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Westfield Fasteners Product Specification:

ISO 4029 / DIN 916 - Cup Point Grub Screws

This product guide contains the specification for metric threaded cup point grub screws, available from Westfield Fasteners. The basis of this specification is the ISO standard ISO 4029 and the older DIN 916.

Product Description

Also known as a set screw, these headless types of screws have many uses. This particular type has a hex socket drive, and a depression called a 'cup' on the opposite end, as to ISO 4029 or DIN 916.

Scope of the ISO standard.

ISO 4029 specifies the tolerances and the variation in form of cup point grub screws, and covers metric thread diameters from M1.6 up to and including M24. Table 1 below defines the overall dimensions and tolerances of this screw type. Table 2 defines the tolerance on the shank length.

Grub screws in general are graded by hardness rather than by tensile strength. The relevant DIN and ISO standards specify a 45H hardness grade for non stainless steel grub screws and 21H for stainless steel grub screws.

Although the DIN 916 standard has been superceded by ISO 4029, the dimensions are the same and off-the-shelf parts could be marked with either standard.

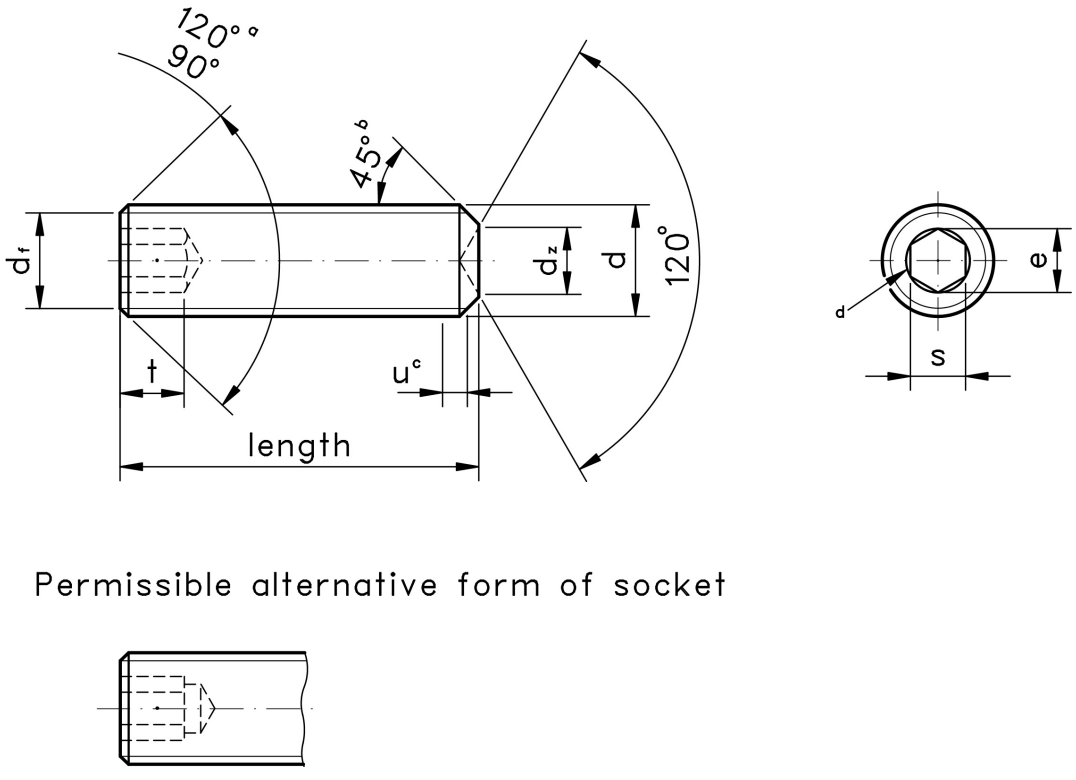

Figure 1: Cup Point Grub Screw

Notes to figure 1:

- a - The 120 degree angle is a requirement for the shortest length screws for each diameter.
- b - The 45 degree angle only applies to the portion of the point situated below the root diameter of the thread.
- c - There may be up to 2 incomplete threads at the end of the bolt.
- d - A slight rounding or countersink at the mouth of the socket may be present.

Table 1: Dimensions & Tolerances according to ISO 4029 / DIN 916

Thread, d		M1.6	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
thread pitch (standard metric coarse)		0.35	0.4	0.45	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2.5	3
diameter of the cup	d_z max.	0.80	1.00	1.20	1.40	2.00	2.50	3.00	5.00	6.00	8.00	10.00	14.00	16.00
	d_z min.	0.55	0.75	0.95	1.15	1.75	2.25	2.75	4.70	5.70	7.64	9.64	13.57	15.57
diameter of the face	d_f	≈ (approx.) Minor thread diameter												
socket width across corners	e min.	0.809	1.011	1.454	1.733	2.303	2.873	3.443	4.583	5.723	6.863	9.149	11.429	13.716
socket width across flats	s nom.	0.7	0.9	1.3	1.5	2	2.5	3	4	5	6	8	10	12
	s max.	0.724	0.713	1.300	1.580	2.080	2.580	3.080	4.095	5.140	6.140	8.175	10.175	12.212
	s min.	0.710	0.887	1.275	1.520	2.020	2.520	3.020	4.020	5.020	6.020	8.025	10.025	12.032
socket depth	t min. (shortest lengths)	0.7	0.8	1.2	1.2	1.5	2	2	3	4	4.8	6.4	8	10
	t min. (other lengths)	1.5	1.7	2	2	2.5	3	3.5	5	6	8	10	12	15

Table 2: Shank Length Tolerance according to ISO 4029 / DIN 916

thread length (mm)	+/- (mm)
2-3	0.2
4-6	0.24
8-10	0.29
12-16	0.35
20-30	0.42
35-50	0.5
55-60	0.6

For further details, please refer to the original ISO/DIN standard document for this item.