F670-LV-DNC

(F670 - Large Volume – Differential Noise Cancelling)
Leak Tester for Large Volumes at low pressure

F5XA VERSION

ADDITIONAL INFORMATIONS TO F670 QUICK START GUIDE

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Preamble

ATEQ F670-LV-DNC, A LARGE VOLUME LEAK TESTER

ATEQ F670-LV-DNC is a low pressure leak tester with a differencial noise cancelling method.

Important information :

The test area and the test part must be far from perturbations like air winds (open doors), air conditioners, heating sources...

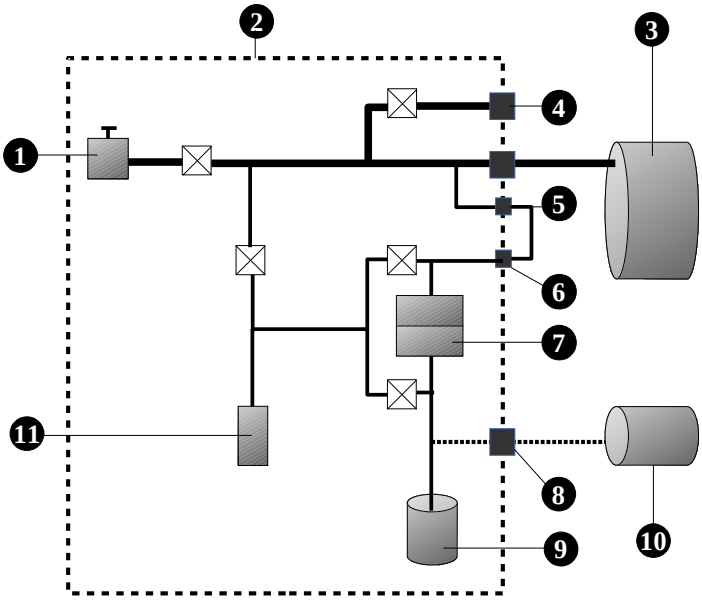
LEAK TEST

During the Fill step, the regulator **1** pressurize the test part **3,** the internal reference volume **9** and the external optional reference **10** if it's necessary to have.

At the end of the stabilization step the pressure is checked by the pressure sensor **11**.

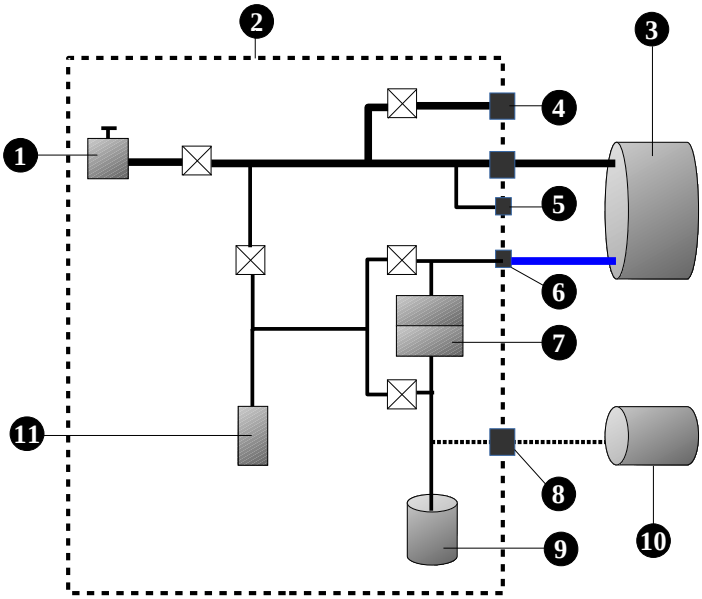
During the test time step, the differential sensor **7** measures the pressure variation between the Test part **3** and the reference parts **9** and **10** (optionnal)**.**

The function DNC (differential noise canceling) must be activated and configured to reduce the influence of environmental noise on the test part .



Internal back pressure
(standard instrument)

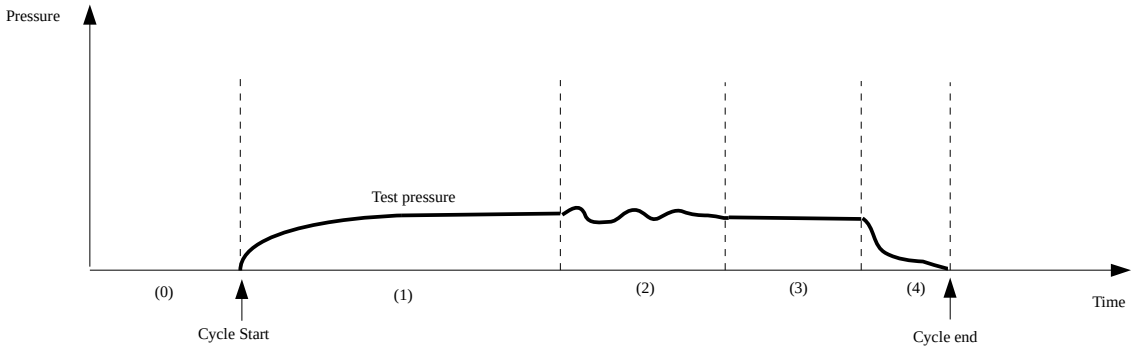
1 Regulator fills Test and Ref. parts
2 Device
3 Part under test
4 Exhaust output of Test and Ref. parts
5 Back Test pressure
6 Back Test pressure Input
7 Differential pressure sensor
8 External Reference Output (option)
9 Internal Reference volume
10 External Reference volume if necessary (not supplied by Ateq)
11 Pressure Sensor



Test part back pressure
(allows filling faster with
Fill Mode = Instruction)

1 Regulator fills Test and Ref. parts
2 Device
3 Part under test
4 Exhaust output of Test and Ref. parts
5 Back Test pressure : with a cap
6 Back Test pressure Input
7 Differential pressure sensor
8 External Reference Output (option)
9 Internal Reference volume
10 External Reference volume if necessary (not supplied by Ateq)
11 Pressure Sensor

PRINCIPLE OF A CYCLE



0 Waiting time if set.
1 Filling test and reference parts at the test pressure.
2 Stabilization time
3 Test
4 Dumping

FRONT PANEL

CONNECTORS ON THE BACK PANEL

REAR PANEL F670-LV-DNC

Connections to F670-LV-DNC :

1 - 600 kPa Air supply input
2 - ATM input, must be kept to atmosphere
3 - Exhaust output
4 - Exhaust output
5 - Exhaust output or Vacuum Input
6 - 600 kPa Air pilot output (option)
7 - Fieldbus Profinet (Option)
8 - Reference output (to connect the External Reference part) (Option)
9 - TEST output (to connect the part under test)
10 - Back Test pressure Cap (metallic Cap or connected to Back Test pressure Input)
11 - Back Test pressure Input (If not connected to the test part, must be connected to Back test pressure Cap)
12 - Exhaust of Test and Reference parts
13 - Fieldbus Profinet (Option)
14 - 600 kPa Air pilot output (option)
15 – 24VDC – 2A Power Supply (M12 - Pin 2 : 24V / Pin 4 : GND)

FUNCTIONS

Label	Function	Description
FILL MODE	Fill types	See details on the F670 manual Use Standard or Instruction mode
EXT. DUMP	External dump	EXT. DUMP = YES
BYPASS	Bypass function	Select BYPASS = FILL
FILTER	Filter function	Filter value in seconds
DNC	Differential noise canceling (only available with units Pa/s or flow units using Pa/s Raw unit)	- Requires « DNC learning » special cycle to determine following parameters - % Flex Coeff = 0,00 % - % Temp Coeff = 0,00 %
OFFSET	Leak Offset	Set the leak offset if need
TEMP. CORR. 1	Temperature correction	Software temperature test part correction
TESTS3 MEAN2	3 tests means 2	3 test times done and the mean of the 2 nearest ones.

CONFIGURATION menu

Label	Function	Description
PNEUMATIC		
> EXT. DUMP	-	Select : EXT. DUMP = CLOSED MODE = PERMANENT

USING F670-LV-DNC

DNC FUNCTION (Differential noise cancelling)

As a first step, use a specific Program to fill the part without dump.

Execute this program many times until part is correctly filled.

Now that the part is pressurized let's take off filling step putting 0s, and determine DNC coef.
Depending on the part, definitive stabilisation time can be long (2, 3 or 4 minutes or more), but let's put a quite short stabilisation time for the moment and repeat the cycle many times (10 times if necessary) until internal pressure becomes very stable.
Use flow unit (raw unit pa/s) or directly Pa/s. The cycle time is composed of Stabilisation time (for example 30s) and test time (for example 15s). Activate DNC function and launch several times the special cycle « DNC learning ». Each time, check the calculated Flex coefficient under the DNC function. When this coeff becomes stable (± 5%) you can fix it.

Then other parameters can be defined as usual

DNC Flex coefficient depends on the part, for each new model you need to apply this method to define it.

TEMPERATURE CORRECTION N°1

Like in other application this function can be helpfull against Test Part slow temperature variation.

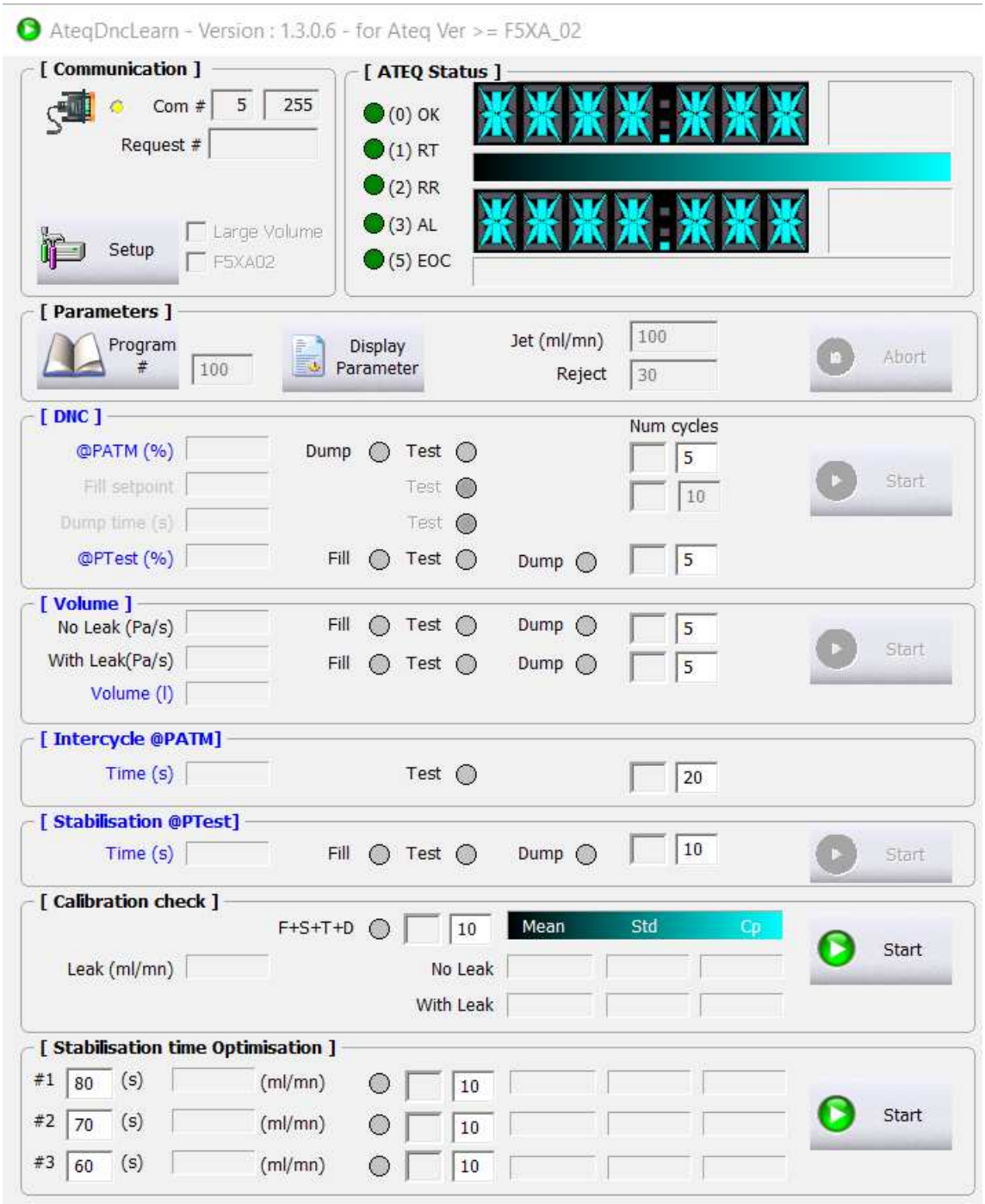
TESTS3 MEAN2

This fonction can be activated to consolidate results but it has a time cost.
This function repeat the test time 3 times and calculates the mean of the 2 nearest ones.

PC Software Tool AteqDNCLearn

You refer to this tool for :

- determine optimized parameters
- check measurement repetability



PRESSURE RANGES

Test pressure ranges :

- 50 kPa
- ± 100 kPa

Leak pressure range :

- 20 Pa

CHARACTERISTICS

F670-LV-DNC

Characteristics	Values
Case dimensions: Height x Width x Depth	285 x 520 x 500 mm (11.22 x 20.47 x 19.68")
Overall dimensions	300 x 520 x 565 mm (11.81 x 20.47 x 22.24")
Format	6U case
Mass	About 32 kg (71 lbs)
Electrical power supply	24 V DC - 2 A.
Pneumatic air supply	0.6 MPa (87 PSI) ± 15%