INTERNATIONAL STANDARD

**ISO 15874-2**

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**AMENDMENT 2**
**2022-06**

# Plastics piping systems for hot and cold water installations — Polypropylene (PP) —

## Part 2: **Pipes**

## AMENDMENT 2: Impact test

*Systèmes de canalisations en plastique pour les installations d'eau chaude et froide — Polypropylène (PP) —*

*Partie 2: Tubes*

*AMENDEMENT 2: Essai de choc*

Reference number
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This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 2, *Plastics pipes and fittings for water supplies,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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# Plastics piping systems for hot and cold water installations — Polypropylene (PP) —

## Part 2: Pipes

## AMENDMENT 2: Impact test

*Normative references*

Add the following reference:

ISO 3127, *Thermoplastics pipes — Determination of resistance to external blows — Round-the-clock method*

*Clause 7*

Add the following new subclause title after the title "7 Mechanical characteristics":

**"7.1 Resistance to internal pressure"**

*Clause 7*

Add the following text as a new subclause after Table 10:

**"7.2 Impact resistance**

When tested according to the test methods as specified in Table 11 using the indicated parameters, the pipe shall conform to the requirements given in that table.

**Table 11 — Impact resistance of pipes**

| Characteristics | Requirements | Test parameters | | Test method |
|---|---|---|---|---|
| Impact resistance | ≤ 10 % | Test temperature | 0 °C | ISO 9854-1 |
| (Charpy method) | | Conditioning medium | Liquid bath or air | ISO 9854-2 |
| For DN ≤ 25 mm | | Test piece type | 1 (Whole pipe) | |
| Impact resistance | TIR ≤ 10 % | Test temperature | 0 °C | ISO 3127 |
| (round-the clock method) | | Conditioning medium | Liquid bath or air | |
| For DN ≥ 32 mm | | Type of striker | d25 for striker mass ≤ 0,8 kg<br>or<br>d90 for striker mass ≥ 1,6 kg | |
| | | Mass of striker | according to Table 12 | |

**Table 11** *(continued)*

| Characteristics | Requirements | Test parameters | | Test method |
|---|---|---|---|---|
| | | Fall height of striker | according to Table 12 | |

**Table 12 — Test parameters for round the clock method**

| | S8 | | S6,3 | | S5 | | S4 | | S3,2 | | S2,5 | | S2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DN** | **Mass** | **Height** | **Mass** | **Height** | **Mass** | **Height** | **Mass** | **Height** | **Mass** | **Height** | **Mass** | **Height** | **Mass** | **Height** |
| **(mm)** | **(kg)** | **(m)** | **(kg)** | **(m)** | **(kg)** | **(m)** | **(kg)** | **(m)** | **(kg)** | **(m)** | **(kg)** | **(m)** | **(kg)** | **(m)** |
| **32** | 0,25 | 0,5 | 0,25 | 0,5 | 0,25 | 0,5 | 0,25 | 0,5 | 0,25 | 0,6 | 0,25 | 0,7 | 0,25 | 0,8 |
| **40** | 0,25 | 0,5 | 0,25 | 0,6 | 0,25 | 0,7 | 0,25 | 0,8 | 0,50 | 0,5 | 0,50 | 0,6 | 0,50 | 0,7 |
| **50** | 0,25 | 0,7 | 0,25 | 0,9 | 0,50 | 0,5 | 0,50 | 0,6 | 0,50 | 0,8 | 0,50 | 0,9 | 0,50 | 1,0 |
| **63** | 0,50 | 0,6 | 0,50 | 0,7 | 0,80 | 0,5 | 0,80 | 0,6 | 0,80 | 0,7 | 0,80 | 0,9 | 0,80 | 1,0 |
| **75** | 0,80 | 0,5 | 0,80 | 0,6 | 0,80 | 0,7 | 0,80 | 0,9 | 0,80 | 1,1 | 1,60 | 0,6 | 1,60 | 0,7 |
| **90** | 0,80 | 0,7 | 0,80 | 0,9 | 0,80 | 1,1 | 1,60 | 0,6 | 1,60 | 0,8 | 1,60 | 0,9 | 1,60 | 1,0 |
| **110** | 1,60 | 0,5 | 1,60 | 0,7 | 1,60 | 0,8 | 1,60 | 1,0 | 2,50 | 0,7 | 2,50 | 0,9 | 2,50 | 1,0 |
| **125** | 1,60 | 0,7 | 2,50 | 0,5 | 2,50 | 0,7 | 2,50 | 0,8 | 2,50 | 0,9 | 2,50 | 1,1 | 3,20 | 1,0 |
| **140** | 2,50 | 0,6 | 3,20 | 0,5 | 3,20 | 0,6 | 3,20 | 0,8 | 3,20 | 0,9 | 3,20 | 1,1 | 4,00 | 1,0 |
| **160** | 3,20 | 0,6 | 3,20 | 0,7 | 3,20 | 0,8 | 3,20 | 1,0 | 3,20 | 1,2 | 3,20 | 1,4 | 4,00 | 1,3 |
| **180** | 3,20 | 0,7 | 3,20 | 0,9 | 3,20 | 1,1 | 3,20 | 1,3 | 3,20 | 1,5 | 3,20 | 1,8 | 4,00 | 1,7 |
| **200** | 3,20 | 0,9 | 3,20 | 1,1 | 3,20 | 1,3 | 3,20 | 1,6 | 3,20 | 1,9 | 4,00 | 1,8 | 5,00 | 1,6 |
| **225** | 3,20 | 1,1 | 3,20 | 1,4 | 3,20 | 1,7 | 3,20 | 2,0 | 4,00 | 1,9 | 5,00 | 1,8 | 6,30 | 1,6 |
| **250** | 3,20 | 1,4 | 3,20 | 1,7 | 4,00 | 1,7 | 4,00 | 2,0 | 5,00 | 1,9 | 6,30 | 1,8 | 6,30 | 2,0 |

NOTE The proposed drop-height (m) and masses (kg) have been calculated to provide a specific impact energy of $E/A$ = 4 kJ/m$^2$ (similar to Charpy impact resistance proposed as material characteristic in ISO 15874-1:2020, Table 2). Impact energy has been evaluated from $E$ = mass ×drop-height × 9,81 and pipe cross-section from $A = \pi \times [DN^2 - (DN - 2 \times e_n)^2]/4$. (Exceptionally DN32 S5-S6,3-S8 pipes have a specific impact energy higher than 4 kJ/m$^2$ because a minimum drop-height of 0,5 m has been selected).

*Clause 8*

Renumber Table 11 as Table 13, as follows:

"When tested in accordance with the test methods as specified in Table 13 using the indicated parameters, the pipe shall conform to the requirements given in this table.

**Table 13 — Physical and chemical characteristics of pipes"**

*10.2*

Renumber Table 12 as Table 14, as follows:

"The minimum required marking of the pipe is specified in Table 14.

**Table 14 — Minimum required marking"**

**ICS 23.040.20; 91.140.60**

Price based on 4 pages