



### Benefits

- High corrosion resistance
- High strength:weight ratio
- Approx 55-60% weight of steel
- Non-magnetic
- Low electrical conductivity

Grade 2 titanium (pure titanium ASTM 348 Grade 2) is widely used, and forms the basis of our titanium fixings. We have many other titanium fixings available on request and we can also offer these parts in ASTM 348 Grade 5.

Grade 2 titanium is highly resistant to chemical environments including oxidising and alkaline media, organic acids and compounds and aqueous salt solutions and hot gases.

In sea water, grade 2 is fully resistant to corrosion at temperatures up to 310°C

### Technical Specifications

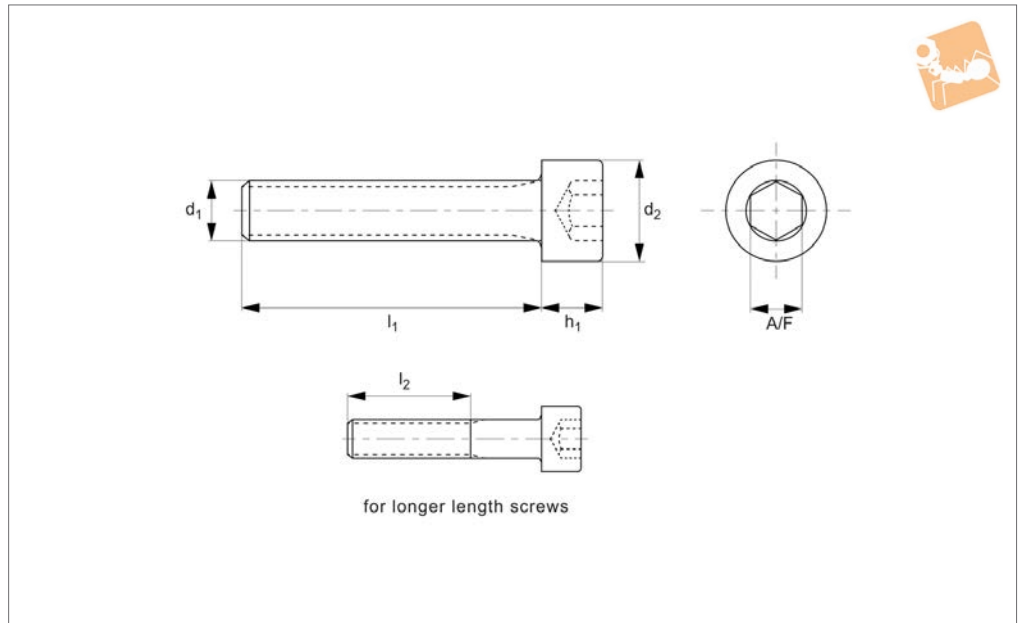
Property	Grade 2 (pure titanium) ASTM 348 Gr.2	Grade 5 Ti-6AL-4V ASTM 348 Gr.5
Density (g/cm <sup>3</sup> )	4.5	4.4
Tensile strength (N/mm <sup>2</sup> )	345 - 450	895 - 1100
Yield point (N/mm <sup>2</sup> )	270	820
Elongation (min %)	20	10
Hardness	160HB/30	36HRC
Melting point (°C)	1668	1650
Modulus of elasticity (GPa)	103	110
Coefficient of thermal expansion (/°C)	8.4 x 10 <sup>-6</sup>	8.5 x 10 <sup>-6</sup>
Units for Thermal Conductivity (cal/cm <sup>2</sup> /sec/°C/cm)	0.052	0.024
Electrical resistance (μΩ - cm)	55	75

### Applications





### P0100.1



#### Material

Titanium Grade 2 (commercial grade, high corrosion resistance, strong weldability, standard strength).

#### Technical Notes

Items to DIN 912 where stated in data

table.

For the majority of screw lengths the threads goes all the way to the head of the screw (i.e.  $l_1 = l_2$ ) less 2.5 thread pitches.

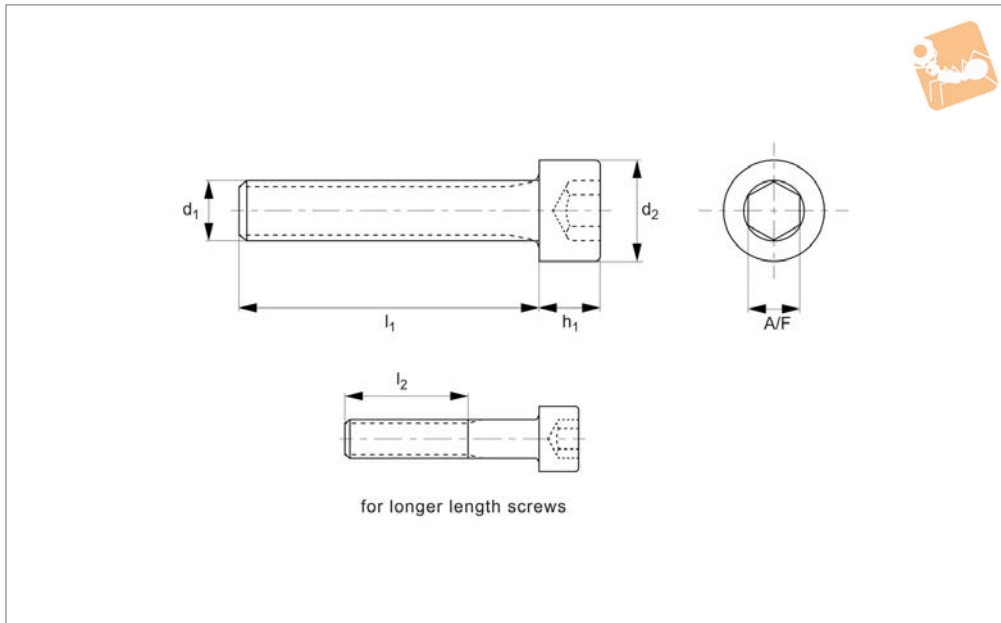
For longer length screws the threaded portion  $l_2 < l_1$ .

Order No.	Finish	d <sub>1</sub>	l <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	l <sub>2</sub>	A/F	Grade	Material	To standard
P0100.040-010-G2	Natural	M 4	25	7.0	4.0	20.0	3	Comm	Ti-G2	DIN 912
P0100.040-040-G2	Natural	M 4	40	7.0	4.0	20.0	3	Comm	Ti-G2	DIN 912
P0100.040-045-G2	Natural	M 4	45	7.0	4.0	20.0	3	Comm	Ti-G2	DIN 912
P0100.040-050-G2	Natural	M 4	50	7.0	4.0	20.0	3	Comm	Ti-G2	DIN 912
P0100.040-055-G2	Natural	M 4	55	7.0	4.0	20.0	3	Comm	Ti-G2	DIN 912
P0100.040-060-G2	Natural	M 4	60	7.0	4.0	20.0	3	Comm	Ti-G2	DIN 912
P0200.050-012-T2	Natural	M 5	12	8.5	5.0	-	4	Comm	Ti-G2	DIN 912
P0100.060-065-G2	Natural	M 6	65	10.0	6.0	24.0	5	Comm	Ti-G2	DIN 912
P0100.060-070-G2	Natural	M 6	70	10.0	6.0	24.0	5	Comm	Ti-G2	DIN 912
P0100.060-080-G2	Natural	M 6	80	10.0	6.0	24.0	5	Comm	Ti-G2	DIN 912
P0100.080-010-G2	Natural	M 8	10	13.0	8.0	-	6	Comm	Ti-G2	DIN 912
P0100.080-012-G2	Natural	M 8	12	13.0	8.0	-	6	Comm	Ti-G2	DIN 912
P0100.080-045-G2	Natural	M 8	45	13.0	8.0	28.0	6	Comm	Ti-G2	DIN 912
P0100.080-055-G2	Natural	M 8	55	13.0	8.0	28.0	6	Comm	Ti-G2	DIN 912
P0100.080-065-G2	Natural	M 8	65	13.0	8.0	28.0	6	Comm	Ti-G2	DIN 912
P0100.080-070-G2	Natural	M 8	70	13.0	8.0	28.0	6	Comm	Ti-G2	DIN 912
P0100.080-080-G2	Natural	M 8	80	13.0	8.0	28.0	6	Comm	Ti-G2	DIN 912



# Socket Cap Screw - M8 - M20

DIN 912 Gr.2



**P0100.2**

TITANIUM SCREWS

### Material

Titanium Grade 2 (commercial grade, high corrosion resistance, strong weldability, standard strength).

### Technical Notes

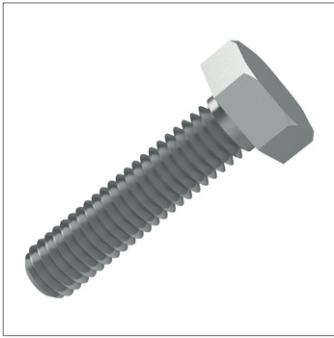
Items to DIN 912 where stated in data

table.

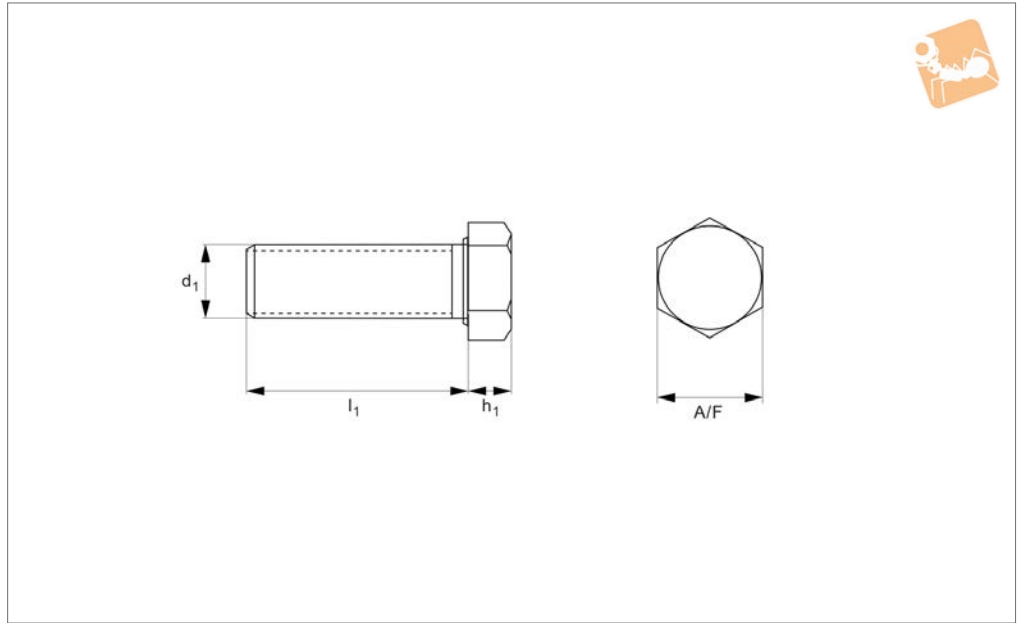
For the majority of screw lengths the threads goes all the way to the head of the screw (i.e.  $l_1 = l_2$ ) less 2.5 thread pitches.

For longer length screws the threaded portion  $l_2 < l_1$ .

Order No.	Finish	d <sub>1</sub>	l <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	l <sub>2</sub>	A/F	Grade	Material	To standard
P0100.080-085-G2	Natural	M 8	85	13	8	28	6	Comm	Ti-G2	DIN 912
P0100.080-090-G2	Natural	M 8	90	13	8	28	6	Comm	Ti-G2	DIN 912
P0100.080-100-G2	Natural	M 8	100	13	8	28	6	Comm	Ti-G2	DIN 912
P0100.080-110-G2	Natural	M 8	110	13	8	28	6	Comm	Ti-G2	DIN 912
P0100.100-045-G2	Natural	M10	45	16	10	32	8	Comm	Ti-G2	DIN 912
P0100.100-120-G2	Natural	M10	120	16	10	32	8	Comm	Ti-G2	DIN 912
P0100.120-030-G2	Natural	M12	30	19	12	34	10	Comm	Ti-G2	DIN 912
P0100.120-040-G2	Natural	M12	40	19	12	34	10	Comm	Ti-G2	DIN 912



**P0101**



**Material**

Titanium (ASTM 348 grade 2, pure titanium).  
Tensile strength 345-450 N/mm<sup>2</sup>, yield strength 270 N/mm<sup>2</sup>, hardness 160HB/30.  
Grade 5 titanium available on request.

**Technical Notes**

To DIN 931.

Titanium has a high strength/weight ratio. The specific gravity of titanium is approximately 60% that of stainless steel. For use in lightweight applications in the automobile, aerospace, medical and robotic industries. Highly resistant to corrosion (including from salt water) and chemical environ-

ments. Non magnetic.

**Tips**

Please see Technical page for full grade 2 titanium properties.

Order No.	d <sub>1</sub>	l <sub>1</sub>	h	l <sub>2</sub>	A/F	Material
P0101.060-025-G2	M 6	25	3.85	18	10	A2 s/s
P0101.060-008-G2	M 6	8	3.85	8	10	A2 s/s
P0101.060-010-G2	M 6	10	3.85	10	10	A2 s/s
P0101.060-012-G2	M 6	12	3.85	12	10	A2 s/s
P0101.060-016-G2	M 6	16	3.85	16	10	A2 s/s
P0101.060-020-G2	M 6	20	3.85	18	10	A2 s/s
P0101.060-030-G2	M 6	30	3.85	18	10	A2 s/s
P0101.060-035-G2	M 6	35	3.85	18	10	A2 s/s
P0101.060-040-G2	M 6	40	3.85	18	10	A2 s/s
P0101.060-045-G2	M 6	45	3.85	18	10	A2 s/s
P0101.060-050-G2	M 6	50	3.85	18	10	A2 s/s
P0101.060-055-G2	M 6	55	3.85	18	10	A2 s/s
P0101.060-060-G2	M 6	60	3.85	18	10	A2 s/s
P0101.060-070-G2	M 6	70	3.85	18	10	A2 s/s
P0101.060-080-G2	M 6	80	3.85	18	10	A2 s/s
P0101.060-090-G2	M 6	90	3.85	18	10	A2 s/s
P0101.060-100-G2	M 6	100	3.85	18	10	A2 s/s
P0101.080-016-G2	M 8	16	5.15	16	13	A2 s/s
P0101.080-020-G2	M 8	20	5.15	20	13	A2 s/s
P0101.080-025-G2	M 8	25	5.15	22	13	A2 s/s
P0101.080-030-G2	M 8	30	5.15	22	13	A2 s/s
P0101.080-035-G2	M 8	35	5.15	22	13	A2 s/s
P0101.080-040-G2	M 8	40	5.15	22	13	A2 s/s
P0101.080-045-G2	M 8	45	5.15	22	13	A2 s/s
P0101.080-050-G2	M 8	50	5.15	22	13	A2 s/s
P0101.080-055-G2	M 8	55	5.15	22	13	A2 s/s
P0101.080-070-G2	M 8	70	5.15	22	13	A2 s/s
P0101.080-080-G2	M 8	80	5.15	22	13	A2 s/s
P0101.080-090-G2	M 8	90	5.15	22	13	A2 s/s



# Titanium Hex Head Bolts

Grade 2



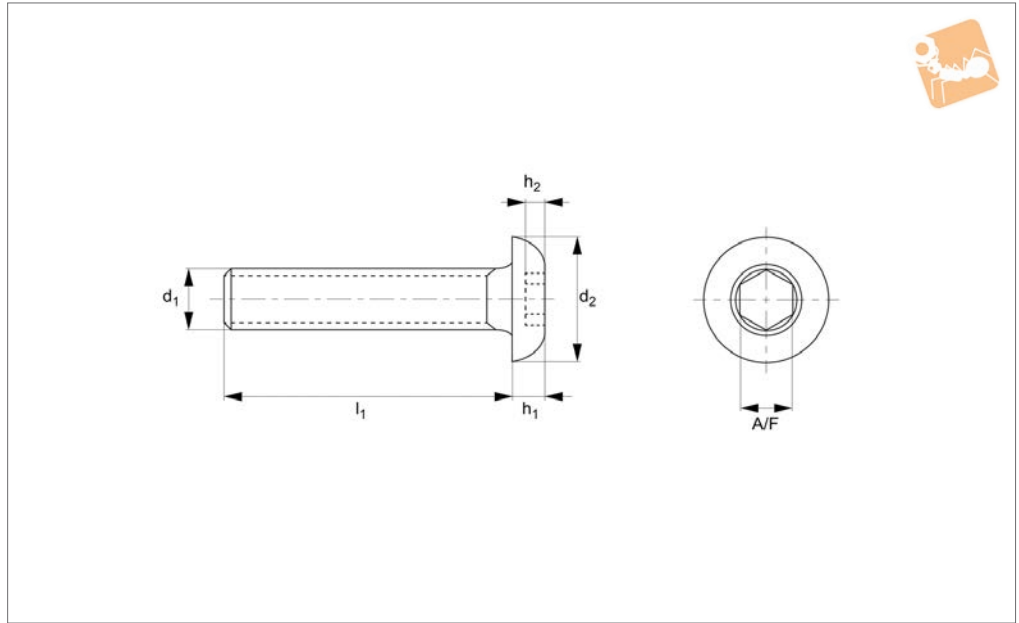
## Titanium Screws

Order No.	d <sub>1</sub>	l <sub>1</sub>	h	l <sub>2</sub>	A/F	Material
P0101.080-100-G2	M 8	100	5.15	22	13	A2 s/s
P0101.080-120-G2	M 8	120	5.15	22	13	A2 s/s
P0101.100-025-G2	M10	25	6.22	25	17	A2 s/s
P0101.100-030-G2	M10	30	6.22	26	17	A2 s/s
P0101.100-040-G2	M10	40	6.22	26	17	A2 s/s
P0101.100-050-G2	M10	50	6.22	26	17	A2 s/s
P0101.100-060-G2	M10	60	6.22	26	17	A2 s/s
P0101.100-070-G2	M10	70	6.22	26	17	A2 s/s
P0101.100-080-G2	M10	80	6.22	26	17	A2 s/s
P0101.100-090-G2	M10	90	6.22	26	17	A2 s/s
P0101.100-100-G2	M10	100	6.22	26	17	A2 s/s
P0101.120-025-G2	M12	25	7.32	25	19	A2 s/s
P0101.120-030-G2	M12	30	7.32	30	19	A2 s/s
P0101.120-040-G2	M12	40	7.32	30	19	A2 s/s
P0101.120-050-G2	M12	50	7.32	30	19	A2 s/s
P0101.120-060-G2	M12	60	7.32	30	19	A2 s/s
P0101.120-070-G2	M12	70	7.32	30	19	A2 s/s
P0101.120-080-G2	M12	80	7.32	30	19	A2 s/s
P0101.120-100-G2	M12	100	7.32	30	19	A2 s/s
P0101.120-120-G2	M12	120	7.32	30	19	A2 s/s

TITANIUM SCREWS



**P0102**



TITANIUM SCREWS

**Material**

Titanium (ASTM 348 grade 2, pure titanium).  
Tensile strength 345-450 N/mm<sup>2</sup>, yield strength 270 N/mm<sup>2</sup>, hardness 160HB/30.  
Grade 5 titanium available on request.

**Technical Notes**

To ISO 7380. Titanium has a high strength/

weight ratio.

The specific gravity of titanium is approximately 60% that of stainless steel.  
For use in lightweight applications in the automobile, aerospace, medical and robotic industries.

Highly resistant to corrosion (including from salt water) and chemical environ-

ments. Non magnetic.

**Tips**

Also available with TX drive.  
Please see Technical page for full grade 2 titanium properties.

Order No.	d <sub>1</sub>	l	d <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	A/F
P0102.030-004-G2	M 3	4	5.7	1.65	1.04	2
P0102.030-005-G2	M 3	5	5.7	1.65	1.04	2
P0102.030-006-G2	M 3	6	5.7	1.65	1.04	2
P0102.030-008-G2	M 3	8	5.7	1.65	1.04	2
P0102.030-010-G2	M 3	10	5.7	1.65	1.04	2
P0102.030-012-G2	M 3	12	5.7	1.65	1.04	2
P0102.030-014-G2	M 3	14	5.7	1.65	1.04	2
P0102.030-016-G2	M 3	16	5.7	1.65	1.04	2
P0102.030-020-G2	M 3	20	5.7	1.65	1.04	2
P0102.030-025-G2	M 3	25	5.7	1.65	1.04	2
P0102.030-030-G2	M 3	30	5.7	1.65	1.04	2
P0102.030-035-G2	M 3	35	5.7	1.65	1.04	2
P0102.030-040-G2	M 3	40	5.7	1.65	1.04	2
P0102.040-004-G2	M 4	4	7.6	2.2	1.3	2.5
P0102.040-005-G2	M 4	5	7.6	2.2	1.3	2.5
P0102.040-006-G2	M 4	6	7.6	2.2	1.3	2.5
P0102.040-008-G2	M 4	8	7.6	2.2	1.3	2.5
P0102.040-010-G2	M 4	10	7.6	2.2	1.3	2.5
P0102.040-012-G2	M 4	12	7.6	2.2	1.3	2.5
P0102.040-014-G2	M 4	14	7.6	2.2	1.3	2.5
P0102.040-016-G2	M 4	16	7.6	2.2	1.3	2.5
P0102.040-020-G2	M 4	20	7.6	2.2	1.3	2.5
P0102.040-025-G2	M 4	25	7.6	2.2	1.3	2.5
P0102.040-030-G2	M 4	30	7.6	2.2	1.3	2.5
P0102.040-035-G2	M 4	35	7.6	2.2	1.3	2.5
P0102.040-040-G2	M 4	40	7.6	2.2	1.3	2.5
P0102.040-045-G2	M 4	45	7.6	2.2	1.3	2.5
P0102.040-050-G2	M 4	50	7.6	2.2	1.3	2.5
P0102.050-006-G2	M 5	6	9.5	2.75	1.56	3



# Titanium Socket Button Screws

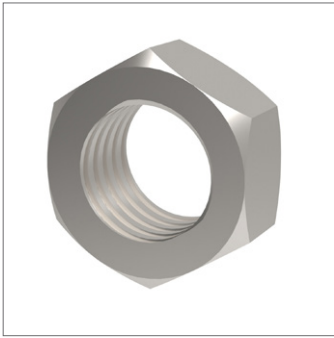
## Grade 2

Titanium Screws

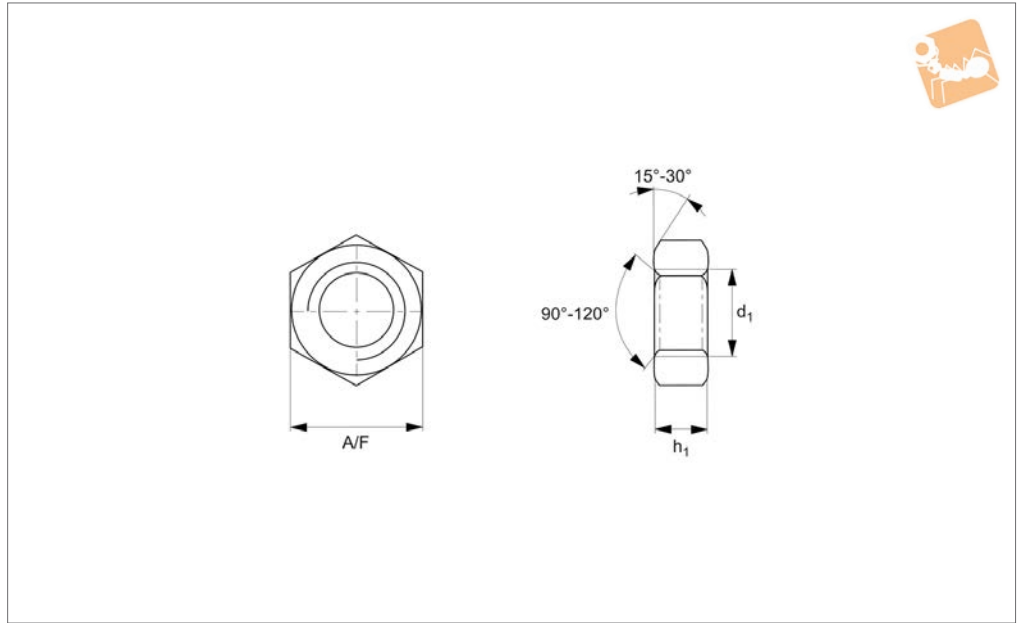


Order No.	d <sub>1</sub>	l	d <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	A/F
P0102.050-008-G2	M 5	8	9.5	2.75	1.56	3
P0102.050-010-G2	M 5	10	9.5	2.75	1.56	3
P0102.050-012-G2	M 5	12	9.5	2.75	1.56	3
P0102.050-014-G2	M 5	14	9.5	2.75	1.56	3
P0102.050-016-G2	M 5	16	9.5	2.75	1.56	3
P0102.050-020-G2	M 5	20	9.5	2.75	1.56	3
P0102.050-025-G2	M 5	25	9.5	2.75	1.56	3
P0102.050-030-G2	M 5	30	9.5	2.75	1.56	3
P0102.050-035-G2	M 5	35	9.5	2.75	1.56	3
P0102.050-040-G2	M 5	40	9.5	2.75	1.56	3
P0102.050-045-G2	M 5	45	9.5	2.75	1.56	3
P0102.050-050-G2	M 5	50	9.5	2.75	1.56	3
P0102.050-055-G2	M 5	55	9.5	2.75	1.56	3
P0102.050-060-G2	M 5	60	9.5	2.75	1.56	3
P0102.060-008-G2	M 6	8	10.5	3.3	2.08	4
P0102.060-010-G2	M 6	10	10.5	3.3	2.08	4
P0102.060-012-G2	M 6	12	10.5	3.3	2.08	4
P0102.060-014-G2	M 6	14	10.5	3.3	2.08	4
P0102.060-016-G2	M 6	16	10.5	3.3	2.08	4
P0102.060-020-G2	M 6	20	10.5	3.3	2.08	4
P0102.060-025-G2	M 6	25	10.5	3.3	2.08	4
P0102.060-030-G2	M 6	30	10.5	3.3	2.08	4
P0102.060-035-G2	M 6	35	10.5	3.3	2.08	4
P0102.060-040-G2	M 6	40	10.5	3.3	2.08	4
P0102.060-045-G2	M 6	45	10.5	3.3	2.08	4
P0102.060-050-G2	M 6	50	10.5	3.3	2.08	4
P0102.060-055-G2	M 6	55	10.5	3.3	2.08	4
P0102.060-060-G2	M 6	60	10.5	3.3	2.08	4
P0102.060-070-G2	M 6	70	10.5	3.3	2.08	4
P0102.060-080-G2	M 6	80	10.5	3.3	2.08	4
P0102.080-010-G2	M 8	10	14	4.4	2.6	5
P0102.080-012-G2	M 8	12	14	4.4	2.6	5
P0102.080-014-G2	M 8	14	14	4.4	2.6	5
P0102.080-016-G2	M 8	16	14	4.4	2.6	5
P0102.080-020-G2	M 8	20	14	4.4	2.6	5
P0102.080-025-G2	M 8	25	14	4.4	2.6	5
P0102.080-030-G2	M 8	30	14	4.4	2.6	5
P0102.080-035-G2	M 8	35	14	4.4	2.6	5
P0102.080-040-G2	M 8	40	14	4.4	2.6	5
P0102.080-045-G2	M 8	45	14	4.4	2.6	5
P0102.080-050-G2	M 8	50	14	4.4	2.6	5
P0102.080-055-G2	M 8	55	14	4.4	2.6	5
P0102.080-060-G2	M 8	60	14	4.4	2.6	5
P0102.080-070-G2	M 8	70	14	4.4	2.6	5
P0102.080-080-G2	M 8	80	14	4.4	2.6	5
P0102.100-012-G2	M10	12	17.5	5.5	3.12	6
P0102.100-016-G2	M10	16	17.5	5.5	3.12	6
P0102.100-020-G2	M10	20	17.5	5.5	3.12	6
P0102.100-025-G2	M10	25	17.5	5.5	3.12	6
P0102.100-030-G2	M10	30	17.5	5.5	3.12	6
P0102.100-035-G2	M10	35	17.5	5.5	3.12	6
P0102.100-040-G2	M10	40	17.5	5.5	3.12	6
P0102.100-045-G2	M10	45	17.5	5.5	3.12	6
P0102.100-050-G2	M10	50	17.5	5.5	3.12	6
P0102.100-055-G2	M10	55	17.5	5.5	3.12	6
P0102.100-060-G2	M10	60	17.5	5.5	3.12	6
P0102.100-070-G2	M10	70	17.5	5.5	3.12	6
P0102.100-080-G2	M10	80	17.5	5.5	3.12	6

TITANIUM SCREWS



**P0108**



**Material**

Titanium (ASTM 348 grade 2, pure titanium).  
Tensile strength 345-450 N/mm<sup>2</sup>, yield strength 270 N/mm<sup>2</sup>, hardness 160HB/30.  
Grade 5 titanium available on request.

**Technical Notes**

To DIN 934.

Titanium has a high strength/weight ratio. The specific gravity of titanium is approximately 60% that of stainless steel. For use in lightweight applications in the automobile, aerospace, medical and robotic industries. Highly resistant to corrosion (including from salt water) and chemical environ-

ments. Non magnetic.

**Tips**

Please see Technical page for full grade 2 titanium properties.

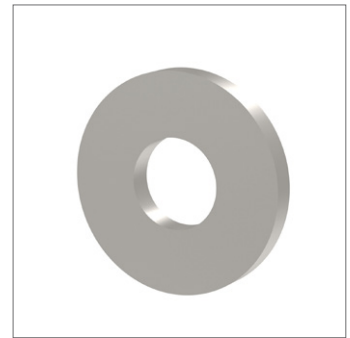
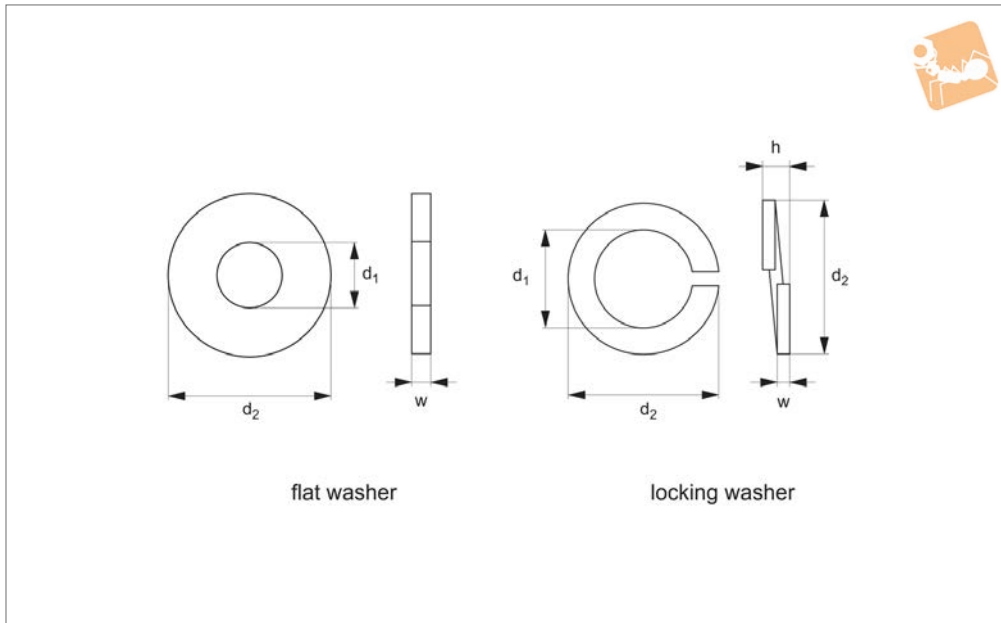
Order No.	d <sub>1</sub>	h min.	A/F	Type
P0108.030-G2	M 3	2.4	5.5	Standard
P0108.040-G2	M 4	3.2	7	Standard
P0108.050-G2	M 5	4	8	Standard
P0108.060-G2	M 6	5	10	Standard
P0108.080-G2	M 8	6.5	13	Standard
P0108.100-G2	M10	8	17	Standard
P0108.120-G2	M12	10	19	Standard
P0108.160-G2	M16	13	24	Standard
P0108.200-G2	M20	15	30	Standard
P0108.240-G2	M24	18	36	Standard





# Titanium Washers

flat & spring lock



**P0109**

TITANIUM SCREWS

**Material**

Titanium (ASTM 348 grade 2, pure titanium).  
Tensile strength 345-450 N/mm<sup>2</sup>, yield strength 270 N/mm<sup>2</sup>, hardness 160HB/30. Grade 5 titanium available on request.

**Technical Notes**

Flat washers to DIN 9021, locking washers

to DIN 127.

Titanium has a high strength/weight ratio. The specific gravity of titanium is approximately 60% that of stainless steel. For use in lightweight applications in the automobile, aerospace, medical and robotic industries. Highly resistant to corrosion (including

from salt water) and chemical environments. Non magnetic. Part no.s ending with F are flat washers. Part no.s ending with L are lock washers.

**Tips**

Please see Technical page for full grade 2 titanium properties.

Order No.	For thread	d <sub>1</sub>	d <sub>2</sub> max.	h max.	w	Type
P0109.030-F-G2	M 3	-	-	-	-	Flat
P0109.040-F-G2	M 4	4.3	12	-	1.0	Flat
P0109.040-L-G2	M 4	4.3	8	2.5	0.9	Lock
P0109.050-F-G2	M 5	5.3	15	-	1.6	Flat
P0109.050-L-G2	M 5	5.3	10	3.2	1.2	Lock
P0109.060-F-G2	M 6	6.4	18	-	1.6	Flat
P0109.060-L-G2	M 6	6.4	12	4.2	1.6	Lock
P0109.080-F-G2	M 8	8.4	25	-	2.0	Flat
P0109.080-L-G2	M 8	8.4	16	5.4	2.0	Lock
P0109.100-F-G2	M10	10.5	30	-	2.5	Flat
P0109.120-F-G2	M12	-	-	-	-	Flat
P0109.160-F-G2	M16	-	-	-	-	Flat
P0109.200-F-G2	M20	-	-	-	-	Flat
P0109.240-F-G2	M24	-	-	-	-	Flat
P0109.100-L-G2	M10	10.5	20	5.9	2.2	Lock