

# PUBLICATION OF BRITISH STANDARD BS 8666:2000

Scheduling, dimensioning, bending and cutting  
of steel reinforcement for concrete



Important changes have taken place in the scheduling of reinforcement. A new British Standard, Specification for scheduling, dimensioning, bending and cutting of steel reinforcement for concrete, BS 8666:2000, came into effect on 15th April 2000. This replaces BS 4466:1989, which has been withdrawn. There are significant differences between the two standards, which can be summarised as follows:


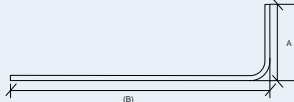

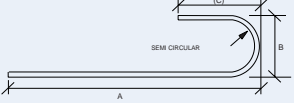
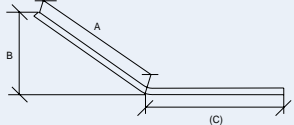
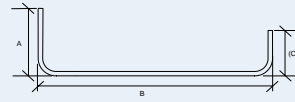
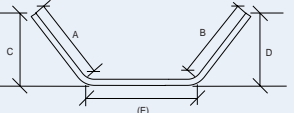
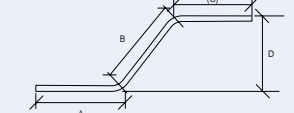
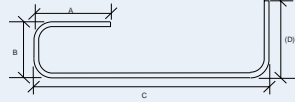
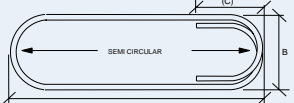
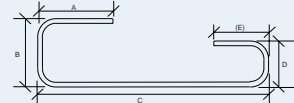
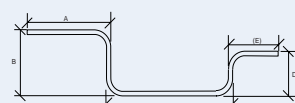
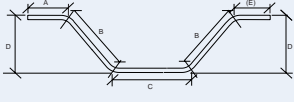
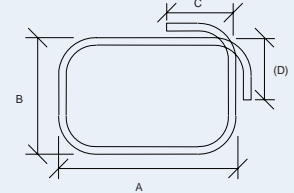
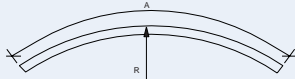

- **Notation** - changes in the designation of the type and grade of steel reinforcement
- **Shape Codes** - these are re-designated and reduced in number, from 27 to 16
- **Minimum bending former diameters** - these are generally reduced in size

Despite the issue of this new standard it is clear that BS 8666 and BS 4466 will run in parallel for some time and reinforcement fabricators will be expected to process orders according to both. You can, however, be assured that CARES approved reinforcement fabricators who operate an approved management system for quality, will ensure that your order requirements are fulfilled in full compliance with the required British Standard.

For ease of reference the shape codes from BS 4466:1989 and BS-8666:2000 are shown overleaf. Should you have any queries regarding the use of this standard, how it differs in detail or how it should be used in practice then please contact your CARES approved reinforcement fabricator. Alternatively contact CARES directly or visit our website: [www.ukcares.com](http://www.ukcares.com)

# BS 8666:2000:Standard Shapes

## Shape and total length of bar (L) measured along centre-line

<p><b>00</b></p>  <p>Total length (L) = A</p>	<p><b>11</b></p>  <p>Total length (L) = A + (B) - 1 1/2r - d</p>	<p><b>12</b></p>  <p>Total length (L) = A + (B) - 1/2R - d</p>
<p><b>13</b></p>  <p>Total length (L) = A + 0.57B + (C) - 1.57d</p>	<p><b>15</b></p>  <p>Total length (L) = A + (C)</p>	<p><b>21</b></p>  <p>Total length (L) = A + B + (C) - r - 2d</p>
<p><b>25</b></p>  <p>Total length (L) = A + B + (E)</p>	<p><b>26</b></p>  <p>Total length (L) = A + B + (C)</p>	<p><b>31</b></p>  <p>Total length (L) = A + B + C + (D) - 1 1/2r - 3d</p>
<p><b>33</b></p>  <p>Total length (L) = 2A + 3B + 14d</p>	<p><b>41</b></p>  <p>Total length (L) = A + B + C + D + (E) - 2r - 4d</p>	<p><b>44</b></p>  <p>Total length (L) = A + B + C + D + (E) - 2r - 4d</p>
<p><b>46</b></p>  <p>Total length (L) = A + 2-B + C + (E)</p>	<p><b>51</b></p>  <p>Total length (L) = 2(A + B) + 16d</p>	<p><b>67</b></p>  <p>Total length (L) = A</p>
<p><b>77</b></p>  <p>C: number of turns</p> <p>Total length (L) = C.π.(A - d)</p>		

**99** All other shapes where a standard or combination of standard shapes cannot be used. A dimensioned sketch shall be drawn over the dimension columns A - E.  
Total length (L) = To be calculated

### Minimum bending former diameters

#### Grade 460 -

Nominal bar diameter	Minimum former diameter / mm			
	BS 8666		BS 4466	
/mm	/mm	/mm	/mm	/mm
6	24	4d	36	6d
8	32	4d	48	6d
10	40	4d	60	6d
12	48	4d	72	6d
16	64	4d	96	6d
20	140	7d	120	6d
25	175	7d	200	8d
32	224	7d	256	8d

N.B The former diameter for 20mm bar has been increased from 6d to 7d.

Grade 250 - no change between BS 4466 and BS 8666.

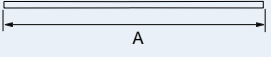
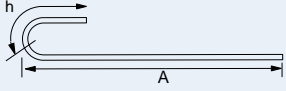
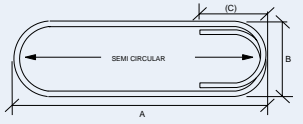
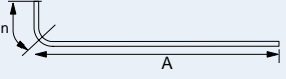
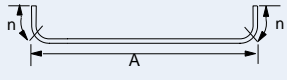
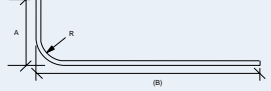
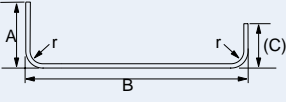
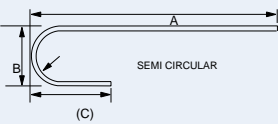
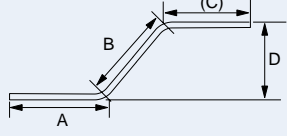
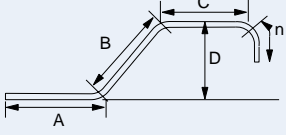
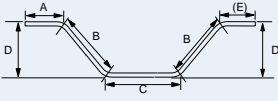
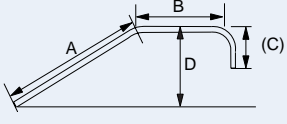
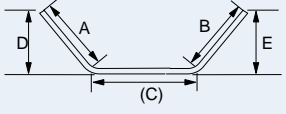
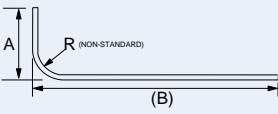
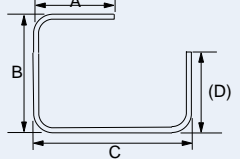
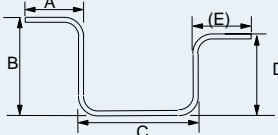
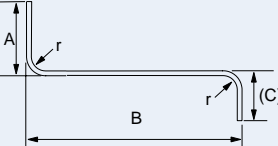
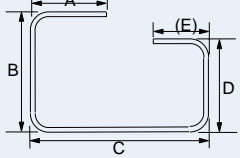
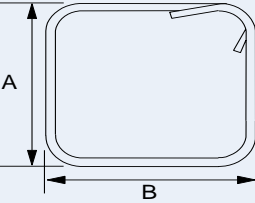
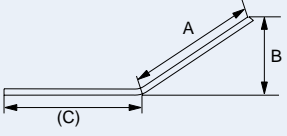
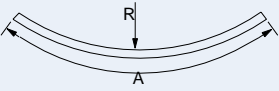
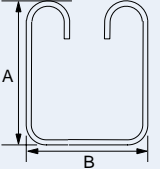
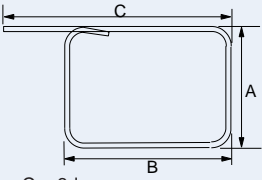
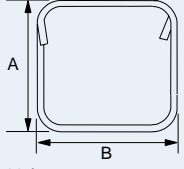
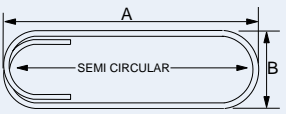
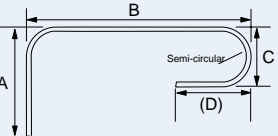
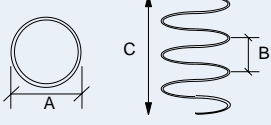
### Notation

BS 8666	BS 4466	Grade
R	R	250 conforming to BS 4449
F	D (for fabric)	460 deformed type 1 conforming to BS 4482 conforming to BS 4483)
D	T or grade 460A	460 deformed type 2 conforming to BS 4482 conforming to BS 4449 (for fabric conforming to BS 4483)
W	W	460 plain round conforming to BS 4482 (for fabric conforming to BS 4483)
T	T	460A or 460B deformed type 2 conforming to BS 4449
B	T	460B deformed type 2 conforming to BS 4449 (for bar or fabric conforming to BS 4483)
S	S	a specified grade and type of stainless steel conforming to BS 6744
X	X	reinforcement of a type not included in the above list having material properties that are defined in the design or contract specification



# BS 4466:1989:Preferred and Other Shapes

## Shape and total length of bar (L) measured along centre-line

<p><b>20</b></p>  <p>Length = A</p>	<p><b>32</b></p>  <p>Length = A + h</p>	<p><b>33</b></p>  <p>Length = A + 2h</p>
<p><b>34</b></p>  <p>Length = A + n</p>	<p><b>35</b></p>  <p>Length = A + 2n</p>	<p><b>37</b></p>  <p>Length = A + (B) - 1/2r - d</p>
<p><b>38</b></p>  <p>Length = A + B + (C) - r - 2d</p>	<p><b>39</b></p>  <p>Length = A + 0.57B + (C) - 1.57d</p>	<p><b>41</b></p>  <p>Length = A + B + (C)</p>
<p><b>42</b></p>  <p>Length = A + B + C + n (if angle with horizontal is 45° or less)</p>	<p><b>43</b></p>  <p>Length = A + 2B + C + (E)</p>	<p><b>45</b></p>  <p>Length = A + B + (C) - 1/2r - d</p>
<p><b>49</b></p>  <p>Length = A + B + (C)</p>	<p><b>51</b></p>  <p>Length = A + (B) - 1/2R - d</p>	<p><b>52</b></p>  <p>Length = A + B + C + (D) - 1/2r - 3d</p>
<p><b>53</b></p>  <p>Length = A + B + C + D + (E) - 2r - 4d</p>	<p><b>54</b></p>  <p>Length = A + B + (C) - r - 2d</p>	<p><b>55</b></p>  <p>Length = A + B + C + D + (E) - 2r - 4d</p>
<p><b>61</b></p>  <p>Length = 2(A+B) + 12d</p>	<p><b>62</b></p>  <p>Length = A + C</p>	<p><b>65</b></p>  <p>Length = A</p>
<p><b>77</b></p>  <p>Length = 2A + B + 20d</p>	<p><b>78</b></p>  <p>Length = 2A + B + C + 3d</p>	<p><b>79</b></p>  <p>Length = 2A + 3B + 10d</p>
<p><b>82</b></p>  <p>Length = 2A + 3B + 18d</p>	<p><b>85</b></p>  <p>Length = A + B + 0.57C + (D) - 1/2r - 2.57d</p>	<p><b>87</b></p>  <p>Length = C/B π (A - d) (L ≤ 12m)</p>

**99** All other shapes where a standard or combination of standard shapes cannot be used. A dimensioned sketch shall be drawn over the dimension columns A - E. Total length (L) = To be calculated

## Standard fabric types and stock sheet size

Fabric reference	Longitudinal wires			Cross wires			
	Normal wire size mm	Pitch mm	Area mm <sup>2</sup> /m	Normal wire size mm	Pitch mm	Area mm <sup>2</sup> /m	Mass kg/m <sup>2</sup>
Square mesh:							
A393	10	200	393	10	200	393	6.16
A252	8	200	252	8	200	252	3.95
A193	7	200	193	7	200	252	3.02
A142	6	200	142	6	200	142	2.22
A98	5	200	98	5	200	98	1.54
Structural mesh:							
B1131	12	100	1131	8	200	252	10.9
B785	10	100	785	8	200	252	8.14
B503	8	100	503	8	200	252	5.93
B385	7	100	385	7	200	193	4.53
B283	6	100	283	7	200	193	3.73
B196	5	100	196	7	200	193	3.05
Long mesh:							
C785	10	100	785	6	400	70.8	6.72
C636	9	100	636	6	400	70.8	5.55
C503	8	100	503	5	400	49	4.34
C385	7	100	385	5	400	49	3.41
C283	6	100	283	5	400	49	2.61
Wrapping mesh:							
D98	5	200	98	5	200	98	1.54
D49	2.5	100	49	2.5	100	49	0.77
Tolerances shall be in accordance with Table 4 of BS8666. For standard fabric the type of wire shall be designated as a suffix to the fabric reference as illustrated in the example in Figure 3 of BS8666. Standard lengths and widths shall be 4.8 m and 2.4 m respectively, giving a sheet area of 11.52 m <sup>2</sup> .							

### FAQ's

**Why has BS 8666 been adopted?** The shape codes are part of a new ISO standard and a new European Standard. British Standards cannot be at variance with these international standards and so BS 4466 has been changed. The new number is intended to highlight the change.

The opportunity has also been taken to align the code with BS 4449:1997 - Carbon steel bars for the reinforcement of concrete and to recognise improvements in the processing of reinforcement to allow, generally, tighter bends to improve fit.

**Why are there now two notations for the old 'T' notation?** BS 4449:1997 introduced two new grades, 460A and 460B (see table 7 of BS 4449). Where a particular grade is required the correct designation should be specified and used.

### In the changeover period:

**How do we avoid confusion?** State on bending schedules which standard is being used, this is actually a requirement for conformity to both standards! As far as quality assurance procedures allow try to avoid changing codes mid-project!

**What will we get?** Schedules to BS 8666 will be supplied to BS 8666; those to BS 4466 will be supplied to BS 4466, each as contracted.

It may take some time for all reinforcement fabricators to convert to the formers in BS 8666. Please bear in mind that initially larger formers than those quoted in BS 8666 may legitimately be used. However, if fit is critical please state the radius required. NB for 20 mm diameter bars the former diameter has increased from 6d to 7d in BS8666.

**What about length/ bearing calculations?** If detailing to BS 8666 use the BS 8666 radii. If larger radii are actually used the free dimension will be increased by a few millimetres. For bearing calculations use the worse case radius.

**How do I specify old shape codes?** - Many of the old shapes (notably bob bars and link shapes 77, 78 and 85) are now not covered by BS8666 and should be drawn up as shape code 99's.

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