

DESCRIPTION OF THE COMPARATIVE TABLES OF TESTS DESCRIZIONE TABELLE COMPARATIVE PROVE

Giussani test benches are designed to check and test components of **sanitary taps** and hydraulic devices in general, according to the procedures imposed by the main international Standards.

Depending on the type of test and the device to be tested, the AQ2tb software guides the user in the choice of all the significant parameters characterizing the test itself.

The attached tables contains a summary description of the main tests with:

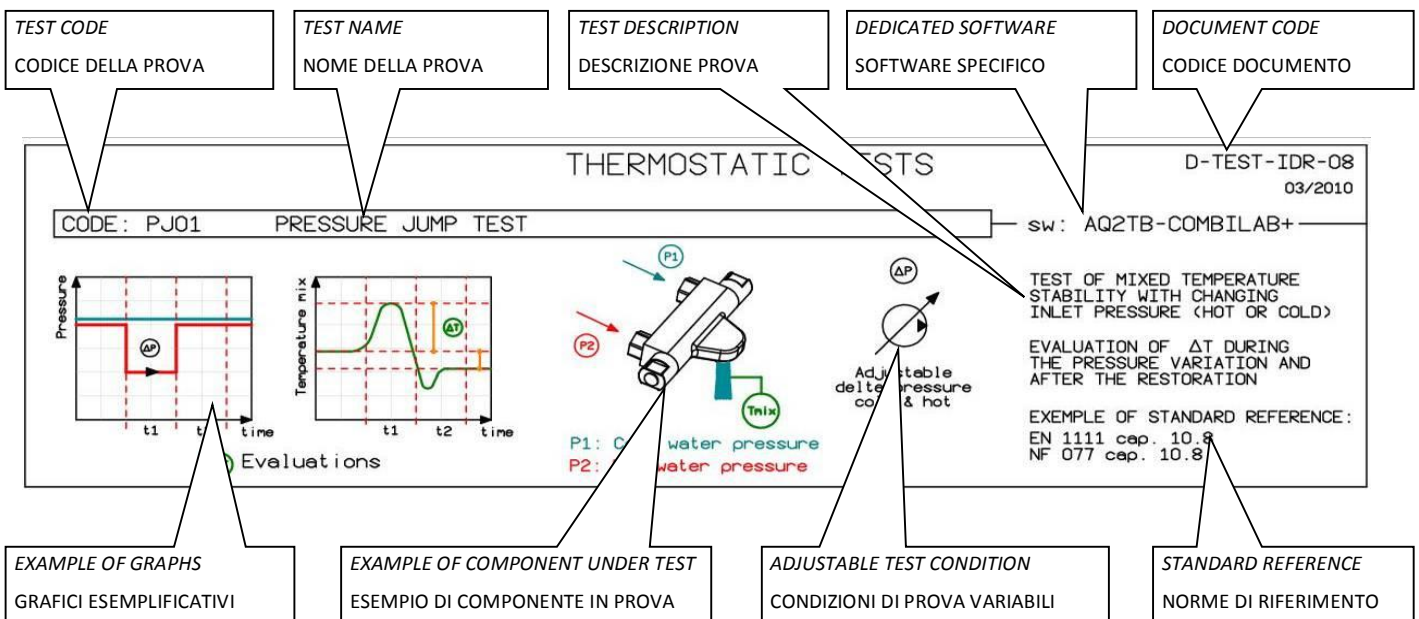
- The graphical representation of the physical quantities measured.
- The example drawing of the installation of the device under test .
- The base operative range and the maximum achievable performance for each test bench.
- The main reference Standards.

I banchi prova Giussani sono realizzati per testare e collaudare componenti di **rubinetteria idrosanitaria** e componenti idraulici in genere, secondo le procedure imposte dalle principali Norme di settore.

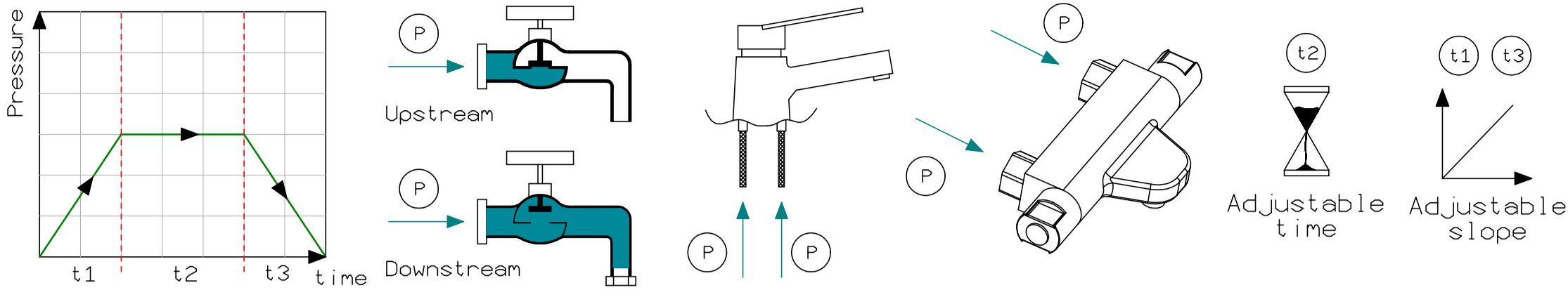
In funzione del tipo di prova e del componente da testare, il software AQ2tb guida l'utente nella scelta di tutti i parametri significativi che caratterizzano la prova stessa.

- Le tabelle allegate contengono una descrizione sintetica delle principali prove con:
- La rappresentazione grafica delle grandezze misurate.
- Lo schizzo esemplificativo dell'installazione del componente.
- I campi operativi delle versioni base e le prestazioni massime raggiungibili.
- Le principali Norme di riferimento.

EXPLANATION OF TESTS SPIEGAZIONE PROVE

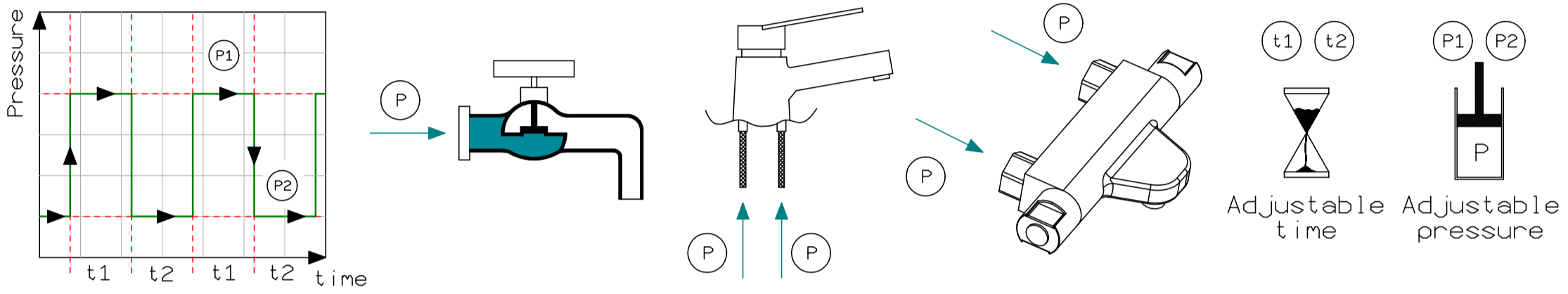


CODE: P01 STATIC TEST sw: AQ2TB-STATICAUT



PRESSURE OPERATING RANGE
UPSTREAM of the obturator: 0-16 bar
DOWNSTREAM of the obturator: 0-25 bar
EXAMPLE OF STANDARD REFERENCE:
EN 200 chap. 8 - 9
EN 817 chap. 8 - 9
PrEN 1111:2014 chap. 12 - 14

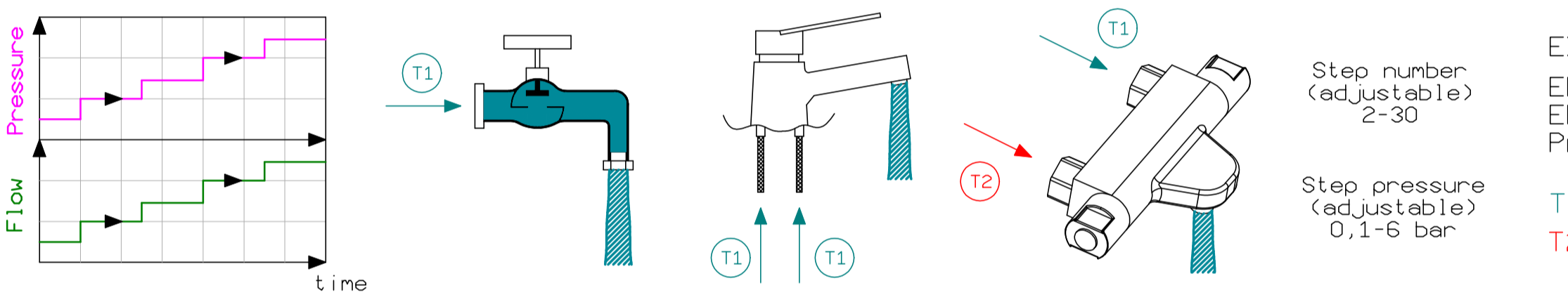
CODE: P02 PULSING TEST sw: AQ2TB-PULSEAUT



PRESSURE OPERATING RANGE
Minimum pressure: 0-8 bar
Maximum pressure: 2-50 bar
EXAMPLE OF STANDARD REFERENCE:
NF 077 doc.3 rev.17 chap. 2.6
NF 077 doc.4 rev.17 chap. 2.6

Cold water

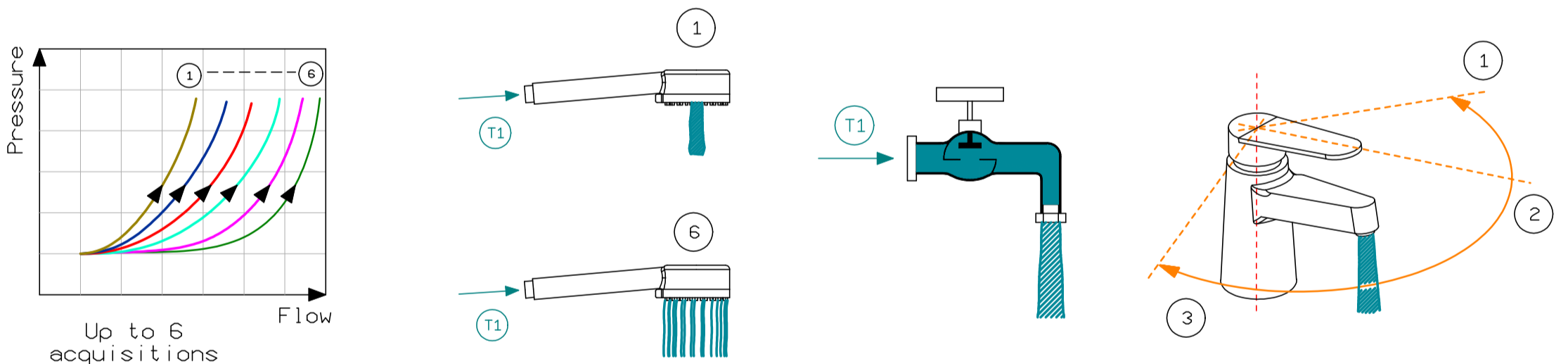
CODE: F05 FLOW TEST - STEP PRESSURE sw: AQ2TB-FLOW-STEP



EXAMPLE OF STANDARD REFERENCE:
EN 200 chap. 10 - cold water
EN 817 chap. 10.6 - cold/hot water
PrEN 1111:2014 chap. 13.2

T1: Cold water temperature
T2: Hot water temperature

CODE: F06 FLOW TEST - LINEAR PRESSURE sw: AQ2TB-FLOW-LIN

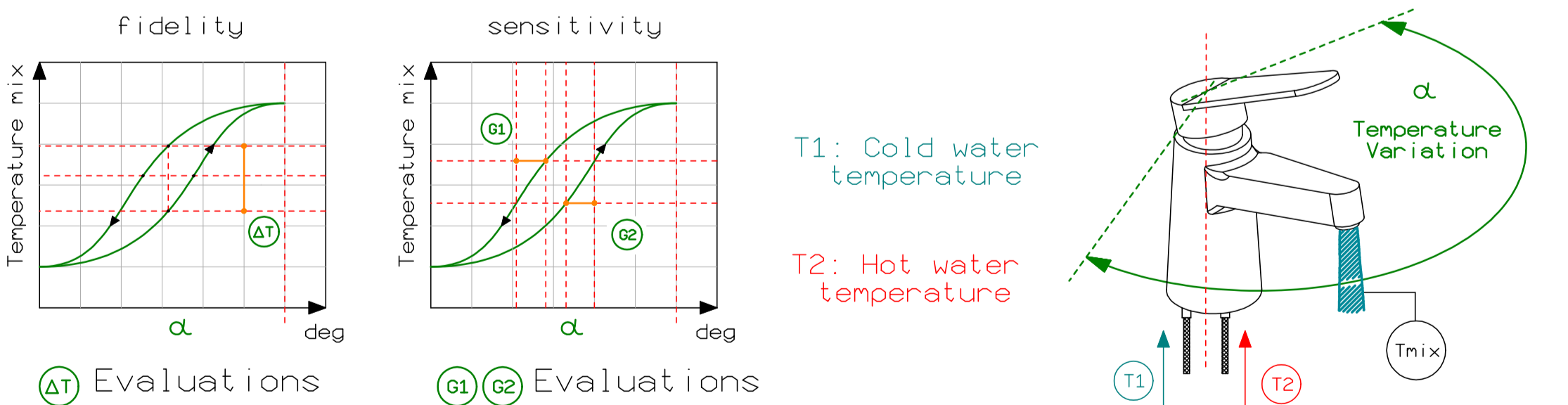


PRESSURE RANGE:
0,1-10 bar

EXAMPLE OF STANDARD REFERENCE
EN 200 chap. 10

T1: Cold water temperature

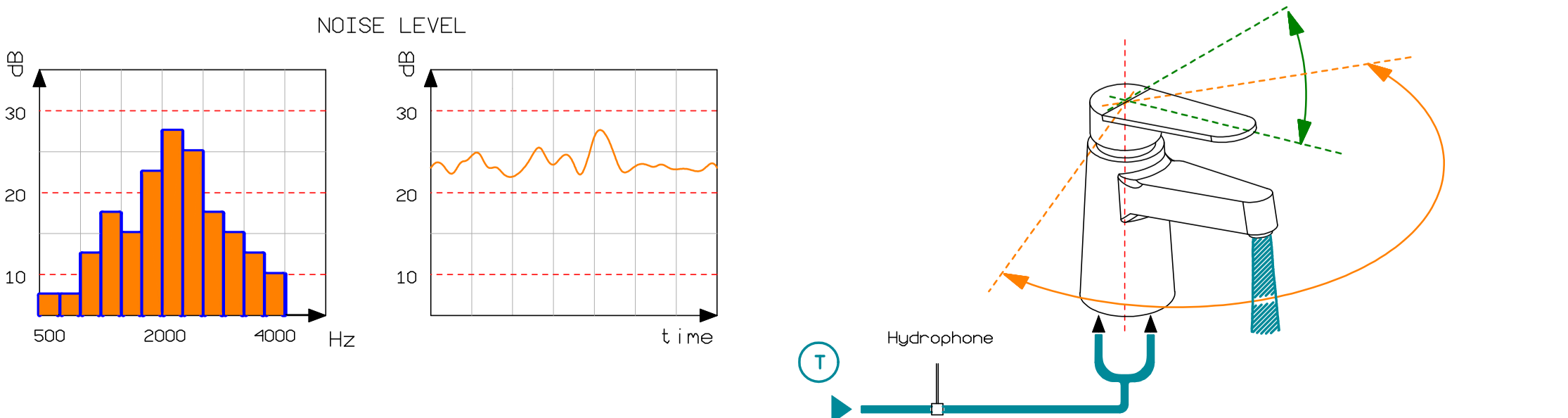
CODE: SFO1 SENSITIVITY & FIDELITY TEST sw: AQ2TB-COMBILAB+
sw: AQ2TB-F+S-DRIVE



TEST OF MIXED TEMPERATURE
HISTERESYS AND SENSITIVITY
BY MOVING THE TEMPERATURE
SETTING DEVICE FROM COLD TO
HOT POSITION AND RETURNING TO
INITIAL POSITION

EXAMPLE OF STANDARD REFERENCE
EN 817 chap. 10.7

CODE: AT01 ACOUSTIC TEST sw: AQ2TB-NOISE



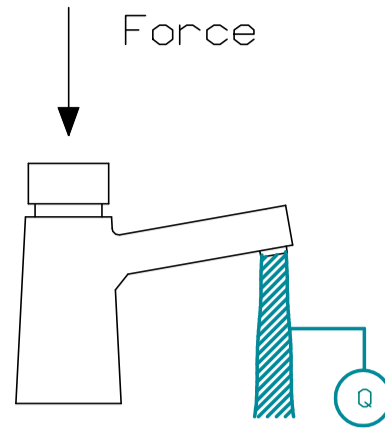
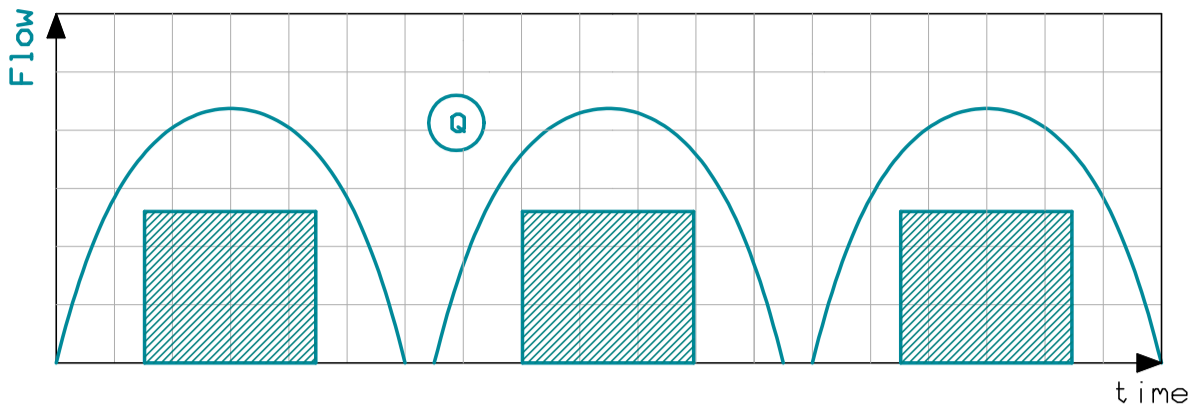
MEASUREMENT OF NOISE
EMISSION FROM APPLIANCE
AND EQUIPMENT USED IN
WATER SUPPLY INSTALLATIONS

EXAMPLE OF STANDARD REFERENCE
EN 200 chap. 14
EN 817 chap. 14
PrEN 1111:2014 chap. 17

T: Cold water temperature

CODE: FO7 AUTOMATIC SHUT-OFF VALVES FLOW-RATE TEST

sw: AQ2TB-LAB-ASV

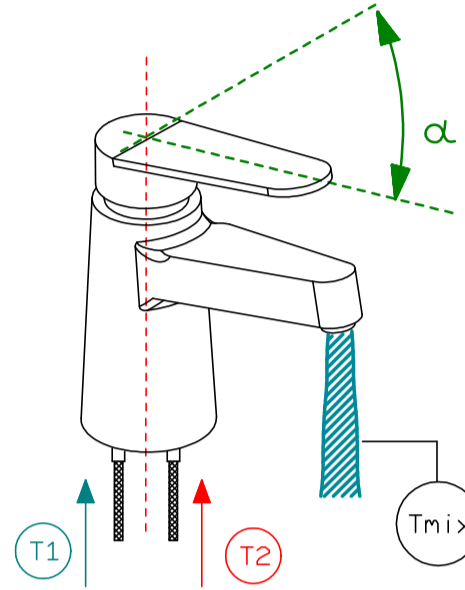
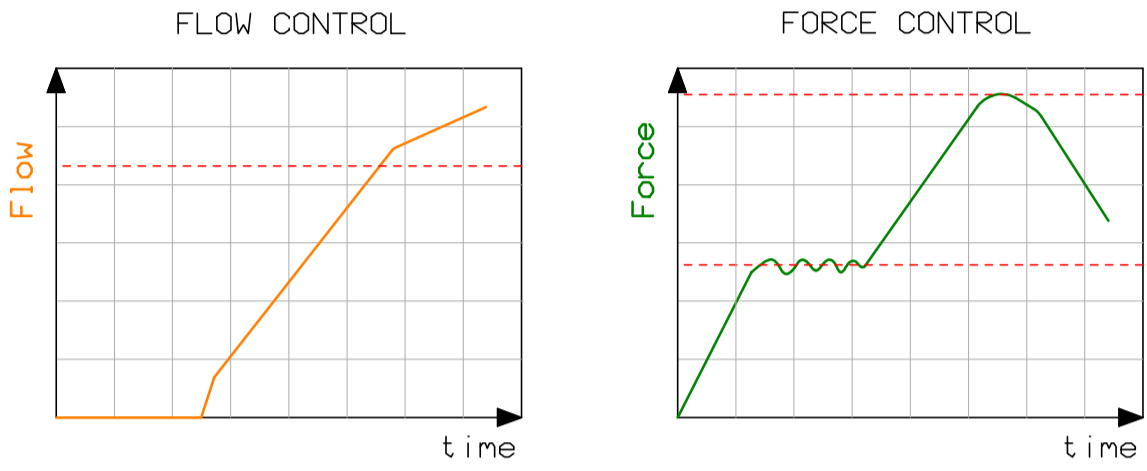


SOFTWARE FOR EVALUATION OF FLOW-RATE IN AUTOMATIC SHUT-OFF VALVES

EXAMPLE OF STANDARD REFERENCE EN 816 chap. 11.3

CODE: SLFM FLOW-RATE AND FORCE IN "WATER SAVING" POSITION

sw: AQ2TB-SLFM

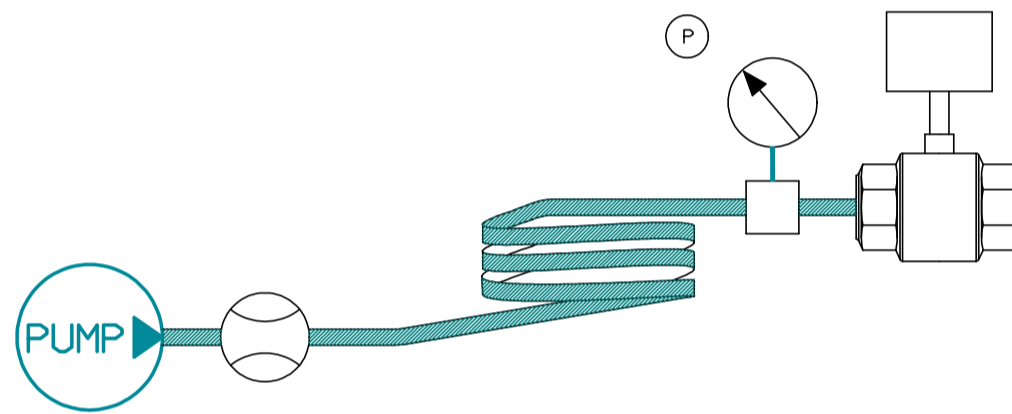
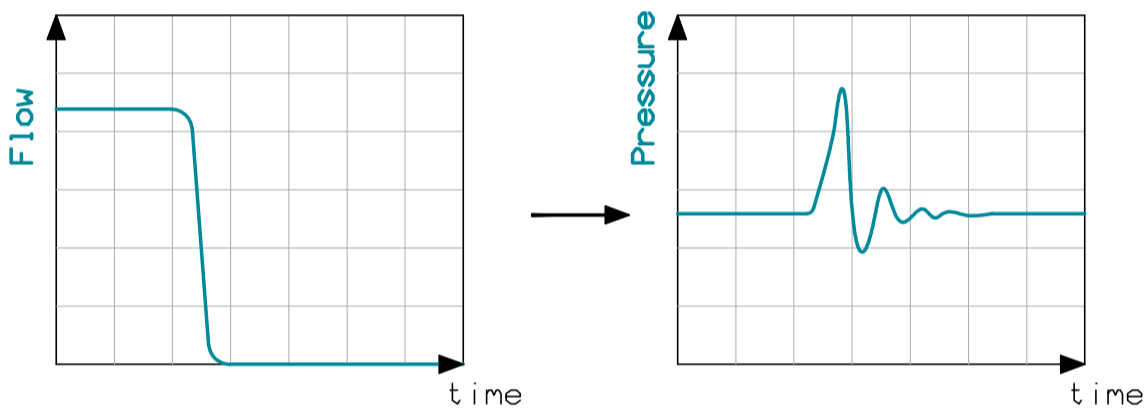


CONTROL AND ACQUISITION OF:
- ANGULAR POSITION
- ANGULAR SPEED
- TORQUE
- FLOW-RATE

EXAMPLE OF STANDARD REFERENCE NF 077 doc.3 rev.17 chap. 2.7

CODE: WHO1 WATER HAMMER MEASURE

sw: AQ2TB-HAMTEST

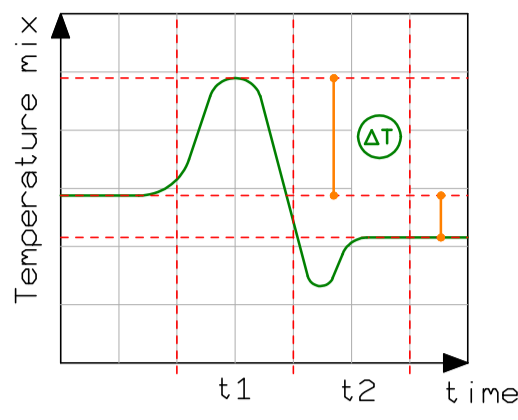
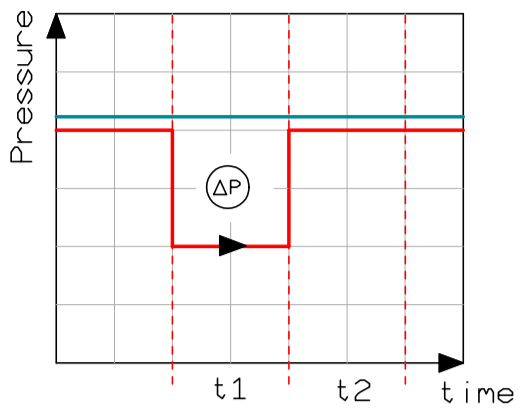


TEST RIG TO MEASURE THE OVERPRESSURE PRODUCED BY A QUICK CLOSURE OF AN HYDRAULIC DEVICE

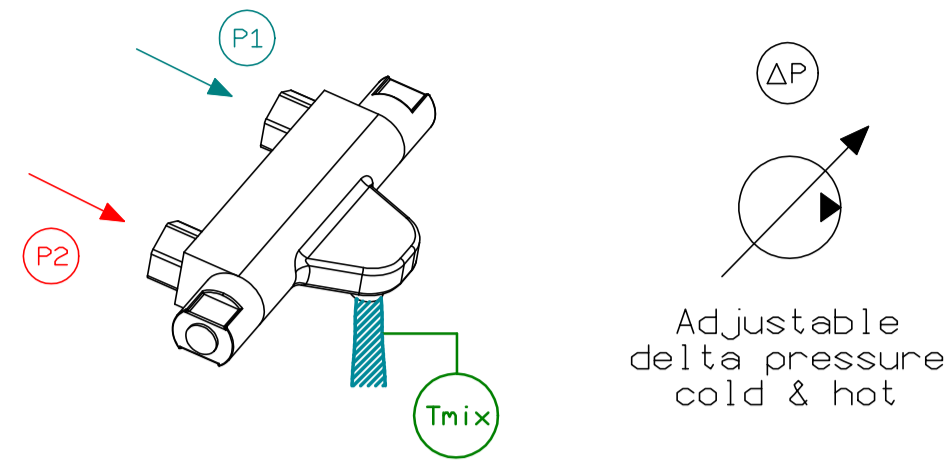
EXAMPLE OF STANDARD REFERENCE NF 076 doc.2 rev.09 chap. 1.8

CODE: PJ01 PRESSURE JUMP TEST

sw: AQ2TB-COMBILAB+



ΔT Evaluations



P1: Cold water pressure
P2: Hot water pressure

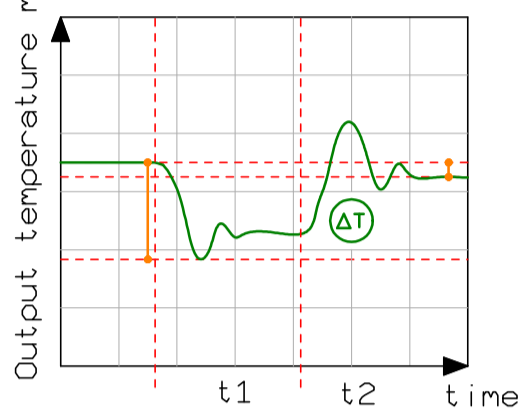
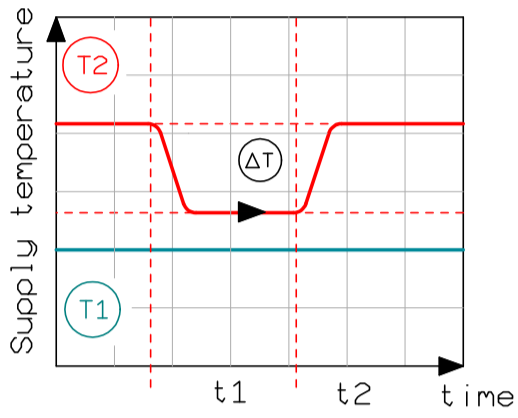
TEST OF MIXED TEMPERATURE STABILITY WITH CHANGING INLET PRESSURE (HOT OR COLD)

EVALUATION OF ΔT DURING THE PRESSURE VARIATION AND AFTER THE RESTORATION

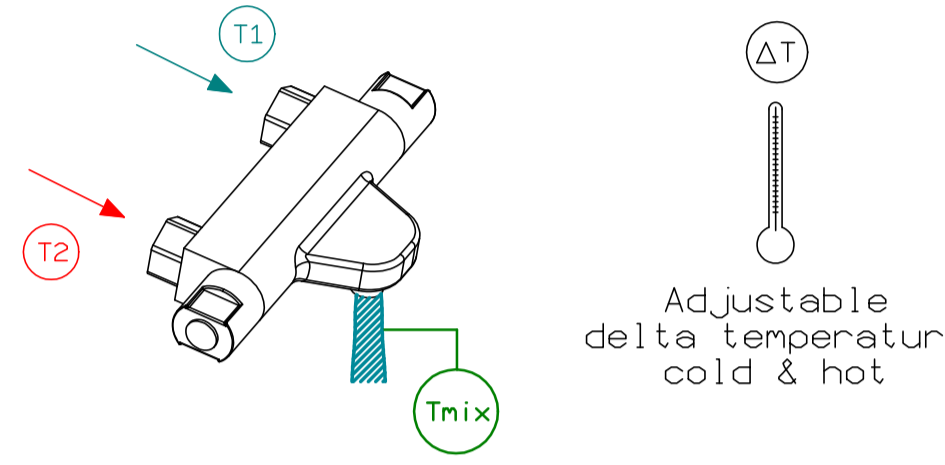
EXAMPLE OF STANDARD REFERENCE:
PrEN 1111:2014 chap. 13.5.4
NF 077 doc.4 rev.17 chap. 10.8

CODE: TJ01 TEMPERATURE JUMP TEST

sw: AQ2TB-COMBILAB+



ΔT Evaluations



T1: Cold water temperature
T2: Hot water temperature

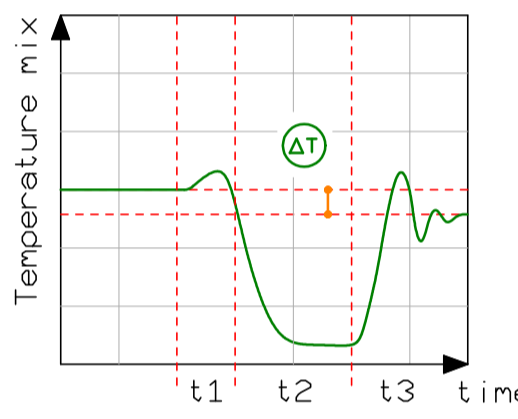
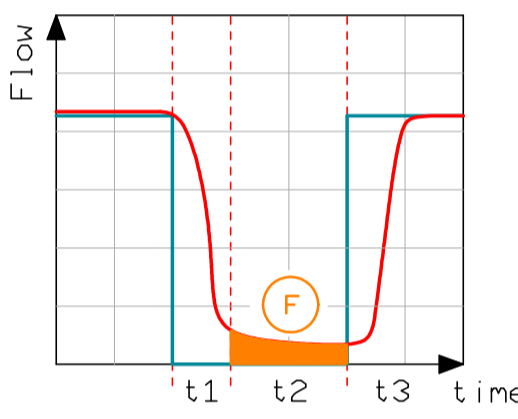
TEST OF MIXED TEMPERATURE STABILITY WITH CHANGING INLET TEMPERATURE (HOT OR COLD)

EVALUATION OF ΔT DURING THE PRESSURE VARIATION AND AFTER THE RESTORATION

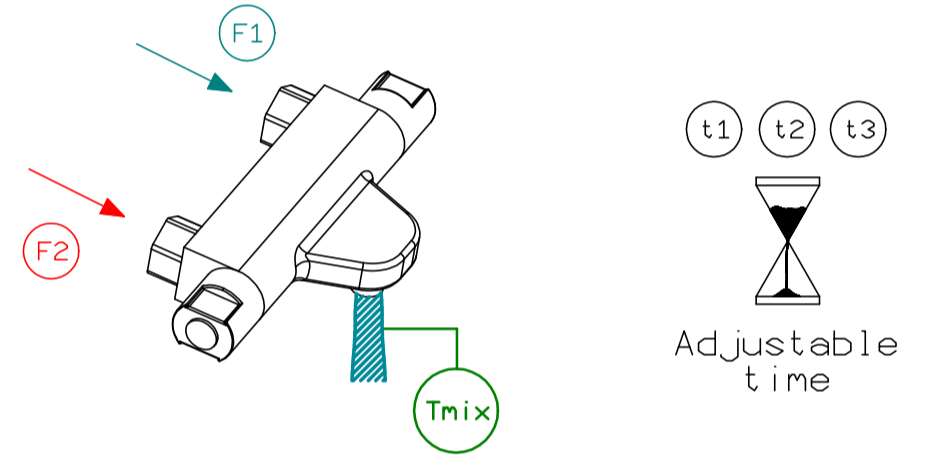
EXAMPLE OF STANDARD REFERENCE:
PrEN 1111:2014 chap. 13.5.5
NF 077 doc.4 rev.17 chap. 2.6

CODE: ST01 SAFETY TEST

sw: AQ2TB-COMBILAB+
sw: AQ2TB-M-LAB-NF
sw: AQ2TB-M-LAB-D08



ΔT Evaluations



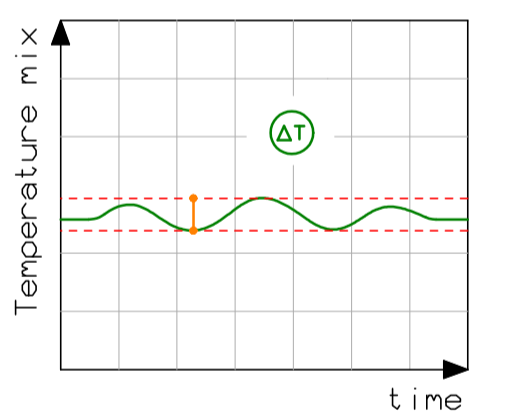
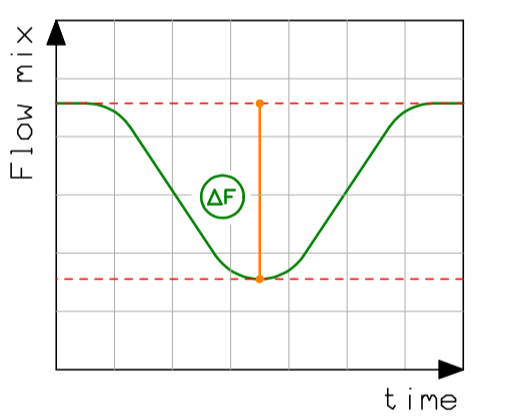
F1: Cold water flow
F2: Hot water flow

TEST OF SAFETY WITH COLD WATER FAILURE AND RESTORATION WITH EVALUATION OF HOT WATER COLLECTED DURING t_2 AND ΔT MIXED AFTER COLD WATER RESTORATION

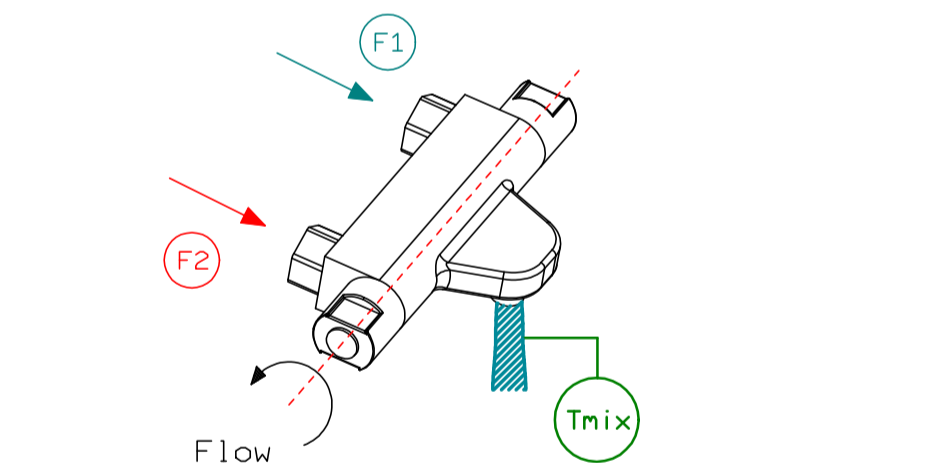
EXAMPLE OF STANDARD REFERENCE:
PrEN 1111:2014 chap. 13.5.3
NF 077 doc.4 rev.17 chap. 10.7
NHS D08:2005 chap. 7.9

CODE: FV01 FLOW RATE VARIATION TEST

sw: AQ2TB-COMBILAB+



ΔT Evaluations



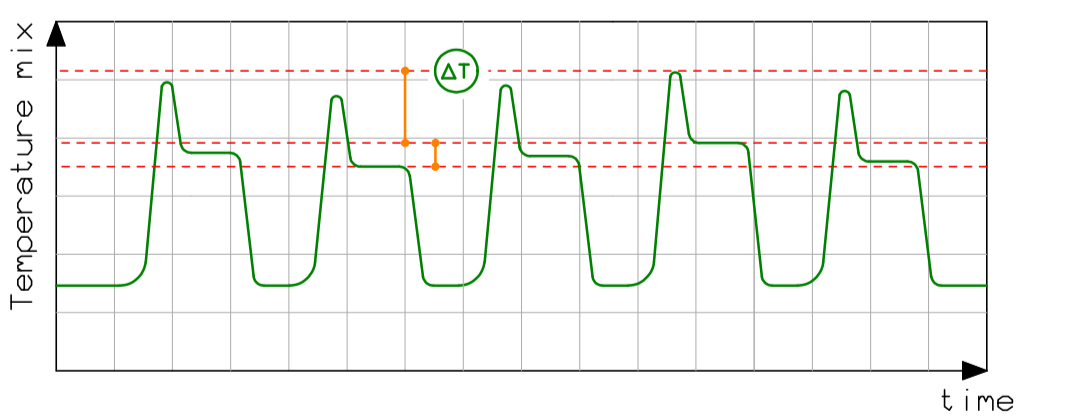
F1: Cold water flow
F2: Hot water flow

TEST OF MIXED TEMPERATURE STABILITY WITH FLOW RATE VARIATION

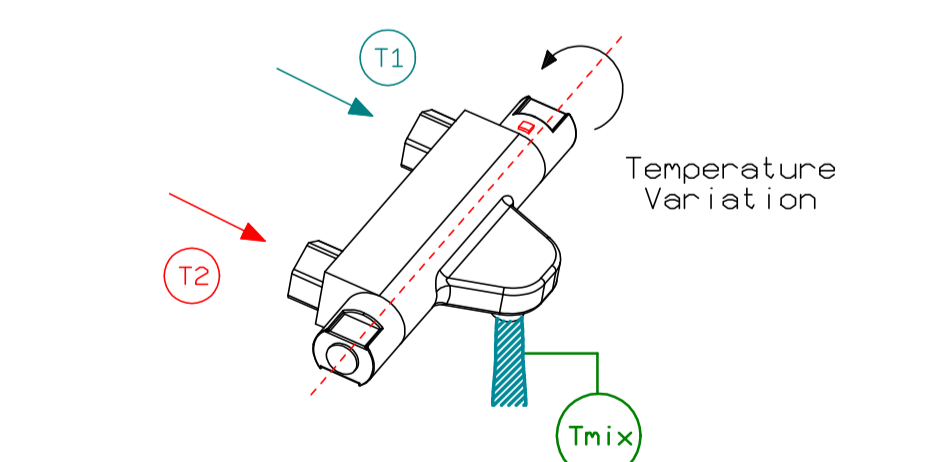
EXAMPLE OF STANDARD REFERENCE
PrEN 1111:2014 chap. 13.5.2
NF 077 doc.4 rev.17 chap. 10.10

CODE: TV01 TEMPERATURE VARIATION TEST

sw: AQ2TB-COMBILAB+



ΔT Evaluations



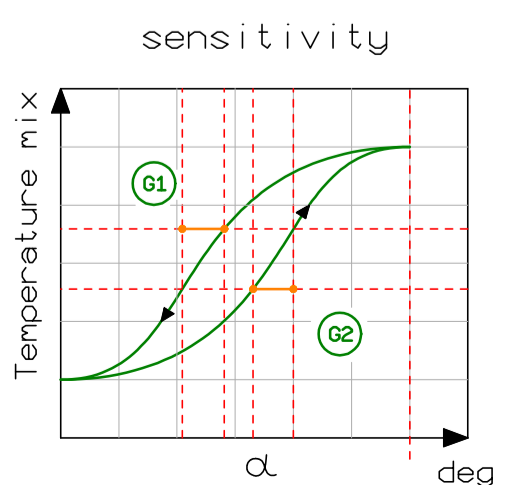
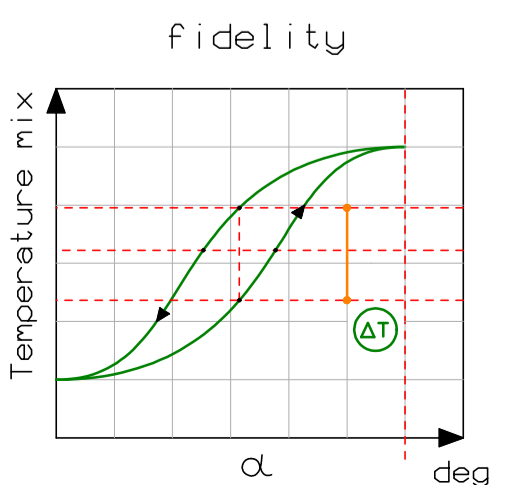
T1: Cold water temperature
T2: Hot water temperature

TEST OF TEMPERATURE OVERRIDE STOP WITH EVALUATION OF TEMPERATURE TRANSIENT AND FINAL TEMPERATURE

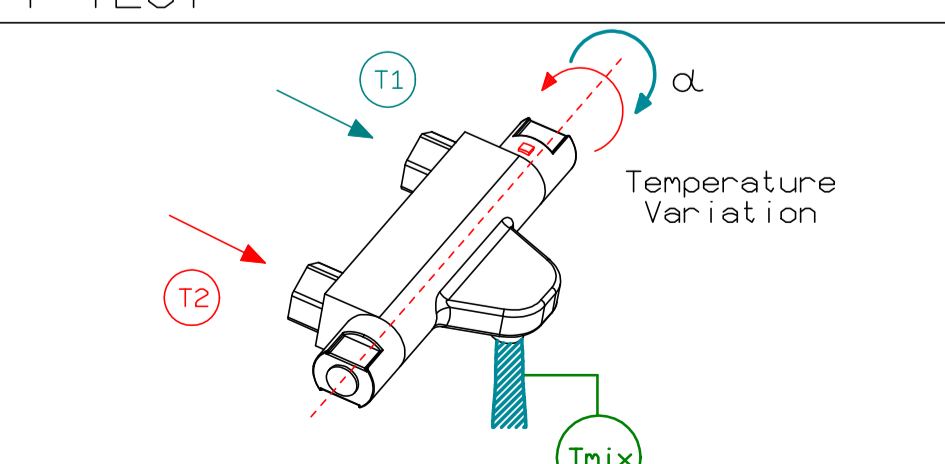
EXAMPLE OF STANDARD REFERENCE
PrEN 1111:2014 chap. 13.5.6
NF 077 doc.4 rev.17 chap. 10.12

CODE: SF02 SENSITIVITY & FIDELITY TEST

sw: AQ2TB-COMBILAB+
sw: AQ2TB-F+S-DRIVE



ΔT Evaluations G1 G2 Evaluations



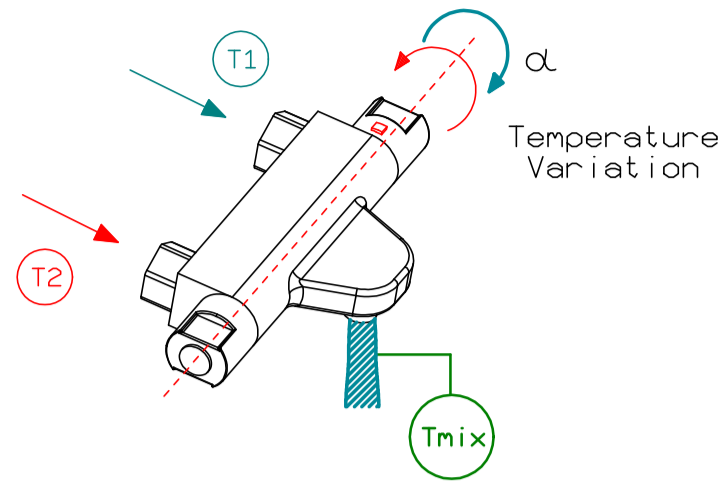
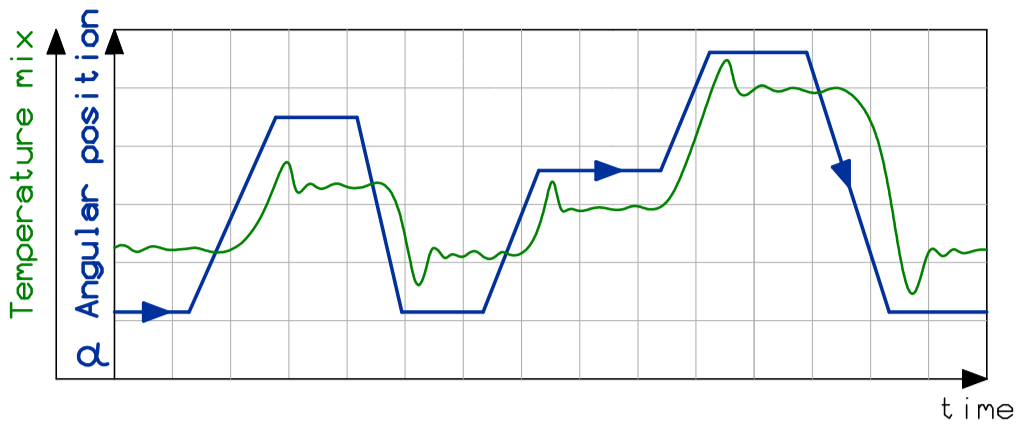
T1: Cold water temperature
T2: Hot water temperature

TEST OF MIXED TEMPERATURE HISTERESYS AND SENSITIVITY BY MOVING THE TEMPERATURE SETTING DEVICE FROM COLD TO HOT POSITION AND RETURNING TO INITIAL POSITION

EXAMPLE OF STANDARD REFERENCE
PrEN 1111:2014 chap. 13.3 - 13.4
NF 077 doc.4 rev.17 chap. 10.6

CODE: ASTD01 AUTOMATIC SETTING OF TEMPERATURE DEVICE

sw: AQ2TB-ASTD



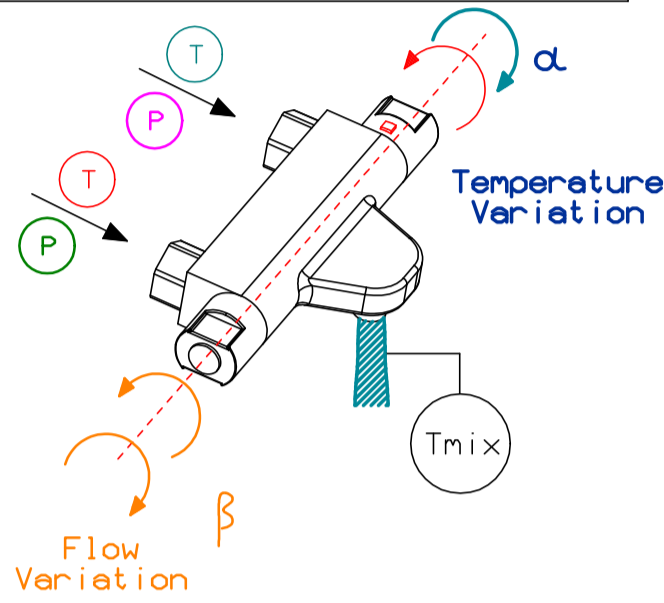
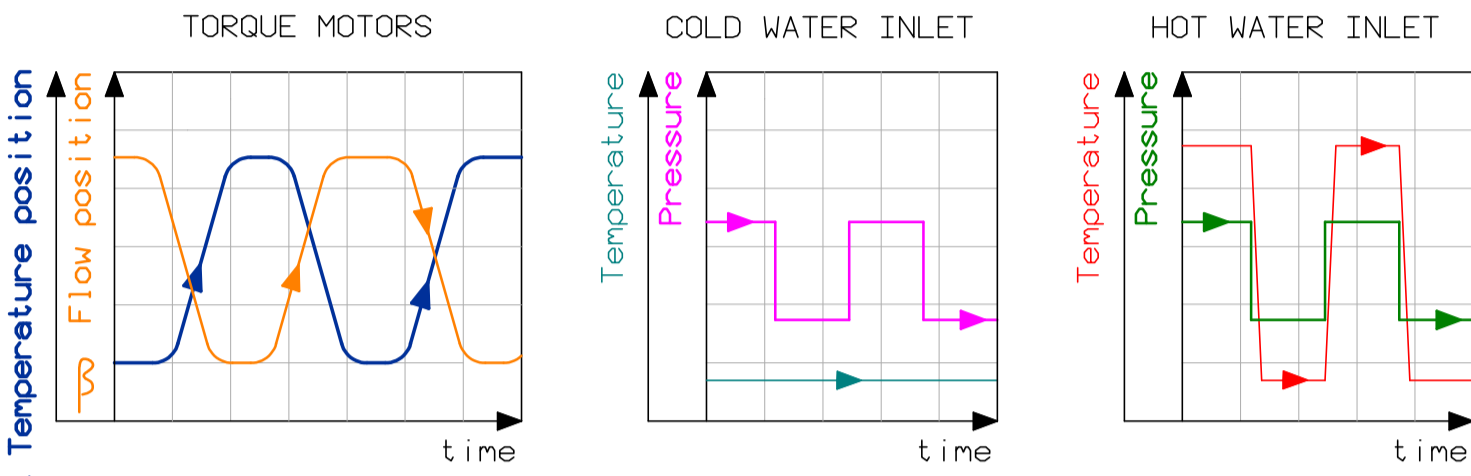
AUTOMATIC TEST FOR CHECKING PEAK TEMPERATURE EVALUATION OBSERVED FOR THE SETTING VARIATION OF THE MIXING DEVICE

EXAMPLE OF STANDARD REFERENCE NF 077 doc.4 rev.17 chap. 10.11

T1: Cold water temperature
T2: Hot water temperature

CODE: ETM01 THERMOSTATIC MIXER ENDURANCE TEST

sw: AQ2TB-LRT-CSA



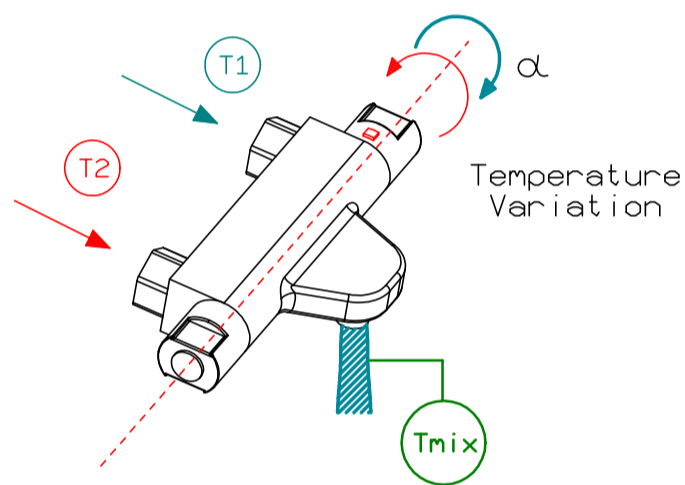
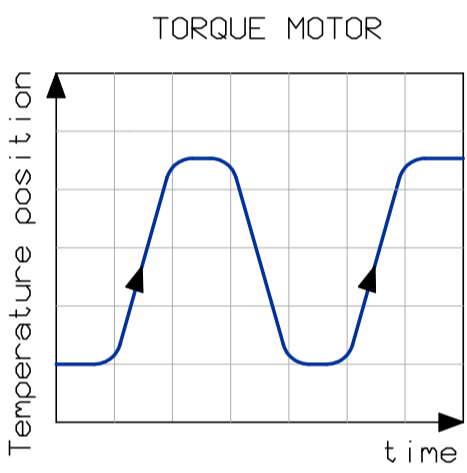
CONTROL AND ACQUISITION OF:

- ANGULAR SPEED
- TORQUE
- MIXED WATER TEMPERATURE
- SUPPLY WATER PRESSURE
- SUPPLY WATER TEMPERATURE

EXAMPLE OF STANDARD REFERENCE ASSE/ASME/CSA 1016:2011

CODE: ETM02 THERMOSTATIC MIXER ENDURANCE TEST

sw: AQ2TB-1LM-DRIVE



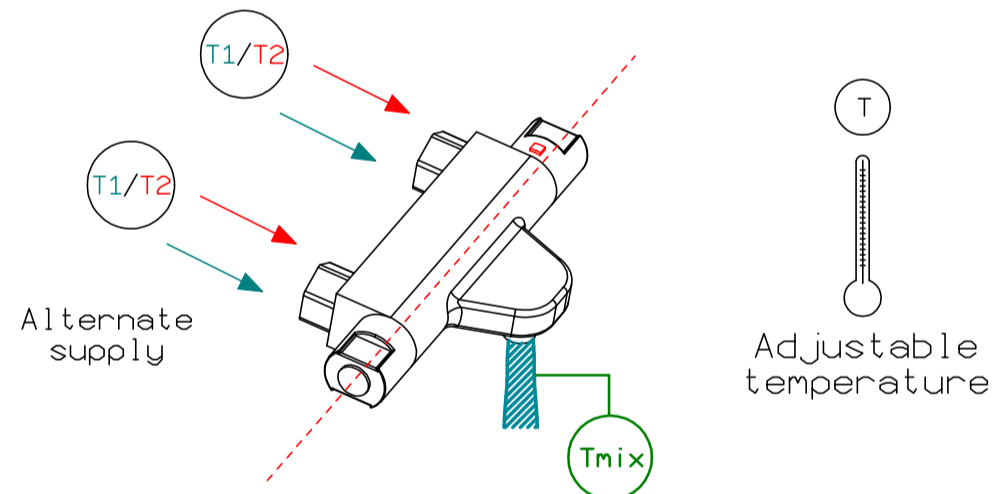
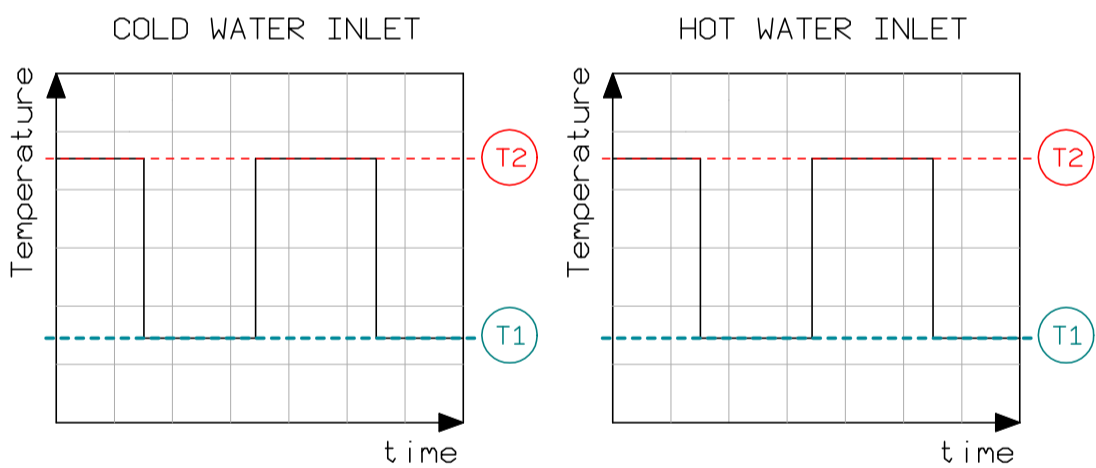
CONTROL AND ACQUISITION OF:

- ANGULAR SPEED
- TORQUE
- MIXED WATER TEMPERATURE

EXAMPLE OF STANDARD REFERENCE Pr_EN1111:2014 chap. 16.8
NF 077 doc.4 rev.17 chap. 12.5

CODE: ETV01 TEMPERATURE LIMITING DEVICE ENDURANCE TEST

sw: AQ2TB-1LM-H&C



CONTROL AND ACQUISITION OF:

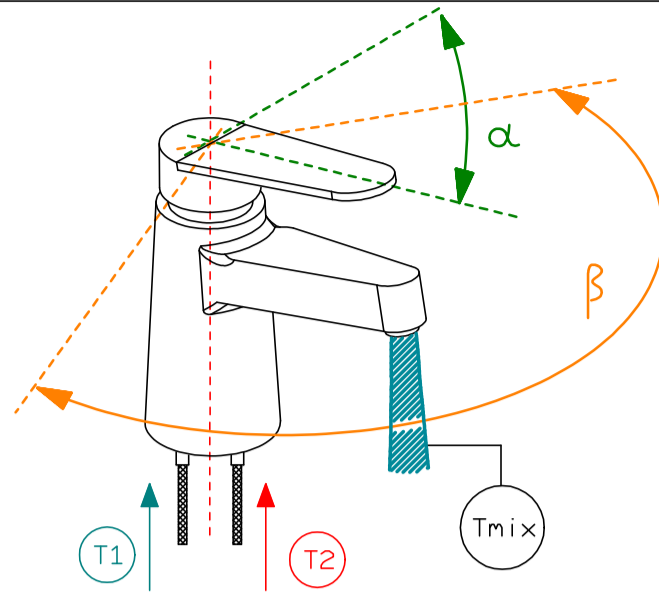
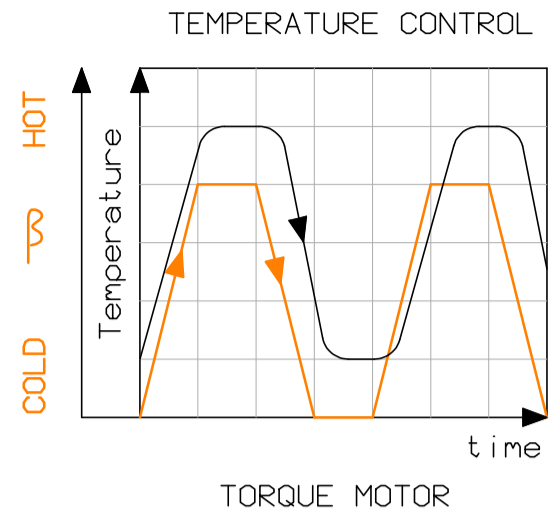
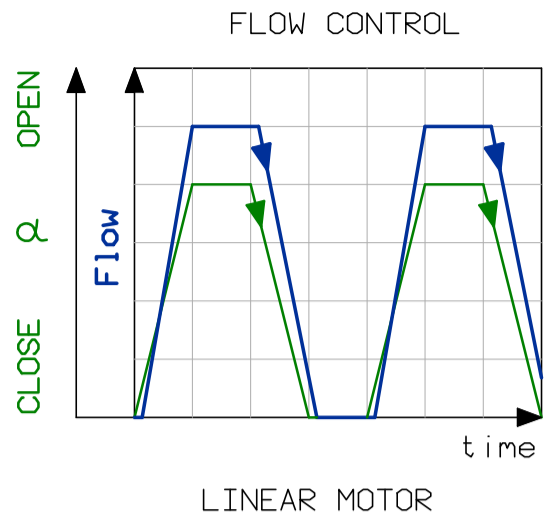
- SUPPLY TEMPERATURES
- MIXED WATER TEMPERATURE
- CYCLE PARAMETERS

EXAMPLE OF STANDARD REFERENCE EN 15092 chap. 7.10
NF 079 doc.8 rev.8 chap. 12

T1: Cold water temperature
T2: Hot water temperature

CODE: ESL01 SINGLE LEVER MIXER ENDURANCE TEST

sw: AQ2TB-LM-ENCSA



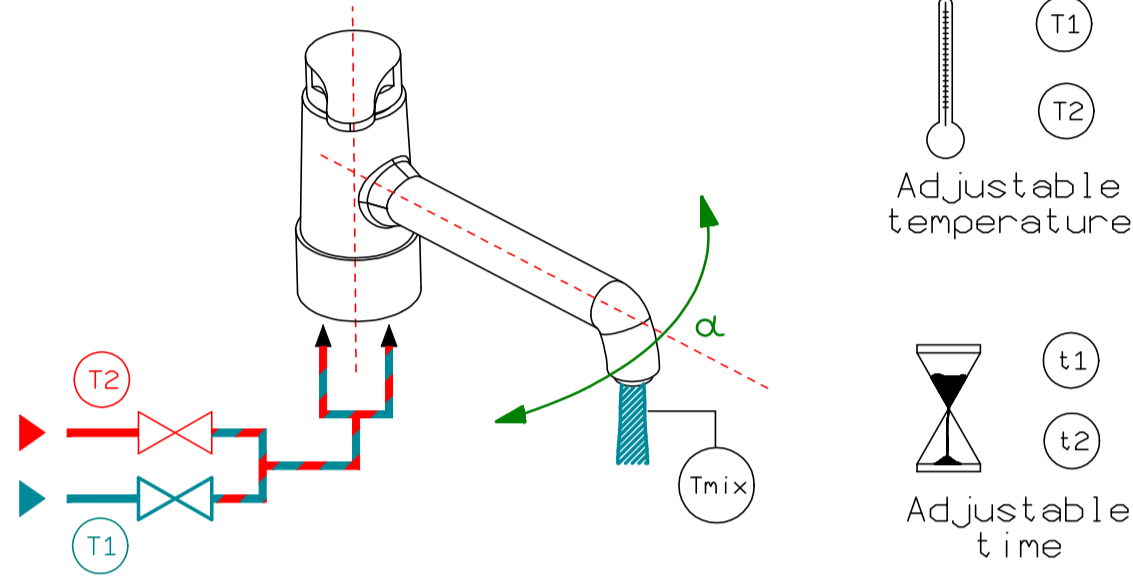
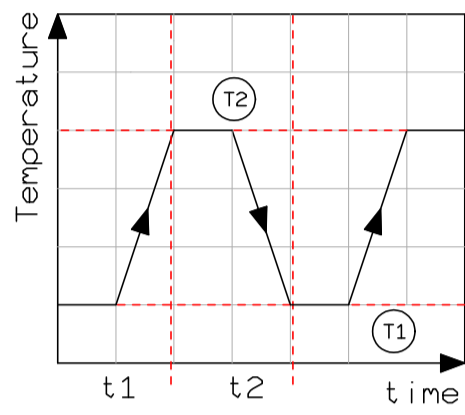
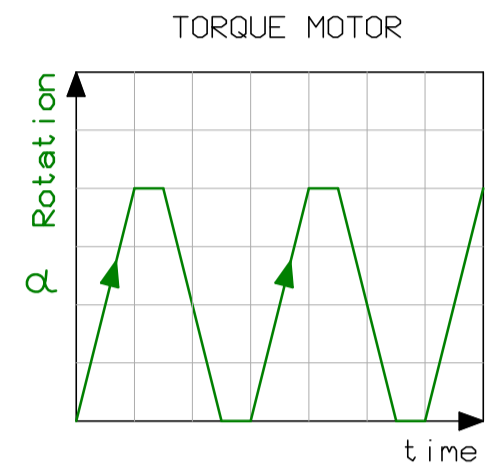
CONTROL AND ACQUISITION OF:

- LINEAR SPEED
- FORCE
- ANGULAR SPEED
- TORQUE
- MIXED WATER TEMPERATURE

EXAMPLE OF STANDARD REFERENCE
EN 817 chap. 12.1
ASME A112.18.1-2012/
CSA B125.1-12 chap. 5.6.3

CODE: ESS01 SWIVEL SPOUT ENDURANCE TEST

sw: AQ2TB-LBM-ENCSA



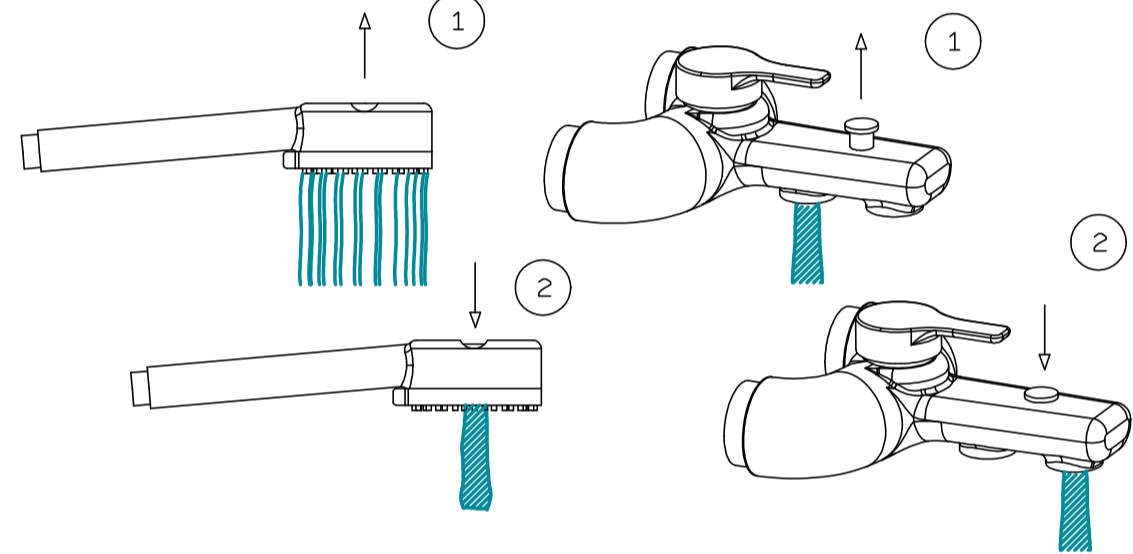
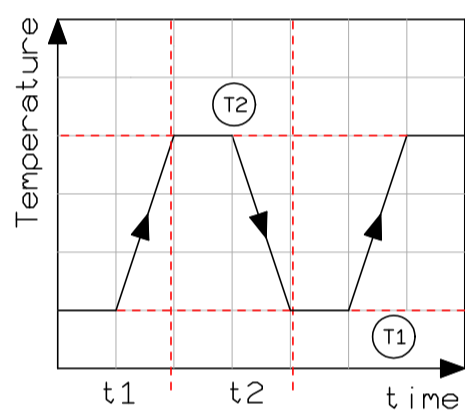
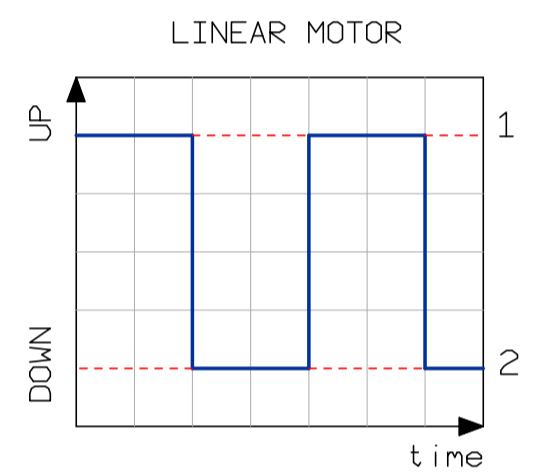
CONTROL AND ACQUISITION OF:

- ANGULAR SPEED
- TORQUE
- WATER SUPPLY TEMPERATURE

EXAMPLE OF STANDARD REFERENCE
EN 817 chap. 12.3
ASME A112.18.1-2012/
CSA B125.1-12 chap. 5.6.4

CODE: ED01 DIVERTER ENDURANCE TEST

sw: AQ2TB-LD-ENCSA



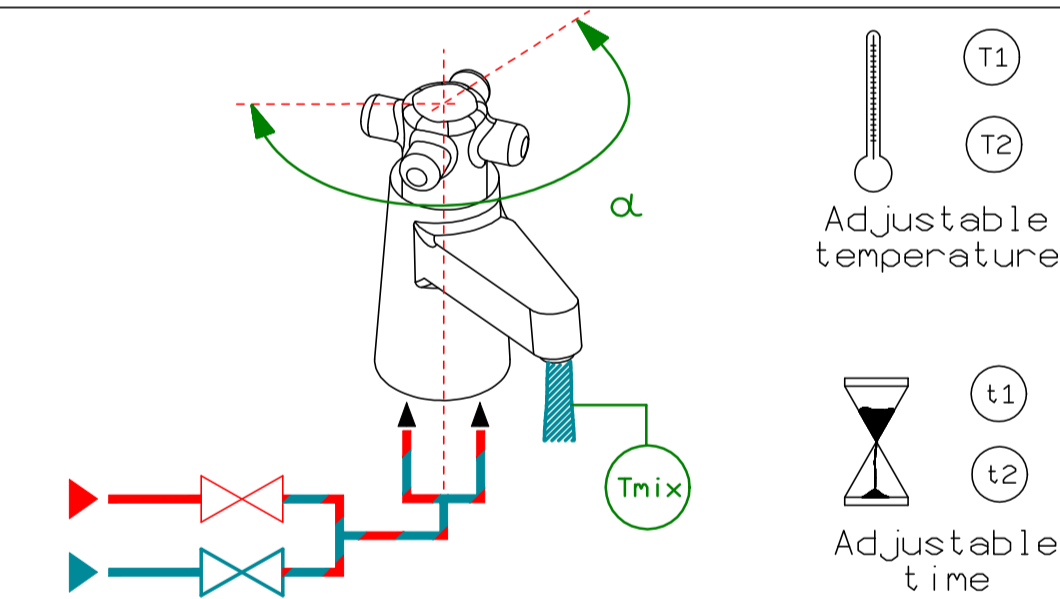
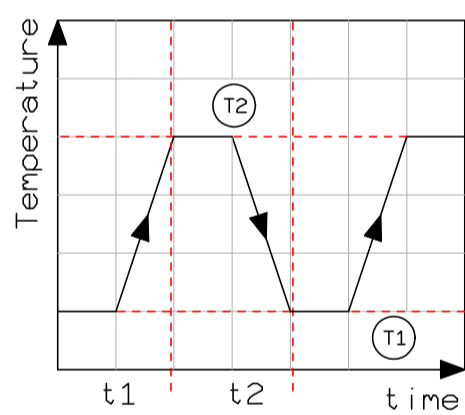
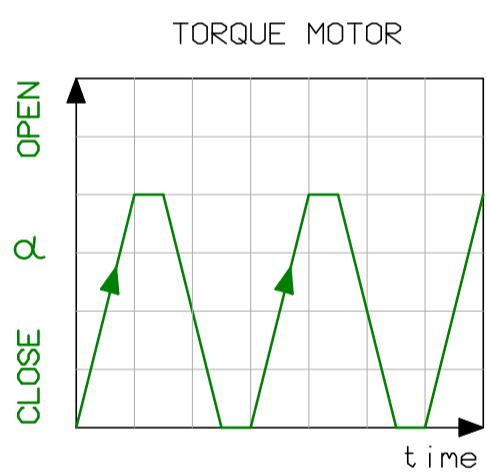
CONTROL AND ACQUISITION OF:

- LINEAR SPEED
- FORCE
- FLOW VARIATION

EXAMPLE OF STANDARD REFERENCE
EN 200 chap. 12.2
EN 817 chap. 12.2
PrEN 1111:2014 chap. 16.6

CODE: EFC01 FLOW CONTROL ENDURANCE TEST

sw: AQ2TB-LR-ENCSA



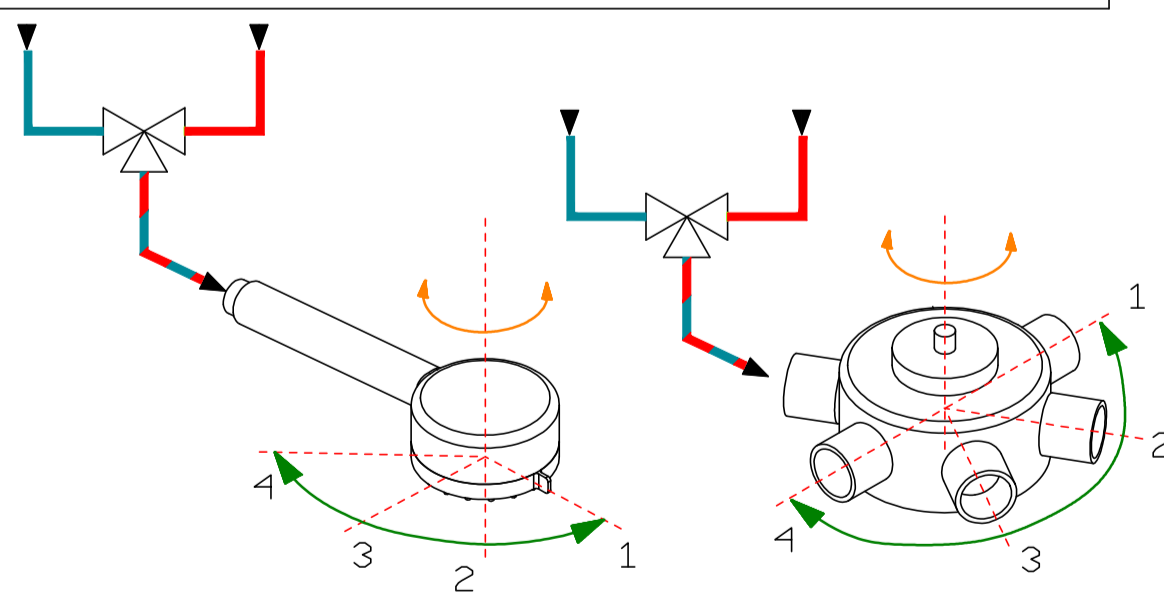
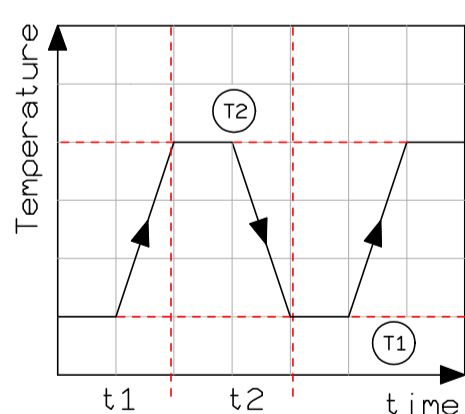
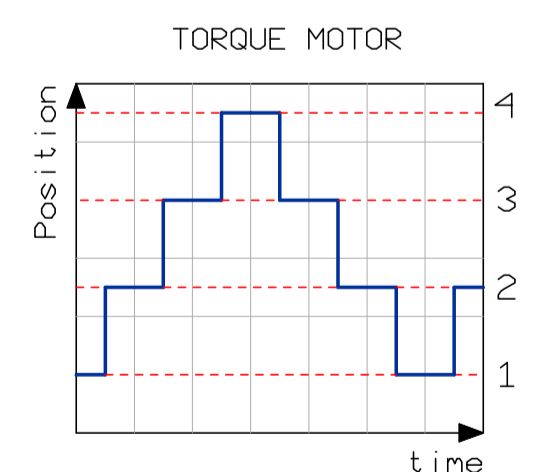
CONTROL AND ACQUISITION OF:

- ANGULAR POSITION
- TORQUE
- WATER SUPPLY TEMPERATURE

EXAMPLE OF STANDARD REFERENCE
EN200 chap. 12.1

CODE: EMWS01 MULTIWAY SELECTOR ENDURANCE TEST

sw: AQ2TB-LMWSENCSA



CONTROL AND ACQUISITION OF:

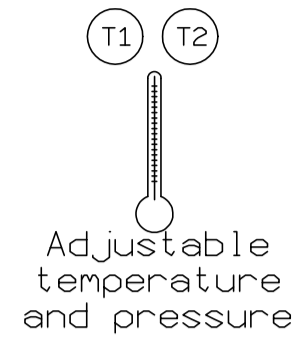
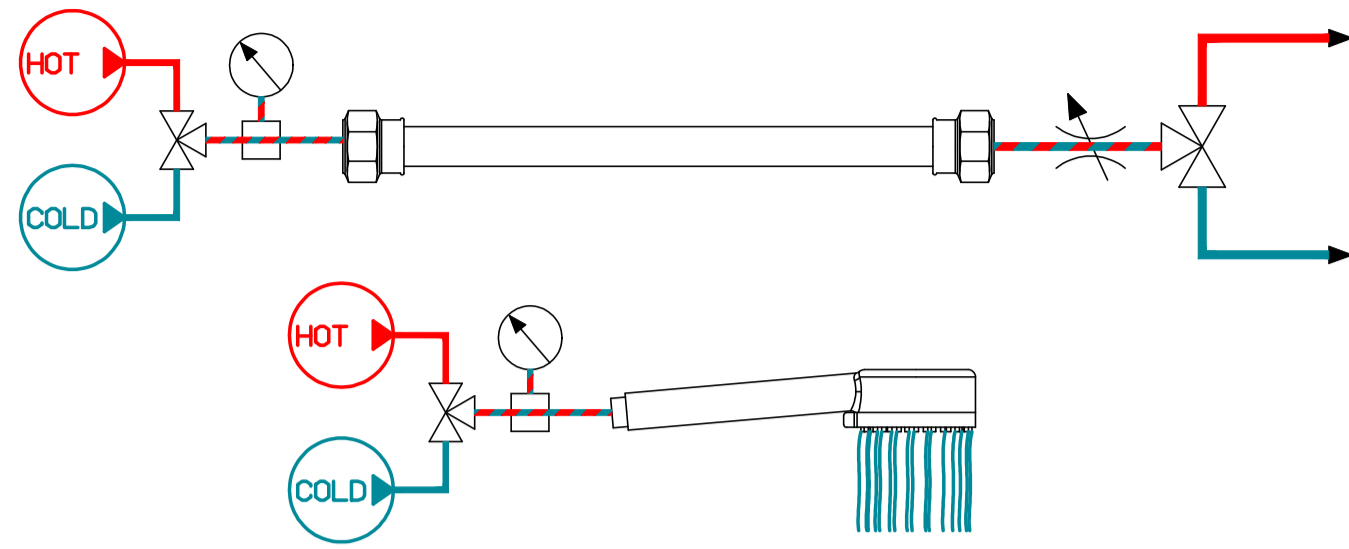
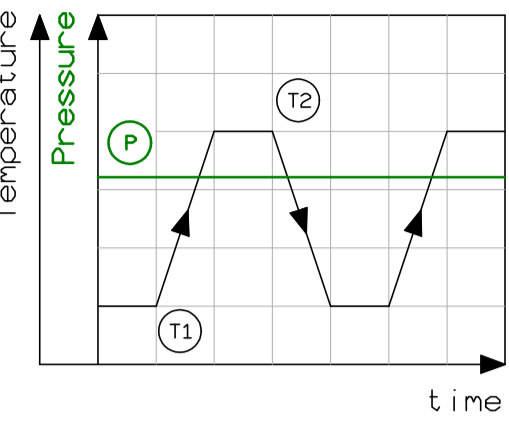
- ANGULAR SPEED
- TORQUE
- MIXED WATER TEMPERATURE

EXAMPLE OF STANDARD REFERENCE
ASME A112.18.1-2012/
CSA B125.1-12 chap. 5.6



CODE: TSO1 THERMAL SHOCK TEST

sw: AQ2TB-1LD-H&C

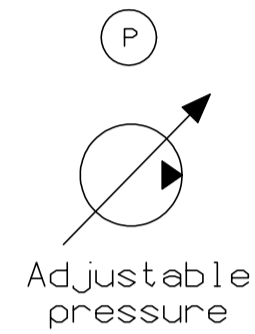
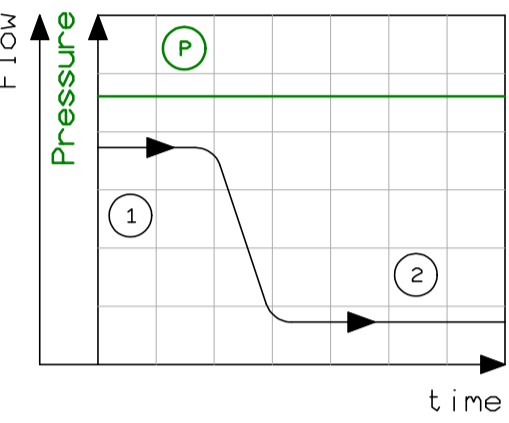


TEST RANGE
PRESSURE: 1 - 3 bar
TEMPERATURE: 20 - 70 °C
FLOW: 2 - 80 L/min

STANDARD REFERENCE
EN 1112 chap. 10.3
EN 1113 chap. 9.6

CODE: PRH01 PRESSURE RESISTANCE AT ELEVATED TEMPERATURE TEST

sw: AQ2TB-LSH

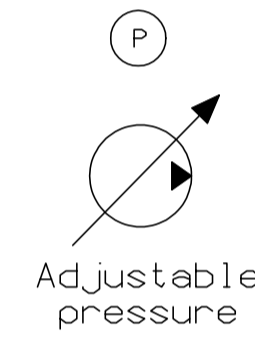
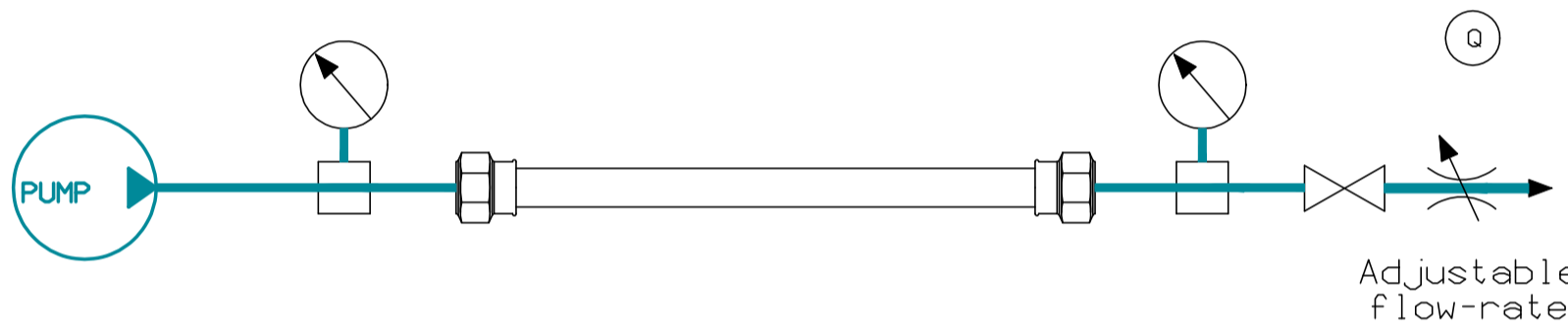
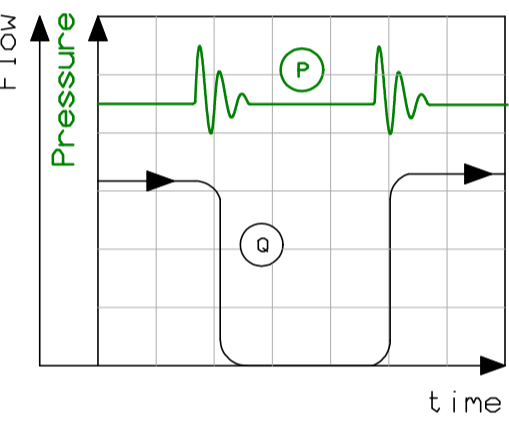


TEST RANGE
PRESSURE: 1 - 3 bar
TEMPERATURE: 70 °C
FLOW: 1 - 6 L/min

STANDARD REFERENCE
EN 1113 chap. 9.4

CODE: WHB01 WATER HAMMER TEST NBR 14878

sw: AQ2TB-NBR14878D



TEST RANGE
PRESSURE: 4 bar
TEMPERATURE: up to 65 °C
FLOW: adjustable

STANDARD REFERENCE
NBR 14878 annex D