



BSI Standards Publication

Diesel engines — End-mounting flanges for pumps

Part 2: High-pressure supply pumps for common rail fuel injection systems

National foreword

This British Standard is the UK implementation of [ISO 7299-2:2021](#). It supersedes [BS ISO 7299-2:2009](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/22, Engines for road vehicles.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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ISO 7299-2

Second edition
2021-08-24

Diesel engines — End-mounting flanges for pumps —

Part 2:

High-pressure supply pumps for common rail fuel injection systems

Moteurs diesels — Brides de montage des pompes —

*Partie 2: Pompes d'alimentation à haute pression pour systèmes
d'injection de combustible à rampe commune*



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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Propulsion, powertrain and powertrain fluids*.

This second edition cancels and replaces the first edition ([ISO 7299-2:2009](http://www.iso.org/iso/7299-2:2009)), which has been technically revised.

The main changes compared to the previous edition are as follows:

- three (3) further types of end-mounting flanges (types 8, 9 and 10) are added to the already existing seven (7) types of end-mounting flanges (type 1 to type 7).

A list of all parts in the ISO 7299 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Modern diesel engines for road vehicles have usually fuel injection systems based on the common rail principle. Such systems have a high-pressure fuel supply pump to supply the rail with highly pressurized fuel. To adapt the high-pressure pump to the engine it is recommended to use one of the mounting flanges for the pump end described in this document.

Diesel engines — End-mounting flanges for pumps —

Part 2:

High-pressure supply pumps for common rail fuel injection systems

1 Scope

This document specifies dimensional requirements for 10 types of end-mounting flanges of high-pressure supply pumps for common rail fuel injection systems for use in diesel (compression-ignition) engines.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Dimensions and tolerances

4.1 General

Engine manufacturers should use the tolerance H7 for the female register diameter.

In the figures and tables, except for [Figures 2](#) and [5](#) and [Tables 2](#) and [5](#) (shaft end with tang drive), the diameter d_2 corresponds to the diameter d specified in [ISO 6519](#).

NOTE The flange configuration can optionally be rotated relative to the pump housing.

4.2 High-pressure supply pumps

4.2.1 Type 1 end-mounting flange

See [Figure 1](#) and [Table 1](#).

Table 2 — Type 2 end-mounting flange (with tang drive) dimensions

Dimensions in millimetres

d_1	d_2	d_3	d_4	d_5	l_1	l_2	l_3	l_4	l_5
f7	nom.	nom.	max.		± 1	max.	nom.	± 1	f7
$\varnothing 50$	$\varnothing 23$	$\varnothing 98$	$\varnothing 125$	$\varnothing 8,5$ to $9,3$	21,8	20,7	15	38,9	10

4.2.3 Type 3 end-mounting flange

See [Figure 3](#) and [Table 3](#).

Dimensions in millimetres

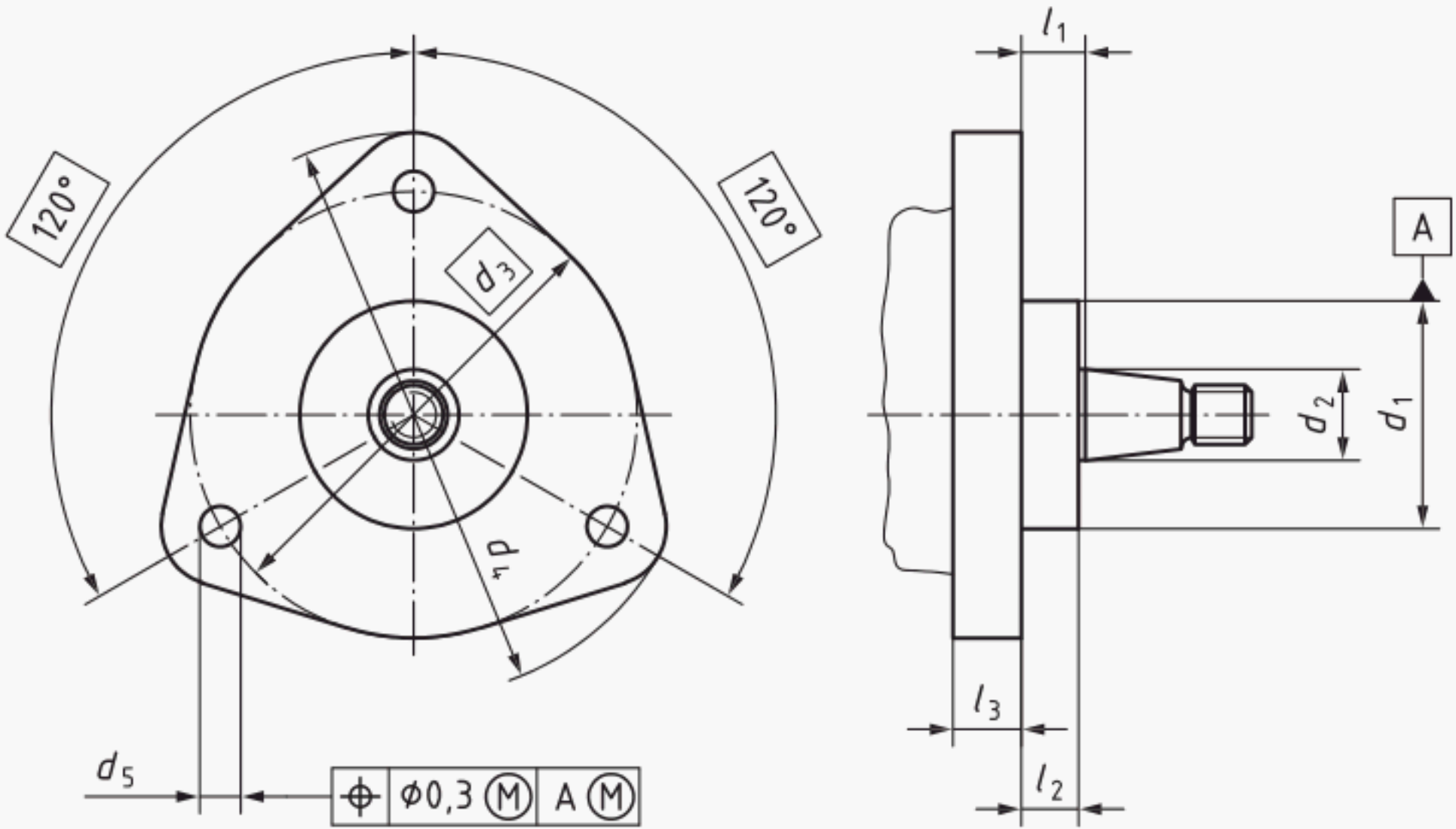


Figure 3 — Type 3 end-mounting flange

Table 3 — Type 3 end-mounting flange dimensions

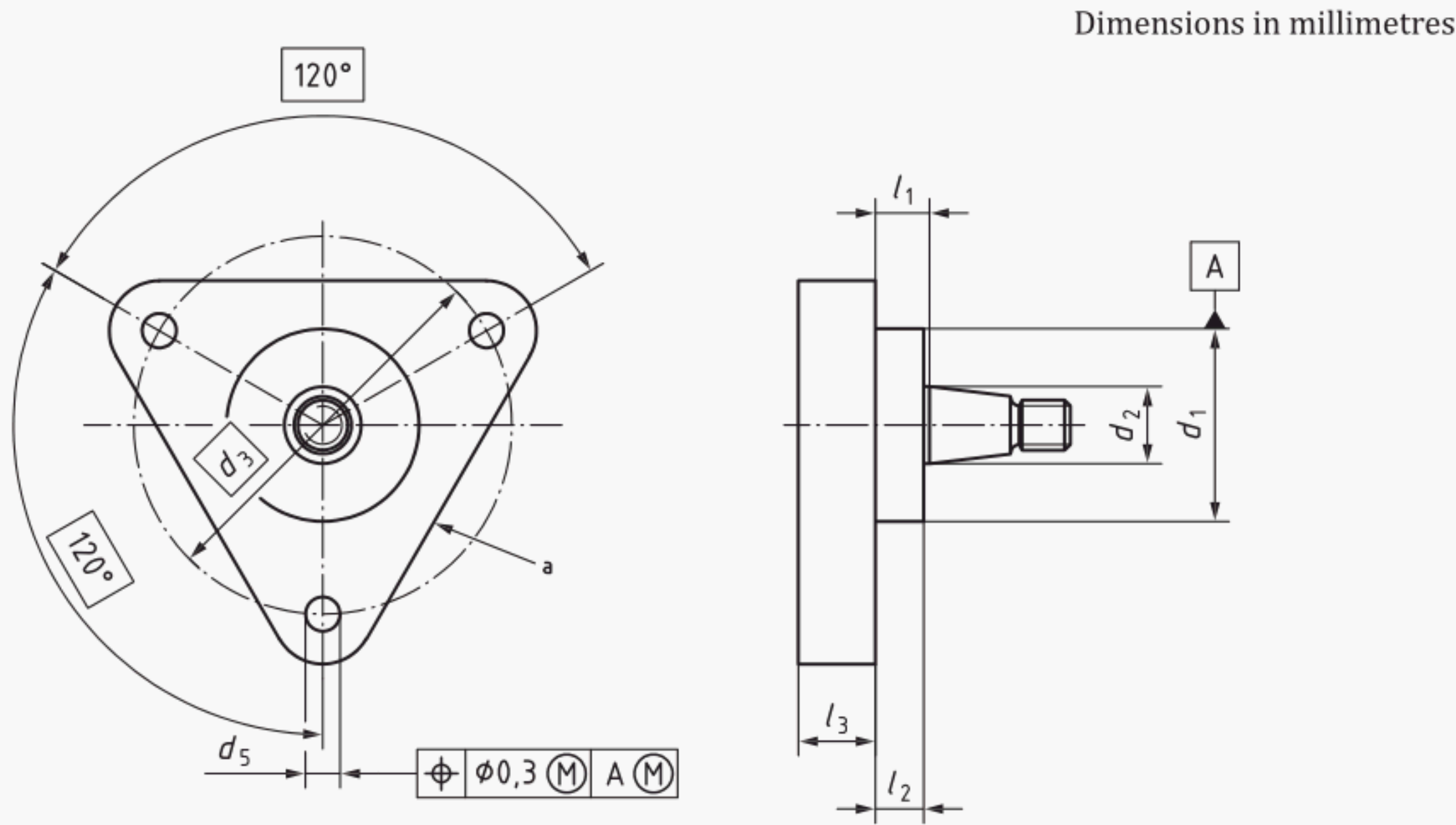
Dimensions in millimetres

d_1	d_2	d_3	d_4	d_5		l_1	l_2		l_3
				drilled	threaded ^a		min.	max.	
$\varnothing 50$	$\varnothing 20$	$\varnothing 98$	$\varnothing 125$	$\varnothing 8,5$ to $9,3$	—	14	12	13	15
$\varnothing 68$		$\varnothing 90$	$\varnothing 116$	$\varnothing 8,5$ to $9,3$	M8 \times 1,25 – 6H	25,7	18	24	15 or 17

^a Optional.

4.2.4 Type 4 end-mounting flange

See [Figure 4](#) and [Table 4](#).



^a This figure shows requirements for the position of the three mounting holes. The actual configuration of the flange depends on design requirements.

Figure 4 — Type 4 end-mounting flange

Table 4 — Type 4 end-mounting flange dimensions

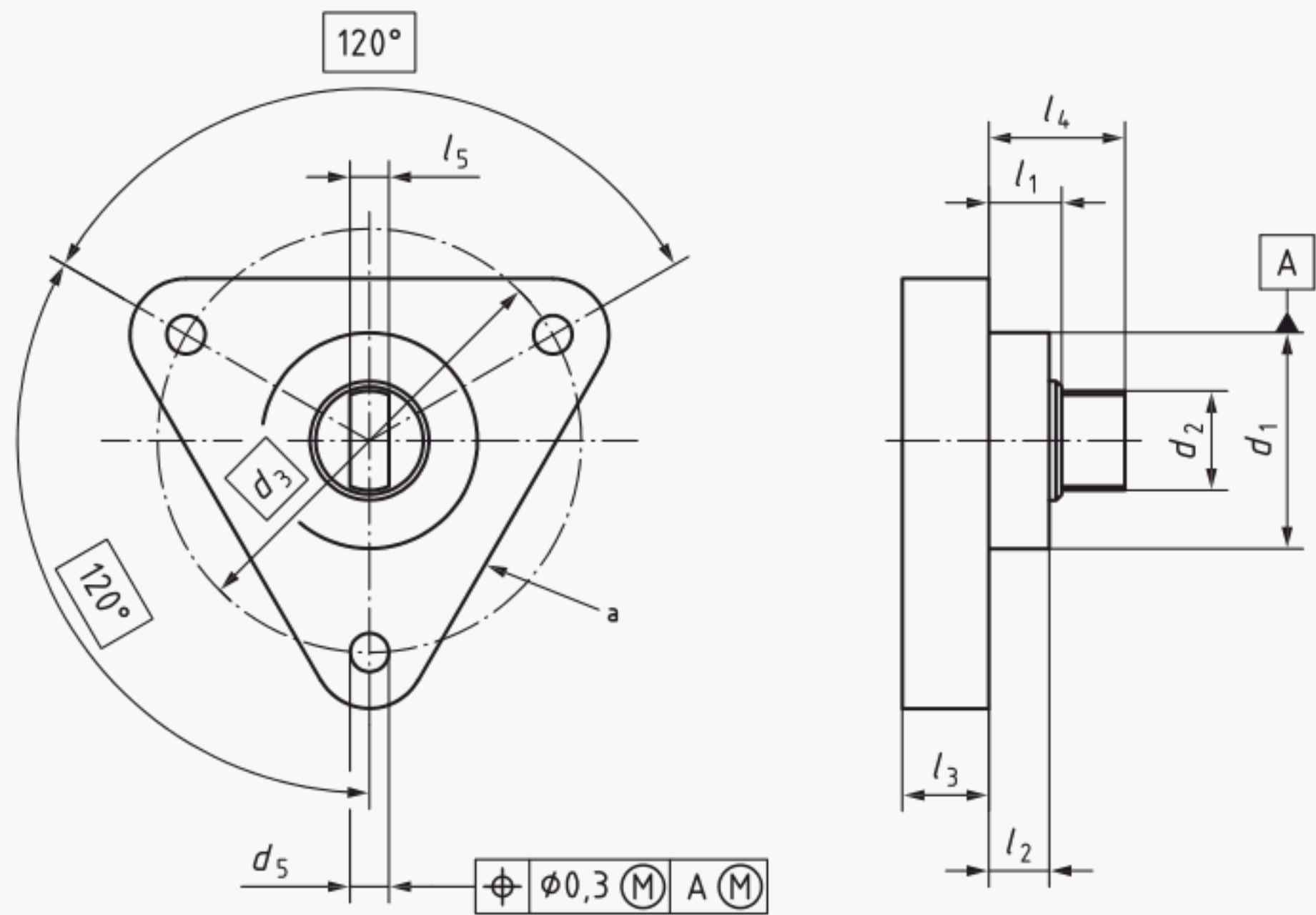
Dimensions in millimetres

d_1 f7	d_2 nom.	d_3 nom.	d_5 drilled (nom.) threaded ^a		l_1 nom.	l_2	l_3 nom.
Ø 50 or 68	Ø 20, 22 or 25	Ø 98	Ø 8,5 to 9,4	M8 × 1,25 – 6H	12 to 14	13 maximum	11 to 27
Ø 68 or 80	Ø 25				22 to 26,5	24,5 maximum	
Ø 107					12 to 26,5	10,2 to 24,5	
^a Optional.							

4.2.5 Type 5 end-mounting flange (with tang drive)

See [Figure 5](#) and [Table 5](#).

Dimensions in millimetres



a This figure shows requirements for the position of the three mounting holes. The actual configuration of the flange depends on design requirements.

Figure 5 — Type 5 end-mounting flange (with tang drive)

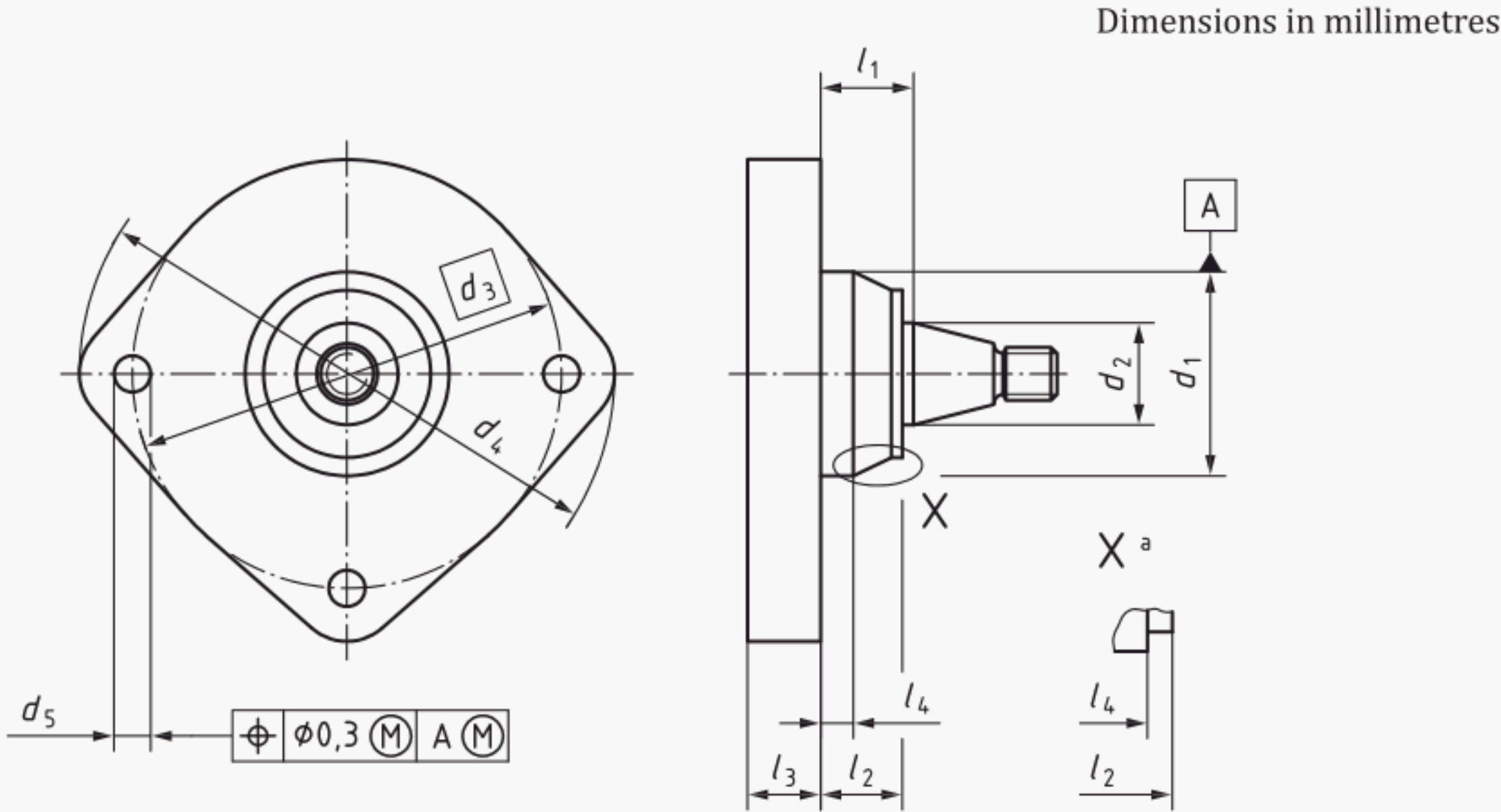
Table 5 — Type 5 end-mounting flange (with tang drive) dimensions

Dimensions in millimetres

d_1	d_2	d_3	d_5		l_1	l_2	l_3	l_4	l_5
f7	nom.	nom.	drilled (nom.)	threaded ^a	nom.	max.	nom.	nom.	f7
Ø 50	Ø 20	Ø 98	Ø 9,4	M6 × 1 – 6H	16,85	14,1	19 to 24,5	31,5	9
	Ø 20, 22 or 25		Ø 8,5 to 9,4	M8 × 1,25 – 6H	21,3 to 23	21,1			8
	Ø 82	Ø 7,8	7,3						
^a Optional.									

4.2.6 Type 6 end-mounting flange

See [Figure 6](#) and [Table 6](#).



a Detail X (optional).

Figure 6 — Type 6 end-mounting flange

Table 6 — Type 6 end-mounting flange dimensions

Dimensions in millimetres

d_1		d_2 nom.	d_3 nom.	d_4 max.	d_5 H13	l_1 $\pm 0,6$	l_2 min. max.		l_3 nom.	l_4 min. max.	
$\varnothing 50$	-0,019 -0,065	$\varnothing 25$	$\varnothing 105$	$\varnothing 131$	$\varnothing 9$	21,35	19,25	20,45	17,9	6,65	8,65
	-0,024 -0,070										
	-0,019 -0,065					11,05	9,25	9,85		2,5	3,5
						21,35					

4.2.7 Type 7 end-mounting flange

See Figure 7 and Table 7.

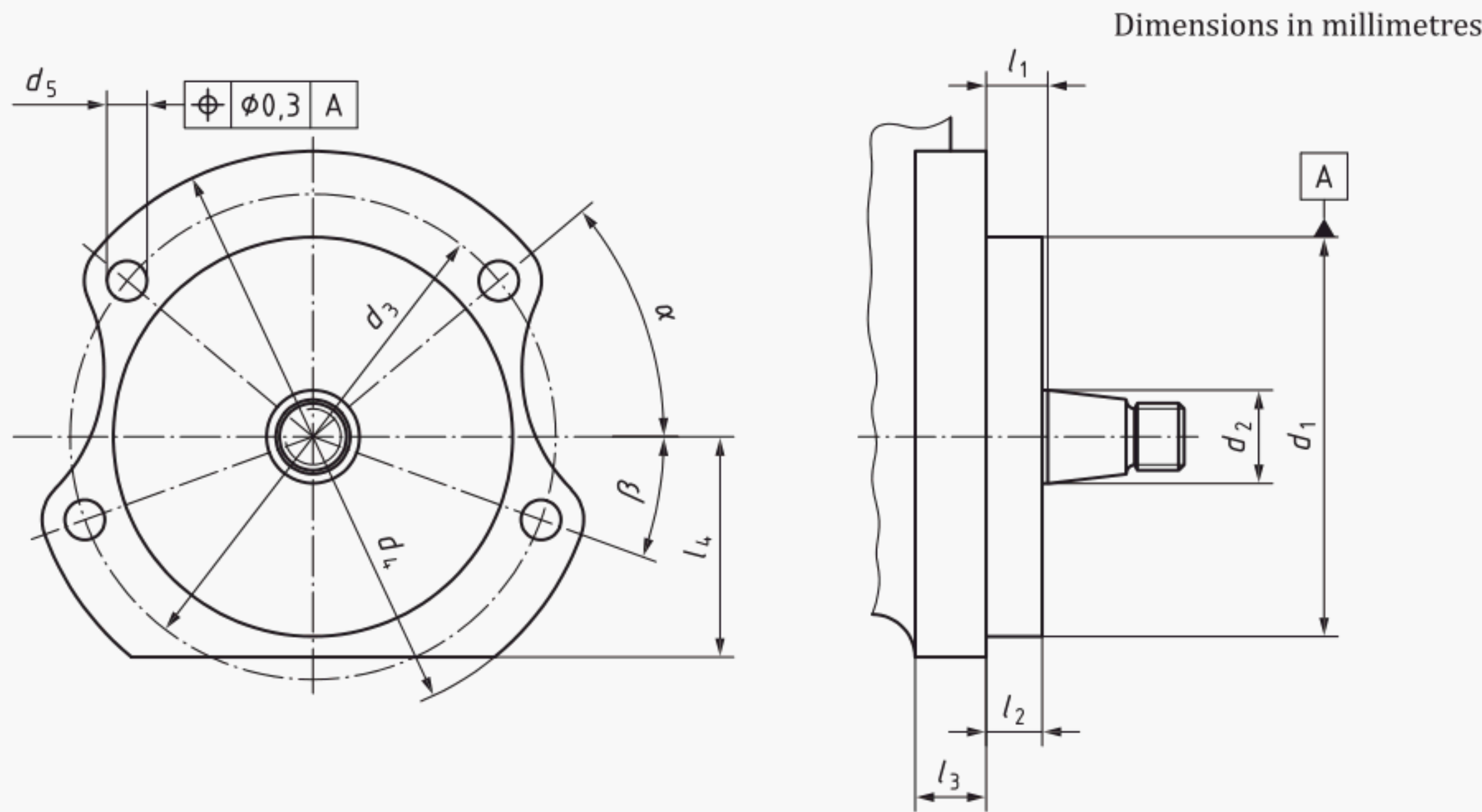


Figure 7 — Type 7 end-mounting flange

Table 7 — Type 7 end-mounting flange dimensions

Dimensions in millimetres
Angles in degrees

d_1	d_2	d_3	d_4	d_5	l_1	l_2	l_3	l_4	α	β
f7	nom.	$\pm 0,3$	max.			min. max.	nom.	nom.	$\pm 0,5$	$\pm 0,5$
$\varnothing 50$	$\varnothing 25$	$\varnothing 130$	$\varnothing 154$	$\varnothing 10,5$	21,3 to 31,9	18 (Nominal)	18	58	40	4
$\varnothing 107$	$\varnothing 35$	$\varnothing 130$	$\varnothing 154$	$\varnothing 10,5$	21,3 to 31,9	18 (Nominal)	18	60,5	40	40
$\varnothing 107$	$\varnothing 25$	$\varnothing 130$	$\varnothing 155,4$	$\varnothing 10,7$ to $10,9$	16,2 to 16,8	14,5 15,7	19	59	40	20
	$\varnothing 30$				13,2 to 13,8	10,5 12,0				
	$\varnothing 30$ or 35			$\varnothing 10,5$ to $10,8$	12,9 to 14,2	11,4 11,8	18	62	45	30
	$\varnothing 35$							56	40	20
$\varnothing 110$	$\varnothing 35$	$\varnothing 130$	$\varnothing 154$	$\varnothing 10,5$	21,3 to 31,9	18 (Nominal)	18	60,5	40	40

4.2.8 Type 8 end-mounting flange

See [Figure 8](#) and [Table 8](#).

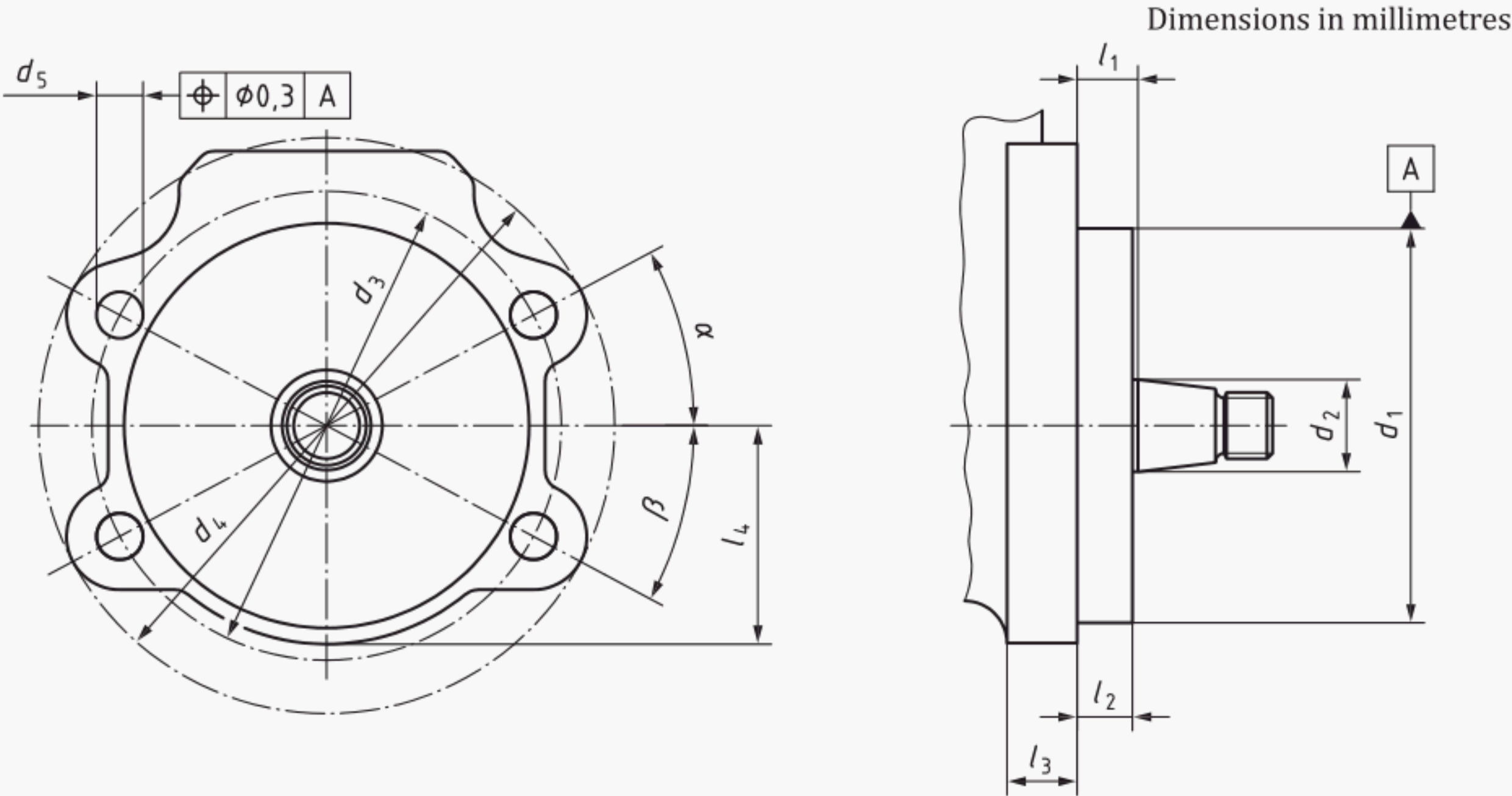


Figure 8 — Type 8 end-mounting flange

Table 8 — Type 8 end-mounting flange dimensions

Dimensions in millimetres Angles in degrees											
d_1	d_2	d_3	d_4	d_5	l_1	l_2		l_3	l_4	α	β
f7	nom.	$\pm 0,3$	max.			min.	max.	nom.	nom.	$\pm 0,5$	$\pm 0,5$
Ø 85	Ø 25	Ø 105	Ø 155	Ø 10,5 to 10,9	10,5 to 11,5	9,5	10,5	16,5	49	28	28

4.2.9 Type 9 end-mounting flange

See [Figure 9](#) and [Table 9](#).

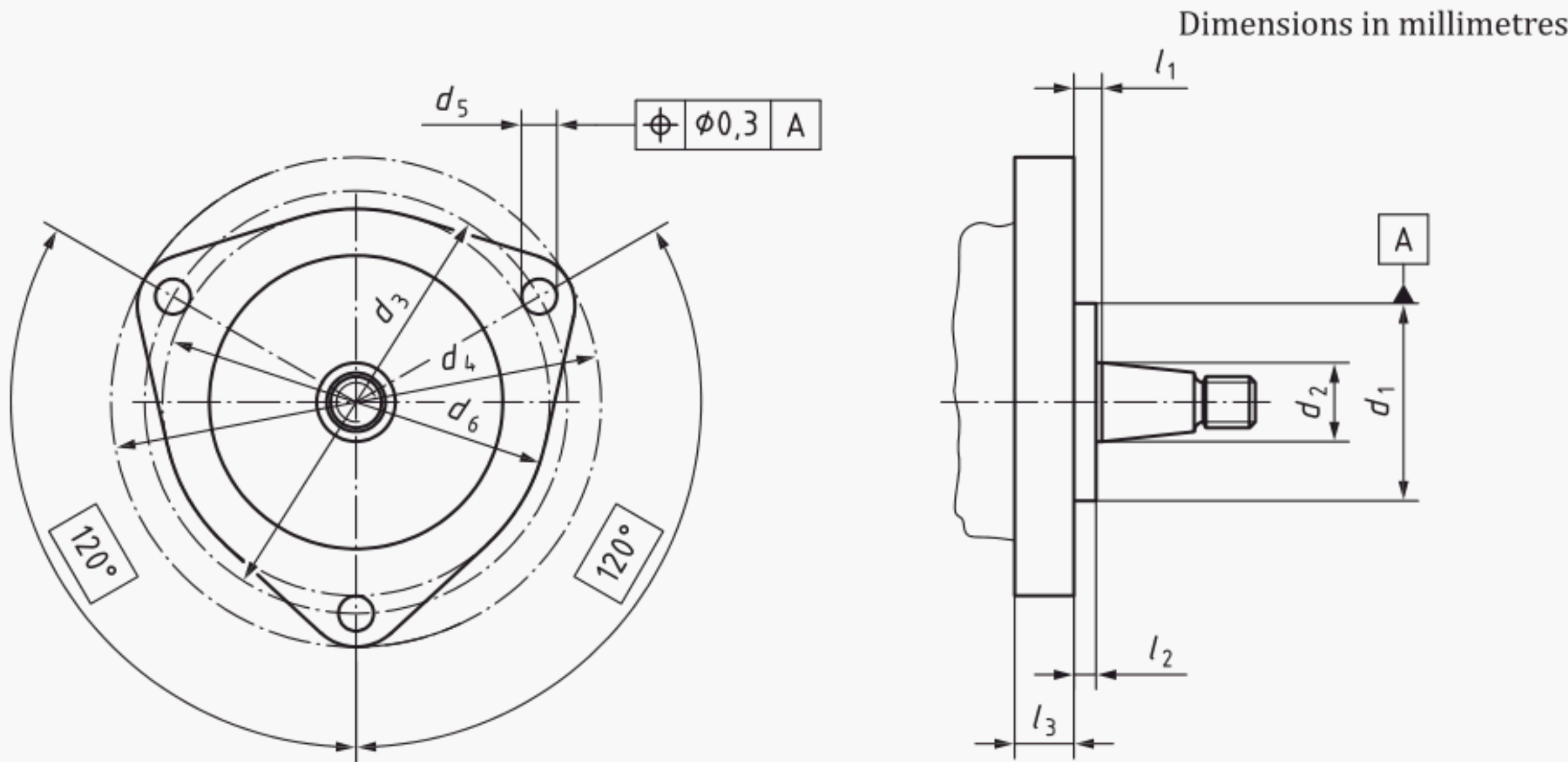


Figure 9 — Type 9 end-mounting flange

Table 9 — Type 9 end-mounting flange dimensions

Dimensions in millimetres

d_1 f8	d_2 nom.	d_3 nom.	d_4 max.	d_5 drilled	d_6	l_1 ± 1	l_2		l_3 nom.
							min.	max.	
$\varnothing 50$	$\varnothing 20$	$\varnothing 98$	$\varnothing 125$	$\varnothing 8,5$ to $9,3$	$\varnothing 90$	25	6,6	7,2	15
$\varnothing 68$						7	4,7	5,1	
$\varnothing 78$					$\varnothing 92$	22,6	10,7	11,1	

4.2.10 Type 10 end-mounting flange

See [Figure 10](#) and [Table 10](#).

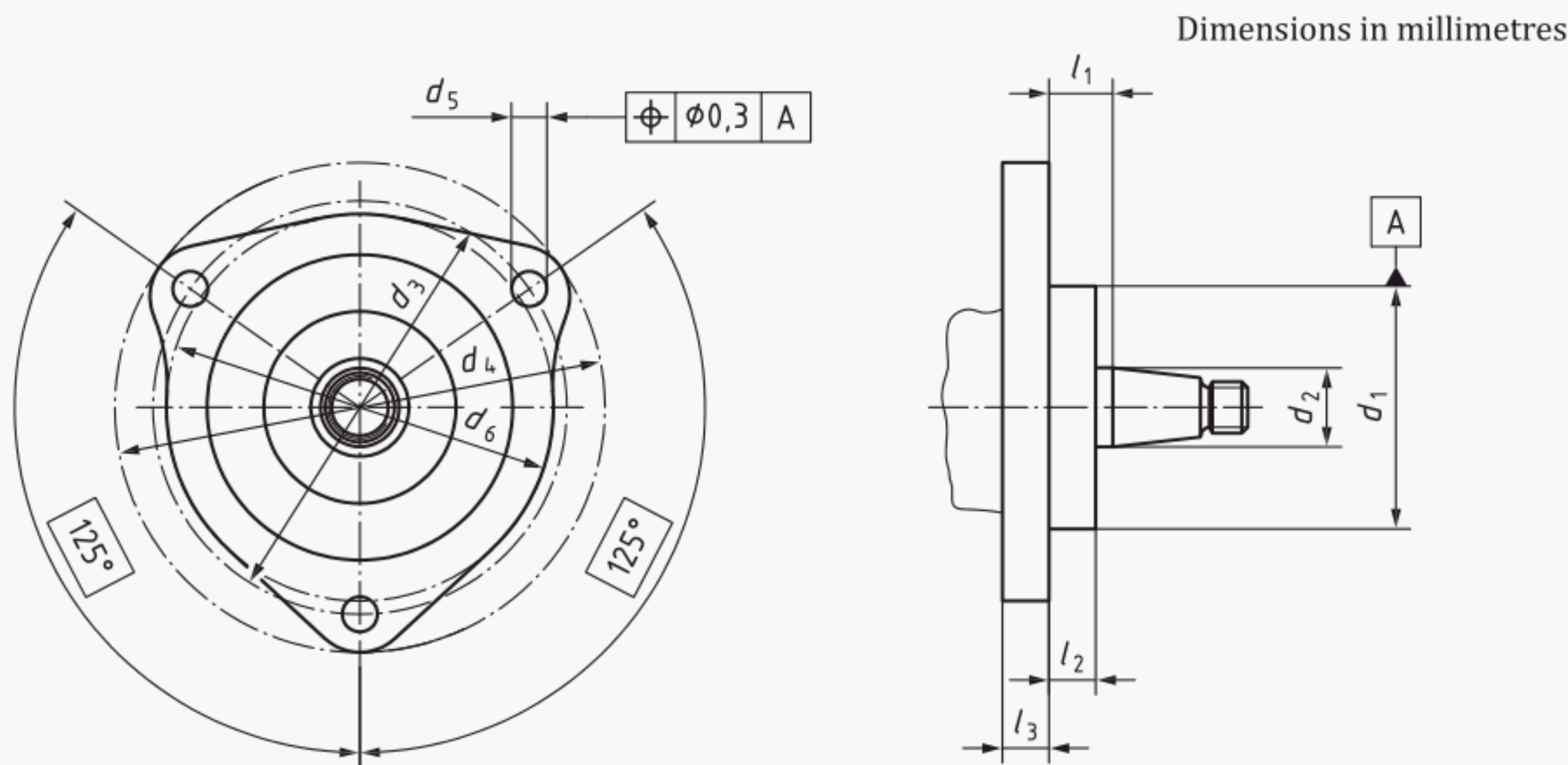


Figure 10 — Type 10 end-mounting flange

Table 10 — Type 10 end-mounting flange dimensions

Dimensions in millimetres									
d_1	d_2	d_3	d_4	d_5	d_6	l_1	l_2		l_3
f8	nom.	nom.	max.	drilled		± 1	min.	max.	nom.
Ø 78	Ø 25	Ø 105	Ø 128	Ø 8,5 to 9,3	Ø 99	21,1	15,1	15,8	15

Bibliography

- [1] [ISO 261](#), *ISO general purpose metric screw threads — General plan*
- [2] [ISO 286-2](#), *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*
- [3] [ISO 6519](#), *Diesel engines — Fuel injection pumps — Tapers for shaft ends and hubs*
- [4] [ISO 965-1](#), *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

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