INTERNATIONAL STANDARD

ISO 28238

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Compression and injection moulds — Components for gating systems

Moulage par compression et moules d'injection — Composants pour systèmes d'injection

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 28238 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

Compression and injection moulds — Components for gating systems

1 Scope

This International Standard specifies the characteristics of components of gating systems used in injection moulds for the processing of thermoplastics, thermosetting plastics and elastomers. These are gating systems for solidifying sprues for externally heated gating systems, internally heated gating systems and cold runner gating systems.

The purpose of this International Standard is to establish coherent terms for the different gating systems in professional terminology.

NOTE 1 The components and, in part, the examples for the assembly of the various gating systems are shown in Figures 1 to 12. All figures are given as examples only and need not be considered in the design of the tools.

NOTE 2 For terms and symbols related to components of compression and injection moulds and diecasting dies, see ISO 12165.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 1580, *Slotted pan head screws — Product grade A*

ISO 4762, *Hexagon socket head cap screws*

ISO 6751, *Tools for moulding — Ejector pins with cylindrical head*

ISO 6753-2, *Tools for pressing and moulding — Machined plates — Part 2: Machined plates for moulds*

ISO 8017, *Tools for moulding — Guide pillars, straight and shouldered, and locating guide pillars, shouldered*

ISO 8734, *Parallel pins, of hardened and martensitic stainless steel (Dowel pins)*

ISO 8735, *Parallel pins with internal thread, of hardened steel and martensitic stainless steel*

ISO 9449, *Tools for moulding — Centring sleeves*

ISO 10072, *Tools for moulding — Sprue bushes — Dimensions*

ISO 10642, *Hexagon socket countersunk head screws*

ISO 10907-1, *Tools for moulding — Locating rings — Part 1: Locating rings for mounting without thermal insulating sheets in small or medium moulds (types A and B)*

ISO 12165, *Tools for moulding — Components of compression and injection moulds and diecasting dies — Terms and symbols*

ISO 15600, *Tools for moulding — Thermal insulating sheets for injection moulds*

ISO 16915, *Tools for moulding — Sprue pullers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12165 and the following apply.

3.1
gating system
functional unit within an injection mould feeding the processed plastic for the parts to be produced from the inlet opening of the mould to the moulding cavity by taking into account the required system temperature

3.2
gating system for solidifying sprues
geometry of the sprue channel, in which the injected plastic solidifies or crosslinks, and which is removed from the mould together with the product within the respective production cycle during or after opening of the parting level of the mould

See Figures 1 and 2.

3.3
hot runner gating system
hot side gating system
functional unit within an injection mould feeding the thermoplastic resin for the parts to be produced from the inlet opening of the mould to the moulding cavity by taking into account the required system temperature

NOTE The components (e.g. distributor bushing, manifold block and nozzle) forming the sprue channel are provided with heat energy generators (cartridge heaters, bores for liquid tempering media, etc.) and appropriate control elements (thermocouples, etc.). Maintenance of the necessary processing temperature allows for distribution of the molten thermoplastic resin through the sprue channel for producing sprueless parts.

3.3.1
hot side
functional unit comprising all hot runner components for the gating system, which is complemented by a mould clamping plate fixed half (FH), frame plate FH, nozzle retainer plate FH, as well as guide elements and locating elements

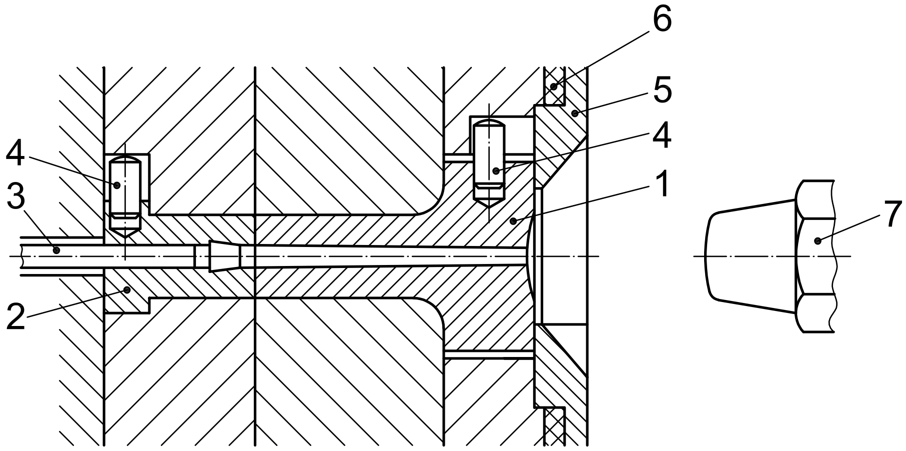
3.3.2
externally heated gating system
functional unit analogous to the hot runner gating system and the hot side gating system, in which the molten plastic flows through the components required to supply the supplementary heat energy

3.3.3
internally heated gating system
functional unit analogous to the hot runner gating system and the hot side gating system, in which the molten plastic is conducted externally past the components supplying the required supplementary heat energy

3.4
cold runner gating system
functional unit within an injection mould feeding the processed non-crosslinked elastomers for the parts to be produced from the inlet opening of the mould to the moulding cavity by taking into account the required system temperature

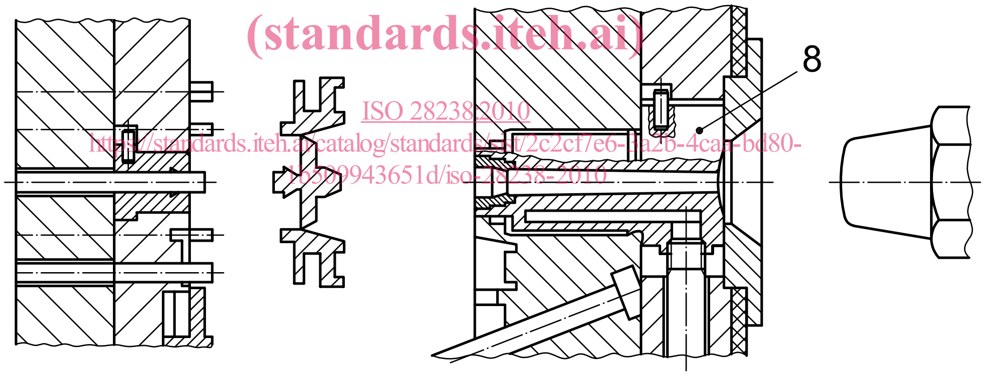
4 Components for gating systems

4.1 Conventional gating



For numbered items, see Table 1.

Figure 1 — Direct or indirect injection by means of a sprue bush in an injection mould for processing of thermoplastic or elastomer



For numbered item, see Table 1.

Figure 2 — Direct or indirect injection by means of a temperable sprue bush in an injection mould for processing of thermosetting plastic

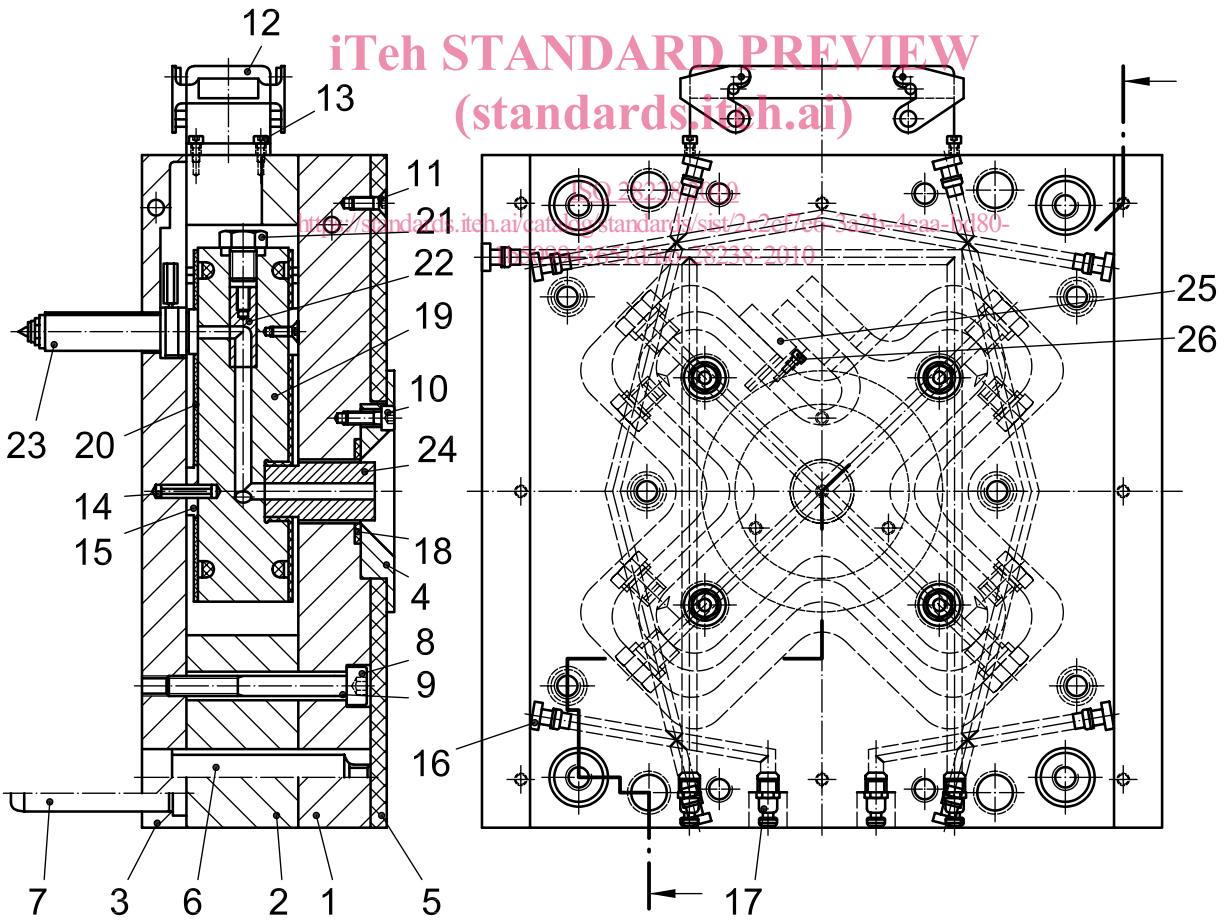
Table 1 — Conventional gating

Figure	Item no.	Term/component[a]	International Standard
1	1[b]	Sprue bush	ISO 10072
1	2[b]	Sprue puller insert	ISO 16915
1	3[b]	Ejector pin	ISO 6751
1	4[b]	Dowel pin	ISO 8734
1	5[b]	Locating ring	ISO 10907-1
1	6[b]	Thermal insulating sheet	ISO 15600
1	7	Machine nozzle	
2	8	Sprue bush, temperable	

[a] See Figures 1 and 2.

[b] Terms are in accordance with ISO 12165.

4.2 Hot side



For numbered items, see Table 2.

Figure 3 — Hot side for quadruple hot runner mould

Table 2 — Components for hot side

Figure	Item no.	Term/component	International Standard
3	1	Clamping plate	ISO 6753-2
	2	Frame plate	
	3	Nozzle retainer plate	
	4	Locating ring	ISO 10907-1
	5	Thermal insulating sheet	ISO 15600
	6	Centring sleeve	ISO 9449
	7	Guide pillar	ISO 8017
	8	Head cap screw	ISO 4762
	9	Detent edged ring	
	10	Head cap screw	ISO 4762
	11	Hexagon socket countersunk head screw	ISO 10642
	12	Connection housing	
	13	Head cap screw	ISO 4762
	14	Dowel pin with internal thread	ISO 8735
	15	Spacer disc	
	16	Screw plug	
	17	Connecting nipple	
	18	Sealing ring	
	19	Cross-shaped manifold block	
	20	Reflector plate	
	21	Pipe plug	
	22	Deflecting insert	
	23	Nozzle	
	24	Distributor bushing	
	25	Thermocouple	
	26	Head cap screw	ISO 4762