BS ISO 2861:2013

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Vacuum technology — Dimensions of clamped-type quick-release couplings

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The UK participation in its preparation was entrusted to Technical Committee MCE/8/-/4, Vacuum technology.

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

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Vacuum technology — Dimensions of clamped-type quick-release couplings

Technique du vide — Dimensions des raccords rapides

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The committee responsible for this document is ISO/TC 112, *Vacuum technology*.

This first edition of ISO 2861 cancels and replaces 2861-1:1974, of which it constitutes a technical revision. The most important change is the addition of the dimension for 50 mm nominal bore quick-release couplings and their constituent parts to the dimensions of the four nominal bore sizes, 10 mm, 16 mm, 25 mm and 40 mm, already specified in the replaced standard (ISO 2861-2:1980, *Vacuum technology — Quick release couplings — Dimensions — Part 2: Screwed type*, was withdrawn in 2010).

INTERNATIONAL STANDARD ISO 2861:2013(E)

Vacuum technology — Dimensions of clamped-type quick-release couplings

1 Scope

This International Standard specifies the dimensions of the clamped-type quick-release couplings used in vacuum technology, as well as those of the O-rings and their carriers associated with these couplings, used to ensure vacuum tightness.

NOTE The dimensions retained for the coupling diameter ensure the compatibility of the quick-release coupling with the corresponding vacuum flanges specified in ISO 1609.[1]

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

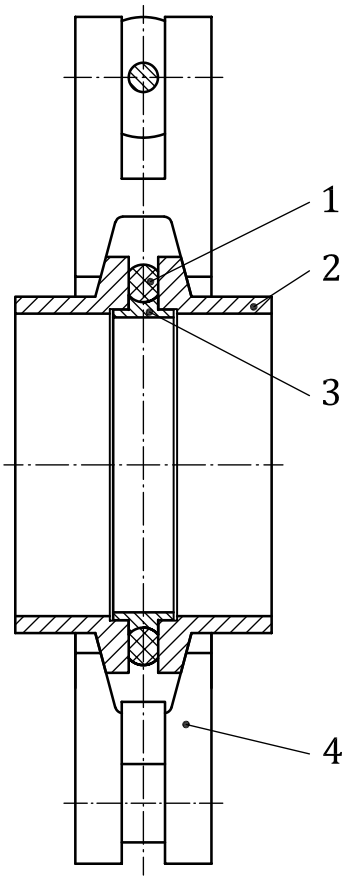
3.1
clamped-type quick-release coupling
connection which may be joined or separated without the use of tools

[SOURCE: ISO 14617-3:2002, 3.15, modified — "clamped-type" has been added to the term; Notes 1 to 3 are additional to the original definition.]

Note 1 to entry: Ensures vacuum tightness associated with the O-rings and their carriers.

Note 2 to entry: The types and dimensions of clamps to tight couplings are not specified in this International Standard.

Note 3 to entry: See Figure 1.



Key

1 O-ring
2 coupling
3 O-ring carrier
4 clamp

Figure 1 — Quick-release coupling with typical clamp

3 Symbols

Symbol	Description	Unit
D	Inside diameter of O-ring	mm
d_1	Outside diameter of connecting pipe	mm
d_2	Diameter of O-ring carrier retainer	mm
d_3	Outside diameter of coupling	mm
d_4	Inside diameter of O-ring carrier	mm
d_5	Outside diameter connecting pipe of O-ring carrier	mm
d_6	Outside diameter to hold O-ring in O-ring carrier	mm
R	Radius of O-ring retainer in O-ring carrier	mm

4 Requirements

4.1 Coupling

Dimensions of couplings shall be in accordance with Table 1. See Figure 2.

The selection of the material shall be compatible with the requirements for the couplings. Considerations may include service temperature, sealing capacity, corrosion-resistance, magnetic permeability, the type of seal gasket (O-ring) used and dimensions.

NOTE Austenitic stainless steel is commonly used, but it is not the intent of this Standard to specify or limit the choice of coupling material to austenitic stainless steel.

Dimensions in millimetres

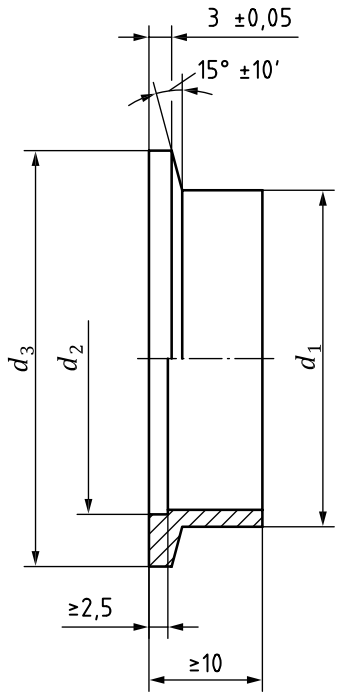


Figure 2 — Coupling

Table 1 — Dimensions of couplings

Dimensions in millimetres

Nominal bore	d_1 max.	d_2 $^{+0,2}_{0}$	d_3 **h11**
10	14	12,2	30
16	20	17,2	30
25	28	26,2	40
40	44,5	41,2	55
50	61	52,2	75

4.2 O-ring

Dimensions of O-rings shall be in accordance with Table 2. See Figure 3.

The O-ring shall be of elastomer. The selection of the elastomer shall be compatible with the requirements for the couplings. Considerations may include service temperature, sealing capacity, corrosion-resistance and dimensions.

NOTE Fluorocarbon rubber is commonly used, but it is not the intent of this International Standard to specify or limit the choice of O-ring material to rubber.

Dimensions in millimetres

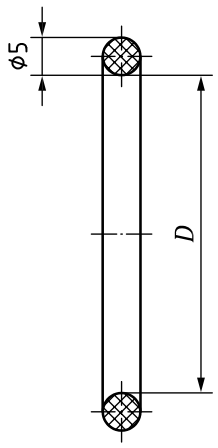


Figure 3 — O-ring

Table 2 — Dimensions of O-ring

Dimensions in millimetres

Nominal bore	*D*
10	15
16	18
25	28
40	42[a]
50	55[b]

[a] Alternatively, an O-ring of section 5,33 mm and diameter *D* of 40,65 mm may be used.

[b] Alternatively, an O-ring of section 5,33 mm and diameter *D* of 53,3 mm may be used.

4.3 O-ring carrier

Dimensions of O-ring carriers shall be in accordance with Table 3. See Figure 4.

The selection of the O-ring carrier shall be compatible with the requirements for the couplings. Considerations may include service temperature, sealing capacity, corrosion-resistance, magnetic permeability, the type of seal gasket (O-ring) used and dimensions.

NOTE Austenitic stainless steel is commonly used, but it is not the intent of this International Standard to specify or limit the choice of O-ring carrier material to austenitic stainless steel.

Dimensions in millimetres

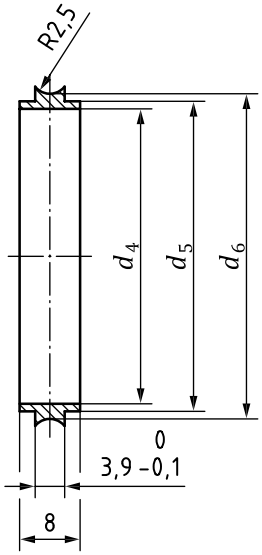


Figure 4 — O-ring carrier

Table 3 — Dimensions of O-ring carrier

Dimensions in millimetres

Nominal bore	d_1 **max.**	d_5 $^{0}_{-0,1}$	d_6 **h11**
10	10	12	15,3
16	16	17	18,5
25	25	26	28,5
40	40	41	43
50	50	52	55,5

4.4 Clamp

The selection of the clamp shall be compatible with the requirements for the couplings. Considerations may include service temperature, sealing capacity, corrosion-resistance, magnetic permeability, the type of seal gasket (O-ring) used and dimensions.

NOTE Aluminium and austenitic stainless steel are commonly used, but it is not the intent of this International Standard to specify or limit the choice of clamp material to aluminium or austenitic stainless steel.

Bibliography

[1] ISO 1609:1986, *Vacuum technology — Flange dimensions*

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