<table>
<thead>
<tr>
<th>Shape Code</th>
<th>Method of measurement of bending dimensions</th>
<th>Total length of bar (L) measured along centre line</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>A</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
<tr>
<td>01</td>
<td>A Stock lengths.</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
<tr>
<td>11</td>
<td>A+(B)-0.5r-d</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
<tr>
<td>12</td>
<td>A+(B)-0.43R -1.2d</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
<tr>
<td>35</td>
<td>A+B+C+(E)-0.5r-d</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
<tr>
<td>36</td>
<td>A+B+C+(D)-r-2d</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
<tr>
<td>41</td>
<td>A+B+C+(D)+(E)-2r-4d</td>
<td>Total length of bar (L) measured along centre line</td>
</tr>
</tbody>
</table>
**Shape Code 13**

\[ A + 0.57B + (C) - 1.6d \]

B shall not be less than \(2(r + d)\). Neither A nor C shall be less than P in Table 2 nor less than \((B/2 + 5d)\). See Note 3.

**Key**

1 Semi-circular

---

**Shape Code 14**

\[ A + (C) - 4d \]

Neither A nor (C) shall be less than P in Table 2. See Note 1.

---

**Shape Code 15**

\[ A + (C) \]

Neither A nor (C) shall be less than P in Table 2. See Note 1.

---

May also be used for a flag link viz:

**Shape Code 44**

\[ A + B + C + D + (E) - 2r - 4d \]

Neither A nor (E) shall be less than P in Table 2.

---

**Shape Code 46**

\[ A + 2B + C + (E) \]

Neither A nor (E) shall be less than P in Table 2.

See Note 1.

---

**Shape Code 47**

\[ 2A + B + 2C + 1.5r - 3d \]

(C) and (D) shall be equal and not more than A nor less than P in Table 2.
<table>
<thead>
<tr>
<th>Shape Code</th>
<th>21</th>
<th>A + B + (C) - r - 2d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Neither A nor (C) shall be less than P in Table 2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shape Code</th>
<th>22</th>
<th>A + B + C + (D) -1.5r - 3d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>C shall not be less than 2(r + d). Neither A nor (D) shall be less than P in Table 2. (D) shall not be less than C/2 + 5d.</td>
</tr>
</tbody>
</table>

Where (C) and (D) are to be minimized the following formula may be used: \( L = 2A + B + \max(21d, 240) \)

<table>
<thead>
<tr>
<th>Shape Code</th>
<th>51</th>
<th>2(A + B + (C)) -2.5r -5d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(C) and (D) shall be equal and not more than A or B nor less than P in Table 2.</td>
</tr>
</tbody>
</table>

Where (C) and (D) are to be minimized the following formula may be used: \( L = 2A + 2B + \max(16d, 160) \)

<table>
<thead>
<tr>
<th>Shape Code</th>
<th>24</th>
<th>A + B + (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A and (C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shape Code</th>
<th>56</th>
<th>A + B + C + (D) +2(E) -2.5r -5d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(E) and (F) shall be equal and not more than B or C, nor less than P in Table 2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shape Code</th>
<th>63</th>
<th>2A +3B +2(C) -3r -6d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(C) and (D) shall be equal</td>
</tr>
</tbody>
</table>

Key
1 Semi-circular
are at 90° to one another.

A + B +
(E)
Neither A nor B shall be less than P in Table 2. If E is the critical dimension, schedule as 99 and specify A or B as the free dimension. See Note 1.

Where (C) and (D) are to be minimized the following formula may be used: \( L = 2A + 3B + \max(14d, 150) \)

A + B +
(C)
Neither A nor (C) shall be less than P in Table 2. See Note 1.

A + B +
(C) -0.5r -d
Neither A nor (C) shall be less than P in Table 2. See Note 1.

\( \pi(A - d) + B \)
Where B is the lap.
A + B + (C) -0.5r -d

Neither A nor (C) shall be less than P in Table 2. See Note 1.

Cπ(A-d)

C = number of turns

Where B is greater than A/5 this equation no longer applies, in which case the following formula may be used: \( L = C((\pi(A-d))^2 + B^2)^{0.5} \)

A +2B +C + (D) -2r -4d

Isometric sketch

Neither C nor (D) shall be less than P in Table 2.

All other shapes

To be calculated

See Note 2.

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 E. Every dimension shall be specified and the dimension that is to allow for permissible deviations shall be indicated in parenthesis, otherwise the fabricator is free to choose which dimension shall allow for tolerance.

Shape
Code
28

Shape
Code
29

Shape
Code
31

Shape
Code
32
Neither A nor (D) shall be less than P in Table 2.

\[2A + 1.7B + 2(C) - 4d\]

A shall not be less than 12d + 30mm. B shall not be less than 2(r+d). (C) shall not be less than P in Table 2, nor less than B/2 + 5d. See Note 3.

Key
1 Semi-circular

Neither A nor (E) shall be less than P in Table 2. See Note 1.

The values for minimum radius and end projection, r and P respectively, as specified in Table 2, shall apply to all shape codes (see 7.6).

The dimensions in parentheses are the free dimensions. If a shape given 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 length of straight between two bends shall be at least 4d, see Figure 6.

Figure 4, Figure 5 and Figure 6 should be used in the interpretation of ending dimensions.

**Note 1** The length equations for shape codes 14, 15, 25, 26, 27, 28, 29, 34, 35, 36 and 46 are approximate and where the bend angle is greater than 45°, 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. When the bending angles approach 90°, it is preferable to specify shape code 99 with a fully dimensioned sketch.

**Note 2** Five ends or more might be impractical within permitted tolerances.

**Note 3** For shapes with straight and curved lengths (e.g. shape codes 12 13, 22, 33 and 47) the largest practical mandrel size for the production of a continuous curve is 400 mm. See also Clause 10.

**Note 4** Stock lengths are available in a limited number of lengths (e.g. 6m, 12m). Dimension A for shape code 01 should be regarded as indicative and used for the purpose of calculating total length. Actual delivery lengths should be by agreement with supplier.

<table>
<thead>
<tr>
<th>Table 4 - BAR MASS per linear metre (kg/m) :-</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mm:</td>
</tr>
<tr>
<td>15.413kg/m</td>
</tr>
<tr>
<td>16mm:</td>
</tr>
<tr>
<td>1.579kg/m</td>
</tr>
</tbody>
</table>

**Excerpts From Section 8 - Drawing Forms for Scheduling and Dimensioning**

Figure 4 - Dimensioning of an acute angle

8.6 If the angle between two portions of the shape meeting at a bend is not a right angle, it
shall be defined by co-
ordinates and not by degress of
arcs or radians.

8.7 When dimensioning an
acute angle the tangential lines
shown in Figure 4 shall be
used.

Figure 5 -
Dimensioning of
cranked bars

8.8 Apart from
shape code 98, bars
bent in planes shall
be sketched
isometrically or
shown in two
elevations, using
first angle
projection. The
words "bent in two
planes" or
"isometric sketch"
shall appear on the
schedule adjacent to
the sketch.

8.9 The overall
offset dimension of
a crank shall be not
less than twice the
size of the bar. The
angled length (see
Figure 5) shall be
not less than :
a) 10d for bars not
exceeding a nominal
size of 16mm

b) 13d for nominal
sizes greater than
8.10 For all shapes with two or more bends in the same or opposite directions (whether in the same plane or not), the overall dimension given on the schedule shall always include a minimum straight of 4d between the curved portion of the bends, as shown in Figure 6.

The value of $x$ in Figure 6 shall be not less than the following:

a) 10d for bars not exceeding a nominal size of 16mm

b) 13d for nominal sizes greater than 16mm

NOTE The minimum values of $x$ are expressed in terms of the nominal size of the reinforcement. In practice, rolling and bending tolerances, and the fact that the circumscribing diameter of deformed reinforcement may be up to 10% greater than the nominal size, should be considered.