

DIN915

Threaded pins

with internal hexagon and pin

modified ISO 4028

These are identified by shading.

This standard, in its German translation, contains all the provisions of the International Standard ISO 4028 - 1977, including national supplements.

At the present time, an unmodified adoption of ISO 4028 as a DIN-ISO standard was not possible, because some of the ISO reference standards were not yet available, and national standards were used in their place. Furthermore, ISO 4028 lacks the sizes M 1.4, M 1.8, M 14, M 18 and M 22, as well as some intermediate lengths that are required nationally.

Dimensions in mm

1. Scope of application

ISO 4028 covers threaded pins with internal hexagon and dog point, with metric dimensions and thread diameters from M 1.6 to M 24, in product class A. If, in special cases, requirements other than those listed are needed, these shall be selected in accordance with the relevant ISO 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;
Technical delivery conditions; General requirements

DIN 267 Part 2: Screws, nuts and similar threaded and formed parts;
Technical delivery conditions; Execution and dimensional accuracy

DIN 267 Part 5: Screws, nuts and similar threaded and formed parts;
Technical delivery conditions; Inspection and acceptance

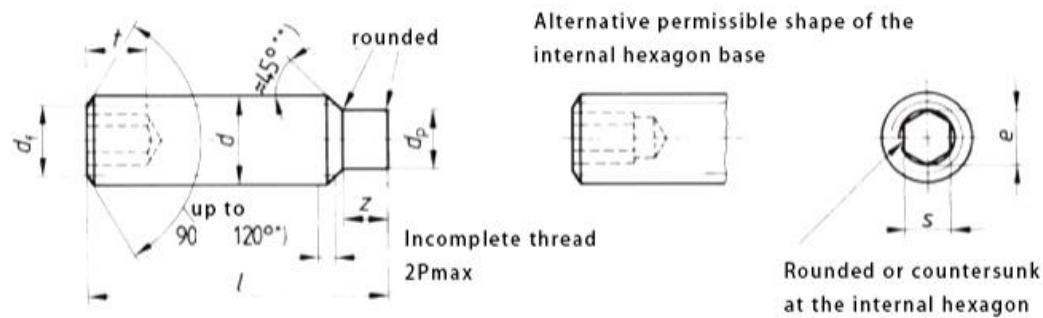
DIN 267 Part 6: Mechanical fasteners; Technical delivery conditions;
Execution and dimensional accuracy for product class F

DIN 267 Part 9: Mechanical fasteners; Technical delivery conditions;
Parts with electroplated coatings

DIN 267 Part 11: Mechanical fasteners; Technical delivery conditions;
Parts made of stainless steels

DIN 267 Part 18: Mechanical fasteners; Technical delivery conditions;
Parts made of non-ferrous metals

2、 Dimensions and designation



Designation of a threaded pin with internal hexagon, thread $d = M 6$, nominal length $l = 12 \text{ mm}$, and strength class 45H: Threaded pin DIN 915 - $M 6 \times 12 - 45H$

Threaded pins up to M 2.5 can also be manufactured in product class F in accordance with DIN ISO 915. For this, the letter F shall be included in the designation, e.g.: Threaded pin DIN 915 - $M 2 \times 4 - 45H - F$.

If threaded pins with other strength classes (hardness classes) in accordance with DIN ISO 898 Part 5 are required, the corresponding symbol shall be indicated in the designation, e.g.: Threaded pin DIN 915 - $M 6 \times 12 - 22H$.

Thread d		M1.4	M1.6	M1.8	M2	M2.5	M3	M4	M5	M6
P		0.3	0.35	0.35	0.4	0.45	0.5	0.7	0.8	1
d	max	0.45	0.55	0.65	0.75	1.25	1.75	2.25	3.2	3.7
	min	0.7	0.77	0.77	0.89	1.27	1.52	2.02	2.52	3.02
e	min	0.803	0.893	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
	max	0.711	0.711	0.711	0.9	1.3	1.5	2	2.5	3
	min	0.724	0.724	0.724	0.902	1.295	1.545	2.045	2.586	3.08
t	min	0.6	0.7	0.8	0.8	1.2	1.2	1.5	2	2.5
	max	1.4	1.5	1.6	1.7	2	2	2.5	3	3.5
short pin 3)	min	0.4	0.4	0.5	0.5	0.63	0.75	1	1.25	1.5
	max	0.65	0.65	0.65	0.75	0.88	1	1.25	1.5	1.75
long pin 4)	min	0.8	0.8	1	1	1.25	1.5	2	2.5	3
	max	1.05	1.05	1.25	1.25	1.5	1.75	2.25	2.75	3.25

Weight (7.85 kg/dm³) kg per 1000 pieces ≈

Nominal size	L L (max)		M1.4	M1.6	M1.8	M2	M2.5	M3	M4	M5	M6
	Min	Max									
2	1.8	2.2									
2.5	2.3	2.7									
3	2.8	3.2	0.022	0.029							
3.5	3.26	3.74									
4	3.76	4.24	0.029	0.037	0.048	0.059	0.1				
5	4.76	5.24	0.036	0.046	0.06	0.074	0.125	0.163			

Thread d			M1. 4	M1. 6	M1. 8	M2	M2. 5	M3	M4	M5	M6
6	5. 76	6. 24	0. 043	0. 056	0. 072	0. 089	0. 15	0. 186	0. 292		
8	7. 71	8. 29				0. 119	0. 199	0. 276	0. 442	0. 708	1. 02
10	9. 71	10. 29				0. 148	0. 249	0. 366	0. 592	0. 948	1. 29
12	11. 65	12. 35						0. 456	0. 742	1. 19	1. 63
14	13. 65	14. 35									
16	15. 65	16. 35						0. 636	1. 04	1. 67	2. 34
18	17. 58	18. 42									
20	19. 58	20. 42						0. 816	1. 34	2. 15	3. 04
22	21. 58	22. 42									
25	24. 58	25. 42								2. 75	3. 92
28	27. 58	28. 42									
30	29. 58	30. 42									4. 8
35	34. 5	35. 5									5. 68

Thread d		M8	M10	M12	M14	M16	M18	M20	M22	M24
P		1. 25	1. 5	1. 75	2	2	2. 5	2. 5	2. 5	3
d	max	5. 5	7	8. 5	10	12	13	15	17	18
	min	5. 2	6. 64	8. 14	9. 64	11. 57	12. 57	14. 57	16. 57	17. 57
e	min	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
	max	4. 02	5. 02	6. 02	6. 02	8. 025	10. 025	10. 025	12. 032	12. 032
	min	4. 095	5. 095	6. 095	6. 095	8. 115	10. 115	10. 115	12. 142	12. 142
t	min	3	4	4. 8	5. 6	6. 4	7. 2	8	9	10
	max	5	6	8	9	10	11	12	13. 5	15
short pin 3)	min	2	2. 5	3	3. 5	4	4. 5	5	5. 5	6
	max	2. 25	2. 75	3. 25	3. 8	4. 3	4. 8	5. 3	5. 8	6. 3
long pin 4)	min	4	5	6	7	8	9	10	11	12
	max	4. 3	5. 3	6. 3	7. 36	8. 36	9. 86	10. 36	11. 43	12. 43

Weight (7.85 kg/dm³) kg per 1000 pieces ≈

Nominal size	L L (max)		M8	M10	M12	M14	M16	M18	M20	M22	M24
	Min	Max									
6	5. 76	6. 24									
8	7. 71	8. 29									
10	9. 71	10. 29	2. 28								
12	11. 65	12. 35	2. 68	4. 41							
14	13. 65	14. 35									
16	15. 65	16. 35	3. 94	6. 05	8. 91						
18	17. 58	18. 42									
20	19. 58	20. 42	5. 2	8. 02	11		20. 1				
22	21. 58	22. 42									
25	24. 58	25. 42	6. 79	10. 5	14. 6		25. 1		38. 9		
28	27. 58	28. 42									
30	29. 58	30. 42	8. 38	13	18. 2		31. 9		45. 5		67. 7
35	34. 5	35. 5	9. 97	15. 5	21. 8		38. 2		55. 8		78. 4
40	39. 5	40. 5	11. 6	18	25. 4		44. 9		66. 1		93. 4
45	44. 5	45. 5							76. 4		108
50	49. 5	50. 5							86. 7		123
55	54. 4	55. 6									138
60	59. 4	60. 6									153

- For short threaded pins with lengths above the dashed step line, an angle of 120° applies.

** The angle $\approx 45^\circ$ applies only to the area between the core diameter of the thread and the pin diameter

- P = Thread pitch (coarse pitch thread)
- $e_{\min} = 1.14 s_{\min}$, except for sizes M 1.4 up to M 2.5
- Minimum engagement depth of the hex key and pin length for threaded pins with nominal lengths / above the dashed step line.
- Minimum engagement depth of the hex key and pin length for threaded pins with nominal lengths / below the dashed step line.

The commercially available sizes are identified by the weight indication. Parenthesized thread d and parenthesized nominal size l should be avoided.

Note: In ISO 4028, the ranges of thread d and nominal size l are defined somewhat differently. The sizes identified by the weight indication in the table below correspond to the usual demand in Germany and are generally kept in stock.

3 Technical delivery conditions

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 4028. 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

Section 4, which covers the designation of threaded pins in accordance with ISO 4028, has not been adopted. This is because the current document is a national standard (not a DIN-ISO standard), and the designation of parts must include the DIN number (see Section 2 and the explanatory notes).

Explanatory notes

The content of this standard was coordinated with the international standard ISO 4028 - 1977:

Hexagon socket set screws with dog point

Hexagon socket set screw with dog point

Gewindestifte mit Innensechskant und Zapfen

That is, ISO 4028 was fully adopted, with national regulations added. The reasons for this are indicated by a grid pattern. The adoption of an international standard as a national standard was preceded by a vote.

Compared to the January 1973 edition of DIN 915, no significant changes were made. The main changes relate to the chamfer on the pin, which was previously dimensioned as a transition from dimension z to the thread core diameter. Now, the cylindrical pin length z applies. As before, the threaded pins are primarily designated in accordance with DIN 915 (see Section 4). To simplify international communication, designation in accordance with ISO 4028 can also be used if required. In this case, however, only the features consistent with ISO (the non-grid-marked features in this standard) apply.

Example:

Threaded pin ISO 4028 - M 6 $\times$ 12 - 45H

In ISO 4028, only strength class (hardness class) 45H (per DIN ISO 898 Part 5) is specified. For national use, these threaded pins are also available in other strength classes, which were added for this purpose. Product class F (per DIN 267 Part 6) is also permitted for threaded pins up to M 2.5, as fine pitch threads are required here.

In ISO 4028, the old strength class A2-2 is still specified for rust- and acid-resistant (stainless) steels. This corresponds to A2-70 or A350 (per DIN 267 Part 11; see also ISO 3506).

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

The minimum hexagon socket depth t must be calculated for very short threaded pins above the step line, using these short threaded pins' reduced tightening conditions.

The traditional design of the standard is retained, so that the ISO standard can be used in as many ways as possible - this also simplifies DIN-ISO comparisons in this respect.