

DIN914 Set screws with internal hexagon drive and pointed tip Modified ISO 4027

Hexagon socket set screws with cone point

This standard contains all the specifications of the International Standard ISO 4027 - 1977, implemented with national refinements. These are marked by shaded areas.

Adopting ISO 4027 unmodified as a DIN-ISO standard was not possible at the current time, because some ISO reference standards were not yet available (national standards are used in their place). Additionally, ISO 4027 lacks sizes M 1.4, M 1.8, M 14, M 18 and M 22, as well as certain intermediate sizes required nationally.

1 Scope of application

Dimensions in mm

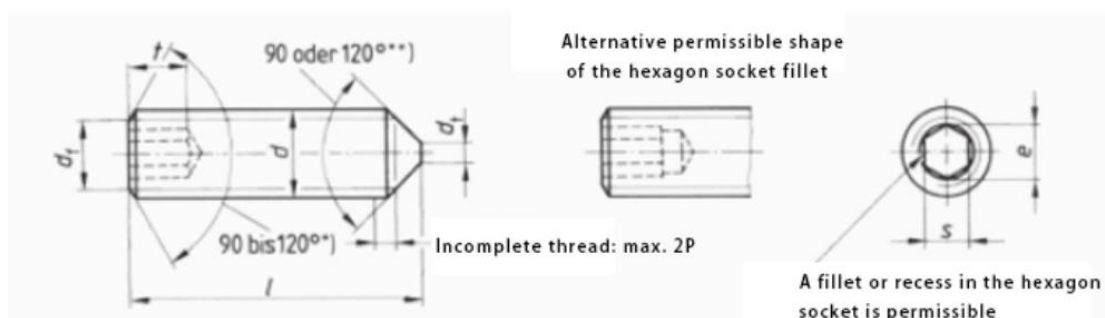
ISO 4027 specifies hexagon socket set screws (with cone point) with metric dimensions and thread diameters from 1.6 to 24 mm, in product class A.

If other dimensions are required in individual cases, these shall comply with the relevant standards (e.g. ISO 261, ISO 888, ISO 898, ISO 965, ISO 3506).

In Germany, the following additional standards apply:

- DIN 267 Part 1: Screws, nuts and similar threaded and formed parts; General technical delivery conditions
- DIN 267 Part 2: Screws, nuts and similar threaded and formed parts; Technical delivery conditions, Surface finish and dimensional accuracy
- DIN 267 Part 5: Screws, nuts and similar threaded and formed parts; Technical delivery conditions, Testing and inspection
- DIN 267 Part 6: Mechanical fasteners; Technical delivery conditions, Finish and dimensional accuracy for product class F
- DIN 267 Part 9: Mechanical fasteners; Technical delivery conditions, Components with electroplated coatings
- DIN 267 Part 11: Mechanical fasteners; Technical delivery conditions, Components made of non-rusting steels
- DIN 267 Part 18: Mechanical fasteners; Technical delivery conditions, Components made of non-ferrous metals

Dimensions and Designation



For set screws up to M2.5, product class F can be specified. For this, the suffix must be added to the designation, e.g.: Set screw DIN 914 - M2.5 $\times$ 6 - 45H - F.

Thread d			M1.4	M1.6	M1.8	M2	M2.5	M3	M4	M5	M6
P 1)			0.3	0.35	0.35	0.4	0.45	0.5	0.7	0.8	1
dt			Core diameter – minimum size								
dt	Max										1.5
	Min										0.9
e	Min ²)		0.803	0.803	0.803	1.003	1.427	1.73	2.3	2.87	3.44
s	Nominal size		0.7	0.7	0.7	0.9	1.3	1.5	2	2.5	3
	Min		0.711	0.711	0.711	0.889	1.27	1.52	2.02	2.52	3.02
	Max		0.724	0.724	0.724	0.902	1.295	1.545	2.045	2.56	3.08
t	Min 3)		0.6	0.7	0.8	0.8	1.2	1.2	1.5	2	2
	Min 4)		1.4	1.5	1.6	1.7	2	2	2.5	3	3.5
L			Weight (7.85 kg/dm³) kg per 1000 pieces ≈								
Nominal size	Min	Max									
2	1.8	2.2									
2.5	2.3	2.7	0.018	0.023	0.03						
3	2.8	3.2	0.022	0.029	0.036	0.04					
3.5	3.26	3.74									
4	3.76	4.24	0.029	0.037	0.048	0.059	0.1	0.13			
5	4.76	5.24	0.036	0.046	0.06	0.074	0.125	0.17	0.26		
6	5.76	6.24	0.049	0.056	0.072	0.089	0.15	0.21	0.34	0.49	
8	7.71	8.29				0.119	0.199	0.3	0.49	0.73	1.04
10	9.71	10.29				0.148	0.249	0.39	0.64	0.97	1.39
12	11.65	11.35						0.48	0.79	1.21	1.74
14	13.65	14.35									
16	15.65	16.35						0.66	1.09	1.69	2.44
18	17.65	18.35									
20	19.58	20.42						0.84	1.39	2.17	3.14
22	21.58	22.42									
25	24.58	24.42								2.77	4.02
28	27.58	28.42									
30	29.58	30.42									4.9
35	34.5	35.5									5.78
1) (4) see page 3											

***) For short set screws with lengths above the dashed step line, an angle of 120° applies.
 ***) The angle at the tip only applies to the area between the core diameter of the thread and the flat d_f . For set screws with lengths above the dashed step line, this angle shall be 120° ; for lengths below, it shall be 90° .

Thread d			M8	M10	M12	M14	M16	M18	M20	M22	M24
P 1)			1.25	1.5	1.75	2	2	2.5	2.5	2.5	3
dt			Core diameter - minimum size								
dt	Max		2	2.5	3	4	4	5	5	6	6
	Min		1.4	1.9	2.4	3.25	3.25	4.25	4.25	5.25	5.25
e	Min 2)		4.58	5.72	6.86	6.86	9.15	11.43	11.43	13.72	13.72
s	Nominal size		4	5	6	6	8	10	10	12	12
	Min		4.02	5.02	6.02	6.02	8.025	10.025	10.025	12.032	12.032
	Max		4.095	5.095	6.095	6.095	8.115	10.115	10.115	12.142	12.142
t	Min 3)		3	4	4.5	5.6	6.4	7.2	8	9	10
	Min 4)		5	6	8	9	10	11	12	13.5	15
L			Weight (7.85 kg/dm³) kg per 1000 pieces ≈								
Nominal size	Min	Max									
6	5.76	6.24									
8	7.71	8.29	2.35								
10	9.71	10.29	2.98	4.42							
12	11.65	12.35									
14	13.65	14.35									
16	15.65	16.35	4.24	6.42	8.9						
18	17.58	18.42									
20	19.58	20.42	5.5	8.4	11.7		20.1				
22	21.58	22.42									
25	24.58	25.42	7.09	10.8	15.3		26.6		40.7		
38	27.58	28.42									
30	29.58	30.42	8.68	13.3	18.9		33.2		51		68.7
35	34.5	35.5	10.3	15.8	22.5		39.7		61.3		83.2
40	39.5	40.5	11.9	18.3	26.1		46.3		71.6		98.2
45	44.5	45.5							81.9		113
50	49.5	50.5							92.2		126
55	54.4	55.6									143
60	59.4	60.6									158

- 1 P = Thread pitch (coarse thread)
- 2 $M_{mind.} = 1.14 \times s_{max.}$; except for sizes M 1.4 to M 2.5
- 3 Single-square drive of the set screw key for set screws with nominal sizes above the dashed step line
- 4 Single-square drive of the set screw key for set screws with nominal sizes below the dashed step line

The standard sizes are marked in bold. Non-standard sizes are possible but should be avoided.
 Note: In ISO 4027, the range of standard nominal sizes is defined somewhat differently. The weights specified in ISO 4027 are not listed here. They are marked in the relevant tables by a bold border. Sizes not specified in ISO 4027 are included in the table for general information.

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Material		Steel	Stainless Steel		Non-ferrous Metal
General Requirements		in accordance with DIN 267 Part 1			
Thread	Tolerance	5g 6g for strength class 45H; 6g for all other strength classes and materials			
	Standard	Part 12 and Part 15			
Mechanical Properties	Strength Class	45H	Up to M 20: A2-70, A4, C3; over M 20: A2-50		 ²)
	Standard	DIN ISO 898 Part5	DIN267 Part11 1)		DIN267 Part18
Allowable Dimensional and Form deviations	Product class	A 3)			
	Standard		DIN ISO 4759 Part1		
Surface		blackened (thermal or chemical)	plain		plain
		DIN 267 Part 2 (April 1968 edition), Section 2.1 shall apply to the surface roughness depths. Requirements for electrolytic surface protection shall comply with DIN 267 Part 9.			
Acceptance inspection		DIN 267 Part 5 shall apply to the acceptance inspection.			
ISO 3506 is cited in ISO 4026. This standard is included in DIN 267 Part 11.					
DIN 267 Part 18 contains a selection of non-ferrous metals (light and heavy metals) for fasteners. It was first published in 1980. A material selection for threaded pins has not yet been determined.					
See Section 2					

4 Designation

The designation of set screws per ISO 4027 has not been adopted. This is because the standard is a national standard (not a DIN-ISO standard), and the designation of parts must use the DIN number (see Section 2 and explanatory notes).

Explanations

The content of this standard has been incorporated, with national modifications, into the International Standard ISO 4027 - 1977 *Hexagon socket set screws with cone point* (also: *Vis sans tête à six pans creux, à bout Spitze / Gewindestifte mit Innensechskant und Spitze*). All specifications that go beyond ISO 4027 are national; these deviations are marked by shaded areas. The reasons for this type of adoption (of an international standard as a national standard) are stated in the foreword.

By adopting ISO 4027, the previous version (January 1973) of DIN 914 was revised, particularly regarding the cone diameters *d*.

Thread d			M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
dt	previously	Max	1	2	2	2	4	4	5	6	6	8
		Min	0.75	1.75	1.75	1.75	3.7	3.7	4.7	5.7	5.7	7.64
	new	Max	1.5	2	2.5	3	4	4	5	5	6	6
		Min	0.9	1.4	1.9	2.4	3.25	3.25	4.25	4.25	5.25	5.25

In general, the modified cone diameters should not lead to interchangeability issues. Nevertheless, it is recommended to check the specific situation on a case-by-case basis. Set screws are - **as before** - designated primarily per DIN 914 (see Section 4). For easier international communication, a designation per ISO 4027 can also be used if needed. However, in this case, only the features consistent with ISO (not shaded in this standard) apply.

Example: Set screw ISO 4027 - M6 × 12 - 45H

Strength Classes & Materials

In ISO 4027, only strength class (hardness class) 45H (per DIN ISO 898 Part 5) is specified. Nationally, set screws are also required in other strength classes (e.g., 22H), so this option has been added domestically. The same applies to product class (finish) F (per DIN 267 Part 6), which is valid for set screws up to M2.5. This does not affect product safety.

In ISO 4027, the old strength class A2-2 is still listed for rust- and acid-resistant (stainless) steels. In line with ISO 3506 (see DIN 267 Part 11), this has been renamed A2-70 or A2-50.

For non-ferrous metals, reference is made to DIN 267 Part 18, as no corresponding international standard yet exists.

Short Set Screws

The minimum hexagon depth t has been reduced for very short set screws (located above the step line). When assembling these short set screws, reduced tightening conditions must be taken into account.

Standard Format

The editorial design of this standard was intentionally aligned with the ISO standard as much as possible, to facilitate comparison between DIN and ISO.

Can you provide more examples of set screw designations?

What is the difference between DIN 914 and ISO 4027?

How can I ensure the interchangeability of modified cone diameters?