
**Hydraulic fluid power — Flush-face type,
quick-action couplings for use at pressures
of 20 MPa (200 bar) to 31,5 MPa (315 bar) —
Specifications**

*Transmissions hydrauliques — Raccords rapides de type à face plane pour
usage à des pressions de 20 MPa (200 bar) à 31,5 MPa (315 bar) —
Spécifications*

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ISO 16028:1999

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16028 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

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Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Quick-action couplings are used to join or separate quickly fluid conductor lines, without the use of tools or special devices.

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Hydraulic fluid power — Flush-face type, quick-action couplings for use at pressures of 20 MPa (200 bar) to 31,5 MPa (315 bar) — Specifications

1 Scope

This International Standard specifies the interface dimensions for interchangeability and specifies the performance requirements for hydraulic, flush-face type, quick-action couplings for use at pressures of 20 MPa (200 bar) to 31,5 MPa (315 bar).

Couplings in accordance with this International Standard are not designed to connect or disconnect under pressure.

NOTE Couplings in accordance with this International Standard provide for automatic sealing of the fluid pressure on the upstream side and on the downstream side when the coupling is disconnected.

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2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 4397, *Fluid power systems and components — Connectors and associated components — Nominal outside diameters of tubes and nominal inside diameters of hoses.*

ISO 4399, *Fluid power systems and components — Connectors and associated components — Nominal pressures.*

ISO 5598, *Fluid power systems and components — Vocabulary.*

ISO 7241-2, *Hydraulic fluid power — Quick-action couplings — Part 2: Test methods.*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 5598 apply.

4 Dimensional requirements

Hydraulic flush face quick-action couplings shall conform to the dimensions shown in Figure 1 and given in Table 1. The coupling size relates to the nominal inside diameter of the hose, in accordance with ISO 4397, that is recommended for use with the coupling.

5 Performance requirements

- 5.1 Hydraulic, flush-face, quick-action couplings in accordance with this International Standard shall meet or exceed the performance requirements given in Table 2.
- 5.2 The operating pressure shall be verified by pressure impulse testing in accordance with ISO 7241-2 for 100 000 cycles in the coupled and uncoupled conditions.
- 5.3 The rated burst pressure shall be verified by testing in accordance with ISO 7241-2 for one cycle in the coupled and uncoupled conditions.
- 5.4 The pressure drop at rated flow shall be verified by testing in accordance with ISO 7241-2.
- 5.5 The fluid loss per disconnect shall be verified by spillage testing in accordance with ISO 7241-2.
- 5.6 The surge flow capability shall be verified by surge flow testing in accordance with ISO 7241-2.
- 5.7 Provisions for locking the coupling in the coupled condition, to reduce the probability of accidental disconnect, shall be agreed upon between the manufacturer and the user.

6 Identification statement (Reference to this International Standard)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard:

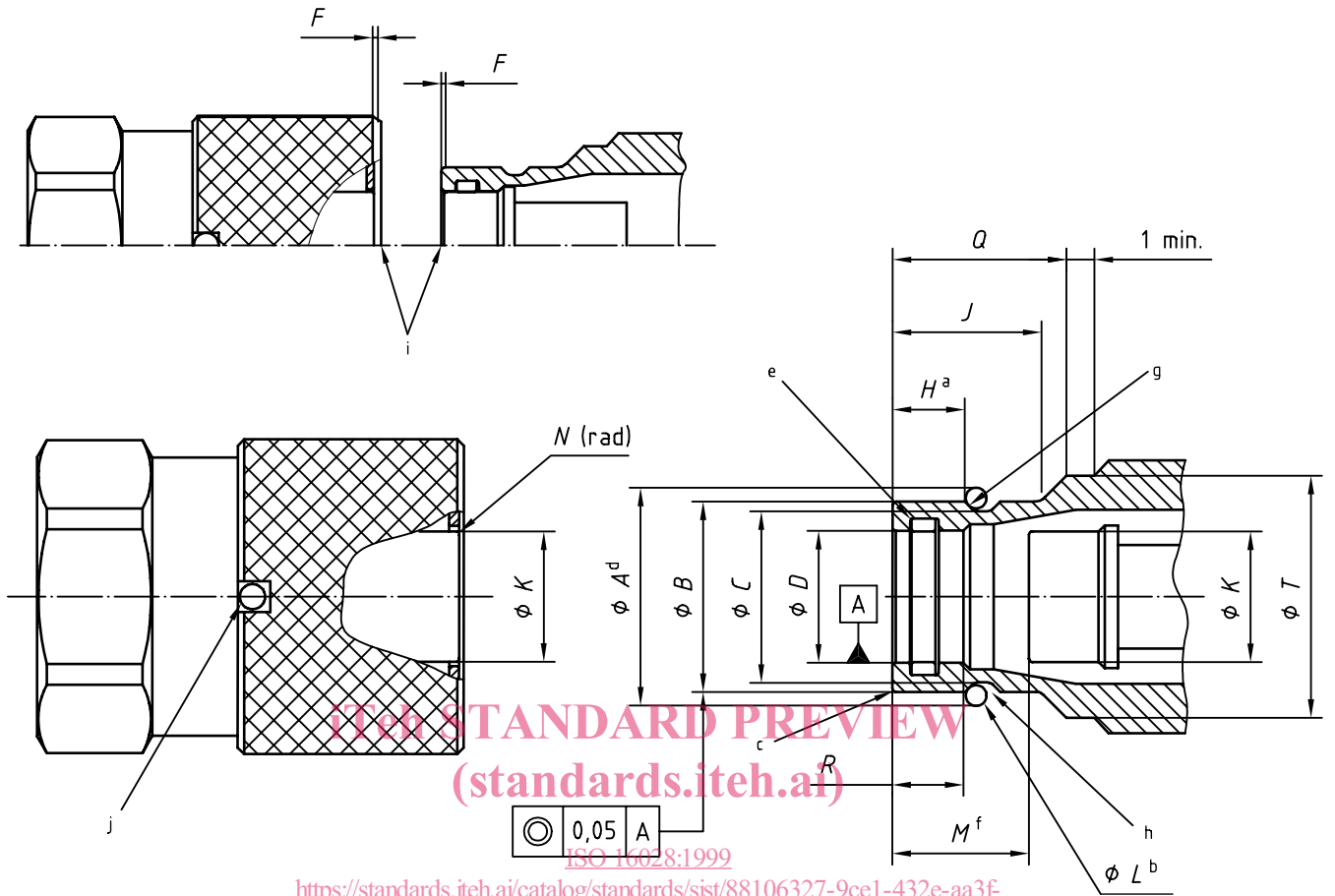
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“Dimensional and performance requirements in accordance with ISO 16028:1999, *Hydraulic fluid power — Flush-face type, quick-action couplings for use at pressures of 20 MPa (200 bar) to 31,5 MPa (315 bar) — Specifications.*”

ISO 16028:1999

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Dimensions in millimetres



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- | | | | |
|---|---|---|---|
| a | Distance to ball | g | Minimum hardness 50 HRC in ball contact area |
| b | Gage ball | h | The shape of the neck receiving the balls in the coupled position is left to the manufacturer |
| c | Chamfer RU or $U \times 45^\circ$ | i | This surface shall be flush within F max. |
| d | Gage diameter | j | Locking collar optional (see 5.7) |
| e | Locate seal within length R to seal on ϕK | | |
| f | Minimum with poppet against its stop | | |

Figure 1 — Hydraulic, flush-face type, quick-action coupling

Table 1 — Dimensions for hydraulic, flush-face type, quick-action couplings

Dimensions in millimetres

Size	A		B		C		D		F	H		J	L	M		N		R	T		U		K		Q	
	min.	max.	min.	max.	min.	max.	min.	max.	max.	min.	max.	min.	max.	min.	max.	min.	max.	max.	min.	max.	min.	max.	min.	max.	min.	max.
6,3	20,50	16,10	16,20	13,85	14,05	9,70	9,75	0,6	5,70	5,80	11,56	± 0,002 5	10,80	0,18	0,33	7,65	20,70	20,80	0,25	0,75	9,55	9,60	13,85	13,95		
10	24,10	19,66	19,79	17,53	17,73	12,65	12,70	0,6	4,68	4,86	16,25	3,175	15,60	0,25	0,41	9,65	23,24	23,34	0,25	1,15	12,50	12,57	18,11	18,21		
12,5	30,15	24,45	24,58	21,90	22,10	15,62	15,70	0,7	9,75	9,95	17,35	3,969	16,90	0,25	0,41	10,40	30,40	30,50	0,5	1	15,51	15,58	20,30	20,40		
16	32,65	26,95	27,08	24,40	24,60	17,62	17,70	0,7	9,75	9,95	17,35	3,969	17,50	0,30	0,46	10,50	32,90	33,00	0,5	1	17,48	17,55	20,30	20,40		
19	36,68	29,87	30,00	26,80	27,00	20,67	20,75	0,9	11,30	11,50	23,20	4,762 5	21,50	0,30	0,46	11,25	38,00	38,10	0,5	1	20,48	20,55	27,30	27,40		
25	44,85	35,94	36,07	31,90	32,10	23,67	23,75	1,1	10,80	11,00	23,20	6,350	22,60	0,43	0,58	13,05	45,25	45,35	0,75	1,25	23,48	23,55	29,85	29,95		

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Table 2 — Performance requirements for hydraulic, flush-face type, quick-action couplings

Characteristic	Performance requirements by coupling size					
	6,3	10	12,5	16	19	25
Rated operating pressure, in accordance with ISO 4399	31,5 MPa (315 bar)	25 MPa (250 bar)	25 MPa (250 bar)	25 MPa (250 bar)	25 MPa (250 bar)	20 MPa (200 bar)
Minimum burst pressure	126 MPa (1 260 bar)	100 MPa (1 000 bar)	100 MPa (1 000 bar)	100 MPa (1 000 bar)	100 MPa (1 000 bar)	80 MPa (800 bar)
Rated flow	12 l/min	23 l/min	45 l/min	74 l/min	100 l/min	189 l/min
Maximum pressure drop at rated flow	100 kPa (1 bar)	100 kPa (1 bar)	100 kPa (1 bar)	100 kPa (1 bar)	100 kPa (1 bar)	100 kPa (1 bar)
Rated surge flow	36 l/min	69 l/min	135 l/min	222 l/min	300 l/min	567 l/min
Maximum fluid loss per disconnect	0,02 ml	0,035 ml	0,07 ml	0,1 ml	0,15 ml	0,25 ml

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