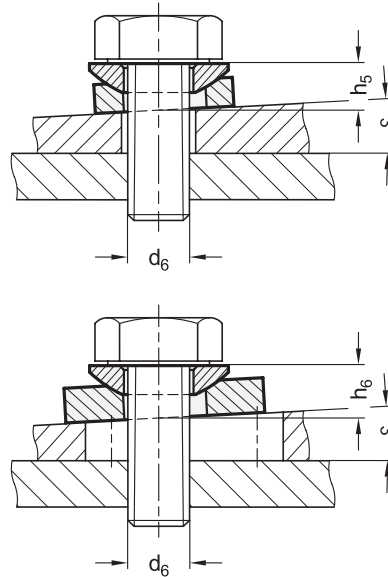


**Assembly examples**



Metric

**2** Type

- C** Spherical seat washer
- D** Dished washer with  $d_3 = d_2$
- G** Dished washer with  $d_4 > d_2$  (enlarged outer diameter)

**Metric table**



Dimensions in: millimeters - inches

$d_1$ H13	Type D / G	$d_2$	$d_3$	$d_4$	$d_5$	$d_6$ Screw	$h_1$	$h_2$	$h_3$	$h_4$	$h_5 \approx$	$h_6 \approx$	$r$	Max. transferable static bolt force
6.4 0.25	7.1 0.28	12 0.47	12 0.47	17 0.67	11 0.43	M 6	0.7 0.03	2.3 0.09	2.8 0.11	4 0.16	4.2 0.17	5.4 0.21	9 0.35	9 kN 2023 lbf
8.4 0.33	9.6 0.38	17 0.67	17 0.67	24 0.94	14.5 0.57	M 8	0.6 0.02	3.2 0.13	3.5 0.14	5 0.20	5.6 0.22	7.1 0.28	12 0.47	17 kN 3822 lbf
10.5 0.41	12 0.47	21 0.83	21 0.83	30 1.18	18.5 0.73	M 10	0.8 0.03	4 0.16	4.2 0.17	5 0.20	6.5 0.26	7.3 0.29	15 0.59	26 kN 5845 lbf
13 0.51	14.2 0.56	24 0.94	24 0.94	36 1.42	20 0.79	M 12	1.1 0.04	4.6 0.18	5 0.20	6 0.24	8 0.31	9 0.35	17 0.67	38 kN 8543 lbf
15 0.59	16.5 0.65	28 1.10	28 1.10	40 1.57	24.8 0.98	M 14	1.2 0.05	5 0.20	5.6 0.22	6 0.24	8.5 0.33	9.5 0.37	22 0.87	53 kN 11915 lbf
17 0.67	19 0.75	30 1.18	30 1.18	44 1.73	26 1.02	M 16	1.3 0.05	5.3 0.21	6.2 0.24	7 0.28	9.6 0.38	10.4 0.41	22 0.87	73 kN 16411 lbf
21 0.83	23.2 0.91	36 1.42	36 1.42	50 1.97	31 1.22	M 20	2 0.08	6.3 0.25	7.5 0.30	8 0.31	11.7 0.46	12.2 0.48	27 1.06	117 kN 26303 lbf
25 0.98	28 1.10	44 1.73	44 1.73	60 2.36	37 1.46	M 24	2.4 0.09	8.2 0.32	9.5 0.37	10 0.39	15.2 0.60	15.7 0.62	32 1.26	168 kN 37768 lbf
31 1.22	35 1.38	56 2.20	56 2.20	68 2.68	49 1.93	M 30	3.6 0.14	11.2 0.44	12 0.47	12 0.47	19.2 0.76	19.7 0.78	41 1.61	269 kN 60474 lbf
37 1.46	42 1.65	68 2.68	68 2.68	-	60 2.36	M 36	4.6 0.18	14 0.55	15 0.59	-	23.5 0.93	-	50 1.97	394 kN 88575 lbf
43 1.69	49 1.93	78 3.07	78 3.07	-	70 2.76	M 42	6.5 0.26	17 0.67	18 0.71	-	29 1.14	-	58 2.28	542 kN 121846 lbf
50 1.97	56 2.20	92 3.62	92 3.62	-	82 3.23	M 48	8 0.31	21 0.83	22 0.87	-	35.5 1.40	-	67 2.64	714 kN 160514 lbf

**Specification**

- Type **C / D**  
Steel  
- Case-hardened  
(all round depth 0.2 to 0.4 mm)  
- Hardness (550 + 100) HV 10
- Type **G**  
Heat-treated steel  
- Tempered  
- Hardness (350 + 80) HV 30
- ISO Fundamental Tolerances → page 2129
- RoHS compliant

**On request**

- Unhardened spherical washers

**Information**

Spherical washers DIN 6319 are used for clamping on non-parallel surfaces.  
Type G dished washers with enlarged outer diameter are mainly used on elongated holes.  
When utilizing DIN 6330 type B fixture nuts with spherical end, use either the type D or type G spherical dished washers. The type C spherical seat washer is not required.

see also...

- Spherical Leveling Washers GN 350.3 (High Load Capacity) → page 1159
- Fixture Nuts DIN 6330 (with Spherical End) → page QVX

<b>How to order</b> <b>DIN 6319-19-D</b>	<b>1</b>	Inner diameter $d_1$
	<b>2</b>	Type