

## 37020

THUMB SCREWS

### Material

Steel, quality 5.8, blackened. Turned, visible face, good finish.

### Technical Notes

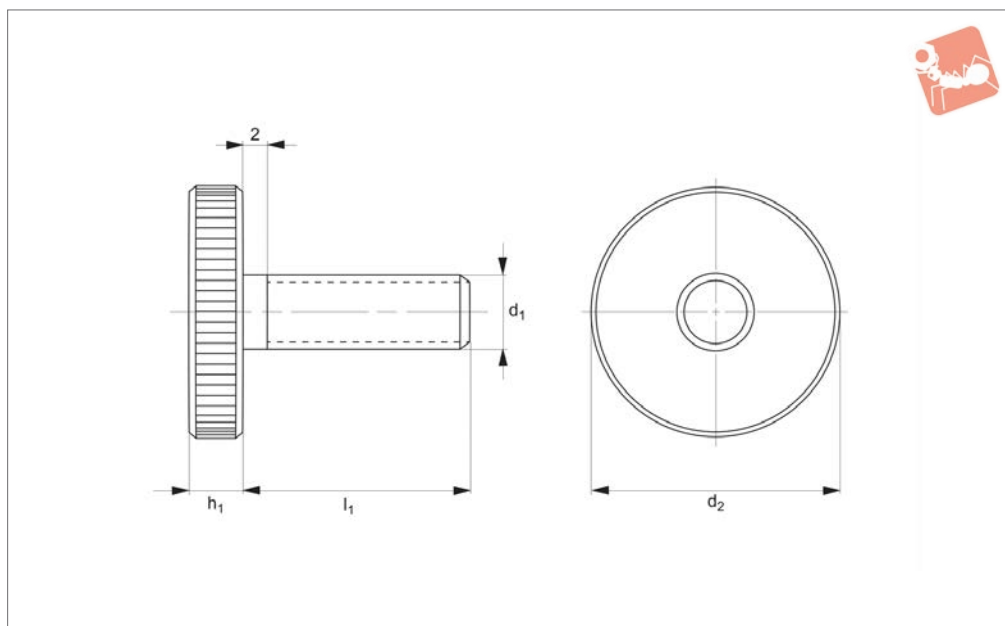
All knurled screws are one-piece manufactured with thread up to the head (DIN-

designation ,A').

Order No.	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	l <sub>1</sub>	Weight g
37020.W0072	M 3	12	2.5	6	2.3
37020.W0073	M 3	12	2.5	8	2.4
37020.W0074	M 3	12	2.5	10	2.5
37020.W0077	M 3	12	2.5	16	2.7
37020.W0079	M 3	12	2.5	20	2.9
37020.W0092	M 4	16	3.5	8	5.6
37020.W0093	M 4	16	3.5	10	5.7
37020.W0094	M 4	16	3.5	12	6.1
37020.W0096	M 4	16	3.5	16	6.2
37020.W0098	M 4	16	3.5	20	6.6
37020.W0100	M 4	16	3.5	25	7.0
37020.W0112	M 5	20	4.0	10	10.0
37020.W0113	M 5	20	4.0	12	11.0
37020.W0115	M 5	20	4.0	16	12.0
37020.W0117	M 5	20	4.0	20	12.0
37020.W0119	M 5	20	4.0	25	12.0
37020.W0121	M 5	20	4.0	30	13.0
37020.W0132	M 6	24	5.0	12	18.0
37020.W0134	M 6	24	5.0	16	20.0
37020.W0136	M 6	24	5.0	20	20.0
37020.W0138	M 6	24	5.0	25	20.0
37020.W0140	M 6	24	5.0	30	22.0
37020.W0142	M 6	24	5.0	40	23.0
37020.W0152	M 8	30	6.0	16	36.0
37020.W0154	M 8	30	6.0	20	37.0
37020.W0156	M 8	30	6.0	25	39.0
37020.W0158	M 8	30	6.0	30	41.0
37020.W0160	M 8	30	6.0	35	42.0
37020.W0161	M 8	30	6.0	40	44.0
37020.W0172	M10	36	8.0	20	71.0
37020.W0174	M10	36	8.0	25	72.0
37020.W0176	M10	36	8.0	30	76.0
37020.W0180	M10	36	8.0	40	80.0



**37040**



**Material**

Stainless steel 1.4305 (AISI 303).

tured with thread up to the head (DIN-designation ,A').

**Technical Notes**

All knurled screws are one-piece manufac-

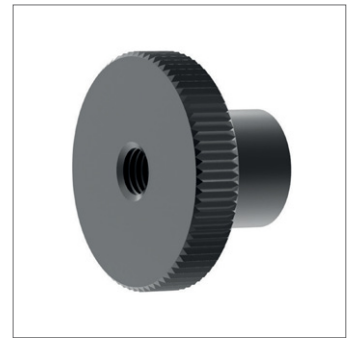
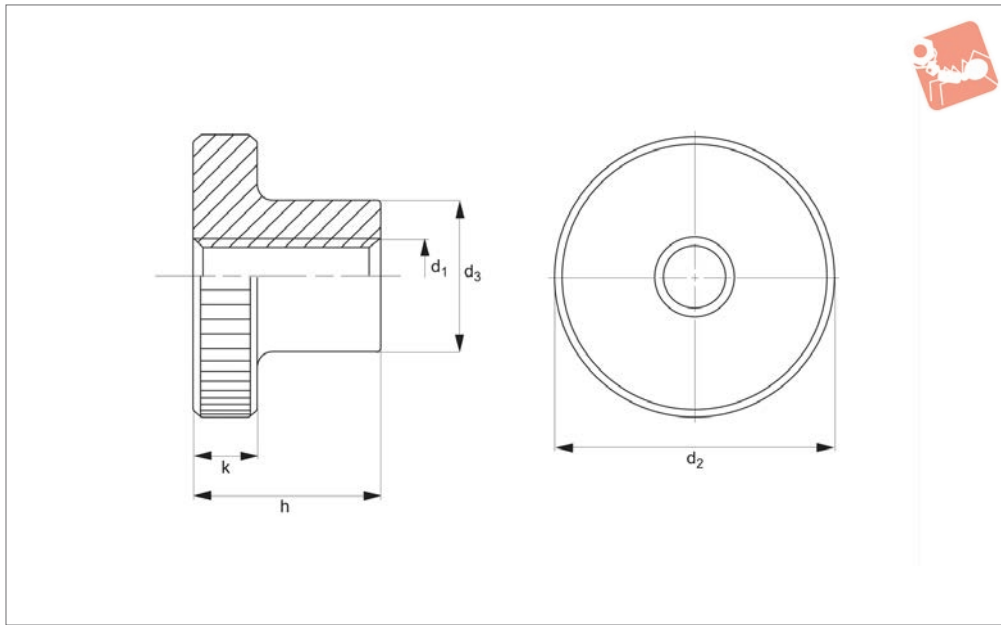
Order No.	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	l <sub>1</sub>	Weight g
37040.W0092	M 4	16	3.5	8	5.6
37040.W0093	M 4	16	3.5	10	5.7
37040.W0094	M 4	16	3.5	12	6.1
37040.W0096	M 4	16	3.5	16	6.2
37040.W0112	M 5	20	4.0	10	10.0
37040.W0113	M 5	20	4.0	12	11.0
37040.W0115	M 5	20	4.0	16	12.0
37040.W0117	M 5	20	4.0	20	12.0
37040.W0132	M 6	24	5.0	12	18.0
37040.W0134	M 6	24	5.0	16	20.0
37040.W0136	M 6	24	5.0	20	20.0
37040.W0138	M 6	24	5.0	25	20.0
37040.W0152	M 8	30	6.0	16	36.0
37040.W0154	M 8	30	6.0	20	37.0
37040.W0156	M 8	30	6.0	25	39.0
37040.W0158	M 8	30	6.0	30	41.0
37040.W0172	M10	36	8.0	20	71.0
37040.W0174	M10	36	8.0	25	72.0
37040.W0176	M10	36	8.0	30	76.0
37040.W0180	M10	36	8.0	40	80.0



# Knurled Nuts with collar - DIN 466



# Thumb Screws



**37100**

THUMB SCREWS

### Material

Steel, quality 5, blackened. Turned, visible face, good finish.

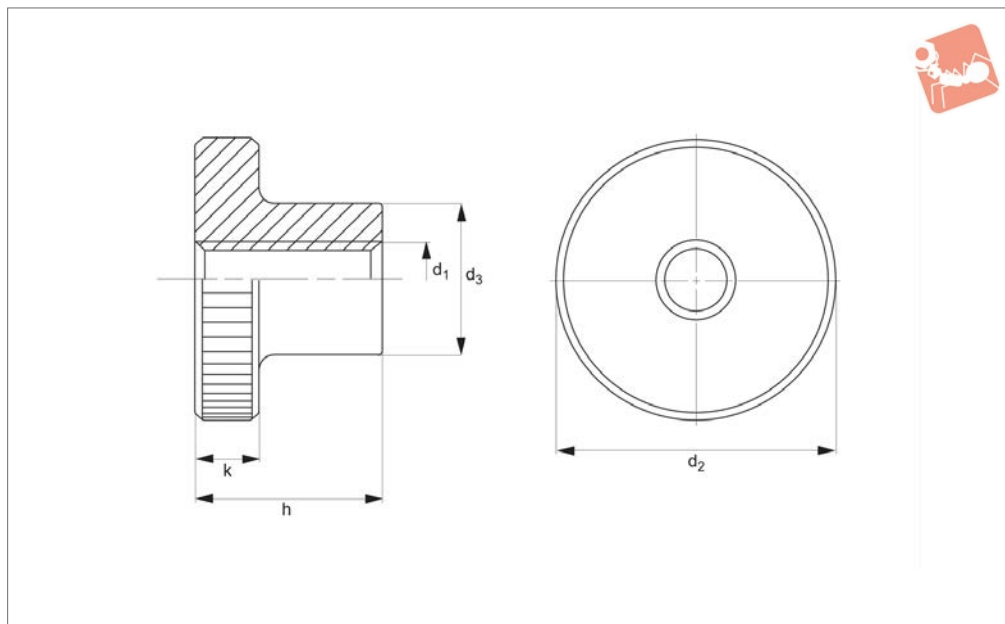
### Technical Notes

Size M12 not contained in DIN standard.

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h	k	Weight g
<b>37100.W0003</b>	M 3	12	6	7.5	2.5	2.9
<b>37100.W0004</b>	M 4	16	8	9.5	3.5	6.7
<b>37100.W0005</b>	M 5	20	10	11.5	4.0	12.0
<b>37100.W0006</b>	M 6	24	12	15.0	5.0	23.0
<b>37100.W0008</b>	M 8	30	16	18.0	6.0	44.0
<b>37100.W0010</b>	M10	36	20	23.0	8.0	85.0
<b>37100.W0012</b>	M12	40	22	25.0	10.0	119.0



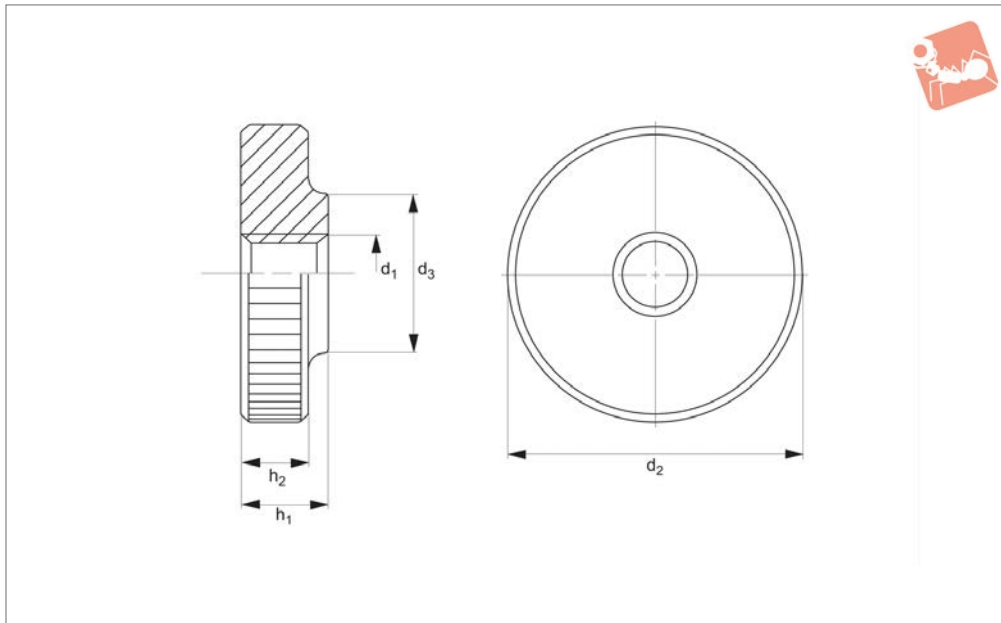
## 37110



### Material

Stainless steel 1.4305 (AISI 303), matte, shot-blasted.

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h	k	Weight g
37110.W0002	M2,5	11	5	6.5	2.5	3.5
37110.W0003	M 3	12	6	7.5	2.5	3.5
37110.W0004	M 4	16	8	9.5	3.5	6.7
37110.W0005	M 5	20	10	11.5	4.0	12.0
37110.W0006	M 6	24	12	15.0	5.0	23.0
37110.W0008	M 8	30	16	18.0	6.0	44.0
37110.W0010	M10	36	20	23.0	8.0	85.0



## 37120

THUMB SCREWS

### Material

Steel, quality 5, blackened. Turned, visible face, good finish.

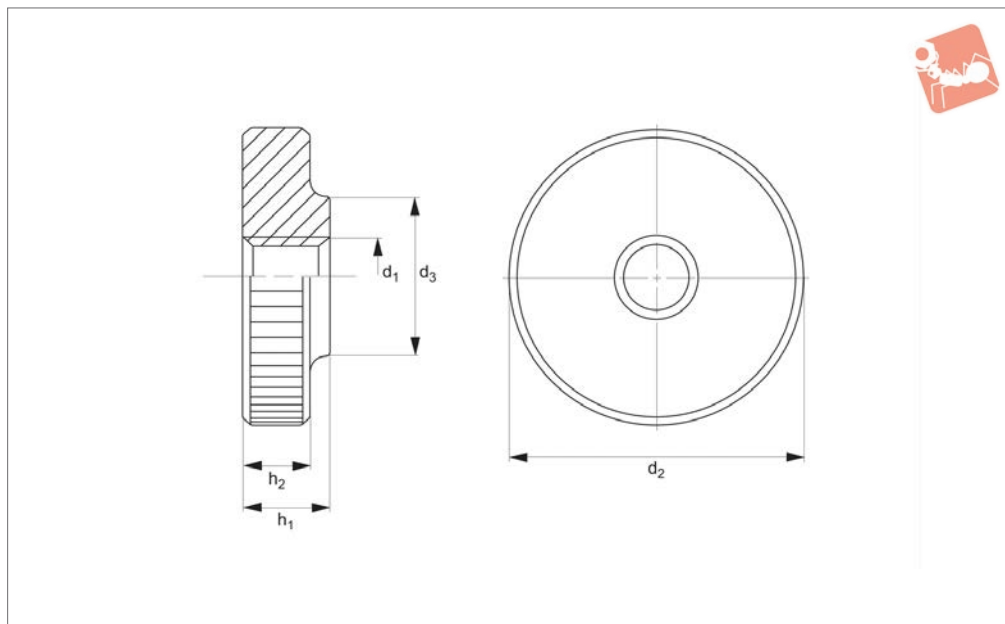
### Technical Notes

Size M12 not contained in DIN standard.

Order No.	$d_1$	$d_2$	$d_3$	$h_1$	$h_2$	Weight g
37120.W0003	M 3	12	6	3	2.5	2.1
37120.W0004	M 4	16	8	4	3.5	5.0
37120.W0005	M 5	20	10	5	4.0	9.4
37120.W0006	M 6	24	12	6	5.0	17.0
37120.W0008	M 8	30	16	8	6.0	32.0
37120.W0010	M10	36	20	10	8.0	61.0
37120.W0012	M12	40	22	12	10.0	92.0



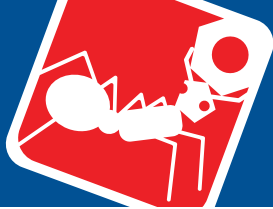
**37130**



**Material**

Stainless steel 1,4305 (AISI 303), dull blasted.

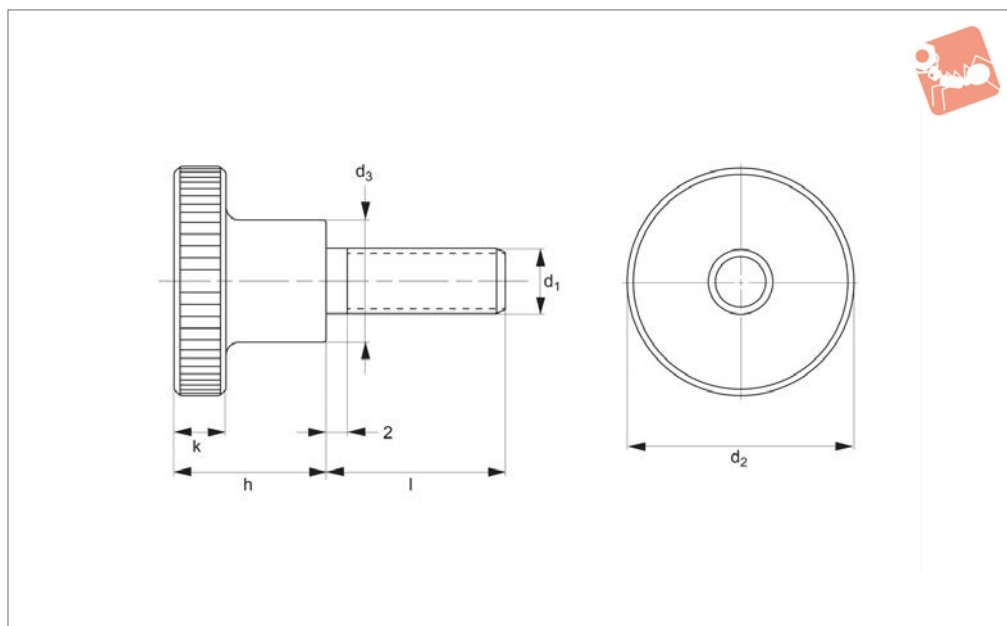
Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h <sub>1</sub>	h <sub>2</sub>	Weight g
37130.W0003	M 3	12	6	3	2.5	2.1
37130.W0004	M 4	16	8	4	3.5	5.0
37130.W0005	M 5	20	10	5	4.0	9.4
37130.W0006	M 6	24	12	6	5.0	17.0
37130.W0008	M 8	30	16	8	6.0	32.0
37130.W0010	M10	36	20	10	8.0	61.0



# Knurled Thumb Screws

DIN 464

## Thumb Screws



### 37140

THUMB SCREWS

#### Material

Steel, quality 5.8, blackened. Turned, visible face, good finish.

Contra-ry to the Official Standard Sheet, they all have a thread up to the head, as shown, but no recess at the thread end.

#### Technical Notes

All knurled screws are one-piece manufac-

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h	k	l	Weight g
37140.W0031	M 3	12	6	7.5	2.5	6	3.7
37140.W0032	M 3	12	6	7.5	2.5	10	3.8
37140.W0033	M 3	12	6	7.5	2.5	12	4.0
37140.W0034	M 3	12	6	7.5	2.5	16	4.0
37140.W0040	M 4	16	8	9.5	3.5	5	7.7
37140.W0041	M 4	16	8	9.5	3.5	8	7.9
37140.W0042	M 4	16	8	9.5	3.5	10	8.1
37140.W0043	M 4	16	8	9.5	3.5	12	8.3
37140.W0044	M 4	16	8	9.5	3.5	16	8.4
37140.W0045	M 4	16	8	9.5	3.5	20	9.1
37140.W0046	M 4	16	8	9.5	3.5	25	9.0
37140.W0051	M 5	20	10	11.5	4.0	6	14.0
37140.W0052	M 5	20	10	11.5	4.0	8	15.0
37140.W0053	M 5	20	10	11.5	4.0	10	15.0
37140.W0054	M 5	20	10	11.5	4.0	12	15.0
37140.W0055	M 5	20	10	11.5	4.0	16	16.0
37140.W0056	M 5	20	10	11.5	4.0	20	16.0
37140.W0057	M 5	20	10	11.5	4.0	25	17.0
37140.W0058	M 5	20	10	11.5	4.0	30	17.0
37140.W0061	M 6	24	12	15.0	5.0	8	28.0
37140.W0062	M 6	24	12	15.0	5.0	10	27.0
37140.W0063	M 6	24	12	15.0	5.0	12	28.0
37140.W0064	M 6	24	12	15.0	5.0	16	28.0
37140.W0065	M 6	24	12	15.0	5.0	20	29.0
37140.W0066	M 6	24	12	15.0	5.0	25	30.0
37140.W0067	M 6	24	12	15.0	5.0	30	31.0
37140.W0068	M 6	24	12	15.0	5.0	35	31.0
37140.W0081	M 8	30	16	18.0	6.0	12	53.0
37140.W0082	M 8	30	16	18.0	6.0	16	55.0
37140.W0083	M 8	30	16	18.0	6.0	20	56.0
37140.W0084	M 8	30	16	18.0	6.0	25	58.0
37140.W0085	M 8	30	16	18.0	6.0	30	60.0



Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h	k	l	Weight g
37140.W0086	M 8	30	16	18.0	6.0	35	50.0
37140.W0087	M 8	30	16	18.0	6.0	40	61.0
37140.W0101	M10	36	20	23.0	8.0	20	106.0
37140.W0102	M10	36	20	23.0	8.0	25	109.0
37140.W0103	M10	36	20	23.0	8.0	30	112.0
37140.W0104	M10	36	20	23.0	8.0	35	116.0
37140.W0105	M10	36	20	23.0	8.0	40	116.0

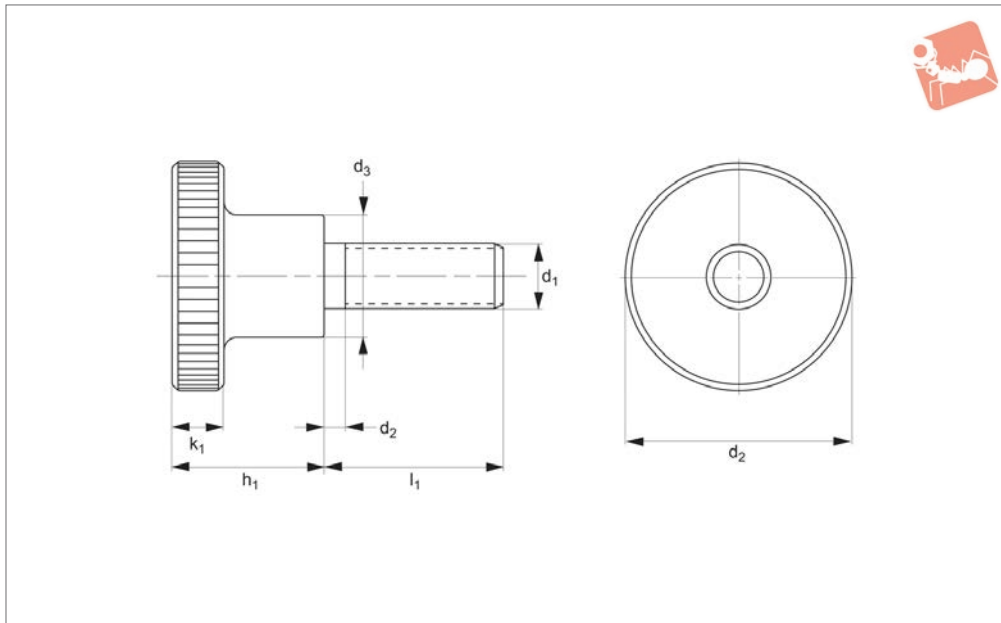




# Knurled Thumb Screws

stainless steel - DIN 464

## Thumb Screws



**37150**

THUMB SCREWS

### Material

Stainless steel 1.4305 (AISI 303), matte, shot-blasted.

Conary to the Official Standard Sheet, they all have a thread up to the head, as shown, but no recess at the thread end.

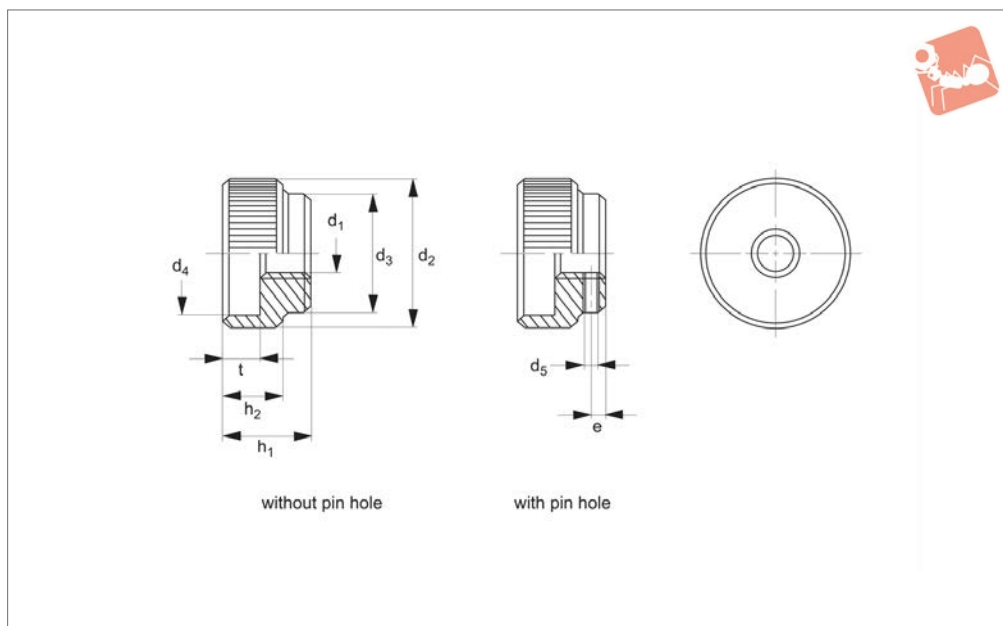
### Technical Notes

All knurled screws are one-piece manufac-

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h <sub>1</sub>	k <sub>1</sub>	l <sub>1</sub>	Weight g
37150.W0031	M 3	12	6	7.5	2.5	6	3.7
37150.W0032	M 3	12	6	7.5	2.5	10	3.8
37150.W0033	M 3	12	6	7.5	2.5	12	4.0
37150.W0034	M 3	12	6	7.5	2.5	16	4.0
37150.W0041	M 4	16	8	9.5	3.5	8	7.9
37150.W0042	M 4	16	8	9.5	3.5	10	8.1
37150.W0043	M 4	16	8	9.5	3.5	12	8.3
37150.W0044	M 4	16	8	9.5	3.5	16	8.4
37150.W0045	M 4	16	8	9.5	3.5	20	9.1
37150.W0046	M 4	16	8	9.5	3.5	25	9.0
37150.W0051	M 5	20	10	11.5	4.0	10	15.0
37150.W0052	M 5	20	10	11.5	4.0	12	15.0
37150.W0053	M 5	20	10	11.5	4.0	16	16.0
37150.W0054	M 5	20	10	11.5	4.0	20	16.0
37150.W0055	M 5	20	10	11.5	4.0	25	17.0
37150.W0058	M 5	20	10	11.5	4.0	30	17.0
37150.W0061	M 6	24	12	15.0	5.0	12	28.0
37150.W0062	M 6	24	12	15.0	5.0	16	28.0
37150.W0063	M 6	24	12	15.0	5.0	20	29.0
37150.W0064	M 6	24	12	15.0	5.0	25	30.0
37150.W0065	M 6	24	12	15.0	5.0	30	31.0
37150.W0068	M 6	24	12	15.0	5.0	35	31.0
37150.W0081	M 8	30	16	18.0	6.0	16	55.0
37150.W0082	M 8	30	16	18.0	6.0	20	56.0
37150.W0083	M 8	30	16	18.0	6.0	25	58.0
37150.W0084	M 8	30	16	18.0	6.0	30	60.0
37150.W0086	M 8	30	16	18.0	6.0	35	50.0



## 37160



### Material

Free-cutting steel, blackened.

### Technical Notes

Tolerance of pin hole  $d_5$  is H7.

Order No.	Type	$d_1$	$d_2$	$d_3$	$d_4$	$d_5$ pre-drilled	e	$h_1$	$h_2$	t	Pin required DIN 7	Weight g
<b>37160.W0005</b>	Without Pin Hole	M 5	20	14	15	-	-	12	8	5	-	16
<b>37160.W0006</b>	Without Pin Hole	M 6	24	16	18	-	-	14	10	6	-	27
<b>37160.W0008</b>	Without Pin Hole	M 8	30	20	24	-	-	17	12	7	-	46
<b>37160.W0010</b>	Without Pin Hole	M10	36	28	30	-	-	20	14	8	-	82
<b>37160.W0012</b>	Without Pin Hole	M12	40	32	34	-	-	24	16	10	-	123
<b>37160.W0105</b>	With Pin Hole	M 5	20	14	15	1.4	2.5	12	8	5	1,5 M 6x14	15
<b>37160.W0106</b>	With Pin Hole	M 6	24	16	18	1.4	2.5	14	10	6	1,5 M 6x16	25
<b>37160.W0108</b>	With Pin Hole	M 8	30	20	24	1.9	3.0	17	12	7	2,0 M 6x20	45
<b>37160.W0110</b>	With Pin Hole	M10	36	28	30	2.9	4.0	20	14	8	3,0 M 6x28	86
<b>37160.W0112</b>	With Pin Hole	M12	40	32	34	3.9	4.0	24	16	10	4,0 M 6x32	121

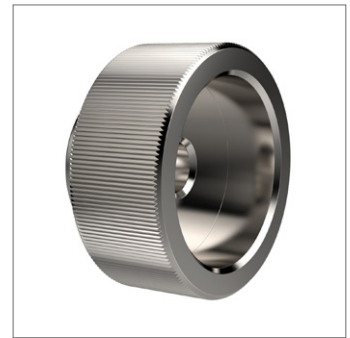
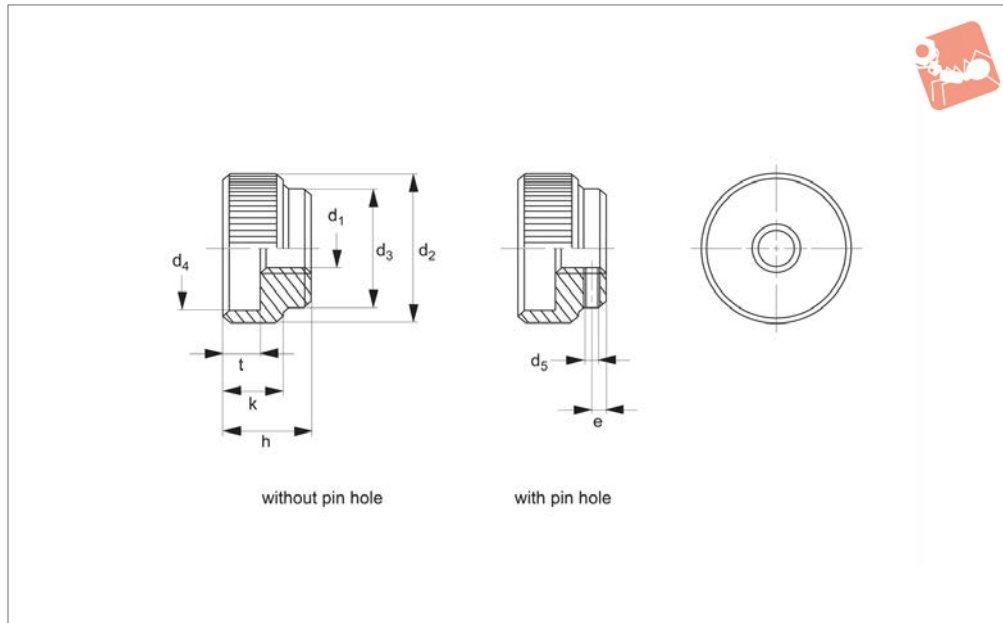


# Knurled Nuts

stainless steel - DIN 6303



# Thumb Screws



**37170**

THUMB SCREWS

### Material

Stainless steel 1.4305 (AISI 303), matte, shot-blasted.

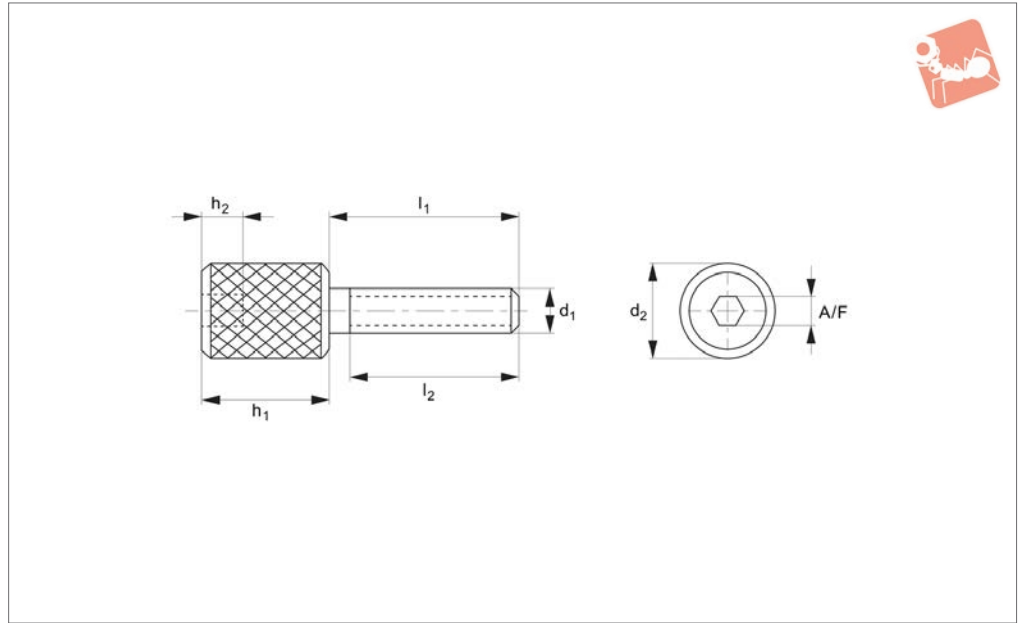
### Technical Notes

Tolerance of pin hole  $d_5$  is H7.

Order No.	Type	$d_1$	$d_2$	$d_3$	$d_4$	$d_5$ pre-drilled	e	h	k	t	Pin required DIN 7	Weight g
<b>37170.W0005</b>	Without Pin Hole	M 5	20	14	15	-	-	12	8	5	-	16
<b>37170.W0006</b>	Without Pin Hole	M 6	24	16	18	-	-	14	10	6	-	27
<b>37170.W0008</b>	Without Pin Hole	M 8	30	20	24	-	-	17	12	7	-	46
<b>37170.W0010</b>	Without Pin Hole	M10	36	28	30	-	-	20	14	8	-	82
<b>37170.W0012</b>	Without Pin Hole	M12	40	32	34	-	-	24	16	10	-	123
<b>37170.W0105</b>	With Pin Hole	M 5	20	14	15	1.4	2.5	12	8	5	1,5 M 6x14	15
<b>37170.W0106</b>	With Pin Hole	M 6	24	16	18	1.4	2.5	14	10	6	1,5 M 6x16	25
<b>37170.W0108</b>	With Pin Hole	M 8	30	20	24	1.9	3.0	17	12	7	2,0 M 6x20	45
<b>37170.W0110</b>	With Pin Hole	M10	36	28	30	2.9	4.0	20	14	8	3,0 M 6x28	86
<b>37170.W0112</b>	With Pin Hole	M12	40	32	34	3.9	4.0	24	16	10	4,0 M 6x32	121



## 37200



### Material

Stainless steel (AISI 303, 1.4305).  
Tensile strength 550 N/mm<sup>2</sup>.  
Proof stress min. 190 N/mm<sup>2</sup>, austenitic

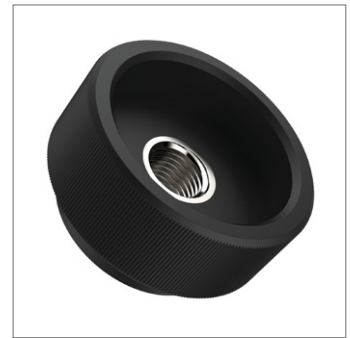
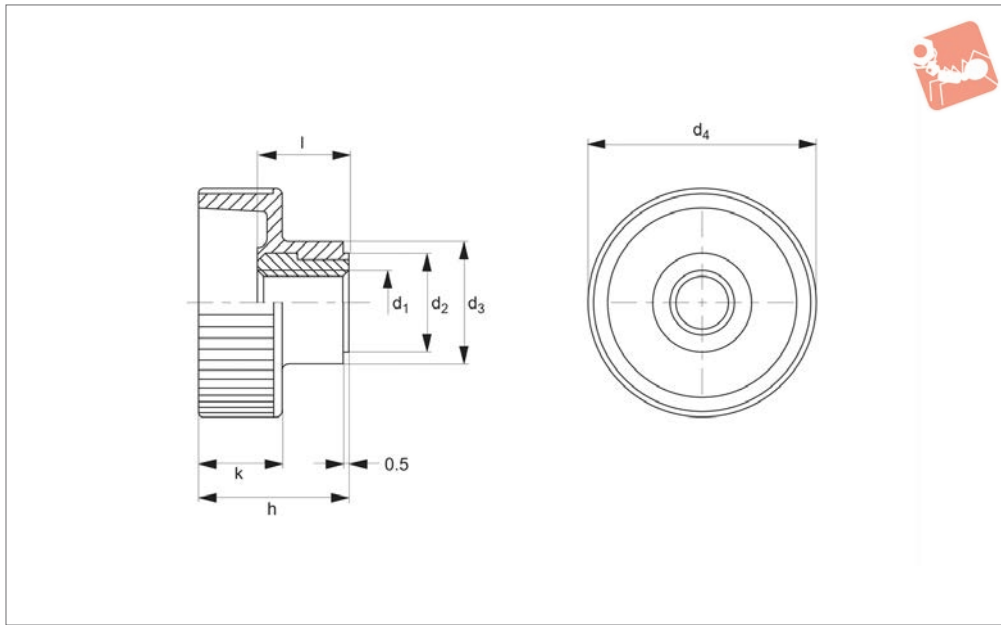
stainless steel.

### Technical Notes

Stainless steel 303 series is a hard stain-

less steel which may (in harsh conditions) exhibit slight signs of rusting. Typically used in food and pharmaceutical applications.

Order No.	d <sub>1</sub>	l <sub>1</sub>	d <sub>2</sub>	l <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub> min.	A/F
37200.W0001	M 3	12	6	11	12	2	2
37200.W0002	M 3	20	6	16	12	2	2
37200.W0003	M 3	12	8	11	12	2	2
37200.W0004	M 3	20	8	16	12	2	2
37200.W0005	M 3	10	10	8	12	3	3
37200.W0006	M 3	12	10	11	12	3	3
37200.W0015	M 4	12	6	11	12	2	2
37200.W0016	M 4	20	6	16	12	2	2
37200.W0017	M 4	25	6	20	12	2	2
37200.W0018	M 4	12	8	11	12	2	2
37200.W0019	M 4	20	8	16	12	2	2
37200.W0020	M 4	25	8	20	12	2	2
37200.W0021	M 4	10	10	8	12	3	3
37200.W0022	M 4	14	10	12	12	3	3
37200.W0023	M 5	12	8	11	12	2	2
37200.W0024	M 5	20	8	16	12	2	2
37200.W0025	M 5	25	8	20	12	2	2
37200.W0026	M 5	32	8	25	12	2	2
37200.W0027	M 5	12	10	11	12	3	3
37200.W0028	M 5	20	10	16	12	3	3
37200.W0029	M 5	25	10	20	12	3	3
37200.W0030	M 5	32	10	25	12	3	3



## 37330

THUMB SCREWS

### Material

Body: thermoplastic (PA), black. Insert: steel, galvanised or stainless steel 1.4305

(AISI 303).

80°C.

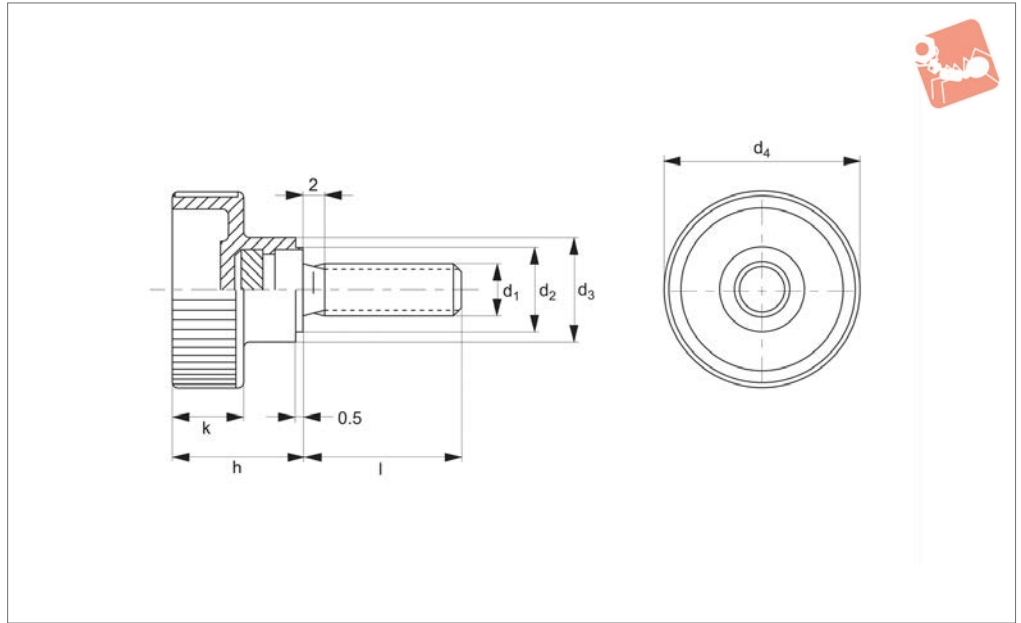
### Technical Notes

Temperature resistant from -30°C to +

Order No.	Type	$d_1$	$d_2$	$d_3$	$d_4$	$h$	$k$	$l$	Weight g
37330.W0004	Steel Insert	M 4	9	12	19	14.0	8.0	9.0	4.5
37330.W0005	Steel Insert	M 5	9	12	19	14.0	8.0	9.0	4.0
37330.W0006	Steel Insert	M 6	12	14	24	16.5	9.5	10.5	7.0
37330.W0008	Steel Insert	M 8	14	16	30	19.5	11.0	11.5	10.0
37330.W0010	Steel Insert	M10	16	18	36	22.5	12.5	14.0	15.0
37330.W0505	Stainless Insert	M 5	9	12	19	14.0	8.0	9.0	4.0
37330.W0506	Stainless Insert	M 6	12	14	24	16.5	9.5	10.5	7.0
37330.W0508	Stainless Insert	M 8	14	16	30	19.5	11.0	11.5	10.0



**37352**



THUMB SCREWS

### Material

Handle: thermoplastic PA, black.  
Screw: steel, galvanised

### Technical Notes

Temperature range from -30°C up to +80°C.

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	h	k	l	Weight g
37352.W0030	M 4	9	12	19	14.0	8.0	10	4.0
37352.W0032	M 4	9	12	19	14.0	8.0	15	6.0
37352.W0034	M 4	9	12	19	14.0	8.0	20	7.0
37352.W0036	M 4	9	12	19	14.0	8.0	30	7.0
37352.W0042	M 5	9	12	19	14.0	8.0	10	6.0
37352.W0043	M 5	9	12	19	14.0	8.0	15	5.0
37352.W0045	M 5	9	12	19	14.0	8.0	20	7.0
37352.W0046	M 5	9	12	19	14.0	8.0	25	8.0
37352.W0050	M 6	12	14	24	16.5	9.5	10	7.0
37352.W0053	M 6	12	14	24	16.5	9.5	16	8.0
37352.W0054	M 6	12	14	24	16.5	9.5	20	12.0
37352.W0055	M 6	12	14	24	16.5	9.5	25	9.0
37352.W0057	M 6	12	14	24	16.5	9.5	30	13.0
37352.W0060	M 8	14	16	30	19.5	11.0	16	14.0
37352.W0062	M 8	14	16	30	19.5	11.0	20	16.0
37352.W0064	M 8	14	16	30	19.5	11.0	25	17.0
37352.W0065	M 8	14	16	30	19.5	11.0	30	23.0
37352.W0067	M 8	14	16	30	19.5	11.0	40	20.0
37352.W0070	M10	16	18	36	22.5	12.5	20	30.0
37352.W0072	M10	16	18	36	22.5	12.5	25	31.0
37352.W0074	M10	16	18	36	22.5	12.5	30	33.0
37352.W0076	M10	16	18	36	22.5	12.5	40	38.0

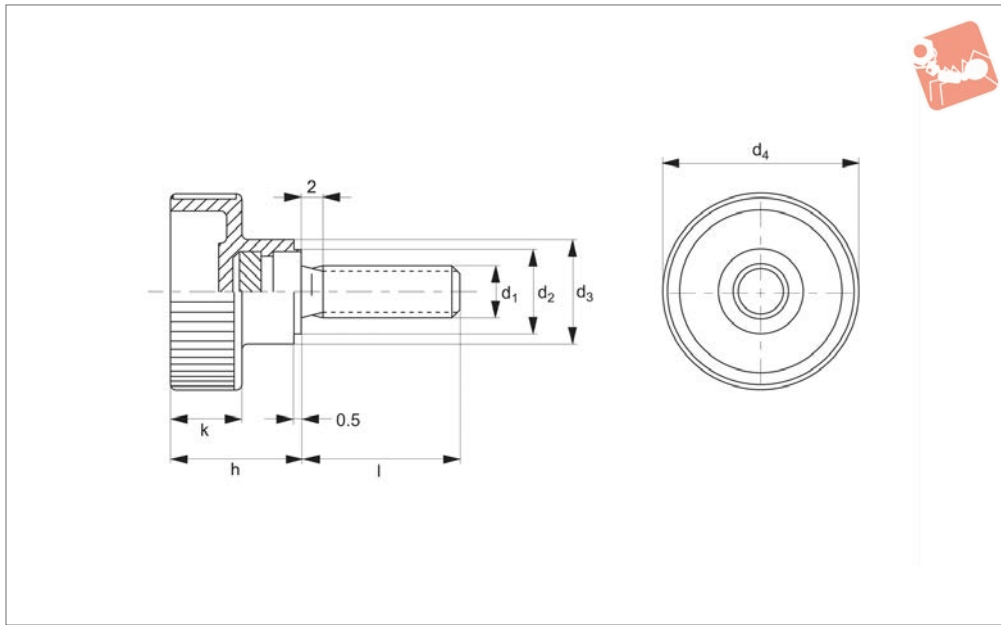


# Knurled Thumb Screws

plastic - stainless steel grub screw



## Thumb Screws



**37354**

THUMB SCREWS

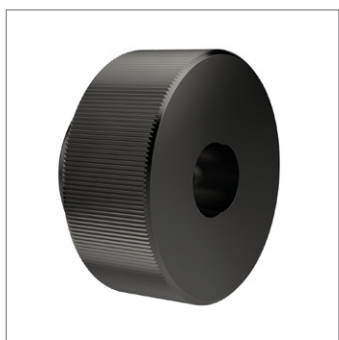
### Material

Handle: thermoplastic PA, black.  
Screw: stainless steel 1.4567. (AISI 304)

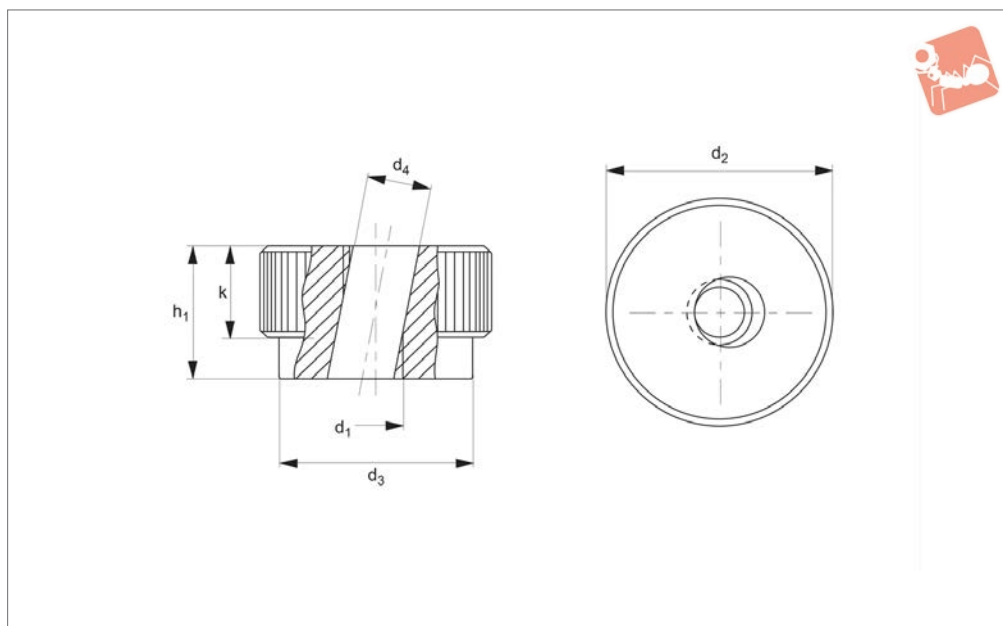
### Technical Notes

Temperature range from -30°C up to +80°C.

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	h	k	l	Weight g
37354.W0242	M 5	9	12	19	14.0	8.0	10	4.3
37354.W0243	M 5	9	12	19	14.0	8.0	15	5.0
37354.W0245	M 5	9	12	19	14.0	8.0	20	5.5
37354.W0246	M 5	9	12	19	14.0	8.0	25	6.0
37354.W0250	M 6	12	14	24	16.5	9.5	10	7.0
37354.W0253	M 6	12	14	24	16.5	9.5	16	8.0
37354.W0254	M 6	12	14	24	16.5	9.5	20	9.0
37354.W0255	M 6	12	14	24	16.5	9.5	25	9.0
37354.W0257	M 6	12	14	24	16.5	9.5	30	10.0
37354.W0262	M 8	14	16	30	19.5	11.0	20	16.0
37354.W0264	M 8	14	16	30	19.5	11.0	25	17.0
37354.W0265	M 8	14	16	30	19.5	11.0	30	19.0
37354.W0267	M 8	14	16	30	19.5	11.0	40	20.0
37354.W0270	M10	16	18	36	22.5	12.5	20	30.0
37354.W0272	M10	16	18	36	22.5	12.5	25	31.0
37354.W0274	M10	16	18	36	22.5	12.5	30	33.0
37354.W0278	M 10	16	18	36	22.5	12.5	45	43.0
37354.W0280	M 10	16	18	36	22.5	12.5	55	48.0



**37360**



**Material**

Turned and burnished steel, blackened.  
Tensile strength class 5.

**Technical Notes**

These knurled knobs are used when quick

tightening is required and with only a slight clamping force. The knob is inserted obliquely on the threaded stud and then placed in the axial position so that it fits onto the stud threads. At this point it can

be locked with just a slight rotation.

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	h <sub>1</sub>	k	Weight g
37360.W0006	M_6	24	16	6.7	14	10	35
37360.W0008	M_8	30	20	8.7	17	12	70
37360.W0010	M10	36	28	11.0	20	14	120
37360.W0012	M12	40	32	13	24	16	145





# Wide Selection of Thumb Screws, Knurled Screws & Wing Nuts



## Positioning Elements

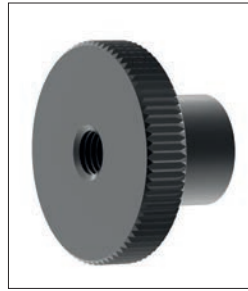
THUMB SCREWS



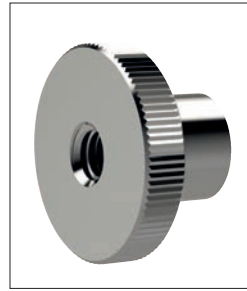
**37020** - Steel flat knurled screw



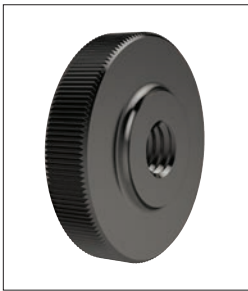
**37040** - Stainless steel flat knurled screw



**37100** - Steel knurled nut with collar



**37110** - Stainless steel knurled nut with collar



**37120** - Steel flat knurled nut



**37130** - Stainless steel flat knurled nut



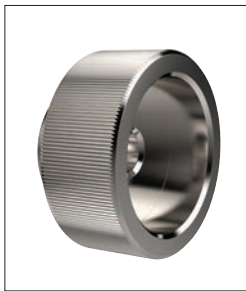
**37140** - Steel knurled screw with collar



**37150** - Stainless steel knurled screw with collar



**37160** - Steel knurled nut



**37170** - Stainless steel knurled nut



**37200** - Stainless steel knurled thumb screw



**37330** - Plastic knurled nut



**37352** - Plastic knurled steel screw



**37354** - Plastic knurled stainless steel screw



**37380** - 1/4 turn screw



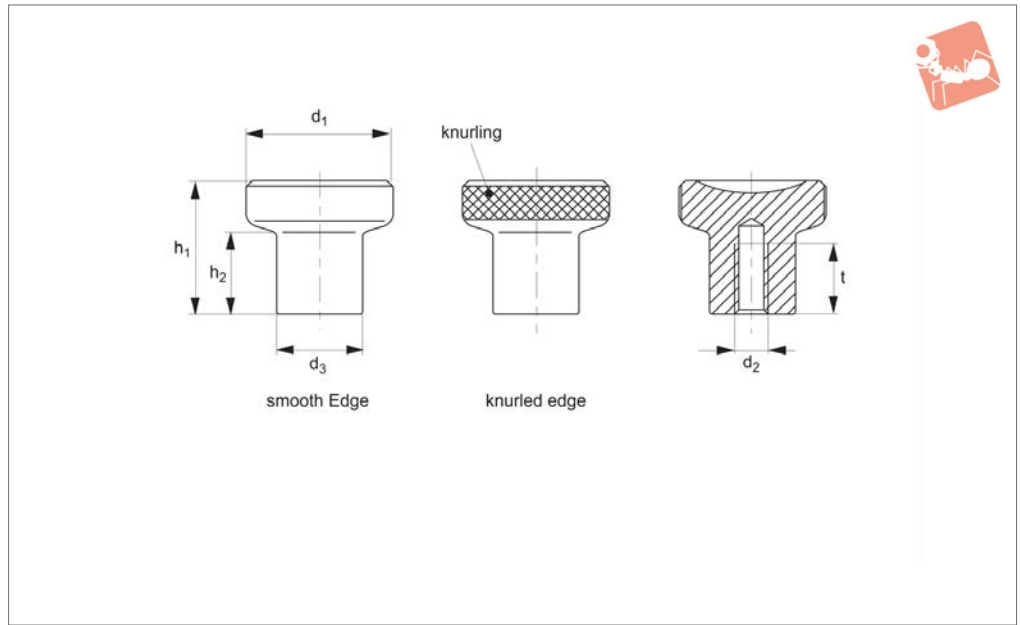
**37400** - 1/4 turn nut



**37460** - Thumb knob



## 37460



### Material

Steel, blackened.  
Stainless steel 1.4305 (AISI 303),

Matte finish.

### Important Notes

Stainless steel knobs are used in applica-

tions where a push or pull movement is required.

Order No.	Edge finish	Finish	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h <sub>1</sub>	h <sub>2</sub>	t min.	Weight g
37460.W0242	Knurled	Steel	21	M 4	12.5	18.0	10.5	10	26
37460.W0042	Knurled	Stainless	21	M 4	12.5	18.0	10.5	10	26
37460.W0252	Knurled	Steel	21	M 5	12.5	18.0	10.5	10	25
37460.W0052	Knurled	Stainless	21	M 5	12.5	18.0	10.5	10	25
37460.W0264	Knurled	Steel	25	M 6	14.5	22.5	14.0	12	42
37460.W0064	Knurled	Stainless	25	M 6	14.5	22.5	14.0	12	42
37460.W0284	Knurled	Steel	25	M 8	14.5	22.5	14.0	12	39
37460.W0084	Knurled	Stainless	25	M 8	14.5	22.5	14.0	12	39
37460.W0288	Knurled	Steel	31	M 8	18.5	27.0	17.0	15	75
37460.W0088	Knurled	Stainless	31	M 8	18.5	27.0	17.0	15	75
37460.W0308	Knurled	Steel	31	M10	18.5	27.0	17.0	17	70
37460.W0108	Knurled	Stainless	31	M10	18.5	27.0	17.0	17	70
37460.W0642	Smooth	Steel	21	M 4	12.5	18.0	10.5	10	26
37460.W0542	Smooth	Stainless	21	M 4	12.5	18.0	10.5	10	26
37460.W0752	Smooth	Steel	21	M 5	12.5	18.0	10.5	10	25
37460.W0552	Smooth	Stainless	21	M 5	12.5	18.0	10.5	10	25
37460.W0764	Smooth	Steel	25	M 6	14.5	22.5	14.0	12	42
37460.W0564	Smooth	Stainless	25	M 6	14.5	22.5	14.0	12	42
37460.W0784	Smooth	Steel	25	M 8	14.5	22.5	14.0	12	39
37460.W0584	Smooth	Stainless	25	M 8	14.5	22.5	14.0	12	39
37460.W0788	Smooth	Steel	31	M 8	18.5	27.0	17.0	15	75
37460.W0588	Smooth	Stainless	31	M 8	18.5	27.0	17.0	15	75
37460.W0808	Smooth	Steel	31	M10	18.5	27.0	17.0	17	70
37460.W0608	Smooth	Stainless	31	M10	18.5	27.0	17.0	17	70



# Wide Selection of Thumb Screws, Knurled Screws & Wing Nuts



## Positioning Elements

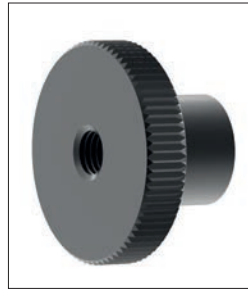
THUMB SCREWS



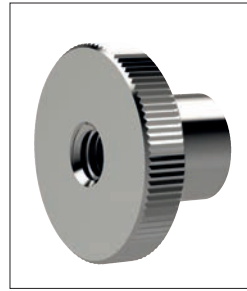
**37020** - Steel flat knurled screw



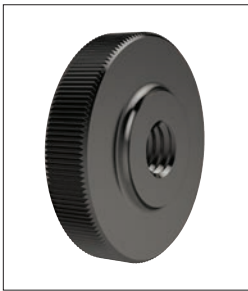
**37040** - Stainless steel flat knurled screw



**37100** - Steel knurled nut with collar



**37110** - Stainless steel knurled nut with collar



**37120** - Steel flat knurled nut



**37130** - Stainless steel flat knurled nut



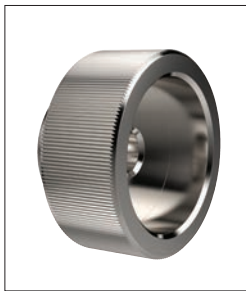
**37140** - Steel knurled screw with collar



**37150** - Stainless steel knurled screw with collar



**37160** - Steel knurled nut



**37170** - Stainless steel knurled nut



**37200** - Stainless steel knurled thumb screw



**37330** - Plastic knurled nut



**37352** - Plastic knurled steel screw



**37354** - Plastic knurled stainless steel screw



**37380** - 1/4 turn screw



**37400** - 1/4 turn nut



**37460** - Thumb knob



72180 - Plastic wing nut



72190 - Plastic wing nut  
with screw



72210 - Plastic wing nuts



72270 - 1/4 turn nut



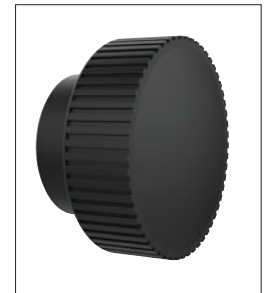
72280 - 1/4 turn nut



72290 - 1/4 turn screw



72300 - 1/4 turn screw



72410 - Knurled knob



72430 - Knurled knob  
with screw



72440 - Knurled knobs



72460 - Knurled knobs



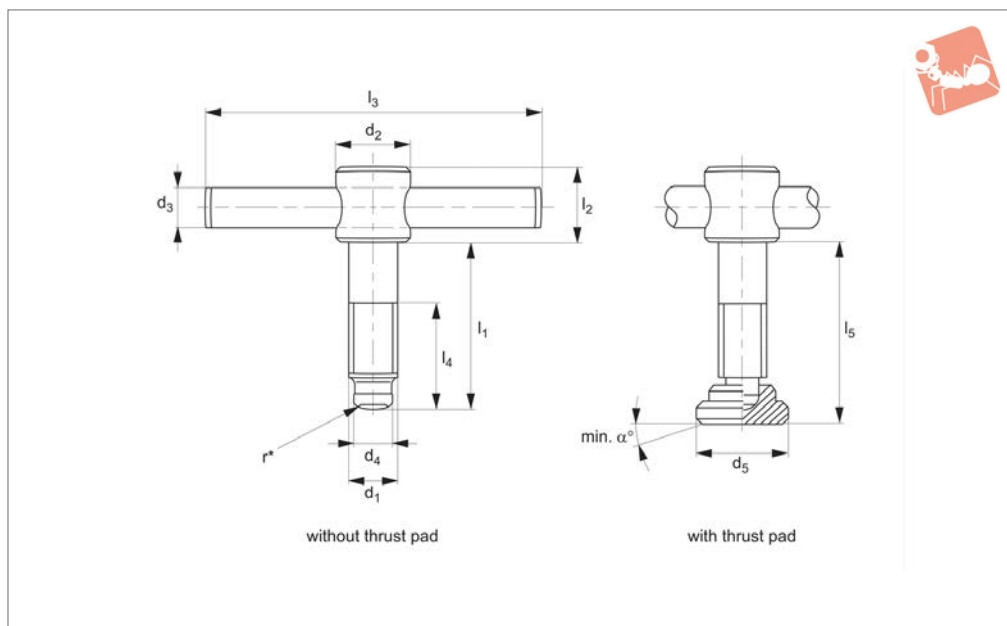
73200 - Mushroom knobs



# Tommy Screws

with fixed bar - DIN 6304

# Thumb Screws



**38000**

THUMB SCREWS

### Material

Free-cutting steel, black. Pressure lug hardened, bar pressed-in.

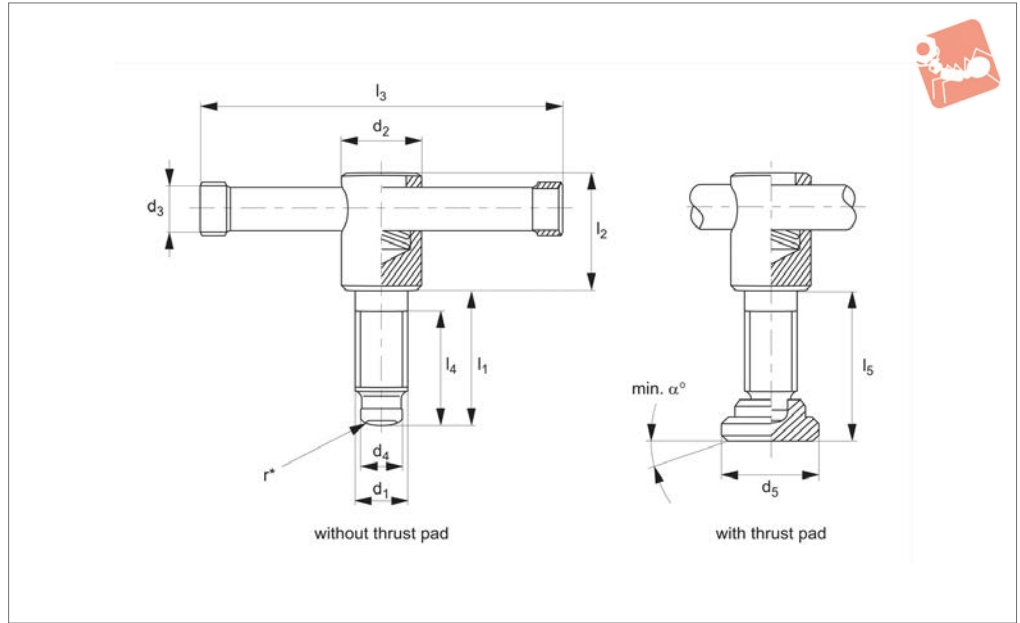
### Technical Notes

To ease assembly minor radius (r\*) added outside of DIN standard.

Order No.	Thrust pad	d <sub>1</sub>	l <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	l <sub>5</sub>	α	Type	Weight with pad g
38000.W0006	W/o Pad	M 6	40	12	5	4.5	-	10	50	30	-	-	w/o Thrust Pad	21
38000.W0007	W/o Pad	M 6	50	12	5	4.5	-	10	50	40	-	-	w/o Thrust Pad	23
38000.W0008	W/o Pad	M 8	50	14	6	6.0	-	12	60	35	-	-	w/o Thrust Pad	39
38000.W0009	W/o Pad	M 8	60	14	6	6.0	-	12	60	45	-	-	w/o Thrust Pad	43
38000.W0010	W/o Pad	M10	60	18	8	8.0	-	14	80	40	-	-	w/o Thrust Pad	82
38000.W0011	W/o Pad	M10	70	18	8	8.0	-	14	80	50	-	-	w/o Thrust Pad	86
38000.W0012	W/o Pad	M12	70	20	10	8.0	-	18	100	50	-	-	w/o Thrust Pad	140
38000.W0013	W/o Pad	M12	80	20	10	8.0	-	18	100	60	-	-	w/o Thrust Pad	149
38000.W0016	W/o Pad	M16	75	24	12	12.0	-	20	120	55	-	-	w/o Thrust Pad	248
38000.W0017	W/o Pad	M16	90	24	12	12.0	-	20	120	70	-	-	w/o Thrust Pad	267
38000.W0018	W/o Pad	M16	110	24	12	12.0	-	20	120	90	-	-	w/o Thrust Pad	294
38000.W0020	W/o Pad	M20	75	30	16	15.5	-	28	140	55	-	-	w/o Thrust Pad	475
38000.W0021	W/o Pad	M20	90	30	16	15.5	-	28	140	70	-	-	w/o Thrust Pad	506
38000.W0022	W/o Pad	M20	110	30	16	15.5	-	28	140	90	-	-	w/o Thrust Pad	548
38000.W0106	With Pad	M 6	40	12	5	4.5	12	10	50	30	42.1	7	With Thrust Pad	24
38000.W0107	With Pad	M 6	50	12	5	4.5	12	10	50	40	52.1	7	With Thrust Pad	28
38000.W0108	With Pad	M 8	50	14	6	6.0	16	12	60	35	53.0	4	With Thrust Pad	49
38000.W0109	With Pad	M 8	60	14	6	6.0	16	12	60	45	63.0	4	With Thrust Pad	54
38000.W0110	With Pad	M10	60	18	8	8.0	20	14	80	40	63.6	2	With Thrust Pad	97
38000.W0111	With Pad	M10	70	18	8	8.0	20	14	80	50	73.6	3	With Thrust Pad	102
38000.W0112	With Pad	M12	70	20	10	8.0	25	18	100	50	74.6	3	With Thrust Pad	173
38000.W0113	With Pad	M12	80	20	10	8.0	25	18	100	60	84.6	3	With Thrust Pad	178
38000.W0116	With Pad	M16	75	24	12	12.0	32	20	120	55	80.4	5	With Thrust Pad	317
38000.W0117	With Pad	M16	90	24	12	12.0	32	20	120	70	95.4	5	With Thrust Pad	342
38000.W0118	With Pad	M16	110	24	12	12.0	32	20	120	90	115.4	5	With Thrust Pad	367
38000.W0120	With Pad	M20	75	30	16	15.5	40	28	140	55	80.5	4	With Thrust Pad	573
38000.W0121	With Pad	M20	90	30	16	15.5	40	28	140	70	95.5	4	With Thrust Pad	603
38000.W0122	With Pad	M20	110	30	16	15.5	40	28	140	90	115.4	4	With Thrust Pad	643



## 38100



### Material

Free-cutting steel, black. Turned, pressure lug hardened, with moveable pin retained

by spring.

outside of DIN standard.

### Technical Notes

To ease assembly minor radius ( $r^*$ ) added

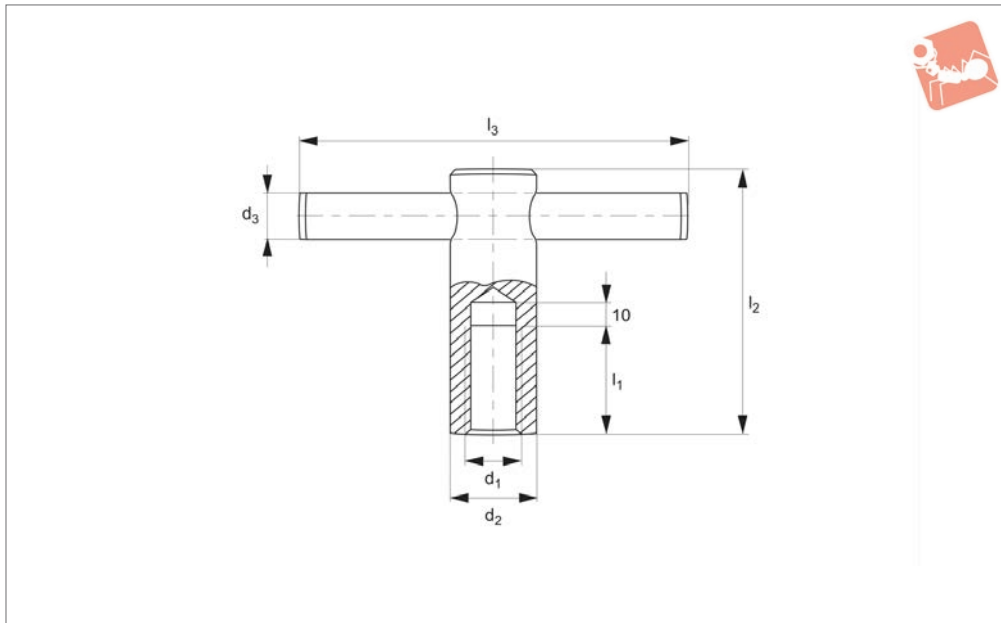
Order No.	Thrust pad	$d_1$	$l_1$	$d_2$	$d_3$	$d_4$	$d_5$	$l_2$	$l_3$	$l_4$	$l_5$	$\alpha$	Type	Weight with pad g
38100.W0008	W/o Pad	M 8	40	14	6	6.0	-	25	60	32	-	-	-	41
38100.W0009	W/o Pad	M 8	50	14	6	6.0	-	25	60	42	-	-	-	45
38100.W0010	W/o Pad	M10	40	18	8	8.0	-	32	80	30	-	-	w/o Thrust Pad	91
38100.W0011	W/o Pad	M10	50	18	8	8.0	-	32	80	40	-	-	w/o Thrust Pad	95
38100.W0012	W/o Pad	M12	50	20	10	8.0	-	35	100	40	-	-	w/o Thrust Pad	154
38100.W0013	W/o Pad	M12	60	20	10	8.0	-	35	100	50	-	-	w/o Thrust Pad	161
38100.W0016	W/o Pad	M16	55	24	13	12.0	-	40	120	45	-	-	w/o Thrust Pad	330
38100.W0017	W/o Pad	M16	70	24	13	12.0	-	40	120	60	-	-	w/o Thrust Pad	318
38100.W0018	W/o Pad	M16	90	24	13	12.0	-	40	120	80	-	-	w/o Thrust Pad	345
38100.W0020	W/o Pad	M20	55	30	16	15.5	-	45	140	45	-	-	w/o Thrust Pad	522
38100.W0021	W/o Pad	M20	70	30	16	15.5	-	45	140	60	-	-	w/o Thrust Pad	551
38100.W0022	W/o Pad	M20	90	30	16	15.5	-	45	140	80	-	-	w/o Thrust Pad	593
38100.W0108	With Pad	M 8	40	14	6	6.0	16	25	60	32	43.0	3	-	50
38100.W0109	With Pad	M 8	50	14	6	6.0	16	25	60	42	53.0	3	-	54
38100.W0110	With Pad	M10	40	18	8	8.0	20	32	80	30	43.6	3	With Thrust Pad	110
38100.W0111	With Pad	M10	50	18	8	8.0	20	32	80	40	53.6	3	With Thrust Pad	114
38100.W0112	With Pad	M12	50	20	10	8.0	25	35	100	40	52.6	3	With Thrust Pad	193
38100.W0113	With Pad	M12	60	20	10	8.0	25	35	100	50	64.6	3	With Thrust Pad	198
38100.W0116	With Pad	M16	55	24	13	12.0	32	40	120	45	60.4	5	With Thrust Pad	357
38100.W0117	With Pad	M16	70	24	13	12.0	32	40	120	60	75.4	5	With Thrust Pad	377
38100.W0118	With Pad	M16	90	24	13	12.0	32	40	120	80	95.4	5	With Thrust Pad	402
38100.W0120	With Pad	M20	55	30	16	15.5	40	45	140	45	60.5	4	With Thrust Pad	623
38100.W0121	With Pad	M20	70	30	16	15.5	40	45	140	60	75.5	4	With Thrust Pad	653
38100.W0122	With Pad	M20	90	30	16	15.5	40	45	140	80	95.5	4	With Thrust Pad	693



# Tommy Nuts with fixed bar - DIN 6305



# Thumb Screws



**38200**

THUMB SCREWS

### Material

Free-cutting steel, blackened. Moveable bar retained by spring.

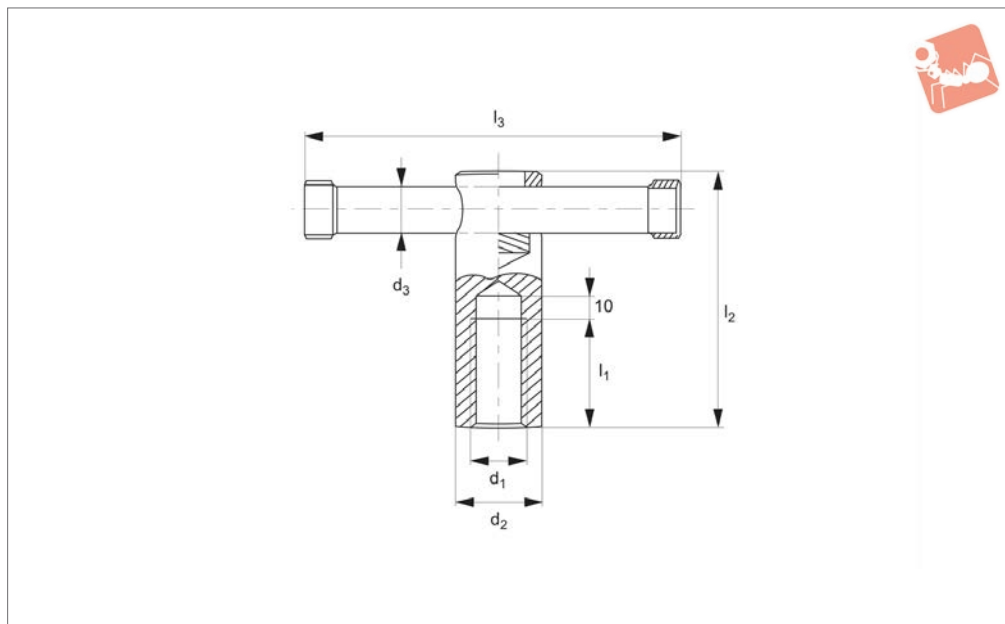
### Technical Notes

\* - DIN standards do not include these dimensions.

Order No.	d <sub>1</sub>	l <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>2</sub>	l <sub>3</sub>	Weight g
<b>38200.W0508</b>	M 8	16	16	6	50	60	79
<b>38200.W0510</b>	M10	20	18	8	60	80	127
<b>38200.W0512</b>	M12	25	20	10	70	100	192
<b>38200.W0516</b>	M16	35	24	12	85	120	318
<b>38200.W0520</b>	M20	40	30	16	95	140	590



## 38300



### Material

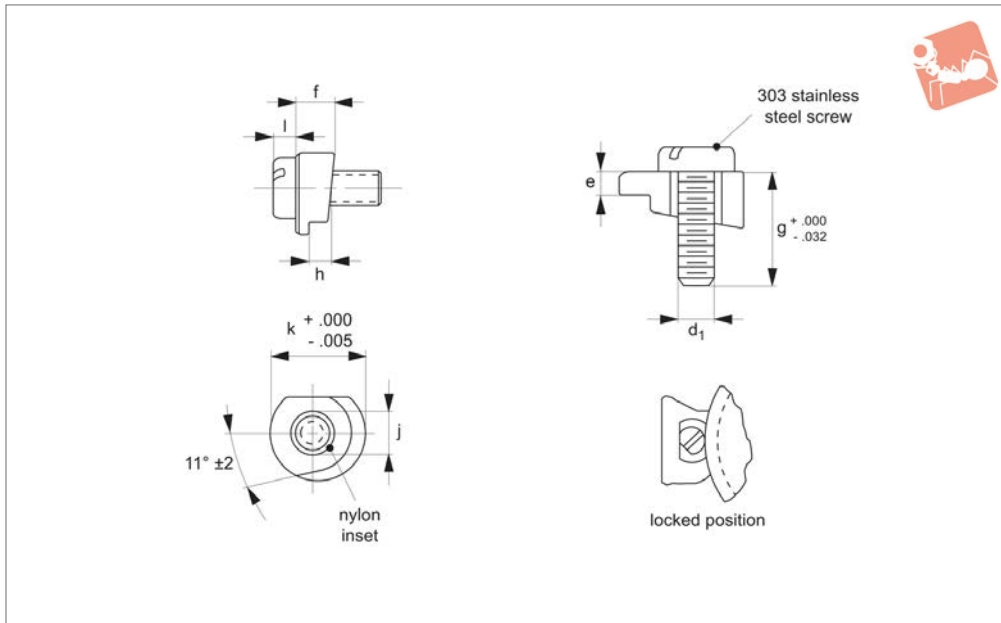
Free-cutting steel, blackened. Moveable bar retained by spring.

### Technical Notes

\* - DIN standards do not include these dimensions.

Order No.	$d_1$	$l_1$	$d_2$	$d_3$	$l_2$	$l_3$	Weight g
38300.W0708	M 8	16	16	6	50	60	69
38300.W0710	M10	20	18	8	60	80	112
38300.W0712	M12	25	20	10	70	100	179
38300.W0716	M16	35	24	13	85	120	327
38300.W0720	M20	40	30	16	95	140	581





## 36560

CLAMP CLEATS

### Material

Stainless steel (A4, AISI316, DIN 1.4401), with nylon insert.

Supplied with A2 (AISI303) stainless steel screw (screws not supplied with P1092.019, .020, or .026).

### Technical Notes

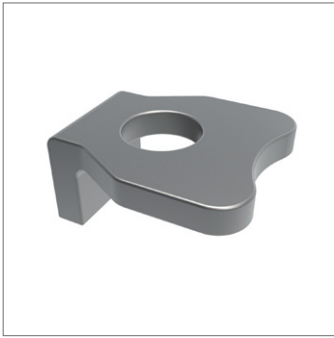
Quick release, faster clamping and self-locking.

### Tips

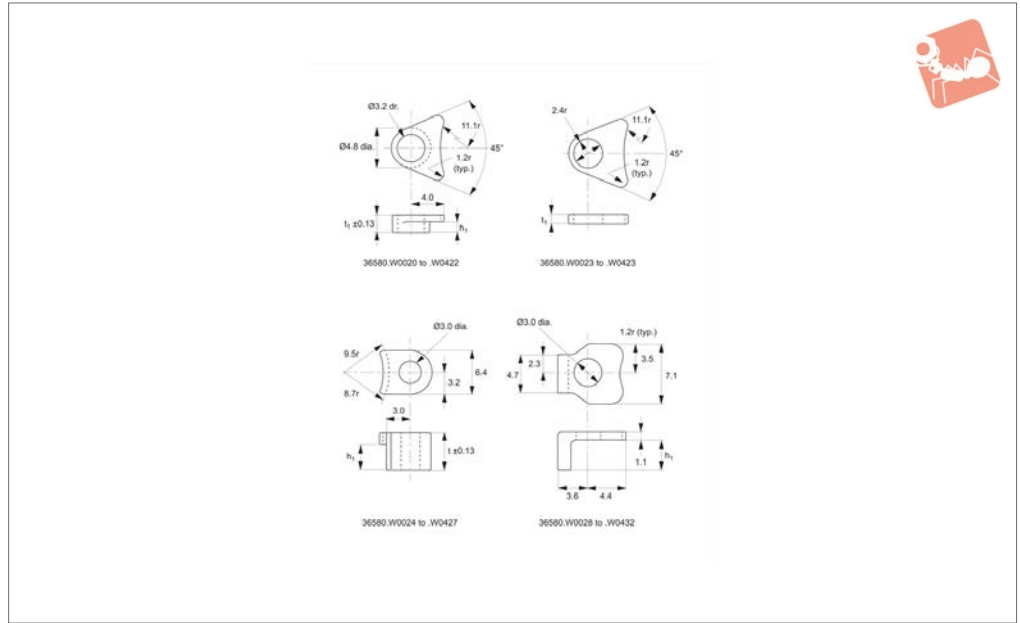
Bolt circle: use the larger of the following two bolt circles:

add 6,86 to max. flange diameter or add 10,16 to max. groove base diameter.

Order No.	$h_1$ $\pm 6,08$	$d_1$	$h_2$ $\pm 0,08$	$h_3$	$h_4$	$l_1$ $+0 -0.8$	$w_1$	$w_2$ $+0 -0.15$
36560.W0006	0.79	M3	1.02	1.80	1.73	8.0	9.90	3.18
36560.W0007	1.57	M3	1.02	2.59	1.73	8.0	9.90	3.18
36560.W0008	1.58	M3	1.27	2.84	1.73	10.0	9.90	3.18
36560.W0009	1.57	M3	1.60	3.18	1.73	10.0	9.90	3.18
36560.W0010	1.98	M3	1.60	3.58	1.73	10.0	9.90	3.18
36560.W0011	2.36	M3	1.02	3.38	1.73	10.0	9.90	3.18
36560.W0012	2.36	M3	1.27	3.63	1.73	10.0	9.90	3.18
36560.W0013	2.36	M3	1.60	3.96	1.73	10.0	9.90	3.18
36560.W0014	3.18	M3	1.27	4.45	1.73	10.0	9.90	3.18
36560.W0015	3.96	M3	1.02	4.98	1.73	10.0	9.90	3.18
36560.W0016	5.72	M3	1.60	7.32	1.73	12.0	9.90	3.18
36560.W0017	6.35	M3	1.60	7.92	1.73	16.0	9.90	3.18



## 36580



### Material

Stainless steel DIN 1,4305 (AISI 303) or aluminium 2024.

### Technical Notes

Quick release, faster clamping and self-

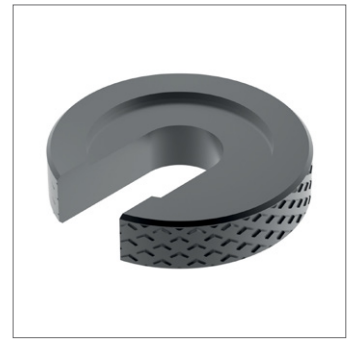
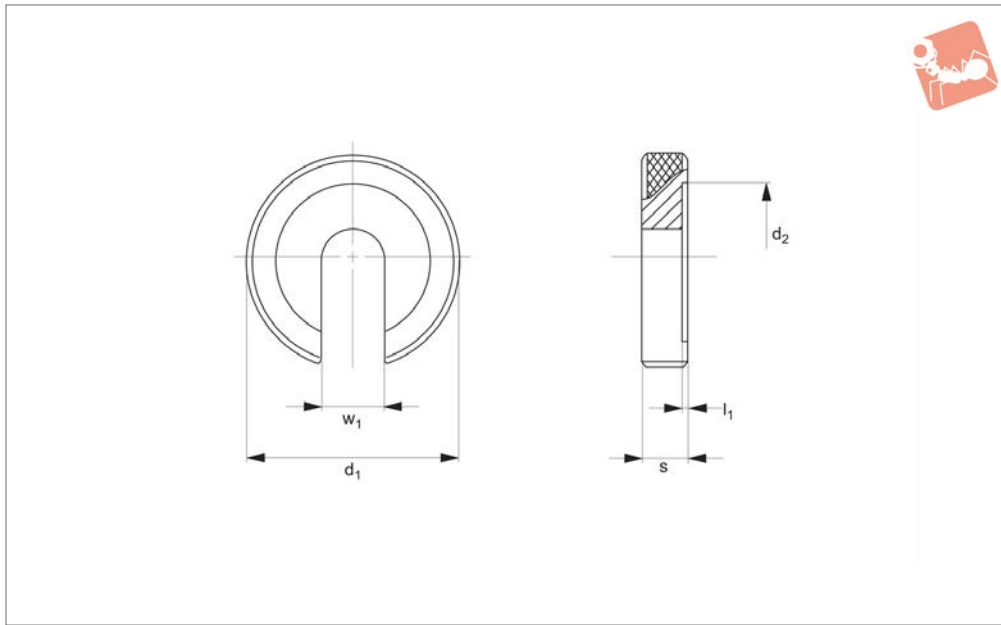
locking.

10,16 to max. groove base diameter.

### Tips

Bolt circle: use the larger of the following two bolt circles:  
add 6,86 to max. flange diameter OR add

Order No.	Type	Material	$h_1$	$t_1$
36580.W0020	A	Stainless	1.2	2.36
36580.W0021	A	Stainless	1.2	2.36
36580.W0022	A	Stainless	2.8	3.96
36580.W0023	B	Stainless	2.8	3.96
36580.W0024	C	Stainless	5.3	6.91
36580.W0025	C	Stainless	5.3	6.91
36580.W0026	C	Stainless	-	1.02
36580.W0027	C	Stainless	-	1.02
36580.W0028	D	Stainless	0.5	1.65
36580.W0029	D	Stainless	0.5	1.65
36580.W0030	D	Stainless	1.3	2.41
36580.W0031	D	Stainless	1.3	2.41
36580.W0032	D	Stainless	2.9	4.06
36580.W0420	A	Aluminium	2.9	4.06
36580.W0421	A	Aluminium	4.5	5.59
36580.W0422	A	Aluminium	4.5	5.59
36580.W0423	B	Aluminium	Flat	-
36580.W0424	C	Aluminium	1.2	-
36580.W0425	C	Aluminium	2.0	-
36580.W0426	C	Aluminium	2.8	-
36580.W0427	C	Aluminium	3.6	-



## 36600

CLAMP CLEATS

### Material

Heat-treated steel, blackened, tempered.

### Technical Notes

Produced to DIN 6372.

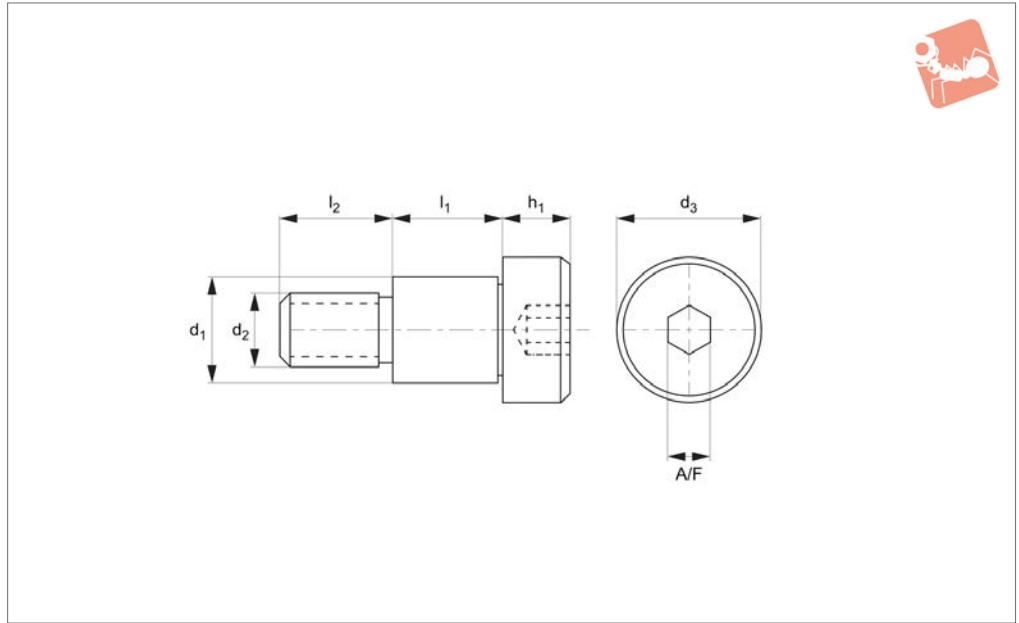
Order No.	$d_1$	$w_1$	$l_1$	$d_2$	$s$	Weight g
36600.W0012	40	13	1.8	30	9	57
36600.W0016	56	17	1.8	37	12	164



SHOULDER SCREWS



## 36642.A2



### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel.

### Technical Notes

303 series stainless steel provides good resistance to corrosion. It is mildly magnetic.

For torx drive versions please see P0145.

Special lengths and diameters produced to drawings.

Order No.	d <sub>1</sub> +0 -0.025	l <sub>1</sub> +0.05 -0.0	d <sub>2</sub>	d <sub>3</sub>	l <sub>2</sub>	h <sub>1</sub>	A/F
36642.W0404-A2	4	4	M 3	6	4	3	2
36642.W0405-A2	4	5	M 3	6	4	3	2
36642.W0406-A2	4	6	M 3	6	4	3	2
36642.W0408-A2	4	8	M 3	6	4	3	2
36642.W0410-A2	4	10	M 3	6	4	3	2
36642.W0504-A2	5	4	M 4	8	5	4	2.5
36642.W0505-A2	5	5	M 4	8	5	4	2.5
36642.W0506-A2	5	6	M 4	8	5	4	2.5
36642.W0508-A2	5	8	M 4	8	5	4	2.5
36642.W0510-A2	5	10	M 4	8	5	4	2.5
36642.W0512-A2	5	12	M 4	8	5	4	2.5
36642.W0514-A2	5	14	M 4	8	5	4	2.5
36642.W0516-A2	5	16	M 4	8	5	4	2.5
36642.W0520-A2	5	20	M 4	8	5	4	2.5
36642.W0525-A2	5	25	M 4	8	5	4	2.5
36642.W0530-A2	5	30	M 4	8	5	4	2.5
36642.W0604-A2	6	4	M 5	10	6	5	3
36642.W0605-A2	6	5	M 5	10	6	5	3
36642.W0606-A2	6	6	M 5	10	6	5	3
36642.W0608-A2	6	8	M 5	10	6	5	3
36642.W0610-A2	6	10	M 5	10	6	5	3
36642.W0612-A2	6	12	M 5	10	6	5	3
36642.W0614-A2	6	14	M 5	10	6	5	3
36642.W0616-A2	6	16	M 5	10	6	5	3
36642.W0620-A2	6	20	M 5	10	6	5	3
36642.W0625-A2	6	25	M 5	10	6	5	3
36642.W0630-A2	6	30	M 5	10	6	5	3
36642.W0640-A2	6	40	M 5	10	6	5	3
36642.W0650-A2	6	50	M 5	10	6	5	3
36642.W0660-A2	6	60	M 5	10	6	5	3
36642.W0806-A2	8	6	M 6	12	11	6	4
36642.W0808-A2	8	8	M 6	12	11	6	4
36642.W0810-A2	8	10	M 6	12	11	6	4
36642.W0812-A2	8	12	M 6	12	11	6	4



# Shoulder Screws - Cap Head

hex drive - 303 stainless

## Shoulder Screws



Order No.	d <sub>1</sub> +0 -0.025	l <sub>1</sub> +0.05 -0.0	d <sub>2</sub>	d <sub>3</sub>	l <sub>2</sub>	h <sub>1</sub>	A/F
36642.W0814-A2	8	14	M 6	12	11	6	4
36642.W0816-A2	8	16	M 6	12	11	6	4
36642.W0820-A2	8	20	M 6	12	11	6	4
36642.W0825-A2	8	25	M 6	12	11	6	4
36642.W0830-A2	8	30	M 6	12	11	6	4
36642.W0840-A2	8	40	M 6	12	11	6	4
36642.W0850-A2	8	50	M 6	12	11	6	4
36642.W0860-A2	8	60	M 6	12	11	6	4
36642.W0870-A2	8	70	M 6	12	11	6	4
36642.W0880-A2	8	80	M 6	12	11	6	4
36642.W1010-A2	10	10	M 6	14	11	7	5
36642.W1108-A2	10	8	M 8	14	12	7	5
36642.W1110-A2	10	10	M 8	14	12	7	5
36642.W1112-A2	10	12	M 8	14	12	7	5
36642.W1116-A2	10	16	M 8	14	12	7	5
36642.W1120-A2	10	20	M 8	14	12	7	5
36642.W1125-A2	10	25	M 8	14	12	7	5
36642.W1130-A2	10	30	M 8	14	12	7	5
36642.W1140-A2	10	40	M 8	14	12	7	5
36642.W1150-A2	10	50	M 8	14	12	7	5
36642.W1160-A2	10	60	M 8	14	12	7	5
36642.W1170-A2	10	70	M 8	14	12	7	5
36642.W1180-A2	10	80	M 8	14	12	7	5
36642.W1190-A2	10	90	M 8	14	12	7	5
36642.W1199-A2	10	100	M 8	14	12	7	5
36642.W1212-A2	12	12	M10	20	16	8	6
36642.W1216-A2	12	16	M10	20	16	8	6
36642.W1220-A2	12	20	M10	20	16	8	6
36642.W1225-A2	12	25	M10	20	16	8	6
36642.W1230-A2	12	30	M10	20	16	8	6
36642.W1240-A2	12	40	M10	20	16	8	6
36642.W1250-A2	12	50	M10	20	16	8	6
36642.W1260-A2	12	60	M10	20	16	8	6
36642.W1290-A2	12	90	M10	20	16	8	6
36642.W1625-A2	16	25	M12	24	18	11	8
36642.W1630-A2	16	30	M12	24	18	11	8
36642.W1640-A2	16	40	M12	24	18	11	8
36642.W1650-A2	16	50	M12	24	18	11	8
36642.W1660-A2	16	60	M12	24	18	11	8
36642.W1670-A2	16	70	M12	24	18	11	8
36642.W1699-A2	16	100	M12	24	18	11	8
36642.W2030-A2	20	30	M16	30	22	14	10
36642.W2040-A2	20	40	M16	30	22	14	10
36642.W2050-A2	20	50	M16	30	22	14	10
36642.W2060-A2	20	60	M16	30	22	14	10

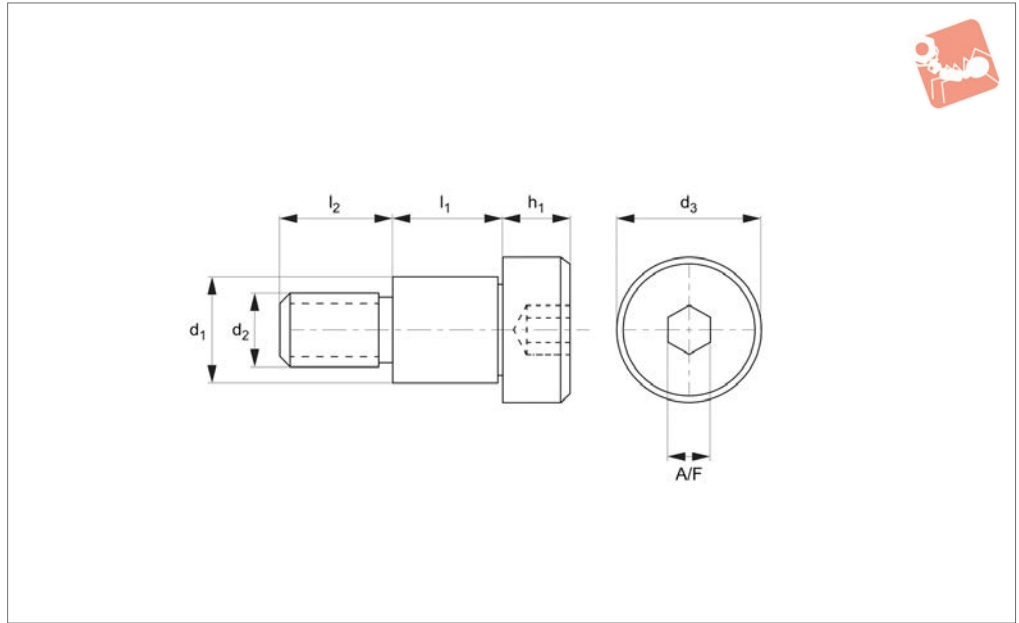
SHOULDER SCREWS



SHOULDER SCREWS



## 36644.A4



### Material

Stainless steel (AISI 316, 1.440).  
Tensile strength 480 N/mm<sup>2</sup>.  
Proof stress min. 200 N/mm<sup>2</sup>, austenitic stainless steel.

### Technical Notes

Highly resistant to corrosion (including

from salt water).

These 316 series stainless steel shoulder bolts are considerably more expensive than our standard 303 grade stainless shoulder bolts (P0130 + ).

Shim washers can be used to reduce shoulder length if required. It is non-

magnetic.

Can also be manufactured (for a batch size) in aluminium, monel & titanium.

Order No.	d <sub>1</sub> +0 -0.025	l <sub>1</sub> +0.05 -0.0	d <sub>2</sub>	d <sub>3</sub>	l <sub>2</sub>	h <sub>1</sub>	A/F
36644.W0404-A4	4	4	M 3	6	4	3.0	2
36644.W0405-A4	4	5	M 3	6	4	3.0	2
36644.W0406-A4	4	6	M 3	6	4	3.0	2
36644.W0408-A4	4	8	M 3	6	4	3.0	2
36644.W0410-A4	4	10	M 3	6	4	3.0	2
36644.W0510-A4	5	10	M 4	8	5	4.0	2.5
36644.W0512-A4	5	12	M 4	8	5	4.0	2.5
36644.W0516-A4	5	16	M 4	8	5	4.0	2.5
36644.W0520-A4	5	20	M 4	8	5	4.0	2.5
36644.W0525-A4	5	25	M 4	8	5	4.0	2.5
36644.W0530-A4	5	30	M 4	8	5	4.0	2.5
36644.W0610-A4	6	10	M 5	10	6	5.0	3
36644.W0612-A4	6	12	M 5	10	6	5.0	3
36644.W0616-A4	6	16	M 5	10	6	5.0	3
36644.W0620-A4	6	20	M 5	10	6	5.0	3
36644.W0625-A4	6	25	M 5	10	6	5.0	3
36644.W0630-A4	6	30	M 5	10	6	5.0	3
36644.W0640-A4	6	40	M 5	10	6	5.0	3
36644.W0650-A4	6	50	M 5	10	6	5.0	3
36644.W0812-A4	8	12	M 6	12	11	6.0	4
36644.W0816-A4	8	16	M 6	12	11	6.0	4
36644.W0820-A4	8	20	M 6	12	11	6.0	4
36644.W0825-A4	8	25	M 6	12	11	6.0	4
36644.W0830-A4	8	30	M 6	12	11	6.0	4
36644.W0840-A4	8	40	M 6	12	11	6.0	4
36644.W0850-A4	8	50	M 6	12	11	6.0	4
36644.W1016-A4	10	16	M 8	14	12	7.0	5
36644.W1020-A4	10	20	M 8	14	12	7.0	5
36644.W1025-A4	10	25	M 8	14	12	7.0	5
36644.W1030-A4	10	30	M 8	14	12	7.0	5



# Shoulder Screws - Cap Head

hex drive - 316 stainless

## Shoulder Screws



Order No.	$d_1$ +0 -0.025	$l_1$ +0.05 -0.0	$d_2$	$d_3$	$l_2$	$h_1$	A/F
36644.W1040-A4	10	40	M 8	14	12	7.0	5
36644.W1050-A4	10	50	M 8	14	12	7.0	5
36644.W1060-A4	10	60	M 8	14	12	7.0	5
36644.W1070-A4	10	70	M 8	14	12	7.0	5
36644.W1216-A4	12	16	M10	20	16	8.0	6
36644.W1220-A4	12	20	M10	20	16	8.0	6
36644.W1225-A4	12	25	M10	20	16	8.0	6
36644.W1230-A4	12	30	M10	20	16	8.0	6
36644.W1240-A4	12	40	M10	20	16	8.0	6
36644.W1250-A4	12	50	M10	20	16	8.0	6
36644.W1260-A4	12	60	M10	20	16	8.0	6
36644.W1270-A4	12	70	M10	20	16	8.0	6

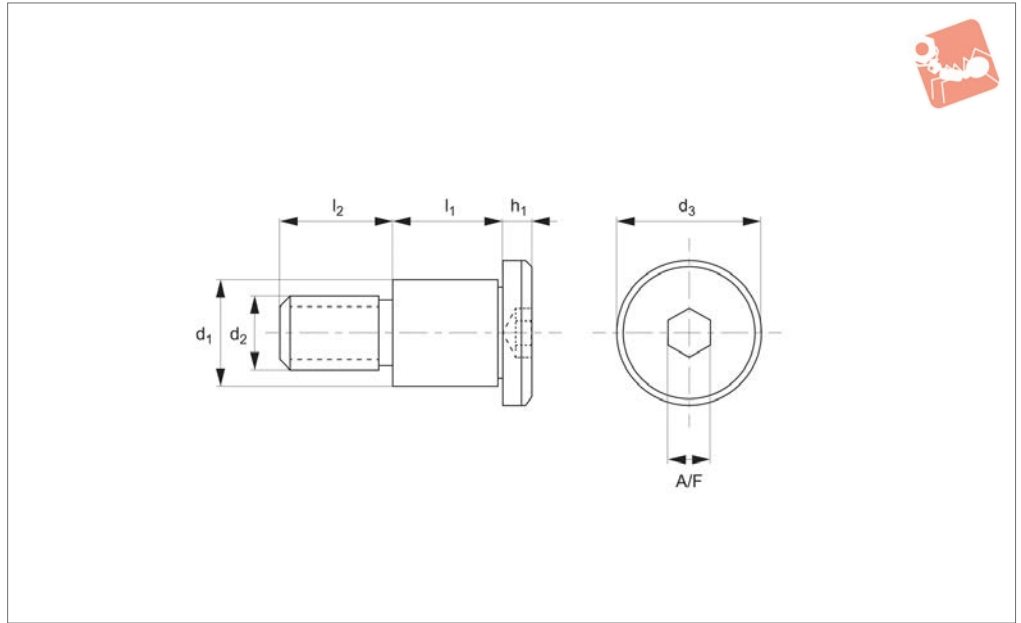
SHOULDER SCREWS



SHOULDER SCREWS



## 36650



### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel.

### Technical Notes

These very low profile socket shoulder

screws have a head height approximately 1/3 that of normal shoulder screws (P0130).

303 Series stainless is suitable for pharmaceutical and other applications. Stainless steel suitable for marine and other appli-

cations.

Order No.	$d_1$ +0 -0.025	$l_1$ +0.05 -0.0	$d_2$	$d_3$	$l_2$	$h_1$	A/F
36650.W0401	4	4	M 3	6	4	1.3	2
36650.W0402	4	5	M 3	6	4	1.3	2
36650.W0403	4	6	M 3	6	4	1.3	2
36650.W0404	4	8	M 3	6	4	1.3	2
36650.W0405	4	10	M 3	6	4	1.3	2
36650.W0406	5	4	M 4	9	5	1.3	2.5
36650.W0407	5	5	M 4	9	5	1.3	2.5
36650.W0408	5	6	M 4	9	5	1.3	2.5
36650.W0409	5	8	M 4	9	5	1.3	2.5
36650.W0410	5	10	M 4	9	5	1.3	2.5
36650.W0411	5	12	M 4	9	5	1.3	2.5
36650.W0413	5	16	M 4	9	5	1.3	2.5
36650.W0414	5	20	M 4	9	5	1.3	2.5
36650.W0417	6	4	M 5	10	6	1.7	3
36650.W0418	6	5	M 5	10	6	1.7	3
36650.W0419	6	6	M 5	10	6	1.7	3
36650.W0420	6	8	M 5	10	6	1.7	3
36650.W0421	6	10	M 5	10	6	1.7	3
36650.W0422	6	12	M 5	10	6	1.7	3
36650.W0424	6	16	M 5	10	6	1.7	3
36650.W0425	6	20	M 5	10	6	1.7	3
36650.W0428	8	6	M 6	13	11	2.0	4
36650.W0429	8	8	M 6	13	11	2.0	4
36650.W0430	8	10	M 6	13	11	2.0	4
36650.W0431	8	12	M 6	13	11	2.0	4
36650.W0432	8	16	M 6	13	11	2.0	4
36650.W0433	8	20	M 6	13	11	2.0	4

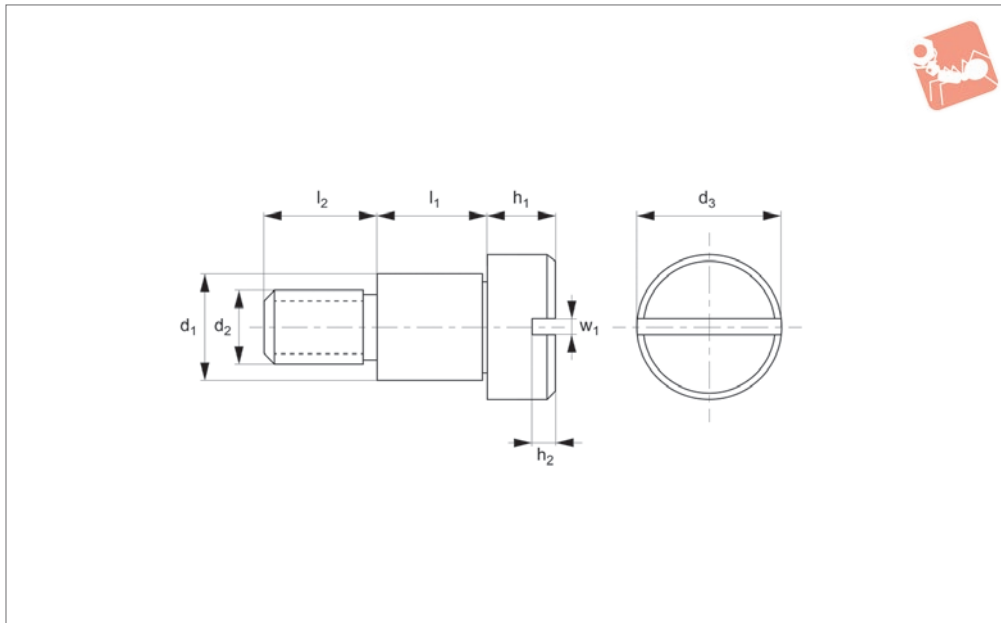




# Shoulder Screws - Slot Head

slot drive - 416 stainless

# Shoulder Screws



**36660**

SHOULDER SCREWS

### Material

Stainless steel (AISI 416, 1.4005). Tensile strength 650 N/mm<sup>2</sup>. Proof stress min. 450 N/mm<sup>2</sup>, martensitic stainless steel.

### Technical Notes

Stainless steel 416 is a harder, stronger

grade of stainless steel than the 303 stainless alternatives.

They are magnetic and slightly less resistant to corrosion than the 303 alternative (see P0130 or P0132).

For corrosion resistance it is suited to dry

atmosphere, fresh water and mild alkalis and acids.

Special lengths and diameters produced to drawings.

Order No.	$d_1$ +0 -0.025	$l_1$ +0.05 -0.0	$d_2$	$d_3$	$l_2$	$h_1$	$h_2$	$w_1$
36660.W0001	4	4	M 3	6	4	3	0.3	0.4
36660.W0002	4	5	M 3	6	4	3	0.3	0.4
36660.W0003	4	6	M 3	6	4	3	0.3	0.4
36660.W0004	4	8	M 3	6	4	3	0.3	0.4
36660.W0005	4	10	M 3	6	4	3	0.3	0.4
36660.W0006	5	4	M 4	8	5	4	0.9	0.8
36660.W0007	5	5	M 4	8	5	4	0.9	0.8
36660.W0008	5	6	M 4	8	5	4	0.9	0.8
36660.W0009	5	8	M 4	8	5	4	0.9	0.8
36660.W0010	5	10	M 4	8	5	4	0.9	0.8
36660.W0011	5	12	M 4	8	5	4	0.9	0.8
36660.W0012	5	14	M 4	8	5	4	0.9	0.8
36660.W0013	5	16	M 4	8	5	4	0.9	0.8
36660.W0014	5	20	M 4	8	5	4	0.9	0.8
36660.W0016	5	30	M 4	8	5	4	0.9	0.8
36660.W0017	6	4	M 5	10	6	5	1.2	1.0
36660.W0018	6	5	M 5	10	6	5	1.2	1.0
36660.W0019	6	6	M 5	10	6	5	1.2	1.0
36660.W0020	6	8	M 5	10	6	5	1.2	1.0
36660.W0021	6	10	M 5	10	6	5	1.2	1.0
36660.W0023	6	14	M 5	10	6	5	1.2	1.0
36660.W0024	6	16	M 5	10	6	5	1.2	1.0
36660.W0025	6	20	M 5	10	6	5	1.2	1.0
36660.W0026	6	25	M 5	10	6	5	1.2	1.0
36660.W0027	6	30	M 5	10	6	5	1.2	1.0
36660.W0028	8	6	M 6	12	11	6	1.3	1.2
36660.W0029	8	8	M 6	12	11	6	1.3	1.2
36660.W0032	8	16	M 6	12	11	6	1.3	1.2
36660.W0034	10	8	M 6	12	11	6	1.5	1.6
36660.W0036	10	12	M 6	12	11	6	1.5	1.6
36660.W0037	10	16	M 6	12	11	6	1.5	1.6

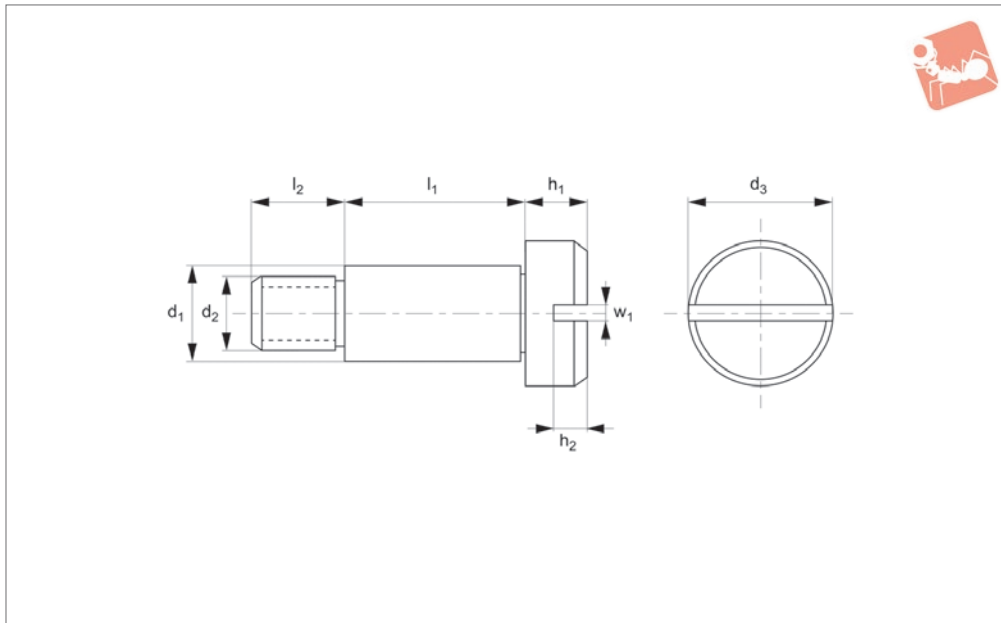


Order No.	$d_1$ +0 -0.025	$l_1$ +0.05 -0.0	$d_2$	$d_3$	$l_2$	$h_1$	$h_2$	$w_1$
<b>36660.W0042</b>	12	12	M10	20	16	8	2.4	2.5
<b>36660.W0043</b>	12	16	M10	20	16	8	2.4	2.5
<b>36660.W0045</b>	12	26	M10	20	16	8	2.4	2.5



# Shoulder Screw - Cap Head slot drive - 303 stainless

## Shoulder Screws



**36662.A2**

SHOULDER SCREWS

### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel.

### Technical Notes

303 series stainless steel provides good

resistance to corrosion. It is mildly magnetic. screws are less expensive than the 416 steel grade (see part no. 36660), which are harder but less resistant to corrosion.

For Ø16 (and above) stainless steel

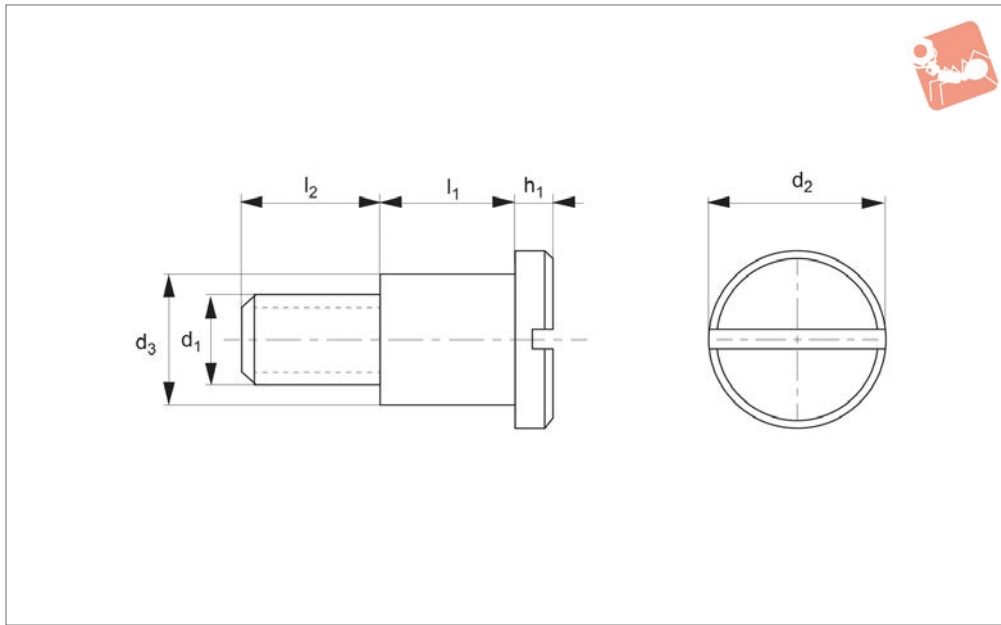
shoulder screws see part no. .

Special lengths and diameters produced to drawings.

Order No.	d <sub>1</sub> +0 -0.025	l <sub>1</sub> +0.05 -0.0	d <sub>2</sub>	d <sub>3</sub>	l <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	w <sub>1</sub>
36662.W0404-A2	4	4	M 3	6	4	3	0.9	0.8
36662.W0405-A2	4	5	M 3	6	4	3	0.9	0.8
36662.W0406-A2	4	6	M 3	6	4	3	0.9	0.8
36662.W0408-A2	4	8	M 3	6	4	3	0.9	0.8
36662.W0410-A2	4	10	M 3	6	4	3	0.9	0.8
36662.W0504-A2	5	4	M 4	8	5	4	1.2	1.0
36662.W0505-A2	5	5	M 4	8	5	4	1.2	1.0
36662.W0506-A2	5	6	M 4	8	5	4	1.2	1.0
36662.W0508-A2	5	8	M 4	8	5	4	1.2	1.0
36662.W0510-A2	5	10	M 4	8	5	4	1.2	1.0
36662.W0512-A2	5	12	M 4	8	5	4	1.2	1.0
36662.W0514-A2	5	14	M 4	8	5	4	1.2	1.0
36662.W0516-A2	5	16	M 4	8	5	4	1.2	1.0
36662.W0520-A2	5	20	M 4	8	5	4	1.2	1.0
36662.W0525-A2	5	25	M 4	8	5	4	1.2	1.0
36662.W0530-A2	5	30	M 4	8	5	4	1.2	1.0
36662.W0604-A2	6	4	M 5	10	6	5	1.3	1.2
36662.W0605-A2	6	5	M 5	10	6	5	1.3	1.2
36662.W0606-A2	6	6	M 5	10	6	5	1.3	1.2
36662.W0608-A2	6	8	M 5	10	6	5	1.3	1.2
36662.W0610-A2	6	10	M 5	10	6	5	1.3	1.2
36662.W0612-A2	6	12	M 5	10	6	5	1.3	1.2
36662.W0614-A2	6	14	M 5	10	6	5	1.3	1.2
36662.W0616-A2	6	16	M 5	10	6	5	1.3	1.2
36662.W0620-A2	6	20	M 5	10	6	5	1.3	1.2
36662.W0625-A2	6	25	M 5	10	6	5	1.3	1.2
36662.W0630-A2	6	30	M 5	10	6	5	1.3	1.2
36662.W0806-A2	8	6	M 6	12	11	6	1.5	1.6
36662.W0808-A2	8	8	M 6	12	11	6	1.5	1.6
36662.W0812-A2	8	12	M 6	12	11	6	1.5	1.6
36662.W0816-A2	8	16	M 6	12	11	6	1.5	1.6



Order No.	$d_1$ +0 -0.025	$l_1$ +0.05 -0.0	$d_2$	$d_3$	$l_2$	$h_1$	$h_2$	$w_1$
<b>36662.W1008-A2</b>	10	8	M 6	14	11	6	1.5	1.6
<b>36662.W1012-A2</b>	10	12	M 6	14	11	6	1.5	1.6
<b>36662.W1108-A2</b>	10	8	M 8	14	12	7	1.9	2.0
<b>36662.W1112-A2</b>	10	12	M 8	14	12	7	1.9	2.0
<b>36662.W1116-A2</b>	10	16	M 8	14	12	7	1.9	2.0
<b>36662.W1212-A2</b>	12	12	M10	20	16	8	2.4	2.5
<b>36662.W1225-A2</b>	12	16	M10	20	16	8	2.4	2.5



## 36700

SHOULDER SCREWS

### Material

Steel, strength class 5.8, blackened. Case hardened to 0,2 - 0,4mm depth.

36620.

$l_1 = 16 (+0,20/0,10)$ .

### Technical Notes

Suitable for use with captive C washers no.

### Tips

Dimension tolerances:

$l_1 = 10 (+0,15/+0,07)$ ,

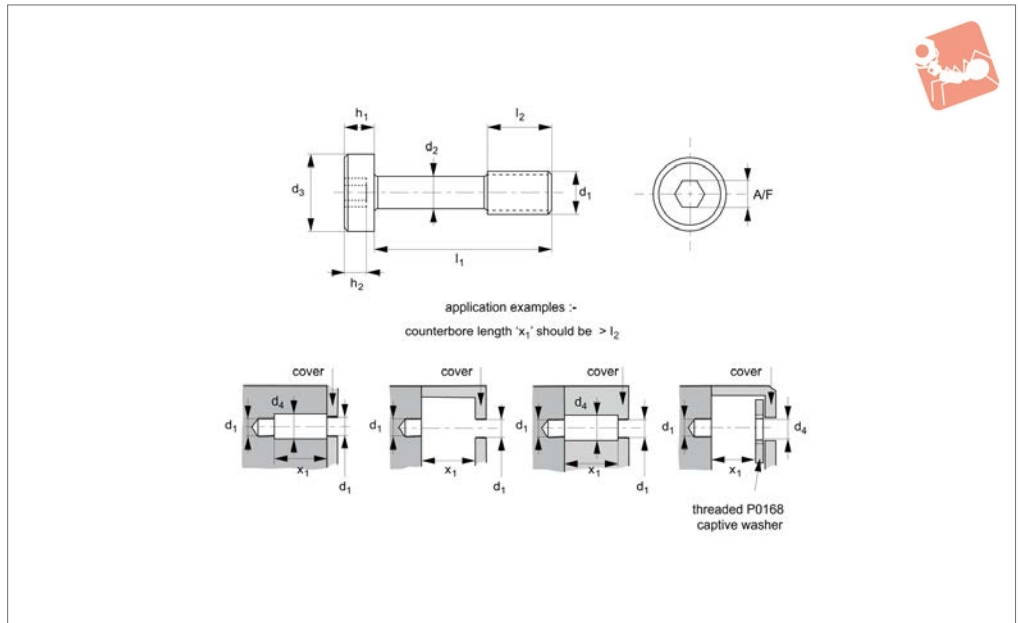
$l_1 = 12 (+0,20/+0,10)$ ,

Order No.	$d_1$	$l_1$	$d_2$	$d_3$ tol. h9	$l_2$	$h_1$	Weight g
36700.W0006	M_6	10	13	8	9.0	3.1	9
36700.W0008	M_8	12	16	10	11.0	3.8	17
36700.W0009	M_8	16	16	10	11.0	3.8	20



MADE IN BRITAIN

## 36681



CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

### Technical Notes

Used to comply with the Machinery Direc-

tive 2006/42/EC. Generally to ISO 1207. Often used with our captive washers (36691) or retaining flanges (36692 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

### Important Notes

Please note that these screws have a

reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d<sub>1</sub>.

Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub>	d <sub>4</sub> min.	h <sub>1</sub>	h <sub>2</sub>	l <sub>2</sub> ±0.25	A/F
36681.W2010	M 2	10	1.2	3.8	2.5	1.3	0.85	3.0	1.3
36681.W2012	M 2	12	1.2	3.8	2.5	1.3	0.85	3.0	1.3
36681.W2016	M 2	16	1.2	3.8	2.5	1.3	0.85	3.0	1.3
36681.W2020	M 2	20	1.2	3.8	2.5	1.3	0.85	3.0	1.3
36681.W2510	M 2,5	10	1.7	4.5	2.8	1.6	1.00	3.7	1.5
36681.W2516	M 2,5	16	1.7	4.5	2.8	1.6	1.00	3.7	1.5
36681.W2520	M 2,5	20	1.7	4.5	2.8	1.6	1.00	3.7	1.5
36681.W2525	M 2,5	25	1.7	4.5	2.8	1.6	1.00	3.7	1.5
36681.W2530	M 2,5	30	1.7	4.5	2.8	1.6	1.00	3.7	1.5
36681.W3010	M 3	10	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3011	M 3	11	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3013	M 3	13	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3016	M 3	16	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3018	M 3	18	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3020	M 3	20	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3025	M 3	25	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3030	M 3	30	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3040	M 3	40	2.0	5.5	3.5	2.0	1.30	4.5	2
36681.W3510	M 3,5	10	2.3	6.0	3.8	2.4	1.4	5.2	2.5
36681.W3516	M 3,5	16	2.3	6.0	3.8	2.4	1.4	5.2	2.5
36681.W3520	M 3,5	20	2.3	6.0	3.8	2.4	1.4	5.2	2.5
36681.W3525	M 3,5	25	2.3	6.0	3.8	2.4	1.4	5.2	2.5
36681.W3530	M 3,5	30	2.3	6.0	3.8	2.4	1.4	5.2	2.5
36681.W3540	M 3,5	40	2.3	6.0	3.8	2.4	1.4	5.2	2.5
36681.W4012	M 4	12	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4016	M 4	16	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4018	M 4	18	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4019	M 4	19	2.8	7.0	4.5	2.6	1.6	6.0	2.5



# Captive Screws - Cheese Head

hex drive - 303 stainless



## Captive Screws

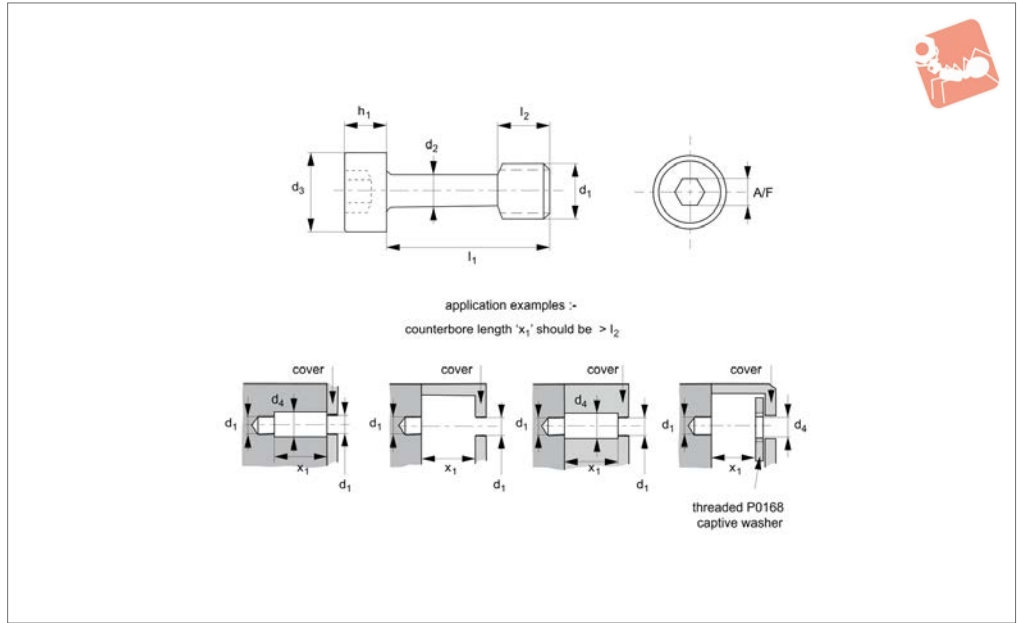
Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub>	d <sub>4</sub> min.	h <sub>1</sub>	h <sub>2</sub>	l <sub>2</sub> ±0.25	A/F
36681.W4020	M 4	20	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4025	M 4	25	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4030	M 4	30	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4040	M 4	40	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4050	M 4	50	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W4060	M 4	60	2.8	7.0	4.5	2.6	1.6	6.0	2.5
36681.W5012	M 5	12	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5016	M 5	16	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5020	M 5	20	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5022	M 5	22	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5025	M 5	25	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5030	M 5	30	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5040	M 5	40	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5050	M 5	50	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5060	M 5	60	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W5080	M 5	80	3.7	8.5	5.5	3.3	2.0	7.5	3
36681.W6016	M 6	16	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6020	M 6	20	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6025	M 6	25	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6030	M 6	30	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6040	M 6	40	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6050	M 6	50	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6060	M 6	60	4.2	10.0	6.5	3.9	2.3	7.5	4
36681.W6080	M 6	80	4.2	10.0	6.5	3.9	2.3	7.5	4

CAPTIVE SCREWS



MADE IN BRITAIN

## 36682



CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

### Technical Notes

Used to comply with the Machinery Direc-

tive 2006/42/EC. Generally to ISO 4762.

Often used with our captive washers (36691) or retaining flanges (36692 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

### Tips

TX drive style also available.

### Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d<sub>1</sub>.

Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub> max.	d <sub>4</sub> min.	h <sub>1</sub> max.	h <sub>2</sub>	l <sub>2</sub> ±0.25	A/F	Drive #
36682.W0205	M 2,5	5	1.8	4.5	2.8	2.5	-	3.0	2	-
36682.W0208	M 2,5	8	1.8	4.5	2.8	2.5	-	3.0	2	-
36682.W0210	M 2,5	10	1.8	4.5	2.8	2.5	-	3.0	2	-
36682.W0212	M 2,5	12	1.8	4.5	2.8	2.5	-	3.0	2	-
36682.W0308	M 3	8	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0310	M 3	10	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0312	M 3	12	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0316	M 3	16	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0320	M 3	20	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0325	M 3	25	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0330	M 3	30	2.0	5.5	3.5	3.0	-	4.5	2.5	-
36682.W0412	M 4	12	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0416	M 4	16	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0420	M 4	20	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0425	M 4	25	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0430	M 4	30	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0440	M 4	40	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0450	M 4	50	2.8	7.0	4.5	4.0	-	6.0	3	-
36682.W0512	M 5	12	3.7	8.5	5.5	5.0	-	7.5	4	-
36682.W0516	M 5	16	3.7	8.5	5.5	5.0	-	7.5	4	-
36682.W0520	M 5	20	3.7	8.5	5.5	5.0	-	7.5	4	-
36682.W0525	M 5	25	3.7	8.5	5.5	5.0	-	7.5	4	-
36682.W0530	M 5	30	3.7	8.5	5.5	5.0	-	7.5	4	-
36682.W0535	M 5	35	3.7	8.5	5.5	5.0	-	7.5	4	-
36683.W0311	M 3	10	2.0	5.6	4.5	2.4	0.74	4.5	-	1
36682.W0540	M 5	40	3.7	8.5	5.5	5.0	-	7.5	4	-





# Captive Screws - Cap Head

hex drive - 303 stainless



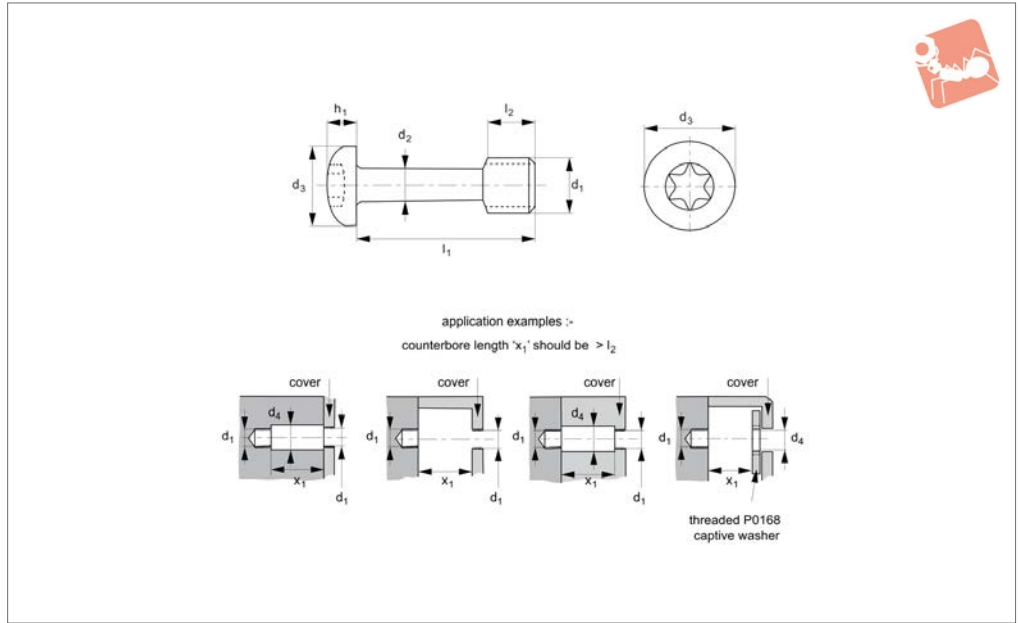
## Captive Screws

Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub> max.	d <sub>4</sub> min.	h <sub>1</sub> max.	h <sub>2</sub>	l <sub>2</sub> ±0.25	A/F	Drive #
36682.W0550	M 5	50	3.7	8.5	5.5	5.0	-	7.5	4	-
36682.W0612	M 6	12	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0616	M 6	16	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0620	M 6	20	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0625	M 6	25	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0630	M 6	30	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0640	M 6	40	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0650	M 6	50	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0660	M 6	60	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0680	M 6	80	4.2	10.0	6.5	6.0	-	7.5	5	-
36682.W0816	M 8	16	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0820	M 8	20	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0825	M 8	25	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0830	M 8	30	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0835	M 8	35	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0840	M 8	40	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0845	M 8	45	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0850	M 8	50	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0860	M 8	60	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W0880	M 8	80	6.0	13.0	8.5	8.0	-	10.0	6	-
36682.W1020	M10	20	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1025	M10	25	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1030	M10	30	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1035	M10	35	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1040	M10	40	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1045	M10	45	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1050	M10	50	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1060	M10	60	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1080	M10	80	7.5	16.0	10.6	10.0	-	12.5	8	-
36682.W1225	M12	25	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1230	M12	30	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1235	M12	35	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1240	M12	40	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1245	M12	45	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1250	M12	50	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1260	M12	60	8.0	18.0	13.2	12.0	-	15.0	10	-
36682.W1280	M12	80	8.0	18.0	13.2	12.0	-	15.0	10	-

CAPTIVE SCREWS



## 36683



CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

### Technical Notes

Used to comply with the Machinery Direc-

tive 2006/42/EC. Generally to ISO 14583. Often used with our captive washers (36691) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

\* M 8 sizes have a reduced TX size.

### Important Notes

Please note that these screws have a

reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d<sub>1</sub>.

Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub> max.	d <sub>4</sub> min.	h <sub>1</sub> max.	l <sub>2</sub> ±0.25	TX size
36683.W0310	M 3	10	2.0	6	3.5	2.5	4.5	TX-10
36683.W0316	M 3	16	2.0	6	3.5	2.5	4.5	TX-10
36683.W0320	M 3	20	2.0	6	3.5	2.5	4.5	TX-10
36683.W0325	M 3	25	2.0	6	3.5	2.5	4.5	TX-10
36683.W0330	M 3	30	2.0	6	3.5	2.5	4.5	TX-10
36683.W0412	M 4	12	2.8	8	4.5	3.2	6.0	TX-20
36683.W0416	M 4	16	2.8	8	4.5	3.2	6.0	TX-20
36683.W0420	M 4	20	2.8	8	4.5	3.2	6.0	TX-20
36683.W0430	M 4	30	2.8	8	4.5	3.2	6.0	TX-20
36683.W0440	M 4	40	2.8	8	4.5	3.2	6.0	TX-20
36683.W0450	M 4	50	2.8	8	4.5	3.2	6.0	TX-20
36683.W0512	M 5	12	3.7	10	5.5	3.9	7.5	TX-25
36683.W0516	M 5	16	3.7	10	5.5	3.9	7.5	TX-25
36683.W0530	M 5	30	3.7	10	5.5	3.9	7.5	TX-25
36683.W0540	M 5	40	3.7	10	5.5	3.9	7.5	TX-25
36683.W0550	M 5	50	3.7	10	5.5	3.9	7.5	TX-25
36683.W0612	M 6	12	4.2	12	6.5	4.7	7.5	TX-30
36683.W0616	M 6	16	4.2	12	6.5	4.7	7.5	TX-30
36683.W0620	M 6	20	4.2	12	6.5	4.7	7.5	TX-30
36683.W0630	M 6	30	4.2	12	6.5	4.7	7.5	TX-30
36683.W0640	M 6	40	4.2	12	6.5	4.7	7.5	TX-30
36683.W0650	M 6	50	4.2	12	6.5	4.7	7.5	TX-30
36683.W0660	M 6	60	4.2	12	6.5	4.7	7.5	TX-30



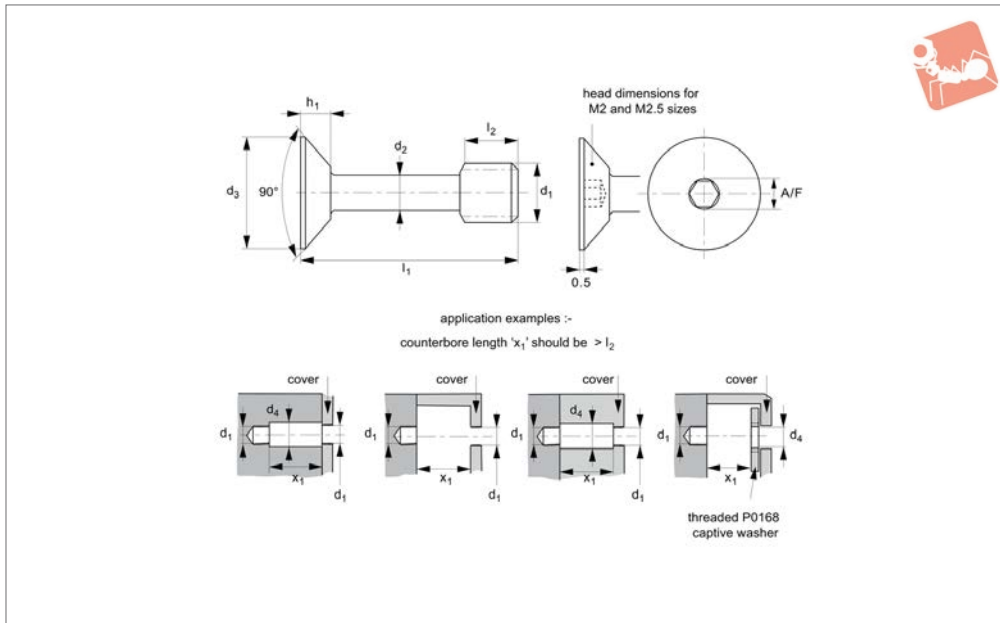
# Captive Screws - Countersunk hex drive - 303 stainless

## Captive Screws



**36684**

CAPTIVE SCREWS



### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel. Also available on request in steel (anodised, black oxide or zinc plated), brass, aluminium etc.

### Technical Notes

Used to comply with the Machinery Direc-

tive 2006/42/EC. Often used with our captive washers (36691) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

### Important Notes

Please note that these screws have a reduced diameter shank and should not be

tightened to the recommended torque for an equivalent machine screw of size d<sub>1</sub>. To accommodate the slight undercut at the top of the shank, the hex socket is smaller than on a similar threaded machine screw.

Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub> max.	d <sub>4</sub> min.	h <sub>1</sub> max.	l <sub>2</sub> ±0.25	A/F
36684.W0210	M 2	10	1.2	3.8	2.5	1.20	3.5	1.0
36684.W0212	M 2	12	1.2	3.8	2.5	1.20	3.5	1.0
36684.W0216	M 2	16	1.2	3.8	2.5	1.20	3.5	1.0
36684.W0220	M 2	20	1.2	3.8	2.5	1.20	3.5	1.0
36684.W0251	M 2,5	10	1.7	4.7	2.8	1.80	3.7	1.3
36684.W0252	M 2,5	12	1.7	4.7	2.8	1.80	3.7	1.3
36684.W0253	M 2,5	16	1.7	4.7	2.8	1.80	3.7	1.3
36684.W0254	M 2,5	20	1.7	4.7	2.8	1.80	3.7	1.3
36684.W0310	M 3	10	2.0	5.6	3.5	1.65	4.5	1.5
36684.W0316	M 3	16	2.0	5.6	3.5	1.65	4.5	1.5
36684.W0320	M 3	20	2.0	5.6	3.5	1.65	4.5	1.5
36684.W0325	M 3	25	2.0	5.6	3.5	1.65	4.5	1.5
36684.W0330	M 3	30	2.0	5.6	3.5	1.65	4.5	1.5
36684.W0340	M 3	40	2.0	5.6	3.5	1.65	4.5	1.5
36684.W0412	M 4	12	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0416	M 4	16	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0420	M 4	20	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0430	M 4	30	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0440	M 4	40	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0450	M 4	50	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0460	M 4	60	2.8	7.5	4.5	2.20	6.0	2.0
36684.W0512	M 5	12	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0516	M 5	16	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0520	M 5	20	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0525	M 5	25	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0530	M 5	30	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0540	M 5	40	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0550	M 5	50	3.7	9.2	5.5	2.50	7.5	2.5



Order No.	d <sub>1</sub>	l <sub>1</sub> ±0.25	d <sub>2</sub> ±0.12	d <sub>3</sub> max.	d <sub>4</sub> min.	h <sub>1</sub> max.	l <sub>2</sub> ±0.25	A/F
36684.W0560	M 5	60	3.7	9.2	5.5	2.50	7.5	2.5
36684.W0616	M 6	16	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0620	M 6	20	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0625	M 6	25	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0630	M 6	30	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0640	M 6	40	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0650	M 6	50	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0660	M 6	60	4.2	11.0	6.5	3.00	8.0	3.0
36684.W0820	M 8	20	6.0	15.0	8.5	4.10	10.0	4.0



## Coatings and Drive Types

Wixroyd produce a wide range of fasteners designed for application where it is important that fasteners are not separated from equipment (e.g. cover panels etc). This is now important to ensure that equipment complies with Machinery Directive 200642/EC - requiring that fasteners remain attached to fixed guards or equipment when guards are removed.






Our captive panel screws are manufactured mainly from stainless steel (AISI 303, 1.4305 grade), but they can also be produced in stainless steel (A4, AISI 316), aluminium, brass or zinc plated steel.

Many finishes can be applied - black oxide finish, anodizing etc.

The main options are as follows:

Finish	Notes
Black Chrome (MIL-C-1458B)	Black chrome is a hard, non-reflective coating which is resistant to abrasion, heat and corrosion. The black chrome surface is a dull, dark grey and may be waxed or oiled to darken surface.
Black Oxide Coating (MIL-C-13924B)	Black oxide is a uniform black coating for ferrous metals. Generally it is considered a decorative coating and provides only very limited corrosion protection under mild corrosion conditions.
Cadmium	Cadmium is a bright, silvery white plating. Supplementary treatments for Type II can be golden, iridescent, amber, black or olive drab.
Passivate (QQ-P-35/MIL S-500SC)	Passivation is a process designed to remove foreign metals from the surface of stainless and corrosion resistant steels.
Phosphate Coating Light (TT-C-00490B)	Phosphate coating is a light coating for use as a base paint.
Gold (MIL-G-45204B)	Yellow to orange colour depending on proprietary process used. Will range from matt to bright finish depending on base metal. Good corrosion resistance and high tarnish resistance.
Nickel (QQ-N-290A)	Nickel is a corrosion protective plating for steel, zinc and zinc alloys as well as copper and copper alloys.
Zinc (QQ-Z-325C)	The primary use of chromate finishes on zinc is to retard or prevent formation of white corrosion products on zinc surfaces.

## Coatings

Schematic	Drive Types	Uses
	Hexagonal	Ideal for precision assembly. Most recommended where less surface area is available.
	Crosshead (Phillips®)	Provides good control in driving. Always use a driver bit of the proper size which is in good condition.
	Hexalobular (Torx®)	Positive-engaging, fast-locating method which transmits drive torque with less required downward pressure. Good fastening appearance.
	Slotted	Accepts standard blade screwdriver. Requires less downward pressure to drive parts than those with recessed openings. Use a proper fitting blade to minimize slippage.
	Security	These screws are impossible to remove without the special matching screw driver.

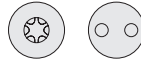
## Drive Types



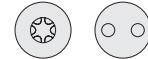
36681 - Cap head - hex. socket



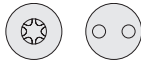
36682 - Cap head - hex. socket Security and Torx® options



36683 - Pan Head - Phillips® Security and Torx® options



36684 - Countersunk - hex. socket Security and Torx® options



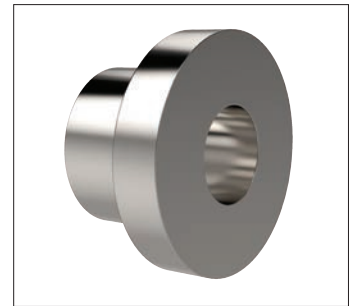
36686 - Thin head thumb screw



36687 - Thumb screw



36691 - Threaded captive washers

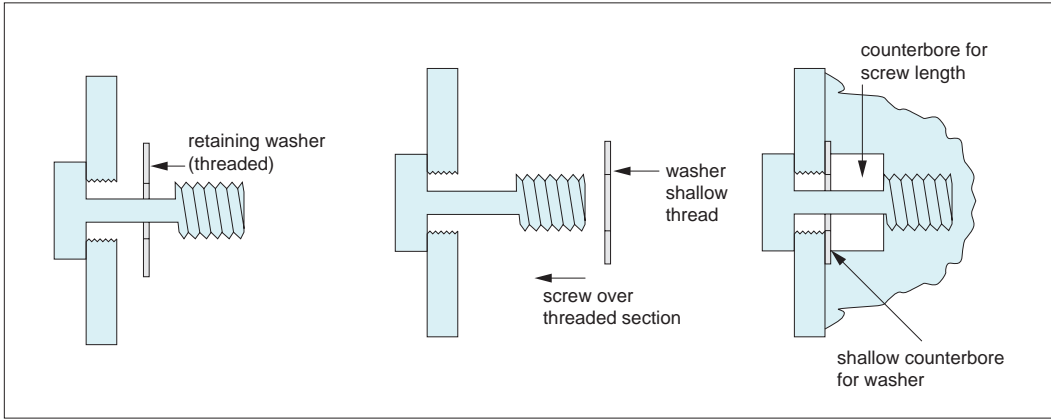


36692 - Retainer flanges



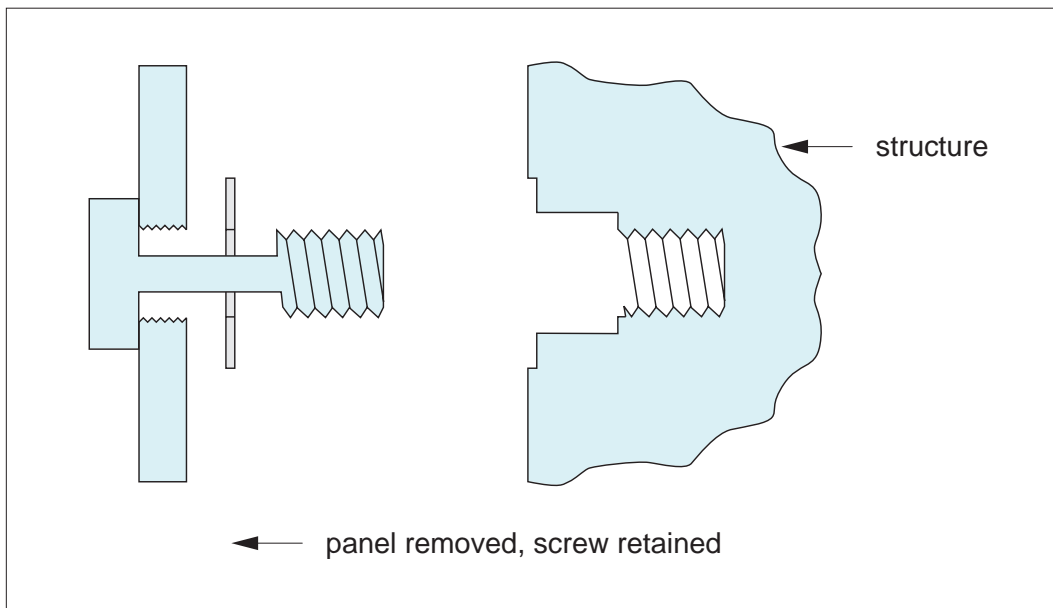
One option to retain screws to panels are our retaining washers. Used in place of retainer flanges, retaining washers are simple but effective when used with our captive screws. The captive screws have a normal thread then a reduced diameter for the rest of the screw length.

The retaining washer has a small length of thread on the internal diameter and once screwed on to the captive screw is effectively captive.



### Example

Screw the thin retaining washer onto the captive screw and the screw is therefore retained to the panel.



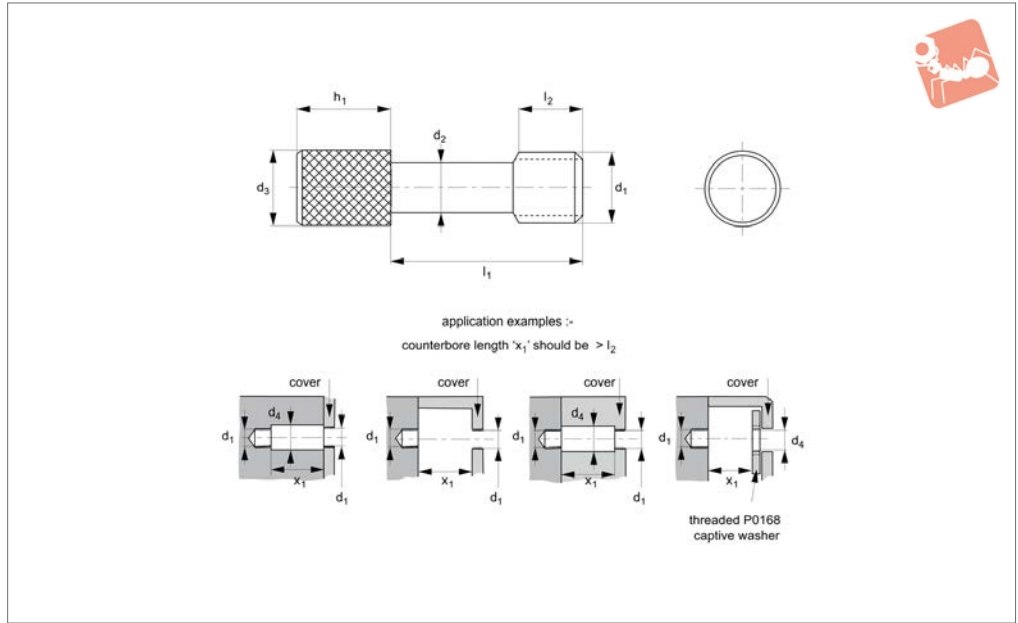
CAPTIVE SCREWS

ov-W36681-AP0152.A2-T-W36692-AP0169.A2-T-retaining-washers-c-rmh - Updated - 28-10-2022



MADE IN BRITAIN

## 36686



CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

### Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washers (36691) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

### Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d<sub>1</sub>.

Order No.	d <sub>1</sub>	d <sub>2</sub> ±0.12	l <sub>1</sub> ±0.25	l <sub>2</sub> ±0.25	d <sub>3</sub>	d <sub>4</sub> min.	h <sub>1</sub>
36686.W0316	M 3	2.0	16	8.0	5	3.5	10
36686.W0320	M 3	2.0	20	10.0	5	3.5	10
36686.W0325	M 3	2.0	25	12.5	5	3.5	10
36686.W0330	M 3	2.0	30	15.0	5	3.5	10
36686.W0335	M 3	2.0	35	17.5	5	3.5	10
36686.W0340	M 3	2.0	40	20.0	5	3.5	10
36686.W0350	M 3	2.0	50	25.0	5	3.5	10
36686.W0351	M 3,5	2.3	16	8.0	5	3.8	10
36686.W0352	M 3,5	2.3	20	10.0	5	3.8	10
36686.W0353	M 3,5	2.3	25	12.5	5	3.8	10
36686.W0354	M 3,5	2.3	30	15.0	5	3.8	10
36686.W0355	M 3,5	2.3	35	17.5	5	3.8	10
36686.W0356	M 3,5	2.3	40	20.0	5	3.8	10
36686.W0357	M 3,5	2.3	50	25.0	5	3.8	10
36686.W0416	M 4	2.8	16	8.0	5	4.5	10
36686.W0420	M 4	2.8	20	10.0	5	4.5	10
36686.W0425	M 4	2.8	25	12.5	5	4.5	10
36686.W0430	M 4	2.8	30	15.0	5	4.5	10
36686.W0435	M 4	2.8	35	17.5	5	4.5	10
36686.W0440	M 4	2.8	40	20.0	5	4.5	10
36686.W0450	M 4	2.8	50	25.0	5	4.5	10
36686.W0516	M 5	3.7	16	8.0	6	5.5	12
36686.W0520	M 5	3.7	20	10.0	6	5.5	12
36686.W0525	M 5	3.7	25	12.5	6	5.5	12
36686.W0530	M 5	3.7	30	15.0	6	5.5	12
36686.W0535	M 5	3.7	35	17.5	6	5.5	12
36686.W0540	M 5	3.7	40	24.0	6	5.5	12
36686.W0550	M 5	3.7	50	25.0	6	5.5	12
36686.W0616	M 6	4.2	16	8.0	8	6.5	12





# Captive Thumb Screws

303 stainless



## Captive Screws

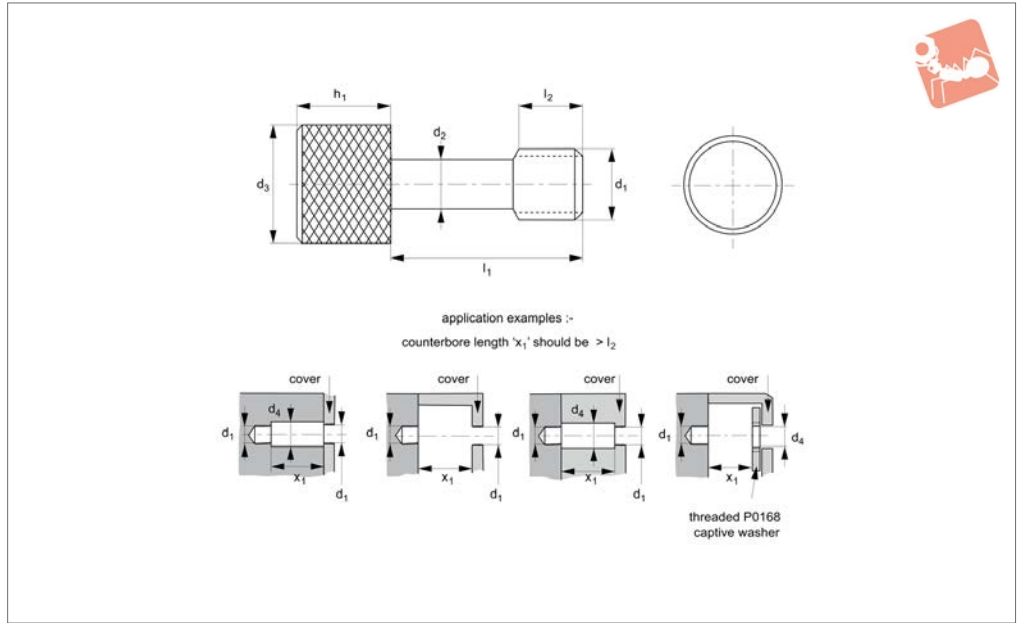
Order No.	d <sub>1</sub>	d <sub>2</sub> ±0.12	l <sub>1</sub> ±0.25	l <sub>2</sub> ±0.25	d <sub>3</sub>	d <sub>4</sub> min.	h <sub>1</sub>
<b>36686.W0620</b>	M 6	4.2	20	10.0	8	6.5	12
<b>36686.W0625</b>	M 6	4.2	25	12.5	8	6.5	12
<b>36686.W0630</b>	M 6	4.2	30	15.0	8	6.5	12
<b>36686.W0635</b>	M 6	4.2	35	17.5	8	6.5	12
<b>36686.W0640</b>	M 6	4.2	40	20.0	8	6.5	12
<b>36686.W0650</b>	M 6	4.2	50	25.0	8	6.5	12

CAPTIVE SCREWS



MADE IN BRITAIN

## 36687



CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm<sup>2</sup>. Proof stress min. 190 N/mm<sup>2</sup>, austenitic stainless steel. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

### Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (36691) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washer should be considered when fitted in panels with unthreaded holes.

### Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d<sub>1</sub>.

Order No.	d <sub>1</sub>	d <sub>2</sub> ±0.12	l <sub>1</sub> ±0.25	l <sub>2</sub> ±0.25	d <sub>3</sub>	d <sub>4</sub> min.	h <sub>1</sub>
36687.W3008	M 3	2.0	8	4.5	8	3.5	5
36687.W3010	M 3	2.0	10	4.5	8	3.5	5
36687.W3012	M 3	2.0	12	4.5	8	3.5	5
36687.W3014	M 3	2.0	14	4.5	8	3.5	5
36687.W3016	M 3	2.0	16	4.5	8	3.5	5
36687.W3508	M 3,5	2.3	8	6.0	8	3.8	5
36687.W3510	M 3,5	2.3	10	6.0	8	3.8	5
36687.W3512	M 3,5	2.3	12	6.0	8	3.8	5
36687.W3514	M 3,5	2.3	14	6.0	8	3.8	5
36687.W3516	M 3,5	2.3	16	6.0	8	3.8	5
36687.W4010	M 4	2.8	10	6.0	10	4.5	5
36687.W4012	M 4	2.8	12	6.0	10	4.5	5
36687.W4014	M 4	2.8	14	6.0	10	4.5	5
36687.W4016	M 4	2.8	16	6.0	10	4.5	5
36687.W4018	M 4	2.8	18	6.0	10	4.5	5
36687.W4020	M 4	2.8	20	6.0	10	4.5	5
36687.W4025	M 4	2.8	25	6.0	10	4.5	5
36687.W5010	M 5	3.7	10	7.5	10	5.5	5
36687.W5012	M 5	3.7	12	7.5	10	5.5	5
36687.W5014	M 5	3.7	14	7.5	10	5.5	5
36687.W5016	M 5	3.7	16	7.5	10	5.5	5
36687.W5018	M 5	3.7	18	7.5	10	5.5	5
36687.W5020	M 5	3.7	20	7.5	10	5.5	5
36687.W5025	M 5	3.7	25	7.5	10	5.5	5
36687.W5030	M 5	3.7	30	7.5	10	5.5	5
36687.W6013	M 6	4.5	12	7.5	12	6.5	6
36687.W6014	M 6	4.5	14	7.5	12	6.5	6
36687.W6016	M 6	4.5	16	7.5	12	6.5	6
36687.W6018	M 6	4.5	18	7.5	12	6.5	6



# Captive Thumb Screws

303 stainless



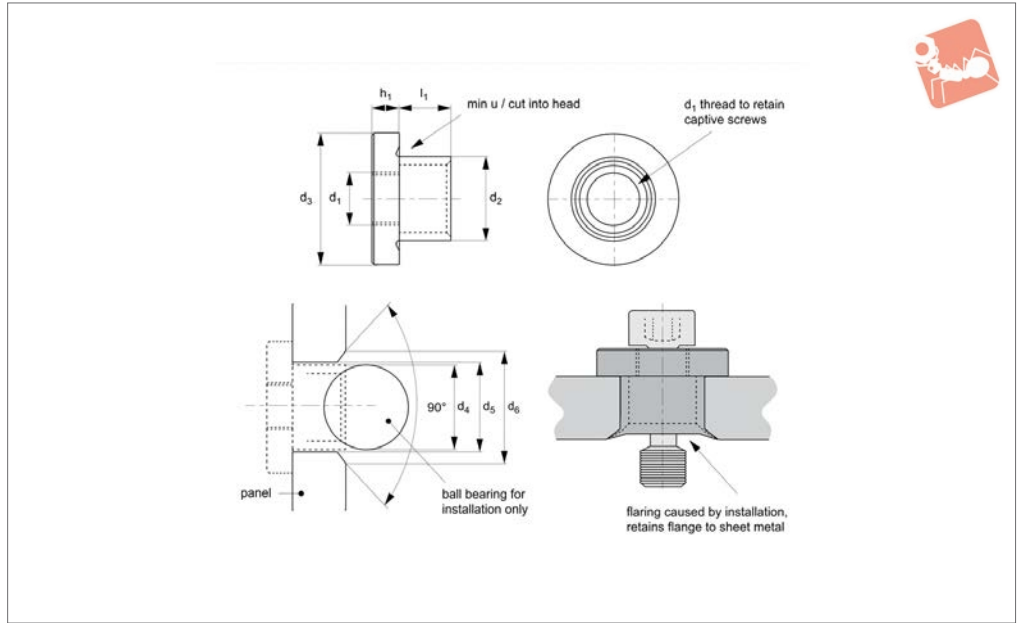
## Captive Screws

Order No.	d <sub>1</sub>	d <sub>2</sub> ±0.12	l <sub>1</sub> ±0.25	l <sub>2</sub> ±0.25	d <sub>3</sub>	d <sub>4</sub> min.	h <sub>1</sub>
<b>36687.W6020</b>	M 6	4.5	20	7.5	12	6.5	6
<b>36687.W6025</b>	M 6	4.5	25	7.5	12	6.5	6
<b>36687.W6030</b>	M 6	4.5	30	7.5	12	6.5	6

CAPTIVE SCREWS



## 36692



CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305).  
 Also available on request in steel  
 (anodised, black oxide or zinc plated)  
 stainless steel (AISI 316, 1.440), brass.

### Technical Notes

Select the retainer flange to suit thread of

the captive screw and the thickness of the

panel to be retained.  
 Drill and countersink hole in the panel and  
 use the ball bearing supplied to spread the  
 flange into the countersunk hole.

The captive screw is then screwed into the  
 flange and the screw is retained to the

panel.

### Tips

Mounting hole diameter to H9 clearance.  
 Countersunk  $d_6$  to  $90^\circ$ .

Order No.	For thread $d_1$	Panel $t_1$ $\pm 8\%$	$d_2$	$h_1$	$l_1$	$d_3$	Installation ball dia. $d_4$	$d_5$ tol. H9	$d_6$	Sheet metal gauge
36692.W3007	M 3	0.70	5.0	1.5	0.70	7.5	5	5.0	6.0	22
36692.W3009	M 3	0.90	5.0	1.5	0.90	7.5	5	5.0	6.0	20
36692.W3012	M 3	1.25	5.0	1.5	1.25	7.5	5	5.0	6.0	18
36692.W3015	M 3	1.50	5.0	1.5	1.50	7.5	5	5.0	6.0	16
36692.W3020	M 3	2.00	5.0	1.5	2.00	7.5	5	5.0	6.0	14
36692.W3025	M 3	2.50	5.0	1.5	2.50	7.5	5	5.0	6.0	12
36692.W3030	M 3	3.00	5.0	1.5	3.00	7.5	5	5.0	6.0	10
36692.W3040	M 3	4.00	5.0	1.5	4.00	7.5	5	5.0	6.0	8
36692.W3050	M 3	5.00	5.0	1.5	5.00	7.5	5	5.0	6.0	6
36692.W3060	M 3	6.00	5.0	1.5	6.00	7.5	5	5.0	6.0	4
36692.W4007	M 4	0.70	6.8	2.0	0.70	10.0	7	6.8	8.2	22
36692.W4009	M 4	0.90	6.8	2.0	0.90	10.0	7	6.8	8.2	20
36692.W4012	M 4	1.25	6.8	2.0	1.25	10.0	7	6.8	8.2	18
36692.W4015	M 4	1.50	6.8	2.0	1.50	10.0	7	6.8	8.2	16
36692.W4020	M 4	2.00	6.8	2.0	2.00	10.0	7	6.8	8.2	14
36692.W4025	M 4	2.50	6.8	2.0	2.50	10.0	7	6.8	8.2	12
36692.W4030	M 4	3.00	6.8	2.0	3.00	10.0	7	6.8	8.2	10
36692.W4040	M 4	4.00	6.8	2.0	4.00	10.0	7	6.8	8.2	8
36692.W4050	M 4	5.00	6.8	2.0	5.00	10.0	7	6.8	8.2	6
36692.W4060	M 4	6.00	6.8	2.0	6.00	10.0	7	6.8	8.2	4
36692.W5007	M 5	0.70	8.0	2.5	0.70	12.5	8	8.0	9.6	22
36692.W5009	M 5	0.90	8.0	2.5	0.90	12.5	8	8.0	9.6	20
36692.W5012	M 5	1.25	8.0	2.5	1.25	12.5	8	8.0	9.6	18
36692.W5015	M 5	1.50	8.0	2.5	1.50	12.5	8	8.0	9.6	16
36692.W5020	M 5	2.00	8.0	2.5	2.00	12.5	8	8.0	9.6	14
36692.W5025	M 5	2.50	8.0	2.5	2.50	12.5	8	8.0	9.6	12
36692.W5030	M 5	3.00	8.0	2.5	3.00	12.5	8	8.0	9.6	10
36692.W5040	M 5	4.00	8.0	2.5	4.00	12.5	8	8.0	9.6	8
36692.W5050	M 5	5.00	8.0	2.5	5.00	12.5	8	8.0	9.6	6
36692.W5060	M 5	6.00	8.0	2.5	6.00	12.5	8	8.0	9.6	4



# Captive Screws - Retainer Flange

303 stainless



## Captive Screws

Order No.	For thread d <sub>1</sub>	Panel t <sub>1</sub> ±8%	d <sub>2</sub>	h <sub>1</sub>	l <sub>1</sub>	d <sub>3</sub>	Installation ball dia. d <sub>4</sub>	d <sub>5</sub> tol. H9	d <sub>6</sub>	Sheet metal gauge
<b>36692.W6007</b>	M 6	0.70	10.0	3.0	0.70	15.0	10	10.0	12.0	22
<b>36692.W6009</b>	M 6	0.90	10.0	3.0	0.90	15.0	10	10.0	12.0	20
<b>36692.W6012</b>	M 6	1.25	10.0	3.0	1.25	15.0	10	10.0	12.0	18
<b>36692.W6015</b>	M 6	1.50	10.0	3.0	1.50	15.0	10	10.0	12.0	16
<b>36692.W6020</b>	M 6	2.00	10.0	3.0	2.00	15.0	10	10.0	12.0	14
<b>36692.W6025</b>	M 6	2.50	10.0	3.0	2.50	15.0	10	10.0	12.0	12
<b>36692.W6030</b>	M 6	3.00	10.0	3.0	3.00	15.0	10	10.0	12.0	10
<b>36692.W6040</b>	M 6	4.00	10.0	3.0	4.00	15.0	10	10.0	12.0	8
<b>36692.W6050</b>	M 6	5.00	10.0	3.0	5.00	15.0	10	10.0	12.0	6
<b>36692.W6060</b>	M 6	6.00	10.0	3.0	6.00	15.0	10	10.0	12.0	4
<b>36692.W8007</b>	M 8	0.70	13.0	4.0	0.70	20.0	13	13.0	15.5	22
<b>36692.W8009</b>	M 8	0.90	13.0	4.0	0.90	20.0	13	13.0	15.5	20
<b>36692.W8012</b>	M 8	1.25	13.0	4.0	1.25	20.0	13	13.0	15.5	18
<b>36692.W8015</b>	M 8	1.50	13.0	4.0	1.50	20.0	13	13.0	15.5	16
<b>36692.W8020</b>	M 8	2.00	13.0	4.0	2.00	20.0	13	13.0	15.5	14
<b>36692.W8025</b>	M 8	2.50	13.0	4.0	2.50	20.0	13	13.0	15.5	12
<b>36692.W8030</b>	M 8	3.00	13.0	4.0	3.00	20.0	13	13.0	15.5	10
<b>36692.W8040</b>	M 8	4.00	13.0	4.0	4.00	20.0	13	13.0	15.5	8
<b>36692.W8050</b>	M 8	5.00	13.0	4.0	5.00	20.0	13	13.0	15.5	6
<b>36692.W8060</b>	M 8	6.00	13.0	4.0	6.00	20.0	13	13.0	15.5	4

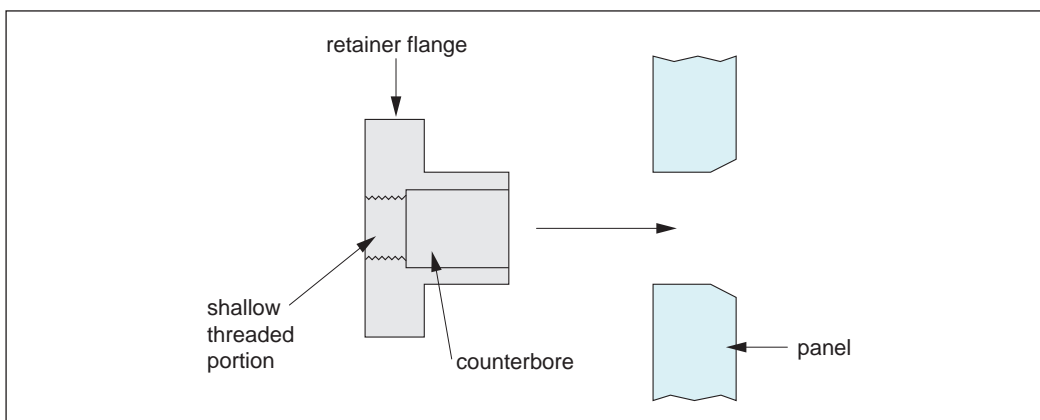
CAPTIVE SCREWS



### Preparation

- Select retainer based upon panel thickness
- Countersink panel

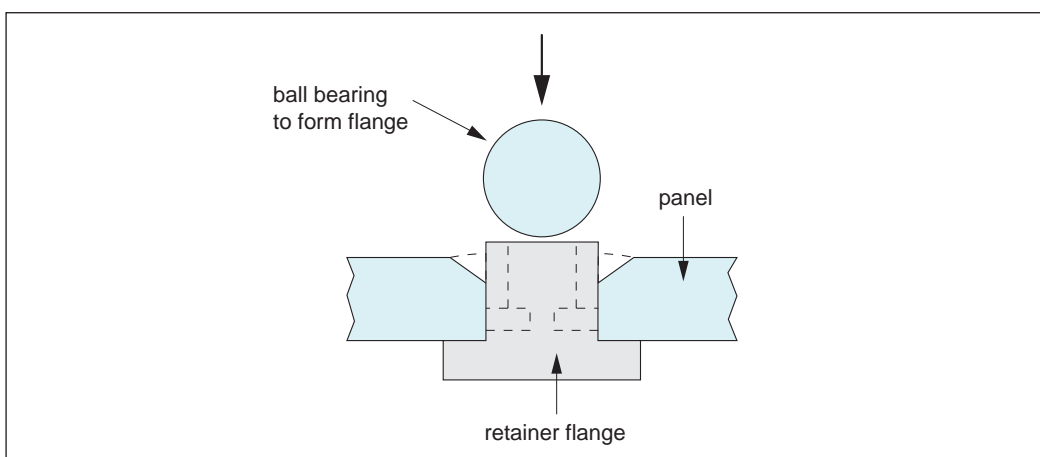
Wixroyd captive screw retainer flanges are available in both aluminium and stainless steel to suit the most common panel thicknesses. The retainer flange has a very shallow thread length on its internal diameter. A suitable hole is machined into the panel, and the underside of the hole is countersunk.



### Mounting

- Insert flange
- Use ball bearing or punch to form flange into panel

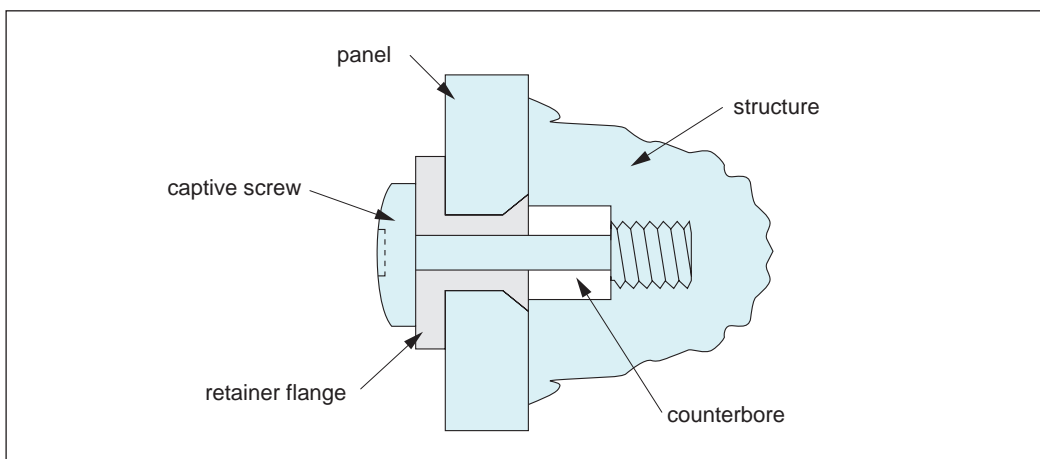
The flange is then joined to the panel using either a simple ball bearing (or for higher volume parts a hand punch) to form the bottom of the flange into the countersink. This retains the flange to the sheet.



Retaining flange secured onto panel using ball bearing or punch

### Captive Screw Assembly

The captive screw or bolt is then threaded onto the retainer flange and once the thread length is through the initial shallow threaded portion of the retainer flange – is captive.

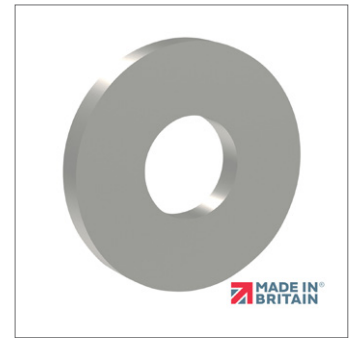
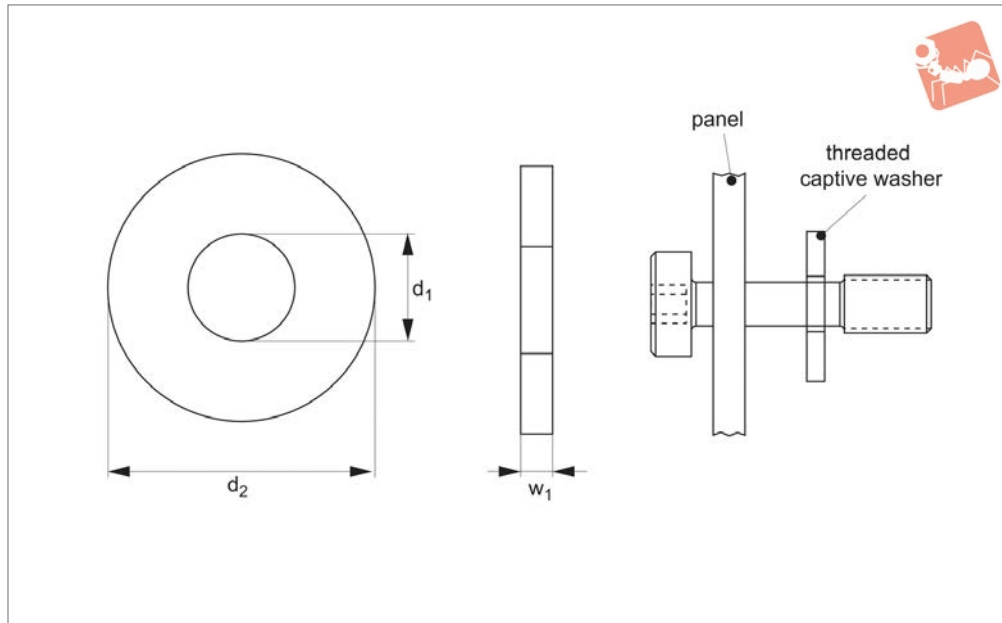


With any captive screw installation it is important to ensure that there is enough space for the threaded portion to become disengaged from the female thread of the structure.



# Threaded Captive Washers for captive screws

## Captive Screws



**36691**

CAPTIVE SCREWS

### Material

Stainless steel (AISI 303, 1.4305 and AISI 316, 1.440), steel (zinc-plated or black-oxide) and titanium (grade 2 and grade 5).

### Technical Notes

Captive washers have a very shallow thread on the i/d.

This enables them to be screwed on, and once past the threads they do not separate from the captive screw or bolt.

### Tips

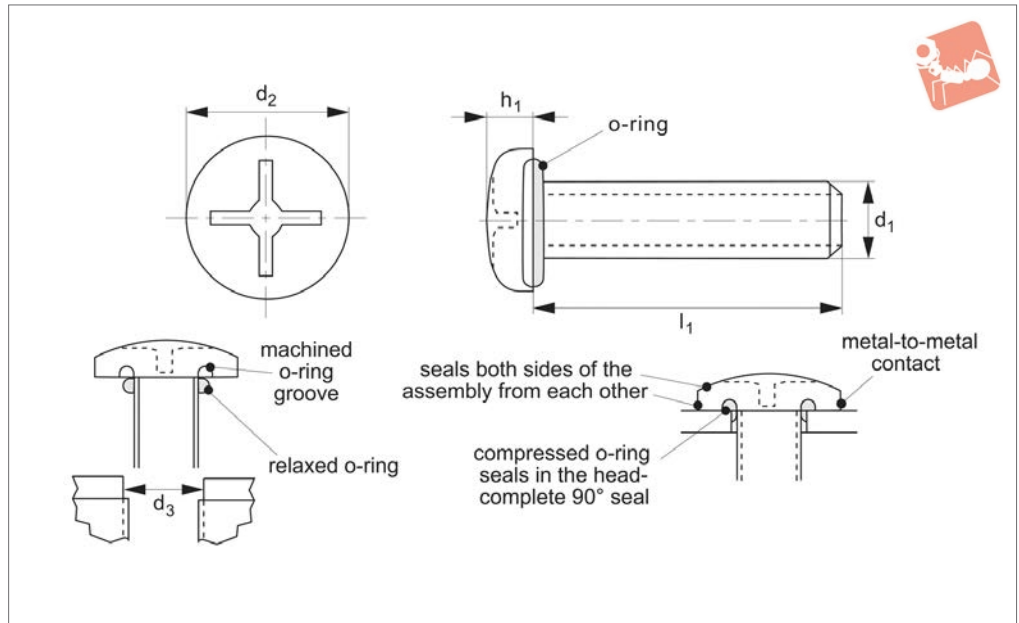
Captive washers are primarily used to retain captive screws in panels which have

unthreaded holes. The panel (onto which the screw needs to be retained) is placed onto the captive screw, the threaded washer is then threaded onto the screw, past the threaded section and the screw is therefore captive to the panel.

Order No.	d <sub>1</sub>	w <sub>1</sub> ±0.05	d <sub>2</sub>	Material
36691.W0025	M 2,5	1.0	5.0	Stainless steel 303
36691.W0030	M 3	1.0	6.0	Stainless steel 303
36691.W0040	M 4	1.2	8.0	Stainless steel 303
36691.W0050	M 5	1.5	10.0	Stainless steel 303
36691.W0060	M 6	1.6	12.0	Stainless steel 303
36691.W0080	M 8	2.0	16.0	Stainless steel 303
36691.W0100	M10	3.0	20.0	Stainless steel 303
36691.W0120	M12	3.5	24.0	Stainless steel 303
36691.W1025	M 2,5	1.0	5.0	Stainless steel 316
36691.W1030	M 3	1.0	6.0	Stainless steel 316
36691.W1040	M 4	1.2	8.0	Stainless steel 316
36691.W1050	M 5	1.5	10.0	Stainless steel 316
36691.W1060	M 6	1.6	12.0	Stainless steel 316
36691.W1080	M 8	2.0	16.0	Stainless steel 316
36691.W1100	M10	3.0	20.0	Stainless steel 316
36691.W1120	M12	3.5	24.0	Stainless steel 316
36691.W2025	M 2,5	1.0	5.0	Zinc-plated steel
36691.W2030	M 3	1.0	6.0	Zinc-plated steel
36691.W2040	M 4	1.2	8.0	Zinc-plated steel
36691.W2050	M 5	1.5	10.0	Zinc-plated steel
36691.W2060	M 6	1.6	12.0	Zinc-plated steel
36691.W2080	M 8	2.0	16.0	Zinc-plated steel
36691.W2100	M10	3.0	20.0	Zinc-plated steel
36691.W2120	M12	3.5	24.0	Zinc-plated steel
36691.W0030-BL	M 3	1.0	6.0	Blackened steel
36691.W10-T5	M10	3.0	20.0	Grade 5 titanium
36691.W16-T5	M16	4.0	32.0	Grade 5 titanium



## 36630



### Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm<sup>2</sup>), with silicone „O“ ring as standard.

For other „O“ ring materials see technical data pages

(-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths, and stainless steel

A4 (AISI 316) on request.

### Technical Notes

Seals substances in and contaminants out, screws generally as DIN 7985 H, ISO 7045. Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi). Re-usable, also available (on request) with thread-locking.

### Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).

Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub> max.	d <sub>2</sub> max.	d <sub>3</sub> ±0.05	Drive
36630.W0204	M 2	4	1.6	4.0	2.35	PH-1
36630.W0208	M 2	8	1.6	4.0	2.35	PH-1
36630.W0210	M 2	10	1.6	4.0	2.35	PH-1
36630.W0212	M 2	12	1.6	4.0	2.35	PH-1
36630.W0251	M2,5	6	2.1	4.7	2.75	PH-1
36630.W0252	M2,5	8	2.1	4.7	2.75	PH-1
36630.W0253	M2,5	10	2.1	4.7	2.75	PH-1
36630.W0254	M2,5	12	2.1	4.7	2.75	PH-1
36630.W0306	M 3	6	2.4	6.0	3.6	PH-1
36630.W0308	M 3	8	2.4	6.0	3.6	PH-1
36630.W0310	M 3	10	2.4	6.0	3.6	PH-1
36630.W0312	M 3	12	2.4	6.0	3.6	PH-1
36630.W0320	M 3	20	2.4	6.0	3.6	PH-1
36630.SP0335SI	M 3	35	2.4	6.0	3.6	PH-1
36630.W0406	M 4	6	3.1	8.0	4.5	PH-2
36630.W0408	M 4	8	3.1	8.0	4.5	PH-2
36630.W0410	M 4	10	3.1	8.0	4.5	PH-2
36630.W0412	M 4	12	3.1	8.0	4.5	PH-2
36630.W0416	M 4	16	3.1	8.0	4.5	PH-2
36630.W0420	M 4	20	3.1	8.0	4.5	PH-2
36630.W0508	M 5	8	3.7	10.0	5.6	PH-2
36630.W0510	M 5	10	3.7	10.0	5.6	PH-2
36630.W0512	M 5	12	3.7	10.0	5.6	PH-2
36630.W0516	M 5	16	3.7	10.0	5.6	PH-2
36630.W0520	M 5	20	1.6	10.0	5.6	PH-2
36630.W0612	M 6	12	4.6	12.0	6.8	PH-3
36630.W0616	M 6	16	4.6	12.0	6.8	PH-3
36630.W0620	M 6	20	4.6	12.0	6.8	PH-3





# Pan Head Seal Screws

phillips drive



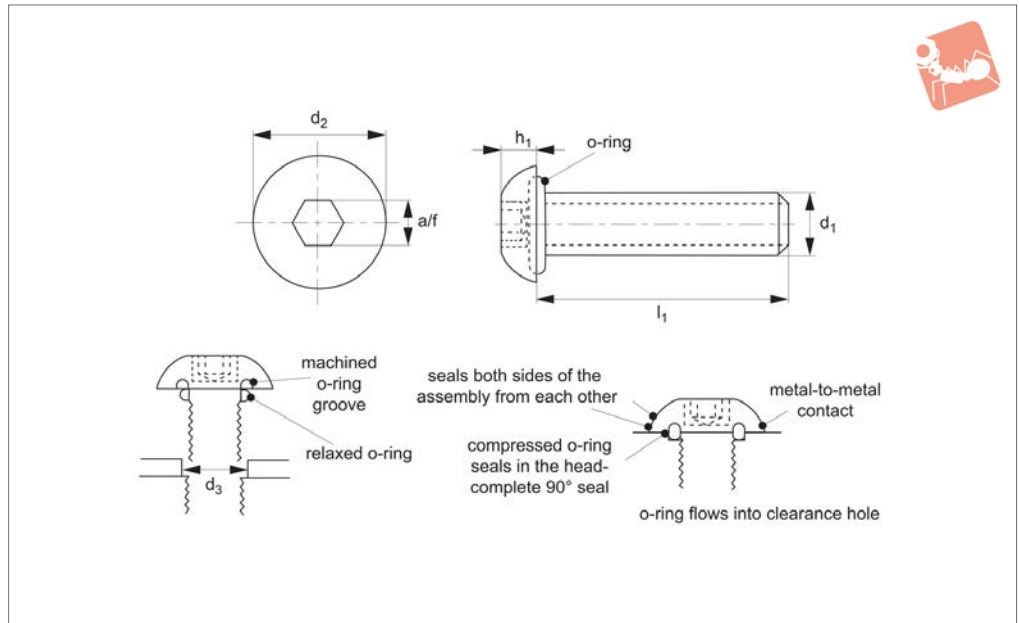
## Sealing Screws

Order No.	d <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub> max.	d <sub>2</sub> max.	d <sub>3</sub> ±0.05	Drive
36630.W0625	M 6	25	4.6	12.0	6.8	PH-3
36630.W0630	M 6	30	4.6	12.0	6.8	PH-3
36630.W0812	M 8	12	6.0	16.0	8.5	PH-4
36630.W0816	M 8	16	6.0	16.0	8.5	PH-4
36630.W0820	M 8	20	6.0	16.0	8.5	PH-4
36630.W0825	M 8	25	6.0	16.0	8.5	PH-4
36630.W0830	M 8	30	6.0	16.0	8.5	PH-4
36630.W1016	M10	16	7.5	20.0	10.6	PH-4
36630.W1020	M10	20	7.5	20.0	10.6	PH-4
36630.W1025	M10	25	7.5	20.0	10.6	PH-4
36630.W1030	M10	30	7.5	20.0	10.6	PH-4
36630.W1040	M10	40	7.5	20.0	10.6	PH-4

SEALING SCREWS



## 36631



### Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm<sup>2</sup> or AISI 316 1.440 tensile strength 480 N/mm<sup>2</sup>), with silicone „O” ring as standard.  
 For other „O” ring materials see technical data pages  
 (-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths on request.

### Technical Notes

Screws generally as ISO 7380, seals substances in and contaminants out.  
 Re-useable. Clearance holes recommended for maximum sealing.  
 Max temperature range: -100°C to +260°C,  
 pressure range - up to 410 bar (6000 psi).

Also available (on request) with thread-locking.

### Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).  
 Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub> max.	d <sub>2</sub> max.	A/F	d <sub>3</sub> ±0.05	Material
36631.W0306	M 3	6	1.7	5.7	2	3.6	A2 s/s
36631.W0308	M 3	8	1.7	5.7	2	3.6	A2 s/s
36631.W0310	M 3	10	1.7	5.7	2	3.6	A2 s/s
36631.W0312	M 3	12	1.7	5.7	2	3.6	A2 s/s
36631.W0320	M 3	20	1.7	5.7	2	3.6	A2 s/s
36631.W0406	M 4	6	2.2	7.6	2.5	4.5	A2 s/s
36631.W0408	M 4	8	2.2	7.6	2.5	4.5	A2 s/s
36631.W0410	M 4	10	2.2	7.6	2.5	4.5	A2 s/s
36631.W0412	M 4	12	2.2	7.6	2.5	4.5	A2 s/s
36631.W0416	M 4	16	2.2	7.6	2.5	4.5	A2 s/s
36631.W0420	M 4	20	2.2	7.6	2.5	4.5	A2 s/s
36631.W0508	M 5	8	2.8	9.5	3	5.6	A2 s/s
36631.W0510	M 5	10	2.8	9.5	3	5.6	A2 s/s
36631.W0512	M 5	12	2.8	9.5	3	5.6	A2 s/s
36631.W0516	M 5	16	2.8	9.5	3	5.6	A2 s/s
36631.W0520	M 5	20	2.8	9.5	3	5.6	A2 s/s
36631.W0612	M 6	12	3.3	10.5	4	6.8	A2 s/s
36631.W0616	M 6	16	3.3	10.5	4	6.8	A2 s/s
36631.W0620	M 6	20	3.3	10.5	4	6.8	A2 s/s
36631.W0625	M 6	25	3.3	10.5	4	6.8	A2 s/s
36631.W0630	M 6	30	3.3	10.5	4	6.8	A2 s/s
36631.W0812	M 8	12	4.4	14.0	5	8.5	A2 s/s
36631.W0816	M 8	16	4.4	14.0	5	8.5	A2 s/s
36631.W0820	M 8	20	4.4	14.0	5	8.5	A2 s/s
36631.W0825	M 8	25	4.4	14.0	5	8.5	A2 s/s
36631.W0830	M 8	30	4.4	14.0	5	8.5	A2 s/s
36631.W1016	M10	16	5.5	17.5	6	10.6	A2 s/s
36631.W1020	M10	20	5.5	17.5	6	10.6	A2 s/s



# Button Head Seal Screws

hex. socket



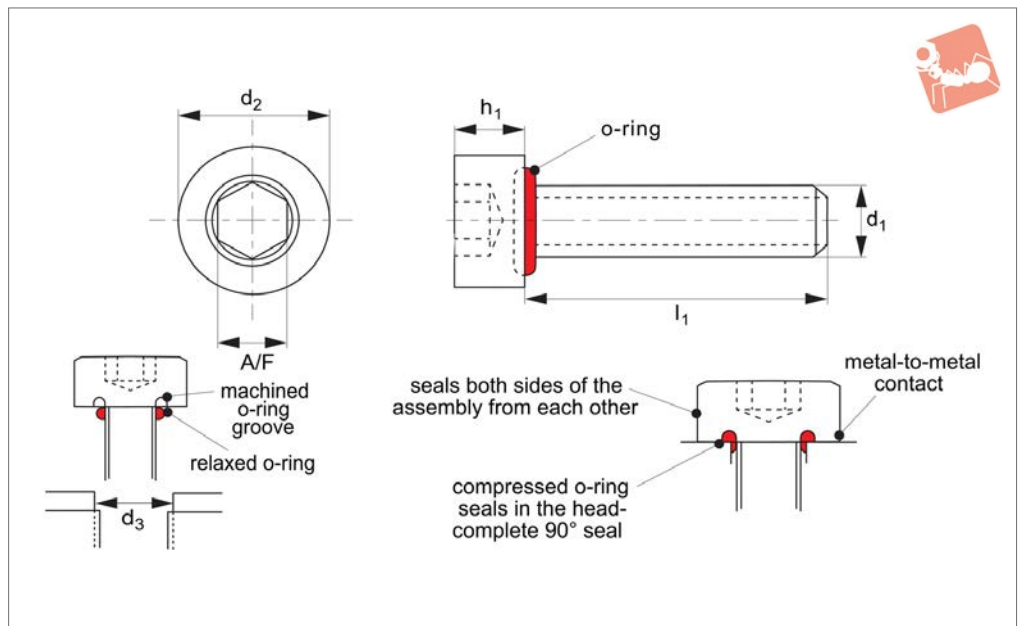
## Sealing Screws

Order No.	d <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub> max.	d <sub>2</sub> max.	A/F	d <sub>3</sub> ±0.05	Material
<b>36631.W1025</b>	M10	25	5.5	17.5	6	10.6	A2 s/s
<b>36631.W1030</b>	M10	30	5.5	17.5	6	10.6	A2 s/s
<b>36631.W1040</b>	M10	40	5.5	17.5	6	10.6	A2 s/s
<b>36631.W1220</b>	M12	20	6.6	21.0	8	12.9	A2 s/s
<b>36631.W1225</b>	M12	25	6.6	21.0	8	12.9	A2 s/s
<b>36631.W1230</b>	M12	30	6.6	21.0	8	12.9	A2 s/s
<b>36631.W1240</b>	M12	40	6.6	21.0	8	12.9	A2 s/s
<b>36631.W1250</b>	M12	50	6.6	21.0	8	12.9	A2 s/s
<b>36631.W0406-A4</b>	M 4	6	2.2	7.6	2.5	4.5	A4 s/s

SEALING SCREWS



**36633**



### Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm<sup>2</sup> or AISI 316 1.440 tensile strength 480 N/mm<sup>2</sup>), with silicone „O” ring as standard.  
 For other „O” ring materials see technical data pages (-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths on request.

### Technical Notes

Screws generally as DIN 912, seals substances in and contaminants out  
 Re-useable, clearance holes recommended for maximum sealing.  
 Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi).

Also available (on request) with thread-locking.

### Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).  
 Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub> max.	d <sub>2</sub> max.	A/F	d <sub>3</sub> ±0.05	Material
36633.W0306	M 3	6	3.0	5.5	2.5	3.6	A2 s/s
36633.W0308	M 3	8	3.0	5.5	2.5	3.6	A2 s/s
36633.W0310	M 3	10	3.0	5.5	2.5	3.6	A2 s/s
36633.W0312	M 3	12	3.0	5.5	2.5	3.6	A2 s/s
36633.W0320	M 3	20	3.0	5.5	2.5	3.6	A2 s/s
36633.W0406	M 4	6	4.0	7.0	3.0	4.5	A2 s/s
36633.W0408	M 4	8	4.0	7.0	3.0	4.5	A2 s/s
36633.W0410	M 4	10	4.0	7.0	3.0	4.5	A2 s/s
36633.W0412	M 4	12	4.0	7.0	3.0	4.5	A2 s/s
36633.W0416	M 4	16	4.0	7.0	3.0	4.5	A2 s/s
36633.W0420	M 4	20	4.0	7.0	3.0	4.5	A2 s/s
36633.W0508	M 5	8	5.0	8.5	4.0	5.6	A2 s/s
36633.W0510	M 5	10	5.0	8.5	4.0	5.6	A2 s/s
36633.W0512	M 5	12	5.0	8.5	4.0	5.6	A2 s/s
36633.W0516	M 5	16	5.0	8.5	4.0	5.6	A2 s/s
36633.W0520	M 5	20	5.0	8.5	4.0	5.6	A2 s/s
36633.W0612	M 6	12	6.0	10.0	5.0	6.8	A2 s/s
36633.W0616	M 6	16	6.0	10.0	5.0	6.8	A2 s/s
36633.W0620	M 6	20	6.0	10.0	5.0	6.8	A2 s/s
36633.W0625	M 6	25	6.0	10.0	5.0	6.8	A2 s/s
36633.W0630	M 6	30	6.0	10.0	5.0	6.8	A2 s/s
36633.W0812	M 8	12	8.0	13.0	6.0	8.5	A2 s/s
36633.W0816	M 8	16	8.0	13.0	6.0	8.5	A2 s/s
36633.W0820	M 8	20	8.0	13.0	6.0	8.5	A2 s/s
36633.W0825	M 8	25	8.0	13.0	6.0	8.5	A2 s/s
36633.W0830	M 8	30	8.0	13.0	6.0	8.5	A2 s/s
36633.W1016	M10	16	10.0	16.0	8.0	10.6	A2 s/s
36633.W1020	M10	20	10.0	16.0	8.0	10.6	A2 s/s



# Cap Head Seal Screws

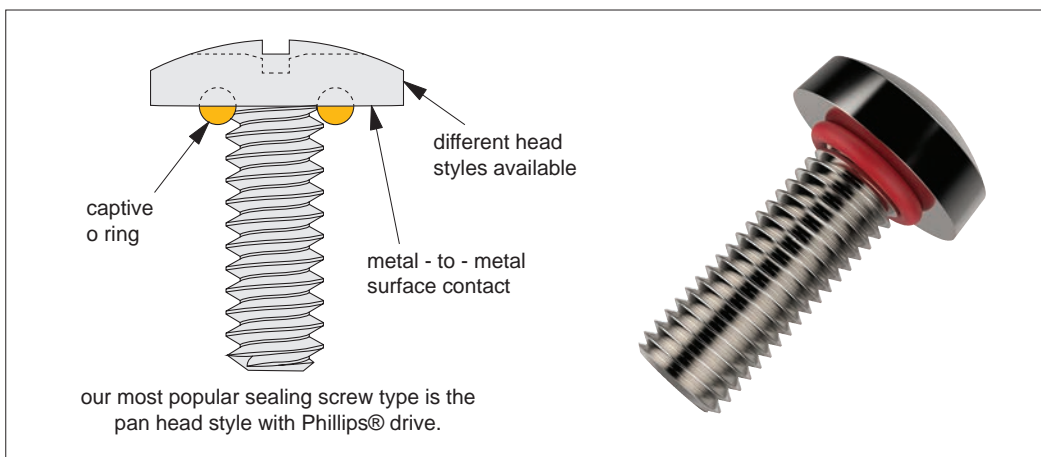
hex. socket



## Sealing Screws

Order No.	d <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub> max.	d <sub>2</sub> max.	A/F	d <sub>3</sub> ±0.05	Material
<b>36633.W1025</b>	M10	25	10.0	16.0	8.0	10.6	A2 s/s
<b>36633.W1030</b>	M10	30	10.0	16.0	8.0	10.6	A2 s/s
<b>36633.W1040</b>	M10	40	10.0	16.0	8.0	10.6	A2 s/s
<b>36633.W1220</b>	M12	20	12.0	18.0	10.0	12.85	A2 s/s
<b>36633.W1225</b>	M12	25	12.0	18.0	10.0	12.85	A2 s/s
<b>36633.W1230</b>	M12	30	12.0	18.0	10.0	12.85	A2 s/s
<b>36633.W1240</b>	M12	40	12.0	18.0	10.0	12.85	A2 s/s
<b>36633.W1250</b>	M12	50	12.0	18.0	10.0	12.85	A2 s/s
<b>36633.W0420-A4B</b>	M 4	20	4.0	7.0	3.0	4.5	V1 s/s

SEALING SCREWS



## Why use Sealing Screws?

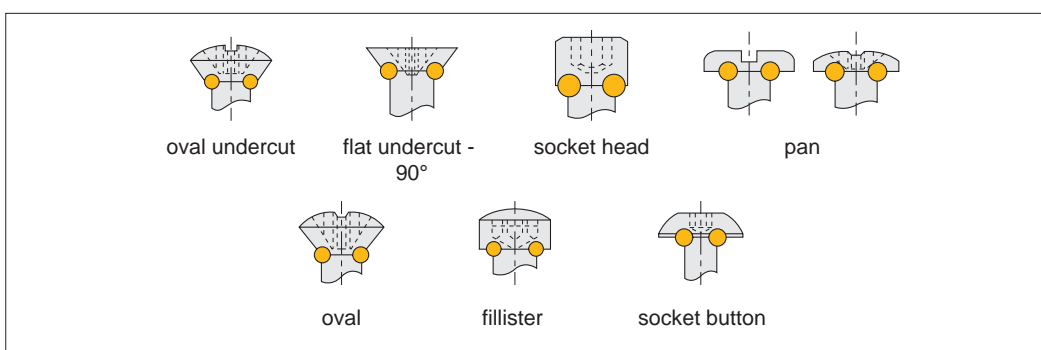
An ordinary screw lacks seal protection, allowing dirt, fluids, gases etc to infiltrate and damage sensitive devices. Sealing screws provide bi-directional sealing protection to systems where screws are used, to protect them against dirt, chemicals, water or other contaminants, which (without the screw seal), may penetrate and cause damage, or alternatively where gases and liquids may leak out.

Sealing screws are designed and manufactured with a precision engineered groove beneath the head of the fastener to accommodate the integral O-ring. As the fastener is tightened, the O-ring is compressed, squeezing it between the groove and mating surface to complete the seal. The design of the groove controls the amount of compression of the O-ring, and because O-rings retain their elastic memory, the screws are reusable time after time.

The seal provides bi-directional sealing which provides a total barrier seal against internal or external conditions (water, fluids, chemicals, dirt, air, contaminants etc) which could otherwise penetrate and damage systems. The screws are very easy to use and do not need any special preparation or re-tightening.

There are a range of O-ring materials that can resist virtually all chemical and environmental conditions. We can also provide sealing screws (on request) to military specifications (MILSPEC).

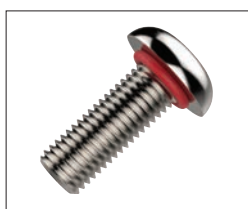
## Sealing Screw Heads



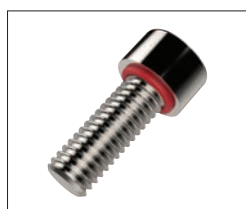
## Ordering Options



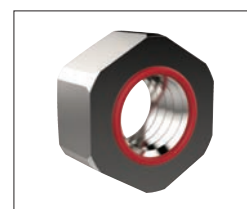
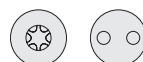
**36630 - Pan head - Phillips® Security and Torx® options**



**36631 - Button Hex-head Security and Torx® options**



**36633 - Socket Head Security and Torx® options**



**36636 - Hexagon Nut**



### Optimal performance

When using self-sealing screws a high pressure seal is formed along the thread's contact surface when torqued.

If possible, and to ensure maximum sealing performance, we recommend a clearance hole (see table below), this creates room for the O-ring to flow into.

The aim is to ensure full metal-to-metal contact between the underside of the fastener and the mounting surface.

If a clearance hole cannot be utilized, the O-ring will still function as it will compress to fill the gap between the male and female surfaces.

We also have a range of sealing nuts to complement our range of sealing screws. These sealing nuts often eliminate the need for gaskets, compounds and surface preparation. They are widely used in the hydraulic, pneumatic or fuel systems industries.

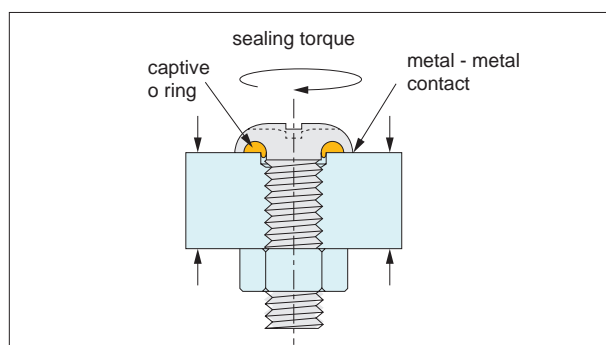
They are invaluable when a vacuum needs to be created and provide a complete seal when gaseous or liquid pressure is a factor. Domed nuts are self-sealing and provide exceptional vibration resistance.

Some of the typical applications for our sealing screws include:

- Motors
- Cabinets and enclosures
- Sensors and instrumentation
- Internal combustion engines
- Gear pumps
- Fuel tanks
- Transmissions
- Gear boxes
- Air cylinders
- Pressure gauges
- Computer disk drives
- Motion control valves
- Missile tanks
- Wet wings

### Self-sealing Screw

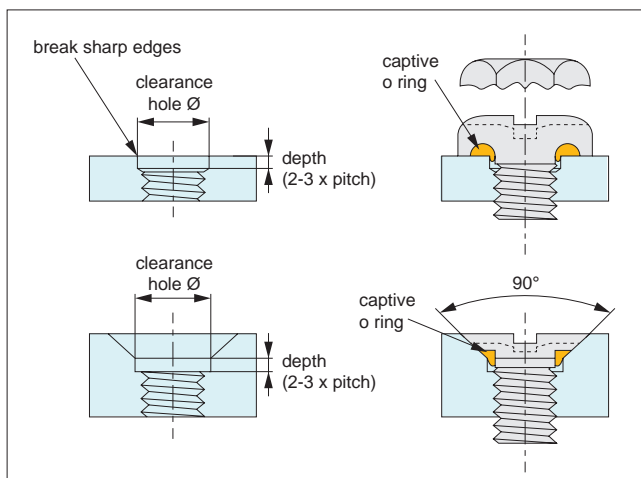
### Applications



Thread Size	Standard Installation Torque
M3	0.6 Nm
M3.5	1.0 Nm
M4	2.2 Nm
M5	2.5 Nm
M6	8.5 Nm
M8	16 Nm
M10	30 Nm

### Installation Torque

Nom. Size	Max clearance hole Ø
M2	2,44
M2,5	2,95
M3	3,45
M3,5	3,66
M4	4,55
M5	5,56
M6	6,66
M8	9,04
M10	11,05
M12	14,05
M14	16,05
M16	18,06

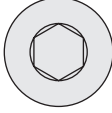

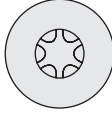



### Clearance Hole Ø - Recommended

For optimal seal screw performance we recommend creating a clearance hole in the panel into which the O-ring can be fitted. This causes the O-ring to create a complete seal, and the clearance hole thus prevents extrusion into the metal when the screw is under pressure.



## Drive Types

Schematic	Drive Types	Uses
	Hexagonal	Ideal for precision assembly. Most recommended where less surface area is available.
	Cross Drive (Phillips®)	Most recommended drive type. Provides good control in driving. Always use a driver bit of the proper size which is in good condition.
	Hexalobular (Torx®)	Positive-engaging, fast-locating method which transmits drive torque with less required downward pressure. Good fastening appearance.
	Security	These screws are impossible to remove without the special matching screwdriver.

We can provide Torx® heads and security/tamper-proof screws, as well as special threads, grooves and cross holes for safety wires, and a further range of styles such as captive screws, anti-vibration strips on the threads etc (for extreme vibration applications).

## O ring Selection

Standard O rings are red silicone, but a further five O ring material types are readily available. The main factor to consider when selecting an O ring type is the environment in which it will be placed, and the temperature range it will be subjected to.

Material	Notes
Silicone (SI)	Our standard O ring type with a wide temperature range -60°C to +200°C. Resistant to moderate or oxidising chemical, but not generally oil or solvent resistant.
Fluorosilicone (FS)	Widely used in the automotive and aerospace industries as it has excellent resistance to fuel, oil and solvents. Standard temperature range -50°C to +170°C.
EPDM (EP)	These O rings are very suited for outdoor environments and are good for weather and water resistant applications having excellent ozone, steam and chemical resistance. Temperature range -50°C to +110°C.
Viton-fluorocarbon (VI)	These seals are widely used on aircraft engines and automotive fuel handling systems as they have excellent fuel, oil and solvent resistance. Standard temperature range -50°C to +200°C
Nitrile (NI)	Widely used as highly resistant to petroleum based substances, water and alcohols. Temperature range -50°C to +110°C.

Other O rings types can include Neoprene, Buna N, Teflon etc.





Our standard screw material is stainless steel (AISI 303, 1.4305). Other materials available are aluminium (non-magnetic and 1/3 weight of steel), brass (high electrical conductivity, non-magnetic and good corrosion resistance), titanium (low weight, very strong and highly corrosion resistant), stainless steel (A4, AISI 316).

Fasteners can be supplied to MILSPEC standards (MIL-S-82496A) on request.

Finishes are dependent on the material you are wishing to coat and subject to minimum quantities.

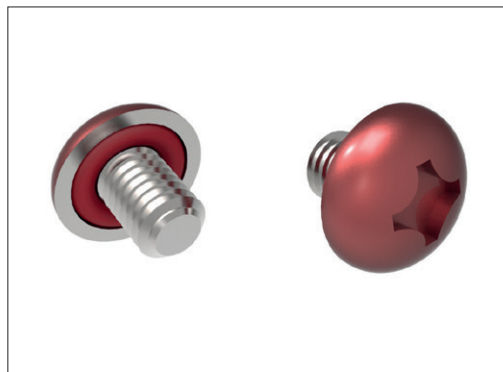
## Materials

## Finishes

Finish	Notes
Black Chrome (MIL-C-1458B)	Black chrome is a hard, non-reflective coating which is resistant to abrasion, heat and erosion. The black chrome surface is a dull, dark grey and may be waxed or oiled to darken surface.
Black Oxide Coating (MIL-C-13924B)	Black oxide is a uniform black coating for ferrous metals. Generally it is considered a decorative coating and provides only very limited corrosion protection under mild corrosion conditions.
Cadmium	Cadmium is a bright, silvery white plating. Supplementary treatments for Type II can be golden, iridescent, amber, black or olive drab.
Passivate (QQ-P-35/MIL S-500SC)	Passivation is a process designed to remove foreign metals from the surface of stainless and corrosion resistant steels.
Phosphate Coating Light (TT-C-00490B)	Phosphate coating is a light coating for use as a base paint.
Gold (MIL-G-45204B)	Yellow to orange colour depending on proprietary process used. Will range from matt to bright finish depending on base metal. Good corrosion resistance and high tarnish resistance.
Nickel (QQ-N-290A)	Nickel is a corrosion protective plating for steel, zinc and zinc alloys as well as copper and copper alloys.
Zinc (QQ-Z-325C)	The primary use of chromate finishes on zinc is to retard or prevent formation of white corrosion products on zinc surfaces.



Shoulder Screws



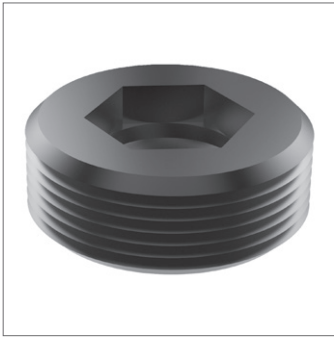
Painted Heads



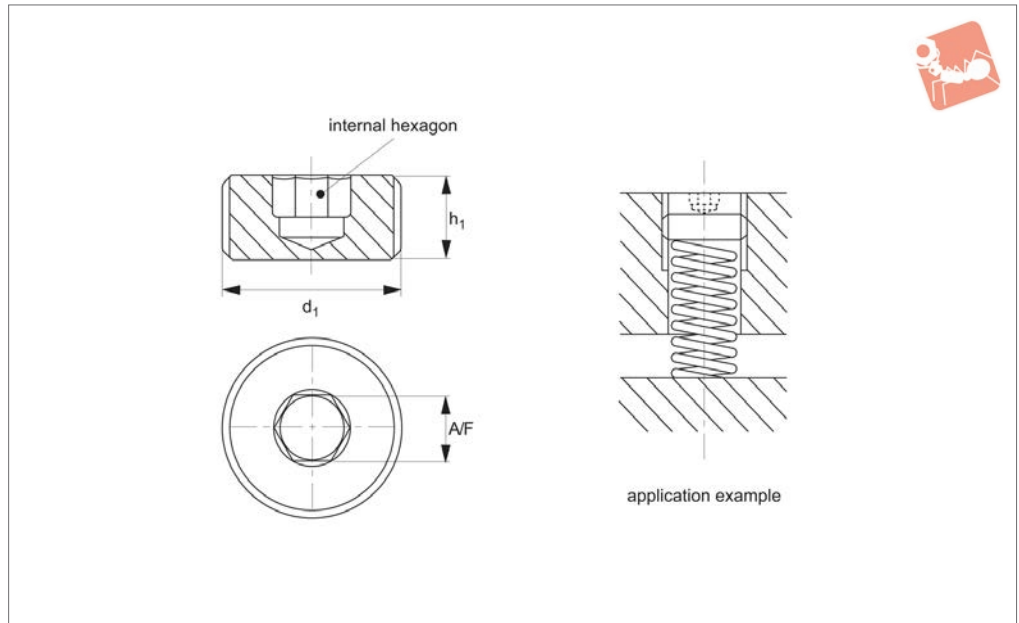
Captive Screws



Security Heads (Tamper Proof)



**39200**



**Material**

Steel, blackened. Strength class 5.8, 500 N/mm<sup>2</sup>

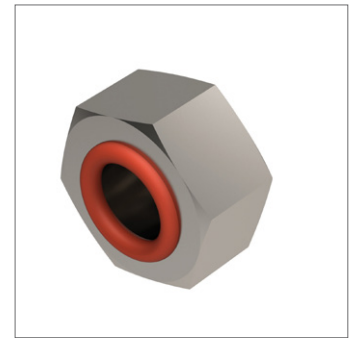
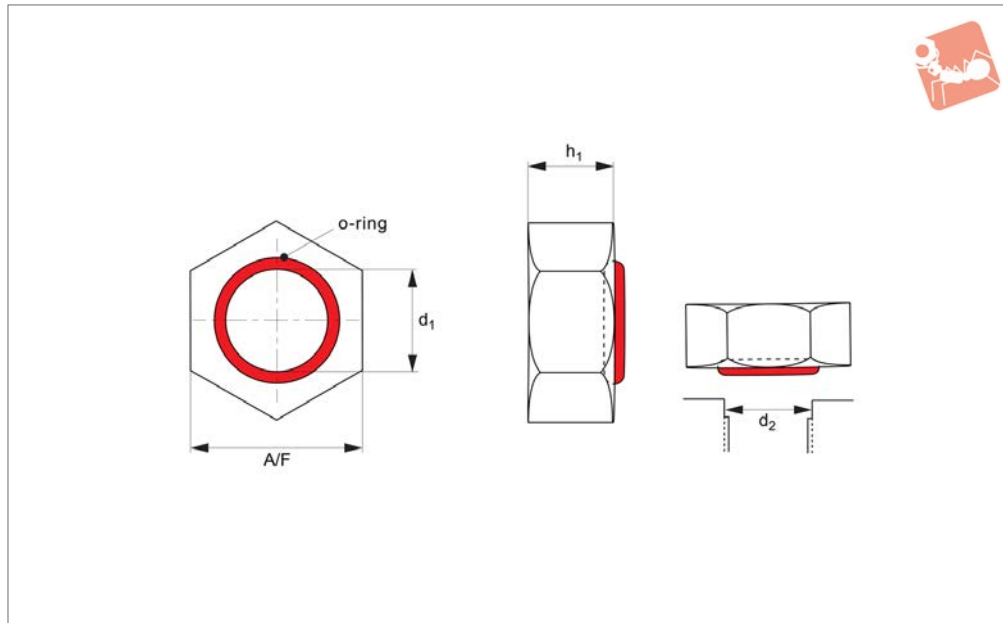
Order No.	d <sub>1</sub>	h <sub>1</sub>	A/F
39200.W0012	M12x1,5	10	6
39200.W0016	M16x1,5	10	8
39200.W0020	M20x1,5	12	10
39200.W0024	M24x1,5	12	14
39200.W0027	M27x1,5	12	14
39200.W0030	M30x1,5	12	17
39200.W0033	M33x1,5	12	17



# Integral Seal Hex. Nuts Stainless



## Sealing Screws



**36636**

SEALING SCREWS

### Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm<sup>2</sup> or AISI 316 1.440 tensile strength 480 N/mm<sup>2</sup>), with silicone „O“ ring as standard.  
For other „O“ ring materials see technical data pages,  
(-FS = fluorosilicone, -EP = EPDM, -VI =

viton, -NI = nitrile, -BN = Buna etc.).

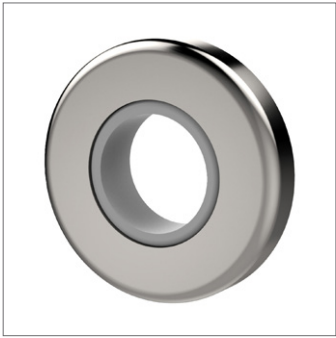
### Technical Notes

Seals substances in and contaminants out, re-useable.  
Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi).

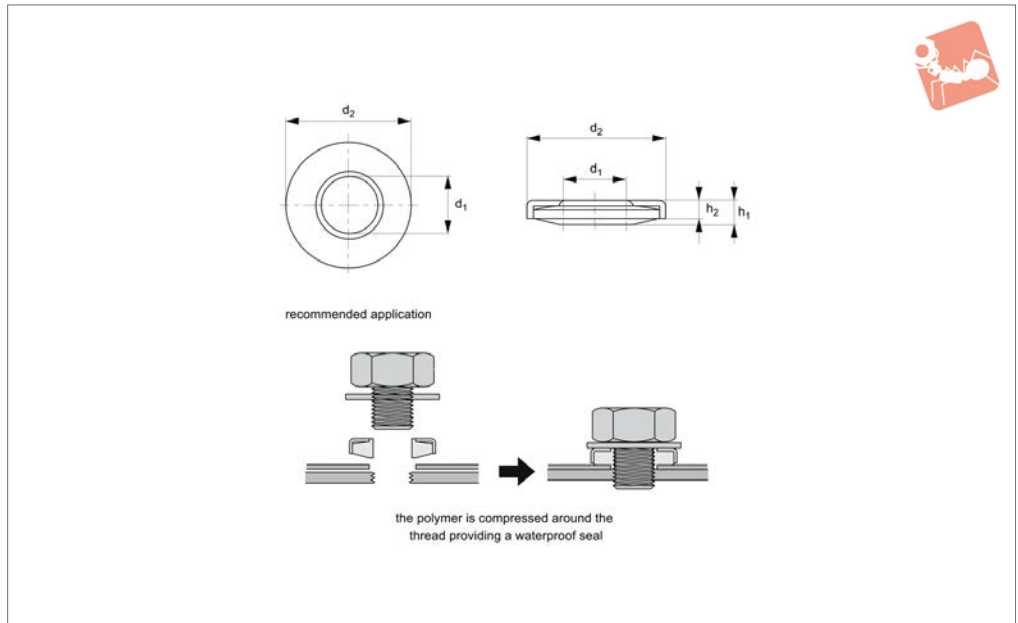
### Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).  
Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d <sub>1</sub>	A/F	d <sub>2</sub> ±0.05	h <sub>1</sub> max.	Material
36636.W0020	M 2	4	2.35	1.6	A2 s/s
36636.W0025	M2,5	5	2.75	2.0	A2 s/s
36636.W0030	M 3	5.5	3.6	2.4	A2 s/s
36636.W0040	M 4	7	4.5	3.2	A2 s/s
36636.W0050	M 5	8	5.6	4.7	A2 s/s
36636.W0060	M 6	10	6.8	5.2	A2 s/s
36636.W0080	M 8	13	8.5	6.8	A2 s/s
36636.W0100	M10	16	10.6	8.4	A2 s/s
36636.W0120	M12	18	12.85	10.8	A2 s/s
36636.W0140	M14	21	15.1	12.8	A2 s/s
36636.W0160	M16	24	17.5	14.8	A2 s/s



## 36637



### Material

Stainless steel (AISI 304, 1.4301), with thermoplastic elastomer (TPE) insert.

### Technical Notes

Seals substances in and contaminants out. For watertight applications, the seal is best

placed against a smooth material, ensuring a tight seal is created.

### Tips

We recommend installing a flat washer above the sealing washer to ensure that uniform pressure is applied to the elas-

tomer inside the washer. We recommend that you test the sealing washer in your application to determine the optimum tightening torque. For use at -30 °C to 90 °C.

Order No.	For thread	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	Recommended tightening torque Nm	Rated pressure (liquids) Bar max.	Rated pressure (gases) Bar max.	Weight g
<b>36637.W0030</b>	M 3	3.0	8	3.1	2.5	0,3-0,6	7	7	0.4
<b>36637.W0040</b>	M 4	4.1	10	3.5	3.0	0,8-1,5	7	7	0.6
<b>36636.SP005</b>	M 5	5.1	12	3.5	3.0	1,5-3,0	7	7	1.0
<b>36637.W0060</b>	M 6	6.1	14	3.5	3.0	2,5-5,0	7	7	1.0
<b>36636.SP006</b>	M 8	8.1	18	4.0	3.0	6,2-12	7	7	2.0
<b>36637.W0100</b>	M10	10.1	23	4.0	3.0	24-12	7	7	3.0
<b>36637.W0120</b>	M12	12.1	25	4.0	3.0	21-42	7	7	4.0
<b>36637.W0160</b>	M16	16.1	30	4.5	3.0	53-106	7	7	6.0
<b>36637.W0200</b>	M20	20.1	37	4.5	3.0	103 min.	7	7	9.0

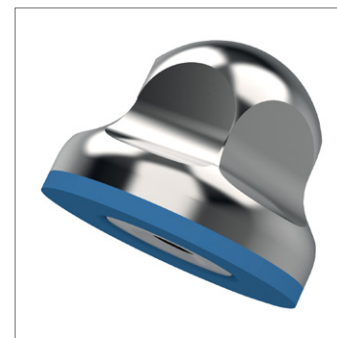
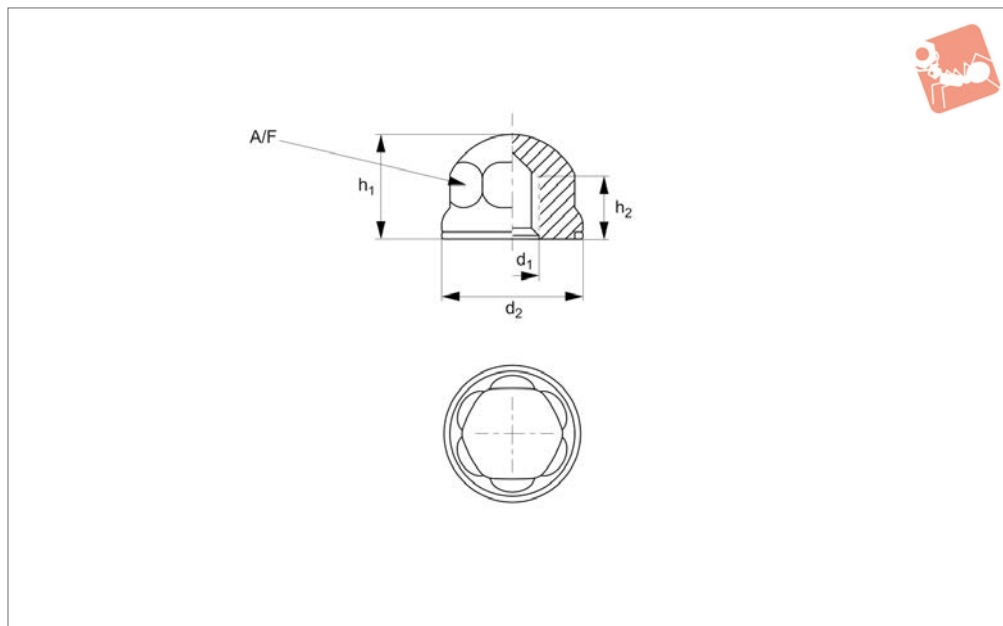


# Hygienic Nuts - Female

304 stainless steel



## Sealing Screws



**36638**

SEALING SCREWS

### Material

AISI 304 stainless steel high-gloss polished dome-nut, FDA blue silicone gasket, 3-A accepted. Available on request in AISI 316.

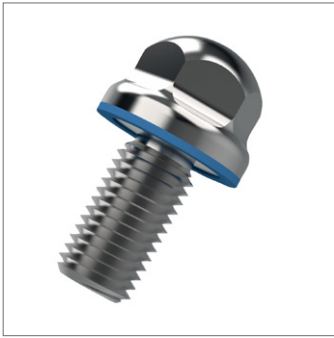
### Technical Notes

For use in hygienic areas, components can be mounted without dead spaces. Sealing ring is hydrogenated acrylonitrile butadiene rubber (H-NBR), hardness 85±5

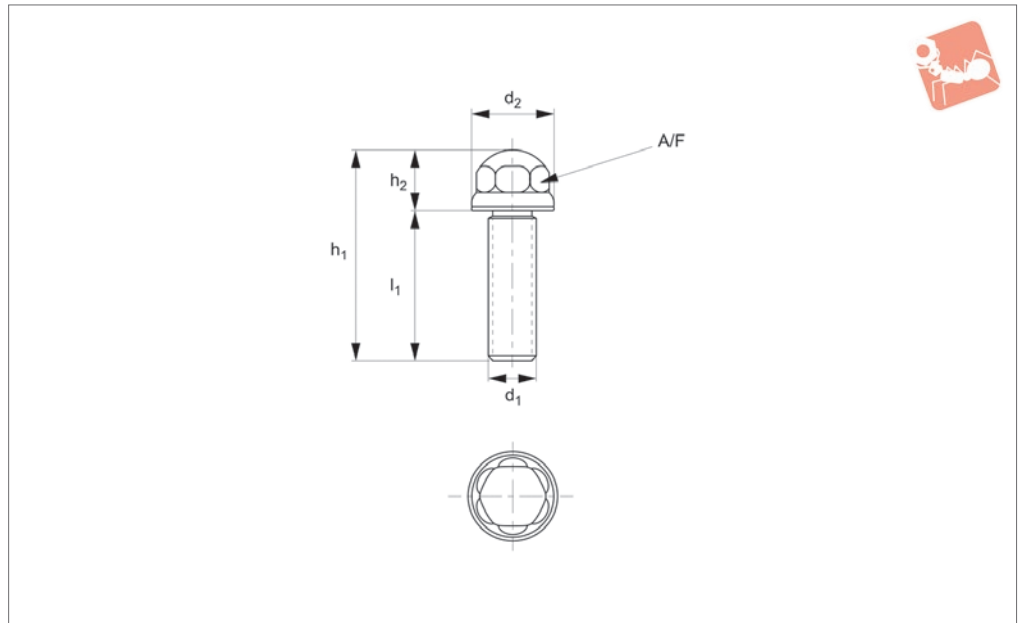
shore A, temp range -25°C to +150°C, blue.

Polished finish Ra < 0,8μ

Order No.	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	A/F
36638.W0003	M 3x0,5	15	12	8	HEX 10
36638.W0004	M 4x0,7	15	12	8	HEX 10
36638.W0005	M 5x0,8	19	17	12	HEX 14
36638.W0006	M 6x1	19	17	12	HEX 14
36638.W0008	M 8x1,25	24	23	15	HEX 17
36638.W0010	M10x1,5	24	23	15	HEX 17
36638.W0012	M12x1,75	24	23	15	HEX 17
36638.W0014	M14x2	30	28	20	HEX 22
36638.W0016	M16x2	30	28	20	HEX 22
36638.W0020	M20x2,5	35	34	25	HEX 27
36638.W0024	M24x3	42	40	30	HEX 32



**37370**



SEALING SCREWS

**Material**

Stainless steel (AISI 304) high-gloss polished dome-nut, FDA blue silicone gasket, 3-A accepted.

be mounted without dead spaces.

Sealing ring is hydrogenated acrylonitrile butadiene rubber (H-NBR), hardness 85±5 shore A, temp range -25°C to +150°C, blue.

Polished finish Ra < 0,8µ.

**Technical Notes**

For use in hygienic areas, components can

Order No.	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	l <sub>1</sub>	h <sub>2</sub>	A/F
37370.W0510	M5x0,8	19	24	10	14	HEX 14
37370.W0516	M5x0,8	19	26	16	10	HEX 14
37370.W0520	M5x0,8	19	34	20	14	HEX 14
37370.W0612	M6x1	19	26	12	14	HEX 14
37370.W0616	M6x1	19	30	16	14	HEX 14
37370.W0620	M6x1	19	34	20	14	HEX 14
37370.W0625	M6x1	19	39	25	14	HEX 14
37370.W0630	M6x1	19	44	30	14	HEX 14
37370.W0816	M8x1,25	24	33	16	17	HEX 17
37370.W0820	M8x1,25	24	37	20	17	HEX 17
37370.W0825	M8x1,25	24	42	25	17	HEX 17
37370.W0830	M8x1,25	24	47	30	17	HEX 17
37370.W0840	M8x1,25	24	57	40	17	HEX 17
37370.W1020	M10x1,5	24	37	20	17	HEX 17
37370.W1025	M10x1,5	24	42	25	17	HEX 17
37370.W1030	M10x1,5	24	47	30	17	HEX 17
37370.W1040	M10x1,5	24	57	40	17	HEX 17
37370.W1050	M10x1,5	24	67	50	17	HEX 17
37370.W1220	M12x1,75	24	27	20	7	HEX 17
37370.W1225	M12x1,75	24	42	25	17	HEX 17
37370.W1230	M12x1,75	24	47	30	17	HEX 17
37370.W1240	M12x1,75	24	57	40	17	HEX 17
37370.W1250	M12x1,75	24	67	50	17	HEX 17
37370.W1630	M16x2	30	52	30	22	HEX 22
37370.W1640	M16x2	30	62	40	22	HEX 22
37370.W1650	M16x2	30	72	50	22	HEX 22
37370.W1660	M16x2	30	82	60	22	HEX 22
37370.W1670	M16x2	30	92	70	22	HEX 22
37370.W1680	M16x2	30	102	80	22	HEX 22
37370.W2030	M20x2,5	35	56	30	26	HEX 27
37370.W2040	M20x2,5	35	66	40	26	HEX 27
37370.W2050	M20x2,5	35	76	50	26	HEX 27



# Hygienic Screws - Male

304 stainless steel



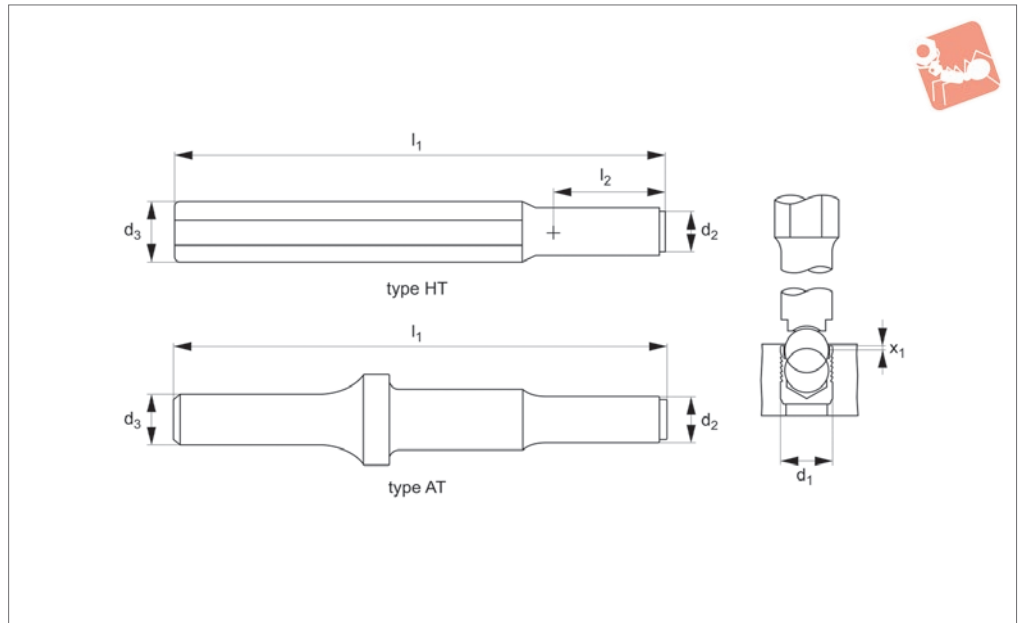
## Sealing Screws

Order No.	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	l <sub>1</sub>	h <sub>2</sub>	A/F
<b>37370.W2060</b>	M20x2,5	35	86	60	26	HEX 27
<b>37370.W2070</b>	M20x2,5	35	96	70	26	HEX 27
<b>37370.W2080</b>	M20x2,5	35	106	80	26	HEX 27

SEALING SCREWS



## 39000



### Material

Tool steel, heat-treated.

### Technical Notes

Please consult technical pages for installa-

tion instructions and performance data.  
Hand tool version and air tool (for multiple installations).

**Ensure the ball is fully seated before**

**applying pressure.**

### Tips

Metric dimensions in mm.  
Inch dimensions in inches.

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	x ±0.2	Type
39008.W1030	3.0	2.8	9.53	127	10	0.4	Hand
39008.W1040	4.0	3.8	9.53	127	10	0.2	Hand
39008.W1070	7.0	6.8	9.53	127	18	0.4	Hand
39008.W1080	8.0	7.8	9.53	127	20	0.3	Hand



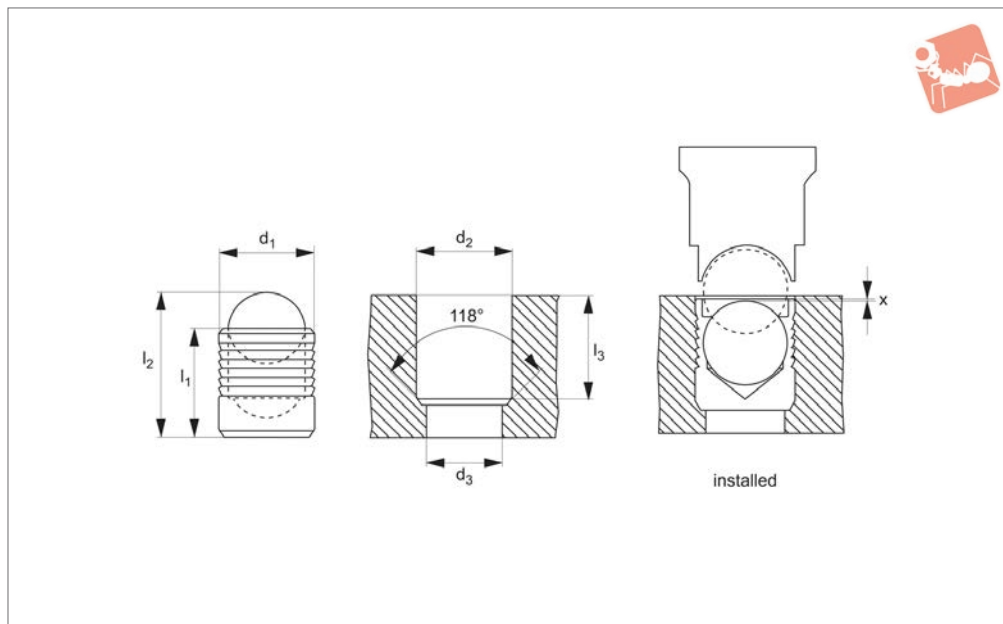


# Expansion Sealing Plugs

Metric - standard



# Sealing Screws



**39001**

SEALING SCREWS

### Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2, AISI 303 & A4 AISI 316) or aluminium (2024-T4).

Ball: heat-treated bearing steel or stainless steel (A2, AISI 303 & A4 AISI 316).

### Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air

and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

**Ensure the ball is fully seated before applying pressure.**

### Tips

Working pressure up to 450 bar (dependent on body material and material into which

installed).

Please consult technical pages for installation instructions and performance data.

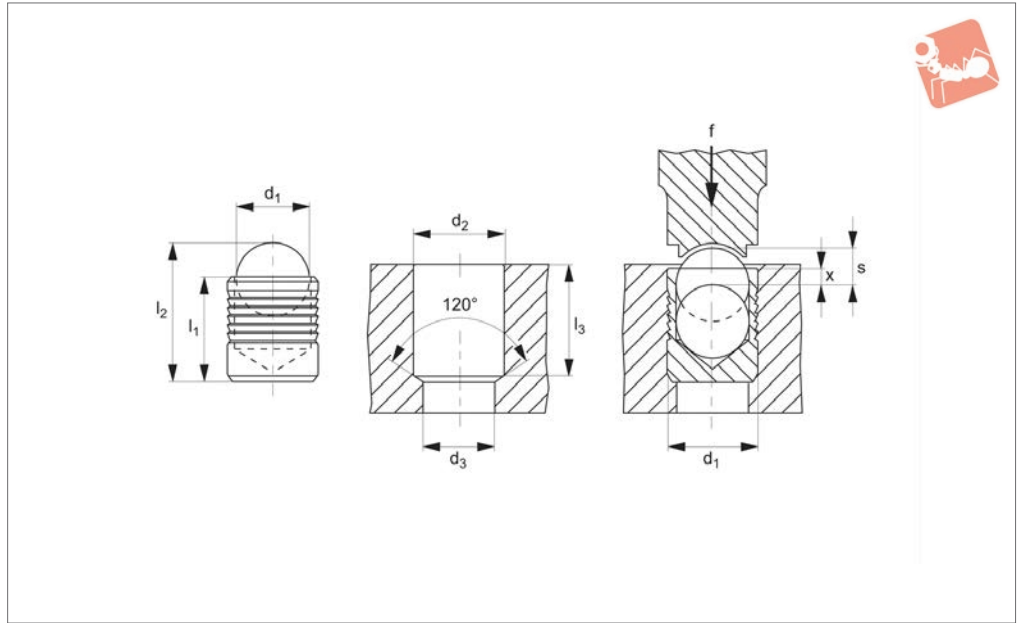
### Important Notes

**Please refer to technical pages for product installation details.**

Order No.	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	d <sub>2</sub> +0.1 -0.0	d <sub>3</sub> max.	l <sub>3</sub> min.	x ±0.2	Body	Ball
39001.W1040	4.0	4.0	5.2	4.0	3.3	3.8	0.2	Steel ZP	Steel
39001.W1050	5.0	5.5	7.1	5.0	4.3	5.3	0.4	Steel ZP	Steel
39001.W1060	6.0	6.5	8.7	6.0	5.3	6.3	0.4	Steel ZP	Steel
39001.W1070	7.0	7.5	10.2	7.0	6.4	7.3	0.4	Steel ZP	Steel
39001.W1080	8.0	8.5	11.6	8.0	7.4	8.3	0.3	Steel ZP	Steel
39001.W1100	10.0	11.0	15.2	10.0	9.4	10.8	0.4	Steel ZP	Steel
39001.W1160	16.0	17.0	23.4	16.0	14.7	16.5	0.6	Steel ZP	Steel
39001.W2030	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A2 s/s	Steel
39001.W2040	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A2 s/s	Steel
39001.W2050	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A2 s/s	Steel
39001.W2060	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A2 s/s	Steel
39001.W2120	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A2 s/s	Steel
39001.W2160	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A2 s/s	Steel
39001.W5030	3.0	3.6	4.6	3.0	2.2	3.4	0.4	Aluminium	A2 s/s
39001.W5050	5.0	5.5	7.1	5.0	4.3	5.3	0.4	Aluminium	A2 s/s
39001.W3030	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A2 s/s	A2 s/s
39001.W3040	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A2 s/s	A2 s/s
39001.W3050	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A2 s/s	A2 s/s
39001.W3060	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A2 s/s	A2 s/s
39001.W3080	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A2 s/s	A2 s/s
39001.W3140	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A2 s/s	A2 s/s
39001.W3160	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A2 s/s	A2 s/s



## 39100



### Material

Body: stainless steel 1,4305 (AISI 303).  
Ball: roller bearing steel, heat-treated, tempered.

quick and economic sealing of bore holes in fluid technology, e.g. hydraulic drilling holes in jig and fixtures. Setting dies are required for assembly.

anical pages.

### Technical Notes

Expander sealing plugs are used for safe,

### Tips

For assembly instructions please see tech-

Order No.	$d_1$	$l_1$	$l_2 \approx$	$d_2 +0.1$	$d_3 \text{ max.}$	$l_3 \text{ min.}$	$x \pm 0.2$	$s$	Weight g
39100.W0053	3	3.6	4.6	3	2.2	3.4	0.4	1.20	0.1
39100.W0054	4	4.0	5.2	4	3.3	3.8	0.2	1.50	0.3
39100.W0055	5	5.5	7.0	5	4.3	5.3	0.4	2.00	0.7
39100.W0056	6	6.5	8.6	6	5.3	6.3	0.4	2.50	1.3
39100.W0057	7	7.5	10.1	7	6.4	7.3	0.4	3.00	2.4
39100.W0058	8	8.5	11.7	8	7.4	8.3	0.3	3.50	3.2
39100.W0059	9	10.0	13.7	9	8.4	9.8	0.4	4.00	4.5
39100.W0060	10	11.0	15.2	10	9.4	10.8	0.4	4.50	6.1
39100.W0062	12	13.0	18.0	12	10.6	12.8	0.4	5.50	9.7
39100.W0064	14	15.0	20.8	14	12.7	14.5	0.4	6.35	15.0
39100.W0066	16	17.0	23.7	16	14.7	16.5	0.6	7.00	22.0
39100.W0068	18	19.0	26.3	18	16.7	18.5	0.6	8.00	31.0
39100.W0070	20	22.0	30.5	20	18.7	21.5	0.8	9.00	46.0
39100.W0072	22	25.0	34.2	22	20.7	24.5	0.8	10.00	58.0

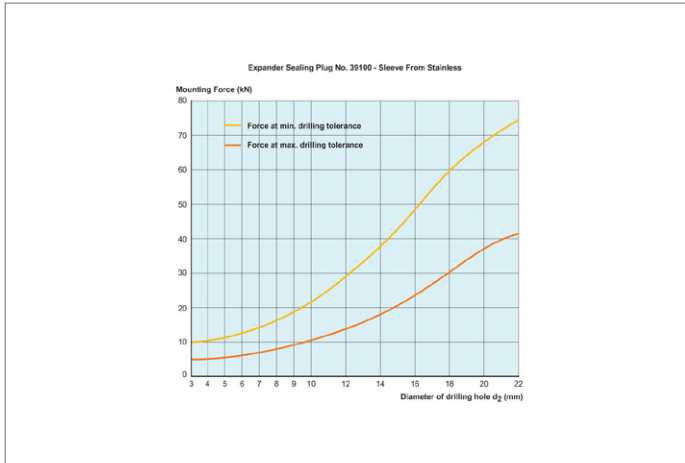


# Expander<sup>®</sup> Sealing Plugs

stainless steel body



# Sealing Screws



SEALING SCREWS