Finalized Draft From Technical Committee

ने.गुण. ***: २०**

नेपाल गुणस्तर

NEPAL STANDARD

WATER EFFICIENT PLUMBING PRODUCTS (SANITARY FITTINGS) — REQUIREMENTS

Government of Nepal

Ministry of Industry, Commerce and Supplies

Nepal Bureau of Standards and Metrology (NBSM)

Kathmandu, Nepal

www.nbsm.gov.np

1 SCOPE

1.1 This standard covers requirements for assessment and water efficiency rating of sanitary fittings, such as faucets (taps) and showerheads for their performance based on water efficiency, which are in addition to the requirements specified in relevant Nepal Standards as applicable.

NOTE — The terms taps and faucets have been used synonymously.

1.2 This standard applies to the following products:

a) Faucets (Lavatory faucets and sink faucets); and

b) Showerheads (hand held showers, overhead showers and hand held ablution spray).

1.3 This standard is an adjunct to the concerned Nepal Standards on taps and showers, with respect to additional requirements for water efficiency.

1.4 Certain minimal pressure is required for the functional aspects of these water efficiency rated products which would need to be verified from the manufacturer, however, this standard states the respective flow rates under various water efficient ratings as its maximum flow for the maximum pressure of 0.42 MPa.

2 REFERENCES

The Nepal Standard given below contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards given below:

NS No.	***Title***
NS ***	Copper alloy single taps, stop valves, combination tap assembly and single lever mixer for water services — Specification

3 TERMINOLOGY

For the purpose of this standard, the terms and definitions as given in NS *** (Copper alloy single taps, stop valves, combination tap assembly and single lever mixer for water services — Specification).

4 REQUIREMENTS FOR WATER EFFICIENT SANITARY FITTINGS

4.1 General Requirement

The water efficient plumbing products shall conform to NS ***(Copper alloy single taps, stop valves, combination tap assembly and single lever mixer for water services — Specification).

4.2 Performance Test (Flow Rate Test)

4.2.1 *Principle*

The test is performed to determine the flow rate of sanitary fittings corresponding to reference pressure. The measurement is carried out with fittings fully open.

4.2.2 *Test Equipment*

The hydraulic test circuit shall be capable of producing the static and dynamic pressure required and maintaining them for the entire duration of the test (see Fig. 1).

4.2.3 *Procedure for Determining the Flow Rate of Sanitary Fittings*

a) Connect the faucet/shower/mixer specimen to the test circuit.

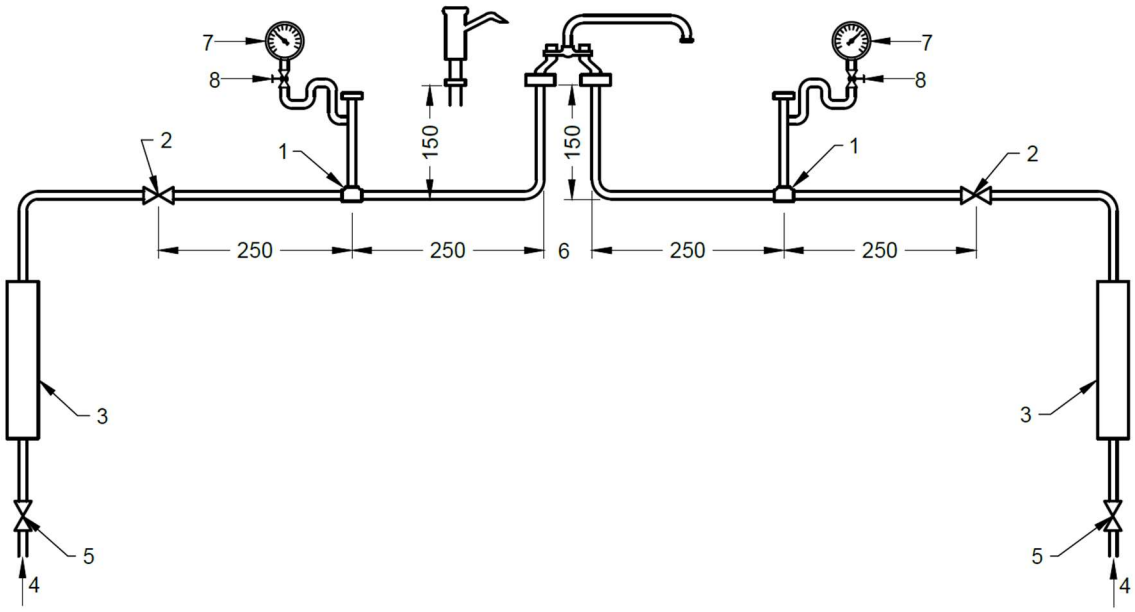
b) With the outlet orifice closed and generally turned downward, open the seal.

c) Take three measurements of flow rate at three different pressures of 0.1 MPa, 0.3 MPa and 0.5 MPa, and calculate average flow rate at each pressure. Apply the pressure to the fitting for a duration of (60 ± 5) s.

d) Using logarithmic coordinates, plot the curve of the flow rate (Q) as a function of the pressure (P).

e) Determine on this curve the value of the flow rate corresponding to the pressure of 0.42 MPa.

4.2.3.1 The flow rate determined at 0.42 MPa shall be considered for water efficiency rating as per Table 1. For non-metered fittings, the average maximum difference between the highest and the lowest average flow rate shall not exceed 2.0 litres/min.



1 PRESSURE TAKE - OFF TEE
2 CONTROL VALVE
3 FLOW METER
4 COLD WATER SUPPLY
All dimensions in millimetres

5 STOP VALVE
6 CENTERS TO SUIT TAP ASSEMBLIES
7 PRESSURE GAUGE (0.01 N/mm^2)
8 GAUGE COCK

FIG1. TEST EQUIPMENT FOR FLOW RATE TEST

Table 1 Water Efficiency Rating Criteria for Sanitary Fitting

(*Clauses* 4.2.3.1 *and* 6.1)

Sl No.	**Water Consumption Per Unit**	**Water Consumption Per Unit**	**Water Efficiency Rating Criteria**		
			1 Star	2 Stars	3 Stars
(1)	(2)	(3)	(4)	(5)	(6)
i)	Metered faucets for basin use	litres/use	Not more than 1.0	Not more than 0.8	Not more than 0.6
ii)	Wash basin/lavatory faucet (also applies to sensor faucets)	litres/min	Not more than 8.0	Not more than 6.0	Not more than 3.0
iii)	Sink faucet	litres/min	Not more than 8.0	Not more than 6.0	Not more than 4.5
iv)	Overhead shower	litres/min	Not more than 10.0	Not more than 8.0	Not more than 6.8
v)	Hand held shower	litres/min	Not more than 8.0	Not more than 6.0	Not more than 4.0
vi)	Hand held ablution spray	litres/min	Not more than 6.0	Not more than 5.0	Not more than 4.0

5 SAMPLING AND CRITERIA FOR CONFORMITY

The scale of sampling and criteria for conformity shall be as given in the respective product standard for the flow rate test. The samples shall be taken from the lot presented for test for checking compliance to the product standard.

6 REQUIREMENTS FOR WATER EFFICIENCY RATING

6.1 The water efficiency rating of faucet and showerhead shall be determined and the product shall be rated and labelled in accordance with Table 1 based on their flow rates.

6.2 In case of a multi mode fixture, all the modes shall be tested for water efficiency rating and the product shall be assigned the rating corresponding to the lowest rating for a mode achieved. In case any of the mode is not water efficient, the product shall be considered as a non water efficient product.

7 MARKING

7.1 Each piece of fitting shall be clearly and indelibly marked at a suitable place with the following, and other information as contained in relevant Nepal Standard:

a) Name or trade-mark of the manufacturer,

b) Batch/lot number, and

c) Water efficiency rating label as per **7.1.1**.

7.1.1 *Water Efficiency Rating Label*

Each appliance/fitting which complies under the water consumption for rating criteria as per Table 1 shall be pasted with water proof sticker having water rating label for the product. The carton containing the product shall also be pasted with a sticker as above. The sticker shall have water efficiency rating label (*see* Fig. 2) containing the following information:

a) Name and/or trade mark of the manufacturer;

b) Model number with name of the product;

c) Pressure range for functional requirements;

d) Average flow rate in litres/min or litres/use, as applicable; and

e) Water efficiency rating for water efficient product, that is 1 star or 2 stars or 3 stars.

7.1.2 Caution should be provided by the manufacturer of having provided aerator/flow restricting devices in the water efficient sanitary fitting and that the customer should not tamper with the same. Any change or tampering with the aerator/flow restricting device will alter the water efficiency rating of the product. Above caution should be provided in the instruction manual provided with the product.

7.2 The label shall be reproduced in full. The label shall be faithfully reproduced, and all text shall be readable with normal or corrected vision. The label shall be prominent and visible when the product is profiled, displayed, promoted, marketed, sold or supplied at any point in the supply chain.