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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Dimensional tolerances for moulded plastic parts

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(English Translation)

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1 Scope

This Standard specifies the dimensional tolerances for the moulded plastic parts made from thermosetting and thermoplastic materials (hereinafter referred to as "moulded plastic parts").

This Standard is applicable to the moulded plastic parts produced by injection moulding, compression moulding, transfer moulding and cast moulding, and is not applicable to extrusions, blow-moulded parts, sintered parts and foamed mouldings.

2 Normative references

The provisions in the following documents become the provisions of this

Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, parties who reach an agreement based on this

Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest versions apply to this

Standard.

GB/T 1800.2-2008 [Translator note: the standard number should be "GB/T 1800.2-2009".] Geometrical product specifications (GPS) - Limits and fits -

Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts (ISO 286-2:1988, MOD)

GB/T 1844.1-2008 Plastics - Symbols and abbreviated terms - Part 1:

Basic polymers and their special characteristics (ISO 1043-1:2001, IDT)

GB/T 2035-2008 Terms and definitions for plastics (ISO 472:1999, IDT)

GB/T 2918-1998 Plastics - Standard atmospheres for conditioning and testing (idt ISO 291:1997)

GB/T 17037.4-2003 Plastics - Injection moulding of test specimens of thermoplastic materials - Part 4: Determination of moulding shrinkage (ISO 294-4:2001, IDT)

3 Terms and definitions

The terms, definitions and symbols specified in the GB/T 2035-2008 and the following ones apply to this Standard.

3.1 Moulding shrinkage

SM

It refers to the ratio OF the difference between the dimensions of the moulding chamber L_m and those of the corresponding moulded plastic part L_p

TO the dimensions of the moulding chamber L_m at $(23 \pm 2) ^\circ\text{C}$, expressed as percentage.

Where:

SM - Moulding shrinkage, %;

L_p - The dimensions of the moulded plastic part that has been placed in the standard atmosphere for 24h after the moulding of the plastic part, in unit of millimeter (mm);

L_m - The corresponding dimensions of the moulding chamber, in unit of millimeter (mm).

3.2 Moulding shrinkage in flow direction

SM_p

It refers to the moulding shrinkage along the material flow direction during moulding.

3.3 Moulding shrinkage in transverse direction

SM_n

It refers to the moulding shrinkage perpendicular to the flow direction during moulding.

3.4 Difference of moulding shrinkage in flow and transverse directions

*SM

It refers to the difference of moulding shrinkage in flow and transverse directions during

moulding.

PUR-P Thermoplastic polyurethane MT4 MT5 MT7

PVC-P Plasticized polyvinylchloride MT5 MT6 MT7

PVC-U Unplasticized polyvinyl chloride MT2 MT3 MT5

SAN (Acrylonitrile-styrene) copolymers MT2 MT3 MT5

UF

Urea-formaldehyde resin

With inorganic filler MT2 MT3 MT5

With organic filler MT3 MT4 MT6

UP

Unsaturated polyester

With 30% glass fiber filler MT2 MT3 MT5

4.3 Dimensions with tolerance indications

For the tolerance grades of the dimensions with tolerance indications, SEE Table 2. The listed numerical values correspond to the tolerance grades in Table 1.

This Standard only specifies tolerances. The upper and lower deviations of basic dimensions can be divided according to the actual engineering needs.

For instance, the tolerance 0.8 can be divided into: , , ± 0.4 , or , etc.

4.4 Dimensions without tolerance indications

For the tolerance grades of the dimensions without tolerance indications, SEE Table 2. The listed numerical values correspond to the tolerance grades in Table 1.

4.5 Dimension a not affected by the movable parts of the mould

The dimensions not affected by the movable parts of the mould in Table 1 refer to the dimensions moulded by the same mould part in the mould. For instance, the radial dimensions of the moulded parts with integral cavities.

SEE Figure 1.

Appendix A (Normative)

Selection method for the tolerance grades of moulded plastic parts

SELECT the tolerance grades according to the shrinkage property values of moulding materials. SEE Table A.1.

Table A.1 Shrinkage Property Values of Moulding Materials and

Selected Tolerance Grades

Shrinkage property value v_s

/ %

Tolerance grade

Dimensions with tolerance indications Dimensions without tolerance indications
High precision General precision

> 0~1 MT2 MT3 MT5

> 1~2 MT3 MT4 MT6

> 2~3 MT4 MT5 MT7

> 3 MT5 MT6 MT7

_____ END _____