

BS EN 6129:2016



BSI Standards Publication

# **Aerospace series — Blind bolt, protruding head, high strength, pulltype**

**National foreword**

This British Standard is the UK implementation of EN 6129:2016.

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EUROPEAN STANDARD

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English Version

**Aerospace series - Blind bolt, protruding head, high strength, pulltype**Série aérospatiale - Boulon aveugle, tête protubérante,  
haute résistance, installation en tirantLuft- und Raumfahrt - Blindniet, Universalkopf,  
hochfest (Zugtyp)

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## European foreword

This document (EN 6129:2016) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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## 1 Scope

This standard specifies the configuration, dimension, tolerances and mass of a stainless steel blind bolt with protruding head, for aerospace application.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2424, *Aerospace series — Marking of aerospace products*

EN 4473, *Aerospace series — Aluminium pigmented coatings for fasteners — Technical specification*<sup>1)</sup>

AS 5272, *Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting Procurement Specification*<sup>2)</sup>

SAE AMS 5687, *Nickel Alloy, Corrosion and Heat-Resistant, Wire 74Ni — 15,5Cr — 8,0Fe — Annealed*<sup>2)</sup>

SAE AMS 5737, *Steel, corrosion and heat-resistant, bars, wire, forgings and tubing 15Cr — 25.5Ni — 1.2Mo — 2.1Ti — 0.006B — 0.30V, consumable electrode melted, 1650 °F (899 °C), solution and precipitation heat treated*<sup>2)</sup>

AMS-QQ-P-35, *Passivation treatments for Corrosion-Resistant Steel*<sup>2)</sup>

MIL-PRF-46010F, *Lubricant, Solid Film, Heat cured, Corrosion Inhibiting NATO Code-S-1738*<sup>3)</sup>

SAE AS 87132, *Lubricant, Cetyl Alcohol, 1- Hexadecanol, Application to fasteners*<sup>3)</sup>

DOD-L-85645, *Lubricant, Dry Thin Film, Molecular Bonded*<sup>3)</sup>

NASM 8975, *Fasteners, Blind, High Strength, Installation Formed, Corrosion Resistant Steel, Heat Resistant Steel and Titanium, General Specification for*<sup>4)</sup>

## 3 Requirements

### 3.1 Configuration, dimensions and tolerances

The configuration, dimensions, tolerances, static and dynamic values shall conform to Figures 1 and 2 and Tables 1 and 2.

### 3.2 Grip range and weight

See Tables 3 and 4.

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<sup>1)</sup> Published as AECMA Prestandard at the date of publication of this standard.

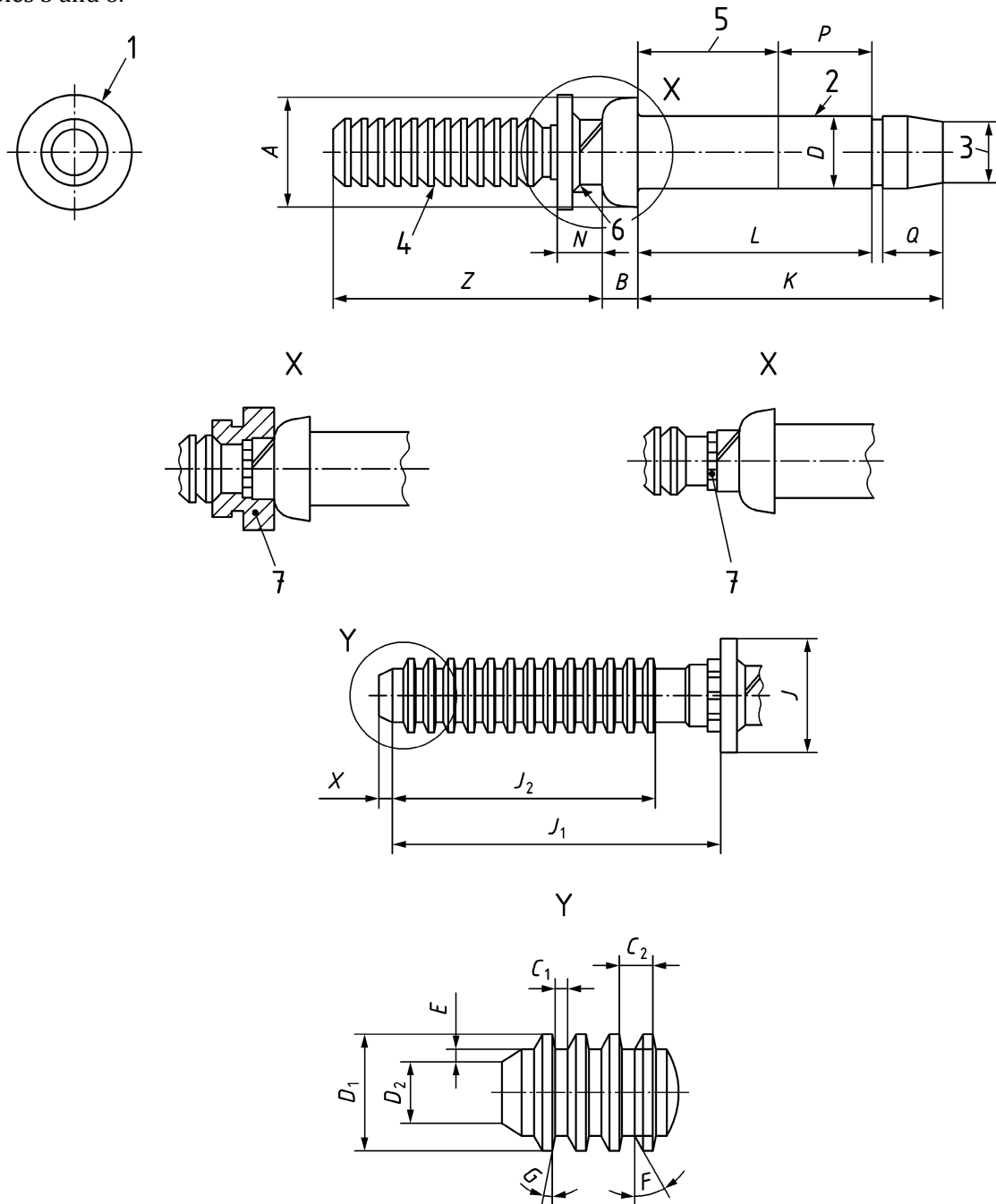
<sup>2)</sup> Published by: Society of Automotive Engineers (SAE), 400 Commonwealth drive, Warrendale, PA 15096-0001, USA.

<sup>3)</sup> Published by: Department of Defense (DoD), the Pentagon, Washington, D.C. 20301, USA.

<sup>4)</sup> Published by: Aerospace Industries Association of America, Inc. (AIA), 1250 Eye Street, N.W., Washington, D.C. 20005-3924, USA.

### 3.3 Material, finish, lubrication

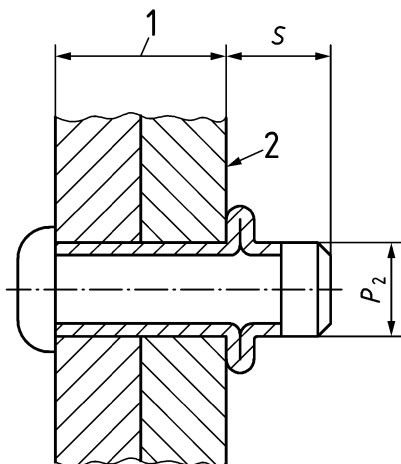
See Tables 5 and 6.



#### Key

- |   |   |   |   |
|---|---|---|---|
| 1 | Marking, see clause 5.  | 5 | Grip  |
| 2 | Sleeve shall not rotating.  | 6 | Locking collar  |
| 3 | Diameter of serrated pin head shall not exceed $\varnothing D$ max. | 7 | Shifting anvil: Fasteners are supplied with shifting anvil of manufacturer's option. The shifting anvil is not part of the installed fastener |
| 4 | Serrated pin  |   |   |

Figure 1 — Configuration - Dimensions



**Key**

- 1 Grip
- 2 Blind side head may be installed on 7° max. slope

**Figure 2 — Typical installation**

**Table 1 — Dimensions and tolerances**

Dimensions in mm (inch)

Diameter code	∅ A Theor.		B Ref.		∅ D	∅ J	N	Q	∅ D <sub>1</sub>	∅ D <sub>2</sub>	p <sup>a</sup>	∅ P <sub>2</sub>
	min.	max.	min.	max.	±0,03 (±.001)	±0,13 (±.005)	±0,25 (±.010)	±0,13 (±.005)	max.	max.	max.	min.
<b>05</b>	7,52 (.296)	8,33 (.328)	1,70 (.067)	1,96 (.077)	4,14 (.163)	9,53 (.375)	3,99 (.157)	1,70 (.067)	3,05 (.120)	2,16 (.085)	7,62 (.300)	5,49 (.216)
<b>06</b>	9,04 (.356)	10,01 (.394)	2,03 (.080)	2,29 (.090)	5,03 (.198)	9,53 (.375)	4,45 (.175)	2,21 (.087)	3,81 (.150)	2,79 (.110)	8,13 (.320)	6,86 (.27)
<b>08</b>	12,07 (.475)	13,34 (.525)	2,72 (.107)	2,97 (.117)	6,58 (.259)	9,53 (.375)	4,62 (.182)	2,79 (.110)	4,83 (.190)	3,66 (.144)	9,40 (.370)	8,89 (.35)

Diameter code	R	S Ref.	Z	J <sub>1</sub>	J <sub>2</sub>	X	E	C <sub>1</sub> Ref.	C <sub>2</sub>	F	G	Hole limits	
	max.		min.	±0,76 (±.030)	±0,76 (±.030)	max.	min.		±0,05 (±.002)	±5°	±5°	min.	max.
<b>05</b>	0,25 (.010)	5,84 (.232)	21,44 (.844)	15,14 (.596)	14,91 (.587)	2,54 (.100)	0,13 (.005)	3,30 (.130)	0,80 (.032)	45°	30°	4,17 (.164)	4,24 (.167)
<b>06</b>	0,38 (.015)	7,42 (.292)	22,23 (.875)	15,62 (.615)	15,37 (.605)	3,30 (.130)	0,13 (.005)	3,30 (.130)	0,80 (.032)	45°	30°	5,06 (.199)	5,13 (.202)
<b>08</b>	0,51 (.020)	9,17 (.361)	25,40 (1.000)	18,42 (.725)	16,97 (.668)	3,81 (.150)	0,13 (.005)	3,30 (.130)	0,80 (.032)	45°	30°	6,60 (.260)	6,68 (.263)

<sup>a</sup> In the length P of ∅ D may be 0,05 mm (.002) undersize.



**Table 2 — Static values**

Dimensions in kN (lbs)

Diameter code	Installed strength			
	Single shear	Tensile strength	Tensile preload	Spindle retention
	min.	min.	min.	min.
<b>05</b>	8,811 (1980)	5,117 (1150)	0,512 (115)	2,558 (575)
<b>06</b>	13,016 (2925)	7,520 (1690)	0,752 (169)	3,760 (845)
<b>08</b>	22,250 (5000)	12,905 (2900)	1,29 (290)	6,408 (1440)

**Table 3 — Grip range (1 von 2)**

Dimensions in mm (inch)

Grip length code	Under lap		Grip range		Over lap 05 to 08 dia. max.	Diameter code					
	only 05 dia. min.	only 06 to 08 dia. min.	min.	max.		05		06		08	
						L Ref.	K max.	L Ref.	K max.	L Ref.	K max.
<b>01</b>	-	-	0,79 (.031)	2,44 (.096)	2,82 <sup>a</sup> (.111) <sup>a</sup>	7,19 (.283)	11,35 (.447)	-	-	-	-
<b>02</b>	2,13 (.084)	1,99 (.078)	2,39 (.094)	3,99 (.157)	4,39 (.173)	8,79 (.346)	12,95 (.51)	9,47 (.373)	14,48 (.57)	10,49 (.413)	16,76 (.66)
<b>03</b>	3,71 (.146)	3,56 (.14)	3,96 (.156)	5,59 (.220)	5,99 (.236)	10,37 (.408)	(14,53 (.572)	11,05 (.435)	16,05 (.632)	12,07 (.475)	18,34 (.722)
<b>04</b>	5,31 (.209)	5,16 (.203)	5,56 (.219)	7,16 (.282)	7,57 (.298)	11,97 (.471)	16,13 (.635)	12,65 (.498)	17,65 (.695)	13,67 (.538)	19,94 (.785)
<b>05</b>	6,88 (.271)	6,73 (.265)	7,14 (.281)	8,76 (.345)	9,17 (.361)	13,54 (.533)	17,70 (.697)	14,22 (.560)	19,23 (.757)	15,24 (.6)	21,51 (.847)
<b>06</b>	8,48 (.334)	8,33 (.328)	8,74 (.344)	10,34 (.407)	10,74 (.423)	15,14 (.596)	19,30 (.76)	15,82 (.623)	20,83 (.82)	16,84 (.663)	23,11 (.91)
<b>07</b>	10,06 (.396)	9,91 (.39)	10,31 (.406)	11,94 (.470)	12,34 (.486)	16,71 (.658)	20,88 (.822)	17,40 (.685)	22,40 (.882)	18,42 (.725)	24,69 (.972)
<b>08</b>	11,66 (.459)	11,51 (.453)	11,91 (.469)	13,51 (.532)	13,92 (.548)	18,29 (.72)	22,45 (.884)	19,00 (.748)	24,00 (.945)	20,02 (.788)	26,29 (1.035)
<b>09</b>	13,23 (.521)	13,08 (.515)	13,49 (.531)	15,11 (.595)	15,52 (.611)	19,86 (.782)	24,03 (.946)	20,57 (.81)	25,58 (1.007)	21,59 (.85)	27,86 (1.097)
<b>10</b>	14,83 (.584)	14,68 (.578)	15,09 (.594)	16,69 (.657)	17,09 (.673)	21,46 (.845)	25,63 (1.009)	22,17 (.873)	27,18 (1.07)	23,19 (.913)	29,46 (1.16)
<b>11</b>	16,41 (.646)	16,26 (.64)	16,66 (.656)	18,29 (.720)	18,69 (.736)	23,06 (.908)	27,23 (1.072)	23,77 (.936)	28,78 (1.133)	24,79 (.976)	31,06 (1.223)
<b>12</b>	18,01 (.709)	17,86 (.703)	18,26 (.719)	19,86 (.782)	20,27 (.798)	24,64 (.970)	28,80 (1.134)	25,35 (.998)	30,35 (1.195)	26,37 (1.038)	32,64 (1.285)
<b>13</b>	19,58 (.771)	19,43 (.765)	19,84 (.781)	21,46 (.845)	21,87 (.861)	26,24 (1.033)	30,40 (1.197)	26,95 (1.061)	31,95 (1.258)	27,97 (1.101)	34,24 (1.348)

Table 3 — Grip range (2 von 2)

Dimensions in mm (inch)

Grip length code	Under lap		Grip range		Over lap	Diameter code					
	only 05 dia.	only 06 to 08 dia.	min.	max.	05 to 08 dia. max.	05		06		08	
	min.	min.				L Ref.	K max.	L Ref.	K max.	L Ref.	K max.
14	21,184 (.834)	21,03 (.828)	21,44 (.844)	23,04 (.907)	23,44 (.923)	27,81 (1.095)	31,98 (1.259)	28,52 (1.123)	33,53 (1.32)	29,54 (1.163)	35,81 (1.41)
15	22,76 (.896)	22,61 (.89)	23,01 (.909)	24,64 (.970)	25,04 (.986)	29,41 (1.158)	33,58 (1.322)	30,12 (1.186)	35,13 (1.383)	31,14 (1.226)	37,41 (1.473)
16	24,36 (.959)	24,21 (.953)	24,61 (.969)	26,21 (1.032)	26,65 (1.049)	30,99 1.220	35,15 1.384	31,70 (1.248)	36,70 (1.445)	32,72 (1.288)	38,99 (1.535)
17	-	25,81 (1.016)	26,19 (1.031)	27,81 (1.095)	28,22 (1.111)	-	-	33,30 (1.311)	38,30 (1.508)	34,32 (1.351)	40,59 (1.598)
18	-	27,38 (1.078)	27,79 (1.094)	29,39 (1.157)	29,79 (1.173)	-	-	34,87 (1.373)	39,88 (1.570)	35,89 (1.413)	42,16 (1.660)
19	-	28,98 (1.141)	29,36 (1.156)	30,99 (1.220)	31,39 (1.236)	-	-	36,45 (1.435)	41,48 (1.633)	37,49 (1.476)	43,76 (1.723)
20	-	30,56 (1.203)	30,96 (1.219)	32,56 (1.282)	32,97 (1.298)	-	-	38,05 (1.498)	43,05 (1.695)	39,07 (1.538)	45,34 (1.785)
21	-	32,13 (1.265)	32,54 (1.281)	34,16 (1.345)	34,54 (1.360)	-	-	39,62 (1.560)	44,65 (1.758)	40,67 (1.601)	46,94 (1.848)
22	-	33,73 (1.328)	34,14 (1.344)	35,74 (1.407)	36,14 (1.423)	-	-	41,22 (1.623)	46,23 (1.820)	42,24 (1.663)	48,51 (1.910)
23	-	35,31 (1.390)	35,71 (1.406)	37,34 (1.470)	37,72 (1.485)	-	-	42,80 (1.685)	47,83 (1.883)	43,84 (1.726)	50,11 (1.973)
24	-	36,91 (1.453)	37,31 (1.469)	38,91 (1.532)	39,32 (1.548)	-	-	44,40 (1.748)	49,40 (1.945)	45,42 (1.788)	51,69 (2.035)
25	-	40,01 (1.575)	38,89 (1.531)	40,51 (1.595)	40,89 (1.610)	-	-	45,97 (1.810)	51,00 (2.008)	47,02 (1.851)	53,29 (2.098)

<sup>a</sup> Only for 05 dia.

**Table 4 — Weight**

Weight in kg (lbs) /1000 parts.

Grip length code	Diameter code		
	05	06	08
01	1,23 (2.72)	-	-
02	1,39 (3.06)	2,28 (5.02)	4,89 (10.78)
03	1,56 (3.43)	2,53 (5.57)	5,32 (11.73)
04	1,72 (3.80)	2,77 (6.11)	5,75 (12.68)
05	1,89 (4.17)	3,02 (6.66)	6,19 (13.64)
06	2,06 (4.55)	3,27 (7.21)	6,62 (14.59)
07	2,23 (4.92)	3,52 (7.75)	7,05 (15.54)
08	2,40 (5.29)	3,77 (8.30)	7,48 (16.49)
09	2,57 (5.67)	4,01 (8.85)	7,92 (17.45)
10	2,74 (6.04)	4,26 (9.39)	8,35 (18.40)
11	2,91 (6.41)	4,51 (9.94)	8,78 (19.35)
12	3,08 (6.79)	4,75 (10.48)	9,21 (20.30)
13	3,25 (7.16)	5,00 (11.02)	9,64 (21.25)
14	3,42 (7.54)	5,25 (11.57)	10,07 (22.20)
15	3,59 (7.91)	5,49 (12.11)	10,50 (23.15)
16	-	5,74 (12.65)	10,93 (24.10)
17	-	5,98 (13.19)	11,36 (25.05)
18	-	6,23 (13.73)	11,79 (26.00)
19	-	6,47 (14.27)	12,22 (26.95)
20	-	6,72 (14.81)	12,66 (27.90)
21	-	6,96 (15.35)	13,09 (28.85)
22	-	7,21 (15.89)	13,52 (29.80)
23	-	7,45 (16.43)	13,95 (30.75)
24	-	7,70 (16.97)	14,38 (31.70)
25	-	7,94 (17.51)	14,81 (32.65)

**Table 5 — Material, finish, lubrication**

Material/ Finish code	Material			Finish			Lubrication
	Sleeve	Serrated pin	Locking collar	Sleeve	Serrated pin	Locking collar	
C	A-286 Cres per AMS 5737	A-286 Cres per AMS 5737	A-286 Cres per AMS 5737;	See Table 6.	Passivated per AMS-QQ-P-35	Passivated per AMS-QQ-P-35	a
			316 Cres per AMS 5690 or Inconel per AMS 5687			None	

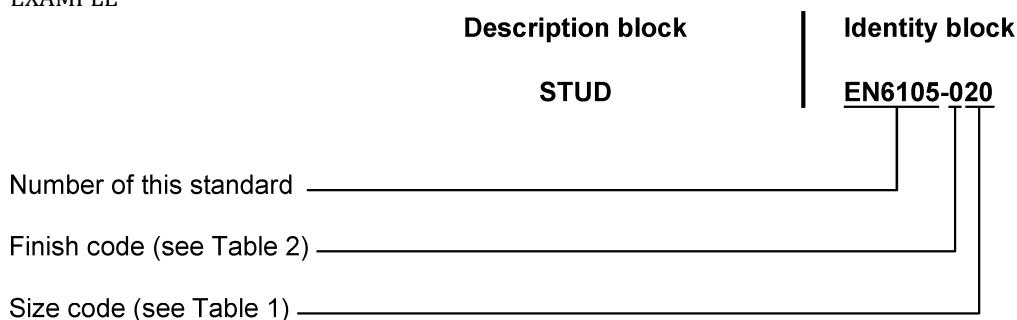
<sup>a</sup> If lubricated, pin and/or collar shall be lubricated per AS5272 Type 1, MIL-L-46010 Type 1 or 3, MIL-L-87132 or DOD-L-85645.

**Table 6 — Sleeve finish codes**

Code	Material	Finish
P	A-286-Cres	Passivated per AMS-QQ-P-35
H		Aluminium coated (Hi-Kote1) per EN 4473

#### 4 Designation

EXAMPLE



#### 5 Marking

Marking as per EN 2424 style B on rivet head (EN Standard Number, grip length code and manufacturer's identification required). Instead of the EN Standard Number, the manufacturer's material code or part number shall be permissible.

Single digit marking is permissible for grip length code less than 10.

Shifting anvil and / or serrated pin shall be in red.

#### 6 Technical specification

See NASM 8975 except strength requirements as defined in Table 2.



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