DEUTSCHE NORM May 2002

Ports and stud ends with metric fine pitch thread, for use with compression couplings, valves and screw plugs
Dimensions

DIN 3852-1

ICS 23.040.01

Einschraubzapfen – Einschraublöcher für Rohrverschraubungen, Armaturen – Teil 1: Verschlussschrauben mit metrischem Feingewinde – Konstruktionsmaße

This standard, together with DIN EN ISO 9974-1 and DIN EN ISO 9974-3, September 2000 editions, supersedes February 1992 edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Foreword

This standard has been prepared by Technical Committee *Rohrverschraubungen* of the *Normenausschuss Rohrleitungen und Dampfkesselanlagen* (Pipelines and Pressure Vessels Standards Committee), taking into account the specifications of DIN EN ISO 9974-1 and DIN EN ISO 9974-3.

Amendments

This standard differs from the February 1992 edition as follows:

a) Dimensions d_4 for ports and d_3 for stud ends have been adopted from DIN EN ISO 9974-1 and DIN EN ISO 9974-3, respectively.

b) Type E stud ends are no longer specified.

c) Tolerances on d_3 and r have been specified (cf. table 1).

d) The standard has been editorially revised.

Previous editions

DIN KrG 403: 1931-12; DIN 7602: 1935-10, 1947-05; DIN 3852-1: 1953x-08, 1964-10, 1966-05, 1978-09, 1992-02.

All dimensions are in millimetres.

1 Scope

This standard specifies the dimensions and designation for ports and stud ends with metric fine pitch thread for use with compression couplings, valves and screw plugs.

NOTE: Ports and stud ends conforming to this standard should not be used for new designs in fluid power applications.

Continued on pages 2 to 8.

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original should be consulted as the authoritative text.

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2 Normative references

This standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the titles of the publications are listed below. For dated references, subsequent amendments to or revisions of any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

DIN 13-5	General purpose ISO metric screw threads – Nominal sizes for 1 mm and 1,25 mm fine pitch threads with diameters from 7,5 mm to 200 mm
DIN 13-6	General purpose ISO metric screw threads – Nominal sizes for 1,5 mm fine pitch threads with diameters from 12 mm to 300 mm
DIN 13-7	ISO metric screw threads – Nominal sizes for 2 mm fine pitch threads with diameters from 17 mm to 300 mm
DIN 13-14	ISO metric screw threads – Tolerance system for threads 1 mm in diameter and larger
DIN 158-1	Metric taper external and mating parallel internal screw threads – Dimensions, tolerances and inspection
DIN EN ISO 9974-1	Connections for general use and fluid power – Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing – Part 1: Threaded ports (ISO 9974-1 : 1996)
DIN EN ISO 9974-3	Connections for general use and fluid power – Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing – Part 3: Stud ends with metal-to-metal sealing (type B) (ISO 9974-3 : 1996)

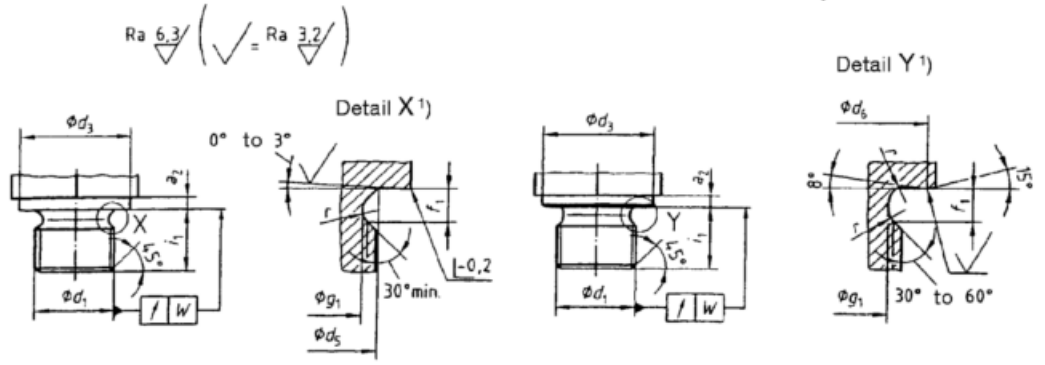
3 Dimensions and designation

3.1 Stud ends

3.1.1 Types

Type A, with sealing by washer

Type B, with sealing by compression against face of body



1) Thread chamfered to minor diameter.

Type C, with sealing in tapered thread

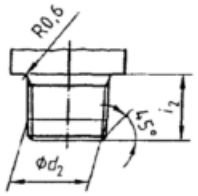


Figure 1: Stud end dimensions (notation)

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Table 1: Stud end dimensions

Thread size for		a_2	d_3[1]			d_5	d_6	Groove dimensions		Standard design (i_1)				Standard design (i_2)[2]		r		W
types A and B stud ends (d_1)	type C stud ends (d_2)		Small		Large			f_1	g_1	With standard ports only	With standard ports and ports with small d_4 value	With standard ports only	With standard ports and ports with small d_4 value	With standard ports only	With standard ports and ports with small d_4 value			
										in compression couplings and valves		in screw plugs							
		Min.	0 −0,2	0 −0,4	Max.	0 −0,3	0 −0,5	+0,3 0	0 −0,2	±0,2				Min.			±0,2	
M8 × 1•	M8 × 1 keg	1,5•	12•	12	16	8,3	11•	2•	6,4•	8•	8	8	6	8	6,5	1•	1	0,1•
M10 × 1•	M10 × 1 keg	1,5•	14•	14	19	10,3	13•	2•	8,4•	8•	8	8	6	8	6,5	1•	1	
M12 × 1,5•	M12 × 1,5 keg	2•	17•	17	24	12,3	16•	3•	9,7•	12•	10	12	9	12	10	1,2•	1,2	
M14 × 1,5•	M14 × 1,5 keg	2•	19•	19	24	14,3	18•	3•	11,7•	12•	10	12	9	12	10	1,2•	1,2	
M16 × 1,5•	M16 × 1,5 keg	2•	21•	21	27	16,3	20•	3•	13,7•	12•	10	12	9	12	10	1,2•	1,2	
M18 × 1,5•	M18 × 1,5 keg	2,5•	23•	23	29	18,3	22•	3•	15,7•	12•	10	12	9	12	10	1,2•	1,2	
M20 × 1,5•	M20 × 1,5 keg	2,5•	25•	25	33	20,3	24•	3•	17,7•	14•	12	14	9	14[3]	12[3]	1,2•	1,2	
M22 × 1,5•	M22 × 1,5 keg	3•	27•	27	33	22,3	26•	3•	19,7•	14•	12	14	9	14[3]	12[3]	1,2•	1,2	
M24 × 1,5	M24 × 1,5 keg	3	—	29	37	24,3	28	3	21,7	14	12	14	9	14[3]	12[3]	—	1,2	
M26 × 1,5•	M26 × 1,5 keg	3•	31•	31	41	26,3	30•	3•	23,7•	16•	12	16	9	—	14[3]	1,2•	1,2	0,2•
M27 × 2•	M27 × 2 keg	3•	32•	32	41	27,3	30,5•	4•	24•	16•	—	16	—	16	14	1,6•	1,6	
M30 × 1,5[4]	M30 × 1,5 keg[4]	3	—	36	43	30,3	34,5	3	27,7	—	12	16	9	—	—	—	1,2	
M30 × 2	M30 × 2 keg	3	—	36	43	30,3	34,5	4	27	16	12	16	9	—	14	—	1,6	
M33 × 2•	M33 × 2 keg	3•	39•	39	46	33,3	37•	4•	30•	18•	—	16	—	—	14	1,6•	1,6	
M36 × 1,5[4]	M36 × 1,5 keg[4]	3	—	42	49	36,3	40	3	33,7	—	—	16	—	—	—	—	1,2	
M36 × 2	M36 × 2 keg	3	—	42	49	36,3	40	4	33	18	—	16	—	—	15	—	1,6	
M38 × 1,5[4]	M38 × 1,5 keg[4]	3	—	44	51	38,3	42	3	35,7	—	14	16	12	—	—	—	1,2	
M39 × 2	M39 × 2 keg	3	—	46	52	39,3	44	4	36	—	—	16	—	—	15	—	1,6	
M42 × 1,5[4]	M42 × 1,5 keg[4]	3	—	49	55	42,3	47	3	39,7	—	—	16	—	—	—	—	1,2	

(continued)

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Table 1 (concluded)

Thread size for		a_2	d_3[1]			d_5	d_6	Groove dimensions		Standard design (i_1)		Short design (i_1)		Standard design (i_2)[2]		Short design (i_2)[2]		r	W
types A and B stud ends (d_1)	type C stud ends (d_2)		Small		Large			f_1	g_1	With standard ports only	With standard ports and ports with small d_4 value	With standard ports only	With standard ports and ports with small d_4 value	With standard ports only		With standard ports and ports with small d_4 value			
										in compression couplings and valves		in screw plugs							
		Min.	0 −0,2	0 −0,4	Max.	0 −0,3	0 −0,5	+0,3 0	0 −0,2	±0,2				Min.				±0,2	
M42 × 2•	M42 × 2 keg	3•	49•	49	57	42,3	47•	4•	39•	20•	—	16	—	—	15	1,6•	1,6		
M45 × 1,5[4]	M45 × 1,5 keg[4]	3	—	52	58	45,3	50	3	42,7	—	14	16	12	—	—	—	1,2		
M45 × 2	M45 × 2 keg	3	—	52	58	45,3	50	4	42	20	—	16	—	—	15	—	1,6		
M48 × 1,5[4]	M48 × 1,5 keg[4]	3	—	55	60	48,3	53	3	45,7	—	—	16	—	—	—	—	1,2		
M48 × 2•	M48 × 2 keg	3•	55•	55	64	48,3	53•	4•	45•	22•	—	16	—	—	15	1,6•	1,6		
M52 × 1,5[4]	M52 × 1,5 keg[4]	3	—	60	64	52,3	58	3	49,7	—	14	16	12	—	—	—	1,2	0,2•	
M52 × 2	M52 × 2 keg	3	—	60	64	52,3	58	4	49	—	—	16	—	—	15	—	1,6		
M56 × 2	M56 × 2 keg	3	—	64	68	56,3	—	4	53	—	—	20	—	—	—	—	1,6		
M60 × 2	—	3	—	68	72	60,3	—	4	57	—	16	20	—	—	—	—	1,6		
M64 × 2	—	3	—	72	776	64,3	—	4	61	—	—	20	—	—	—	—	1,6		
M78 × 2	—	3	—	88	888	78,3	—	4	75	—	16	—	—	—	—	—	1,6		

NOTE: Thread sizes and values for type B stud ends marked • are identical with those specified in DIN EN ISO 9974-3.

[1]) Where sealing is by compression against the face, d_3 shall preferably be small.

[2]) Type C stud ends with i_2 of the short design shall be provided with a taper screw thread with a useful thread of short length as specified in DIN 158-1.

[3]) In the automotive industry, thread sizes M20 × 1,5 keg to M26 × 1,5 keg may be used with i_2 equal to 12 mm for the standard design, or equal to 10 mm for the short design, in accordance with DIN 158-1.

[4]) Size only to be used for LL type couplings.

3.1.2 Screw threads

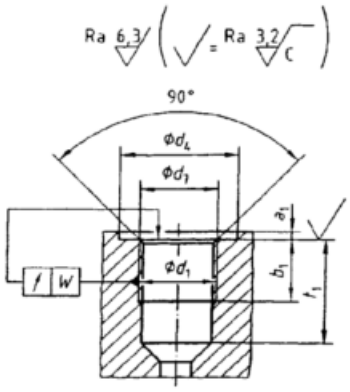
Types A and B stud ends shall be provided with a metric fine pitch thread as in DIN 13-5 to DIN 13-7, and type C stud ends with a metric taper thread as in DIN 158-1.

3.2 Ports

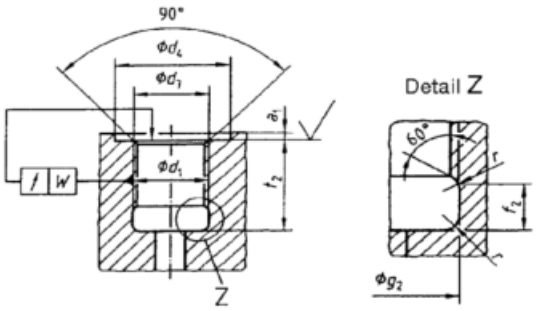
Types X and Y ports are intended for use with types A and B stud ends.

3.2.1 Types

Type X, with run-out



Type Y, with groove



Type Z ports are intended for use with type C stud ends. Thread countersunk to dimension d_1.

Type Z, with run-out

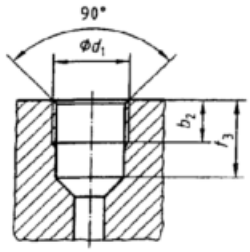


Figure 2: Port dimensions (notation)

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Table 2: Port dimensions

Thread size (d_1) for types X and Y ports	Thread size (d_1) for type Z ports	a_1	Standard design b_1 for standard and short stud ends	Short design b_1 for short stud ends only	Standard design b_2 for standard and short stud ends	Short design b_2 for short stud ends only	d_4 [1) 2)] Small	d_4 [1) 2)] Large	d_7	Groove dimensions f_2 Standard design	Groove dimensions f_2 Short design	Groove dimensions g_2	Groove dimensions r	Standard design t_1 for standard and short stud ends	Short design t_1 for short stud ends only	Standard design t_2 for standard and short stud ends	Short design t_2 for short stud ends only	Standard design t_3 for standard and short stud ends	Short design t_3 for short stud ends only	W
		Max.	Min.		Min.		Min.		Lim. dev.	+ 0,3 0		+ 0,3 0		Min.		Min. [3)]		Min.		
M8 × 1•	M8 × 1 4H5H	1•	8•	8	5,5	4,8	13•	17	8	3	2	8,2	1	10•	10	11	10	10	7,3	
M10 × 1•	M10 × 1 4H5H	1•	8•	8	5,5	4,8	15•	20	10	3	2	10,2	1	10•	10	11	10	10	7,3	
M12 × 1,5•	M12 × 1,5 4H5H	1,5•	12•	10	8,5	7,5	18•	25	12	5	3	12,2	1,2	15•	13	17	13	13,5	10	
M14 × 1,5•	M14 × 1,5 4H5H	1,5•	12•	10	8,5	7,5	20•	25	14	5	3	14,2	1,2	15•	13	17	13	13,5	10	
M16 × 1,5•	M16 × 1,5 4H5H	1,5•	12•	10	8,5	7,5	23•	28	16	5	3	16,2	1,2	15•	13	17	13	13,5	10	0,1•
M18 × 1,5•	M18 × 1,5 4H5H	2•	12•	10	8,5	7,5	25•	30	18	5	3	18,2	1,2	15•	13	17	13	13,5	10	
M20 × 1,5•	M20 × 1,5 4H5H	2•	14•	12	10,5 [4)]	9,5 [4)]	27•	34	20	5	3	20,2	1,2	17•	15	19	15	15,5 [4)]	12 [4)]	
M22 × 1,5•	M22 × 1,5 4H5H	2,5•	14•	12	10,5 [4)]	9,5 [4)]	28•	34	22	5	3	22,2	1,2	17•	15	19	15	15,5 [4)]	12 [4)]	
M24 × 1,5	M24 × 1,5 4H5H	2,5	14	12	10,5 [4)]	9,5 [4)]	30	38	24	5	3	24,2	1,2	17	15	19	15	15,5 [4)]	12 [4)]	
M26 × 1,5•	M26 × 1,5 4H5H	2,5•	16•	12	—	9,5 [4)]	33•	42	26	5	3	26,2	1,2	19•	15	21	15	—	12 [4)]	
M27 × 2•	M27 × 2 4H5H	2,5•	16•	—	12	10,5	33•	42	27	6	4	27,2	1,6	20•	—	22	—	18	13,5	
M30 × 1,5 [5)]	M30 × 1,5 4H5H [5)]	2,5	—	12	—	—	37	44	30	5	3	30,2	1,2	—	15	—	15	—	—	
M30 × 2	M30 × 2 4H5H	2,5	16	12	—	10,5	37	44	30	6	4	30,2	1,6	20	16	22	16	—	13,5	
M33 × 2•	M33 × 2 4H5H	2,5•	18•	—	—	10,5	41•	47	33	6	4	33,2	1,6	22•	—	24	—	—	13,5	
M36 × 1,5 [5)]	M36 × 1,5 4H5H [5)]	2,5	—	14	—	—	43	50	36	5	3	36,2	1,2	—	17	—	17	—	—	0,2•
M36 × 2	M36 × 2 4H5H	2,5	18	—	—	11,5	43	50	36	6	4	36,2	1,6	22	—	24	—	—	14,5	
M38 × 1,5 [5)]	M38 × 1,5 4H5H [5)]	2,5	—	14	—	9	45	52	38	5	3	38,2	1,2	—	17	—	17	—	—	
M39 × 2	M39 × 2 4H5H	2,5	—	—	—	11,5	47	53	39	—	—	—	—	—	—	—	—	—	14,5	
M42 × 1,5 [5)]	M42 × 1,5 4H5H [5)]	2,5	—	14	—	—	50	56	42	5	3	42,2	1,2	—	17	—	17	—	—	
M42 × 2•	M42 × 2 4H5H	2,5•	20•	—	—	11,5	51•	58	42	6	4	42,2	1,6	24•	—	26	—	—	14,5	

(continued)

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Table 2 (concluded)

Thread size (d_1) for		a_1	Standard	Short	Standard	Short	d_4 [1) 2)]		d_7		Groove dimensions				Standard	Short	Standard	Short	Standard	Short	W
			design b_1		design b_2						f_2		g_2	r	design t_1		design t_2		design t_3		
types X and Y ports	type Z ports		for standard and short stud ends	for short stud ends only	for standard and short stud ends	for short stud ends only	Small	Large		Lim. dev.	Standard	Short			for standard and short stud ends	for short stud ends only	for standard and short stud ends	for short stud ends only	for standard and short stud ends	for short stud ends only	
											design										
		Max.	Min.		Min.		Min.				+ 0,3 0		+ 0,3 0		Min.		Min. [3)]		Min.		
M45 × 1,5 [5)]	M45 × 1,5 4H5H [5)]	2,5	—	14	—	9	53	59	45		5	3	45,2	1,2	—	17	—	17	—	—	
M45 × 2	M45 × 2 4H5H	2,5	20	—	—	11,5	53	59	45		6	4	45,2	1,6	24	—	26	—	—	14,5	
M48 × 1,5 [5)]	M48 × 1,5 4H5H [5)]	2,5	—	14	—	—	56	61	48		5	3	48,2	1,2	—	17	—	17	—	—	
M48 × 2•	M48 × 2 4H5H	2,5•	22•	—	—	11,5	56•	65	48		6	4	48,2	1,6	26	—	28	—	—	14,5	
M52 × 1,5 [5)]	M52 × 1,5 4H5H [5)]	2,5	—	14	—	9	61	65	52	+ 0,3 0	5	3	52,2	1,2	—	17	—	17	—	—	0,2•
M52 × 2	M52 × 2 4H5H	2,5	—	—	—	11,5	61	65	52		—	—	—	—	—	—	—	—	—	14,5	
M56 × 2	M56 × 2 4H5H	2,5	—	16	—	—	65	69	56		6	4	56,2	1,6	—	20	—	20	—	—	
M60 × 2	—	2,5	—	16	—	—	69	73	60		6	4	60,3	1,6	—	20	—	20	—	—	
M64 × 2	—	2,5	—	16	—	—	73	77	64		6	4	64,3	1,6	—	20	—	20	—	—	
M78 × 2	—	2,5	—	16	—	—	89	89	78		6	4	78,3	1,6	—	20	—	20	—	—	

NOTE: Thread sizes and values for type X ports marked • are identical with those specified in DIN EN ISO 9974-1.

1) Where sealing is by compression against the face, d_4 shall preferably be small.
2) The counterbore (d_4) may be dispensed with where no washer is used and where the contact face is flat and normal to the thread axis.
3) $t_2 = b_1 + f_2$.
4) In the automotive industry, thread sizes M20 × 1,5 4H5H to M26 × 1,5 4H5H may be used with the following values for b_2 or t_3, in accordance with DIN 158-1:
b_2 (standard design) = 8,5 mm where i_2 = 12 mm (standard design);
b_2 (short design) = 7,5 mm where i_2 = 10 mm (short design);
t_3 (standard design) = 13,5 mm where i_2 = 12 mm (standard design);
t_3 (short design) = 10 mm where i_2 = 10 mm (short design).
5) Size only to be used for LL type couplings.

3.2.2 Screw threads

Types X and Y ports shall be provided with a metric fine pitch thread as in DIN 13-5 to DIN 13-7, and type Z ports with a metric parallel thread as in DIN 158-1 (the latter being designated in accordance with DIN 13-14).

4 Designation

The designation of stud ends and ports conforming to this standard shall include the following items, given in the order below:

a) name ('stud end' or 'port');

b) DIN number ('DIN 3852');

c) symbol denoting type (cf. figures 1 and 2);

d) symbol 'K' to denote the short design (no symbol being necessary in the case of standard designs);

e) symbol 'B' to denote large design of shoulder or counterbore (no symbol being necessary in the case of small designs);

f) symbol denoting thread size (e.g. 'M20 × 1,5' for that designated M20 × 1,5, or 'M27 × 2' for that designated M27 × 2).

Designation of a type A stud end (A) of standard design, with small shoulder and with a thread of size M20 × 1,5:

Stud end DIN 3852 – A M20 × 1,5

Designation of a type X port (X) of standard design, with small counterbore and with a thread of size M24 × 1,5:

Port DIN 3852 – X M24 × 1,5

Designation of a type Z port (Z) of short design (K), with a thread of size M27 × 2 4H5H:

Port DIN 3852 – Z K M27 × 2

Annex A

Comparison of stud end designations specified in DIN 3852 and DIN EN ISO 9974-3 (example)

Designation as in DIN 3852-1	Designation as in DIN EN ISO 9974-3
Stud end DIN 3852 B M18 × 1,5	Stud end ISO 9974-3 – M18 × 1,5 L
	Stud end ISO 9974-3 – M18 × 1,5 S

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