The KEF Constructor Series Model CS9 is a large 3 way system of the highest quality. It incorporates the drive unit system from the world famous Reference Series Model 105.2, but housed in a conventional rectangular enclosure for the home constructor. The crossover network is similar that used in the 105.2, only modified as necessary to suit the geometry of the CS9 enclosure. This network is available, ready assembled, as Model DN27 from your Constructor Series dealer. The outstanding tonal balance, low colouration and precise stereo imaging of which this system is capable, will only be achieved by the most careful assembly at all stages of construction.

This leaflet gives all the information required to construct the enclosure and dividing network together with curves of terminal voltages which may be useful in checking the operating characteristics of the network. Performance data for the complete loudspeaker are given on the back page. A leaflet giving general information about loudspeaker cabinet construction is also available on request – KEF part No. SL368EN01.
The enclosure is constructed from chipboard 18mm thick. Plywood or fibreboard of similar thickness may be substituted. The method of construction is not critical so long as all joints are generously glued and the enclosure generally rendered airtight. The use of glue blocks along inside edges will provide extra security. The inside surfaces of each side, top and back panel should be laminated with sound deadening material such as bitumen loaded paper felt, well bonded with a rubber-based adhesive. The damping laminate need not extend to the panel edges but it should cover at least half the inside surface area. See leaflet no. SL358 for general hints on loudspeaker construction.

Pads of sound-absorbing material are placed inside the cabinet to inhibit the formation of standing waves in the enclosed air space. Suitable materials include polyester foam, resin-bonded fibre glass and acetate fibre. The pads are retained by adhesive or string lacing.
DIVIDING NETWORK

Circuit diagram
This network has been computer-designed for use with the specified drive units and enclosure. It may not be suitable for use with other combinations.

Component list
Components should be chosen with values as close as possible to those shown in the table. Minimum working voltages for capacitors are specified but no harm will be done if higher ratings are used.

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Tolerance</th>
<th>Losses</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>9.5mH</td>
<td>±5%</td>
<td>R&lt;1.4Ω</td>
<td>R&lt;0.35Ω</td>
</tr>
<tr>
<td>L2</td>
<td>2.0mH</td>
<td>±5%</td>
<td>R&lt;0.31Ω</td>
<td>R&lt;0.5Ω</td>
</tr>
<tr>
<td>L3</td>
<td>1.0mH</td>
<td>±5%</td>
<td>R&lt;0.5Ω</td>
<td>R&lt;0.21Ω</td>
</tr>
<tr>
<td>L4</td>
<td>2.2mH</td>
<td>±5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L5</td>
<td>0.24mH</td>
<td>±5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L6</td>
<td>0.25mH</td>
<td>±5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>450μF</td>
<td>±10%</td>
<td>d&lt;0.2</td>
<td>50V DC working</td>
</tr>
<tr>
<td>C2</td>
<td>60μF</td>
<td>±10%</td>
<td>d&lt;0.08</td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>20μF</td>
<td>±10%</td>
<td>d&lt;0.04</td>
<td>150V DC working</td>
</tr>
<tr>
<td>C4</td>
<td>10μF</td>
<td>±10%</td>
<td>d&lt;0.04</td>
<td>50V DC working</td>
</tr>
<tr>
<td>C5</td>
<td>120μF</td>
<td>±10%</td>
<td>d&lt;0.08</td>
<td>100V DC working</td>
</tr>
<tr>
<td>C6</td>
<td>20μF</td>
<td>±10%</td>
<td>d&lt;0.04</td>
<td></td>
</tr>
<tr>
<td>C7</td>
<td>5μF</td>
<td>±10%</td>
<td>d&lt;0.04</td>
<td></td>
</tr>
<tr>
<td>C8</td>
<td>7μF</td>
<td>±10%</td>
<td>d&lt;0.04</td>
<td></td>
</tr>
<tr>
<td>C9</td>
<td>2.2μF</td>
<td>±10%</td>
<td>d&lt;0.04</td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>6.8Ω</td>
<td>±5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>22Ω</td>
<td>±5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d is loss factor of capacitor. It is related to series resistance by the relation \( R = \frac{d}{2\pi fC} \). Above d values are measured at 1kHz.

Testing the network
Operation of the dividing network can be checked by substituting resistive loads of 8 ohms value in place of the loudspeakers. With a constant voltage input of varying frequency derived from a signal generator or test disc, terminal volts at the output of each filter section should accord with the curves opposite.
Technical Specification

 Frequency Range
  38Hz – 22kHz ± 3dB at 2m on reference axis

 Maximum Output
  109dB spl on programme peaks under typical listening conditions

 Characteristic Sensitivity Level
  86dB spl on reference axis for pink noise input of 1W
  (anechoic conditions)

 Enclosure Type
  Third-order, closed-box, low-frequency loading

 Internal Volume
  LF enclosure – 75 litres
  MF/HF enclosure – 7.6 litres

 Nominal Impedance
  8 ohms

 Programme Rating
  200W

 Minimum Amplifier Requirements
  15W

 Internal Dimensions
  696x366x325mm

 External Dimensions
  732x402x361mm

 Material
  18mm chipboard

 Drive Units
  LF:Model B300B Type SP1071
  MF:Model B110B Type SP1057
  HF:Model T52B Type SP1072
  DN:Model DN27 Type SP2034/5

Dividing Network

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**Impedance Characteristic**
The modulus of impedance curve provides a useful method of checking for suspect faults. The above curve is measured under constant current conditions at 100mA.

**Amplitude-Frequency Response**
The completed loudspeaker will produce the above amplitude-frequency response when measured in free field conditions at a distance of 2m on the reference axis.

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KEF products are manufactured in England and distributed in the United Kingdom by:
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KEF reserve the right to incorporate developments and amend the specifications without prior notice, in line with continuous research and development.