

HOW TO GET MOST OUT OF YOUR COATED DRY SCREW VACUUM PUMP



WHAT IS COATING?

COATING IS A CHEMICALLY INERT PROTECTIVE LAYER OF POLYMER ON A METALLIC SURFACE. IT PROVIDES THE PROTECTION TO BASE METAL AGAINST THE CHEMICAL ATTACK. COATING WILL NOT PROTECT AGAINST THE ABRASION.

WHY COATING GETS PEELED OFF?

COATING HAS EXCELLENT RESISTANCE TO CHEMICAL ATTACK. MAIN REASON FOR COATING GETTING PEELED-OFF IS ABRASION DUE TO INCOMING PROCESS MATERIAL HAVING HARD CRYSTALLINE/SOLID PARTICLES AS THE MACHINE ROTATES AT HIGH RPM. (3500RPM)

AS THE ABRASION OCCURS, IT SCRATCHES THE COATING FROM ITS PLACE AND CREATES A WEAK ZONE WHERE GASES/AIR PENETRATE AND REMOVE THE COATING LAYERS BY CORRODING THE BASE MATERIAL.

HOW TO PROTECT COATING:

COATING IS GENERALLY HIGHLY RESISTANT TO CORROSIVE VAPOURS AND GASSES. SINCE THE PUMP IS RUNNING UNDER VACUUM MOST OF THE END PRODUCT ENTERING THE PUMP IS IN VAPOUR FORM AT INLET. SINCE THERE IS COMPRESSION HAPPENING INSIDE THE PUMP IN SOME CASES THIS VAPOUR MAY GET CONVERTED TO LIQUID/ CONDENSATE. THIS IF NOT FLUSHED THOROUGHLY FROM INSIDE THE PUMP AT PUMP SHUTDOWN WILL CRYSTALLIZE/SOLIDIFY INSIDE THE PUMP. ONCE THE PUMP IS RESTARTED THESE HARD CRYSTALS/MATERIAL WILL RUB BETWEEN THE FINE CLEARANCES OF THE PUMP AND CAUSE ABRASION ON PUMP INTERNALS. FOLLOWING PRECAUTIONS ARE RECOMMENDED TO PROLONG PUMP COATING LIFE:

- a) INCORPORATE WARM-UP/WARM-DOWN CYCLE IN PUMP THRU PLC/RELAY.
- b) INCORPORATE SOLVENT &/OR N₂ FLUSHING.
- c) USE OF CATCH POT/FILTER AT SUCTION INCASE NECESSARY.
- d) USE OF STEAM FLUHING INCASE THE PROCESS SUPPORTS/PERMITS.
- e) CLEAN THE VACUUM LINES FOR ANY BURR DURING INITIAL START UPS.

FOLLOWING CONFIGURATION OF COATING IS AVAILABLE IN EVEREST DRY SCREW VACUUM PUMPS:

- 1) PFA COATED. (40Micron)
- 2) Ni + PFA COATED (10+30)
- 3) Ni Coating. (20)
- 4) PEEK 40
- 5) Ni + PEEK 10+30

*RECOATING OF SAME CONFIGURATION CAN ONLY BE DONE.

ACCEPTANCE CRITERIA FOR CARRYING OUT COATING

A NEW DRY SCREW VACUUM PUMP HAS 40 MICRONS PFA (PER FLUORO ALKOXY) COATING ON ALL THE WETTED PARTS. WE AT EVEREST WHILE DOING THE RECOATING PROCESS MAY GO UPTO 500MICRONS. BEYOND 500 MICRONS IT'S VERY HARD TO MAINTAIN THE COATING DUE TO VARIOUS TECHNICAL AND PROFILE RESTRICTIONS, THUS RE-COATING BEYOND 500 MICRONS ON EACH FACE IS NOT RECOMMENDED.

VACUUM ACHIEVED BY PUMPS

EVEREST TRIES ITS BEST TO ACHIEVE THE VACUUM LEVEL SAME AS THAT OF NEW PUMP. VACUUM ACHIEVED IS TOTALLY DEPENDANT UPON THE FOLLOWING FACTORS:

- COATING THICKNESS,
- SURFACE OF SCREW AND BODY,
- QUIMBY POSITION GAP.

AS STANDARD WE PROVIDE THE RE-COATED PUMPS WITH VACUUM LEVEL OF 3 TORR OR LESS. IN EXCEPTIONAL CASES IT MAY GO DOWN TO 10 TORR (DEPENDS UPON THE ABOVE THREE FACTORS).

WARRANTY OF REPAIRED PUMPS:

PUMPS IF STILL UNDER WARRENTY WILL CONTINUE TO STAY UNDER WARRENTY IN-CASE OF ANY MANUFACTURING DEFECT, HOWEVER COATING DAMAGE DUE TO ABRASION/FOREIGN PARTICLE CARRYOVER SHAL NOT BE COVERED UNDER WARRENTY. LIFE EXPECTED DEPENDS UPON THE WORKING AND USAGE CONDITIONS.

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DO'S & DONT'S OF MAINTENANCE/CARE OF PUMPS:

DO'S:-

- REMOVE ANY WELD PARTICLE/FOREIGN PARTICLE PRIOR INSTALLATION OF PUMP.
- CHECK FOR FREE HAND ROTATION OF PUMP IN BOTH THE DIRECTIONS
- TAKE APPROPRIATE STEPS TO PREVENT ENTERANCE OF PROCESS PARTICLES INTO THE PUMP BY USING FILTERS, TRAPS OR SEPERATORS ETC.
- FLUSH THE PUMP PROPERLY AFTER EVERY USE.
- FOR LONG STORAGE OF PUMPS, FLUSH THE PUMP WITH LIQUID AND THEN WITH DRY AIR. ROTATE THE PUMP BY HAND.

DONT'S

- DON'T TRY TO ROTATE THE JAMMED PUMP WITH WRENCH, IT MAY PEEL-OFF THE COATING. IN SUCH CASE TRY TO MAKE IT FREE BY FILLING IT WITH SUITABLE SOLVENT (MISCIBLE WITH PRODUCT BUILDUP).
- DON'T LET THE HARD SOLID MATERIAL ENTER THE PUMP.

TIME REQUIRED FOR RECOATING THE PUMPS:

TIME REQUIRED DIRECTLY DEPENDS UPON THE THICKNESS OF COATING REQUIRED. IDEALLY, IT MAY TAKE AROUND 25 TO 30 DAYS TO RECOAT A PUMP IN NORMAL CONDITION. TIME PERIOD MAY GET EXTENDED DEPENDING UPON THE CONDITION OF PUMP.

INCASE OF ANY FURTHER ASSISTANCE IS REQUIRED PLEASE FEEL FREE TO CONATCT SERVICE TEAM, EBSPL.

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