

# Bronze

The Making of the  
Escape Ibn Navarrone - D

Life-size Bronze

*Commissioned by Sheikh Ammar bin Humaid  
Al Nuaimi, Crown Prince of Ajman*

By Judy and Kim Nordquist

# Beauty

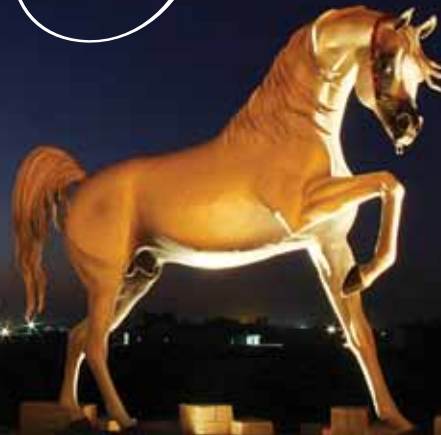


PHOTO BY GIGI GRASSO



**The** creation of a life-size portrait bronze enlargement is a complicated process. To begin with, an original one-fifth life-size clay maquette is sculpted. My daughter Kim and I worked from over 100 detailed measurements of Escape and many reference photos as well as Scott Trees's dramatic photo. If possible, the sculptor spends time with the horse to get a feeling for his nature and unique character. The sculpting of the clay maquette takes about six months to complete.

First, a mold is made of the maquette. Wax is poured into the mold and then cut into sections. A laser scans each section, which is then enlarged with a computer-aided drafting and design program (CADD). In four to six weeks, the roughly milled life-size blue foam sections are glued together in preparation for us to add the clay.

We carve the roughly formed foam model to redefine the detail; this can take up to two weeks. Then the real detail work begins. Meticulously sculpting the muscles, tendons, and facial features will take four to five months. In this time, we will add over 250 pounds of clay to the sculpture.

Now the sculpture is ready for the mold process, which will take four weeks. The clay sculpture is cut into 50 sections for molding. Rubber is then painted on the clay sections and coated with plaster of Paris for support.

Wax is painted and poured into the rubber and plaster of Paris molds. The wax sections are removed from the mold and the wax detail is touched up to maintain a high level of quality.



The reference photo by Scott Trees (used by permission) of **ESCAPE IBN NAVARRONE-D** (AS Sinans Pacha x Navarrone P), which served as an inspiration for the bronze.



The one-fifth life size clay model created from photos and measurements.

Then the wax sections are dipped several times into a ceramic shell mixture until the shell is 3/8" thick. After the ceramic shell is dry, it is placed in a kiln to melt the wax, leaving behind only the shell. This process is called the "lost wax process."

Placing the ceramic shells into the kiln also preheats them before the molten bronze is poured into the shells. This preheating prevents cracking from the extreme temperature of the liquid bronze. A gas-fired crucible heats the bronze ingots to 2,000° Fahrenheit. The molten metal is then poured into the ceramic shells.

Once the bronze has cooled, the ceramic shells are broken away from the bronze sections. The 50 bronze parts and panels are now ready to be welded together to create the finished bronze sculpture. The bronze sections of the sculpture must be sanded and shaped by a pneumatic grinding tool to reestablish the detailing of the original



After a mold is made of the one-fifth life-size clay model, wax is poured and cut into sections. A laser scans each section which is enlarged with a CADD program. Then the blue foam model is milled into sections and glued together in preparation for the addition of the clay.



The finished clay model of the life-size Escape ready for the mold process, pictured here with Judy and Kim Nordquist.



Grinding the weld lines of the bronze to recreate the texture of the original clay sculpture. Fifty-one metal panels and parts are welded together.

sculpture. This is a time consuming process that takes a great deal of skill and patience. Kim and I constantly oversee and critique the reconstruction of the finished bronze to restore the concept of our original sculpture.

To ensure structural integrity of the 900-pound bronze, the interior framework of the bronze is designed by a structural engineer. Over 400 pounds of stainless steel are welded inside the bronze torso, legs, and the base. The life-size bronze of Escape is 15.3 hands (9 feet long by 7 feet 6 inches high).

The finished bronze sculpture is sandblasted to prepare the surface for the patina application. Specific chemicals are used to obtain the variation in coloring on the finished bronze. The chemicals are sprayed on as the bronze is being heated with a propane torch to reach the proper temperature for application. This process requires patience and attention to artistic detail to obtain the correct shading and blending of the different colors. This can take up to a week to perfect. Finally, a special lacquer is sprayed on the finished patina to preserve and protect it from the elements.

The total time to create the life-size sculpture of Escape was approximately 18 months. We are receiving wonderful comments from first-hand viewers on our beauty in bronze.



Above: The bronze is sand blasted to prepare the surface for the patina.

Below: The finished bronze in its new home in Ajman.



PHOTO BY MICHAEL DELACORE



PHOTO BY GIGI GRASSO