



SLOVENSKI STANDARD

SIST EN 50640:2018

01-oktober-2018

Nadomešča:

SIST-TS CLC/TS 50640:2015

Gospodinjski stroji in podobne električne naprave - Metode za merjenje lastnosti pralnih strojev za komercialno uporabo

Household and similar electric appliances - Methods for measuring the performance of clothes washing machines intended for commercial use

Waschmaschinen für den gewerblichen Gebrauch - Verfahren zur Messung der Gebrauchseigenschaften

ITeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 50640:2018](https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-06ede6a71344/sist-en-50640-2018)

<https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-06ede6a71344/sist-en-50640-2018>

Ta slovenski standard je istoveten z: EN 50640:2018

ICS:

97.060

Aparati za nego perila

Laundry appliances

SIST EN 50640:2018

en,fr

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50640:2018

<https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-06ede6a71344/sist-en-50640-2018>

EUROPEAN STANDARD

EN 50640

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2018

ICS 97.060

Supersedes CLC/TS 50640:2015

English Version

Household and similar electric appliances - Methods for measuring the performance of clothes washing machines intended for commercial use

Appareils électrodomestiques et analogues - Méthodes de mesure de l'aptitude à la fonction pour les machines à laver le linge à usage commercial

Waschmaschinen für den gewerblichen Gebrauch - Verfahren zur Messung der Gebrauchseigenschaften

This European Standard was approved by CENELEC on 2018-04-23. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms, definitions and symbols	5
3.1 Terms and definitions.....	5
3.2 Symbols	9
4 Requirements	10
4.1 General.....	10
4.2 Rated Capacity	11
4.3 Dimensions.....	11
5 Test conditions, materials, equipment and instrumentation.....	12
5.1 General.....	12
5.2 Reference machine	12
5.3 Ambient conditions.....	12
5.4 Test materials.....	14
5.5 Equipment.....	16
5.6 Instrumentation and accuracy.....	18
6 Preparation for testing.....	19
6.1 General.....	19
6.2 Test washing machine and reference machine preparation	19
6.3 Detergent	20
6.4 Test loads	22
7 Performance measurements – general requirements	27
8 Tests for performance	28
8.1 General.....	28
8.2 Test procedure for performance tests.....	28
8.3 Measurements to determine washing performance.....	30
8.4 Measurements to determine maximum spin speed	31
8.5 Measurements to determine water extraction performance	31
8.6 Measurement to determine the bath temperature	32
8.7 Measurements to determine water and energy consumption and cycle time.....	32
9 Assessment of performance	33
9.1 General.....	33
9.2 Evaluation of washing performance	33
9.3 Evaluation of water extraction performance.....	35
9.4 Evaluation of water and energy consumption and cycle time	36
10 Data to be reported	38
Annex A (normative) Specification of stain test strip EN/IEC-60456	39
Annex B (normative) Standard detergent — IEC Standard Powder Detergent 2016 (IEC-P)	44

Annex C (normative) Specifications for base load — Cotton/synthetics blends base load EN 50640 – small sheet and large sheet.....	46
Annex D (normative) Reference machine — Specification of the reference washing machines and method of use.....	48
Annex E (normative) Reference machine programme definitions	51
Annex F (normative) The bone-dry method of conditioning.....	54
Annex G (normative) Folding and loading the test load	56
Annex H (normative) Measuring the wash temperature.....	67
Annex I (normative) Performance testing of gas fired washing machines	69
Annex J (normative) Performance testing of steam heated washing machines	72
Annex K (normative) Procedure to determine test load size when rated capacity is not declared.....	82
Annex L (normative) Test procedure for a performance test of a cotton 60 programme with full load at standard rating conditions.....	86
Annex M (informative) Uncertainty of measurements in the present document.....	98
Annex N (normative) Test report – Data to be reported	101
Annex O (informative) Reporting of key parameters	109
Bibliography.....	111

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 50640:2018](https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-06ede6a71344/sist-en-50640-2018)

<https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-06ede6a71344/sist-en-50640-2018>

EN 50640:2018 (E)

European foreword

This document (EN 50640:2018) has been prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has (dop) 2019-04-23
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2021-04-23
standards conflicting with this document
have to be withdrawn

This document supersedes CLC/TS 50640:2015.

This European Standard is a new standard, but it is based on portions from EN 60456:2011.

The procedures described in this European Standard are modified substantially compared to the procedures described in EN 60456. Therefore results of tests according to this European Standard cannot and are bound not to be compared to results of similar procedures of EN 60456.

Significant technical differences from EN 60456 are:

- a) the method includes procedures for measuring steam heated and gas heated **washing machines**;
[SIST EN 50640:2018](https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-060000000000/sist-en-50640-2018)
- b) the introduction of a new type of **base load**;
<https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-060000000000/sist-en-50640-2018>
- c) a new reference **programme**;
- d) a new formulation of the standard detergent.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

1 Scope

This European Standard deals with the performance of clothes **washing machines** intended to be used by trained users e.g. in hotels, hospitals, factories, in light industry and on farms. It also covers **washing machines** declared for commercial use in public areas and operated by lay persons e.g. in launderettes, apartment houses and communal laundry rooms. The clothes **washing machines** can be utilizing cold and/or hot water supply and without heating or with heating devices for electricity, steam or gas. This European Standard covers top, front and side loaded clothes **washing machines** with horizontal or vertical axis and with one or more wash compartments. It also deals with appliances for both washing and drying textiles (**washer-dryers**) with respect to their washing related functions and to separate **spin extractors** related to their dewatering capabilities.

NOTE 1 Performance of tumble dryers declared for commercial use is assessed in EN 50594.

NOTE 2 The object is to state and define the principal performance characteristics of clothes **washing machines** declared for commercial use and to describe the test methods for measuring these characteristics.

NOTE 3 This European Standard does not apply to continuous batch **washing machines** (e.g. tunnel washers) or **washing machines** only possible to operate with automatic loading and unloading.

NOTE 4 This European Standard does not specify safety requirements for **clothes washing machines declared for commercial use**. Safety requirements are specified in EN 50571 and the EN ISO 10472- series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 437:2003+A1:2009, *Test gases — Test pressures — Appliance categories*
<https://standards.iteh.ai/catalog/standards/sist/en-50640-2018/06ede6a71344/sist-en-50640-2018>

CEN/TR 1749:2014, *European scheme for the classification of gas appliances according to the method of evacuation of the combustion products (types)*

EN 12953-10, *Shell boilers — Part 10: Requirements for feedwater and boiler water quality*

EN 50571, *Household and similar electrical appliances — Safety — Particular requirements for commercial electric washing machines*

EN 60456, *Clothes washing machines for household use — Methods for measuring the performance (IEC 60456)*

EN 60734, *Household electrical appliances — Performance — Water for testing (IEC 60734)*

EN ISO 80000-1:2013, *Quantities and units — Part 1: General (ISO 80000-1:2009 + Cor 1:2011)*

IAPWS-IF97, *IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and Steam* [International Association for the Properties of Water and Steam]

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

• IEC Electropedia: available at <http://www.electropedia.org/>

EN 50640:2018 (E)

•ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1.1**washing machine**

appliance for cleaning and rinsing of textiles using water which may also have a means of extracting excess water from the textiles

3.1.2**test washing machine**

washing machine that is subjected to part or all of the requirements in this European Standard in order to determine its performance

Note 1 to entry: **Test washing machine** can include **washing machines** according to 3.1.6, 3.1.7.

3.1.3**reference machine**

specially constructed **washing machine** of known performance which is used to increase repeatability and reproducibility of results

Note 1 to entry: It can be used to provide a known performance level within a laboratory against which to compare selected performance parameters on **test washing machines** as defined in this European Standard – refer to 5.5.2.

3.1.4**washer-dryer**

washing machine which includes means for drying the textiles, usually by heating and tumbling

Note 1 to entry: This European Standard only covers the **operations** which relate to the **washing machine** function – see Clause 1.

3.1.5**spin extractor**

separate water-extracting appliance in which water is removed from textiles by centrifugal action (**spin extraction**)

3.1.6**horizontal axis washing machine**

washing machine in which the load is placed in a drum which rotates around an axis with an angle less than 45° to horizontal

Note 1 to entry: The classification of vertical axis or horizontal axis in this European Standard is only used to define the placement of the load into the drum.

3.1.7**vertical axis washing machine**

washing machine in which the load is placed in a drum which rotates around an axis which rotates with an angle of 45° or more related to horizontal

Note 1 to entry: The classification of vertical axis or horizontal axis in this European Standard is only used to define the placement of the load into the drum.

3.1.8**automatic machine**

washing machine where the load is fully treated by the machine without the need for user intervention at any point during the **cycle** prior to its completion

3.1.9**top loaded machine**

washing machine where the load is placed in the wash compartment from the top, and which may be of a horizontal or vertical axis type

3.1.10**side loaded machine**

washing machine where the load is placed in the wash compartment from the side, and which is of a horizontal axis type

3.1.11**pullman machine**

washing machine where the wash compartment is divided in two compartments

3.1.12**Y-pocket machine**

washing machine where the wash compartment is divided in three compartments

3.1.13**test run**

single performance assessment as specified in Clause 8 of this European Standard

3.1.14**test series**

group of **test runs** on a **test washing machine** which, collectively, are used to assess the performance of a **washing machine**

3.1.15**operation**

each performance of a function that occurs during the **washing machine programme** such as pre-wash, washing, rinsing, draining or spinning

3.1.16**programme**

series of **operations** which are pre-defined within the **washing machine** and which are declared by the manufacturer as suitable for washing certain textile types

3.1.17**cycle**

complete washing process until the load is accessible to the user, as defined by the **programme** selected, consisting of a series of **operations** (wash, rinse, spin, etc.)

3.1.18**spin extraction**

water-extracting function by which water is removed from textiles by centrifugal action, which is included as a function (built in **operation**) of an **automatic washing machine** but may also be performed in a **spin extractor**

3.1.19**spin speed**

rotational frequency of a drum during **spin extraction**

Note 1 to entry: A method for determination of **spin speed** is not defined in this European Standard.

3.1.20**base load**

unsoiled textiles used for testing

EN 50640:2018 (E)

3.1.21

test load

base load used for testing plus stain test strips

3.1.22

test load mass

actual mass of the **base load** including stain test strips

3.1.23

nominal test load mass

mass of dry textiles of a particular type for which the performance of the **test washing machine** shall be tested (**rated capacity** or part load)

Note 1 to entry: Target value for the conditioned **test load mass**.

3.1.24

rated capacity

maximum mass in kilograms of dry textiles of a particular type which the manufacturer declares can be treated in the **washing machine** on the selected **programme**

3.1.25

end of cycle

when the load is accessible to the user and next programme can be started

3.1.26

cycle time

time from the initiation of the **programme** (excluding any user programmed delay) until the **end of cycle**

3.1.27

main wash duration

time from the commencement of the initial water intake for the main wash until the commencement of the initial water intake for the first rinse

Note 1 to entry: Variations in the laboratory water supply pressure can affect the **main wash duration**. This definition is only applicable to **test washing machines**. The **reference machine** wash time used for calibration of the **reference machine** is defined differently. Refer to Table E.1.

3.1.28

remaining moisture content

measure of the additional amount of moisture that is contained in the **base load** in relation to the equilibrium condition for **base load** items which have been conditioned in a controlled space (refer to 6.4.5.2)

Note 1 to entry: This equilibrium condition is defined as 0 % **remaining moisture content** in this European Standard. Hence it is possible for a **base load** or load items to have a negative **remaining moisture content** when treated with a tumble drier. Refer also to Annex F.

3.1.29

rated voltage

voltage assigned to the appliance by the manufacturer

3.1.30

cycle energy

energy consumed during the **cycle time** in one **test run**

3.1.31**programme time**

time from the initiation of the programme (excluding any user programmed delay) until the load is accessible

3.2 Symbols**3.2.1 Symbols relating to 9.2 – washing performance**

C_k	the sum of the average reflectance values (Y-values) for each test run
\overline{C}	the average sum of the reflectance values (Y-values) for each of the five types of soils, for all valid test runs
$C_{k\ test}$	the sum of the reflectance values in each test run of the test washing machine
\overline{C}_{test}	the average sum of the reflectance values of the test washing machine
\overline{C}_{ref}	the average sum of the reflectance values in each test run of the reference machine
m	the number of soil types per stain test strip
n	the number of stain test strips in each test run
p	confidence interval for q
q	ratio between the test washing machine , \overline{C}_{test} , and the reference machine , \overline{C}_{ref}
s_q	standard deviation of the ratio q
s_C	the standard deviation of C_k
s_i	the standard deviation of the reflectance values for each soil type within a given test run
$t_{w-1, 0,05}$	the “Student T” factor for $(w-1)$ degrees of freedom for a confidence of 95 % (i.e. 2,776 for five test runs equals four degrees of freedom, two sided test)
w	the number of test runs in the test series
\overline{x}_i	the average reflectance values for each soil type
x_{ij}	the average reflectance value of the 4 individual readings for each of the 5 soil types on a stain test strip

3.2.2 Symbols relating to 9.3 – water extraction (spinning)

RMC	remaining moisture content
\overline{RMC}	average remaining moisture content
M	the mass of the conditioned base load (g)
M_r	the mass of base load at the end of the test run (g)

3.2.3 Symbols relating to 9.4 – energy, water and time

T_c	the measured average cold water inlet temperature (°C)
T_h	the measured average hot water inlet temperature (°C)
V_c	the volume of the cold water used during an operation (l)

EN 50640:2018 (E)

V_h	the volume of external hot water used during operation (l)
W_c	the cold water energy correction for the operation (kWh)
W_{ct}	the total cold water energy correction determined during the test (kWh)
W_{et}	the total electrical energy metered during the test (kWh)
W_{gt}	the total gas energy metered during the operation (kWh)
W_h	the calculated hot water energy for the operation (kWh)
W_{ht}	the calculated total hot water energy determined during the test (kWh)
W_{st}	the total steam energy metered during the operation (kWh)
W_{total}	total energy (kWh)

3.2.4 Symbols relating to Annex F

M_{bd}	the mass of base load at the end of the bone dry run (g)
----------	---

3.2.5 Symbols relating to Annex G

M_T	the total test load mass (kg)
M_S	the mass of a small sheet (kg)
M_{ST}	the mass of a stain test strip (kg)
M_{S+ST}	the mass of a small sheet with a stain test strip attached (kg)
M_L	the mass of a large sheet (kg)
X_S	number of small sheets
X_{S+ST}	number of small sheets with stain test strips attached
X_{SF}	fixed number of small sheets
X_A	additional number of small sheets
X_L	number of large sheets

4 Requirements**4.1 General**

This European Standard describes test methods for the measurement of the following performance parameters:

- washing performance;
- rinsing performance (under consideration);
- water extraction performance;
- water consumption;
- energy consumption;

- wash bath temperature;
- **cycle time.**

Any claims of performance referring to this European Standard for these parameters shall be measured in accordance with the requirements of this European Standard (refer to Clause 8 for details).

This European Standard does not specify minimum performance requirements for clothes **washing machines**.

4.2 Rated Capacity

Either the manufacturer or supplier shall declare the **rated capacity** at 0,5 kg intervals.

NOTE For different textile types the **rated capacity** of a **washing machine** is usually different.

The **rated capacity** shall not exceed the maximum mass of dry laundry, in kilograms, to be used in the **test washing machine** in accordance with EN 50571.

When the manufacturer or supplier gives a range of values for the **rated capacity** for a particular textile type, the highest value shall be used.

Where information on the **rated capacity** is not available, the **test load mass** shall be determined according to Annex K.

4.3 Dimensions

Where a manufacturer declares dimensions, these shall be in accordance with the following requirements, as applicable. The dimensions shall be given in mm and shall be rounded up to the nearest whole mm.

- Height a_1/a_2 = vertical dimension measured from the floor to a horizontal plane at the maximum height of the **washing machine**, with the door/lid closed. If adjustable levelling feet are provided, they shall be moved up and down to determine minimum (a_1) and maximum (a_2) possible heights.
- Height a_3/a_4 = maximum vertical dimension measured from the floor to a horizontal plane at the maximum height of the **washing machine** with the door/lid open (generally when at right angles to the machine top). If adjustable levelling feet are provided, they shall be moved up and down to determine minimum (a_3) and maximum (a_4) possible heights.
- Width b_1 = horizontal dimension, between the sides, as measured between two parallel vertical planes against the sides of the **washing machine** including all projections.
- Width b_2 = horizontal dimension, between the sides, as measured between two parallel vertical planes against the sides of the **washing machine** including all projections including an open side mounted door/lid.
- Depth c_1 = horizontal dimension as measured from a vertical rear plane against the back of the **washing machine** and the most prominent part of the front fascia, with the door/lid closed. For this measurement, the door thickness, knobs and handles are generally not included in the measurement.
- Depth c_2 = horizontal dimension as measured from a vertical rear plane against the back of the **washing machine** and the most prominent part of the front fascia, with the door/lid closed. For this measurement, the door thickness, knobs and handles are included in the measurement.
- Depth c_3 = horizontal dimension as measured from a vertical rear plane against the **washing machine** and the most prominent part of the front, knobs and handles also being taken into account, with the door/lid open (generally when at right angles to the

EN 50640:2018 (E)

machine front).

Drum volume = the volume of a **washing machine**, where required, shall be determined in accordance with Annex K.

NOTE 1 Dimension a_3/a_4 is generally only applicable to top loaded **washing machines** while dimension c_2 is generally only applicable to front loaded **washing machines**.

NOTE 2 Width b_2 is referring to **washing machines** with a loading door at the side of the machine.

NOTE 3 Dimension c_1 is intended to provide an indication of the required depth for the **washing machine** where the fascia is intended to be flush with adjacent furniture or appliances.

5 Test conditions, materials, equipment and instrumentation

5.1 General

The tolerances specified for parameters within this European Standard, using the symbol “±”, indicate the allowable limits of variation from the specified parameter outside which the test or results shall be invalid. The statement of tolerance does not permit the deliberate variation of these specified parameters.

Rounding shall only be applied to reported values in Annex N. If numbers have to be rounded, they shall be rounded to the nearest number according to EN ISO 80000-1:2013, B.3, Rule B. If the rounding takes place to the right of the comma, the omitted places shall not be filled with zeros. If a value to be reported is an intermediate required for use in the calculation of other values then rounding shall only apply to the format of the intermediate in the report; the rounding shall not apply prior to its use in subsequent calculations.

5.2 Reference machine

[SIST EN 50640:2018](https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-555555555555/sist-en-50640-2018)

[https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-](https://standards.iteh.ai/catalog/standards/sist/cf138867-b4b5-4ab6-a552-555555555555/sist-en-50640-2018)

Unless otherwise specified, the **reference machine** shall be considered a **test washing machine** with respect to conditions, materials and equipment specified.

5.3 Ambient conditions

5.3.1 Electricity supply

The supply voltage to each **test washing machine** shall be 230 V or 400 V as defined by the manufacturer's installation guide. If more than one option for installation is available and no clear indication for testing is given, the supply voltage shall be 400 V. The supply voltages shall be maintained throughout the test within ± 2 %. For **washing machines** with a drum volume equal or larger than 400 l the voltage tolerance is allowed to be ± 3 %. The supply voltage measured during the tests shall be recorded.

The electric supply cable shall not exceed 4 m of length unless a longer supply cable is delivered together with the **washing machine** from the manufacturer. The plug (or the end of the cable furthest from the **washing machine**) is the reference point at which the supply voltage shall be maintained.

The supply frequency to each **test washing machine** shall be maintained at 50 Hz ± 1 % throughout the test.

Voltage stabilizers should be designed such that the normal **operation** of the **test washing machine** does not cause undue distortion of the voltage waveform during the whole test.

5.3.2 Water supply

5.3.2.1 General

The measured total water hardness, water temperature and water pressure of water supplied to **test washing machines** shall comply with the following requirements and shall be reported. This water is generally referred to as laboratory supply water in this European Standard.

5.3.2.2 Water hardness

For all treatments of the **base load** prior to a **test series** and all **washing machine test runs** in accordance with this European Standard soft water shall be used. The soft water shall have a total water hardness of $(0,5 \pm 0,2)$ mmol/l.

Normalization of a **base load** prior to use in a **test series** (refer to 6.4.4) shall always be done using laboratory supply water with the same total water hardness as that used for the subsequent **test series**.

Total water hardness is determined and expressed in mmol/l of CaCO_3 equivalent.

If total water hardness needs to be adjusted, it shall be prepared according to EN 60734.

Measurements of total water hardness shall be undertaken on water that is representative of the laboratory supply water used for tests.

5.3.2.3 Water temperature

The temperature of the laboratory supply water to each **test washing machine** shall be measured and recorded to the nearest $0,1^\circ\text{C}$. It shall be:

- for cold water $(15 \pm 2)^\circ\text{C}$;
- for hot water the temperature indicated by the manufacturer $\pm 2\text{ K}$, or $(60 \pm 2)^\circ\text{C}$, if no value is given.

For **washing machines** with a drum volume equal or larger than 400 l the cold and hot water temperature tolerance can be increased to $\pm 5\text{ K}$.

When the manufacturer specifies a hot water temperature range, which includes $(60 \pm 2)^\circ\text{C}$, the hot water temperature shall be set at $(60 \pm 2)^\circ\text{C}$.

When the manufacturer specifies a hot water temperature range, which does not include $(60 \pm 2)^\circ\text{C}$, the hot water temperature shall be set at the end of the temperature range which is closest to $(60 \pm 2)^\circ\text{C}$.

However the supplied hot water temperature shall never be allowed to be higher than 60°C .

The water supply system shall be configured so that the temperature of all water entering the inlet hose of the **test washing machine** is within specified tolerance with the exception of up to 500 ml of each increment up to a **test load mass** of 10 kg and up to 1000 ml of each increment up to and equal to a **test load** of 50 kg.

For larger **test load masses** the exception for each increment is 2000 ml. A temperature recording system shall record inlet water temperature at intervals of no less than once per second.

NOTE Clause 8 requires water temperatures and volumes to be recorded on a continuous basis during filling in order to determine weighted average temperature.

5.3.2.4 Water pressure

The static (gauge) pressure of the laboratory supply water at the inlet to each **test washing machine** shall be maintained at (240 ± 50) kPa during filling **operations**. The water supply to the **reference machine** shall be in accordance with D.3.1.