

## **CERTIFICATION SCHEME FOR TYPE APPROVAL OF PRODUCTS**

### **1. Introduction**

- 1.1 Scheme for type approval of products of Indian Register of Shipping (IRS) is an impartial certification system based on a design review and type testing or a design analysis, intended to provide confidence to end user that such products, when built to the same design in a similar manner either on an individual basis or under a series production system under manufacturer's own quality assurance system will continue to meet all the requirements of the product specifications
- 1.2 Scheme for Type approval is available for a wide range of products with applications in marine, offshore industries, industrial plants and processes, business and domestic usage.
- 1.3 IRS has procedures for granting design or other approval to products not considered appropriate for Type approval and further details can be supplied on request.

### **2. Definitions**

*Conformity* : The fulfillment by a product or group of products, of all requirements specified.

*Descriptive Provision* : A provision for fitness for purpose that concerns the characteristics of a product in terms of design construction, dimensions and materials.

*Design Review* : Assessment of a product's relevant design drawings, catalogues, data, sheets, design calculations, functional descriptions and test evidence against the descriptive and performance provision of specified standards.

*Fitness for Purpose* : The ability of a product to serve a defined purpose under specific conditions.

*Performance Provision* : A provision for fitness for purpose that concerns the behaviour of a product in or related to use.

*Manufacture* : The organization who either manufactured the product, who abstracted it, or who carried out the industrial or other process which gave it its essential attributable characteristics.

*Product* : All goods produced either by abstraction, manufacture or a natural, industrial or other process and includes a product which is comprised in another product, whether by virtue of being a component part or raw material or otherwise.

For the purpose of IRS Type approval the term product can include a line or group of products manufactured to the same specified standard(s).

*Product Standard* : A document, established by consensus by a recognized body, that specifies the requirements to be fulfilled by a product, or group of products, to establish its fitness for purpose.

*Type Approval Certificate* : A document issued under these procedures indicating that adequate confidence is provided that a duly identified product or group of products, is in conformity with a specific product standard or other accepted document. It is a document that:

- Identifies the manufacturer;
- Specifies the field of application / special operational limitation of the product;
- Specifies the conditions to be complied with to retain the approval during the validity period.

*Type Testing* : A method under which a sample of a product or group of products is tested in order to assess whether the performance provisions of a specified standard are fulfilled, either directly or by simulation of the influencing conditions that may occur in service.

*Type Approval* : The status given to a duly identified product or group of products that has been shown by examination, tests and inspections to meet all the requirements of specific product standard or other accepted document and which is suitable for a specific application.

### **3. Approval Criteria**

- 3.1 IRS Type approval is granted on the basis of the approval procedure (see Section 4 of this procedure), to confirm that the descriptive and performance provisions of the specified standard(s) are fulfilled.
- 3.2 IRS reserves the right to refuse applications for Type approval for products made to standards, which are not considered suitable.
- 3.3 Type approval is given on the understanding that the manufacturer's recommendations and instructions for his product and any relevant requirements of IRS Rules are fulfilled.

- 3.4 Type approval of products for marine applications should satisfy the applicable IRS Rule requirement.
- 3.5 Type approval does not preclude inspection or survey procedures required by IRS Rules and Regulations for Classification of Ships and/or other applicable standard for products to be installed in IRS classed or intended to be classed vessels.
- 3.6 Where Type approval has been granted by another Classification Society or an Inspection Agency recognized by IRS, consideration would be given to the acceptance of authenticated test results provided that these and the design details are found to fulfill the requirements specified for IRS Type approval. Additional tests may be required depending upon circumstances.
- 3.7 The fatigue strength of components involving long term performance or effects of cumulative operating conditions is not evaluated, unless specified in tests.
- 3.8 Where a product is subject to operating conditions such as cyclic loading or chemically induced corrosion, which may dictate the useful life of the product, the manufacturer shall state any such operating requirements which are to be fulfilled.
- 3.9 The full responsibility for ensuring that products supplied conform to the requirements of the drawings and specification rests with the manufacturer and it is not the policy of IRS to diminish this responsibility.

## **4. Approval Procedure**

### **4.1 General**

- 4.1.1 The initial review of product information and the consideration of test reports and existing certification shall be coordinated by IRS Head Office at Mumbai.
- 4.1.2 Inspection shall be carried out and type tests witnessed by local IRS Surveyors unless agreed otherwise in writing.
- 4.1.3 In order to obtain type approval of product the manufacturer has to forward its request together with all supporting documents either to the local office or Head Office of IRS.
- 4.1.4 The type approval process consists of the following activities:
- Review of the product design;
  - Review of the production and quality assurance system of the manufacturer;
  - Review of the product type test proposals;
  - On site verification and witnessing of type testing;
  - Evaluation of test results;
  - Issuance of type approval certificates.

## **4.2 Application for Type Approval**

- 4.2.1 The manufacturer is to apply in writing to IRS, either to local office or directly to Head Office.
- 4.2.2 A separate application for type approval should be made for each product or group of products and each place of production.
- 4.2.3 The application and documents submitted must contain sufficient information to allow the product to be assessed against the design criteria. Typical documentation is listed below:
- i) Product specification and/or reference to design codes, standards, regulations etc;
  - ii) Relevant design drawings with materials specified, catalogues, data sheets calculations, functional descriptions, component lists where necessary and marking of the product;
  - iii) Fabrication specifications, where applicable;
  - iv) Proposed field of application and operational limitations;
  - v) Proposed test programme to demonstrate that the performance provisions of the specified standard(s) may be fulfilled;
  - vi) Certificates and reports for relevant tests previously obtained for the product;
  - vii) Documentation of reliability, by calculations and/or in-service experience;
  - viii) A copy of the specified standard(s), where necessary;
  - ix) Profile of the manufacturer, its production and quality assurance system;
  - x) Any other information that the manufacturer considers necessary.
- 4.2.4 Applications for type approval will also be considered from manufacturer making products under license. Such applications shall be accompanied by a written statement from the licensor confirming that there is no objection to the licensee making the application and shall state the manufacturer's name responsible for the application. Where the licensor already holds IRS type approval certification for the product, details should be included with the application. Consultation with the local IRS office is recommended.

## **4.3 Initial Review at Head Office**

- 4.3.1 A review of submitted information will be carried out to determine whether:
- i) The product is acceptable for IRS type approval;
  - ii) The design of the product fulfills the appropriate descriptive provisions of the specified standard(s);
  - iii) Where appropriate, the design satisfies the relevant requirements of IRS Rules;

- iv) The type tests proposed are appropriate to the product and adequate to demonstrate that the performance provisions of the specified standard(s) can be fulfilled;
  - v) Certificates and reports previously obtained and independently witnessed, may be accepted in whole or in part;
  - vi) The specified standard(s) is appropriate to the product and its intended purpose;
  - vii) The manufacturing facilities, manufacturing processes and quality assurance system are adequate and appropriate to the type of manufacture and test to be undertaken to ensure uniform quality of product;
- 4.3.2 A design analysis may be used to assess performance where:
- i) There is evidence, in the form of performance measurements from similar products, to substantiate the findings of the analysis;
  - ii) The analysis method is recognized by IRS and is well established;
  - iii) It is mutually agreed that type tests cannot be performed or are inappropriate.
- 4.3.3 On completion of the initial design review and acceptance of the application, the local IRS office will be instructed to liaise with the manufacturer in order that dates for inspection and type testing may be arranged. Where applicable, environmental testing will be included in the type testing.
- 4.3.4 If IRS is not satisfied that all the requirements for the type approval are being met, the local IRS office, where applicable will be advised of appropriate recommendations to be made to the manufacturer.

## **4.4 Inspection and Testing**

### **4.4.1 Review of the Organization**

- 4.4.1.1 An inspection of the manufacturer's works will be carried out by IRS Surveyor to the extent that he judges to be necessary for the work involved. The inspection is to ensure:
- that the works is properly equipped with satisfactory test and measuring equipment, gauges etc., appropriate to the type of manufacture and testing to be undertaken and the facilities exist to enable the accuracy and serviceability of such equipment to be maintained to the satisfaction of the Surveyor; and

- that system exists for manufacturing process control to ensure consistency in product quality.

4.4.1.2 The survey may cover following:

- a) Capability, capacity, experience and organization structure of the manufacturer;
- b) The qualification and experience of the production and QA/QC personnel;
- c) Manufacturing facilities;
- d) The system of checking raw materials;
- e) Quality control operations during manufacture and on the finished products;
- f) Packing, identification and labeling;
- g) Storage facilities; and
- h) Record keeping and traceability.

4.4.1.3 Extent of survey may be limited for manufacturers in possession of quality management system certificate.

#### **4.4.2 Selection of Samples**

4.4.2.1 Samples for inspection and testing shall be representative of the entire range of products to be certified and should be produced using the same methods and tools established for the production run, except where the sample is a prototype.

4.4.2.2 Samples are to be selected in agreement with IRS Surveyor. They are to be selected at random and where possible, should cover a series of production batches. In cases of bulk or continuous production, samples are to be taken from different batches and/or on different days.

4.4.2.3 Samples must be positively identified.

4.4.2.4 At any stage during the testing process, if an identification mark is missing or shows signs of tampering, then the sample is to be rejected and a replacement sample chosen and retested.

4.4.2.5 The manufacturer shall ensure that the sample selected are considered to be representative of the product or group of products.

4.4.2.6 Where inspection and testing are based on prototype samples IRS reserves the right to carry out inspection and confirmatory tests, as appropriate, on production samples.

### **4.4.3 Inspection and Testing**

4.4.3.1 The aim of the inspection and testing is to:

- a) Examine and test the material and workmanship and confirm that the equipment has been manufactured and tested in accordance with IRS Rules, the applicable specified design codes, national and international standards, manufacturer's specification in so far as they are applicable;
- b) Demonstrate to IRS that the product is able to perform its specified function;
- c) Establish the performance characteristics of the product / component, where applicable.

4.4.3.2 The tests would be carried out in accordance with schedule of tests which shall include information on following topics:

- a) Itemized lists of tests and duration of each;
- b) Method of tests;
- c) Details of each test including measurements to be taken and recorded;
- d) Details of measuring and test equipment standard of accuracy;
- e) Test conditions;
- f) Performance to be achieved and accepted deviation.

4.4.3.3 In formulating proposals, manufacturers are to combine as many test requirements as practicable to minimize the total number of separate tests.

4.4.3.4 Selected samples shall be inspected at the manufacturer's works, by the IRS Surveyors, to confirm that the descriptive provisions of the specified standard(s) are fulfilled.

### **4.4.4 Testing (Performance and where applicable environmental tests)**

4.4.4.1 Tests, in accordance with the schedule agreed with IRS, shall be carried out on the representative samples to confirm that the performance provisions of the specified standard(s) are fulfilled. Tests shall be witnessed by the IRS Surveyor, unless otherwise agreed in writing.

4.4.4.2 Test methods should be consistent with the purpose of the specified standard(s), be objective, concise, accurate and produce consistent results and be agreed with the IRS Surveyor.

4.4.4.3 The basis and criteria for acceptance shall be stated in the test schedule. The type of product, with type number / serial number and quantity to be tested shall be designated.

4.4.4.4 All test and measuring equipment shall be of proven accuracy, where appropriate to a national or international standard of measurement.

4.4.4.5 Tests may be carried out at the manufacturer's works or at any establishment having suitable facilities, which are acceptable to IRS.

4.4.4.6 Not all tests need be carried out at the same place, but testing should be to the satisfaction of IRS Surveyor.

#### **4.4.5 Test Report**

4.4.5.1 On completion of tests, a report shall be issued, identified by number and date which accurately, clearly and unambiguously presents the test results and all other relevant information.

4.4.5.2 The contents of test report(s) shall include the following minimum information:

- a) Description of product, type of product, with type number / serial number(s) and quantity tested;
- b) Statement of specified duties and requirements of the unit;
- c) Date of test and report date;
- d) Test specification with a sketch (where applicable) and brief description of the test rig actually used and description of each test procedure, its duration and purpose;
- e) Details of test equipment and measuring instruments stating serial numbers and dates of calibration;
- f) Ambient environmental conditions during the test;
- g) The test results with a description of any failures encountered;
- h) A statement that the product has been found to comply with the requirement or where the product does not fully comply, a statement that it has complied apart from the exceptions described.

4.4.5.3 All reports are to be endorsed by the manufacturer and where applicable by the attending Surveyor or agreed independent representative witnessing the tests.



4.4.5.4 The completed product test report is to include any certification and/or test reports or parts thereof accepted under section 4.3.1 (v) of this scheme.

4.4.5.5 The complete product test report(s) shall be submitted in one package for verification at IRS Head Office.

## **4.5 Certification**

### **4.5.1 General**

4.5.1.1 When the report on the manufacturing facilities and test results are considered satisfactory, the manufacturer is issued with a certificate of type approval and suitable entry made in “List of Type Approved Products”.

4.5.1.2 Under exceptional cases IRS may consider issuing of type approval certificate upon submission of type test results, witnessed by any other IACS member society.

4.5.1.3 For newly certified products, initially IRS may issue provisional type approval certificate, for the period of one year. Upon submission of report on satisfactory in-service operational performance of the product validity of such certificates may be extended for another four years.

4.5.1.4 Statutory requirements are also to be verified during certification of products.

### **4.5.2 Issue of a certificate**

4.5.2.1 The type approval certificate will contain the following minimum information:

- i) Name and registered office address of the manufacturer.
- ii) Place of production (if different from (i) above)
- iii) Identification of the certified product or group of products, by description and catalogue number or type designation(s).
- iv) Specified standard(s) or specification (or portion thereof) to which the product(s) has (have) been deemed to conform.
- v) Field of application / special operational limitations of the product;
- vi) Certificate number and date of issue;
- vii) Expiry date of certificate;
- viii) Date of original type approval (in case of renewal of certificates);
- ix) A statement of the terms and conditions covering type approval.

4.5.2.2 The type approval certificate will be issued by IRS Head Office.

### **4.5.3 Extension of Scope of Certificate**

4.5.3.1 The scope of a type approval certificate may be extended by the issue of a new certificate or an extension document if:

- i) The manufacturer wishes the certification to cover additional type similar to those products already approved, made to the same specified standard(s) for which the type approval certificate was issued.
- ii) The manufacturer wishes the certification to attest to the conformity of his product(s) with additional specified standard(s).
- iii) The manufacturer wishes the certification to include an additional place of production.
- iv) An amendment is agreed to the original certificate.

4.5.3.2 Upon receipt of an application for extending scope of a type approval certificate IRS will advise the manufacturer of any additional provisions such as additional information, inspection or testing to be fulfilled in order that an extension may be granted.

4.5.3.3 If necessary an additional design review will be carried out to assess the additional products or the conformity of the product(s) with the additional specified standard(s).

4.5.3.4 Provided the application for extending the scope of a type approval certificate is accepted and the additional provisions fulfilled (if any) IRS will issue an extension to the type approval certificate document which will supplement the original certificate.

4.5.3.5 An extension to the scope of a type approval certificate is granted for the same period specified on the original certificate.

4.5.3.6 If any additional provisions are fulfilled appropriate statements will be included on the extension to the type approval certificate.

### **4.5.4 Renewal of a Certificate**

4.5.4.1 A type approval certificate may be renewed for a further period of validity, at the manufacturer's request, by the issue of a new certificate.

- 4.5.4.2 Upon receipt of an application for renewing a type approval certificate IRS will advise the manufacturer of any additional provisions such as additional information, inspection or testing to be fulfilled in order that renewal of the certificate may be granted.
- 4.5.4.3 The place of manufacture may also be inspected by the local IRS Surveyor to confirm that the product is unchanged from that to which the original type approval certificate was issued and that materials, manufacturing and production controls continue to ensue the conformity of the product throughout the life of the type approval certificate.
- 4.5.4.4 Provided the application for renewing a type approval certificate is accepted and the additional provisions fulfilled (if any), IRS will issue a type approval certificate.
- 4.5.4.5 If any additional provisions are fulfilled appropriate statements will be included on the renewed type approval certificate.
- 4.5.4.6 Applications for renewing certification should be made in writing at least three months before the validity of the existing certificate expires.
- 4.5.4.7 Request for renewal of type approval certificate as per standard which was in force at the time of original test will be specially considered.
- 4.5.4.8 Applications for renewal of type approval certificates will be considered subject to the testing requirements in force when originally tested. Advice will be given concerning additional testing required to comply with current IS type approval certification scheme, test specifications, product standard or IRS Rules, if applicable.
- 4.5.4.9 Where there is no change to the product following issue of the original type approval certificate, upto three renewals will be considered before retesting of the product is required.

#### **4.5.5 Cancellation or Withdrawal**

4.5.5.1 IRS reserves the right to cancel a type approval certificate if:

- i) Any design and/or construction changes are made to a certified product which are deemed to adversely affect the descriptive or performance provisions under which type approval was granted;
- ii) Safety or any other feature of a certified product is found to be unsatisfactory in service;
- iii) Improper use is made of the certificate or the IRS type approval mark or of IRS's name, in marketing the product;

- iv) Due settlement of fees for IRS's services associated with the type approval certificate is not completed.
- v) The manufacturer moves from the address stipulated on the certificate, without informing IRS in writing.

4.5.5.2 In addition, a type approval certificate will be withdrawn if:

- i) The product manufacturer does not wish to renew the certification;
- ii) the product is no longer produced;
- iii) The specific relationship between manufacturer making a product under license and the licensor no longer applies (refer to Section 4.2.4 of this scheme).

4.5.5.3 If IRS considers that a type approval certificate should be cancelled or withdrawn, the manufacturer will be informed in writing and given the opportunity to take appropriate corrective action or give notice of appeal.

4.5.5.4 IRS reserves the right to publish details of withdrawn or cancelled type approval certificates, together with reasons, if considered necessary.

## **5. Fees for Type Approval**

- 5.1 Fees for type approval certificate will be charged on the basis of initial design review at Head Office, inspection of manufacturing facilities, inspection and witnessing of type tests of product, assessment of test reports and issue of type approval certificate.
- 5.2 For extending or renewing a type approval certificate, a quotation will be made upon acceptance of an application for extension or renewal.
- 5.3 Fees quoted will remain valid for twelve months. If, at the end of that time, the type approval has not been completed, a revised quotation may be made.
- 5.4 Should a manufacturer withdraw his application for or abandon type approval, for whatever reason, IRS reserves the right to charge fees for costs already incurred.

## **6. Manufacturer's Responsibility**

- 6.1 In supplying a product or a group of products which has been granted type approval by IRS, its manufacturer will ensure that:
  - i) Each product supplied is in strict conformity with that certified by IRS.

- ii) Each product supplied is provided with adequate protection and preservation, to maintain conformity with the IRS certification, until it reaches the purchaser.
  - iii) Each product supplied is provided with appropriate instructions for, or warnings with respect to, doing or refraining from doing anything with or in relation to the product, its installation or with respect to its purpose.
- 6.2 The manufacturer must not mislead purchasers concerning IRS type approval by the claiming of performance or purpose of products not covered by the certification.
- 6.3 The manufacturer shall maintain a record of all complaints and corresponding corrective actions taken to each product certified. Such records must be available for IRS's review on request.

## **7. Publication**

- 7.1 List of IRS type approved products with names and addresses of manufacturers are published periodically. Such lists are categorized as per type of products and can be purchased on payment of a nominal fee.

## **8. Declaration**

- 8.1 All information received in the course of its type approval services will remain confidential with IRS.

*The End*