

d₁ H13	d₂ h13		s		d₃ H13	f		for threaded bolts
	low Type	high Type	low Type	high Type		low Type	high Type	
6,3	12	17	2,5	3	7	0,6	1	M 6
8,4	16	21	2,5	4	9,5	0,75	1,5	M 8
10,4	20	25	3	4	11,5	0,75	1,5	M 10
12,5	24	30	3,5	6	14	1	2	M 12
14,5	28	36	3,5	6	16	1	2	M 14
16,5	30	40	4	6	18	1	2	M 16
18,5	34	44	5	8	21	1,5	2,5	M 18
20,5	37	44	5	8	23	1,5	2,5	M 20
22,5	40	50	5	8	25	1,5	2,5	M 22
24,5	44	50	5	10	27	1,5	3,5	M 24
28	50	60	6	10	31	1,5	3,5	M 27
31	56	68	6	10	34	1,5	3,5	M 30
37	66	-	7	-	40	2	-	M 36

Specification

- Steel, 1.7227 (42 CrMoS 4 V)
 - tempered to tensile strength
 $R_m = 1220 \dots 1400\ N/mm^2$
 - fine turned and slide ground
- blackened **BT**
- GEOMET 500-treated **GO**
- ISO-Fundamental tolerances → Page 1479
- RoHS compliant

Information

The influence of a washer on the quality of the screwed connection is very often underestimated. With washers GN 6339, high quality preloaded screwed connections can be established.

A high static clamping force can be reached avoiding loss of tension.

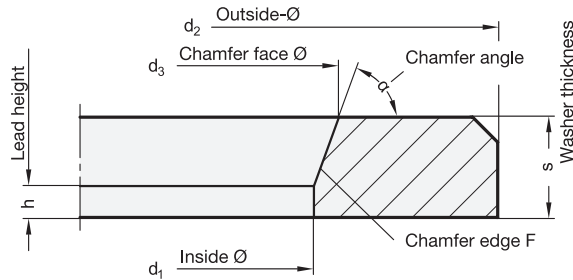
At a specified preloaded clamping force it is often possible to use thinner bolts. This can result in a better ratio between clamping distance and bolt diameter to minimise the danger of failure.

The case hardened smooth bolt head/screw contact face leads to a lower and more constant friction co-efficient even when continuous clamping and releasing operations are required.

Washers GN 6339 are only suitable for machine construction bolts of classes 8.8 / 10.9 / 12.9, and not for steel bolts DIN 6914.

How to order	1	d₁
	2	d₂
	3	s
	4	Finish
GN 6339-20,5-37-5-BT		

Technical information



Outside diameter d_2

The outside diameter d_2 of the lower type refers to washers DIN 125 / ISO 7089, and the higher type to washers DIN 7349.

Chamfer face diameter d_3

This dimension is, together with the chamfer angle α 70° and the inside diameter d_1 , the most important dimension of these heavy duty washers. Diameter d_3 is actually, even in the lower tolerance range, larger than the max. contact under head diameter on a bolt.

This will ensure that the chamfer of d_3 of the hardened washer will not be pressed into the underhead radius causing an indentation on the bolt which would damage the bolt.

Inside diameter d_1

The inside diameter d_1 is kept as small as possible ensuring that the bolt is inserted centrally into the washer. The choice of a matching pair of bolt and washer with least radial clearance is important in order to avoid a mismatch between chamfer diameter d_3 and the max. contact area diameter of the bolt head.

Chamfer angle $\alpha = 70^\circ \pm 2^\circ$

This relatively large angle is necessary when using hexagon headed bolts, which usually have a tapered transfer from shank to head (the so-called trumpet) to avoid fouling of the washer.

Chamfer edge F

The extended chamfer side F as seen from d_3 creates with d_1 an edge the so-called trumpet of the transfer from shank to head of the bolt, so that the smallest radial clearance prevails. Even with the smallest angle of 68° and the lower dimension of d_3 and d_1 the radial clearance of all bolts to DIN EN is still sufficient.

Lead height h

This is the height of the cylindrical part of the internal diameter d_1 , h should be as high as possible in relation to the pitch of the thread of the bolt.

Washer thickness s

Washers GN 6339 are higher when compared with DIN washers (exception: DIN 7439 which is equal to the high type).

A larger thickness leads to a stronger washer. As a result, bearing in mind the chamfer d_3 , a minimum height is established which ensures that the bolt thread will not be damaged when the bolt is tightened.