



OIL MAINTENANCE  
INDUSTRY

# Lube Oil Brown Boveri Steam Turbine

## CJC™ Application Study

Application Study  
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### CUSTOMER

ESB, North Wall Power Generation Station.

### THE SYSTEM

Brown Boveri Steam Turbine, 2 of 3 steam turbines at North Wall.

Oil type: Castrol Perfecto T 46

Oil volume: 4,000 L each tank

### THE PROBLEM

The ageing of the old centrifuge was beginning to show. The oil was clearly contaminated showing an ISO code 22/19/14 and a water level of 126,300 ppm.

Furthermore, the high cost of spares for the centrifuge made the supervisor look for an alternative.

### THE SOLUTION

To test if the filter would improve the oil situation a **CJC™ PTU3 27/54 P-E2PW Filter Separator** was installed at Steam Turbine No 3, using **CJC™ Filter Inserts BLAT 27/27** (3 micron absolute) with a flow of 400 L/h.

The aim was to remove water from the oil as well as particles and varnish.

The filter was easy to install, simply fitted on the old pipe work from the centrifuge.

### THE TEST

It took the CJC™ Filter Separator only 2 weeks to remove most of the water. But because of the high level of contamination, it has taken 1½ years to remove varnish and particles in the system.

### THE RESULT

As a result of installing the CJC™ Filter Separator, the cleaning level is now ISO code 15/14/9, the water level is 58 ppm, and varnish has been reduced from 35% down to 10%.

A similar filter was later installed on Steam Turbine No 2, which has now reached an ISO code 14/13/10, 53 ppm of water and no varnish.

### COMMENTS

*Mr. Peter O' Toole, Mechanical Supervisor at North Wall Power Station:  
"The oil on my steam turbine 2 & 3 has never been cleaner."*



### THE RESULT

STEAM TURBINE No 2		
	Before	After
ISO Code	21/17/13	14/13/10
Water, ppm	120	53
Oxidation, %	20	0

STEAM TURBINE No 3				
	Before	After installation of CJC Filter		
	14.01.04	16.01.04	24.01.04	11.10.05
Particles, 2 µm	2,370,916	1,896,134	343,357	16,835
Particles, 5 µm	307,840	436,188	84,781	8,177
Particles, 15 µm	12,936	26,812	4,182	311
ISO Code	22/19/14	21/19/16	19/17/13	15/14/9
Water, ppm	126,300	3,594	892	58
Oxidation, %	35	35	25	10

### PARTICLE & WATER DEVELOPMENT Steam Turbine No 3

