

BRANSON 502 CONVERTER SPECIFICATION

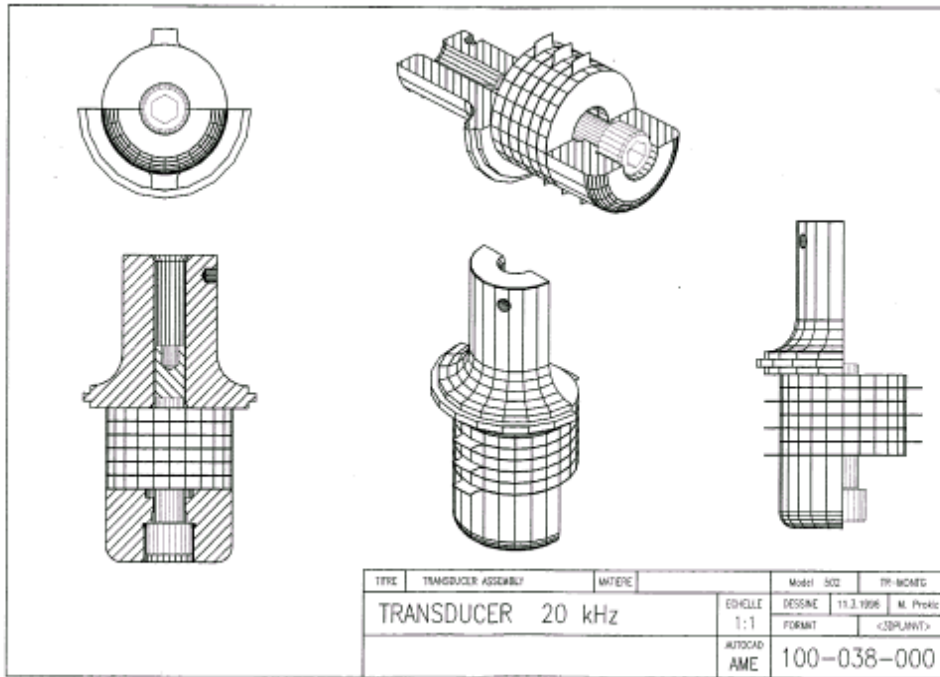


Fig. 17 BRANSON converter model 502/932R

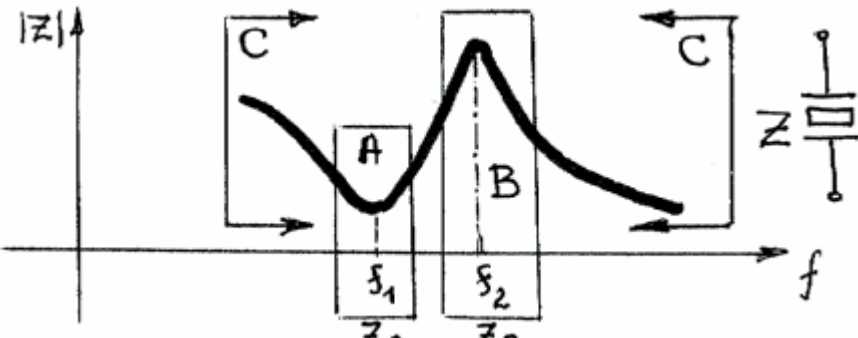
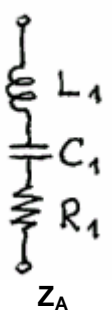
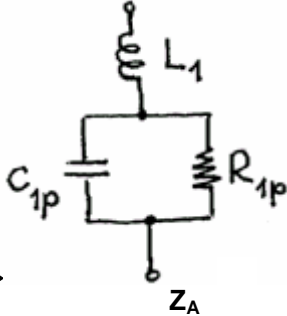
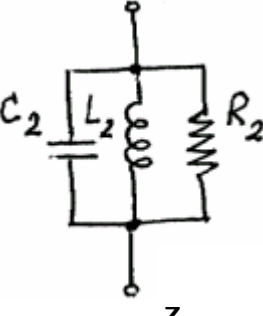
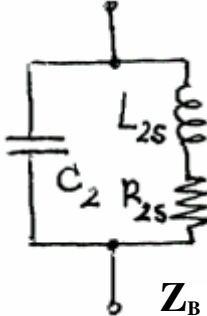
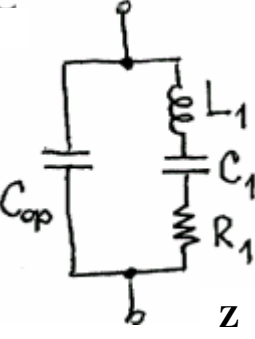
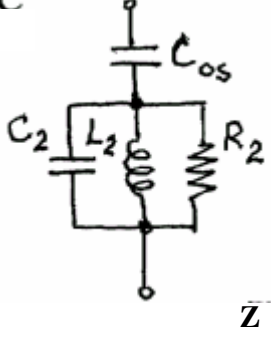
- Total axial length of the transducer $L = 120$ mm
- Largest middle diameter $D\text{-max.} = 69.5$ mm
- Front emitting surface diameter $D\text{-min.} = 38$ mm
- Back mass diameter $D\text{-back} = 51$ mm
- Threaded hole in the front mass UNF 20, 1/2" (free hole length 27mm)

T 1.5 BRANSON 502/932R, Typical Model Parameters Variations

	In Series Resonance	In Parallel Resonance
Model Parameters for Non-Loaded Converter (Measured on the random, standard-production-quality sample > 100 pcs. of converters, taken after assembling)	$C_{0p} \in [15.3 - 18.1] \text{ nF}, \pm 3\%$ $C_1 \in [3.92 - 4.05] \text{ nF},$ $L_1 \in [17.53 - 18.7] \text{ mH}$ $R_1 \in [1.75 - 4.6] \Omega, \pm 20\%$ $f_1 \in [18435 - 18905] \text{ Hz}, \pm 0.5\%$ $Q_{m01} \in \langle Q_{m01} \rangle \pm 20\%$	$C_{0s} \in [18.7 - 22.05] \text{ nF}, \pm 3\%$ $C_2 \in [79 - 101.53] \text{ nF},$ $L_2 \in [570.50 - 747] \mu\text{H},$ $R_2 \in [94 - 250] \text{ K}\Omega, \pm 20\%$ $f_2 \in [20635 - 20912] \text{ Hz}, \pm 0.5\%$ $Q_{m02} = \langle Q_{m02} \rangle \pm 20\%$

T 4.6 Piezoceramics measurements and Models
Piezoceramic Ring: Vernitron, PZT8, $\varnothing 2'' \times \varnothing 0.8'' \times 0.2''$

First Radial Resonance Parameters

<p> $f_1 = 32880 \text{ Hz}$ $f_2 = 34880 \text{ Hz}$ $Z_{\min.} = 12.8724 \Omega$ $Z_{\max.} = 256.861 \text{ k}\Omega$ $Q_{m10} = 1129$ $Q_{m20} = 1385$ </p>			
<p>A</p>  <p style="text-align: center;">Z_A</p>	<p> $C_1 = 336.812 \text{ pF}$ $L_1 = 69.5565 \text{ mH}$ $R_1 = 12.6210 \Omega$ </p>	<p>A</p>  <p style="text-align: center;">Z_A</p>	<p> $C_{1p} = 336.812 \text{ pF}$ $L_1 = 69.5565 \text{ mH}$ $R_{1p} = 16.8762 \text{ M}\Omega$ </p>
<p>B</p>  <p style="text-align: center;">Z_B</p>	<p> $C_2 = 24.2667 \text{ nF}$ $L_2 = 857.904 \mu\text{H}$ $R_2 = 260.045 \text{ k}\Omega$ </p>	<p>B</p>  <p style="text-align: center;">Z_B</p>	<p> $C_2 = 24.2667 \text{ nF}$ $L_{2s} = 857.903 \mu\text{H}$ $R_{2s} = 142.611 \text{ m}\Omega$ </p>
<p>C</p>  <p style="text-align: center;">Z</p>	<p> $C_{op} = 2.68554 \text{ nF}$ $C_1 = 336.552 \text{ pF}$ $L_1 = 69.6164 \text{ mH}$ $R_1 = 12.741 \Omega$ </p>	<p>C</p>  <p style="text-align: center;">Z</p>	<p> $C_{os} = C_{op} + C_1 =$ $= 3.0221 \text{ nF}$ $C_2 = 24.26 \text{ nF}$ $L_2 = 857.9 \mu\text{H}$ $R_2 = 260.045 \text{ k}\Omega$ </p>