

CLOSED IMPELLER WITH A COATED VANE

ABSTRACT OF THE DISCLOSURE

A closed impeller (40) has a base cover (42), which has a base interior surface (44), and a second cover (52). A vane (61,61'), which has an inlet distal end (62,62') and an outlet distal end (64,64'), is on the base interior surface (44). The vane (61,61') has low (66,66') and high pressure side surfaces (68,68') wherein they have a low (74,74') or high pressure midpoint (122,142), respectively. A hard coating (100,100',101,101') is on the low (66,66') and high pressure side surfaces (68,68'). The hard coating (100,100',101,101') has a minimum low (102,102') and high pressure coating thickness (124,144) at their respective midpoints (74,74',122,142). The minimum low (102,102'), as well as high (124,144), pressure coating thickness ranging between about .085 and about 0.8 of either one of the maximum outlet coating thickness (104,104',126,146) at the outlet distal end (64,64') or the maximum inlet coating thickness (106,106',128,148) at the inlet distal end (62,62'), respectively.

(Fig. 1)