

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

Date: **03/12/20**

Revision: **8**

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**DIN 84**



**DIN 963**



**DIN 965**



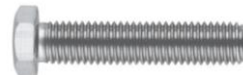
**DIN 7985**



**DIN 931**



**DIN 933**



**DIN 933 (A2)**



**DIN 6921**



**DIN 912**



**DIN 603**



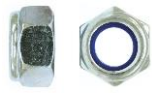
**DIN 608**



**DIN 934**



**DIN 934 (A2)**



**DIN 985**



**DIN 985 (A2)**



**DIN 1587**



**DIN 6923**



**TU-MA**



**DIN 125**



**DIN 125 (A2)**



**DIN 127**



**DIN 9021**



**DIN 9021 (A2)**



**DIN 6798**

## CHARACTERISTICS

- Bolts for mechanical fixings.
- Metric thread.
- Requires pre-drilled threading, or the use of a metric nut.
- Variety of sizes, heads and lengths: flexibility in installation.
- Zinc-plated coating and Stainless Steel.

## APPLICATIONS



- Bolts for mechanical fixings.

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## 1. RANGE

ITEM	CODE	STANDARD	PHOTO	HEAD	RECESS	MATERIAL
1	<b>T084</b>	DIN 84		 Cylinder	 Slot	Steel class 4.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
2	<b>T963</b>	DIN 963		 Countersunk	 Slot	Steel class 4.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
3	<b>T965</b>	DIN 965		 Countersunk	 Ph	Steel class 4.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
4	<b>T985</b>	DIN 7985		 Crowned	 Ph	Steel class 4.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
5	<b>D931</b>	DIN 931		 Hexagonal	 Hexagonal	Steel class 8.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
6	<b>D933</b>	DIN 933		 Hexagon	 Hexagon	Steel class 8.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
7	<b>D933I</b>	DIN 933 (A2)		 Hexagonal	 Hexagonal	Stainless Steel A2-70 (AISI 304)
8	<b>D6921</b>	DIN 6921		 Hexagonal	 Hexagonal	Steel class 8.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
9	<b>D912</b>	DIN 912		 Cylinder	 Allen	Steel class 8.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
10	<b>D603</b>	DIN 603		 Rivet with square neck	 Tamperproof	Steel class 4.8 UNE EN ISO 898-1. Coating: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042
11	<b>D608</b>	DIN 608		 Countersunk	 Cylindrical	Steel class 8.8 UNE EN ISO 898-1. Coating: yellow passivated $\geq 5 \mu\text{m}$ s/ISO 4042
12	<b>D934</b>	DIN 934		 Hexagon	 Hexagon	Steel hardness $> 140 \text{ HV}$ . Coating: zinc-plated: zinc-plated $\geq 5 \mu\text{m}$ s/ISO 4042

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ITEM	CODE	STANDARD	PHOTO	HEAD	RECESS	MATERIAL
13	<b>D934I</b>	DIN 934 (A2)		 Hexagonal		Stainless Steel A2-70 (AISI 304)
14	<b>D985</b>	DIN 985		 Hexagon		Steel hardness > 140 HV. Coating: zinc-plated: zinc-plated ≥ 5 μm s/ISO 4042
15	<b>D985I</b>	DIN 985 (A2)		 Hexagonal		Stainless Steel A2-70 (AISI 304)
16	<b>D1587</b>	DIN 1587		 Hexagonal		Carbon Steel Coating: zinc-plated: zinc-plated ≥ 5 μm s/ISO 4042
17	<b>D6923</b>	DIN 6923		 Hexagonal		Carbon Steel Coating: zinc-plated: zinc-plated ≥ 5 μm s/ISO 4042
18	<b>TU-MA</b>	Equivalent DIN 315		--		Carbon Steel Coating: zinc-plated: zinc-plated ≥ 5 μm s/ISO 4042
19	<b>D125</b>	DIN 125		--		Steel hardness > 140 HV. Coating: zinc-plated: zinc-plated ≥ 5 μm s/ISO 4042
20	<b>D125I</b>	DIN 125 (A2)		--		Stainless Steel A2-70 (AISI 304)
21	<b>D127</b>	DIN 127		--		Steel class 6 UNE EN 20898-2. Coating: zinc-plated ≥ 5 μm s/ISO 4042
22	<b>D9021</b>	DIN 9021		--		Steel class 6 UNE EN 20898-2. Coating: zinc-plated ≥ 5 μm s/ISO 4042
23	<b>D9021I</b>	DIN 9021 (A2)		--		Stainless Steel A2-70 (AISI 304)
24	<b>D6798A</b>	DIN 6798		--		Carbon Steel Coating: zinc-plated: zinc-plated ≥ 5 μm s/ISO 4042

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## 2. CHARACTERISTICS

### 2.1 DIN-84

### Slotted bolt – cylindrical head



#### Properties



Steel



Zinc-plated coating

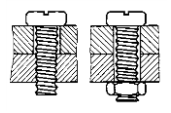


Plate fixings

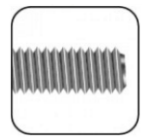
#### Properties



Slot

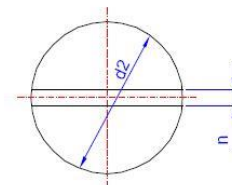
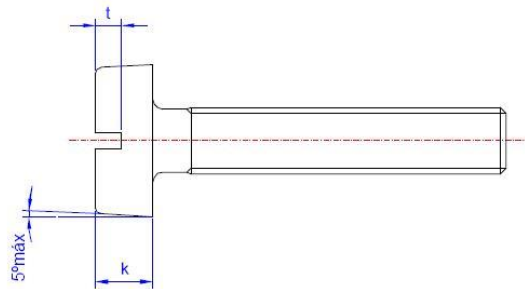


Cylindrical head



Metric

SIZE		M3	M4	M5	M6
∅d2: head diameter	[mm]	5.5	7	8.5	10
k: head thickness	[mm]	2.0	2.6	3.3	3.9
n: slot width	[mm]	1.0	1.50	1.50	1.9
t: slot depth	[mm]	1.15	1.5	1.8	2.2



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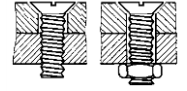
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## 2.2 DIN-963

## Slotted bolt – countersunk head



### Properties

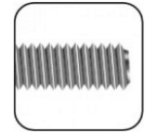
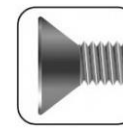


Steel

Zinc-plated coating

Plate fixings

### Properties

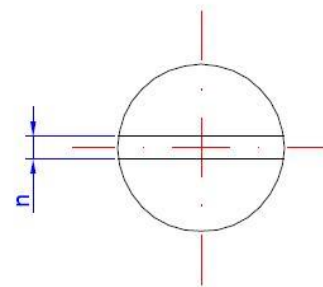
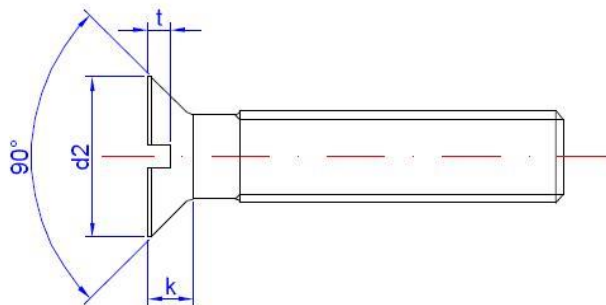


Slot

Countersunk Head

Metric

SIZE		M4	M5	M6	M8
∅d2: head diameter	[mm]	7.5	9.2	11	14.5
k: head thickness	[mm]	2.2	2.5	3	4
n: slot width	[mm]	1.5	1.5	1.9	2.3
t: slot depth	[mm]	1.1	1.3	1.6	2.1



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## 2.3 DIN-965

## Bolt – countersunk head - Ph socket



### Properties



Steel



Zinc-plated coating

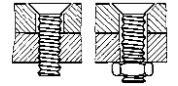
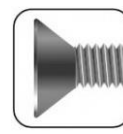


Plate fixings

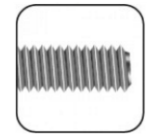
### Properties



Ph

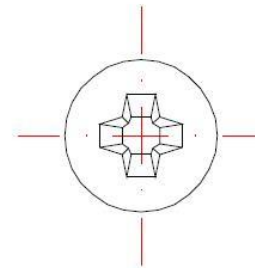
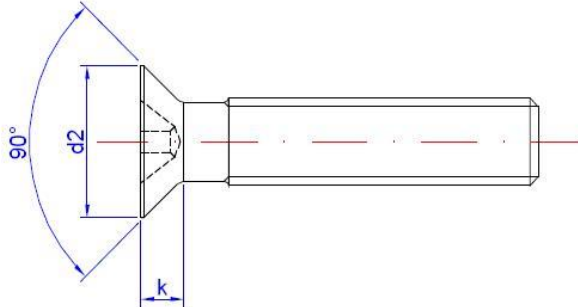


Countersunk head



Metric

SIZE		M3	M4	M5	M6
∅d2: head diameter	[mm]	5.6	7.5	9.2	11.0
k: head thickness	[mm]	1.65	2.2	2.5	3.0
Ph socket		1	2	2	3
Drill bit code		PUPHC01 PUPHL01	PUPHC02 PUPHL002	PUPHC02 PUPHL02	PUPHC03 PUPHL03



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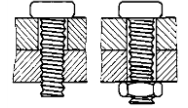
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## 2.4 DIN-7985

## Dome head bolt - Ph socket



### Properties

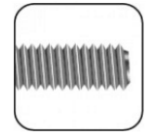
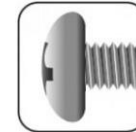


Steel

Zinc-plated coating

Plate fixings

### Properties

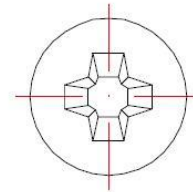
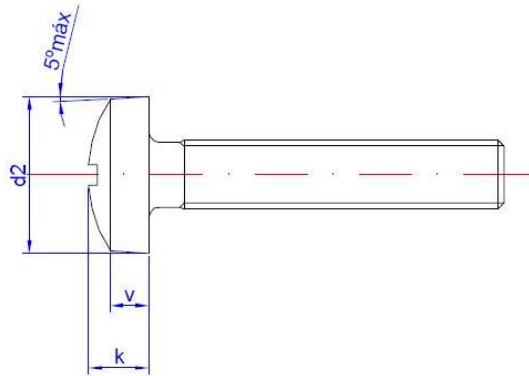


Ph

Dome head

Metric

SIZE		M3	M4	M5	M6
Ød2: head diameter	[mm]	6	8	10	12
k: Head thickness	[mm]	2.4	3.1	3.8	4.6
v	[mm]	1.6	2.0	2.5	3.0
Ph socket		1	2	2	3
Drill bit code		PUPHC01 PUPHL01	PUPHC02 PUPHL002	PUPHC02 PUPHL02	PUPHC03 PUPHL03



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## 2.5 DIN-931

## Metric thread bolt – hexagonal head



### Properties



Steel



Zinc-plated coating

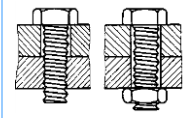


Plate fixings

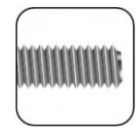
### Properties



Hexagonal

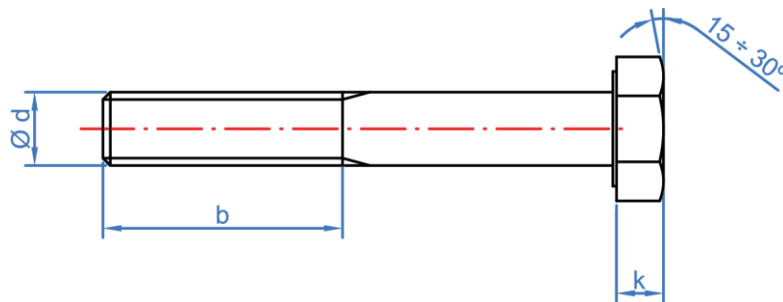
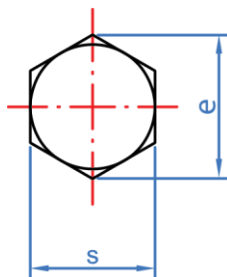


Hexagonal head



Metric

SIZE		M6	M8	M10	M12	M14	M16	M18	M20
s: distance between faces	[mm]	10	13	17	19	22	24	27	30
k: head thickness	[mm]	4	5,3	6,4	7,5	8,8	10	11,5	12,5
e: distance between apexes	[mm]	10,89	14,20	18,72	20,88	23,91	26,17	29,56	32,95
b(min): thread length $l \leq 120$ mm	[mm]	18	22	26	30	34	38	42	46
b(min): thread length $l > 120$ mm	[mm]	--	28	32	36	40	44	48	52
Torque wrench		10	13	17	19	22	24	27	30



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## 2.6 DIN-933

### Metric thread bolt – hexagonal head



#### Properties



Steel



Zinc-plated coating

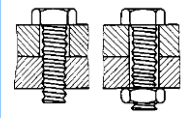


Plate fixings

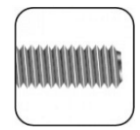
#### Properties



Hexagonal

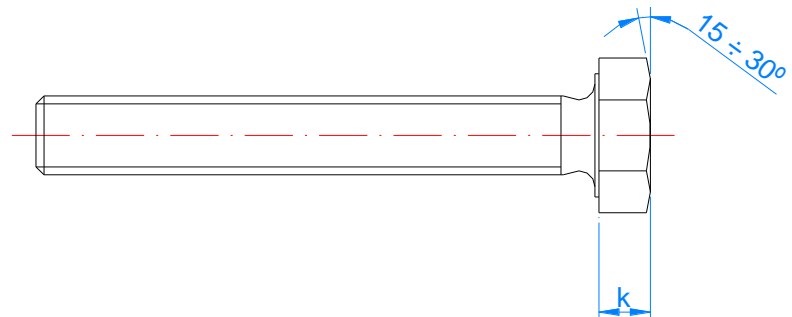
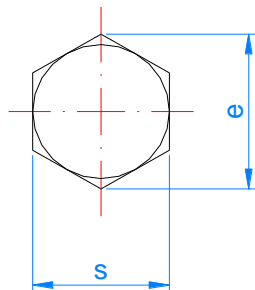


Hexagonal head



Metric

SIZE		M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
s: distance between faces	[mm]	7	8	10	13	17	19	22	24	27	30
k: head thickness	[mm]	3	3,5	4	5,3	6,4	7,5	8,8	10	11,5	12,5
e: distance between apexes	[mm]	7,50	8,63	10,89	14,20	18,72	20,88	23,91	26,17	29,56	32,95
Torque wrench		7	8	10	13	17	19	22	24	27	30



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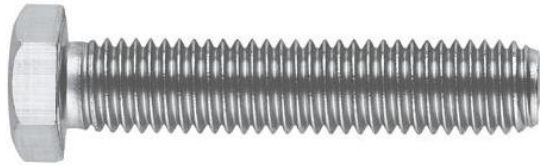
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## 2.7 DIN-933 A2

## Stainless steel metric thread bolt – hexagonal head



### Properties



Steel



Stainless Steel A2 (AISI 304)

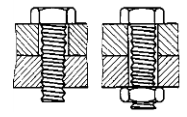


Plate fixings

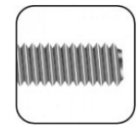
### Properties



Hexagonal

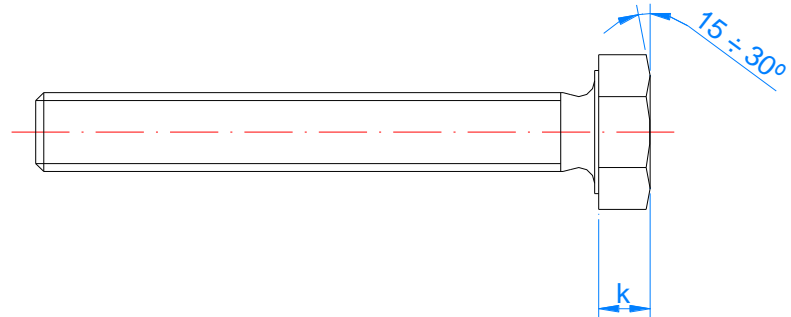
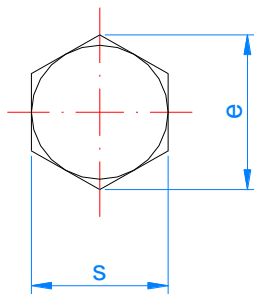


Hexagonal head



Metric

SIZE		M4	M5	M6	M8	M10	M12	M14	M16	M18
s: distance between faces	[mm]	7	8	10	13	17	19	22	24	27
k: head thickness	[mm]	3	3,5	4	5,3	6,4	7,5	8,8	10	11,5
e: distance between apexes	[mm]	7,50	8,63	10,89	14,20	18,72	20,88	23,91	26,17	29,56
Torque wrench		7	8	10	13	17	19	22	24	27



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## 2.8 DIN-6921

### Metric thread bolt – hexagonal head with washer



#### Properties



Steel



Zinc-plated coating

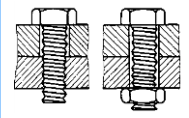
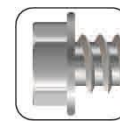


Plate fixings

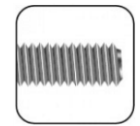
#### Properties



Hexagonal

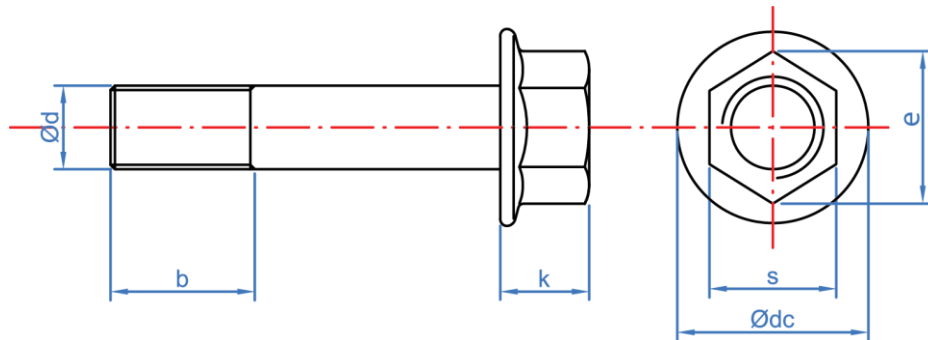


Hexagonal head



Metric

SIZE		M5	M6	M8	M10	M12
s: distance between faces	[mm]	8	10	13	17	19
k: head thickness	[mm]	5,4	6,6	8,10	9,2	11,5
e: distance between apexes	[mm]	8,71	10,95	14,26	16,50	17,62
Ødc: washer diameter	[mm]	11,8	14,2	18,0	22,3	26,6
b(min): thread length	[mm]	Full / 16 min	Full / 18 min	Full / 22 min	Full / 26 min	Full / 30 min
Torque wrench		8	10	13	17	19



# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

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## 2.9 DIN-912

## Allen bolt



### Properties



Steel



Zinc-plated coating

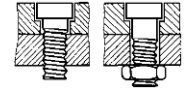
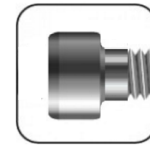


Plate fixings

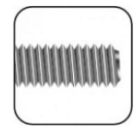
### Properties



Allen

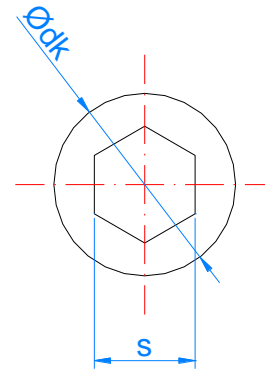
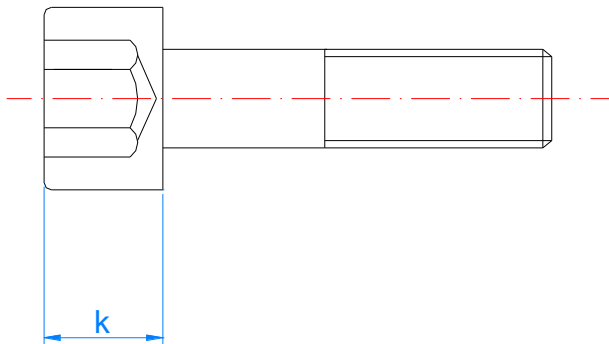


Cylindrical head



Metric

SIZE		M4	M5	M6	M8	M10	M12
s: distance between faces	[mm]	7	8,5	10	13	16	18
k: head thickness	[mm]	3	4	5	6	8	10
e: distance between apexes	[mm]	4	5	6	8	10	12
Torque wrench		Allen 3	Allen 4	Allen 5	Allen 6	Allen 8	Allen 10



# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

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## 2.10 DIN-603

## DIN-603 bolt and DIN-934 nut



### Properties



Steel



Zinc-plated coating

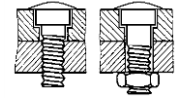
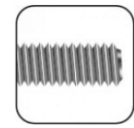


Plate fixings

### Properties

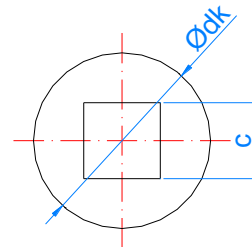
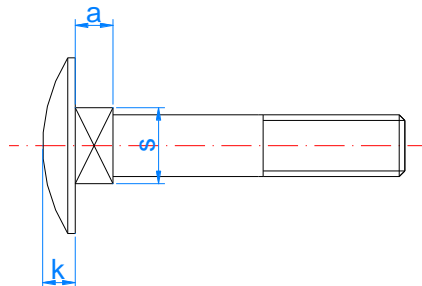


Rivet head



Metric

SIZE		M5	M6	M8	M10	M12
Ødk: head diameter	[mm]	13	16	20	24	30
k: head thickness	[mm]	3	3,5	4,5	5	6,5
a: square thickness	[mm]	3,5	4	5	6	8
s	[mm]	5	6,2	7,8	9,85	11,6
c	[mm]	5	6	8	10	12



# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

Date: **03/12/20**

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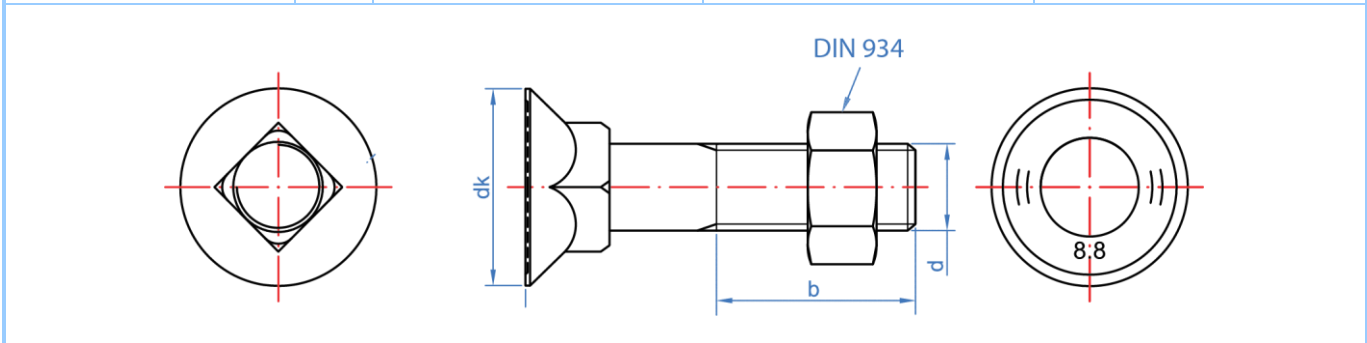
## 2.11 DIN-608

## DIN-608 Bolt and DIN-934 nut



Properties		
Steel	Yellow passivated	Plate fixings
Properties		
Countersunk head	Metric	

SIZE		M10	M10	M12
Ødk: head diameter	[mm]	19,5	21,5	23,5
b: thread length	[mm]	25	27	28,5
d: metric	[mm]	10	11	12



# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

Date: **03/12/20**

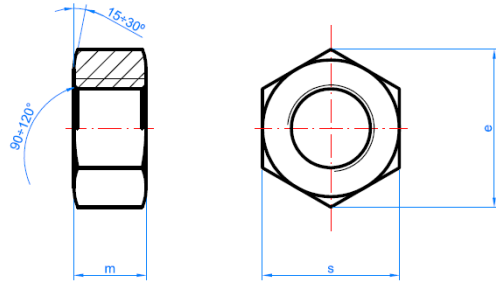
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## 2.11 DIN-934

### Hexagonal nut

#### Properties



Steel

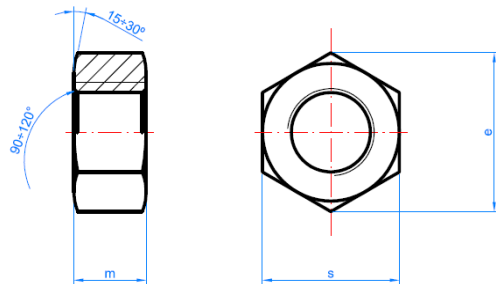
Zinc-plated coating

M	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36
s	5,5	7	8	10	13	17	19	22	24	27	30	32	36	41	46	50	55
e	6,0	7,7	8,8	11,1	14,4	18,9	21,1	24,5	26,8	29,6	32,9	35,0	39,6	45,2	50,9	55,4	60,8
m	2,4	3,2	4	5	6,5	8	10	11	13	15	16	18	19	22	24	26	29
Wrench	5,5	7	8	10	13	17	19	22	24	27	30	32	36	41	46	50	55

## 2.12 DIN-934 A2

### Stainless Steel A2 hexagonal nut

#### Properties



Steel

Stainless Steel A2 (AISI 304)

M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
s	7	8	10	13	17	19	22	24	27	30	32	36
e	7,7	8,8	11,1	14,4	18,9	21,1	24,5	26,8	29,6	32,9	35,0	39,6
m	3,2	4	5	6,5	8	10	11	13	15	16	18	19
Wrench	7	8	10	13	17	19	22	24	27	30	32	36

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

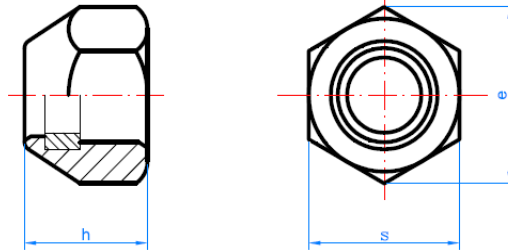
Date: **03/12/20**

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## 2.13 DIN-985

### Self-locking nut



#### Properties



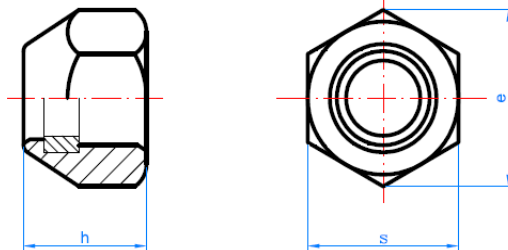
Steel

Zinc-plated coating

M	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
s	5,5	7	8	10	13	17	19	22	24	27	30	32	36	41	46
e	6,0	7,7	8,8	11,1	14,4	18,9	21,1	24,5	26,8	29,6	32,9	35,0	38,6	45,2	50,9
h	4	5	5	6	8	10	12	14	16	18,5	20	22	24	27	30
Wrench	5,5	7	8	10	13	17	19	22	24	27	30	32	36	41	46

## 2.14 DIN-985 A2

### Stainless Steel A2 self-locking nut



#### Properties



Steel

Stainless Steel A2  
(AISI 304)

M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
s	7	8	10	13	17	19	22	24	27	30	32	36
e	7,7	8,8	11,1	14,4	18,9	21,1	24,5	26,8	29,6	32,9	35,0	38,6
h	5	5	6	8	10	12	14	16	18,5	20	22	24
Wrench	7	8	10	13	17	19	22	24	27	30	32	36

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**


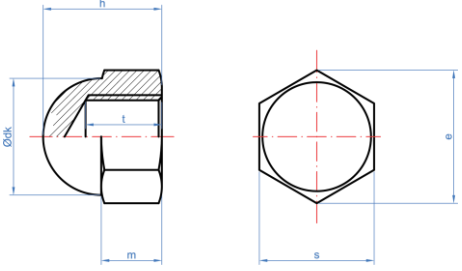


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## 2.15 DIN-1587


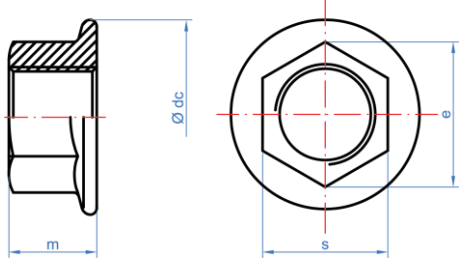


### Cup nut

		Properties	
		 <p>Steel</p>	 <p>Zinc-plated coating</p>

M	M4	M5	M6	M8	M10	M12	M14	M16
s	7	8	10	13	17	19	22	24
e	7,7	8,8	11,1	14,4	18,9	21,1	24,5	26,8
h	8	10	12	15	18	22	25	28
m	3	4	5	6,5	8	10	11	13
t	5,5	7,5	8	11	13	16	18	21
Ødk	6,5	7,5	9,5	12,5	16	18	21	23
Wrench	7	8	10	13	17	19	22	24

## 2.16 DIN-6923

### Hexagonal flange nut with serration

		Properties	
		 <p>Steel</p>	 <p>Zinc-plated coating</p>

M	M4	M5	M6	M8	M10	M12	M14	M16
s	7	8	10	13	15	18	21	24
e	7,7	8,8	11,1	14,4	18,9	21,1	24,5	26,8
m	4,5	5	6	8	10	12	14	16
ØdC	10	11,8	14,2	17,9	21,8	26	29,9	34,5
Wrench	7	8	10	13	17	19	22	24

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**


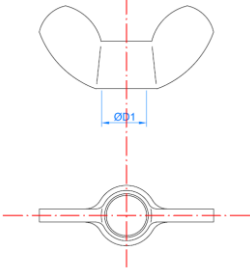


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## 2.17 TU-MA

### Wing nut

				Properties					
				 Steel			 Zinc-plated coating		
M	M3	M4	M5	M6	M8	M10	M12	M14	M16
Ød1: interior diameter	M3	M4	M5	M6	M8	M10	M12	M14	M16

## 2.18 DIN-125

### Flat washer

				Properties													
				 Steel							 Zinc-plated coating						
M	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36
Ød1: interior diameter	3,3	4,3	5,3	6,4	8,4	10,5	13,0	15,0	17,0	19,0	21,0	23,0	25,0	28,0	31,0	34,0	37,0
Ød2: exterior diameter	7	9	10	12	16	20	24	28	30	34	37	39	44	50	56	60	66
h: thickness	0,8	0,8	1	1,6	1,6	2	2,5	2,5	3	3	3	3	4	4	4	5	5

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

Date: **03/12/20**

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## 2.19 DIN-125 A2

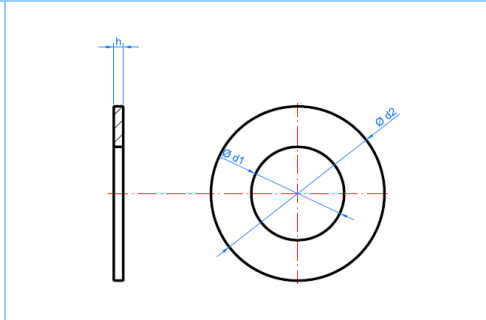
### Stainless Steel A2 flat washer

Properties



Steel

Stainless Steel A2  
(AISI 304)



M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Ød1: interior diameter	4,3	5,3	6,4	8,4	10,5	13,0	15,0	17,0	19,0	21,0	23,0	25,0
Ød2: exterior diameter	9	10	12	16	20	24	28	30	34	37	39	44
h: thickness	0,8	1	1,6	1,6	2	2,5	2,5	3	3	3	3	4

## 2.20 DIN-127

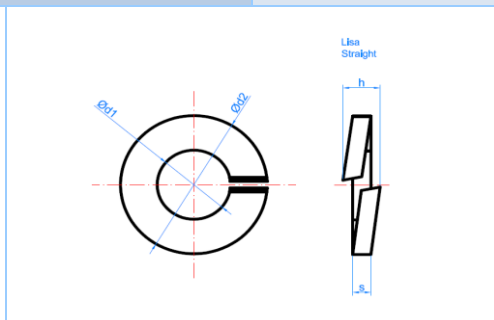
### Grower spring washer

Properties



Steel

Zinc-plated coating



M	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M36
Ød1: interior diameter	3,1	4,1	5,1	6,1	8,1	10,2	12,2	14,2	16,2	18,2	20,2	22,5	24,5	27,5	30,5	36,5
Ød2: exterior diameter	6,2	7,6	9,2	11,8	14,8	18,1	21,1	24,1	27,4	29,4	33,6	35,9	40	43	48,2	58,2
h: smooth width	1,8	2	2,6	3,3	4,3	4,8	5,4	6,5	7,6	7,7	8,7	8,7	10,9	10,9	13,1	13,1
s: thickness	0,8	0,9	1,2	1,6	2	2,2	2,5	3	3,5	3,5	4	4	5	5	6	6

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

Date: **03/12/20**

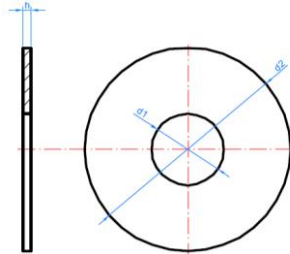
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## 2.21 DIN-9021

### Wide flat washer

#### Properties



Steel

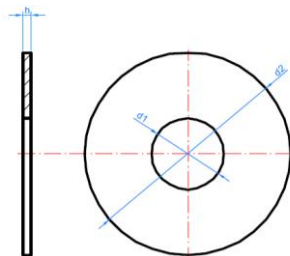
Zinc-plated coating

M	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
∅d1: interior diameter	3,2	4,3	5,3	6,4	8,4	10,5	13,0	15,0	17,0	20,0	22,0	24,0	26,0
∅d2: exterior diameter	9	12	15	18	24	30	37	44	50	56	60	66	72
h: thickness	0,8	1	1,2	1,6	2	2,5	3	3	3	4	4	5	5

## 2.22 DIN-9021

### Stainless steel wide flat washer

#### Properties



Steel

Stainless Steel A2 (AISI 304)

M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
∅d1: interior diameter	4,3	5,3	6,4	8,4	10,5	13,0	15,0	17,0	20,0	22,0	24,0	26,0
∅d2: exterior diameter	12	15	18	24	30	37	44	50	56	60	66	72
h: thickness	1	1,2	1,6	2	2,5	3	3	3	4	4	5	5

# METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

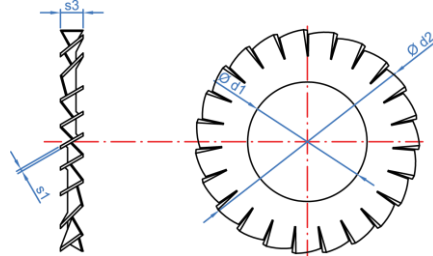
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## 2.23 DIN-6798

## Serrated lock washer external teeth



### Properties



Steel



Stainless Steel A2  
(AISI 304)

M	M3	M4	M5	M6	M8	M10	M12	M14	M16
Ød1: interior diameter	3,2	4,3	5,3	6,4	8,4	10,5	13	15	17
Ød2: exterior diameter	6	8	10	11	15	18	20,5	24	26
s1: thickness	0,4	0,5	0,6	0,7	0,8	0,9	1	1	1,2
s3: width	~3*s1								

## METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

Date: **03/12/20**

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### 3. TORQUE FOR BOLTS

For steel bolts and nuts the standard UNE 17-108-81 establishes specific parameters for correct installation.

This standard is aimed to indicate the torque value needed in order to install, with dynamometric tools that don't produce any vibrations nor impacts, the standard Steel bolt range, on rigid supports and only demanded by axial with constant value.

For joints between zinc plated materials, the coefficient of friction established by this standard is  $\mu=0,14$ . Torque moments for each size are specified in the table below.

#### TORQUE [da N·m] (con $\mu=0,14$ )

ITEM	SIZE										
	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
T084											
T963											
T965	0,063	0,14	0,29	0,49	1,2	2,4	4,1	6,5	10	14	19,5
T985											
D603											
D931											
D933	0,12	0,27	0,54	0,93	2,2	4,5	7,7	12,5	19	27	38
D6921											
D912											
D933 (A2)*	0,16	0,38	0,78	1,30	2,6	4,5	7,7	--	15,6	--	--

\* These values are an approximation and always depend on the nut and bolt having the proper lubrication.

## METRIC THREAD BOLTS

Denomination: **METRIC THREAD BOLTS**

Codes: : T084, T963, T965, T985, D931, D933, D933I, D6921 D912, D603, D608, D934, D934I, D985, D985I, D1587, D6923, D315, D125, D125I, D127, D9021, D9021I, D6798A

Reference: **FT MET-en**

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### 4. RESISTANCES

The standard ISO-898-1 “Mechanical properties of fasteners made of carbon steel and alloy steel” establishes the values for minimum ultimate tensile loads.

According to table 6 of the mentioned standard the values shown below correspond to the previous bolts of the datasheet.

The shear values are the same as 50% of the tensile values.

#### MINIMUM ULTIMATE TENSILE LOAD [kN] ( $A_{s,nom} \times R_{m,min}$ )

ITEM	SIZE										
	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
T084	2,11	3,69	5,96	8,44	15,40	24,40	35,40	48,30	65,90	80,60	103,00
T963											
T965											
T985											
D603											
D608	4,02	7,02	11,35	16,1	29,2	46,4	67,4	92,00	125,00	159,00	203,00
D931											
D933											
D6921											
D912											
D933 (A2)	3,52	6,15	9,94	14,07	20,23	25,62	40,60	59,01	80,50	109,90	134,40

#### MINIMUM ULTIMATE SHEAR LOAD [kN] ( $A_{s,nom} \times R_{m,min} \times 0,5$ )

ITEM	SIZE										
	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
T084	1,06	1,85	2,98	4,22	7,70	12,20	17,70	24,15	32,95	40,30	51,50
T963											
T965											
T985											
D603											
D608	2,01	3,51	5,68	8,05	14,60	23,20	33,70	46,00	62,50	79,50	101,50
D931											
D933											
D6921											
D912											
D933 (A2)	1,76	3,07	4,97	7,04	10,12	12,81	20,30	29,51	40,25	54,95	67,20