

## Compressor Rotor

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| <b>Industry</b>          | Pump and Compressor                               |
| <b>Dura-Bar Grade</b>    | 65-45-12 Ductile Iron                             |
| <b>Original Material</b> | 1045 Carbon Steel                                 |
| <b>Problems Solved</b>   | Material Quality, Reduced Scrap,<br>Machinability |



A manufacturer of rotors for portable air compressors needed a quality solution to combat high scrap rates they were experiencing using 1045 carbon steel. They also needed to consider maintaining proper balancing for their compressor rotor components.

Given the similar mechanical properties of 65-45-12 to 1045, the manufacturer converted to Dura-Bar 65-45-12 ductile iron containing nodular graphite in a matrix of ferrite and pearlite which also provides excellent machinability with decreased tool wear. The consistent microstructure also insures that the material is easy to balance. And since graphite is a natural chip breaker, Dura-Bar ductile irons have a controllable chip formation, unlike typical steel stringers.

With the increased machining speeds and feeds of the Dura-Bar 65-45-12 ductile iron versus 1045 steel, the manufacturer was able to yield more parts per hour while also solving the initial challenges.