Some of the Mid-Frequency Transducers Developed and Manufactured by Massa

- **TR-229/SQS-35 VDS** (1990’s - Present)
  - Massa redesigned the TR-229 Transducer Dual Stave Assembly to meet specs and is the only manufacturer approved

- **TR-330/SQS-56** (1988 - Present)
  - Massa was given a sole source contract to redesign the cable assemblies and to outfit the entire fleet of Perry Class Frigates (FFG-7)
  - Massa also redesigned the TR-330 Transducer to improve performance, and is the sole approved source

- **TR-237 and TR-238** (1970 - Present)
  - Massa redesigned ceramic replacement transducers for many different sonar systems (SQS-4,29,30,31,39, 40,41,42,43,44,45,46,49,50,51,52)

- **TR-208A/SQS-23** (1965 - Present)
  - Massa patented design revolutionized ceramic scanning sonar transducers
  - U.S. Navy made Massa design mandatory
  - Massa has supplied over 60,000 transducer elements
Photographs of the M-1002 Portable Sonar System

Electronics Modules for Engineering Model of the Massa M-1002 Portable Sonar System

Fish Assembly Less Streamlined Housing of the Engineering Model of the M-1002 Portable Sonar System During Sea Test On-board the 38 ft. Research Vessel R/V Decibel
Massa Redesign of the TR-330/SQS-56 Cable Assemblies

- Massa was awarded a sole source contract to redesign and manufacture SQS-56 cables for the entire fleet of Perry Class frigates (FFG-7)
  - Massa connector design for the SQS-23 Cables and Transducer was most reliable in the fleet with over 60,000 connections and no reported failures

- Massa redesigned the connectors and “pot head” and submitted first article units 1½ months after receipt of contract
  - Production deliveries started two weeks after First Article approval
  - By the time the first production shipment was due, Massa had completed delivery on over half of the contract requirements

- Massa also redesigned the TR-330 Transducer to improve performance and is first article approved
  - Massa can also fabricate the TR-330A Transducer
TR-208A/SQS-23

- Revolutionized sonar transducer design
  - For ten years, five different manufacturers were given waivers from the spec because it “was beyond the state of the art”

- The Massa design was half the size and cost of previous transducers

- Massa has supplied over 60,000 elements

- Units have operated in fleet for over 20 years

- Used in conjunction With Raytheon DE1191 System