SIGMA Pressure test equipment

We help you perform even better

About SIGMA pressure test

SCITEQ

Features

SIGMA is the new generation of pressure testing helping our customers prepare for IoT and Industry 4.0.
The system consists of modular airless pressure modules designed to fit into an elegant standard cabinet with a compact footprint. The modularity enables easy configuration and extention of existing pressure cabinets, making SIGMA the most future proof and cost efficient solution in the market.

The web based SIGMA software is the latest development in pressure testing. The browser based interface allows for easy and intuitive operation. Quick-to-setup recipes as well as optimized real time monitoring & logging enabling comprehensive analysis option.

Scope

SCITEQ SIGMA pressure solution determines the resistance (both long term and short term) to internal pressure on thermoplastic pipes, fittings and assemblies for conveyance of fluids, complying with following test standards and equivalent:

- ISO 1167 and ASTM D1598 long term hydrostatic test. Max. flow rate per station is 2 l/min.
- ISO 1167 and ASTM D1599 short term testing"Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure". Max. allowed pressuring time is 70 seconds Max. flow rate in a burst station is 15 l/min.

DPCS

SCITEQ's intelligent Dynamic Pressure Control System ensures that test pressures are maintained with unparalleled accuracy no matter what size sample is connected to the system. Static, burst and step testing can all be accommodated.

Flow per station: max. flow 2 l/min (max. flow 15 l/min for burst modules). For other valve flow and power pack flow configurations, refer to the SCITEQ HCP solutions.

Alarm

The built-in alarm light instantly alerts the operator visually in case of irregularities in the ongoing test.

About SIGMA modularity

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SIGMA PowerPack module

Pressure source feed to all SIGMA SUB modules. Various models available incl./excl.output for optional BURST modules. With built-in high pressure pump and 10 micron inlet filter.

- ✓ Max. 100 or 160 bar regulated pressure output.
- ✓ Max. 250bar unregulated output
- ✓ Max. flow: 17 l/min.

SIGMA SUB module

Provides 5 or 10 independently operating pressure stations up to max. 100 or 160 bar. Semi-automatic individual pressure transmitter calibration through integrated main transmitter is optional. Built-in fast reacting valves for precise pressure control.

- ✓ Max. 100 or 160 bar regulated pressure output
- ✓ Max. flow per station: 2 l/min.

About SIGMA modularity

SCITEQ

SIGMA HP3 & HP5 modules

Provides three or five independent high pressure stations up to max. 250bar regulated pressure output. Built-in fast reacting valves for precise pressure control.

- ✓ 3 or 5 individual stations
- ✓ Max. 250bar
- ✓ Max. flow: 2 l/min.

SIGMA BURST module

Provides one linear burst pressure station up to max. 200bar within 60-70 seconds. Built-in fast reacting high flow and pressure valves for fast and precise pressure control. Requires PowerPack module with output for BURST module.

- ✓ Max. 200bar regulated pressure output
- ✓ Max. flow: 15l/min.

SIGMA HCP3 & HCP5 modules

Provides three og five independent high volume operating pressure stations up to max. 100bar regulated pressure output. Built-in fast reacting valves for precise pressure control.

- ✓ 3 or 5 individual stations
- ✓ Max. 100bar
- ✓ Max. flow: 15 l/min.

About SIGMAlite

SCITEQ

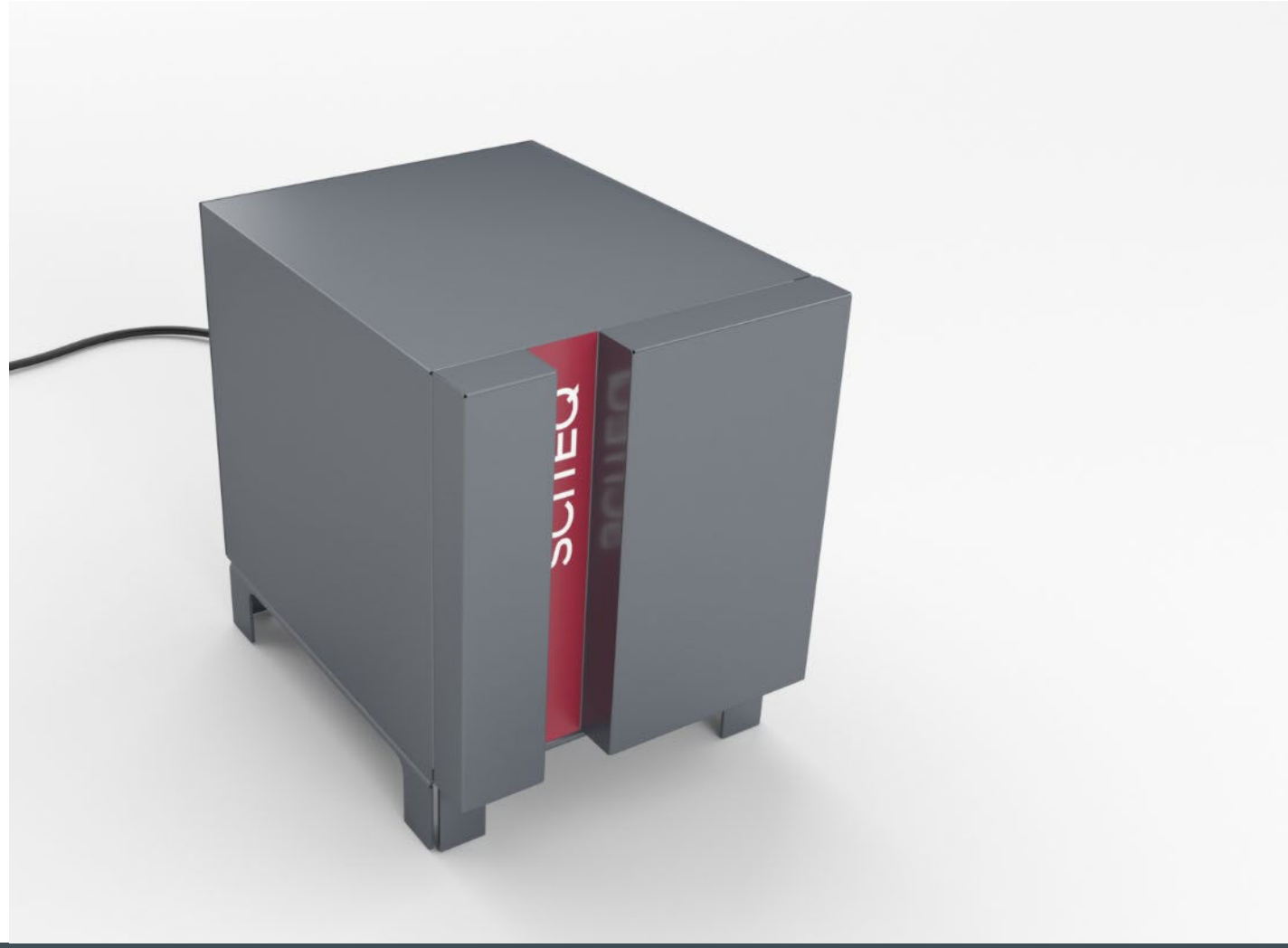
SIGMAlite

The compact plug and play test unit with five fixed individual pressure stations ideal for smaller layouts. Incl. DPC system and ABX valves ensures consistent and unparalleled pressure accuracy.

This cost effective and reliable solution is easy to setup and operate from any device via the web-based software.

The alarm visually alerts the user, in case of irregularities in the ongoing test.

Dimensions: B542xD740xH652 mm
Max. flow: 2 l/min.



About SIGMA pressure test

Energy consumption

SCITEQ's Dynamic Pressure Control System uses only approx. 1/3 of power compared to conventional systems.

SCITEQ is the only supplier of the DPCS system. Other systems on the market use pressure pumps that run constantly via a bypass/circulation valve, hence the power consumption will be equal to the motor size + the power consumption for the control unit. As we supply pressure with the DPCS system to a high pressure reservoir the running time of the pump is reduced by more the 90%, thereby significantly reducing the power consumption.

Our PLC control uses an electronic power transformer to generate 24 volt power to the solenoid. This electronic power transformer regulates the output according to the specific need.

Maintenance & service

The smart design of the SIGMA cabinet offers easy access for servicing and the pressure test can operate during service or maintenance.

The manually operated valve for each SUB module isolates each sub (optionally each block of 5 stations) making it possible to run all other stations while servicing 5 or 10. The valves are NC (normally closed), each station will keep pressure when turned off.

Drainage of pressure equipment for servicing only necessary servicing the A valve and this is very rarely necessary.

Standards

The SIGMA pressure solutions complies with the below standards. Referring national, or sub standards referring to the below and others on request .

Long term test:	ISO 1167-1:2006 ASTM D1598-02
Short term test:	ASTM D5199-99
Harmonized standards:	EN ISO 12100-1 EN ISO 12100-2 EN ISO 13849-1 EN ISO 14121-1 EN ISO60204-1
Normative references:	Machinery Directive 2006/42/EC EMC Directive 2004/108/EEC Low voltage Directive 2006/95/EEC

Dimensions SIGMA Pressure Cabinet

SIGMA CAB5

Cabinet for SIGMA modules. Extremely compact design allows for installation of up to 40 pressure stations and a PowerPack within a footprint of 800x800mm. External dimensions: 794x800x1880mm (LxWxH). Included is a central power supply rail for all modules and hidden column for hoses to secure a completely closed design cabinet.

SIGMA CAB6

Cabinet for SIGMA modules. Extremely compact design allows for installation of up to 50 pressure stations and a PowerPack within a footprint of 800x800mm. External dimensions: 794x800x2100mm (LxWxH). Included is a central power supply rail for all modules and hidden column for hoses to secure a completely closed design cabinet.

Software SIGMA Pressure

SCITEQ

Advantages

SCITEQ's browser-based software is accessible from any device – any time, anywhere.

- ✓ 4 different user levels
- ✓ Easy recipe set-up
- ✓ Dynamically adjusted real-time finish time
- ✓ Multiple simultaneous users
- ✓ Multiple specimen test per station
- ✓ SQL database compatible with all kind of servers
- ✓ OPC UA enabled

Software SIGMA data output

SCITEQ

Browser based data handling

Data can be extracted by OPC UA and when your test is completed you can export the test data to csv, PDF or directly to your database by SQL.

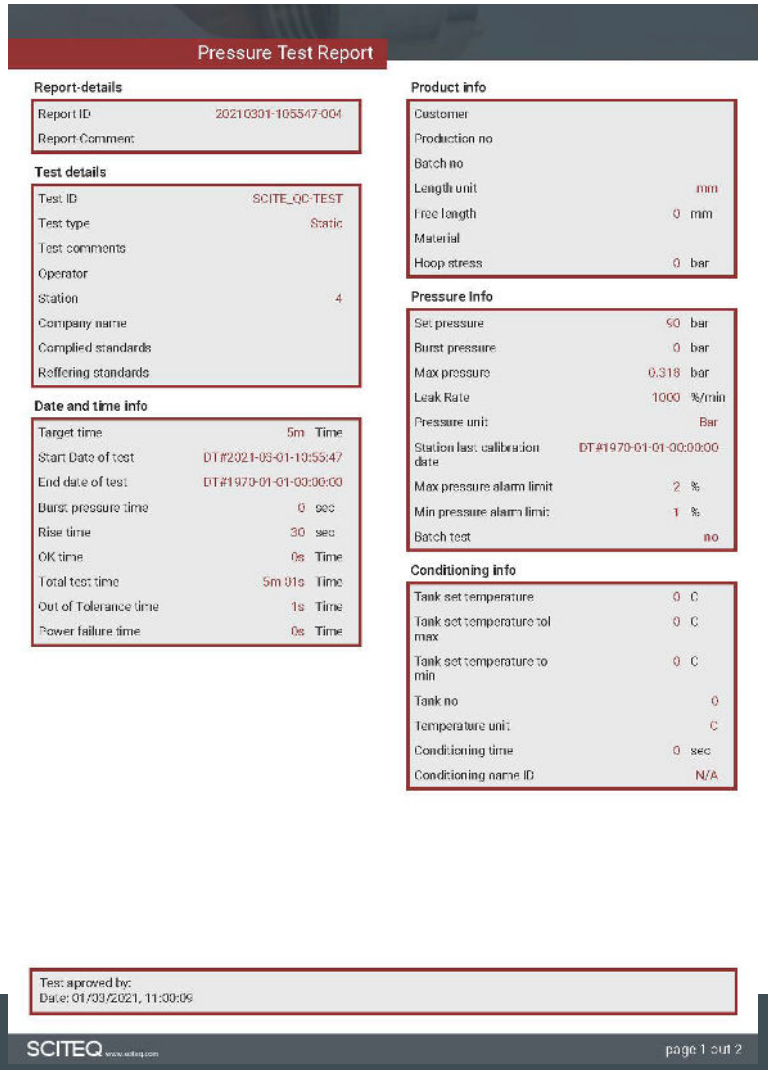
Completed tests are automatically uploaded to the browser based SIGMA test data page, you simply navigate to the page and export the file according to your preferences.

OPC UA

SQL

PDF

CSV



Pressure Test Report

Report-details

Report ID	20210301-105547-004
Report Comment	

Test details

Test ID	SCITE_QC-TEST
Test type	Static
Test comments	
Operator	
Station	4
Company name	
Complied standards	
Reffering standards	

Date and time info

Target time	5m	Time
Start Date of test	DT#2021-03-01-10:55:47	
End date of test	DT#1970-01-01-00:00:00	
Burst pressure time	0	sec
Rise time	30	sec
OK time	0s	Time
Total test time	5m 01s	Time
Out of Tolerance time	1s	Time
Power failure time	0s	Time

Product info

Customer		
Production no		
Batch no		
Length unit		mm
Free length	0	mm
Material		
Hoop stress	0	bar

Pressure Info

Set pressure	90	bar
Burst pressure	0	bar
Max pressure	0.318	bar
Leak Rate	1000	%/min
Pressure unit		Bar
Station last calibration date	DT#1970-01-01-00:00:00	
Max pressure alarm limit	2	%
Min pressure alarm limit	1	%
Batch test		no

Conditioning info

Tank set temperature	0	C
Tank set temperature tol max	0	C
Tank set temperature to min	0	C
Tank no		0
Temperature unit		C
Conditioning time	0	sec
Conditioning name ID		N/A

Test aproved by:
Date: 01/03/2021, 11:00:09

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*OPC UA: Unified Architecture - machine to machine communication protocol for industrial automation.

Software SIGMA data output

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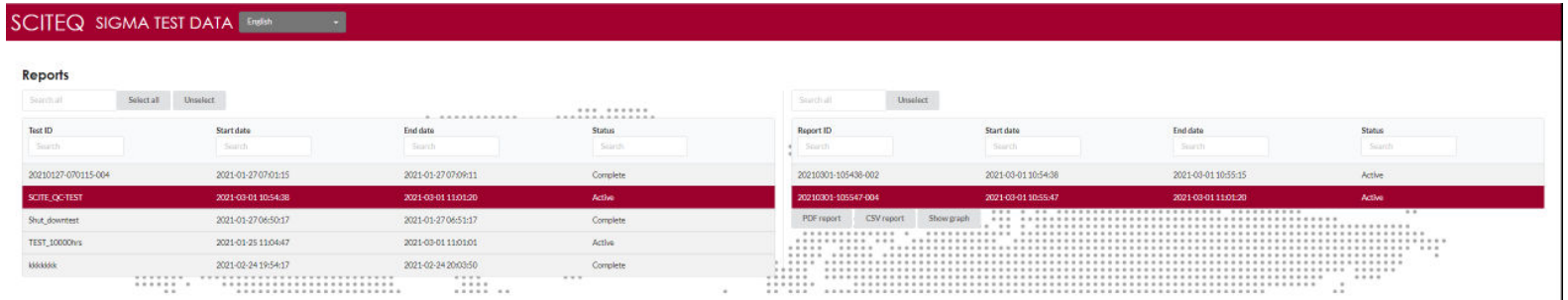
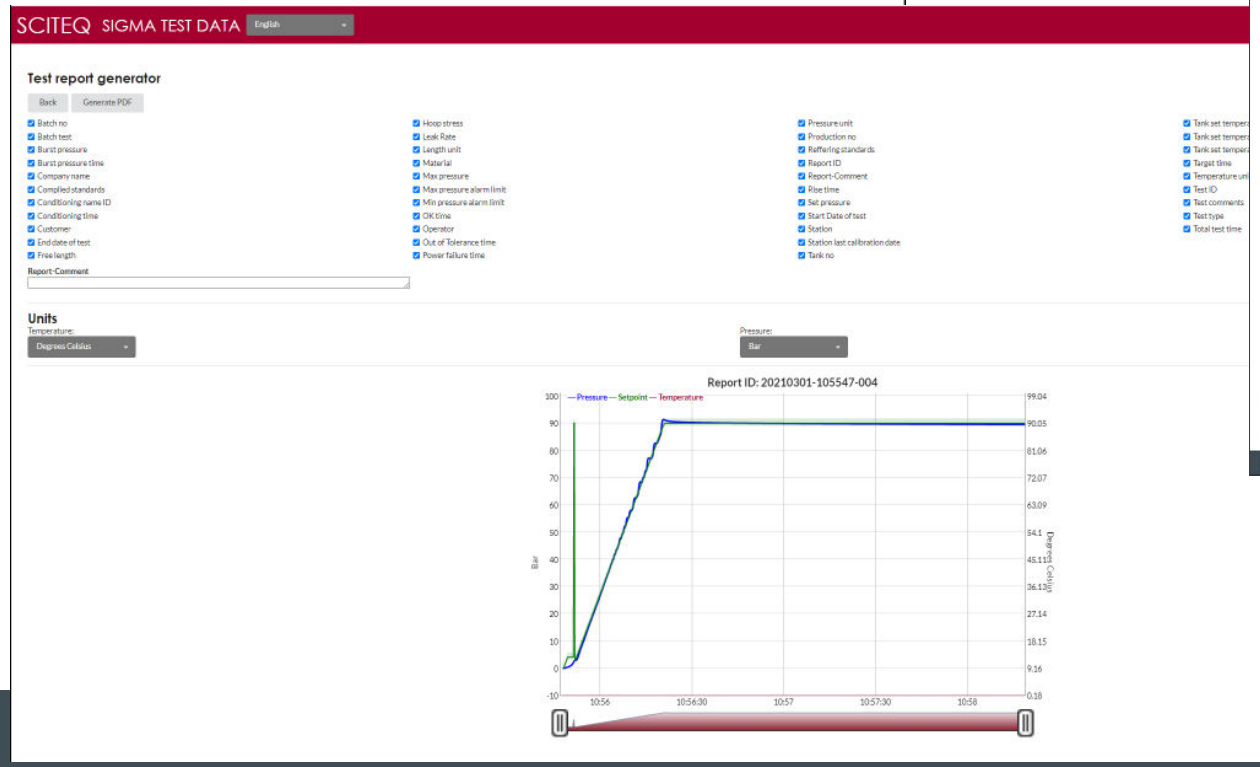
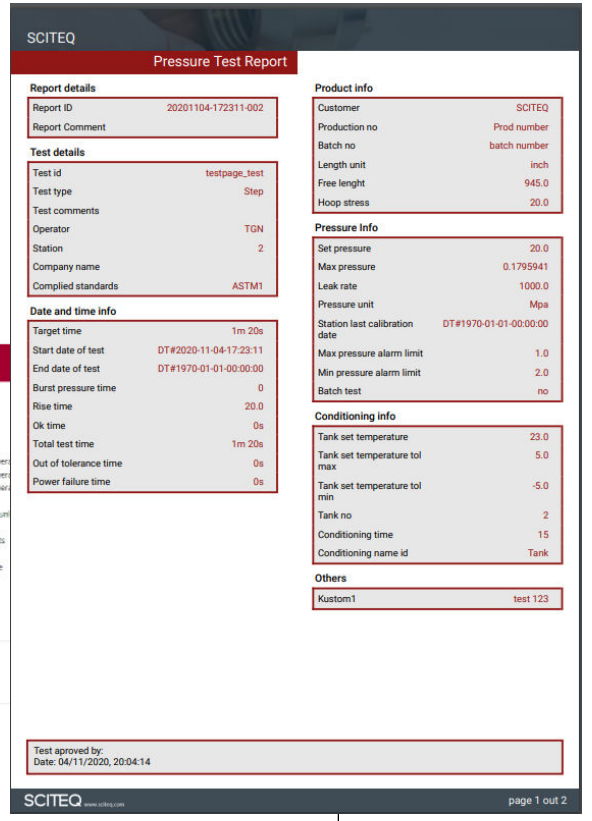






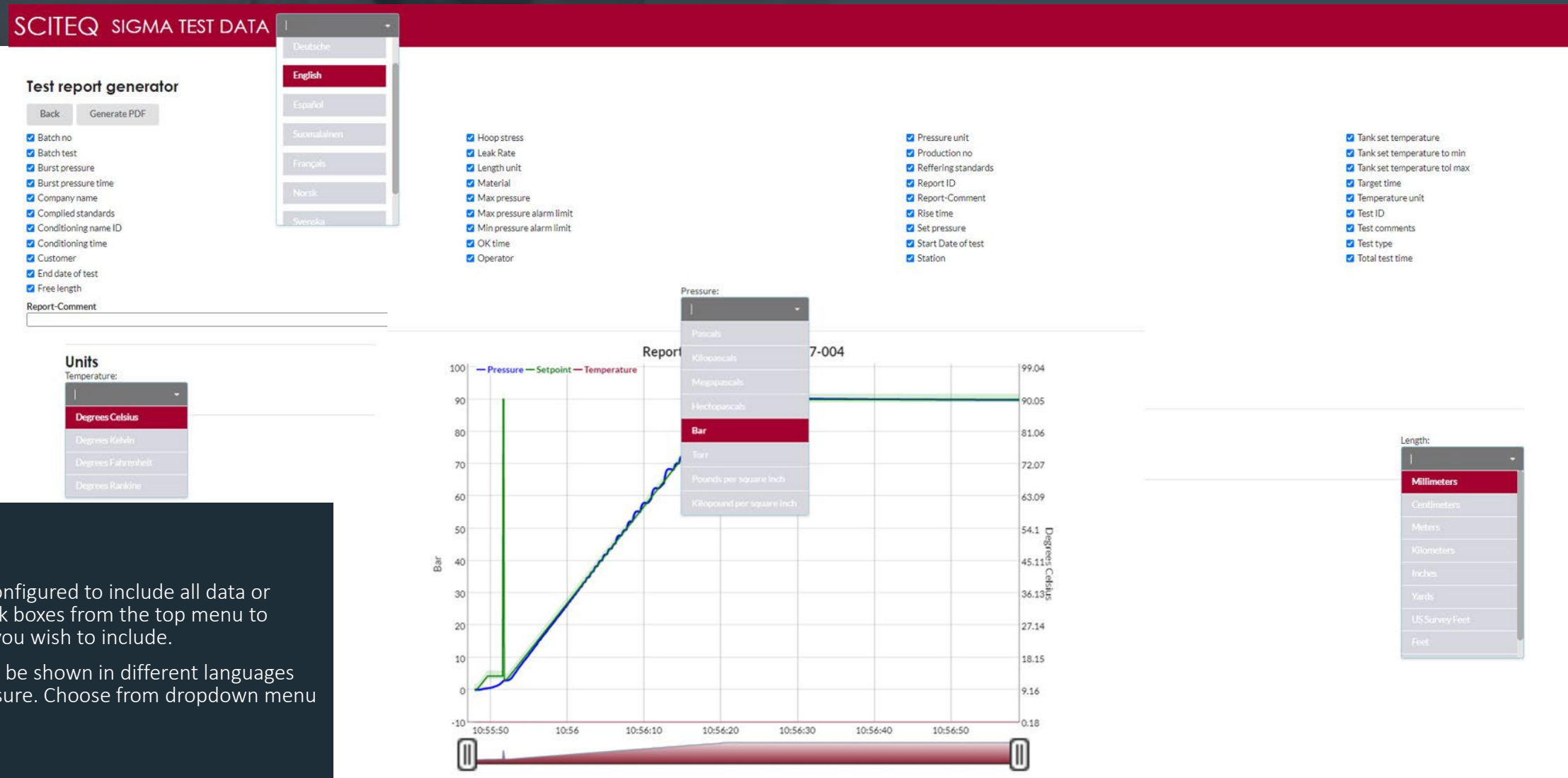
Test Data Page

All test data from each individual test is stored in the database. Access the data on IP address from any browser.

Choose the specific test from menu, filter the data you wish to export from the menu – or include all data in the auto-generated pdf report

Zoom in/out on the graph showing the complete test.

Software SIGMA Test Data



Reports

Reports can be configured to include all data or selected data. Tick boxes from the top menu to choose the data you wish to include.

The Test Data can be shown in different languages and units of measure. Choose from dropdown menu

- ✓ Language
- ✓ Temperature
- ✓ Pressure
- ✓ Length

Technical specifications

	SIGMA PowerPack module	SIGMA Control module	SIGMA SUB 5 module	SIGMA SUB 10 module	SIGMA Burst module	SIGMA High Capacity Pressure module (HCP3)	SIGMA High Pressure Module. With 3 or 5 stations (HP3 & HP5)	SIGMA High Pressure in individual cabinet
Controller type	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller	SCITEQ-B&R S3100 Controller
User interface*	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser	Chrome, Firefox or Internet Explore browser
Status indicator light build in cabinet front	√	√	√	√	√	√	√	√ light in cabinet
Remote accessible	√	√	√	√	√	√	√	√
Max. water flow	8,5 l/m (17 l/m on request)	N/A	2 l/m pr. Station**	2 l/m pr. Station**	8,5 l/m (up to 15 l/m on request)	8,5 l/m (up to 15 l/m on request)	2 l/min	8,5 or 12L/min
Max. pressure	100/160 bar (200 bar on request)	100/160 bar (200 bar on request)	100/160 bar (200 bar on request)	100/160 bar (200 bar on request)	100/160 bar (200 bar on request)	100/160 bar (200 bar on request)	250 bar	1500 bar
Control accuracy	Better than +/- 1 % of set pressure	N/A	Better than +/- 1 % of set pressure	Better than +/- 1 % of set pressure	Better than +/- 1 % of set pressure	Better than +/- 1 % of set pressure	Better than +/- 1 % of set pressure	Better than +/- 1 % of set pressure
Control resolution	0,01 bar	N/A	0,01 bar	0,01 bar	0,01 bar	0,01 bar	0,01 bar	0,01 bar
Testing according to following standards	N/A	N/A	ISO1167-1:2006 ASTM D1598-02 ASTM D5199-99	ISO1167-1:2006 ASTM D1598-02 ASTM D5199-99	ASTM D1598-02 ASTM D5199-99	ISO1167-1:2006 ASTM D1598-02 ASTM D5199-99	ISO1167-1:2006 ASTM D1598-02 ASTM D5199-99	Will be configured to comply with relevant international standard

*SCITEQ recommend the use of IPAD or similar with screen resolution:2388x1668

**Option: Flow increasing manifold. incl. SIGMA software integration. Connecting 5 stations to be obtain higher flow of 6-8 l/m. Enabling burst or high flow testing.

Technical specifications

SCITEQ

	SIGMA PowerPack module	SIGMA Control module	SIGMA SUB 5 modules	SIGMA SUB 10 modules	SIGMA Burst module	SIGMA High Capacity Pressure module (HCP3)	SIGMA High Pressure Module. With 3 or 5 stations (HP3 & HP5)	SIGMA High Pressure in individual cabinet
Pressure rise time	N/A	Adjustable (customized for specific sample expansion)	Adjustable (customized for specific sample expansion)	Adjustable (customized for specific sample expansion)	Adjustable (customized for specific sample expansion)	Adjustable (customized for specific sample expansion)	Adjustable (customized for specific sample expansion)	Adjustable (customized for specific sample expansion)
Transmitter type*	Trafag NAH8252 (250 bar)	N/A	Trafag NAH8252	Trafag NAH8252	Trafag NAH8252	Trafag NAH8252	Trafag NAH8252	ESI GS4200 **
Transmitter accuracy***	0,5 % FS (25 °C ambient)	N/A	0,5 % FS (25 °C ambient)	0,5 % FS (25 °C ambient)	0,5 % FS (25 °C ambient)	0,5 % FS (25 °C ambient)	0,5 % FS (25 °C ambient)	0,5 % FS (25 °C ambient)
Transmitter Control rise time	2 ms/ 10-90% nominel pressure	N/A	2 ms/ 10-90% nominel pressure	2 ms/ 10-90% nominel pressure	2 ms/ 10-90% nominel pressure	2 ms/ 10-90% nominel pressure	2 ms/ 10-90% nominel pressure	2 ms/ 10-90% nominel pressure
External dimensions HxWxD [mm]	730 x 637 x 255	730 x 748 x 90	730 x 475 x 309	730 x 475 x 309	730 x 460 x 305	730 x 760 x 305	730 x 760 x 305	1504 x 1214 x 1923
Shelve capacity in cabinet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15 individual stations
Weight [kg]	Approx: 62	Approx: 28 kg	Approx: 38	Approx: 65	Approx: 21	Approx: 29	Approx: 29	Approx. 1300 kg
Color	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)	Ral 7016/30 (Dark grey)
Material: cabinet and shelves	S235JR (Powder coated)	S235JR (Powder coated)	S235JR (Powder coated)	S235JR (Powder coated)	S235JR (Powder coated)	S235JR (Powder coated)	S235JR (Powder coated)	S235JR (Powder coated)

* Transmitters are standard available in following sizes: 4, 6,10,16,25,40,60,100,160,250 and 400 bar. Other sizes on request.
** Transmitters are standard available in following sizes: 600, 1000 and 1600 bar. Other sizes on request.
*** Long term stability 1 year = +/- 0,1 % FS, NLH (BSL) = +/-0,2 % (25°C).

Technical specifications

	SIGMA PowerPack module	SIGMA Control module	SIGMA SUB 5 modules	SIGMA SUB 10 modules	SIGMA Burst module	SIGMA High Capacity Pressure module (HCP3)	SIGMA High Pressure Module. With 3 or 5 stations (HP3 & HP5)	SIGMA High Pressure in individual cabinet
Material: Piping and fittings	AISI 304 and brass	AISI 304 and brass	AISI 304 and brass	AISI 304 and brass	AISI 304 and brass	AISI 304 and brass	AISI 304 and brass	AISI 316
Power supply*	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ	3x 400 V+N, 50/60 HZ
Max. power consumption**	Approx: 3 KW, 5,3 A	N/A	Approx: 0,1 KW	Approx: 0,2 KW	Approx: 0,1 KW	Approx: 0,1 KW	Approx: 0,1 KW	Approx: 18,5kW
Recommended Fuse	16 A	16 A	16 A	16 A	16 A	16 A	16 A	40 A
Supply water filter	10 My	N/A	N/A	N/A	N/A	N/A	N/A	10 My
Water supply	Normal clean tap 2-6 bar Min. flow 10 l/m (17 l/m)	Normal clean tap 2-6 bar Min. flow 10 l/m (13 l/m)	Normal clean tap 2-6 bar Min. flow 10 l/m (13 l/m)	Normal clean tap 2-6 bar Min. flow 10 l/m (13 l/m)	Normal clean tap 2-6 bar Min. flow 10 l/m (13 l/m)	Normal clean tap 2-6 bar Min. flow 10 l/m (13 l/m)	Normal clean tap 2-6 bar Min. flow 10 l/m (13 l/m)	Normal clean tap 2-6 bar Min. flow 13 l/m
Operating and storage temperature	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)	2-37 °C ambient (30-70% RH)
Calibration certificate incl.	√	√	√	√	√	√	√	√
Land of origin	Denmark	Denmark	Denmark	Denmark	Denmark	Denmark	Denmark	Denmark
CE, UL & CSA Approval	√	√	√	√	√	√	√	√

*Power supply can be customized.
**Power consumption is for standard but will variate depending on the required flow and pressure and frequency of the supply grid.

About SIGMA Thermo Tank

SCITEQ

Standards

The SIGMA Thermo tank enables you to test according to below standards:

- ISO 9967
- ASTM D1598
- ASTM D1599

The Thermo tanks may very well enable you to test according to other standards beside the ones listed above. Please refer to technical specifications in the back of this brochure or contact SCITEQ A/S for more information.

Highlights

The SIGMA Thermo Tank features:

- High-end industrial design feature
- Uniform constant temperature
- Accurate PID temperature control
- Temperature setting +/- 0,1 °
- Low energy consumption
- Only supply of water and power to operate.
- Automatic water level control
- High quality parts
- 270 ° accessibility to tank
- Easy access - service & maintenance
- Long lifetime construction
- Low noise level
- Full 3D documentation and easy identification of spare parts

Essential accesories SIGMA Pressure

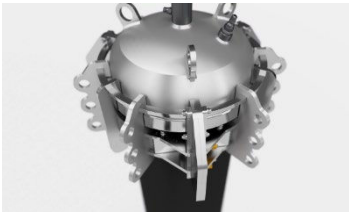
SCITEQ

End closures without tie-bar

available in custom sizes, enabling you to test any pipe diameter. Made in certified stainless steel AISI 304. Also available as acid resistant AISI 316 when needed.

End closures with tie-bar

available in custom sizes, enabling you to test any pipe diameter. Made in certified stainless steel AISI 304. Also available as acid resistant AISI 316 when needed.



End closures large diameters

Patented design Air frame. For pressure testing of larger pipe diameters from 315 to 1600mm – and larger at request. in certified stainless steel AISI 304.

Hoses

SCITEQ is supplier of hoses to connect pressure stations to thermo tank or to samples. Supplied in different lengths according to need.

Stainless steel hoses

SCITEQ is supplying hoses for use inside the Tank. These are made with inner materiel suitable for the heat and pressure and protected with stainless outer hose.

Couplings

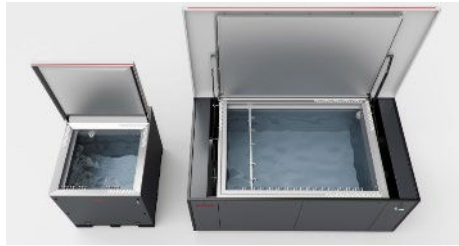
SIGMA equipment standard couplings are Tema 2510 quick connectors. Other systems can be supplied to fit customer needs.

Essential & associated equipment SIGMA Pressure

Essential Equipment

SCITEQ End closures

SCITEQ is supplier of various ranges of end closure suitable for almost any purpose. Within a range of Ø8-Ø1600 mm, with or without tie-bars.



SIGMA thermo tank

The SIGMA thermo tank is the obvious choice to condition test samples. The tank is available in two dimensions suitable for various sample configurations at 0-95° Celsius.

Associated Equipment

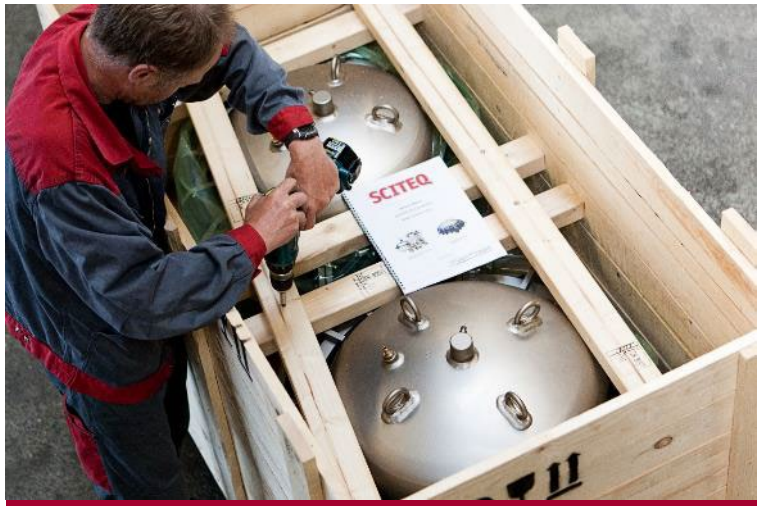
SCITEQ Lab saw

For preparing plastic pipe samples by making a parallel cut and chamfering edge. Conveyor with auto feeding. Pipe diam. from Ø32 mm to Ø630 mm

SCITEQ End closure mounting

& demounting machine.
For handling heavy large pipe samples and end closures up to Ø1600 mm conveniently and efficiently.

SCITEQ Service & Support

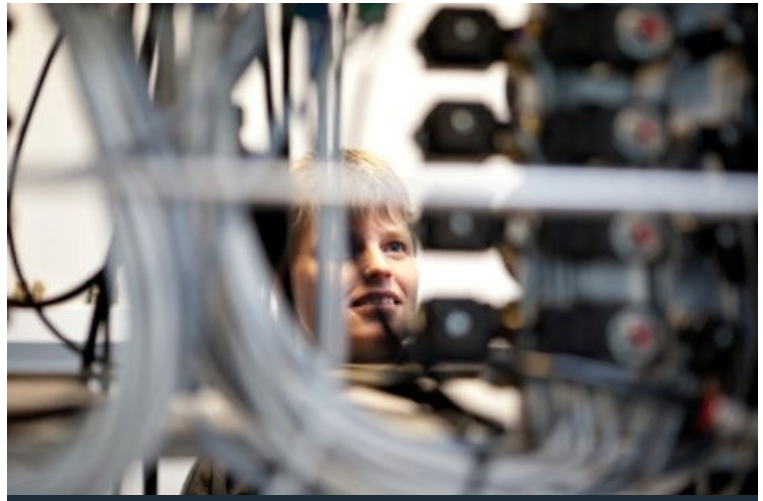


Installation & training

SCITEQ's trained service technicians perform onsite installation of your new SCITEQ equipment as well as onsite or remote training of your operating personnel who will be using the equipment.

SCITEQ Care

You will find the level of service suitable for your test setup with SCITEQ Care. SCITEQ service engineers will visit you annually to perform the best service and calibration. With SCITEQ Basic, More or All Care package you gain access to a long list of advantages, discounts and free support from SCITEQ skilled technician. Learn more about SCITEQ Care



Support online & on-site

SCITEQ offers online and on-site support on all SCITEQ products, for fast and effective problem solving, training, setup, etc. If you have an unforeseen challenge or you need advise asap, you can contact service@sciteq.com or call us for urgent support.