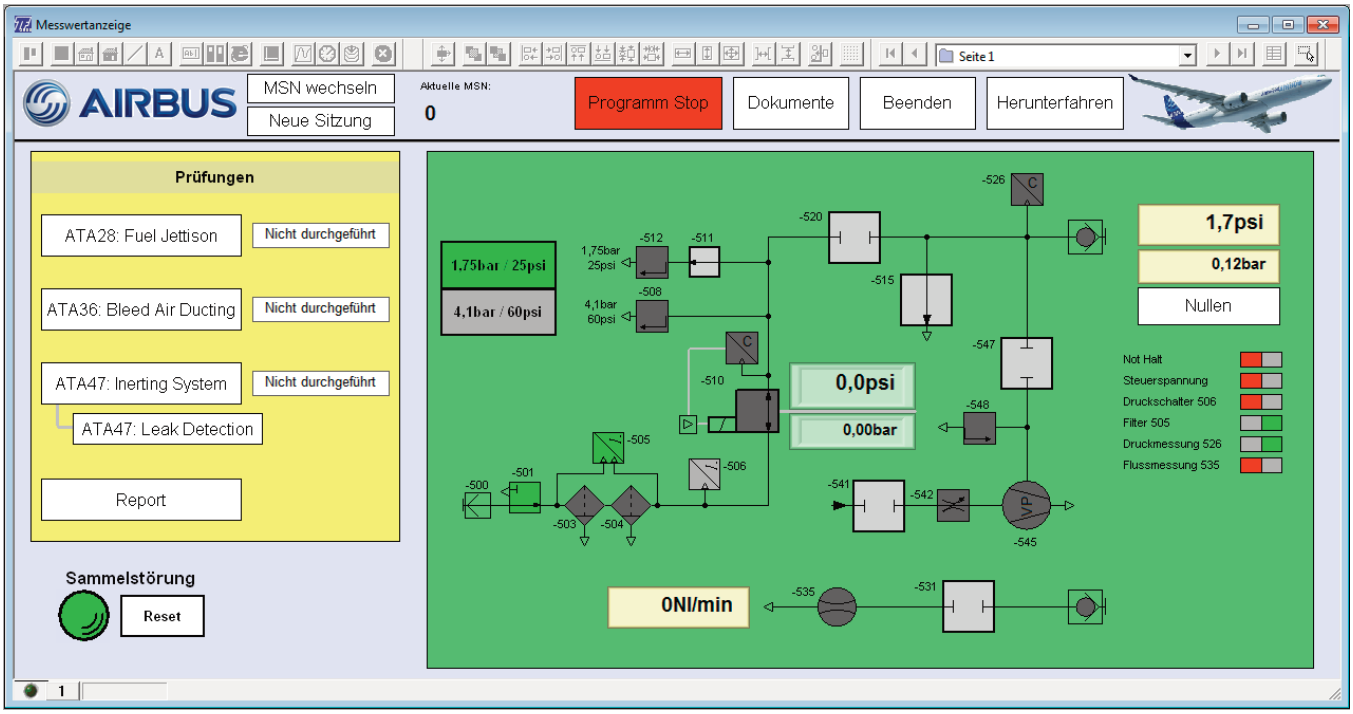
Operating elements and tablet PC



User interface of the Software

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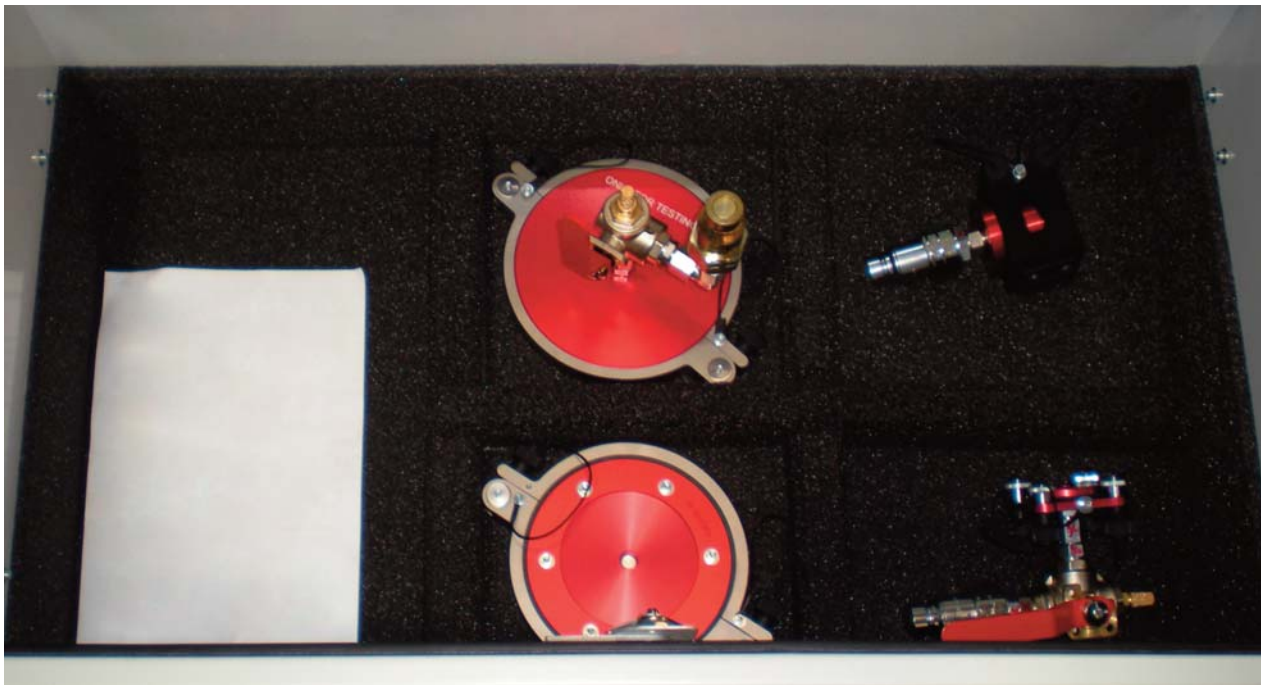

Drawer with adapter

Rear of the equipment

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Fuel Feed Test Equipment

>STE350BRO-FF<

The equipment is developed for pressure testing at the AIRBUS A350 Pre-FAL in Broughton.

Aircraft systems to be tested:
-ATA28: Fuel Jettison

The equipment can be adapted for different aircraft types.

- Easy handling
- Low maintenance
- Waterproof housing
- Pressure compensation valve in the housing
- Lockable housing via padlock

TECHNICAL DATA

> Pneumatic parameters:

Pressure:	0 to 6.8bar (0 to 98.6psi)

> Pneumatic supply (requirements):

Flow:	min. 1,000Nl/min (35.3scfm)
Pressure:	6 to 8 bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2
Compressed air temp.:	max. 40°C (104°F)

> Dimensions and weight

Length:	470mm (18.5inch)
Width:	357mm (14.1inch)
Height:	176mm (6.9inch)
Weight:	approx. 6kg (13.2lb)

> Measurements:

Pressure:	0 to 100bar ± 0.25% o.f.s. (0 to 1,450psi ± 0.25% o.f.s.)

> Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)

OPTIONS

Various options are available to adapt the device to our customers´ requirements.
e.g.: Adaption for other aircraft types, pressure setting, etc.

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Valve Actuator Test Equipment

>STE350BRO-VA<

The equipment is developed to test valves at the AIRBUS A350 Pre-FAL in Broughton.

The following valves can be tested:
“Low Pressure Fuel Feed Valve“, “Fuel Jettison Valve“ and “Refuel Valve“.

The equipment can be adapted to test valves with similar characteristics.

- Easy operation
- Minimum maintenance
- A shoulder strap for easy transportation
- Watertight transport case
- Lockable transport case

TECHNICAL DATA

> Electrical supply (requirements):

1/N/PE AC 50/60Hz 110VAC
Nominal current: 1A
Power: 0.11kVA

> Operating conditions:

Operating temperature: 5 to 35°C (41 to 95°F)

Storage temperature: 0 to 60°C (32 to 140°F)

> Dimensions and weight:

Transport case:
- Length: 470mm (18.5inch)
- Width: 357mm (14.1inch)
- Height: 176mm (6.9inch)

Test equipment:
- Length: 250mm (9.8inch)
- Width: 170mm (6.7inch)
- Height: 120mm (4.7inch)

Total weight: approx. 5kg (11lb)

OPTIONS

Various options are available to adapt the device to our customers' requirements, e.g.: Adaption for other valves, etc.

>STE350BRO-VA<

Technical data are subject to change!

Oxygen System Test Equipment

>STE350HAM-OS<

The equipment is developed for testing the oxygen system at the AIRBUS A350 Pre-FAL in Hamburg.

The equipment can be adapted for different aircraft types.

- Integrated compressed air operated nitrogen-pressure compiler
- Continuously variable pressure regulation
- Adjustable timer for acoustical and optical alarm
- High operational flexibility by mobile set-up

GENERAL INFORMATION

- Maintenance friendly by means of openings and doors
- Low maintenance
- Integrated drawer
- Mobile setup with fixing and swivel rollers

TECHNICAL DATA

Medium:

Nitrogen

Pneumatic supply (requirements):

Flow:	at least 1,000l/min (35.3scfm)
Pressure:	6 to 8bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2
Compressed air temp.:	max. 40°C (104°F)

Electrical supply (requirements):

1/N/PE AC 50Hz 230V

Nominal current:	1A
Power:	0.23kVA

Dimensions and weight:

Width:	1,160mm (45.7inch)
Depth:	1,450mm (57.1inch)
Height:	1,360mm (53.5inch)
Weight:	approx. 450kg (992lb)

Measurements:

Pressure:	0 to 25bar ± 1% of measuring range (0 to 363psi ± 1% of measuring range)
Pressure:	0 to 250bar ± 1% of measuring range (0 to 3,626psi ± 1% of measuring range)
Temperature:	0 to 100°C ±1K (0 to 212°F ±1K)

Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) MSL (main sea level)

OPTIONS

Various options are available to adapt the device to our customers' requirements.
e.g.: Adaption for other aircraft types, etc.

>STE350HAM-OS<

Technical data are subject to change!

SCS Leakage Test Equipment
>STE350HAM-SCSL<

The equipment is developed for leak testing at Supplemental Cooling Systems at the AIRBUS A350 Pre-FAL in Hamburg.

Media: Nitrogen and compressed air

Aircraft systems that can be tested:
-ATA21-59: Supplemental Cooling

The equipment can be adapted for different aircraft types.

- Integrated compressor (30bar, max. 270lpm)
- Pressure is continuously variable
- High pressure pre-filter, micro filter and activated carbon filter
- Adjustable timer for acoustic and optical alarm
- Hydrogen leakage localization device
- Pressure gauge for water and gas
- Hose drums with spring return
- High operational flexibility by mobile set-up

GENERAL INFORMATION

- Maintenance friendly by means of openings and doors
- Low maintenance
- Storage space for the hydrogen leakage localization device and pressure gauge for water and gas
- Retainer with roll mechanism for the nitrogen bottle
- The wheels can be braked and pivoted
- A clipboard is provided and can be attached to the test equipment
- The handle can be removed for shunting purposes; it can be attached on the left and right side

TECHNICAL DATA

Test media:

- Compressed air
- Nitrogen

Pneumatic supply (requirements):

Flow:	min. 1,000Nlpm (35.3scfm)
Pressure:	6 to 8 bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2
Max. compressed air temperature:	40°C (104°F)

Electrical supply (requirements):

3/N/PE AC 50Hz 400V

Nominal current:	13.6A
Power:	9.4kVA

Dimensions and weight:

Width:	2,440mm (96.1inch)
Depth:	1,280mm (50.1inch)
Height:	1,370mm (53.9inch)
Weight:	approx. 650kg (1,433lb)

Measurement range:

Pressure sensor:	0 to 40bar abs ± 1% measurement range (0 to 580psi abs ± 1% measurement range)
Temperature sensor:	0 to 100°C ± 1K (0 to 212°F ± 1K)
Time:	Down-counter (hh.mm.ss) 2 alarm points

Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) MSL (main sea level)

OPTIONS

Various options are available to adapt the device to our customers' requirements.
e.g.: Adaption for other aircraft types, transport trolley for nitrogen bottle, etc.

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Storage space for hydrogen leakage localization device
and pressure measuring device for water and gas

Hydrogen leakage localization device

Pressure measuring device for water and gas

>STE350HAM-SCSL<

Retainer with roll mechanism
for nitrogen bottle

Transport trolley for nitrogen bottle
(OPTION)

>STE350HAM-SCSL<

SCS Rinsing Equipment
>STE350HAM-SCSR<

Entwickelt zur Reinigung der Supplemental Cooling Systeme mittels turbulenter Strömungen in der A350 Pre-FAL am AIRBUS Standort in Hamburg.

Medium: PG60W40
Polyglykol-Wasser Gemisch

Flugzeugsysteme die geprüft werden können:
-ATA21-59: Supplemental Cooling

Kann für andere Luftfahrzeugtypen adaptiert werden.

- Timer mit einstellbaren Zeiten für akkustischen und optischen Alarm
- Integriertes inline Partikelzählsystem nach NAS4059; inkl. Drucker
- Optische Durchflussanzeige
- Öl-Luftkühler zum Kühlen des Mediums
- 5mic Vorlauf- / 10mic Rücklauffilter
- Hohe Einsatzflexibilität durch fahrbaren Aufbau

SONSTIGES

- Servicefreundlich durch Wartungsklappen und Türen
- Geringer Wartungsaufwand
- Schlauchaufroller mit 2x10m Vor- und Rücklaufschlauch an der Rückseite
- Mediumstemperaturanzeige
- Schnellkupplungen
- Mobile Ausführung mit Bock- und Lenkrollen

TECHNISCHE DATEN

Spülmedium:

- PG60W40, Polyglykol-Wasser Gemisch

Pneumatische Versorgung (Anforderungen):

Durchfluss:	min. 1.000Nl/min (35,3scfm)
Druck:	6 bis 8 bar (87 bis 116psi)
Druckluftqualität:	ISO 8573-1 ISO Code 1-4-2
Max. Drucklufttemperatur:	40°C (104°F)

Elektrische Versorgung (Anforderungen):

3/N/PE AC 50Hz 400V

Nennstrom:	5A
Leistung:	3,46kVA

Abmessungen und Gewicht:

Breite:	1.160mm (45,7inch)
Tiefe:	1.450mm (57,1inch)
Höhe:	1.360mm (53,5inch)
Gewicht:	ca. 450kg (992lb)

Messungen:

Druck:	0 bis 16bar abs ± 1% v. Messbereich (0 bis 232psi abs ± 1% v. Messbereich)
Temperatur:	0 bis 100°C ± 1K (32 bis 212°F ± 1K)
Zeit:	Abwärtszähler (hh.mm.ss) 2 Alarmpunkte
Partikelmessung:	5 bis 50µm ± 2 NAS-Klassen 50 bis 100µm ± 3 NAS-Klassen > 100µm ± 4 NAS-Klassen

Einsatzbedingungen:

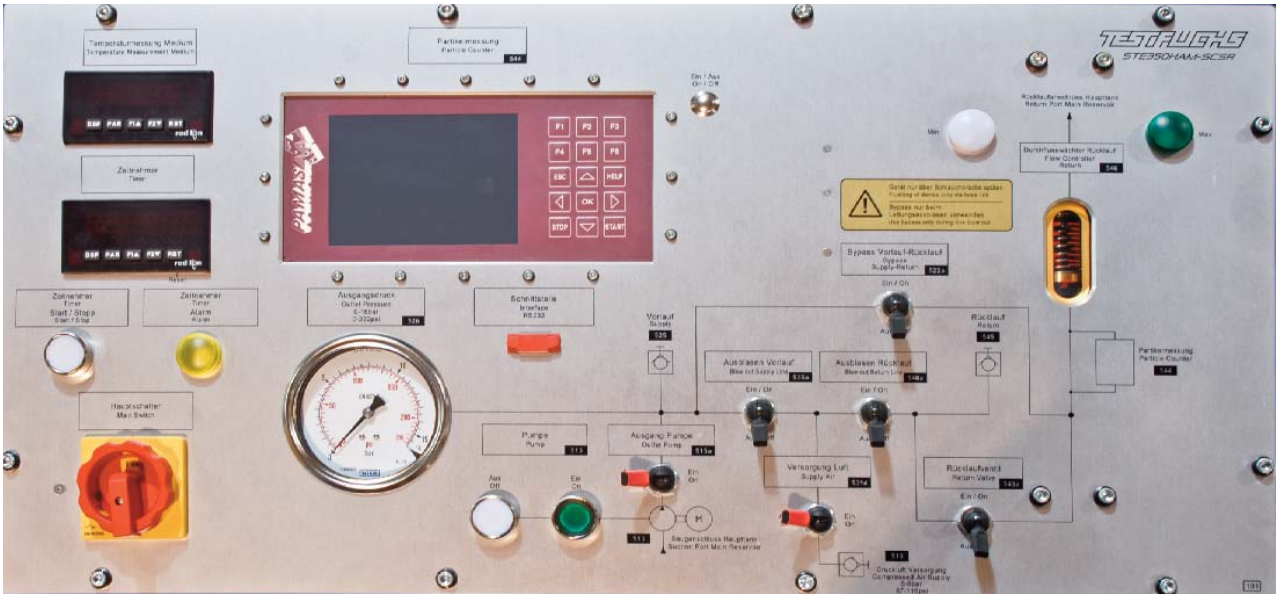
Betriebstemperatur:	5 bis 35°C (41 bis 95°F)
Lagertemperatur:	0 bis 60°C (32 bis 140°F)
Höhenlage:	max. 1.000m (3.280ft) MSL (main sea level)

OPTIONEN

Vielfältige Optionen möglich, um das Gerät an Kundenwünsche anzupassen.
zB: Adaption für andere Luftfahrzeugtypen, etc.

>STE350HAM-SCSR<

Technische Änderungen vorbehalten!



Bedienelemente inkl. Partikelzählsystem

Rückansicht mit Schlauchaufroller

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Universal Pressure Test Equipment
>STE350HAM-UP<

The equipment is developed for pressure testing at the fuselage sections 13/14 and 16/19 at the AIRBUS A350 Pre-FAL in Hamburg.

Medium: Compressed air

Aircraft systems that can be tested:

-ATA21:	Air Conditioning
-ATA26-23:	Fire Extinguishing
-ATA28:	Fuel
-ATA36:	Pneumatic
-ATA38-10:	Potable Water
-ATA50:	Cargo Drain

The equipment can be adapted for other aircraft types.

- Built-in breathing air compressor (100bar)
- Infinitely variable pressure
- Adjustable timer for audible and visual alarm
- Mobile design for operational flexibility
- Hose drums with spring return
- Two storage bottles as pressure accumulator

GENERAL INFORMATION

- Doors and maintenance covers ensure that the equipment is maintenance friendly
- Only little maintenance is required
- A drawer is built-in
- The wheels can be braked and pivoted
- A clipboard is provided and can be attached to the test equipment
- The handle can be removed for shunting purposes; it can be attached on the left and right hand side

TECHNICAL DATA

> Pneumatic supply (requirements):

Flow:	min. 1,000Nlpm (35.3scfm)
Pressue:	6 to 8 bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2
Max. compressed air temperature:	40°C (104°F)

> Electrical supply (requirements):

3/N/PE AC 50Hz 400V
Nominal current: 13.6A
Power: 9.4kVA

> Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) MSL (main sea level)

> Measurement range:

Pressure sensor:	0 to 10bar ± 1% measurement range (0 to 145psi ± 1% measurement range)
Pressure sensor:	0 to 25bar ± 1% measurement range (0 to 363psi ± 1% measurement range)
Pressure sensor:	0 to 100 bar ± 1% measurement range (0 to 1,450psi ± 1% measurement range)
Temperature sensor:	0 to 100°C ± 1K (0 to 212°F ± 1K)
Time:	Down-counter (hh.mm.ss) 2 alarm points

> Dimensions and weight:

Width:	2,440mm (96.1inch)
Depth:	1,273mm (50.1inch)
Height:	1,366mm (53.8inch)
Weight:	approx. 600kg (1,323lb)

OPTIONS

Various options are available to adapt the device to our customers' requirements.
e.g.: Adaption for other aircraft types, etc.

>STE350HAM-UP<

Technical data are subject to change!

Vacuum Test Equipment
>STE350HAM-VAC<

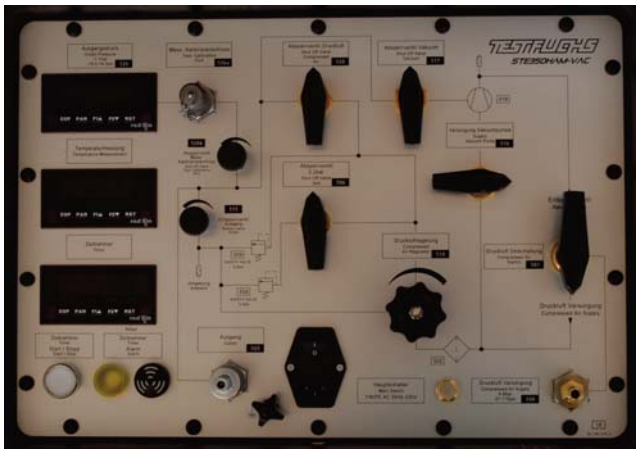
The equipment is developed for pressure and vacuum tests at the AIRBUS A350 Pre-FAL in Hamburg.

Aircraft systems to test:

-ATA34:	Navigation
-ATA38:	Water
-ATA38-30:	Vacuum Toilet System

The equipment can be adapted for different aircraft types.

- Easy operation of the device is ensured
- Integrated injector vacuum pump
- Adjustable timer for acoustical and optical alarm
- Only little maintenance is required
- Castors and extractable handle for easy transport
- Waterproof transport case with pressure compensation valve
- Transport case can be locked by means of a padlock



TECHNICAL DATA

> Electrical supply (requirements):

Mains connection:	1/N/PE AC 50Hz 230V
Nominal current:	max. 1A
Power:	approx. 0.23kVA

> Pneumatic supply (requirements):

Flow:	min. 1,000Nl/min (35.3scfm)
Pressure:	6 to 8 bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2
Max. compressed air temperature:	40°C (104°F)

> Dimensions and weight:

Length:	540mm (21.3inch)
Width:	415mm (16.3inch)
Height:	290mm (11.4inch)
Weigth:	approx. 20kg (44.1lb)

> Measurements:

Temperature:	0 to 100°C ± 1K (32 to 212°F ± 1K)
Pressure:	-1 to +1bar ± 1% of measuring range (-14.5 to +14.5psi ± 1% of measuring range)
Timer:	down counter (hh.mm.ss) 2 set alarms

> Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Rel. humidity:	5 to 95%

OPTIONS

A wide range of options is available to fulfil our customers' requirements.
e.g.: adaption for other aircraft types, pressure regulation, etc.

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Potable Water Test Equipment

>STE350SNZ-PW<

Entwickelt zur Durchführung von Drucktests in der A350 Pre-FAL am AIRBUS Standort in Saint Nazaire.

Flugzeugsysteme, die geprüft werden können:

-ATA38-10: Potable Water System

Kann für andere Luftfahrzeugtypen adaptiert werden.

- Einfache Bedienung
- Geringer Wartungsaufwand
- Druckausgleichsventile an der Bedienplatte
- Schnellkupplungen an LFZ Seite
- Stauraum im Deckel

Potable Water Test Equipment
>STE350SNZ-PW<

TECHNISCHE DATEN

> Pneumatische Parameter:

Druck:	0 bis 12,9bar (0 bis 187,1psi)

> Pneumatische Versorgung (Anforderungen):

Stickstoff

Druck:	max. 200bar (max. 2.900,8psi)

> Elektrische Versorgung (Anforderungen):

Netzanschluss:	1/N/PE AC 50Hz 230V
Nennstrom:	0,5A
Leistung:	0,12kVA

> Abmessungen und Gewicht:

Breite:	583mm (23,0inch)
Tiefe:	483mm (19,0inch)
Höhe:	400mm (15,7inch)
Gewicht:	ca. 32kg (70,5lb)

> Messungen:

Druck:	0 bis 10bar Klasse 0,5 (0 bis 145psi Klasse 0,5)
Druck:	0 bis 16bar Klasse 0,5 (0 bis 232psi Klasse 0,5)
Temperatur:	0 bis 100°C ±1°C (0 bis 212°F ±1,8°F)

> Einsatzbedingungen:

Betriebstemperatur:	5 bis 35°C (41 bis 95°F)
Lagertemperatur:	0 bis 60°C (32 bis 140°F)

OPTIONEN

Vielfältige Optionen möglich, um das Gerät an Kundenwünsche anzupassen.
zB: Adaption für andere Luftfahrzeugtypen, etc,

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SCS Leakage Test Equipment

>STE350SNZ-SCSL<

Entwickelt zur Durchführung von Druck- und Vakuumtests in der A350 Pre-FAL am AIRBUS Standort in Saint Nazaire.

Flugzeugsysteme, die geprüft werden können:

-ATA21-59: Supplemental Cooling System

Kann für andere Luftfahrzeugtypen adaptiert werden.

- Einfache Bedienung
- Geringer Wartungsaufwand
- Druckausgleichsventile an der Bedienplatte
- Stauraum im Deckel

SCS Leakage Test Equipment
>STE350SNZ-SCSL<

TECHNISCHE DATEN

> Pneumatische Parameter:

Druck:	-0,9 bis +30bar (-13,05 bis 435,1psi)

> Pneumatische Versorgung (Anforderungen):

Stickstoff

Druck:	max. 30bar (max. 435,1psi)

Druckluft

Druck:	6 bis 8bar (87 bis 116psi)
Durchfluss:	min. 1.000Nlpm
Qualität	ISO 8573-1 ISO CODE 1-4-2
Temperatur:	max. 40°C (104°F)

> Elektrische Versorgung (Anforderungen):

Netzanschluss:	1/N/PE AC 50Hz 230V
Nennstrom:	0,5A
Leistung:	0,12kVA

> Abmessungen und Gewicht:

Breite:	583mm (23,0inch)
Tiefe:	483mm (19,0inch)
Höhe:	400mm (15,7inch)
Gewicht:	ca. 29kg (63,9lb)

> Messungen:

Druck:	-1 bis +40bar Klasse 0,5 (-14,5 bis 580.2psi Klasse 0,5)
Temperatur:	0 bis 100°C ±1°C (0 bis 212°F ±1,8°F)

> Einsatzbedingungen:

Betriebstemperatur:	5 bis 35°C (41 bis 95°F)
Lagertemperatur:	0 bis 60°C (32 bis 140°F)

OPTIONEN

Vielfältige Optionen möglich, um das Gerät an Kundenwünsche anzupassen.
zB: Adaption für andere Luftfahrzeugtypen, etc,

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SCS Rinsing Equipment
>STE350SNZ-SCSR<

The equipment is developed for cleaning the Supplemental Cooling Systems by means of turbulent flow at the AIRBUS A350 Pre-FAL in Saint Nazaire.

Medium: PG60W40
polyglycol-water mixture

Aircraft systems to test:
-ATA21-59: Supplemental Cooling

The equipment can be adapted for different aircraft types.

- Integrated compressed air-double diaphragm pump
- Hose drum with 2x10m supply and return hoses
- Flow meter switch with sight glass
- Integrated tank with 150l capacity
- High operational flexibility by mobile set-up

GENERAL INFORMATION

- Easy maintenance by openings and doors
- Low maintenance
- Leakage free quick couplings
- Wheels to swivel and brake

TECHNICAL DATA

> Test medium:

- PG60W40, polyglycol-water mix

> Pneumatic supply (requirements):

Compressed air

Flow:	at least 1,000Nl/min (35.3scfm)
Pressure:	6 to 8bar (87 to 116psi)
Compressed air quality:	ISO 8573-1 ISO Code 1-4-2

Max. compressed air temperature: 40°C (104°F)

Nitrogen

Pressure:	max. 200bar (max. 2,900.8psi)

> Dimensions and weight:

Width:	1,160mm (45.7inch)
Depth:	1,450mm (57.1inch)
Height:	1,360mm (53.5inch)
Weight:	approx. 450kg (992lb)

> Operating conditions:

Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m (3,280ft) MSL (main sea level)

OPTIONS

Various options available to meet our customers' requirements
e.g.: adaptions for other aircraft types, etc.

>STE350SNZ-SCSR<

Technical data are subject to change!

Vacuum Test Equipment
>STE350SNZ-VAC<

Entwickelt zur Durchführung von Drucktests in der A350 Pre-FAL am AIRBUS Standort in Saint Nazaire.

Flugzeugsysteme, die geprüft werden können:

-ATA38-30: Vacuum Toilet System

Kann für andere Luftfahrzeugtypen adaptiert werden.

- Einfache Bedienung
- Geringer Wartungsaufwand
- Druckausgleichsventile an der Bedienplatte
- Schnellkupplungen an LFZ Seite
- Stauraum im Deckel

Vacuum Test Equipment
>STE350SNZ-VAC<

TECHNISCHE DATEN

> Pneumatische Parameter:

Druck:	0 bis 800mbar (0 bis 11,6psi)

> Pneumatische Versorgung (Anforderungen):

Stickstoff

Druck:	max. 200bar (max. 2.900,8psi)

> Elektrische Versorgung (Anforderungen):

Netzanschluss:	1/N/PE AC 50Hz 230V
Nennstrom:	0,5A
Leistung:	0,12kVA

> Abmessungen und Gewicht:

Breite:	583mm (23,0inch)
Tiefe:	483mm (19,0inch)
Höhe:	400mm (15,7inch)
Gewicht:	ca. 27kg (59,5lb)

> Messungen:

Druck:	0 bis 1bar Klasse 0,5 (0 bis 14,5psi Klasse 0,5)
Temperatur:	0 bis 100°C ±1°C (0 bis 212°F ±1,8°F)

> Einsatzbedingungen:

Betriebstemperatur:	5 bis 35°C (41 bis 95°F)
Lagertemperatur:	0 bis 60°C (32 bis 140°F)

OPTIONEN

Vielfältige Optionen möglich, um das Gerät an Kundenwünsche anzupassen.
zB: Adaption für andere Luftfahrzeugtypen, etc,

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Waste Water Test Equipment
>STE350SNZ-WW<

Entwickelt zur Durchführung von Drucktests in der A350 Pre-FAL am AIRBUS Standort in Saint Nazaire.

Flugzeugsysteme, die geprüft werden können:

-ATA38-30: Waste Water System

Kann für andere Luftfahrzeugtypen adaptiert werden.

- Einfache Bedienung
- Geringer Wartungsaufwand
- Druckausgleichsventile an der Bedienplatte
- Schnellkupplungen an LFZ Seite
- Stauraum im Deckel

Waste Water Test Equipment
>STE350SNZ-WW<

TECHNISCHE DATEN

> Pneumatische Parameter:

Druck:	0 bis 800mbar (0 bis 11,6psi)

> Pneumatische Versorgung (Anforderungen):

Stickstoff

Druck:	max. 200bar (max. 2.900,8psi)

> Elektrische Versorgung (Anforderungen):

Netzanschluss:	1/N/PE AC 50Hz 230V
Nennstrom:	0,5A
Leistung:	0,12kVA

> Abmessungen und Gewicht:

Breite:	583mm (23,0inch)
Tiefe:	483mm (19,0inch)
Höhe:	400mm (15,7inch)
Gewicht:	ca. 26kg (57,3lb)

> Messungen:

Druck:	0 bis 1bar Klasse 0,5 (0 bis 14,5psi Klasse 0,5)
Temperatur:	0 bis 100°C ±1°C (0 bis 212°F ±1,8°F)

> Einsatzbedingungen:

Betriebstemperatur:	5 bis 35°C (41 bis 95°F)
Lagertemperatur:	0 bis 60°C (32 bis 140°F)

OPTIONEN

Vielfältige Optionen möglich, um das Gerät an Kundenwünsche anzupassen.
zB: Adaption für andere Luftfahrzeugtypen, etc,

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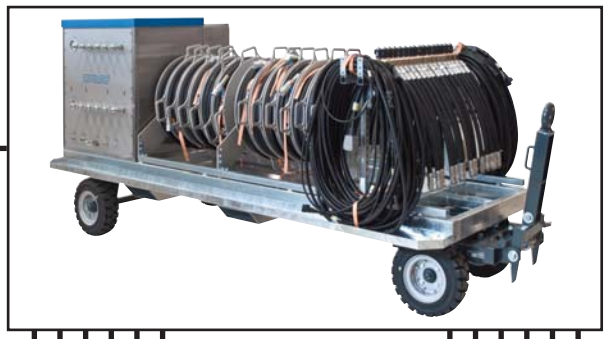
Hydraulic supply and flushing system (for Boeing 787)

>HSFS787<

Hydraulic Power Unit (HPU)

Flushing Unit (FU)



Cable Trolley (CAT)

Human Machine Interface (HMI)

The test rig is developed for flushing, filling, testing and monitoring the contamination level of the BOEING 787 hydraulic system.

It can be adapted for other aircraft types.

- Mobile Hydraulic Power Unit (HPU) for low and high pressure supply with integrated water separation system, electrostatic separator and particle measurement system
- Mobile Flushing Unit (FU) to flush the hydraulic system including jumper valves for installation in the hydraulic system
- Human Machine Interface (HMI) with integrated touchpanel to operate the unit
- Cable Trolley (CAT) with pneumatically driven hose reel to transport the electric power supply cable

HYDRAULIC POWER UNIT (HPU)

- Particle measurement system to measure oil condition parameters. (1)
- Water Separation System removes water from the test medium. (2)
- The electrostatic separator draws oil fumes off the main tank. (3)
- An internal gear pump and a high pressure pump are fitted for generating the required pressure. (4)
- Filter with electric contamination indicator provides purity of the test medium. (5)
- The main tank offers a capacity of about 900l (240gal). (6)
- A gear pump is fitted for filling and emptying the main tank. (7)
- Filter- and cooling circuits are fitted to clean and cool the test medium.
- Oil-air coolers and a cooling top cover enable cooling without cooling water supply. (8)
- The touchpanel enables operating without the Human Machine Interface (HMI).
- The chassis is equipped with axle steering, solid rubber tires and one parking brake.
- Doors and removable cover for easy access to the hydraulic system for maintenance.
- The collecting tray with level monitoring collects escaping medium during maintenance or occuring leakage
- Sections enable transport by forklift trucks, eye bolts and lashing points enable transport by crane.

FLUSHING UNIT (FU)

- Jumper valves for connection to hydraulic system components
- Compressed air filter to clean the compressed air
- Hose reels for transportation of the hoses
- Collecting tray to collect escaping medium during maintenance or occuring leakage
- Equipped with openings for forklift transport and eye bolts and lashing points for crane transport
- Door for easy access to hydraulic system during maintenance
- Chassis with axle steering, solid rubber tires and parking brake

Jumper valves

HUMAN MACHINE INTERFACE (HMI)

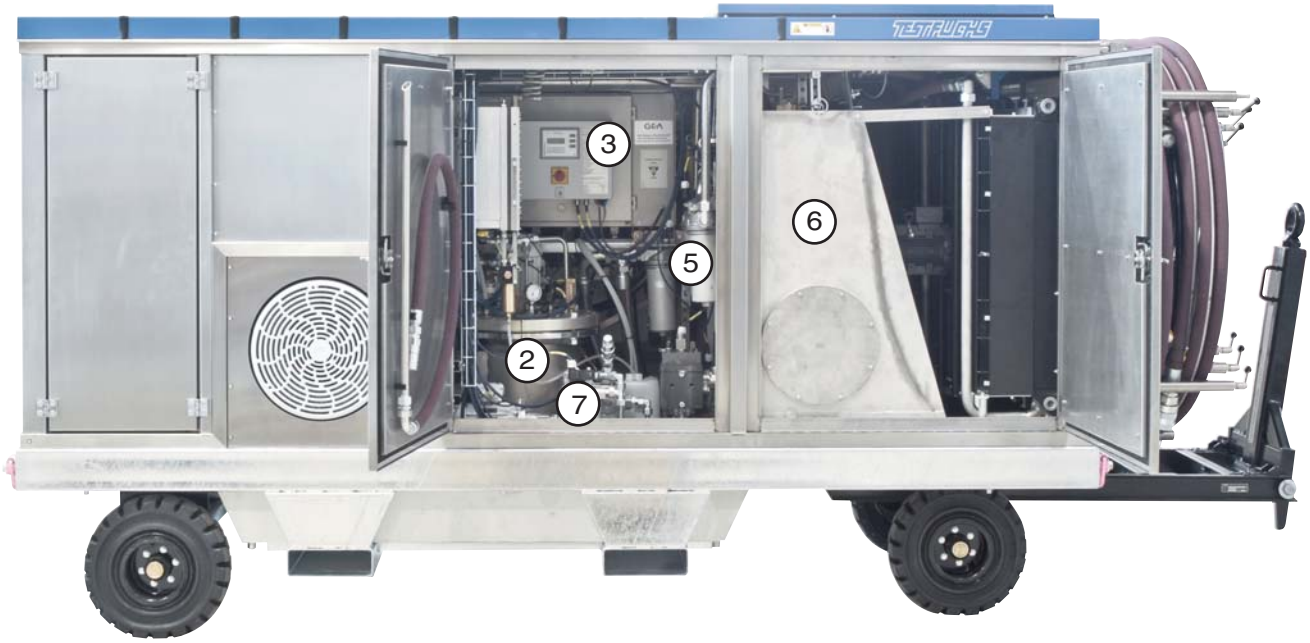
- Wheels with brakes for transport
- 19" touch panel and control elements for operation of the unit

Touch panel

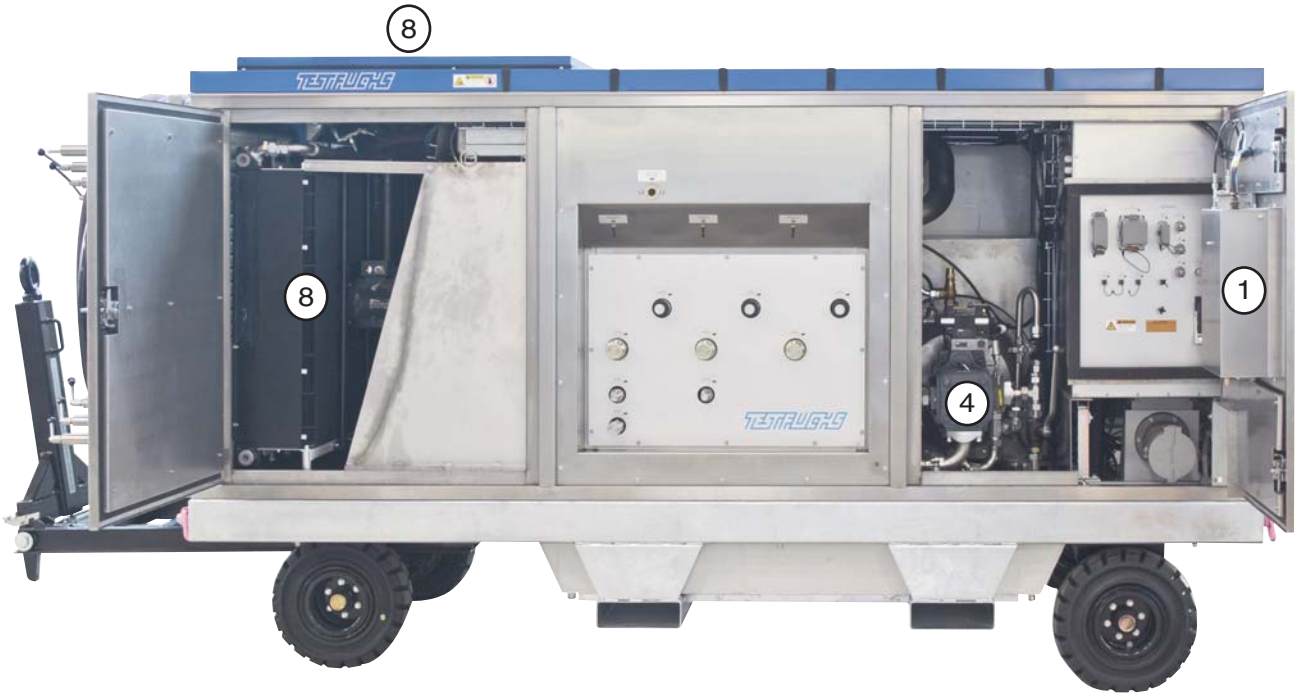
CABLE TROLLEY (CAT)

- Single axle with air-filled rubber tire and support wheel
- Pneumatically driven hose reel with brake for winding and unwinding of the electrical power supply cable

>HSFS787<



Hydraulic Power Unit (HPU)



Hydraulic Power Unit (HPU)

>HSFS787<

TECHNICAL DATA

> Electrical supply (requirements):

Mains supply:	3/PE AC 60Hz 480Y / 277V
Nominal current:	max. 320A
Power:	max. 229kVA

> Pneumatic supply (requirements):

Compressed air:	6 to 8bar (87 to 116psi)
HeliOx:	max. 35bar (500psi)

> Cooling water supply (requirements):

Flow:	150lpm (40USgpm)
Temperature:	max. 12°C (54°F)

> Operating conditions:

Operating temperature:	5 to 38°C (41 to 100.4°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	max. 1,000m above MSL (3,280ft)
Relative humidity:	5 to 95% (non-condensing)

> Medium:

Skydrol LD4 (BMS 3-11)

> Hydraulical parameters:

High pressure supply:
227lpm at 345bar, max. 420bar
(60USgpm at 5,000psi, max. 6,000psi)

Return:
350lpm at 7bar, max. 7bar
(92USgpm at 100psi, max. 100psi)

> Measurements:

Pressure:

(4-off)	0 to 10bar (150psi), Cl. 0.6 EN837
(4-off)	0 to 35bar (500psi), ±0.25% of f.s.
(4-off)	0 to 250bar (3,600psi), ±0.25% of f.s.
(7-off)	0 to 400bar (5,800psi), ±0.25% of f.s.
(4-off)	0 to 420bar (6,000psi), ±0.25% of f.s.

Flow:

(2-off)	0.4 to 80lpm (0 to 50USgpm), ±0.5% of f.s.

Temperature:

(2-off)	0 to 80°C, ±1°C (30 to 170°F, ±2°F)

Concentration:

(1-off)	10 to 20,000ppm

of f.s. ... tolerance in % of final scale
abs. ... absolute tolerance

> Dimensions and weight:

HPU (LxWxH):	approx. 4,900 x 2,200 x 2,200mm (approx. 192.91 x 39.37 x 39.37in) approx. 6,500kg (14,330lb)
FU (LxWxH):	approx. 4,110 x 1,386 x 1,650mm (approx. 161.83 x 54.59 x 64.96in) approx. 1,600kg (3,527lb)
HMI (LxWxH):	approx. 600 x 600 x 1,085mm (approx. 23.62 x 23.62 x 42.71in) approx. 70kg (155lb)
CAT (LxWxH):	approx. 3,300 x 1,700 x 2,400mm (approx. 129.9 x 66.9 x 94.5in) approx. 1,300kg (2,866lb)

Particle measurement system:

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption to other aircraft types, etc.

>HSFS787<

Technical data are subject to change!

Engine Fire Extinguishing System Test Tool

>EFESTT1<

The equipment is developed to test leakage of the A400M pipework running to the discharge nozzles of the Engine Fire Extinguishing System.

It is possible to adapt the equipment to other aircraft types.

- The equipment is supplied by an external nitrogen bottle
- Control elements are neatly arranged and situated on the control panel inside the case
- Two test modes are available for system tests:
  - Leak Test
  - Clog Test

GENERAL INFORMATION

- Outlet pressure can be read at the pressure gauge
- The equipment is integrated in a solid transport case
- A wide range of accessories, e.g. adaptions, hoses and dummy caps is available to seal the discharge nozzles of the aircraft during operation
- The tests can be carried out during the regular "base maintenance"

TECHNICAL DATA

> Pneumatic supply (requirements):

External nitrogen supply:	max. 200bar (2,900.8psi)

> Pneumatic parameters:

Nitrogen output:	max. 24bar (348.1psi)
- Leak Test:	23bar (333.6psi)
- Clog Test:	2bar (29.0psi)

> Operating conditions:

Altitude:	max. 1,000m (3,281ft) MSL
Operating temperature:	-15 to +40°C (5 to 95°F)
Storage temperature:	-40 to +70°C (-40 to +158°F)
Rel. humidity:	5 to 95% (non-condensing)

> Dimensions and weight:

Width:	approx. 570mm (22.5in)
Height:	approx. 300mm (11.8in)
Depth:	approx. 450mm (17.7in)
Weight:	approx. 18kg (40lb)

OPTIONS

Various options are available to meet our customers' requirements.

>EFESTT1<

Technical data are subject to change!

Mobile Nitrogen Test Set

>MSTS1<

The nitrogen filling equipment has been developed for the combat aircraft EUROIGHTER.

For the combat aircraft EF2000, the equipment is used for nitrogen filling and testing of the pressure vessel in the fuselage center part and of other components.

The nitrogen filling equipment can be adapted for all other application areas requiring a nitrogen supply.

Only the adaptions have to be modified to the respective purpose of use.

- The inlet pressure is charged via an external pressure supply.
- For pressure indication, an intelligent 12"-control panel is implemented.
- The indication of the outlet pressure is readable up to a distance of 7m, also in case of solar radiation.
- The reference pressure values can be entered via the control panel. The >MSTS1< regulates the required pressure automatically.
- The nitrogen filling device features one low pressure circuit and one high pressure circuit.

GENERAL INFORMATION

- The equipment can be parametered and calibrated for long-term guarantee of high measuring accuracy.
- The nitrogen filling equipment is fitted in a stable hard-top case with fixed castors and a telescopic grip.
- There is an additional storage case for adaptions and hoses.

TECHNICAL DATA

Electric supply (requirements):

Mains supply:	1/N/PE AC 50Hz 230V
Nominal current:	1A
Power:	230VA
Short-circuit current:	max. 6kA

Pneumatic supply (requirements):

Medium:	cleaned nitrogen
Inlet pressure:	min. 160bar / max. 280bar (min 2,320psi / max. 4,060psi)

Pneumatic parameters:

Outlet pressure:	0 to 140bar (0 to 2,030.5psi)

Pressure ranges:

Low pressure circuit:

- Pressure range:	0 to 16bar	(0 to 232.0psi)
	± 0.3bar	(± 4.3psi)

High pressure circuit:

- Pressure range:	1 to 140bar	(14.5 to 2,030.5psi)
	(± 1bar)	(± 14.5psi)

Measuring accuracy:

Measuring accuracy in total area:	± 0.1bar (± 1.45psi)

Operating conditions:

Altitude:	0 to 1,000m (0 to 3,280.8ft)
Operating temperature:	10 to 35°C (50 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Air humidity:	5 to 95%

Dimensions and weight:

>MSTS1<:

Length:	approx. 830mm	(32.7in)
Width:	approx. 520mm	(20.5in)
Height:	approx. 400mm	(15.7in)
Weight:	approx. 52kg	(114.6lb)

Accessory case:

Length:	approx. 540mm	(21.2in)
Width:	approx. 430mm	(16.9in)
Height:	approx. 300mm	(11.8in)
Weight:	approx. 16kg	(35.2lb)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.

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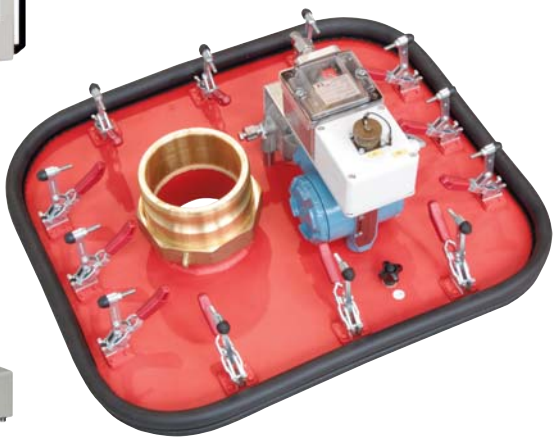
Cabin pressure tester

>KDP4AF<



The Cabin Pressure Tester is developed to carry out pressure testing of the AIRBUS A320 family, i.a.w. ATA Chapter 53.

It is possible to adapt this tester for other aircraft types.

- Cabin pressurization and over pressure relief valve operation can be tested
- Measurement of cabin pressure, ambient pressure, cabin temperature, ambient temperature and time
- Dummy door for the Avionic Compartment for integrated measurements
- Fully automatic test sequence
- The mobile Cabin Pressure Tester can be easily positioned for use

MISCELLANEOUS

- The computer system is operated via touch-LCD panel
- Test results can be shown numerically and graphically
- Test results can be stored electronically or printed by means of a connector for external equipment (printer, modem, USB stick, etc.)
- Software can be maintained and updated via modem by the factory

TECHNICAL DATA

> Pneumatic parameters:

Controllable pressure:	0 - 600 mbar (0 - 8.7 psi)
Flow:	0 - 1 kg/sec (0 - 2.2 lb/sec)

> Medium:

Shop air pressure (filtered, dry)

> Measurements:

Temperature:	Range:	0 - 50 °C (32 - 122 °F)
	Accuracy:	± 0.5 °C (± 0.9 °F)
Pressure:	Range:	0 - 1 bar (0 - 14.5 psi)
	Accuracy:	0.15 % o.m.r.
Time:	Range:	0 - 30 s
	Accuracy:	± 0.2 s

> Electrical parameters:

Mains supply:	1/N/PE AC 50 Hz 230 V
Nominal power:	2.3 kVA
Nominal current:	10 A / 16 A

> Dimensions and weight:

Length:	1700 mm	(5.6 ft)
Width:	950 mm	(3.1 ft)
Height:	1610 mm	(5.3 ft)
Weight:	510 kg	(1124 lb)

> Ambient conditions:

Temperature:	+10 °C to +45 °C (+50 °F to +113 °F)

OPTIONS

Many options are possible for adaption,
e.g. adaption to other aircraft types, different touch-screens etc.

Technical data are subject to change!

Cabin Pressurization Trolley

>KDP8<

Developed for performing pneumatic pressure tests on the aircraft type MITSUBISHI MRJ according to ATA Chapter 21.

Serves for verifying cabin tightness as well as for testing the security valve at the aircraft.

It is possible to adapt this trolley for other aircraft types.

- Measurements:
  Outlet and cabin pressure, flow, temperature and vertical speed (Vertical Speed Indicator)
- Integrated roots blower to generate the pressures and flows necessary for pressure tests
- Integrated aftercooler for a max. outlet temperature of 60°C (140°F)
- Heat protection cover to protect the operator during test runs
- Chassis with turntable steering, solid rubber tires and integrated automatic parking brake
- Box for hose storage
- Holding for supply cable storage

TECHNICAL DATA

> Electrical supply:

Mains supply:	3/PE AC 60Hz 440V
Nominal current:	max. 102.3A
Power:	approx. 78kVA
Back-up fuse:	160AgL
Connection:	20m (65ft) supply cable
Short circuit current:	max. 120kA

> Pneumatical parameters:

Pressure:	max. 0.9bar (max. 13psi)
Flow:	max. 900scfm (max. 25,500Nl/min)
Flow control:	0 to 900scfm (0 to 25,500Nl/min)
Outlet temperature:	max. 60°C (max. 140°F)

> Operating conditions:

Ambient temperature:	-10 to +50°C (14 to 122°F)
Storage temperature:	-10 to +60°C (14 to 140°F)
Altitude:	up to 1,000m above MSL (3,280ft)
Rel. humidity:	10 to 95% (non-condensing)
Towing speed:	max. 10km/h

> Medium:

Ambient air

> Measurement range:

Pressure: (2x)

Range:	0 to 1bar	(0 to 15psi)
Tolerance:	±0.6% o.m.r.	

Flow:

Range:	0 to 900scfm	(0 to 25,500Nl/min)
Tolerance:	±2.5% o.f.s.	

Temperature:

Range:	-20 to +80°C	(-4 to +176°F)
Tolerance:	±2% o.m.r.	

o.f.s. ... of full scale
o.m.r. ... of measuring range

> Dimensions and weight:

Length:	4,380mm (towing bar in vertical position)	(172in)
	5,350mm (towing bar in horizontal position)	(211in)
Width:	1,870mm	(74in)
Height:	2,350mm	(93in)
Weight:	approx. 2,500kg	(approx. 5,512lb)

Rear view with heat protection cover and cable holding

Control panel

>KDP8<

Technical data are subject to change!

Wing Tank Test System

>WTS1<

The test system is developed to carry out pressurization tests on wing tanks as well as safety valve tests for the aircraft PC24.

It is possible to adapt the equipment for other aircraft types.

- Supply of the device is ensured by an external pressure source
- Two test pressure circuits with varying pressure ranges and a vacuum circuit are fitted to ensure testing of test objects
- An activated carbon filter is provided at the return pipe to ensure filtering of fuel vapors
- Control elements are well arranged on the control panel inside the case

GENERAL INFORMATION

- Outlet pressure can be read at the pressure gauge
- The equipment is fitted in a solid transport case
- Hoses and adapters required to operate the appliance are included in the scope of delivery
- In order to ensure safe storage and easy transportation the accessories are located in a separate case.

TECHNICAL DATA

Pneumatic supply (requirements):

External pressure supply:	6 to 10bar (87.0 to 145.0psi)
Quality of compressed air:	ISO 8573-1 ISO Code 1-4-2

Operating conditions:

Altitude:	max. 1,000m (3,281ft) MSL
Operating temperature:	5 to 35°C (41 to 95°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Relative humidity:	5 to 95% (non-condensing)

Pneumatic parameters:

Test pressure circuit 1:	0 to 0.83bar (0 to 12psi)
Test pressure circuit 2:	0 to 3.44bar (0 to 50psi)
Vacuum circuit:	-0.75 to 0bar (-11 to 0psi)

Dimensions and weight:

Suitcase >WTS1<

Width:	approx. 980mm (39.0in)
Height:	approx. 380mm (15.0in)
Depth:	approx. 700mm (28.0in)
Weight:	approx. 45kg (99.0lb)

Case for accessories >WTS1<

Width:	approx. 600mm (24.0in)
Height:	approx. 270mm (11.0in)
Depth:	approx. 500mm (20.0in)

OPTIONS

Various options are available to meet our customers' requirements.

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Cabin Pressurization Trolley

>KDP14<

The equipment is developed for testing cabin leakproofness and proper functioning of the overpressure valve on A/C type P-3C Orion.

Parameters are measured, such as outlet pressure, temperature on the cabin pressure tester, cabin pressure to ambient differential, cabin temperature and air-flow rate.

The rising or lowering rate is measured by a variometer, so leakage on the A/C is detected.

- Rotary piston fan to generate required pressure and flow
- Integrated compressed air aftercooler
- Easy maneuverability by chassis with turntable steering, solid tyres and integrated, automatic fixing brake
- Easy service by access through doors
- Accessory drawer to keep A/C-adapter, sensor system box and air hose with respective adapter, retainer for supply cable and cable drum to reel the test cable

TECHNICAL DATA

> Electrical supply (requirements):

Mains connection:	3/PE AC 50Hz 400V
Nominal current:	70A
Power:	49kVA
Preliminary fuse:	80AgL
Short-circuit current:	max. 50kA

> Pneumatic performance data:

Continuous operation:

Pressure:	0 to 500mbar (0 to 7.3psi)
Flow:	0 to 21m³/min (0 to 741.6ft³/min)

Short-time operation:

Pressure:	0 to 550mbar (0 to 8.0psi)
Flow:	0 to 23m³/min (0 to 812.2ft³/min)

> Medium:

Ambient air

> Operating conditions:

Ambient temperature:	5 to 25°C (41.0 to 77.0°F)
Storage temperature:	0 to 60°C (32.0 to 140.0°F)
Altitude:	max. 1,000m MSL (3,280.8ft)
Rel. humidity:	5 to 95% (non-condensing)
Towing speed:	max. 10km/h (6.2mph)

> Measurements:

Pressure:

Range:	0 to 1bar rel.	(0 to 14.5psi)
Tolerance:	±0.5% o.f.s.	
Range:	0 to 1.6bar abs.	(0 to 23.2psi)
Tolerance:	±0.5% o.f.s.	
Range:	0 to 1bar rel.	(0 to 14.5psi)
Tolerance:	Cl. 0.6 (EN837)	

Flow speed:

Range:	0 to 60m/s	(0 to 196.9ft/s)
Tolerance:	±5% o.f.s.	

Flow: (calculated from flow speed)

Range:	0 to 25m³/min	(0 to 882.9ft³/min)
Tolerance:	±5% o.f.s.	

Temperature:

Range:	-20 to +80°C	(-4 to +176°F)
Tolerance:	±2°C abs.	

Rising rate:

Range:	±1,830m/min	(±6,000ft/min)

rel. ... relative
abs. ... absolute
o.f.s. ... of full scale

> Dimensions and weight:

Length:	approx. 4,600mm (tow bar in vertical position)	(181.1in)
	approx. 5,500mm (tow bar in horizontal position)	(216.5in)
Width:	approx. 1,600mm	(63.0in)
Height:	approx. 2,000mm	(78.7in)
Weight:	approx. 1,950kg	(4,299.0lb)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, other dimensions, etc.

>KDP14<

Technical data are subject to change!

Cabin pressure test equipment

>KDP5<

The test equipment is developed to perform cabin pressure testing and over pressure relief valve operation for the PILATUS PC-12 and PC-21.

It is possible to adapt this equipment for other aircraft types.

Application range:

PILATUS PC-21
PILATUS PC-12 / 47E

- The equipment measures: ambient temperature, the temperature of the air fed to the cabin, cabin pressure, air flow, ambient pressure and testing time
- The test sequence is fully automatic
- The test equipment can be positioned easily

GENERAL INFORMATION

- The computer system is operated via touch screen
- Test results can be shown numerically and graphically
- Test results can be stored electronically or printed by means of a connector for external equipment (printer, modem, USB stick, etc.)
- Software can be maintained and updated via modem by the factory
- Two fixed and two steerable castors with brakes are fitted to provide mobility and manoeuvrability

TECHNICAL DATA

> Electric supply (requirements):

Mains connection:	1/N/PE AC 50Hz 230V
Nominal current:	10A
Performance:	2.3kVA
Back-up fuse:	16A

> Pneumatc supply (requirements):

Pneumatic supply:	2-7bar (dry and oil-free)
Flow:	~0.2kg/sec (~0.44lb/sec)
Temperature of compressed air:	+10 to +40°C (+50 to +104°F)

> Ambient conditions:

Ambient temperature:	+10 to +45°C (+50 to +113°F)
Storage temperature:	-25 to +55°C (-13 to +131°F)
Altitude:	max. 1000m above SL (max. 3280ft)
Humidity:	10 to 95% (non-condensing)

> Measurement range:

Pressure sensor:

(2-off)	0 to 1bar, ±0.25% meas. r. (0 to 14.5psi, ±0.25% meas. r.)
(1-off)	0 to 1bar, ±10mbar abs. (0 to 14.5psi, ±0.15psi abs.)
(1-off)	0 to 2bar, ±0.25% meas. r. (0 to 29psi, ±0.25% meas. r.)
(1-off)	0.8 to 1.2bar, ±2mbar abs. (11.6 to 17.4psi, ±0.03psi abs.)
(1-off)	0 to 10bar, ±0.1bar abs. (0 to 145psi, ±1.45psi abs.)

Temperature sensor:

(2-off)	0 to +50°C, ±0.5K (+32 to +122°F, ±0.5K)

Flowmeter:

(1-off)	0 to 7500Nl/min, ±5% o.f.s. (0 to 264.9scfm, ±5% o.f.s.)

meas. r. ... measurement range
o.f.s. ... of full scale
abs. ... absolute

> Dimensions and weight:

Width:	approx. 1800mm (5.9ft)	(incl. handles)
Depth:	approx. 950mm (3.1ft)	
Height:	approx. 1650mm (5.4ft)	(incl. warning light)
Weight:	approx. 450kg (990lb)	

OPTIONS

Many options are possible for adaption,
e.g.adaption to other aircraft types, different touch-screens etc.

Technical data are subject to change!

Stationary Air Conditioner, Electric Motor Powered

>BKG4E<

To supply the A/C avionic-systems as well as the cockpit area with conditioned air during the test phase in the production line.

- Automatic control of the cooling air
- 24-hours-operation
- Monitoring of the cooling air (temperature, quantity)
- Control of the cooling air quantity
- Low noise emission <75dB(A)
- Service-friendly due to easy accessibility
- Modem system for remote control

TECHNICAL DATA

> Electrical connected loads:

Mains supply:	3/N/PE AC 50Hz 400V 125A
Power:	approx. 86.5kVA

> Cooling air:

Outlet temperature:	5 to 16°C
Absolute humidity:	12g water / kg air

> Chiller:

Compressor:	semi-hermetic
Cooling power:	50kW
Coolant:	R134a

> Blower:

Delivery volume:	2,000m^{3}ph at 7kPa
Power:	15kW

> Ambient conditions:

Pressure:	600 to 1,200mbar
Temperature:	5 to 40°C
Humidity:	Intermediate zone Europe (e.g. 60% rel. humidity at 35°C)

> Dimensions and weight:

Width:	3,500mm
Depth:	1,400mm
Height:	2,700mm
Weight:	2,750kg

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.

Technical data are subject to change!

Generator drive for DC-generators

>GA1-5<

Originally designed for transport helicopter NH90.

Can be adapted for other aircraft types.

- For electrical System Tests with the original DC-generators
- Testrun will be made with generators removed from the helicopter
- The generators' controllers remain in the helicopter and are connected with a cable to the generator drive
- All tests will be carried out without using the helicopter engine run

RANGE OF APPLICATION

> Transport helicopter NH90

MISCELLANEOUS

> Easy access test chamber for rapid installation and remove of UUT

> UUT attached to test stand with an adapter

> Safety glass is used to provide safety for the operator

> Ergonomic, compact construction

TECHNICAL DATA

> **Electrical requirements:**

3/N/PE AC 50Hz 400V
Nominal current: 15A

> **Dimensions and weight:**

Width:	970mm	(3,18ft)
Depth:	1420mm	(4,69ft)
Height:	920mm	(3,02ft)
Weight:	410kg	(903,9lb)

> **Measurements:**

Revolution:	0 - 13.000min^{-1}	± 2min^{-1}
Temperature:	0 - 100°C (0 - 212°F)	± 1°C
Current:	0 - 400ADC	± 2ADC
Voltage:	0 - 40VDC	± 0,2VDC

Drive motor:

Revolution:	0 - 13.000min^{-1}
Power:	7,5kW
Input voltage:	400V
Protection system:	IP44

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

Technical data are subject to change!

Test system for Cargo Hold and Tunable Vibration Absorber System

>TS-CH-TVAS1<

Designed as electrical power supply and in order to perform CAN-bus simulation for the Tunable Vibration Absorber System of AIRBUS A400M.

In addition this test system serves to perform functional tests on different consumers in the cargo hold of AIRBUS A400M.

Can be adapted for other aircraft types.

- Ergonomic, compact design
- Integrated, hinged touch panel
- Integrated, extendable drawer for keyboard and mouse
- Connection via CEE plug (16A) with 10m cable

MISCELLANEOUS

- This test bench serves to perform functional tests on different consumers in the **cargo hold (CH)** and for testing electric installation of **Tunable Vibration Absorbers (TVAS)**.

- Functions of the following systems are tested - inside the **cargo hold (CH)**:
  - lockings and guideways of cargo hold floors (roller restraint system)
  - crane inside the cargo hold
  - miscellaneous consumers (miscellaneous equipment)

- By reduction of structure vibrations the **Tunable Vibration Absorbers System (TVAS)** reduces the noise level (caused by propellers) inside the cargo hold.

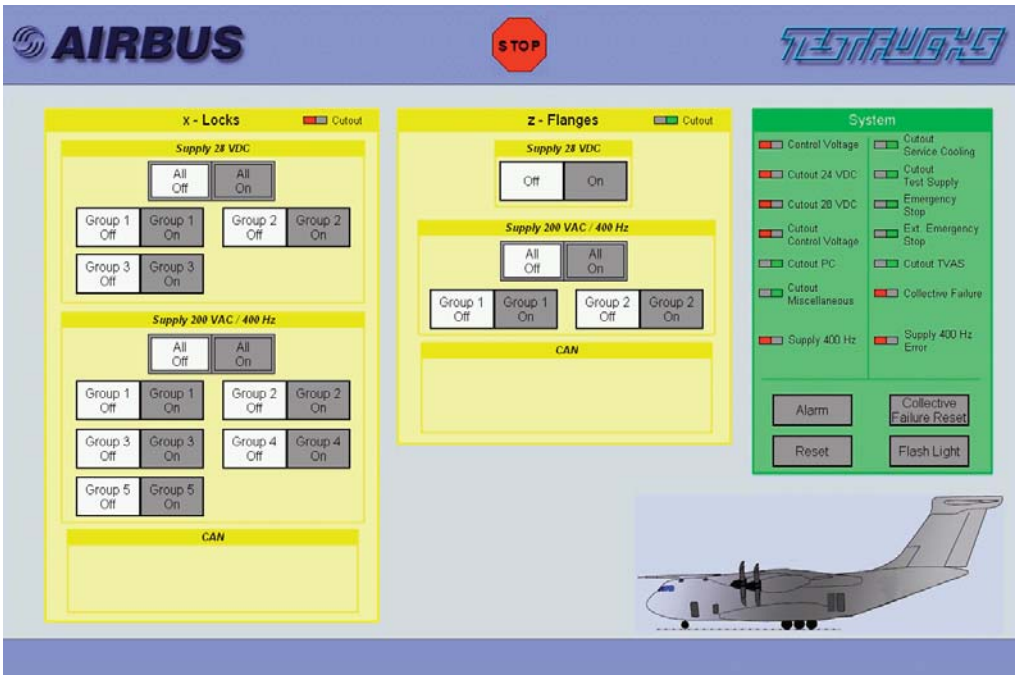
TECHNICAL DATA

> Electrical connected loads:

Main supply:	3/N/PE AC 50Hz 400V
Power:	10.2kVA
Nominal current:	15A
Back-up fuse:	16A

> Dimensions and weight:

Width:	700mm	(2.3ft)
Depth:	800mm	(2.6ft)
Height:	2050mm	(6.7ft)
Weight:	300kg	(660lb)



By using individual buttons, 28VDC resp. 200VAC/400Hz commands are transferred to hydraulic consumers in the **Cargo Hold (CH)** and to the **Tunable Vibration Absorbers System (TVAS)** of A400M.

User interface

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for other aircraft types, different cable length, etc.

Technical data are subject to change!

Test system for the Door Ramp Actuation System

>TS-DRAS1<

Designed as electrical valve control for the Door Ramp Actuation System (DRAS) of AIRBUS A400M.

Can be adapted for other aircraft types.

- Ergonomic, compact design
- Integrated, hinged touch panel
- Integrated, extendable drawer for keyboard and mouse
- Connection cia CEE plug (16 A) with 10 m cable

MISCELLANEOUS

- The test bench serves to perform functional tests at the Door Ramp Actuation System (DRAS).
- A400M DRAS is used for moving the ramp (latching/locking), the gate of the cargo hold (down-latching, down-locking, up-latching), for moving stabilizer struts, ramp toes and air deflectors.
- Ramp and gate at the rear end of the aircraft allow access to the cargo hold. Access is required for passengers or for loading/unloading of cargo.
- Stabilizer struts prevent the aircraft from tilting during loading/unloading.
- Ramp toes are designed as bypass during loading/unloading of vehicles and passengers. Furthermore for loading/unloading of pallets and platforms from floors of trucks.
- The air deflector opens a guard door for parachutists.

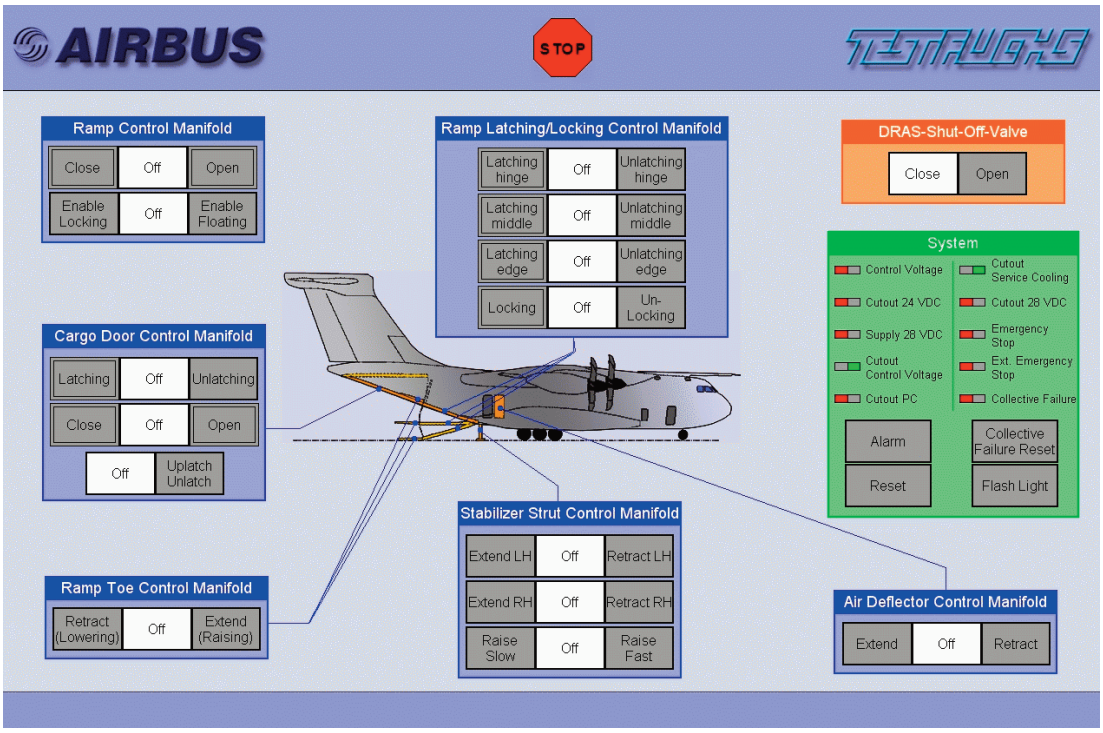
TECHNICAL DATA

Electrical connected loads:

Mains connection:	3/N/PE AC 50 Hz 400 V
Power:	10.2 kVA
Nominal current:	6.6 A
Back-up fuse:	16 A

Dimensions and weight:

Width:	600 mm	(2.0 ft)
Depth:	700 mm	(2.3 ft)
Height:	1250 mm	(4.1 ft)
Weight:	150 kg	(330 lb)



By using individual buttons, 28 VDC commands are transferred to hydraulic consumers of A400M to test individual settings.

User interface

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, different cable length, etc.

Technical data are subject to change!

Passenger Door Modular Test Equipment

>MDTE1-1<

The equipment is developed to test, monitor and control the A350 passenger door test equipment and to carry out the following tests: run time, load, engineering, icing, static, emergency opening and acceptance tests.

It is possible to adapt the equipment for other aircraft types.

- The test equipment consists of one mobile stainless steel switching cabinet.
- The test equipment is operated by an industrial PC and the TEST-FUCHS standard software.
- The test values are generated and processed by a Sigmatek system.
- Connections are fitted to control the servo motors or the "Hydraulic Supply Power Unit <HVA10-350KOR>".
- Direct DMS (data measurement system) is provided by six conductors.

GENERAL INFORMATION

- A 19“ monitor, keyboard and mouse are fitted to display and operate the software
- The uninterruptible power supply protects the computer system in case of power failure
- The emergency-off button ensures shutdown of the system in case of danger or emergency
- A fan with filter dissipates excessive heat in the switch cabinet
- A grommet is fitted for all external electrical leads, to ensure no admission of external dust and impurities

TECHNICAL DATA

> Electrical supply (requirements):

Mains supply:	3/N/PE 50/60Hz 380 to 400V
Nominal current:	6A
Power:	4kVA
Back-up fuse:	16AL
Connection:	Plug CEE 16A

> Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	1,000m (3,280ft) above MSL
Humidity:	10 to 95% (condensing)
Noise emission:	≤85dB

> Dimensions and weight:

Width:	1,280mm	(50.4in)
Height:	1,960mm	(77.2in)
Depth:	840mm	(33.1in)
Weight:	380kg	(837.8lb)

> Measurement range:

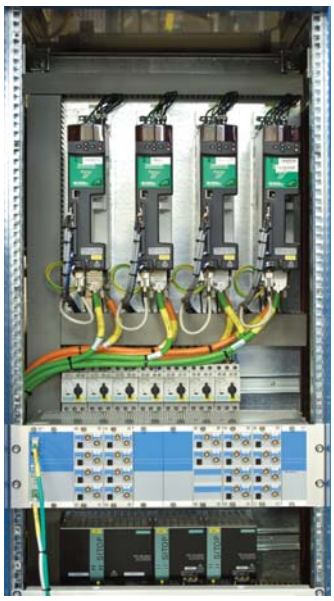
DMS:

(20-off)	-3 to +3mV/V ±0.25% range
(4-off)	-10 to +10mV/V ±0.25% range
(6-off) (Input)	-10 to +10VDC ±0.1% range
(2-off) (Output)	-10 to +10VDC ±0.25% range
(6-off)	20°C to 90°C ±0.75% o.f.s.

Angle:

(3-off)	0 to 180deg ±0.25deg abs.

abs. ... absolute tolerance o.f.v. ... of full scale range ... measurement range



Servo controller

Control console

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Cargo Door Modular Test Equipment

>MDTE1-3<

The equipment is developed to test, monitor and control the A350 cargo door test equipment and to carry out the following tests: run time, load, engineering, icing, static, emergency opening and acceptance tests.

It is possible to adapt the equipment for other aircraft types.

- The test equipment consists of one mobile stainless steel switching cabinet.
- The test equipment is operated by an industrial PC and the TEST-FUCHS standard software.
- The test values are generated and processed by a Sigmatek system.
- Connections are fitted to control the servo motors or the "Hydraulic Supply Power Unit <HVA10-350KOR>".
- Direct DMS (data measurement system) is provided by six conductors.

GENERAL INFORMATION

- A 19“ monitor, keyboard and mouse are fitted to display and operate the software
- The uninterruptible power supply protects the computer system in case of power failure
- The emergency-off button ensures shutdown of the system in case of danger or emergency
- A fan with filter dissipates excessive heat in the switch cabinet
- A grommet is fitted for all external electrical leads, to ensure no admission of external dust and impurities

TECHNICAL DATA

> Electrical supply (requirements):

Mains supply:	3/N/PE 50/60Hz 380 to 400V
Nominal current:	6A
Power:	4kVA
Back-up fuse:	16AL
Connection:	Plug CEE 16A

> Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	1,000m (3,280ft) above MSL
Humidity:	10 to 95% (condensing)
Noise emission:	≤85dB

> Dimensions and weight:

Width:	1,280mm	(50.4in)
Height:	1,960mm	(77.2in)
Depth:	840mm	(33.1in)
Weight:	380kg	(837.8lb)

> Measurement range:

DMS:

(80-off)	-3 to +3mV/V ±0.25% range

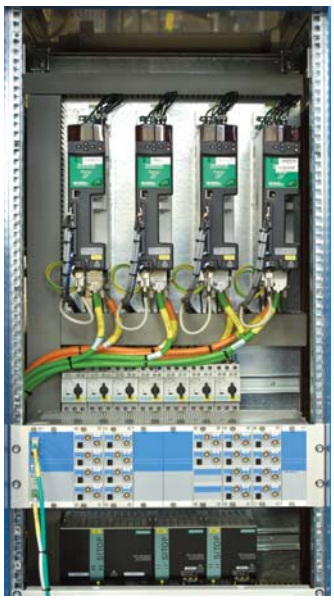
Angle:

(4-off)	0 to 180deg ±0.25deg abs.
(2-off)	-10 to +10VDC ±0.25deg abs.

Torque:

(1-off)	-1,000 to +1,000Nm ±0.5% range
(1-off)	-100 to +100Nm ±0.5% range

abs. ... absolute tolerance
range ... measurement range



Servo controller

Control console

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Bulk Cargo Door Modular Test Equipment

>MDTE1-4<

The equipment is developed to test, monitor and control the A350 bulk cargo door test equipment and to carry out the following tests: run time, load, engineering, icing, static, emergency opening and acceptance tests.

It is possible to adapt the equipment for other aircraft types.

- The test equipment consists of one mobile stainless steel switching cabinet.
- The test equipment is operated by an industrial PC and the TEST-FUCHS standard software.
- The test values are generated and processed by a Sigmatek system.
- Connections are fitted to control the servo motors or the "Hydraulic Supply Power Unit <HVA10-350KOR>".
- Direct DMS (data measurement system) is provided by six conductors.

GENERAL INFORMATION

- One 19“ monitor, keyboard and mouse are fitted to display and operate the software
- The uninterruptible power supply protects the computer system in case of power failure
- The emergency-off button ensures shutdown of the system in case of danger or emergency
- A fan with filter dissipates excessive heat in the switch cabinet
- A grommet is fitted for all external electrical leads, to ensure no admission of external dust and impurities

TECHNICAL DATA

Electrical supply (requirements):

Mains supply:	3/N/PE 50/60Hz 380 to 400V
Nominal current:	6A
Power:	4kVA
Back-up fuse:	16AL
Connection:	Plug CEE 16A

Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	1,000m (3,280ft) above MSL
Humidity:	10 to 95% (condensing)
Noise emission:	≤85dB

Dimensions and weight:

Width:	1,280mm	(50.4in)
Height:	1,960mm	(77.2in)
Depth:	840mm	(33.1in)
Weight:	380kg	(837.8lb)

Measurement range:

DMS:

(30-off)	-3 to +3mV/V ±0.25% range

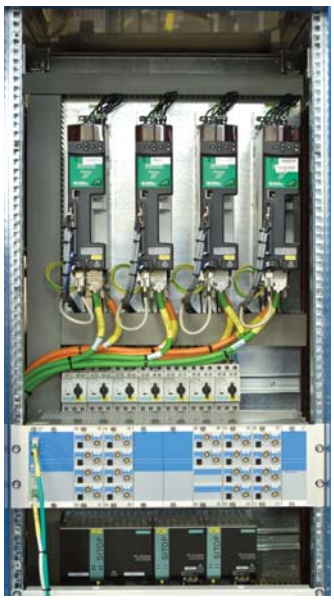
Angle:

(2-off)	0 to 180deg ±0.25deg abs.
(2-off)	-10 to +10VDC ±0.25deg abs.

Torque:

(1-off)	-500 to +500Nm ±0.5% range

abs. ... absolute tolerance
range ... measurement range



Servo controller

Control console

Technical data are subject to change!

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Passenger Door Modular Mobile Measurement Test Equipment >MDTE1-MOB1<

The equipment is developed to monitor the modular A350 passenger door test equipment during the final assembly test.

It is possible to adapt the equipment for other aircraft types.

- The test equipment consists of a portable table top unit.
- The unit is operated by the provided notebook and the TEST-FUCHS standard software.
- The test values are generated and processed by a Sigmatek system

GENERAL INFORMATION

- Electrical supply is ensured by the mains via a fitted adapter
- The emergency-off button ensures shutdown of external devices in case of danger or emergency
- A fan with filter dissipates excessive heat in the equipment

TECHNICAL DATA

Electrical supply (requirements):

Mains supply:	1/N/PE 50/60Hz 220 to 230V
Nominal current:	3A
Power:	0.65kVA
Back-up fuse:	16A GL
Connection:	Plug CEE 16A

Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	1,000m (3,280ft) above MSL
Humidity:	10 to 95% (condensing)
Noise emission:	≤85dB

Dimensions and weight:

Width:	570mm	(22.4in)
Height:	300mm	(11.8in)
Depth:	550mm	(21.7in)
Weight:	28kg	(61.7lb)

Measurement range:

DMS:
(20-off) -3 to 3mV/V ±0.25% range

Force:
(2-off) -3 to 3mV/V ±0.25% range

Angle:
(2-off) -10 to 10VDC ±0.1% range

range ... measurement range

Rear view of the device

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Passenger Door Modular Mobile Measurement Test Equipment >MDTE1-MOB2<

The equipment is developed to monitor the modular A350 passenger door test equipment during the final assembly test.

It is possible to adapt the equipment for other aircraft types.

- The test equipment consists of a mobile switching cabinet.
- The test equipment is operated by the provided notebook and the TEST-FUCHS standard software.
- The test values are generated and processed by a Sigmatek system

GENERAL INFORMATION

- Electrical supply is ensured by the mains via a fitted adapter
- The emergency-off button ensures shutdown of external devices in case of danger or emergency
- A fan with filter dissipates excessive heat in the equipment
- The fitted drawer can be locked to ensure safekeeping of the notebook

TECHNICAL DATA

Electrical supply (requirements):

Mains supply:	1/N/PE 50/60Hz 230V
Nominal current:	3A
Power:	0.65kVA
Back-up fuse:	16A GL
Connection:	two-pin grounded plug

Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	1,000m (3,280ft) above MSL
Humidity:	10 to 95% (condensing)
Noise emission:	≤85dB

Dimensions and weight:

Width:	630mm	(24.8in)
Height:	1,300mm	(51.2in)
Depth:	750mm	(29.5in)
Weight:	65kg	(143.3lb)

Measurement range:

DMS:
(20-off) -3 to 3mV/V ±0.25% range

Force:
(2-off) -3 to 3mV/V ±0.25% range

Angle:
(2-off) -10 to 10VDC ±0.1% range

range ... measurement range

Supply cable, main switch and emergency stop

Emergency stop and measuring system

>MDTE1-MOB2<

Technical data are subject to change!

Passenger Door Modular Mobile Measurement Test Equipment >MDTE1-MOB3<

The equipment is developed to monitor the modular A350 passenger door test equipment during the final assembly test.

It is possible to adapt the equipment for other aircraft types.

- The test equipment consists of a portable table top unit.
- The unit is operated by the provided notebook and the TEST-FUCHS standard software.
- The test values are generated and processed by a Sigmatek system

GENERAL INFORMATION

- Electrical supply is ensured by the mains via a fitted adapter
- The emergency-off button ensures shutdown of external devices in case of danger or emergency
- A fan with filter dissipates excessive heat in the equipment

TECHNICAL DATA

Electrical supply (requirements):

Mains supply:	1/N/PE 50/60Hz 220 to 230V
Nominal current:	3A
Power:	0.65kVA
Back-up fuse:	16A GL
Connection:	Plug CEE 16A

Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Altitude:	1,000m (3,280ft) above MSL
Humidity:	10 to 95% (condensing)
Noise emission:	≤85dB

Dimensions and weight:

Width:	570mm	(22.4in)
Height:	300mm	(11.8in)
Depth:	550mm	(21.7in)
Weight:	28kg	(61.7lb)

Measurement range:

DMS:
(10-off) -3 to 3mV/V ±0.25% range

Force:
(2-off) -3 to 3mV/V ±0.25% range

Angle:
(2-off) -10 to 10VDC ±0.1% range

range ... measurement range

Rear view of the device

Technical data are subject to change!

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Test equipment for anti-skid systems

>PA-ASG2-XX<

The equipment is designed to test on aircraft the anti-skid systems of the following aircraft types A320, AMX, C-27J, EF-2000 and G-222.

It is possible to adapt the equipment for other aircraft with anti-skid systems.

- The test equipment and the test adapters are portable. The test equipment is assembled in a standard water proof transport and storage case. The test accessories have their own water proof transport and storage case.
- The drive unit is a special type adapter fitted to the aircraft wheel's rim after removal of the hub cap.
- The potentiometer continuously measures the rotational speed from 0-3000rpm.
- The equipment is of an ergonomic, robust and compact design, which can be used for civil as well as military aircraft.

GENERAL INFORMATION

- Easy transport due to the compact design of the equipment and adapter cases.
- The digital displays for rotational speed, pressure and voltage can be read easily.
- User friendly setup, easy service.

TECHNICAL DATA

> Electrical supply (requirements):

- Mains supply:	1/N/PE AC 50Hz 230V
- Power:	max. 103.5VA
- Nominal current:	max. 0.45A
- Mains supply:	1/N/PE AC 60Hz 115V
- Power:	max. 77.1VA
- Nominal current:	max. 0.67A

> Measurement range:

Rotational speed:	0 to 3000rpm
(2-off)	± 1% o.f.s
Pressure:	0 to 300bar (0 to 4351psi)
(4-off)	± 0.5% o.f.s.

o.f.s. ... tolerance in % of full scal

> Dimensions and weight:

Equipment:

- Depth:	approx. 485mm (19.1in)
- Width:	approx. 630mm (24.8in)
- Height (closed):	approx. 380mm (14.9in)
- Weight:	approx. 38kg (83.8lb)

Case for accessories:

- Depth:	approx. 370mm (14.6in)
- Width:	approx. 500mm (19.7in)
- Height:	approx. 260mm (10.2in)
- Weight:	approx. 35kg (77.2lb)

> Operating conditions:

- Altitude:	max. 1000m MSL (3280ft)
- Operating temperature:	+5 to +40°C (41 to 104°F)
- Ambient temperature:	-25 to +55°CI (-13 to 131°F)
- Humidity:	30 to 95% relative humidity, non-condensing

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

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Disinfection And Conservation Tool

>DCT2<

The equipment is developed in order to disinfect water tanks, lines and valves of Airbus A380.

It can also be adapted to other A/C types.

- 3 metering pumps (herlisil/sodium hypochlorite/calcium hypochlorite)
- 2 places for sample taking
- Option for self-disinfection
- Apt for outdoor use
- Internal tank comprising 200l
- Fresh water inlet pump
- Waste water pump to drain the internal tank and for self-disinfection

GENERAL INFORMATION

- High maneuverability through turntable steering
- 2 hose reels with manual unwinding and electrical winding (fresh water 1 1/4“ 70m and waste water 1“ 40m)
- 3 manual hose reels (Fill / drain 3/4“ 20m, overflow 1“ 20m, compressed air 35m)
- Cable drum for electrical connection (30m)

TECHNICAL DATA

Media:

- Calcium hypochlorite
- Soda hypochlorite
- Herlisil

Hydraulic parameters:

A/C filling:	up to 50l/min
Fresh water filter:	Jet Crystal IWFC-2370
Safety valve:	max. 8.6bar (124.7psi)

Electrical supply (requirements):

Mains connection:	3/N/PE AC 50Hz 400V
Nominal current:	18.1A
Performance:	12.54kVA
Back-up fuse:	32A GL

Measurements:

Flow / amount: (1-off)	0 to 100l/min (0 to 26.4USgal/min)
Pressure: (2-off)	0 to 10bar (0 to 145.0psi) Class 1
Time:	Countdown indicator (hh.mm.ss)

Operating conditions:

Operating temperature:	5 to 40°C (41 to 104°F)
Storage temperature:	0 to 60°C (32 to 140°F)
Height:	up to 1,000m (3,280ft) above MSL
Rel. air humidity:	5 to 95% (non-condensing)
Installation:	in a non-explosive area
Uninterrupted noise emission:	max. 63dB(A) in 1m (39.4in) distance

Dimensions and weight:

Length:	6,450mm (253.9in)
Width:	2,100mm (82.7in)
Height:	1,850mm (72.8in)
Weight:	approx. 2,900kg (6,393.4lb)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: adaption to other A/C types...

>DCT2<

Water Collection Trolley
to collect the water from the drainmast (500l)

Waste Water Trailer
Waste Water Collection Tank (6000l)

Technical data are subject to change!

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Media Supply Module
>MSM6-380<

Example of a module

For the use in the test range (QA) at the fitting installation in the final assembly line of the A380

Various modules for the following systems:

- Fire extinguishing-, oxygen- and cooling system
- Potable Water FWD
- Potable Water AFT
- Waste system
- Cargo Compartment Leakage (mobile)
- Vacuum Supply for Vacuum/Toilet system (mobile)

- Compressor unit incl. filling station to supply the modules
- Stainless steel construction
- Compact construction to ensure easy integration to stages and stair cases

GENERAL INFORMATION

- Operation via main computer, touch panel direct on the module as well as wireless remote control
- Manual and automatic test run (also via ESAO-test system)
- Indication of status- and error messages in clear text

TECHNICAL DATA

- **Compressed air:**
  Test pressure max. 75bar (compressor)
  Test pressure max. 225bar
  (compressed air bottle 7l/300bar)
  Operation compressed air 5.5 to 10bar
  (external supply)
- **Vacuum:**
  0 to -920mbar
- **Inert gas:**
  provided in bottles up to max. 75bar
- **Water:**
  Fresh water 4.5 to 5.5bar (external supply)
- **Disinfectant:**
  Admixture to fresh water via dosing pump in the module Potable Water AFT
- **Slop:**
  Drainage via sewage system of the hangar
- **Over-/ underpressure for Cargo Compartment Leakage:**
  Axial blower adjustable of 10 to 300dm^3/sec,
  of 1.5mbar underpressure to 1.5mbar overpressure
  (depending on rotating direction)
- **Mains supply:**
  3/N/PE AC 50Hz 400V
  1/N/PE AC 50Hz 230V

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

Media Supply Module - Air

>MSM6-AP1-380<

The equipment is designed for all models and modifications of the Airbus A380

- The unit supplies compressed air to ensure completion of tests in the required quality
- The equipment is operated via monitor and mouse, touch panel at the module or by the remote control
- Pressure control is ensured

GENERAL INFORMATION

- Tests are carried out in a manual, semi-automatic and fully automatic mode
- Stainless steel construction
- Due to its compact design the equipment is user friendly and can be easily serviced and transported
- Indication of status- and error messages in clear text

TECHNICAL DATA

Compressed air:

Test pressure max. 75bar (compressor)
Test pressure max. 225bar (compressed air bottle 7 l/300bar)
Control pressure 5.5 to 10bar (on-site air, hangar)

Mains connection:

3/N/PE AC 50Hz 400V

Power:	0.7kVA
Nominal current:	1A

Dimensions and weight:

Width:	approx. 2432mm (95,75in)
Depth:	approx. 639mm (25,16in)
Height:	approx. 1403mm (55,24in)
Weight:	460kg (1014lbs)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

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Media Supply Module - Water

>MSM6-PWA-380<

The equipment is designed for all models and modifications of the Airbus A380

- Fresh water supply and dirty water removal are ensured
- The disinfection purging circuit is fitted with a metering pump
- The equipment is operated via monitor and mouse, touch panel at the module or by the remote control

GENERAL INFORMATION

- Tests are carried out in a manual, semi-automatic and fully automatic mode
- Stainless steel construction
- Due to its compact design the equipment is user friendly and can be easily serviced and transported
- Indication of status- and error messages in clear text

TECHNICAL DATA

Water:

Fresh water 4.5 to 5.5bar (hangar)
Dirty water is removed through the on-site waste water system

Mains connection:

3/N/PE AC 50Hz 400V

Power:	2.8kVA
Nominal current:	4A

Dimensions and weight:

Width:	approx. 2437mm (95,94in)
Depth:	approx. 634mm (24,96in)
Height:	approx. 1403mm (55,24in)
Weight:	470kg (1036lbs)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

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Media Supply Module- Cargo Compartment

>MSM-CC-380<

For the use in the test range (QA) of the Airbus A380

Designed for all models and versions of the Airbus A380

- Leakage rate measurement of the Cargo Compartments FWD and AFT in over- and underpressure range
- Flow measurement via differential pressure sensor
- Operating possibilities: Main computer, Touch panel direct on the module as well as via wireless remote control

GENERAL INFORMATION

- Pressure adjustment via regulation of the blower speed
- Manual and automatic test run (also via ESAO-test system)
- Mobile construction in stainless steel housing
- Low-noise operation due to integrated silencer in the input- and output lines
- Space saving hose storage inside the module

TECHNICAL DATA

Over-/ underpressure:

Axial blower adjustable of 10 to 300l/sec,
of 1.5mbar underpressure to1.5 mbar overpressure
(depending on rotating direction)

Mains supply:

3/N/PE AC 50Hz 400V
Power: 2.8kVA
Nominal current: 4A

Flow measurement:

0 to 100l/sec ±4l/sec

Connection hose:

Spiral hose Ø160mm, length 7m

Sound level:

max. 70dB(A)

Dimensions and weight:

Width:	approx. 2000mm (78,74in)
Depth:	approx. 1140mm (44,88in)
Height:	approx. 1440mm (56,69in)
Weight:	450kg (981lbs)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

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Media Supply Module - Vacuum

>MSM-VS-380<

For the use in the test range (QA) of the Airbus A380

Designed for all models and versions of the Airbus A380

- Provides the vacuum to perform tests in the Vacuum/Toilet System
- Operating possibilites:
  Main computer,
  Touch Panel direct on the modul as well as wireless remote control
- Programmable pressure control valve for definable pressure dwell curve

GENERAL INFORMATION

- Manual and automatic test run (also via ESAO-test system)
- Mobile construction in stainless steel housing
- Indication of status- and error messages in clear text
- Usage in connection with Leackage measurements via inert gas

TECHNICAL DATA

Vacuum:

0 to -920mbar rel.

Limiting valve:

max. -920mbar rel.

Operation compressed air:

5,5 to 10bar (external supply)

Rotary slide-vacuumpump:

one-level, oil-sealed,
air cooled with integrated oil mist separator
Nominal suction speed 26m³/h

A/C connections:

Vakuum 1-4
1/2“ clamping ring

Dimensions and weight:

Width:	approx. 1200mm (47,24in)
Depth:	approx. 790mm (31,10in)
Height:	approx. 1210mm (47,63in)
Weight:	400kg (882lbs)

Mains supply:

3/N/PE AC 50Hz 400V
Power:3.5 kVA
Nominal current:5A

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

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Chevre Interface Unit

>77000D272.01010.300<

The unit is developed to test the captain and first officer's rudder and brake pedals of the AIRBUS A318-321.

It is possible to adapt this unit for other aircraft types.

The unit consists of:

- A mechanical attachment fixture
- A lifting motor
- Pedal to simulate pressure and force
- Amplifier
- Laptop
- Oracle data base
- Software

> Measurements:
Pedal force, pedal angle, pedal stroke, rudder angle

> Data is collected, analyzed and saved (in accordance with GTI 8.27.602 and GTI 8.32.604/614).

> The input and output parameters are monitored to ensure protection of the unit.

> The light design of the equipment enables easy transport.

> The attachment fixture can be folded up.

TECHNICAL DATA

> Electrical supply (requirements):

Supply:	28V DC - A/C supplied from the cockpit

> Operating conditions:

Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	-30 to +75°C (-22 to +167°F)
Protection class:	IP54

> Measurement range:

Load:	-80 to +80daN ±0.05% o.f.s.
Pedal angle, left:	1 to 10V ±0.2% o.f.s.
Pedal angle, right:	1 to 10V ±0.2% o.f.s.
Rudder angle:	-35 to +35° ±0.1°
Rudder angle USB:	-35 to +35° ±0.1°
Tool angle (Pot 1):	0 to 10VDC ±0.2% o.f.s.

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.
e.g.: Adaption for different aircraft types, etc.

Technical data are subject to change!

Avionic Ventilation Test Set

>77000D216.01002.0XX<

Testing of avionic ventilation components for all AIRBUS SA aircraft types.

- The test set is suitable for 1 speed and 2 speed
- Control via ESAO system or via discrete signals
- LAN connector is provided
- One PLC manufactured by Siemens is fitted
- The set up ensures easy service
- The scope of delivery includes:
  - Carrying case
  - Electronic unit
  - Two test cables
  - One adapter for each speed level of the fan

SCOPE OF DELIVERY

QUANTITY	SPECIFICATION	TYPE
1	Avionic Ventilation Storage Box	77000D216.01002.000
1	Avionic Ventilation Box (1 and 2 speed)	77000D216.01002.010
1	Avionic Ventilation Cable Harness 1 (1 and 2 speed)	77000D216.01002.020
1	Avionic Ventilation Cable Harness 2 (1 and 2 speed)	77000D216.01002.030
2	Avionic Ventilation Adapter Cable Fan (1 speed)	77000D216.01002.040
2	Avionic Ventilation Adapter Cable Fan (2 speed)	77000D216.01002.050

TECHNICAL DATA

> **Supply:**

28VDC max. 2A of A/C via test cable

> **Ambient conditions:**

Operating temperature range:	0 to 40°C
Storage temperature range:	-20 to +75°C
Protection class:	IP20

> **Dimensions and weight:**

Carrying case (including contents):

Length:	320mm
Depth:	600mm
Height:	420mm
Weight:	approx. 20kg

Tester:

Length:	460mm
Depth:	350mm
Height:	200mm
Weight:	approx. 9kg

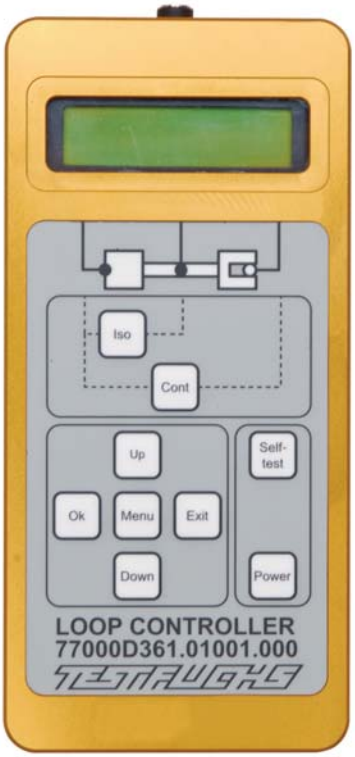
OPTIONS

A wide range of options is available to fulfil our customers´ requirements.

Technical data are subject to change!

Loop Controller

>77000D361.01001.000<



Developed to test Continuous Fire Overhead Detection Elements (CFD).

- Test mode Continuity
- Test mode Isolation
- Battery-operated handheld unit
- Built in self test
- Extremely shock resistant aluminium storage and carrying case
- Simple calibration using the built in software
- The scope of delivery includes:
  Test cable, charger, carrying case, shoulder strap

TECHNICAL DATA

> Rechargeable batteries:

Two off the shelf 9V block NiMH, 250mAh batteries
Automatic shut down
Charger with plug is included in the scope of delivery

> Connections:

3 x 4mm safety banana plugs

> Test mode Continuity:

Range of Measurement (R):	0 to 25Ohm
Resolution:	0.1Ohm
Accuracy:	±2% of full scale
Test voltage:	5VDC
Imax:	50mADC

> Test mode Isolation:

Range of measurement (x_C):	800 to 2MOhm
Resolution:	1Ohm
Test voltage:	1Vrms
Test frequency:	1kHz pulsed
Accuracy:	±10% of reading

> Operating conditions:

Ambient temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	-30 to +75°C (-22 to +167°F)
Protection class:	IP54

> Dimensions and weight:

Carrying case (including contents):

Length:	320mm	(12.6in)
Depth:	320mm	(12.6in)
Height:	135mm	(5.3in)
Weight:	approx. 3,000g	(6.6lb)

Test device:

Length:	195mm	(7.7in)
Depth:	92mm	(3.6in)
Height:	39mm	(1.5in)
Weight:	approx. 500g	(1.1lb)

OPTIONS

A wide range of options is available to fulfil our customers´ requirements.

Technical data are subject to change!

A320 - A330/340
Test Equipment

safety in test > safety in flight

TEST-FUCHS

Hydraulic Test Stand for Motors and Pumps
>**HPM-S/M-MP**<

Hydraulic Pipe Pressure Test Stand
>**SHTB2S**<

Hydraulic Test Trolley
>**HTW220-400**<

Test Stand for Aircraft Brakes
>**PFB3S**<

Test Rig for Rudder Servo Control
>**TR-RSC1**<

Electrical and Hydraulic
Test Equipment Tact 6-8
>**EHPSAT6-8**<

Servicing Trolley for Flaps
and Thrust Reversers
>**SFTR1**<

Mobile Hydraulic Test Stand
Long Range Wide Body for Production Line
>**MHLW1**<

Test Stand for the Hydraulic
and Electric Flap Drive Train
>**TEDC1**<

Reservoir Ventilation Trolley
>**TBW1EX**<

Leakage Tester for
Cargo Compartment
>**LTC1**<

Cabin Pressure Tester
>**KDP4AF**<

Earthing Tester
>**MVP10L-FS**<

Bonding and Loop
Resitance Tester
>**BLRT2**<

Test Equipment for
Anti-Skid System
>**PA-ASG2-4**<

Anti Static Paint Tester
>**IA2**<

Loop Resistance Tester
>**IM2-FS**<

Tools for Ground Tests

Test Stand for Vertical Tail Plane
for SA and TA Production Line
>**EK1-Takt10**<

Vacuum Toilet
Leakage Tester
>**VTLT1**<

Pneumatic Test Set
>**MPTS4**<

Fuel Pressure Test Set
>**FPTE1**<

Stationary Air Conditioner
Production Line
>**BKG4E**<

Aircraft Fuel Sump Drain Equipment
>**ASE300**<

Hydraulic Ground Power Unit
>**HGPU**<

Waliclean Waste Line CLeaning
>**WLC1**<

Nitrogen Filling Equipment
>**SFE300**<

Test Equipment for
RAM-Air Turbines
>**PGRAT1**<

Moveable Turbine Cleaning Equipment
>**MTCE1**<

Fill and Drain Device for
Remote Chiller System
>**RCFD340**<

AIRBUS A350 Test Equipment

safety in test > safety in flight

TEST-FUCHS

Vacuum Test Equipment
>STE350HAM-VAC<

Supplemental Cooling System Leakage Test Equipment
>STE350SNZ-SCSL<

Inerting System Test Equipment
>STE350BRO-IS<

Fuel Feed Test Equipment
>STE350BRO-FF<

Fuel Ventilation Test Equipment
>STE350BRO-FV<

Waste Water Test Equipment
>STE350SNZ-WW<

Potable Water Test Equipment
>STE350SNZ-PW<

Impedance Measuring Equipment
>IM2-FS<

Earthing Test Set
>PA-MVP10L-FS<

Bonding and Loop Resistance Tester Kit
>ESNBLRT2KIT<

Modular Door Test Equipment
>MDTE1<

Device-Fill/Drain and Handpump-Topup for Supplemental Cooling System A350
>SCST1-FD< >SCST1-TU<

Valve Actuator Test Equipment
>STE350BRO-VA<

Supplemental Cooling System Rinsing Test Equipment
>STE350HAM-SCSR<

Supplemental Cooling System Leakage Test Equipment
>STE350HAM-SCSL<

Pylon Test Equipment
>STE350SEL-PY<

Universal Pressure Test Equipment
>STE350HAM-UP<

Waliclean Waste Line CLeaning
>WLC1<

Supplemental Cooling System Rinsing Test Equipment
>STE350SNZ-SCSR<

Oxygen System Test Equipment
>STE350HAM-OS<

Wing Test Equipment
>STE350BRE-WI<

Test Stand for Generators, IDGs and CSDs
>LMP 300<

Hydraulic Test Equipment in Bremen
>HTE350BRE<

Hydraulic Test Equipment in Hamburg
>HTE350HAM<

Hydraulic Test Equipment in Saint Nazaire
>HTE350SNZ<

Hydraulic Test Equipment in Stade
>HTE350STD<

Hydraulic Test Equipment in Saint Eloi
>HTE350SEL<

Hydraulic Test Equipment in Broughton
>HTE350BRO<

Hydraulic Test Equipment in Getafe
>HTE350GTF<

AIRBUS A380
Test Equipment

safety in test > safety in flight

TEST-FUCHS


Media Supply Module
>**MSM6-380**<


Test Stand for Power Drive Units
>**TPDU1E**<


Generator Test Stand
>**LMP300**<

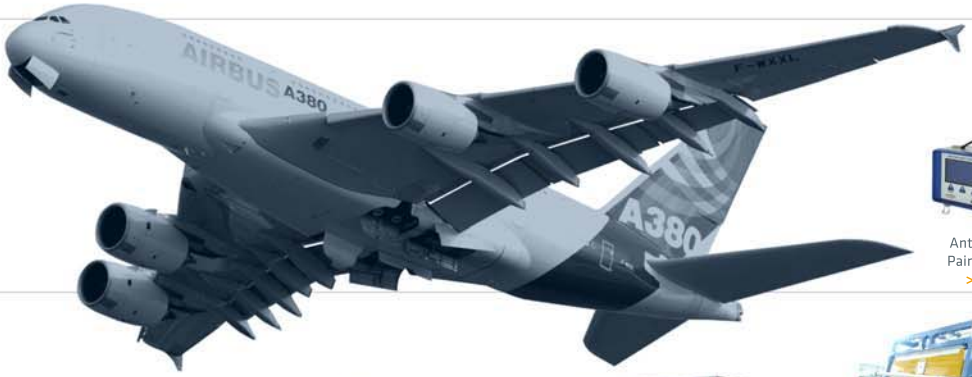

Fuel Nozzle Test Stand
>**FNTS9**<


Test Stand for FMUs and Pumps/Governors
>**TFMU1BA**<


Mobile Ground Power Unit
>**HGPU**<


Device for Refilling of Supplemental Cooling System
>**SCSR1**<


RAT-Motor
>**RATMK380**<




Anti Static Paint Tester
>**IA2**<


Impedance Measuring Equipment
>**IM2-FS**<


Disinfection and Conservation Tool
>**DCT2**<


Waliclean Waste Line CLeaning
>**WLC1**<


Hydraulic Test and Pressure Unit
>**HPS380**<


Fill and Drain Device for Supplemental Cooling System
>**SCSFD380**<


Mobile Hydraulic Unit
>**MH-1-350-10-E-PL**<


Pulse Pressure Test Bench
>**DP2A**<


Test Stand for A380 Cargo Door Actuation System
>**TCD1**<


Electric and Hydraulic Test Stand for Vertical Tail Tact 2 and Tact 4
>**EHP380T2/T4**<


Hydraulic Test Stand for Flight Control Units
>**HPM-S/M-FC**<


Hydraulic Test Stand for Motors and Pumps
>**HPM-S/M-MP**<


Hydraulic Test Stand for Non-Rotating Components
>**HPM-S/M-NR**< and >**HPM-S/M-LU**<


Test Stand for Aircraft Brakes
>**PFB3S**<


Test Stand for Proof Pressure Testing and Cleaning of Aircraft Tubes
>**HOEP1500PF**<


Test Stand for PCU Components
>**TPCU1**<

BOEING B777
Test Equipment

safety in test > safety in flight

TEST-FUCHS

Test Stand for Safety Valves
>**BSV1AF**<

Test Stand for Air Turbine Starters
>**TATS1AF**<

Test Stand for Outflow Valves
>**POVM2NM**<

Test Stand for Safety Valves
>**PSV1000NM**<

Universal Test Stand for Pneumatic Components
>**PP200STA**<

Hydraulic Ground Power Unit
>**HGPU**<

Waliclean Waste Line CLeaning
>**WLC1**<

Aircraft Fuel Sump Drain Equipment
>**ASE300**<

Bonding and
Loop Resistance Tester
>**BLRT2-LP**<

Nitrogen Filling
Equipment
>**SFE300**<

Servicing Trolley for Flaps
and Thrust-Reverser
>**SFTR1**<

Test Stand for Fuel Metering Units
>**TFMU**<

Fuel Nozzle Test Stand
>**FNTS9**<

Test Stand for Pneumatic Valves
>**PPV2**<

Test Stand for Power Drive Untis
>**TPDU1CAF**<

Generator Test Stand
>**LMP300**<

Test Stand for Aircraft Brakes
>**PFB3S**<

Hydraulic Pipe Pressure Test Stand
>**SHTB2S**<

Hydraulic Test Stand for
Flight Control Units
>**HPM-S/M-FC**<

Hydraulic Test Stand
for Motors and Pumps
>**HPM-S/M-MP**<

Hydraulic Test Stand for Non-Rotating Components
>**HPM-S/M-NR**< and >**HPM-S/M-LU**<

Hydraulic Test Stand for Flight Control Units
>**HFCU3**<

Test Equipment for Anti Skid Valves
>**TE-ASV1-2**<

BOEING B787
Test Equipment

safety in test > safety in flight

OEM

Hydraulic Supply and Flushing System
>**HSFS787**<

Low Pressure and Vacuum Test Trolley
>**LPVTT1**<

GSE

Hydraulic Ground Power Unit
>**HGPU**<

Waliclean Waste Line CLeaning
>**WLC1**<

Bonding and Loop Resistance Tester
>**BLRT2-LP**<

Aircraft Fuel Drain Equipment
>**ASE900**<

Reservoir Ventilation Trolley
>**TBW1**<

MRO

Hydraulic Test Stand for Flight Control Units
>**HPM-S/M-FC**<

Hydraulic Test Stand for Motors and Pumps
>**HPM-S/M-MP**<

Hydraulic Test Stand for Non-Rotating Components
>**HPM-S/M-NR**< and >**HPM-S/M-LU**<

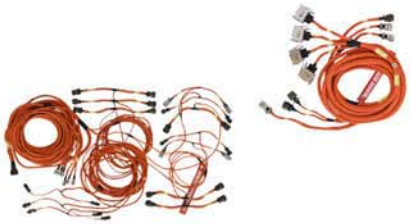
Generator Test Stand
>**LMP300**<

TOOLS for Ground Test Systems

safety in test > safety in flight

TEST-FUCHS

>Chevre Tool<



>Cable Harness<

>Alpha Probe Simulator<

>Simulation Boxes<

>Test Tools<

>Mobile ESAO System for the A320 Series<

>Cooling Rack<

>Loop Controller<

>Break Out Boxes<

>Dummies and Adaptors<

AIRBUS A400M
Test Equipment

safety in test > safety in flight

TEST-FUCHS

STTE


Special Tools


Safety Devices


Devices for Installing and Reinstalling


Lifting Devices


Safety Pins


Covers

SSE


Mobile Air Conditioner
>**BKG8D**<


Oxygen and Nitrogen Trolley
>**ONT1**<


Hydraulic Ground Power Unit
Diesel Motor Driven
>**HST21DSKA**<


Hydraulic Ground Power Unit
Electrically Driven
>**HST21ESKA**<

Test Equipment


Bleeding Tool Set
>**BTS1**<


Impedance Measuring Equipment
for Loop Resistance
>**IM2-FS**<


Weight on Wheel
Condition Simulator
>**WCS1**<


Electrical Module for Cargo Door
and Ramp Operation
>**MCDR1**<


Loop Through Trolleys for
>**MHPA400M**<

Test Equipment


Particle Count Trolleys for
>**MHPA400M**<


Test System for Cargo Hold and
Tunable Vibration Absorber System
>**TS-CH-TVAS1**<


Engine Fire Extinguishing
System Test Tool
>**EFESTT1**<


Earthing Test Set
>**MVP10L-24FS**<


Hydraulic Simulation for Iron Bird
>**GTFB400M**<


Hydraulic Pump Loading System
>**HPLS400**<

Test Equipment


Mobile Hydraulic Test System for Fuselage
>**MHPA400M**<


Electric and Hydraulic Test Stand for
Vertical Tail Tact 5
>**EHP400T5**<


Test System for
Door Ramp Actuation System
>**TS-DRAS1**<


Particle Measuring System
>**PMA400M**<


Cable Test Set
>**KPG4**<


VFG Cooling System
>**VCS400**<

EUROFIGHTER
Test Equipment

safety in test > safety in flight

TEST-FUCHS


Pneumatic Test Stand
>**PP50FE-407**<


Mobile Air Conditioner
Electric Motor Powered
>**BKG5EM**<


Test Stand for Air Turbine Starters
>**TATS2EF**<


Hydraulic Servicing Trolley
>**HST21**<


Cockpitladder
>**CLEF1**<


Backlash-Tester
>**BLT5F**<


Generator Test Stand
>**LMP150V**<


Test Stand for Actuators
>**PRP2TE**<


No-Volt Tester
>**TE-ATS1EX**<


MIL-BUS Cable Tester
>**PA-MBT10**<


Test Equipment for
Engine Parameters
>**PA-TMG3-5**<


Handoperated Hydraulic Test Rig
>**MH1-280-025-E-3C**<


Low Pressure Test Bench
>**LPT1EF**<


Lube Oil Test Stand
>**LTB5EF**<


Earthing Test Set
>**PA-MVP10S**<


Test Equipment for
Anti Skid System
>**PA-ASG2RV-1**<


Hydraulic Supply Unit
>**HA200-280M2**<


Universal Hydraulic Test Stand
>**GPHTB1**<


Hydraulic Pump Test Rig
>**HPP200EF**<


Pulse Pressure Test Stand
>**DP3A900**<


Hydraulic Component Test Bench
>**PHKL2-405**<


Universal Hydraulic Test Bench
>**UHTB1M**<


Hydraulic Test Trolley
>**HTW200-280NG**<


Mobile Fuel Test Rig
>**MFTR1500**<


Test Stand for APU, FCU
and Fuel Nozzles
>**PTRV2**<


Aircraft Refuelling and Defuelling
System Test Equipment Facility
>**RFS1500**<


Test Stand for Fuel Components
>**KKP1000M-407**<


Radar Cooling Liquid Pump Test Rig
>**RCT1**<


Test Stand for Screwjack and Bevel Gear Boxes
>**TSC1E**<