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Packaging — Glass Packaging — Deep BVS finishes for still wines

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Foreword

This document (EN 16293:2013) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

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Introduction

This document is based on CE.T.I.E. (International Technical Centre for Bottling and related Packaging) data sheet GME 30.13 [3].

Efficient packaging is of great importance for the distribution and the protection of goods as insufficient or inappropriate packaging can lead to damage or wastage of the contents of the pack.

1 Scope

This European Standard specifies dimensions of a series of deep screw finishes for the closure of wines with a CO_2 content below 1,2 grams per litre.

NOTE Carbonation ≥ 1,2 g/l CO_2 requires a suitable container and closure agreed between the glass maker, closure maker and packer/filler.

2 Terms and definitions

For the purposes of this document, the following term and definition applies.

2.1
deep BVS finishes
finishes designed to take an aluminium tamper-evident closure with extended skirt which is re-formed during application

3 Requirements

Deep BVS finishes require a good control of container verticality as specified in Clause 10 "Control of bottle and neck verticality".

4 Constructions and dimensions of deep BVS finishes

The constructions of deep BVS finishes shall be as given in the following figures:

— Figure 1: Constructions and dimensions

— Figure 2: Optional finish with support bead

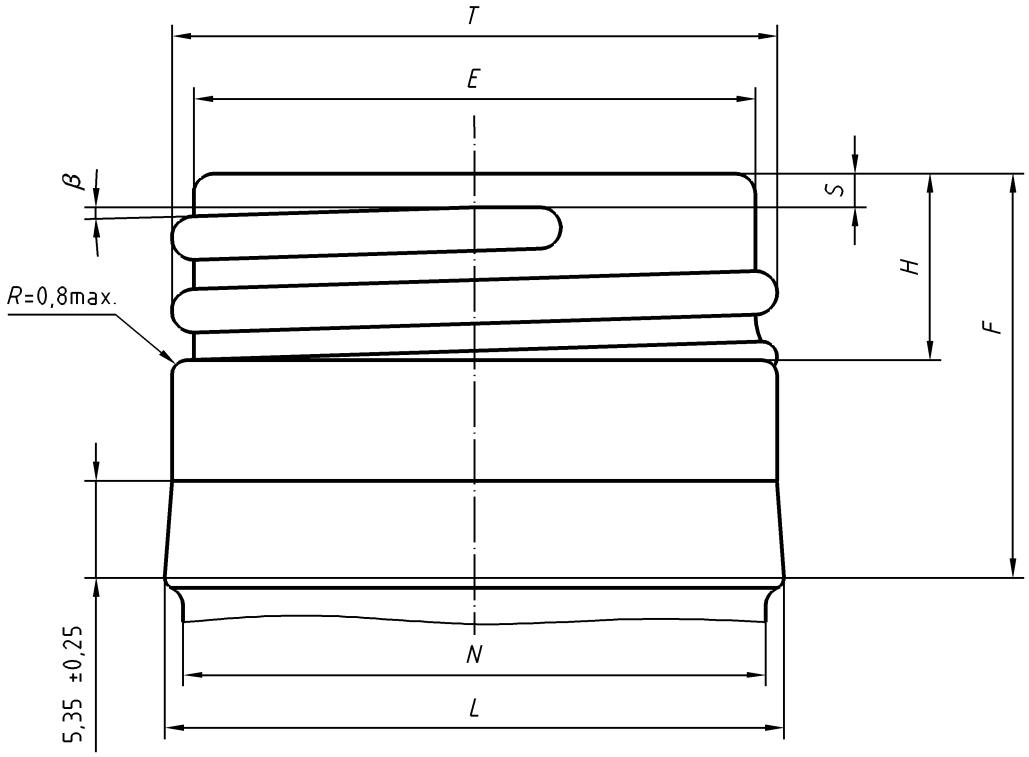
— Figure 3: Optional take-out groove

The dimensions of deep BVS finishes shall be as given in the following tables:

— Table 1 – Dimensions for finishes type BVS

— Table 4 – Dimensions Y and X for finishes type BVS

Dimensions in millimetres

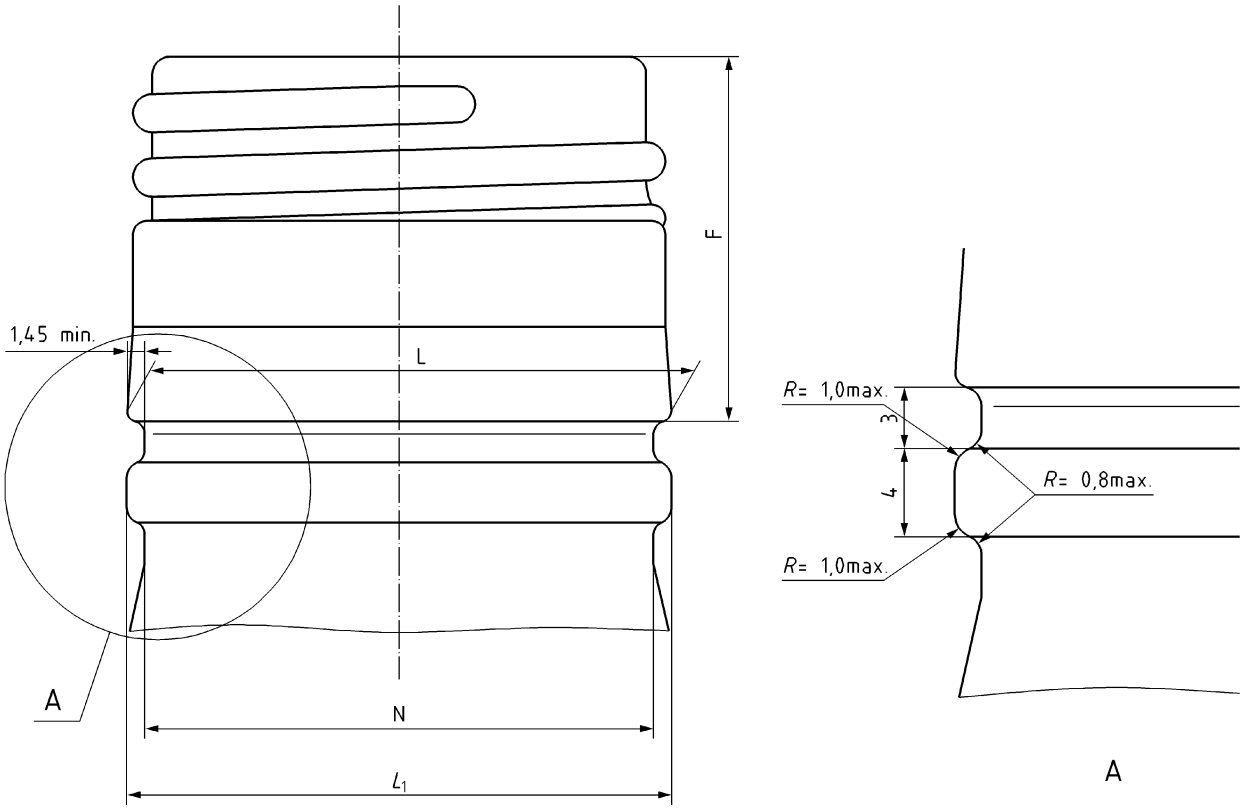


Key

ß helix angle, or angle of cutter index
E wall diameter of threaded finish
F crimping edge, vertical height, threaded finishes
H vertical height from top of finish to bead
L locking bead diameter
N neck (under bead) diameter
S start of thread position from sealing surface to intersection of thread flank
T thread diameter

Figure 1 — Constructions and dimensions

Dimensions in millimetres



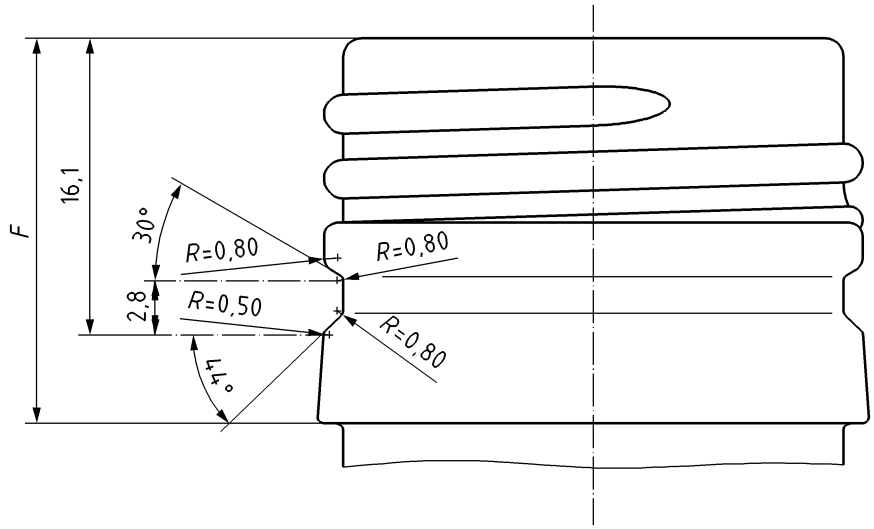
Key

F crimping edge, vertical height, threaded finishes
N neck (under bead) diameter
L locking bead diameter
L_1 additional skirt support bead

Diameter L_1 does not exceed diameter L.

Figure 2 — Optional finish with additional support bead

Dimensions in millimetres



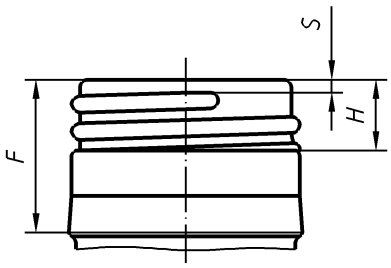
Key

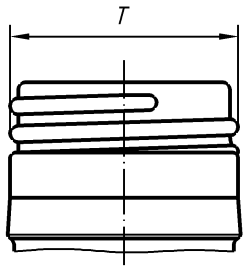
F vertical height of threaded finish

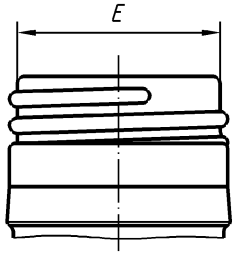
Optional take-out groove is only applicable for types 30H, 31,5H and 36 H.

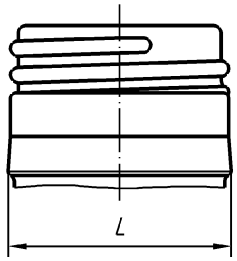
Figure 3 — Optional take-out groove

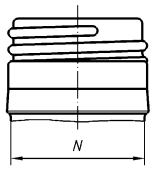
Table 1 — Dimensions for finishes Type BVS

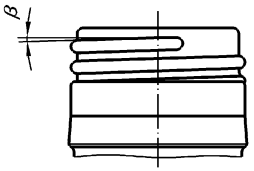












Type	F ± 0,2	S ± 0,25	H ± 0,2	T		E		L		L - N	Pitch	β	TPI
				Nominal	**Tolerance** [a]	Nominal	**Tolerance** [a]	Nominal	**Tolerance** [a] **and** [b]	Min [c]			
28 H	19,4	**2,8**	**10,4**	27,1	± 0,3	24,9	± 0,3	27,6	± 0,3	2,9	3,63	2°33’	7
30 H	21,4	**2,8**	**10,4**	28,3	± 0,3	26,1	± 0,3	28,9	± 0,3	2,9	3,63	2°26’	7
31,5 H	21,4	**2,8**	**10,4**	30,2	± 0,3	28,0	± 0,3	30,7	± 0,3	2,9	3,63	2°16’	7
36 H	21,4	**2,8**	**10,4**	35,3	± 0,3	32,9	± 0,3	35,6	± 0,3	2,9	3,63	1°56’	7

NOTE 1 See Table 4 for Y and X dimensions.

NOTE 2 In Table 1, dimensions in bold letters are those which are different than the dimensions of the corresponding BVP finish (EN 15543).

[a] Absolute ovality limits measured with a Parnaby gauge for T and L.

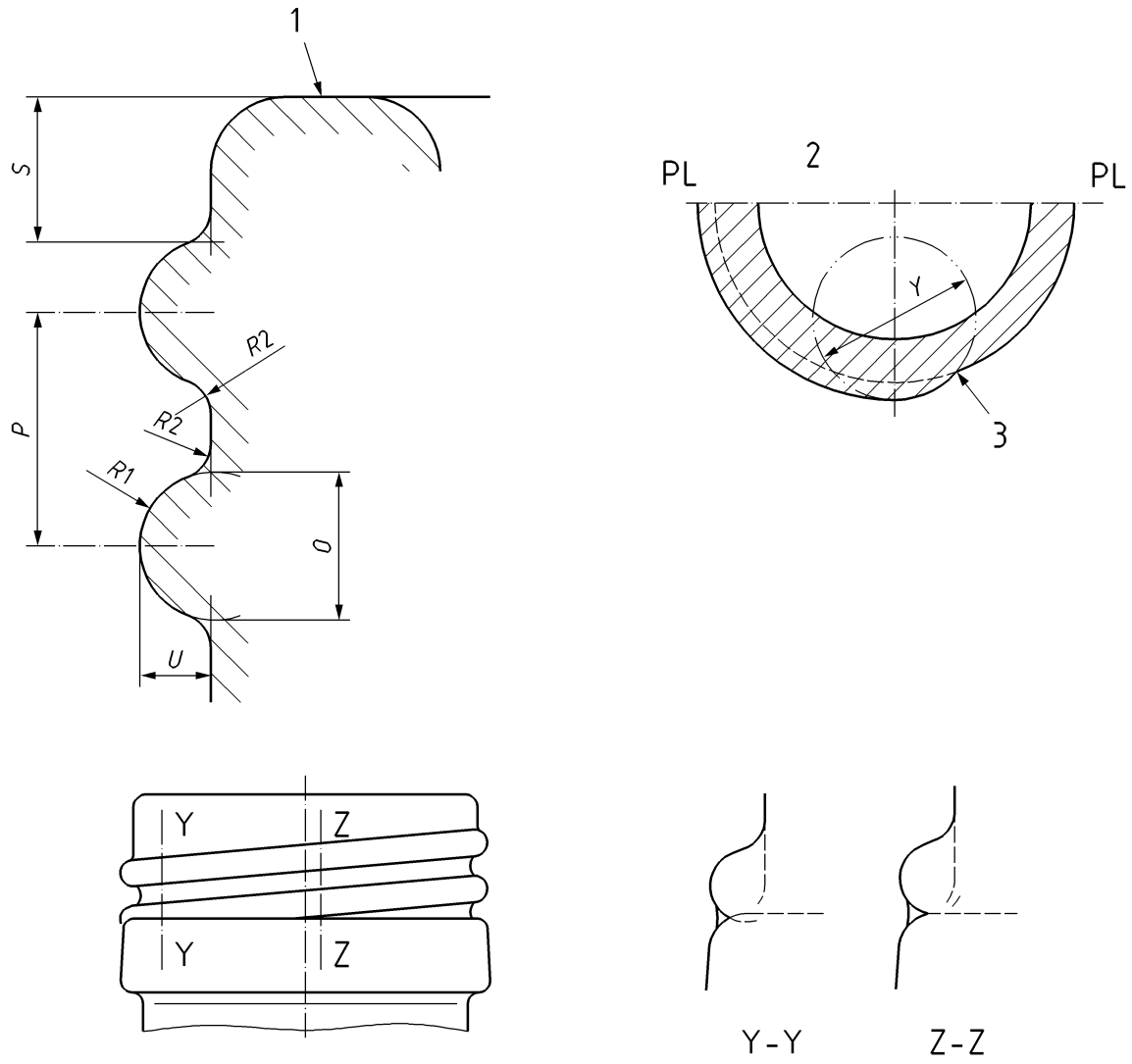
[b] For optimum application of the capsule , the mean diameter $L\,\frac{\text{diameter max} + \text{diameter min}}{2}$ must be in the tolerance of ± 0,20 mm.

[c] The tuck-under limits for values of “$L - N$” shall be in the range of 2,9 mm min. to 3,5 mm max. A reasonable time will be allowed for BVS bottle manufacturers to change their tooling"

5 Thread profile construction

The dimensions and constructions of the thread profile shall be as shown in Figure 4 and Table 2.

Dimensions in millimetres



$$Tan\beta = \frac{\text{Pitch}}{\frac{\pi(\text{nominal}\,T + \text{nominal}\,E)}{2}}$$

Key

1	top of finish	P	thread pitch
2	plan view at start of thread position	S	start of thread position from sealing surface to intersection of thread flank
3	deburr the sharp edge	PL	(PJ) parting line
U	thread depth	O	width of thread

NOTE 1 Z-Z is the last full depth and width of thread. Beyond this point and Y-Y, the thread root should be increased gradually to full thread *T* in 180° of turn.

NOTE 2 Optional: depressed thread at mould parting line: see EN 16292.

Figure 4 — Thread profile construction

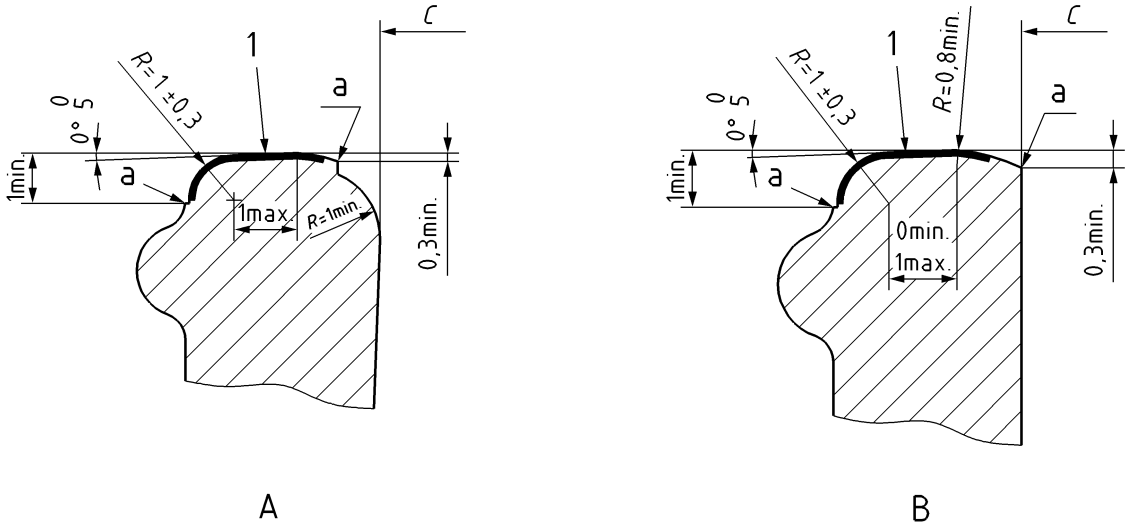
Table 2 — Dimensions for thread profile construction

TPI	Pitch	O	U min	R1	R2 max	Cutter diameter
7	3,63	2,20	1,10	1,10	0,70	12,50
NOTE TPI =threads per inch; one inch is equal to 25,4 mm.						

6 Construction for the bore entrance profile

The dimensions and constructions of the bore entrance profile shall be as shown in Figure 5 and Table 3.

Dimensions in millimetres



Key

1 sealing surface
a mould parting line
C controlled bore entrance diameter

Figure 5 — Construction for the bore entrance profile

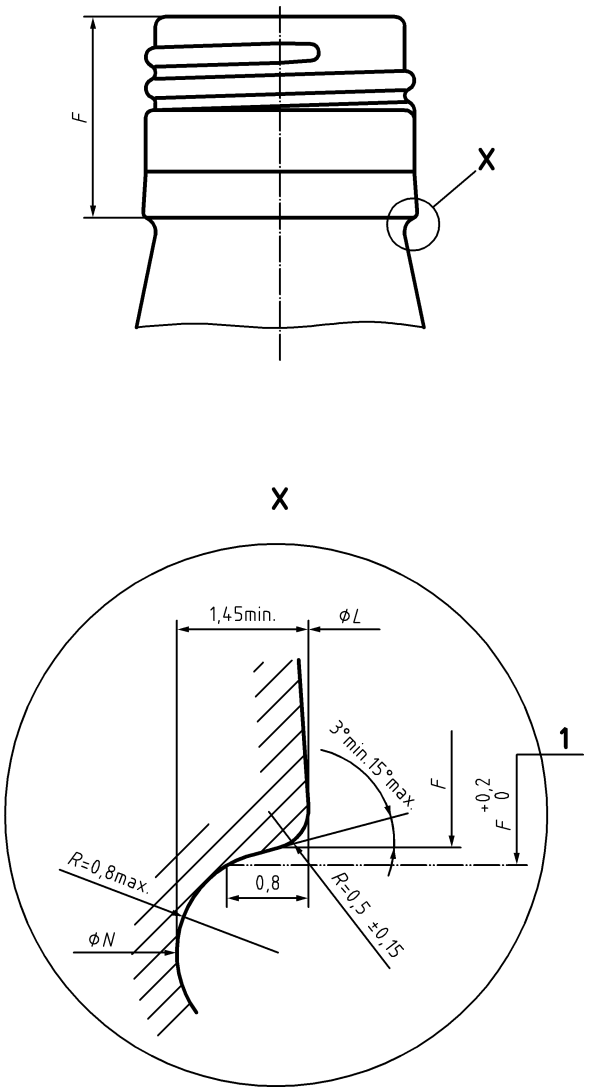
Table 3 – Dimensions of the bore entrance profile

Type	∅ C in mm
28 H	18,5 ± 0,5
30 H	20,0 +0,5/-1
31,5 H	20,0 +0,5/-1
36 H	25,0 ± 0,5

7 Construction of transfer bead

The dimensions and constructions of transfer bead shall be as shown in Figure 6.

Dimensions in millimetres



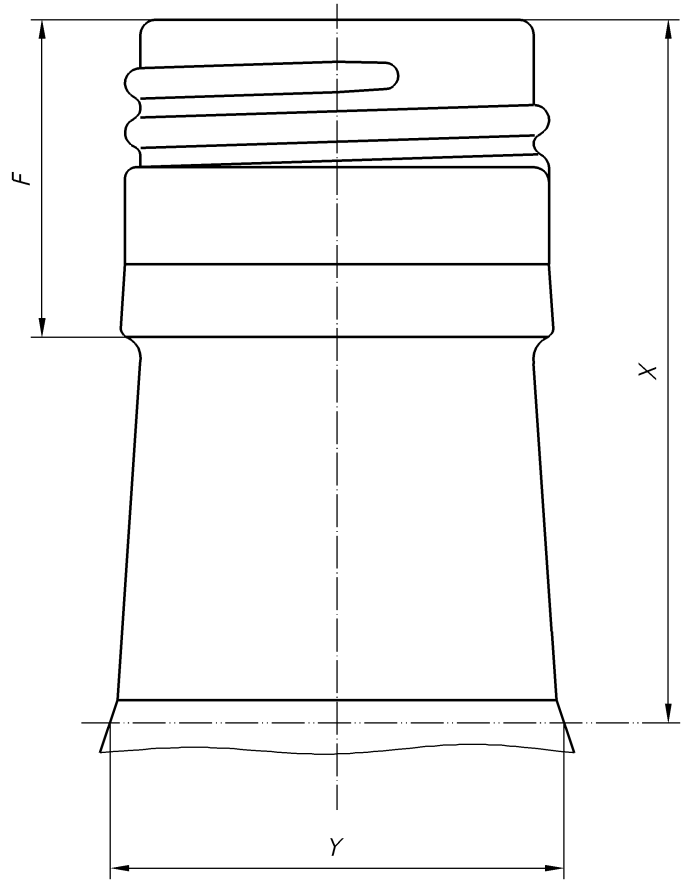
Key

1 gauge measurement
F crimping edge, vertical height, threaded finishes
L locking bead diameter
N neck (under bead) diameter

Figure 6 — Construction of transfer bead

8 Construction of the neck

The constructions of the neck shall be as shown in Figure 7.



Key

F crimping edge, vertical height, threaded finishes
X control depth for "Y" diameter
Y control diameter for closure skirt

Figure 7 — Construction of the neck

9 BVS finishes — Dimensions Y and X

The construction of the intersection of X and Y in the neck of BVS finishes shall be as shown in Figure 8.

X and *Y* dimensions shall be as given in Table 4.

Table 4 — Dimensions Y and X for finishes Type BVS

Type	Dimension X Maß X Dimension X	Dimension Y in mm		
		Nominal	Ovality tolerance	
			①	②
28 H	37,5 – 43,5 – 49,5 – 59,5	28,3	± 0,7	± 0,4
30 H	34,5 – 43,5 – 49,5 54,5 – 59,5 – 69,5	29,6	± 0,7	± 0,4
31.5 H	43,5 – 49,5 54,5 – 59,5	31,3	± 0,7	± 0,4
36 H	37,5 – 43,5 51,5 – 59,5	36,3	± 0,7	± 0,4

Key

Tolerance ① absolute ovality limit over a population of bottles

Tolerance ② ovality limits at mean diameters on a specific bottle

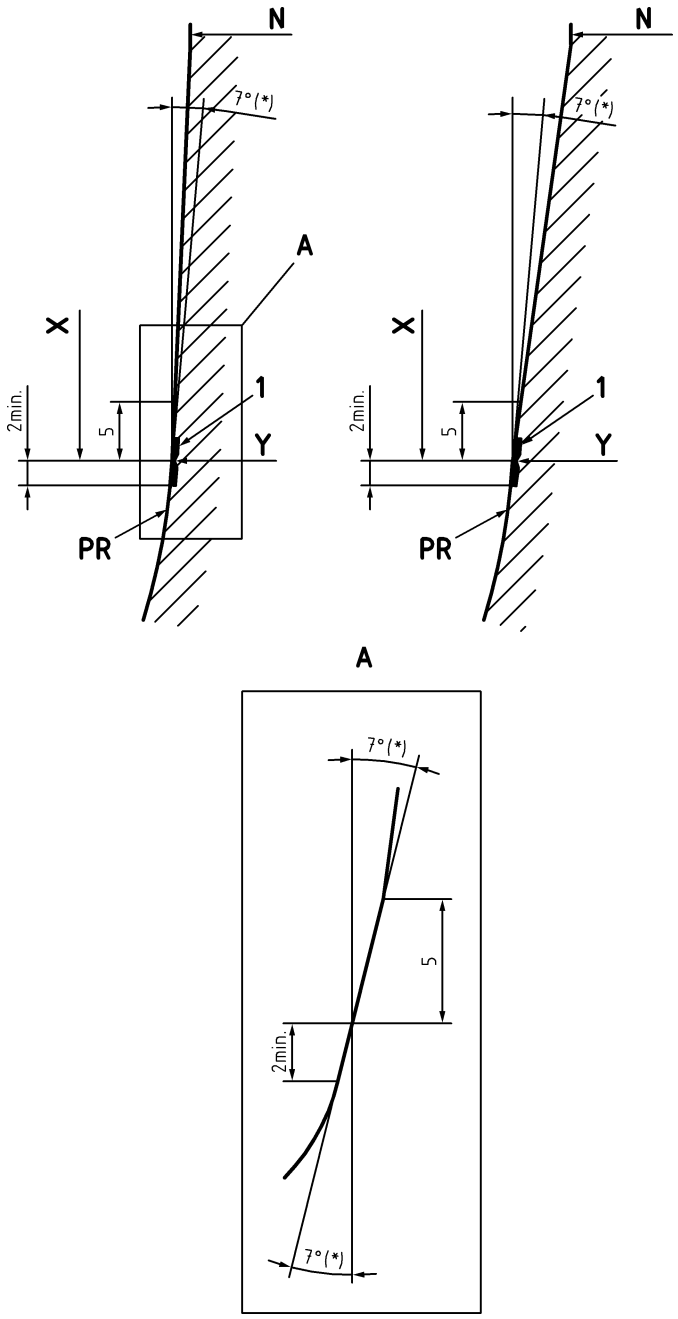
Mean diameter $\frac{Y_{max} + Y_{min}}{2}$

Mean diameter + tolerance ② shall not be exceeded.

When considering satin etching or decorative coatings, it is important not to exceed these limits.

During capping, when changing between different batches of bottles conforming to this standard, it is necessary to verify the setting of the capping equipment.

Dimensions in millimetres



Key

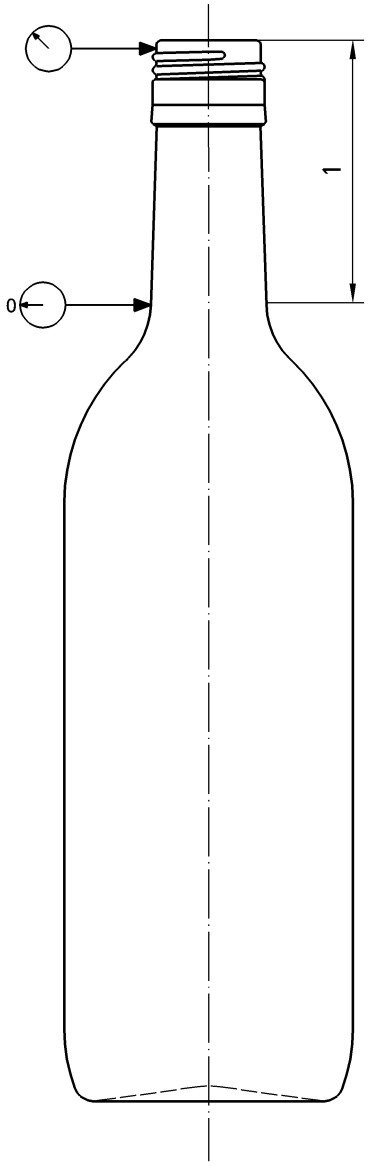
N neck (under bead) diameter
X control depth for "Y" diameter
PR neck profile to suit glass bottle design
1 closure contact area
(*) 7° optimal/target and 5° min

Figure 8 — Construction of the neck at the intersection of X and Y

10 Control of bottle and neck verticality

Deep BVS finishes require a good control of bottle verticality as per CETIE data sheet DT 2 [4].

Additionally, because of the special closure application on this finish, further controls for "bent necks" are also required for optimum performance.



Neck length	Tolerance +/-
≤ 50 mm	Not applicable
> 50 mm to ≤ 80 mm	1,1 mm
> 80 mm	1,3 mm

Key

1 neck length

Figure 9 — Measurement and tolerance for "bent necks"

Bibliography

[1] EN 15543, *Glass packaging — Finishes for bottles — Screw thread finishes for bottles for non-carbonated liquids*

[2] EN 16292, *Glass packaging — Screw finishes — Depressed threads*

[3] CE.T.I.E data sheet GME 30.13, *Deep BVS finishes for still wines*, 2012[1)]

[4] CE.T.I.E data sheet DT 02, *Standard tolerances for bottles*, 1996

1) Obtainable through *Centre Technique International de l'Embouteillage et du Conditionnement* (CE.T.I.E) - 112/114 rue La Boétie 75008 Paris. www.cetie.org CE.T.I.E.

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