SLOVENSKI STANDARD
SIST EN 14420-7:2022

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Cevni fitingi z objemkami - 7. del: Spojke z vzvodno ročico

Hose fittings with clamp units - Part 7: Cam locking couplings

Schlaucharmaturen mit Klemmfassungen - Teil 7: Hebelarmkupplungen

Raccords pour flexibles avec demi-coquille - Partie 7 : Raccords à cames

Ta slovenski standard je istoveten z: **EN 14420-7:2022**

ICS:

23.040.60	Prirobnice, oglavki in spojni elementi	Flanges, couplings and joints

SIST EN 14420-7:2022 **en,fr,de**

EUROPEAN STANDARD

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English Version

Hose fittings with clamp units - Part 7: Cam locking couplings

Raccords pour flexibles avec demi-coquille - Partie 7 : Raccords à cames

Schlaucharmaturen mit Klemmfassungen - Teil 7: Hebelarmkupplungen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 14420-7:2022) has been prepared by Technical Committee CEN/TC 218 “Rubber and plastics hoses and hose assemblies”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2023, and conflicting national standards shall be withdrawn at the latest by February 2023.

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

This document supersedes EN 14420-7:2013.

In comparison to EN 14420-7:2013, the following changes have been made:

— In Clause 2, the Normative references have been updated;

— The Scope of the document has been changed.

The EN 14420 series, *Hose fittings with clamp units*, consists of the following parts:

— *Part 1: Requirements, types of fixing and connection, designation and testing*

— *Part 2: Hose side parts of hose tail*

— *Part 3: Clamp units, bolted or pinned*

— *Part 4: Flange connections*

— *Part 5: Threaded connections*

— *Part 6: TW tank truck couplings*

— *Part 7: Cam locking couplings*

— *Part 8: Symmetrical half coupling (Guillemin system)*

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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Introduction

Cam locking couplings are manufactured worldwide according to the American “military specification” MIL-C-27487. This American standard fixes the coupling side in a limited way, but not the connection side. Other parts like levers, bolts, ring and gaskets are not standardized.

1 Scope

This document specifies the design, materials, dimensions and marking requirements for cam locking couplings that serve as the link between hoses and connections to transport liquids, solids and gases, except liquid gas and steam.

For all sizes of aluminium cast material couplings and for all couplings of size DN 100, the pressure range is from −0,8 bar to 10 bar in the working temperature range from −20 °C to +65 °C. All other couplings according to this document are capable of operating within the pressure range from 0,8 bar[1] to 16 bar in the working temperature range from −20 °C to +65 °C.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 755-2, *Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 2: Mechanical properties*

EN 1706, *Aluminium and aluminium alloys - Castings - Chemical composition and mechanical properties*

EN 1982, *Copper and copper alloys - Ingots and castings*

EN 10088-1, *Stainless steels - Part 1: List of stainless steels*

EN 10213, *Steel castings for pressure purposes*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 12420, *Copper and copper alloys - Forgings*

EN 14420-1:2013, *Hose fittings with clamp units - Part 1: Requirements, types of fixing and connection, designation and testing*

EN 14420-2, *Hose fittings with clamp units - Part 2: Hose side parts of hose tail*

EN 14420-5, *Hose fittings with clamp units - Part 5: Threaded connections*

EN 22768-1, *General tolerances - Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (ISO 2768-1)*

EN 22768-2[2], *General tolerances - Part 2: Geometrical tolerances for features without individual tolerance indications (ISO 2768-2)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1)*

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[1] 1 bar = 0,1 MPa.

[2] EN 22768-2 has been withdrawn and replaced by EN ISO 22081.

EN ISO 683-1, *Heat-treatable steels, alloy steels and free-cutting steels - Part 1: Non-alloy steels for quenching and tempering (ISO 683-1)*

EN ISO 8330, *Rubber and plastics hoses and hose assemblies - Vocabulary (ISO 8330)*

ISO 272, *Fasteners — Hexagon products — Widths across flats*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 8330 and the following apply.

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/

3.1
DN
nominal size
alphanumeric designation of size for components of a pipework system, which is used for reference purposes, comprised of the letters DN followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections

Note 1 to entry: The number following the letters DN does not represent a measurable value and is not be used for calculation purposes except where specified in the relevant standard.

Note 2 to entry: In those standards which use the DN designation system, any relationship between DN and component dimensions is to be indicated, e.g. DN/OD or DN/ID.

[SOURCE: EN ISO 6708:1995, 2.1, modified]

3.2
PN
alphanumeric designation used for reference purposes related to a combination of mechanical and dimensional characteristics of a component of a hose fitting

Note 1 to entry: It comprises the letters PN followed by a dimensionless number.

Note 2 to entry: The number following the letters PN does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.

3.3
main gasket
interface gasket between the male and female part of a coupling

3.4
thread gasket
flat faced gasket for threads according to EN ISO 228-1

4 Requirements

4.1 Construction

The curves of the lever and the adapters as well as the dimensions of the main gaskets shall be harmonized such that twisting of the hose and vibrating during operation shall not lead to leakage. Cam arms shall be manually operable.

Cam arms shall be suitable to operate without using tools.

For gauges for cam-locking couplings according to this document see Annex A.

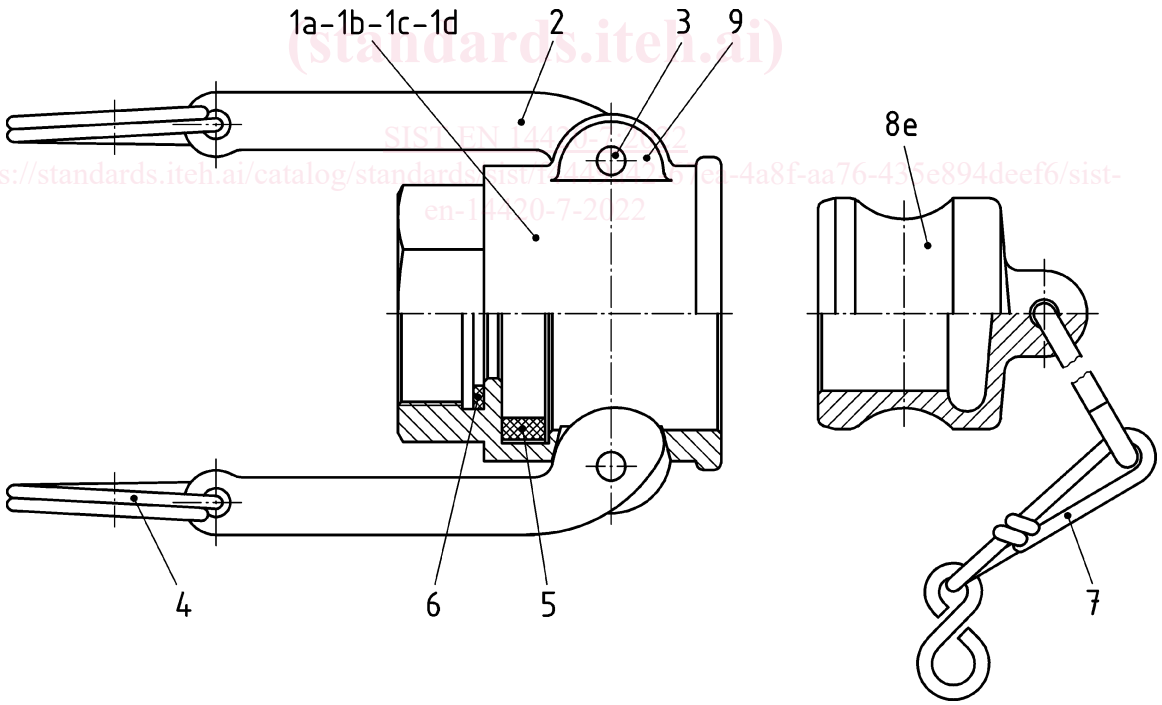
NOTE If the requirements of this document are met, compatibility between couplers and adapters from different manufacturers is ensured. Apart from gaskets, the interchangeability between spare parts from different manufacturers cannot be ensured.

4.2 Temperatures

Range of working temperatures of couplings equipped with nitrile butadiene rubber gasket (NBR-gasket): −20 °C to +65 °C.

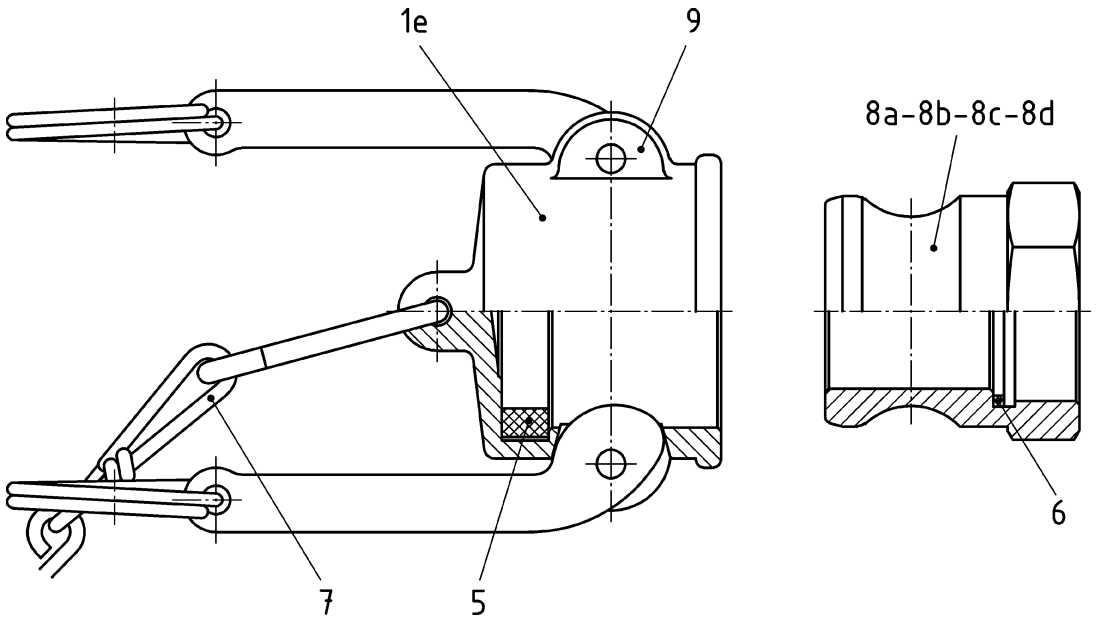
5 Survey

Figure 1 and Figure 2 show examples for cam-locking couplings. A parts list is given in Table 1.



NOTE Chain optional.

Figure 1 — Coupler type DF and adapter type DP (dust plug)



NOTE Chain optional.

Figure 2 — Coupler type DC and adapter type AF

Table 1 — Parts list

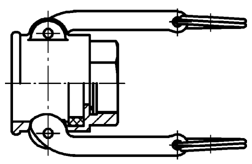
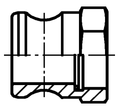
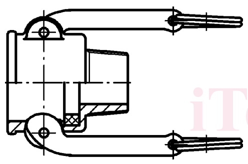
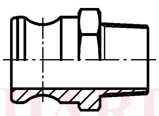
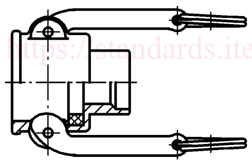
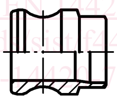
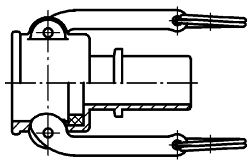
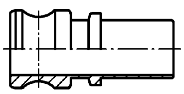
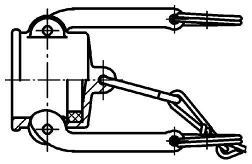
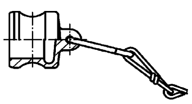
Item No.	Number of pieces	Nomination		
1 a	1	body	with internal thread	for coupler
1 b	1		with external thread	
1 c	1		with welding connection	
1 d	1		with hose nipple	
1 e	1		cap	
2	2	cam arms		
3	2	pin		
4	2	ring		
5	1	main gasket		
6	1	thread gasket for internal thread (see EN 14420-5)		
7	1	At the discretion of the manufacturer [a]		
8 a	1	Adapter	with internal thread	
8 b	1		with external thread	
8 c	1		with welding neck	
8 d	1		with hose tail	
8 e	1		plug	
9	4	ears		

[a] The chain is not part of a complete coupling.

6 Types of connection

The different types of connection of cam lock couplings are specified in Table 2.

Table 2 — Types of connection

Coupler			Adapter			Kind of connection	DN	Thread
Figure	Type	For detail see	Figure	Type	For detail see			
	DF	8.2.1		AF	8.8.1	internal thread according to EN ISO 228-1 flat-faced with thread gasket according to EN 14420-5	20 25 32 40 50 65 80 100	G 3/4 G 1 G 1 1/4 G 1 1/2 G 2 G 2 1/2 G 3 G 4
	BF [a]	8.2.2		FF [a]	8.8.2	external thread according to EN 10226-1	20 25 32 40 50 65 80 100	R 3/4 R 1 R 1 1/4 R 1 1/2 R 2 R 2 1/2 R 3 R 4
	DW	8.2.3		AW	8.8.3	welding connection	20 25 32 40 50 65 80 100	—
	CC	8.2.4		EC	8.8.4	hose tail	20 25 32 40 50 65 80 100	—
	DC	8.2.5		DP	8.8.5	dust cap, dust plug	20 25 32 40 50 65 80 100	—

[a] Prepared for flat face connections.

7 Designation

Example for an ordering designation of a complete coupler with nominal size DN 20 with internal thread (DF) made of copper-zinc alloy (CW614N):

Coupler EN 14420-7 – 20 – DF – CW614N

Example for an ordering designation of a complete adapter with nominal size DN 20 with internal thread (AF) made of copper-zinc alloy (CW614N):

Adapter EN 14420-7 – 20 – AF – CW614N

Example for an ordering designation of the main gasket (item No. 5) with nominal size DN 20 made of nitrile butadiene rubber (NBR):

Main gasket EN 14420-7 – 5 – 20 – NBR

8 Dimensions

8.1 General

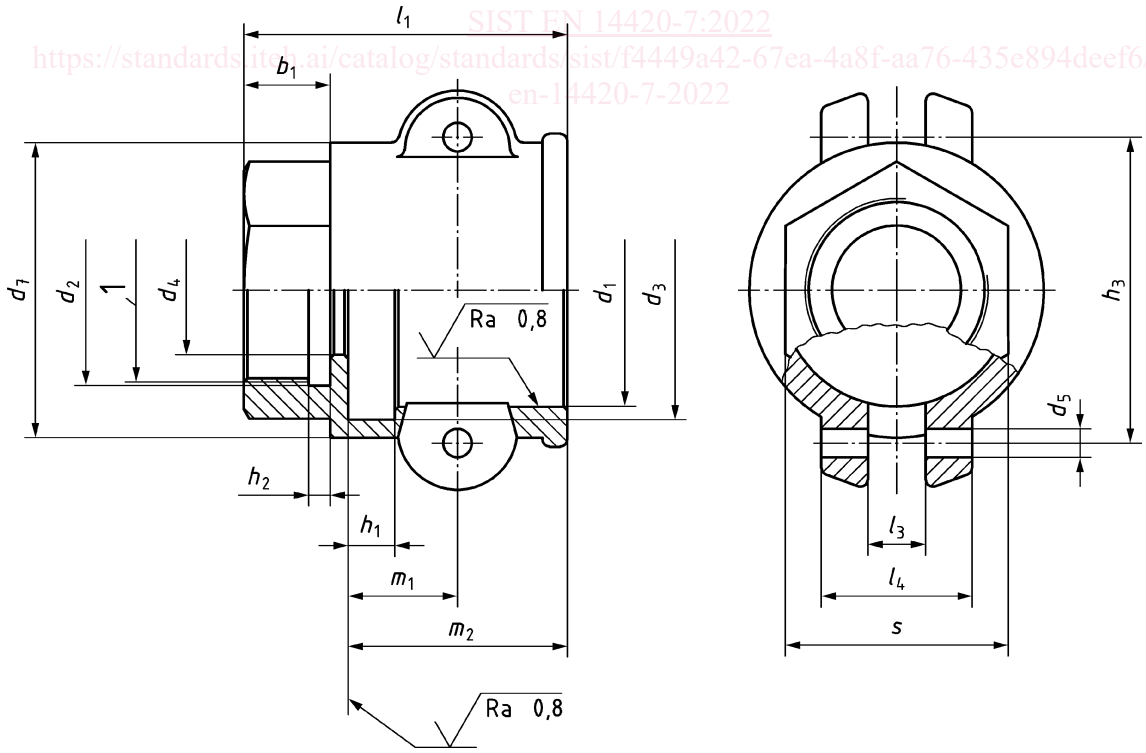
Dimensions and their values are given in Figure 3 to Figure 16 and Table 3 to Table 17.

Dimensions in millimetres.

General tolerances shall be according to EN 22768-1 and EN 22768-2[2].

8.2 Coupler types

8.2.1 Coupler type DF (item No. 1 a)



Key

1 d_6 — thread according to Table 2

Figure 3 — Coupler type DF