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# QB

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## Thermostatic faucets

温控水嘴

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## Foreword

The Articles 6.1.1, 6.1.2, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.5 and 6.4.6 of this Standard are compulsory provisions; the rest are recommended.

The development of this Standard has adopted, through modifications, the American Society of Sanitary Engineering ASSE 1016-2005 "Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/ Shower Combinations", and made references to the European standards EN 1111:1998 "Thermostatic mixing valves (PN 10) - General technical specification", EN 1287:1999 "Low pressure thermostatic mixing valves -- General technical specifications", ASME A112.18.1-2005/CSA B1125.1-2005 "Plumbing supply fittings" and other foreign advanced standards. The main technical contents include:

- All the materials applied by the products in direct touch with drinking water shall comply with provisions of GB/T 17219;
- Outlet water temperature stability: the deviation between the outlet water temperature of mixing water and the set temperature shall be  $\leq 2^{\circ}\text{C}$ ;
- Safety: Within the first 5s after cold water is stopped, the water yield shall be  $\leq 200\text{mL}$ , which shall be able to control the maximum outlet water temperature to be  $49^{\circ}\text{C}$ ;
- After the service-life test of thermostatic faucet, the sealing performance and outlet water temperature shall be within the changing range as specified.

The Annexes A, C, D, E, F, G and H are normative, while Annex B is informative.

This Standard was proposed by China Light Industry Federation.

This Standard shall be under the jurisdiction by the Subcommittee on Building Hardware of National Technical Committee on Hardware of Standardization Administration of China.

The drafting organizations of this Standard: Suprema (Zhuhai J/V) Thermostatic Sanitary Ware Co., Ltd., Zhoushan Pilima Sanitary Utensils Co., Ltd., Guangdong Meijie Plumbing Co., Ltd., Guangdong Chaoyang Sanitary Ware Co., Ltd., Wenzhou Hongsheng Group Co., Ltd., Shenluda Group Co., Ltd., Jomoo Group Co. Ltd., Fujian Huihuang Plumbing Group Co., Ltd., MOEN Guangzhou Faucet Co., Ltd., Shenzhen Globe Union Industrial Corp., Zoje Holding Group Co., Ltd., Ningbo Sino-japan San Sanitary Ware Co., Ltd., Zhuhai Mingshi Ceramics Valve Co. Ltd., Ningbo Jiuteng Ceramics Valve Co. Ltd., HENT Science & Technology Development Co., Ltd., National Building Material Industry Hardware and Plumbing Equipment Quality Supervision and Test Center.

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# Thermostatic Faucets

## 1 Scope

This Standard specifies the terms and definitions, classification and marking, requirements, test methods, inspection rules and marking, packaging, transportation and storage of thermostatic faucets.

This Standard shall be applicable to the cold-hot water mixing faucets of which the nominal pressure is not more than 0.5MPa; used under the condition that the hot water temperature is not more than 85°C; installed in a lavatory (water closet and bathroom, etc.), kitchen and other sanitary facilities where the outlet water temperature is automatically controlled by the preset temperature.

## 2 Normative references

The provisions contained in the following documents become the provisions of this Standard when they are quoted. For the dated documents so quoted, the modification lists (excluding the corrections) or revisions made thereafter shall not be applicable to this Standard, however, all parties who reach agreements based on this Standard are encouraged to study the possibility to implement the latest version of these documents. For the undated documents so quoted, the latest version shall be applicable to this Standard.

GB/T 1176-1987 Specification for cast copper alloys

GB/T 2828.1-2003 Sampling procedures for inspection by attribute – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 2829-2002 Sampling procedures and tables for periodic inspection by attributes (Apply to inspection of process stability to inspection of process stability)

GB/T 5121.1 ~ 5121.23-1996 Method for chemical analysis of copper

GB/T 5270-2005 Metallic coatings on metallic substrates - Electrodeposited and chemically deposited coatings - Methods available for testing adhesion

GB/T 7306.1-2000 Pipe threads with 55 degree thread angle where pressure-tight joints are made on the threads - Part 1: Parallel internal and taper external threads

GB/T 7306.2-2000 Pipe threads with 55 degree thread angle where pressure-tight joints are made on the threads - Part 2: Taper internal and external threads

GB/T 7307-2001 55 degree non sealing pipe threads

GB/T 9286-1998 Colored paint and varnish - Cross cut test on paint film

GB/T 12600-2005 Metallic coatings - Electroplated coatings of nickel plus chromium on plastics materials

GB/T 17219-1998 Standard for safety evaluation of equipment and protective materials in drinking water system

GB/T 18145-2003 Ceramic cartridge faucets

HG/T 3090-1997 General rules of visual quality for molded and extruded rubber products

HG/T 3091-2000 Rubber seals - Joint rings for water supply drainage and sewerage pipelines - Specification for materials

JC 886-2001 Hose for sanitary fittings

QB/T 3827-1999 Corrosion-resistant testing method of the metal deposits and conversion coatings for the light industrial products - Acetic salt spraying test (ASS)

QB/T 3832-1999 Evaluation of the corrosion test results of the metal deposits for the light industrial products

### 3 Terms and definitions

For the purpose of this standard, the following terms and definitions are applicable to this Standard.

#### 3.1

##### **Single handle, double handle**

They refer to the number of handles (hand wheels) used to control the temperature and flow of faucets. The single handle means that one handle (hand wheel) is used to control the temperature and flow of faucets; the double handle means that two handles are used to control the temperature and flow of faucets.

#### 3.2

##### **Single control, double control**

The single control refers to the thermostatic faucet where one control unit can regulate the flow and temperature. The double control refers to the thermostatic faucet where two separate control units are used to regulate the flow and temperature.

## 4 Classification and marking

### 4.1 Product classification

#### 4.1.1 Classified by type of temperature-control

It shall be subject to the provisions of Table 1.

**Table 1**

Type	Constant temperature faucet	Constant pressure faucet	Constant temperature and pressure faucet
Code	T	P	TP

#### 4.1.2 Classified by places of application

It shall be subject to the provisions of Table 2.

**Table 2**

Place of application	Shower	Bathtub	Lavation	Washbasin	Pipeline valve	Others
Code	L	Y	X	M	G	Q

#### 4.1.3 Classified by type of installation

It shall be subject to the provisions of Table 3.

**Table 3**

Type of installation	Surface installation	Hidden installation
Code	M	A

#### 4.1.4 Classified by working pressure

It shall be subject to the provisions of Table 4.

**Table 4**

Working pressure	General water-pressure	Low water-pressure
Code	--	D

Note: The code for general water pressure shall not be indicated.

### 4.2 Product marking

#### 4.2.1 Model

**6.1.1** All the materials of the product in direct contact with drinking water shall meet the requirements of GB/T 17219.

**6.1.2** All the materials of the product in direct contact with drinking water shall not cause contamination to water under the service conditions provided by this Standard, and it is not allowed to apply the materials subject to corrosion, such as zinc alloy, etc.

**6.1.3** The materials for copper parts shall meet the requirements of GB/T 1176-1987. Under the condition that the product requirements are satisfied, the materials of the product shall conform to the corresponding material standards.

**6.1.4** The rubber material shall meet the requirements of HG/T 3091-2000.

**6.1.5** The plastic material shall be of heat resistance and age resistance.

## **6.2 Processing and assembling**

**6.2.1** The threads for installation and connection shall meet the requirements of GB/T 7306.1-2000, GB/T 7306.2-2000 or GB/T 7307-2001.

**6.2.2** The threads for faucet connections shall be able to withstand certain torsional moment, which shall be  $(61\pm 1)$  N.m for inside nominal diameter DN15; and it shall be  $(88\pm 1)$  N.m for inside nominal diameter DN20. It shall be free from cracks or damage through torsional moment test.

**6.2.3** The thread surface shall be free from dent, snag or other obvious defects, and the surface roughness  $R_a$  shall not be more than  $3.2\mu\text{m}$ .

**6.2.4** The casting surface shall be free from obvious sand hole, shrinkage cavity, crack, air hole or other defects.

**6.2.5** The surface quality of rubber parts shall meet the requirements set forth in the corresponding articles of HG/T 3090-1997.

**6.2.6** The hardness of ceramics valve-body shall be  $\geq 1000\text{HV}5$ .

**6.2.7** The surface of plastic parts shall be free from obvious filler specks, flash, sink mark, warp or weld mark. It shall also be free from abrasions, scratches and dirt.

**6.2.8** The inner cavity of product shall be free from residual foreign substances.

**6.2.9** The handle assembled shall be stable and portable without jamming. The handle shall be firmly connected with valve stem without loosening.

**6.2.10** The installation dimensions of faucets shall meet the requirements of Annex A.

**6.2.11** The inflow marks for cold and hot water shall be distinct in blue (or C) for cold water, and

**6.4.5.1 General pressure thermostatic faucets**

Under the conditions that the throttle valve is opened to the maximum, the inlet water temperature on the cold water end is  $(20\pm 5)^{\circ}\text{C}$ , the inlet water temperature on the hot water end is  $(65\pm 5)^{\circ}\text{C}$ , the water supply pressure is  $(0.35 \pm 0.03)$  MPa and the mixed outlet water temperature is  $(38\pm 2)^{\circ}\text{C}$ , it shall meet the requirements of Article 6.4.5.3.

**6.4.5.2 Low pressure thermostatic faucets**

Under the conditions that the throttle valve is opened to the maximum, the inlet water temperature on the cold water end is  $(20\pm 5)^{\circ}\text{C}$ , the inlet water temperature on the hot water end is  $(65\pm 5)^{\circ}\text{C}$ , the water supply pressure is  $(0.02 \pm 0.002)$  MPa and the mixed outlet water temperature is  $(38\pm 2)^{\circ}\text{C}$ , it shall meet the requirements of Article 6.4.5.3.

**6.4.5.3 Safety requirements**

**6.4.5.3.1** After cold water is shut off, within the first  $(5\pm 0.5)$  s, the water discharge shall be  $\leq 200\text{mL}$  and the outlet water temperature shall be  $\leq 49^{\circ}\text{C}$  [After cold water is shut off, if the water discharge within the first  $(5\pm 0.5)$  s is greater than 200mL, then, the outlet water temperature shall be  $\leq 42^{\circ}\text{C}$ ]; and the water discharge within the 30s thereafter shall be  $\leq 300\text{mL}$ .

**6.4.5.3.2** After cold water supply is resumed, the deviation between mixed water outlet temperature and the set temperature shall be  $\leq 2^{\circ}\text{C}$ .

**6.4.6 Outlet water temperature**

Under the working temperature of medium as set in 5.2, the thermostatic faucets shall be able to control the maximum outlet water temperature below  $49^{\circ}\text{C}$ .

**6.4.7 Service-life**

After the service-life test has reached the requirement as set in Table 13, it shall meet the technical requirement as set in Table 13. Through service-life test, the temperature-control unit and the flow control unit shall have no jamming or out-of-control phenomenon.

**Table 13**

Product type	Service-life	Requirements
Type P	50000 cycles	Comply with 6.4.2.1, 6.4.4 and 6.4.5
Type T	30000 cycles	
Type PT		
Reversing valve	30000 cycles	Comply with 6.4.2.2

**6.4.8 Operating torsion**

**6.4.8.1** Through the test to withstand  $(6\pm 0.5)$  N.m torsion, the flow control unit and valve core shall be free from deformation, jamming, breaking, positioning out of control or other defects. For the flow control unit with two-level water control, through the test to withstand  $(1.7\pm 0.5)$  N.m



torsion, the level button shall be free from deformation, breaking, positioning out of control or other phenomena.

**6.4.8.2** After the test is conducted on the double-handle and double-control temperature-control unit with  $(2\pm 0.5)$  N.m torsion, the temperature-control unit and valve core shall be free from deformation, jamming, breaking, positioning out of control or other defects.

**6.4.8.3** After the test is conducted on the single-handle and double-control temperature-control unit with  $(6\pm 0.5)$  N.m torsion, the temperature-control unit and valve core shall be free from deformation, jamming, breaking, positioning out of control or other defects.

**6.4.8.4** The operating torsion for normal service shall not be greater than 1.7 N.m.

## 7 Test methods

**7.1** The supplier shall provide the product warranty to the materials, in case of disputes, test shall be carried out according to GB/T 5121.1 ~ 5121.23-1996, others shall be subject to the corresponding standards.

**7.2** The threads in the connecting pipes in installation shall be tested by the screw gages of the corresponding accuracy.

**7.3** The connecting threads for faucets shall be measured by the torque wrench with reading to be 3% and the testing time is 60s, to see the visual results.

**7.4** The thread surface roughness shall be subject to the visual inspection against the surface roughness sample board.

**7.5** Visual inspections shall be conducted on the items as listed in 6.2.3, 6.2.4, 6.2.7, 6.2.8, 6.2.11, 6.3.1, 6.3.2 and 6.3.3. The visual inspections shall be conducted in natural scattered light or in white transparent light without reflection and the illumination shall not be lower than 300lx (equivalent to the illumination of 40W fluorescent set 500mm away).

**7.6** The rubber surface quality shall be tested by the method set forth in HG/T 3090 standard.

**7.7** The hardness of ceramics valve-body shall be measured with a Vickers hardness tester.

**7.8** The assembled handle shall be tested by hand feeling.

**7.9** The installing dimensions of faucets shall be tested by the corresponding measuring tools, while the hose attached to the faucets shall be test by specifications.

**7.10** The decay resistance of plating coat on product surface shall be checked by acetic acid salt spray test for 24 hours according to QB/T 3824-1999, the results of which can meet the requirement for Class 10 as specified in QB/T 3832-1999. The adhesion of the plating coat shall be subject to test by the corresponding standards.

valve for the reversing valve to automatically reset to bathtub discharge position, and observe if there is any leakage in the shower outlet.

### 7.13 Flow test

#### 7.13.1 General pressure thermostatic faucets

The flow test shall be carried out under room temperature. Mount the faucet in service state, take off all accessories from the water outlet, impose  $(0.3\pm 0.02)$  MPa water pressure to water inlet to form a stable and continuous water flow, the flow rate measured when the outlet water temperature is adjusted to  $(38\pm 2)^{\circ}\text{C}$  shall be the measured value.

#### 7.13.2 Low pressure thermostatic faucets

The flow test shall be carried out under room temperature. Mount the faucet in service state, take off all accessories from the water outlet, impose  $(0.01\pm 0.005)$  MPa water pressure to water inlet to form a stable and continuous water flow, the flow rate measured when the outlet water temperature is adjusted to  $(38\pm 2)^{\circ}\text{C}$  shall be the measured value.

**7.14** The stability test on the outlet water temperature shall be carried out according to the requirements of Annex D.

### 7.15 Safety test

The safety test refers to Annex E.

### 7.16 Service-life test

Service-life test method refers to Annex H, and the service-life test on the reserving valve shall be carried out according to the requirements of Annex D.3 in GB 17145-2003.

**7.17** The operating torsion test method for flow control unit shall be carried out according to the requirements of Annex F.

**7.18** The operating torsion test method for temperature-control unit shall be carried out according to the requirements of Annex G.

**7.19** The operating torsion for normal service of thermostatic faucets as measured by the torque wrench with accuracy reading to be 3% shall not be more than 1.7 N.m.

## 8 Inspection rules

**8.1** The products can only leave the factory after they are inspected by the manufacturer.

**8.2** The product inspection is divided into exit-factory inspection and type inspection.

**8.3** Exit-factory inspection

temperature						
Service-life	6.4.7	7.16				
Processing and assembling	6.2	7.2 ~ 7.9	C	3	0	1
Appearance	6.3	7.5, 7.10				
Flow rate	6.4.3	7.13				
Operating torsion	6.4.8	7.17, 7.18, 7.19				
					65	

**8.4.3** In one of the following cases, it shall carry out the type inspection.

- a) Trial production and appraisal of new products or old products produced in another factory;
- b) When there are significant changes in the design, process, processing machines and managements etc. in the products that may affect the product performance;
- c) In normal production, it shall carry out periodic inspections in a regular manner or a certain output is accumulated;
- d) When the production is resumed after a product stopped producing for a period of time;
- e) When there is a significant difference between the results of factory inspection and that of last type inspection;
- f) When it is required by the state quality supervision and test institution to carry out the type inspection.

## 9 Marking, packaging, transportation and storage

### 9.1 Marking

#### 9.1.1 Product marking

The products shall have a distinct, unalterable and visible marking. The marking shall contain the following contents:

- a) Product name, model, specifications and the implemented standard number;
- b) Manufacturer or trademark;
- c) The product must have readable positioning mark (for example, cold, hot) or used as the method to control temperature;
- d) Manufacture date.

#### 9.1.2 Packaging mark

The product packaging shall contain the following contents:

- a) Product name, model and specifications;
- b) Manufacturer's name and address;
- c) Manufacture date;
- d) Trademark;
- e) Weight (gross weight and net weight);
- f) Overall dimensions (L x W x H).

## **9.2 Packaging**

**9.2.1** Each piece of product shall be packaged in a separate manner to ensure that there is no collision occurred between products. Each product shall be attached with certificate of quality and instructions for safe operation, on the certificate there shall have the code of inspector and inspection date. The product with accessories shall be attached with a list.

**9.2.2** The product shall be firmly packaged without breaking, and the single piece weight shall meet the requirement for transportation.

## **9.3 Transportation**

The transportation of products shall prevent sunlight and rain, handled with care, no heavy pressure to be imposed, impact be avoided, not allowed to be mixed with corrosive substances.

## **9.4 Storage**

The product shall be stored in a well-ventilated and dry room and it is not allowed to be mixed with corrosive substances.

R – centerline radius  $\geq 4$  times the inner diameter of water pipe

**Figure D.1**

#### D.2.2 Temperature measurement

Temperature shall be measured according to Figure D.1, to conduct every 0.05s, pressure change must be completed within 1s, the outlet water temperature is stable, to record every other 1/4s.

- a) According to the test conditions described in D.2.1, the cold water supply pressure shall be invariable while the hot water supply pressure shall be decreased by 50% of rate specified in the initial test conditions, observe and write down the temperature changes at T3 ( $25 \pm 5$ ) s.
- b) According to the test conditions described in D.2.1, the cold water supply pressure shall be invariable while the hot water supply pressure shall be increased by 50% of rate specified in the initial test conditions, observe and write down the temperature changes at T3 ( $25 \pm 5$ ) s.
- c) According to the test conditions described in D.2.1, the hot water supply pressure shall be invariable while the cold water supply pressure shall be decreased by 50% of rate specified in the initial test conditions, observe and write down the temperature changes at T3 ( $25 \pm 5$ ) s.
- d) According to the test conditions described in D.2.1, the hot water supply pressure shall be invariable while the cold water supply pressure shall be increased by 50% of rate specified in the initial test conditions, observe and write down the temperature changes at T3 ( $25 \pm 5$ ) s.

#### D.2.3 Determination criteria for type P products

See Figure 2, within the first 5s, if the time for the pulse peak of outlet water temperature to exceed the setting  $\pm 2.0^{\circ}\text{C}$  for more than 1s, this product shall be determined to be rejectable; after 5s, if the deviation between the outlet water temperature and the setting is greater than  $2^{\circ}\text{C}$ , this product shall be determined to be rejectable.

#### D.3 Test methods for type T product

##### D.3.1 Installation of sample

The sample shall be installed according to Figure D.1, and all the stop valves and throttle valves shall be opened. The initial test conditions are given as follows:

- a) Both the cold and hot water supply pressures shall be  $(0.3 \pm 0.03)$  MPa, the water pressure for low pressure faucets shall be 0.1 MPa, and this pressure shall be maintained.

write down the outlet water temperature.

#### D.3.4 Determination criteria for type T products

See Figure 1, within the first 5s, if the time for the pulse peak of outlet water temperature to exceed the setting  $3.0^{\circ}\text{C}$  for more than 1.5s, this product shall be determined to be rejectable; within the initial 5s, if the time for the pulse peak of outlet water temperature to exceed the setting  $-5.0^{\circ}\text{C}$  for more than 1s, this product shall be determined to be rejectable; after 5s, if the deviation between the outlet water temperature and the setting is greater than  $2^{\circ}\text{C}$ , this product shall be determined to be rejectable.

#### D.4 Test methods for type TP product

##### D.4.1 Impact on outlet water temperature by changes in pressure

It shall be conducted according to the test method as described in D.2.2, the impact on outlet water temperature by changes in inlet water temperature shall be tested by the method as described in D.3.3.

##### D.4.2 Determination criteria for type TP product

See Figure 2, within the first 5s, if the time for the pulse peak of outlet water temperature to exceed the setting  $\pm 2.0^{\circ}\text{C}$  for more than 1s, this product shall be determined to be rejectable; after 5s, if the deviation between the outlet water temperature and the initial setting is greater than  $2^{\circ}\text{C}$ , this product shall be determined to be rejectable; after the hot water temperature is increased for  $15^{\circ}\text{C}$ , if the deviation between the outlet water temperature and the initial setting is greater than  $2^{\circ}\text{C}$ , this product shall be determined to be rejectable.

## Annex E

### (Normative)

#### Safety test (All models)

##### E.1 Test objective

It is to determine if the product can reduce the outlet water volume to 200 mL within the first ( $5 \pm 0.5$ ) s in case of cold water supply failure (if the outlet water volume  $> 200$  mL, the outlet water temperature  $\leq 42^{\circ}\text{C}$ ), and the outlet water volume shall be  $\leq 300$  mL in the next 30s and the outlet water temperature shall be  $\leq 49^{\circ}\text{C}$ .

##### E.2 Test step

The product shall be installed according to the conditions set in Figure D.1 and Figure D.2. Within 1s, shut off the cold water supply, observe and write down the outlet water volume and temperature in the first 5s and the 30s thereafter.

##### E.3. Determination criteria

In case of cold water supply failure, within the first ( $5 \pm 0.5$ ) s, the outlet water volume  $\leq 200$  mL [if the outlet water volume  $> 200$  mL within the first ( $5 \pm 0.5$ ) s, the outlet water temperature  $\leq 42^{\circ}\text{C}$ ]; and the outlet water volume shall be  $\leq 300$  mL in the next 30s and the maximum outlet water temperature shall be  $\leq 49^{\circ}\text{C}$ .

## Annex F

### (Normative)

#### Torque test of flow regulating mechanism

##### F.1 Test objective

It is to measure the capability of the flow regulating mechanism to withstand the operating torque.

##### F.2 Test method

Mount the thermostatic faucet under test onto the tester with water inlet not to be connected with water source, a torque wrench that can indicate torsion value in accuracy of 3% is used to impose the preset torsion in both the OPEN and CLOSE directions, then check if the flow regulating mechanism and valve core have any deformation, breaking, positioning out of control or other defects, so as to determine the capability of the flow regulating mechanism to withstand the operating torque.

##### F.3 Test step

- a) The water inlet is not connected with water source, mount the thermostatic faucet under test onto the tester, shut off flow regulating valve, slowly impose  $(6 \pm 0.5)$  N.m torsion along the CLOSE direction, hold for 1min and write down the torsion value so imposed.
- b) Open the flow regulating valve slowly and write down the maximum torsion value applied;
- c) Slowly impose  $(6 \pm 0.5)$  N.m torsion along the maximum OPEN direction, hold for 1min and write down the torsion value so imposed;
- d) For the flow regulating mechanism with double-level water control device, it shall first test on the resistance of failure for the branch water control buttons. That is, impose 1.5 N.m ~ 2.0 N.m torsion to the water control buttons in the OPEN direction first and write down torsion value so imposed, then, completely open the flow regulating valve, slowly impose  $(6 \pm 0.5)$  N.m torsion along the OPEN direction, hold for 1min and write down the torsion value so imposed.

##### F.4 Determination criteria

Under the condition that the thermostatic faucet under test is not disassemble, conduct visual inspection on the control device and the related accessories to see if there is any deformation, breaking, positioning out of control or other defects, the test results shall meet the requirements of 6.4.8.1 and 6.4.8.4.



## Annex G

### (Normative)

#### Torque test of temperature regulating mechanism

##### G.1 Test objective

It is to measure the capability of the temperature regulating mechanism to withstand the operating torque.

##### G.2 Test method

Mount the thermostatic faucet under test onto the tester with water inlet not to be connected with water source, a torque wrench that can indicate torsion value in accuracy of 3% is used to impose the preset torsion in both the temperature UP and DOWN directions, then check if the temperature regulating mechanism and valve core have any deformation, breaking, positioning out of control or other defects, so as to determine the capability of the temperature regulating mechanism to withstand the operating torque.

##### G.3 Test step

- a) The water inlet is not connected with water source, mount the thermostatic faucet under test onto the tester, turn the temperature regulating mechanism to the full COLD state, slowly impose 2 N.m ~ 2.5 N.m torsion, hold for 1min and write down the torsion value so imposed.
- b) Slowly turn the temperature regulating mechanism to the safe temperature limit button in high temperature direction, hold for 1min and write down the torsion value so imposed, then, press down the temperature limit button, turn the temperature regulating mechanism to the full HOT state, slowly impose 2 N.m ~ 2.5 N.m torsion, hold for 1min and write down the torsion value so imposed.

##### G.4 Determination criteria

Under the condition that the regulating mechanism under test is not disassemble, conduct visual inspection on the regulating mechanism and the related accessories to see if there is any deformation, breaking, positioning out of control or other defects, the test results shall meet the requirements of 6.4.8.2, 6.4.8.3 and 6.4.8.4.

mechanism shall regulate outlet water temperature to 25°C ~ 30°C within (3±1)s, hold for 5s, then, the flow regulating mechanism shall complete one on-off action for 90% of the stroke within (3±1)s, thereafter, the temperature regulating mechanism shall regulate outlet water temperature to 40°C ~ 45°C within (3±1)s. Up to now, one cycle of periodic test is completed.

For the thermostatic faucets with independent flow regulating mechanism, it shall only carry out test on the temperature regulating mechanism.

#### H.4 Determination criteria

After the cyclic test, if all the performance indexes of thermostatic faucets shall meet the requirements of 6.4, then the product is deemed as acceptable.

\_\_\_\_\_ **END** \_\_\_\_\_