

## Practical advise for units in pairs BSF, BCC

The reason to use BSF/ BCC- units in pairs may be due to lack of available space in shallow beams, improved torsional stability, or better economy with two smaller units rather than one large.

Make a steel template with two protruding plates of thickness as the knife + 1 mm. The protruding plates shall pass through a vertical supporting steel plate mounted on a base plate. The protruding plates must be parallel and at right angles to the supporting plate. See figure 1. The slots in the supporting plate must be ground, in order for the welds between the supporting plate and the protruding plates to be completely hidden within the steel sections. See figure1, section A-A.

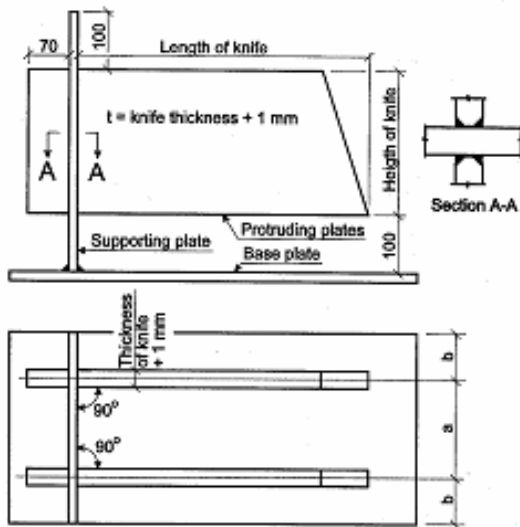
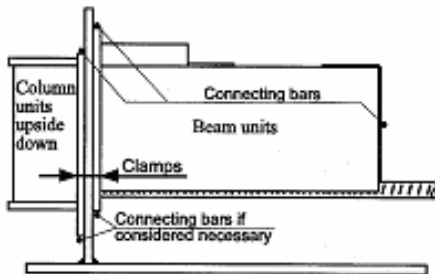


Figure 1. Steel template.



Insert the beam and column units on the protruding plates. The column units must be placed upside down in order to use the reference levels as basis (see memo 15). Clamp the front plates of the beam and column units to the supporting plate. See figure 2.

Place a reinforcing bar or another connection device over the front plates of both the column and beam units, and connect the units by welding. The rear end of the beam units shall be connected with a bar in mid-height. If considered necessary a bar may also be placed under the front plates. The guiding pieces in the moulds must however still be used, placed with a paired beam unit as template.

The following items must be considered when using BSF/ BCC- units in pairs:

1. The load distribution between the units will not be uniform. The distribution will depend upon the torsional stiffness of the beam and the geometrical deviations.
2. The reinforcement requirements and pattern must be considered, to make sure it is sufficient room for the reinforcement.
3. The requirements of the compressive concrete strut between the beam units must be checked, to avoid shear failure or compressive failure.

The steel template can – if desired- be supplied to specified dimensions with the delivery of the units.

Units	Minimum distances			
	a		b	
	mm	in	mm	in
<b>BSF Units</b>				
BSF 150/20	160	6 <sup>1</sup> / <sub>2</sub>	75	3
BSF 200/20	160	6 <sup>1</sup> / <sub>2</sub>	75	3
BSF 200/30	190	7 <sup>1</sup> / <sub>2</sub>	90	3 <sup>1</sup> / <sub>2</sub>
BSF 200/40	240	9 <sup>1</sup> / <sub>2</sub>	115	4 <sup>1</sup> / <sub>2</sub>
BSF 200/50	240	9 <sup>1</sup> / <sub>2</sub>	115	4 <sup>1</sup> / <sub>2</sub>
BSF 250/50	260	10 <sup>1</sup> / <sub>4</sub>	125	5
<b>BCC Units</b>				
BCC 250	200	8	100	4
BCC 450	260	10 <sup>1</sup> / <sub>4</sub>	150	6
BCC 800	260	10 <sup>1</sup> / <sub>4</sub>	150	6

The measure a+2·b is the width of the base plate. The width of the beam must be somewhat larger to make room for the stirrups.