



COPY

TYPE APPROVAL CERTIFICATE

형 식 승 인 증 서

Certificate No. : NYK14992-CR001 **Initial Approval** : 16th July, 2001.
Product : Selective(Brush) Plating Process
Manufacturer : SIFCO Applied Surface Concepts
5708 Schaaf Road, Independence, Ohio 44131, U.S.A

Product Description : Kind of Solution : SIFCO
Intended for ;
1) The rectification of dimensional errors in new components
2) Enhance performance of new components
3) The reclamation of certain wasted or worn components
Applications and restrictions : " See Appendix 1 "

Approval Condition : 1. This approval is granted on the basis of the type approval test and plant audit performed by the surveyor.
2. Procedure and operator qualifications, production electroplating and inspection are to be to the satisfaction of the attending surveyor.

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Aerospace Material Specification(AMS 2451).

MIL Standard 2197 & MIL Standard 865.

This Certificate is valid until 15th July, 2016.

Issued at Daejeon, Korea on 17th May, 2011.



국 선 급
KOREAN REGISTER OF SHIPPING

General Manager of
Materials and Equipment Team

Note :1 : The approval will be automatically suspended and the Certificate become invalid from the expiry date of the Certificate in the event that the extension has not been granted or the renewal of the Certificate is not underway.

2 : The manufacturer should notify this Society of any modification or changes that may affect the validity of this Certificate.

Product Description and/or Approval Condition

Certificate No : NYK14992-CR001

Date of Issue : 17th May, 2011.

Applications and restrictions ;

1. The Society would raise no objection to the use of the selectron process for the following purposes:
 - For the prevention or repair of fretting on mating parts.
 - For the rectification or reconditioning of small shafts and housings for the reception of bearings, but not including screw shafts.
 - For the surface protection against corrosion of certain machinery components including the repair of areas corroded in service.
2. Deposition by contact electroplating is to be carried out in accordance with the manufacturer's recommendations and with a process approved for the thickness to be deposited and by a works recognised by the Society for this purpose. At the discretion of the surveyor, periodic adhesion tests may be required. This is particularly relevant when the deposited thickness is less than 0.08mm.
3. The plating is not to be regarded as adding any strength to the parent member, whose reduced diameter is to meet rule requirements for the purposed rating.
4. In all cases, certificates should make reference to the plated components.
5. A job record shall be kept for each plating job so that this information can be retrieved and re-used when appropriate.
6. Plating of sliding contacting surfaces of turbines, reduction gears, electric power generating units, main propulsion shaft seals, steam valve seats, diesel engine crankshaft and other similar applications require a case by case approval.
7. The surface to be plated is to be free from cracks and other significant defects, and if suspect, should be examined by a magnetic particle or other appropriate method.
8. The geometric form at the extremities of the plating is to be designed to minimize stress concentrations. Any undercutting of the bearing surface in preparation for plating is to be finished with a radius as large as practicable and the edge of the plating is to be smooth finished to remove any high current density edge buildup.
9. Parts which have been nitrided, carburized or otherwise hardened to HRC 45 or greater, shall not be restored to plan dimensions in the case-hardened area.
10. Previously spray metallized parts shall not be repaired unless the metallized coating is completely removed.
11. The plating is to be free from grinding cracks and is to be examined by fluorescent dye penetration crack detection on completion of the grinding to the surveyors satisfaction.
12. The specified minimum tensile strength of the parent material is to be not more than 95 kg/mm².
13. The plating is to be stopped clear of the fillet radius. Any undercutting of the bearing surface to receive the plating is to be blended out not less than 2.5 mm from the point of tangency of the fillet radius. Where there is no undercutting of the bearing surface, a distance of not less than 1.5 mm between the edge of the plating and the point of tangency of the fillet radius is acceptable subject to satisfactory blending of the plating edge.

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