Appendix B: Bar shapes (BS 8666:2020)

Table B1: Bar shapes (BS 8666:2020)

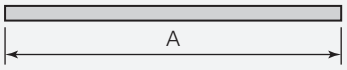
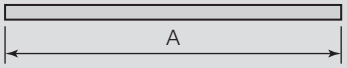
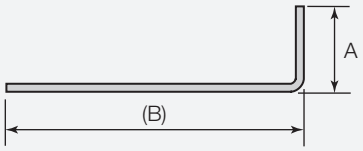
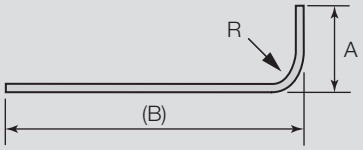
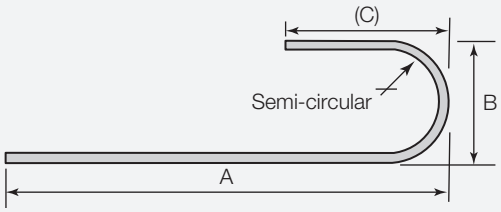
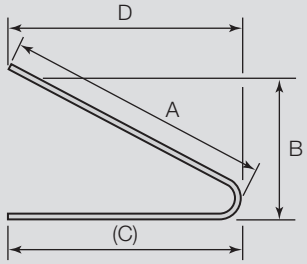
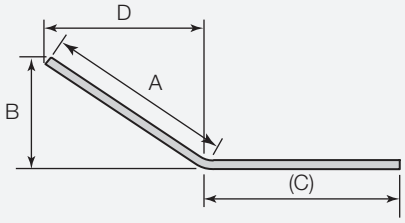
Shape Code	Shape	Total length of bar *L* measured along centreline
00		A
01		A Stock lengths See Note 4
11		A + (B) − 0.5r − d Neither A nor B shall be less than P in Table C1.
12		A + (B) − 0.43R − 1.2d Neither A nor B shall be less than (R + d) + greater of 5d or 90mm
13		A + 0.57B + (C) − 1.6d Neither A nor C shall be less than B/2 + greater of 5d or 90mm B shall not be less than q in Table C1. B shall not exceed 400 + 2d
14		A + (C) Neither A nor (C) shall be less than P in Table C1. See Note 1.
15		A + (C) Neither A nor (C) shall be less than P in Table C1. See Note 1.

Table B1: *Continued*

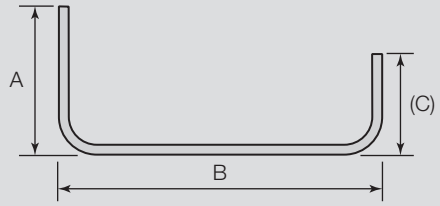
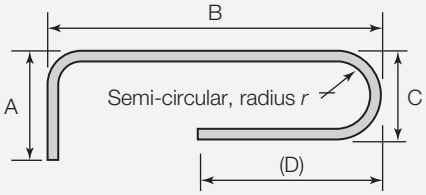
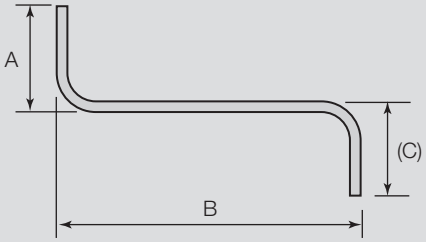
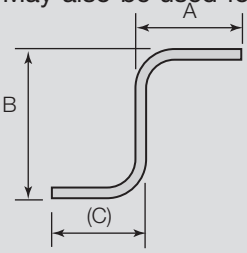
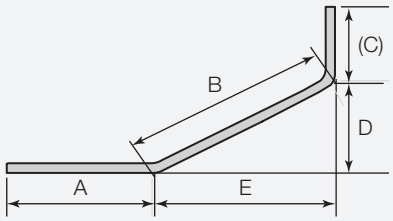
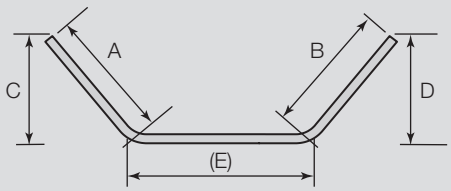
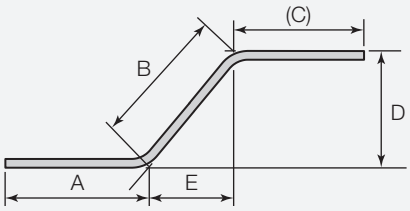
Shape Code	Shape	Total length of bar *L* measured along centreline
21		A + B + (C) − r − 2d Neither A nor (C) shall be less than P in Table C1.
22		A + B + 0.57C + (D) − 0.5r − 2.6d Neither A nor (D) shall be less than P in Table C1. C shall not be less than q in Table C1. C shall not exceed 400mm + 2d D must not be less than C/2 + greater of 5d or 90mm
23		A + B + (C) − r − 2d May also be used for as a Z bar:  Neither A nor (C) shall be less than P in Table C1.
24		A + B + (C) Neither A nor (C) shall be less than P in Table C1. A and C are at 90° to one another. See Note 1.
25		A + B + (E) Neither A nor B shall be less than P in Table C1. If (E) is the critical dimension, schedule a 99 and specify A or B as the free dimension. If bend angles approach 90° schedule as a Shape Code 99. See Note 1.
26		A + B + (C) Neither A nor (C) shall be less than P in Table C1. See Note 1.

Table B1: *Continued*

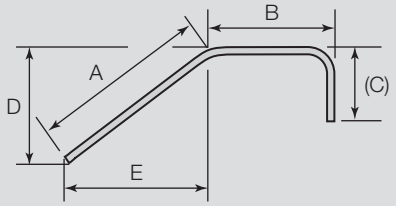
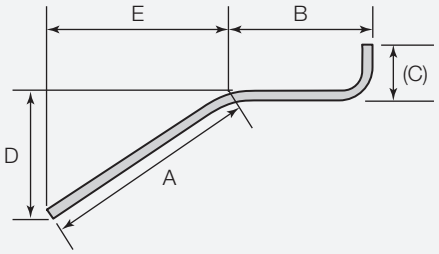
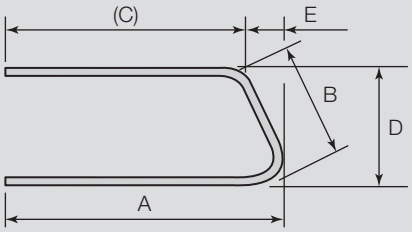
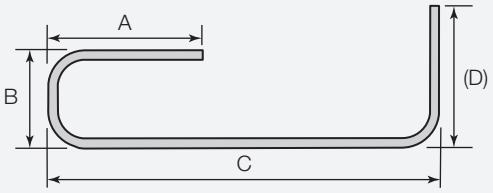
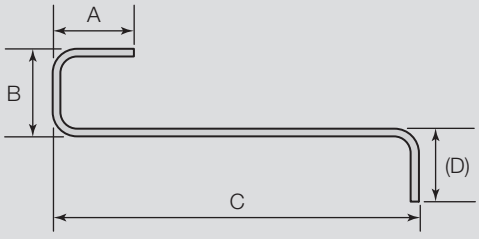
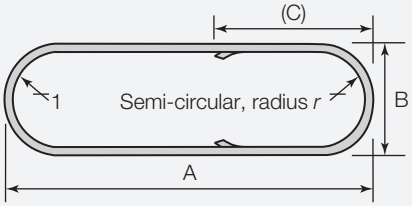
Shape Code	Shape	Total length of bar *L* measured along centreline
27		A + B + (C) − 0.5r − d Neither A nor (C) shall be less than P in Table C1. See Note 1.
28		A + B + (C) − 0.5r − d Neither A nor (C) shall be less than P in Table C1. See Note 1.
29		A + B + (C) Neither A nor (C) shall be less than P in Table C1. See Note 1.
31		A + B + C + (D) − 1.5r − 3d Neither A nor (C) shall be less than P in Table C1.
32		A + B + C + (D) − 1.5r − 3d Neither A nor (C) shall be less than P in Table C1.
33		2A + 1.7B + 2(C) − 4d A shall not be less than 12d + 30mm. B shall not be less than q in Table C1. B should not exceed 400mm + 2d C must not be less than B/2 + greater of 5d or 90mm

Table B1: *Continued*

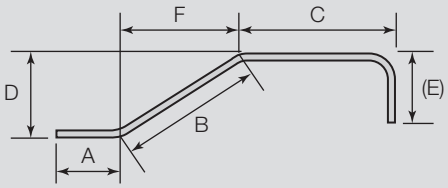
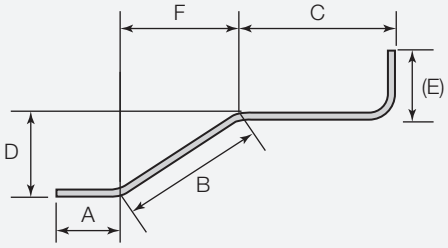
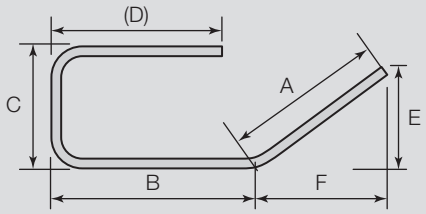
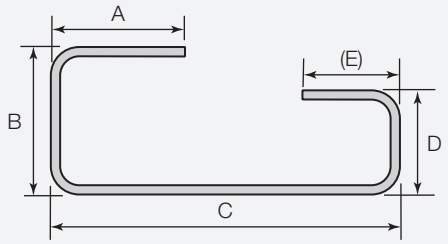
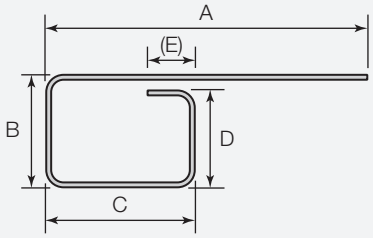
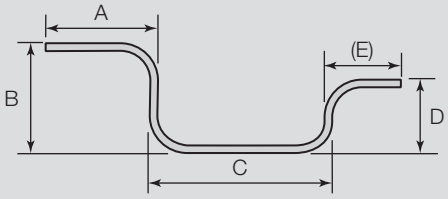
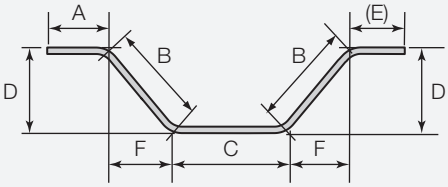
Shape Code	Shape	Total length of bar *L* measured along centreline
34		A + B + C + (E) − 0.5r − d Neither A nor (E) shall be less than P in Table C1. See Note 1.
35		A + B + C + (E) − 0.5r − d Neither A nor (E) shall be less than P in Table C1. See Note 1.
36		A + B + C + (D) − r − 2d Neither A nor (D) shall be less than P in Table C1. See Note 1.
41		A + B + C + D + (E) − 2r − 4d Neither A nor (E) shall be less than P in Table C1. May also be used for flag link: 
44		A + B + C + D + (E) − 2r − 4d Neither A nor (E) shall be less than P in Table C1.
46		A + 2B + C + (E) Neither A nor (E) shall be less than P in Table C1. See Note 1.

Table B1: *Continued*

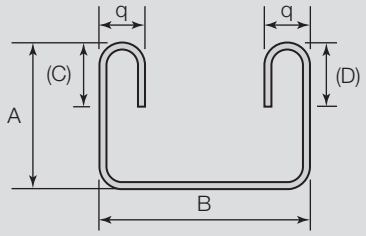
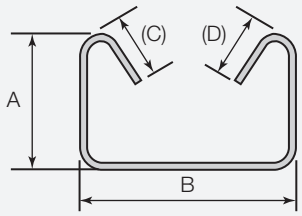
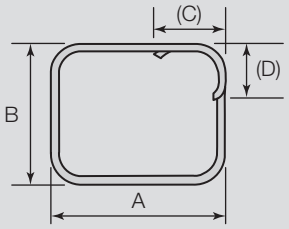
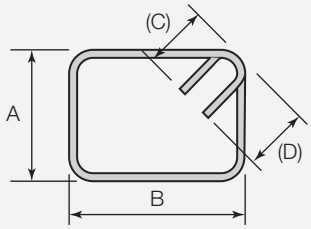
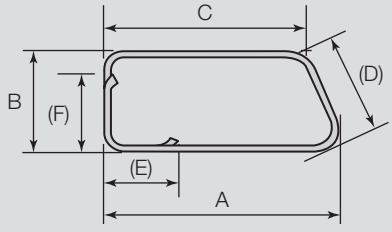
Shape Code	Shape	Total length of bar *L* measured along centreline
47		2A + B + 2(C) + 2q − r − 3r − 6d (C) and (D) shall be equal and not more than A, nor less than P in Table C1.
48		2A + B + 2(C) − r − 2d (C) and (D) shall be equal and not more than A, nor less than P in Table C1.
51		2(A + B + (C)) − 2.5r − 5d (C) and (D) shall be equal and not more than A or B, nor less than P in Table C1. Where (C) and (D) are to be minimised the following formula may be used: For bar sizes ≤16mm: L = 2A + 2B + max. (16d, 160) For bar sizes ≥20mm: L = 2A + 2B + 15d
52		2(A + B) + 2(C) − 1.5r − 3d (C) and (D) shall be equal and not more than B nor less than P in Table C1. Where (C) and (D) are to be minimised the following formula may be used: For bar sizes ≤16mm: L = 2A + 2B + max. (20d, 180) For bar sizes ≥20mm: L = 2A + 2B + 21d
56		A + B + C + D + 2(E) − 1.5r − 3d (E) and (F) shall be equal and not more than A or B, nor less than P in Table C1. See Note 1.

Table B1: *Continued*

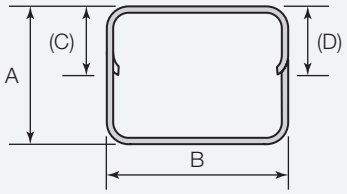
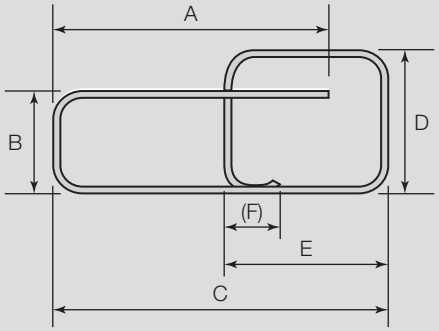
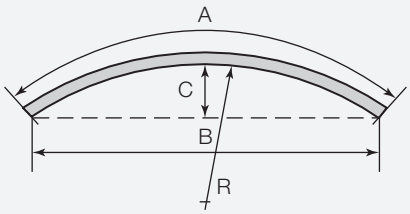
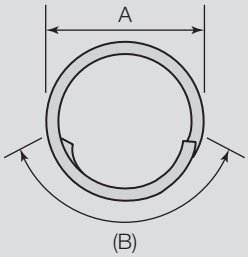
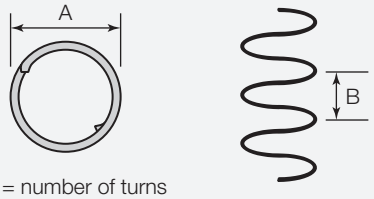
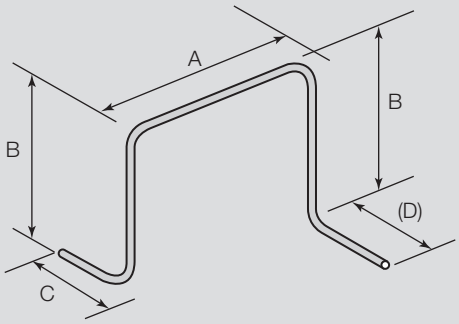
Shape Code	Shape	Total length of bar *L* measured along centreline
63		2A + 3B + 2(C) − 3r − 6d (C) and (D) shall be equal and not more than A, nor less than P in Table C1. Where (C) and (D) are to be minimised the following formula may be used: For bar sizes ≤16mm: L = 2A + 3B + max. (14d, 140) For bar sizes ≥20mm: L = 2A + 3B + 13d
64		A + B + C + 2D + E + (F) − 3r − 6d Neither A nor (F) shall be less than P in Table C1.
67		A See Table C3.
75		π(A − d) + B Where B is the lap.
77	 Key: C = number of turns	Cπ(A − d) Where B is greater than A/5 this equation no longer applies, in which case the following formula may be used: $L = C((\pi(A - d))^2 + B^2)^{1/2}$

Table B1: *Continued*

Shape Code	Shape	Total length of bar *L* measured along centreline
98		A + 2B + C + (D) − 2r − 4d Isometric sketch. Neither C nor (D) shall be less than P in Table C1.
99–xx	All other shapes where standard shapes cannot be used. No other shape code, number, form of designation or abbreviation shall be used in scheduling. A dimensioned sketch shall be drawn over the dimension columns A to R. Every dimension shall be specified, and the dimension that is to allow permissible deviations shall be indicated in parentheses, otherwise the fabricator is free to choose which dimension shall allow for tolerance. Coupler 99s to be scheduled to the end of the rebar, excluding any coupler type. Coupler 99s may be scheduled to the end of the coupler when coupler type and style are known.	To be calculated. See Note 2.

Notes:

Unless specified otherwise all references to tables, are to tables in this *Manual*.

The values for minimum radius and end projection r and P respectively, as specified in Table C1, shall apply to all shape codes (Clause 7.6 of BS 8666).

The dimensions in parentheses are the free dimensions. If a shape in this table is required but a different dimension is to allow for the possible deviations, the shape shall be drawn out and given the Shape Code 99 and the free dimension shall be indicated in parentheses.

The minimum length of any straight between two bends shall be 4d (Figure 8 of BS 8666).

Figures 4–7 from BS 8666 should be used in the interpretation of bending dimensions.

1. The length equation for Shape Codes 14, 15, 24, 25, 26, 27, 28, 29, 34, 35, 36, 46 and 56 are approximate and where the bend angle is greater than 45°, or for Shape Codes 14, 29 and 56 with an acute angle, the bend angle is close to 90° or exceeds 135°, the length should be calculated more accurately allowing for the difference between the specified overall dimensions and the true length measured along the central axis of the bar.
2. Five beds or more might be impractical within permitted tolerances, unless agreed with the fabricator.
3. For shapes with straight and curved lengths (e.g. Shape Code 12) the largest practical mandrel size for the production of a continuous curve is 400mm. See also Clause 10 of BS 8666.
4. Stock lengths are available in a limited number of lengths (e.g. 6m, 12m, 14m). Dimension A for Shape Code 01 should be regarded as indicative and used for the purpose of calculating total length. Actual delivery should be by agreement with the supplier. See also the footnote to Table 5 of BS 8666.

Derived/adapted from BS 8666:2020.