Hard tipped turbine blades
Coated blades combat accelerated turbine blade wear

ABB Turbocharging’s hard tipped coated turbine blades counter circumferential wear in axial turbochargers. The new option substantially increases blade exchange intervals on engines burning low grade HFO.

Diffuser deposits
On engines burning lower qualities of heavy fuel oil (HFO) turbocharger performance and service costs can suffer due to build-up of hard, abrasive combustion residues on and around the turbine diffuser.

Possible contact between the deposits and the rotating turbine blades causes a loss in turbine diameter and:
– An increase in exhaust gases bypassing the turbine, reducing both turbocharger and engine efficiency,
– A need for more frequent replacement of complete sets of turbine blades.

Economic solution
Using a special, ABB developed coating process, a hard wear resistant layer is applied to the extremities of removable turbine blades. Nicknamed “dragon’s teeth”, only 6 of the hard tipped blades need to be fitted in pairs at 120° intervals around the turbine wheel. At this even spacing they are able to scrape away the hard HFO fouling to clear a path for the standard blades, thus minimizing contact with the abrasive residues.

Reduction in wear
In early applications the “dragon’s teeth” reduced wear on the standard blades to a level where only the hard tipped blades needed to be replaced during scheduled turbocharger overhaul.

Original equipment or retrofit
As well as being an option on new turbochargers, the new hard tip solution is also offered as part of a “Hot Part Package” for ABB Turbocharging’s TPL-A and TPL-C turbochargers on engines operating on HFO.