



Hi-Tech Membranes Co., Ltd.

HI-TECH MEMBRANES REVERSE OSMOSIS MEMBRANE ELEMENT WARRANTY GUIDELINES

Hi-Tech Membranes Co., Ltd. (“Hi-Tech”) provides the following limited warranty to the original purchaser (“Buyer”) of its reverse osmosis membrane elements (“Elements”), subject to the terms and conditions below:

1. MATERIALS AND WORKMANSHIP WARRANTY

Hi-Tech warrants that new Elements shall be free from defects in materials and workmanship for one (1) year from the date of receipt by Buyer.

For a defect verified by Hi-Tech under this warranty, Hi-Tech may, at its option, repair or replace the affected Element under delivery terms consistent with the original sale. Removal and installation of replacement Elements shall be at Buyer’s cost.

This warranty does not cover defects or damage resulting from failure to follow Hi-Tech’s applicable technical instructions, operating and handling requirements, or generally accepted engineering practices.

2. INITIAL PERFORMANCE WARRANTY

Hi-Tech warrants that each Element shall meet the applicable minimum product flow rate and minimum salt rejection stated in Hi-Tech’s specification sheet for the relevant model when tested under the test conditions stated in that specification sheet.

If an Element fails to meet the applicable initial performance specification and Hi-Tech verifies the deficiency, Hi-Tech may repair or replace the affected Element. Freight for a replacement approved under the Initial Performance Warranty shall be borne by Hi-Tech.

Claims involving initial hydraulic performance are subject to the claim requirements and time limits in Section 5.

3. THREE-YEAR PERFORMANCE WARRANTY

For a period of three (3) years from the date of receipt by Buyer, and provided the Elements are operated and maintained in accordance with this Warranty and Hi-Tech’s applicable specifications and operating requirements, Hi-Tech warrants that:



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- a. Salt passage shall not exceed three (3) times the Maximum Salt Passage applicable to the Element;¹ and
- b. Permeate flow shall remain at or above seventy percent (70%) of the Minimum Product Flow Rate specified for the applicable model.

The above performance values shall be determined by reference to the applicable Hi-Tech specification sheet and the corresponding operating or test conditions.

4. CONDITIONS OF PERFORMANCE WARRANTY

The Performance Warranty applies only where the following conditions have been satisfied:

4.1 Operating Conditions. Elements must be operated within the operating limits, conditions and recommendations stated in Hi-Tech's applicable specification sheets and technical instructions.

4.2 System Design. System configuration, array, recovery, instrumentation, components and other design parameters must conform to sound engineering practice. Hi-Tech may review a system design but any such review shall not constitute a warranty or guarantee of the system design.

4.3 Feed Water and Fouling. Elements must not be materially affected by precipitates, suspended solids, organic matter, inorganic scale, biological growth, oil, grease or other substances detrimental to membrane performance.

4.4 Oxidants. Feed water must not contain oxidizing agents, including active chlorine or ozone, at concentrations harmful to the Elements or their expected operating life.

4.5 Cleaning Chemicals. Nonionic or cationic surfactants and coagulants shall not be used for membrane cleaning or otherwise allowed to contact the Elements where such substances may adversely affect membrane performance.

4.6 Mechanical Protection. Elements must be protected from excessive vibration, pulsation, load shocks, air hammer, water hammer and similar mechanical stresses during start-up, operation and cleaning. Back pressure where permeate-side static pressure exceeds feed-side static pressure shall not exceed 0.3 bar.

¹ For purposes of this Warranty: Maximum Salt Passage (%) = 100 – Minimum Salt Rejection (%).



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4.7 Performance Decline. Where permeate flow, salt rejection, pressure drop or other system performance materially deteriorates, appropriate corrective action must be taken within a reasonable period.

4.8 Operation and Maintenance. Buyer shall ensure that operators and end users receive adequate operating and maintenance instructions and are capable of performing appropriate cleaning, performance restoration, diagnostics and troubleshooting.

4.9 Operating Records. Buyer shall maintain adequate normalized performance records from initial system start-up, together with relevant operating, maintenance, troubleshooting and chemical-dosage data. Such records must be supplied to Hi-Tech upon request in connection with any warranty claim.

4.10 Storage. Before installation, Elements must remain properly sealed in their original shipping bags and packaging, protected from direct sunlight, and stored at temperatures between 0°C (32°F) and 35°C (95°F).

Failure to satisfy any material condition above that caused or contributed to the claimed performance deficiency may void the applicable Performance Warranty.

5. WARRANTY CLAIMS AND NOTICE REQUIREMENTS

Any warranty claim must relate to a defect or performance deficiency arising within the applicable warranty period.

Buyer must submit the claim to Hi-Tech in writing, together with Hi-Tech's complaint form, supporting hydraulic test data and any other documentation reasonably requested by Hi-Tech, within thirty (30) days after Buyer discovers or reasonably should have discovered the alleged defect or performance deficiency. Failure to submit a claim within such thirty (30)-day period shall constitute a waiver of that claim.

Claims relating to visible damage, shortages, shipping damage, defects reasonably discoverable through initial inspection, or failure to meet initial hydraulic performance specifications must be submitted within thirty (30) days after receipt of the Products.

All warranty claims shall be subject to Hi-Tech's investigation, verification, and the terms and conditions of this Warranty.

6. REMEDY UNDER THE THREE-YEAR PERFORMANCE WARRANTY

For a performance deficiency verified by Hi-Tech under Section 3, Buyer's exclusive remedy and Hi-Tech's total obligation shall, at Hi-Tech's option, be to:



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- a. repair or regenerate the affected Element; or
- b. provide a replacement Element at Hi-Tech's then-current ex-works price, less a prorated credit reflecting the unused portion of the applicable three-year warranty period.

Customs duties, taxes, levies, government charges, installation, removal and similar costs are excluded from the prorated credit and shall be borne by Buyer.

The total number of replacement Elements provided under the Performance Warranty shall not exceed the number of original Elements purchased that are the subject of the applicable warranty claim. Installation and replacement work shall be performed at Buyer's cost.

7. INSPECTION AND VERIFICATION

Hi-Tech may, at its discretion:

- a. send Hi-Tech personnel or an independent technical expert to inspect the installation and investigate the claim; and/or
- b. require Buyer to return the affected Elements to a location designated by Hi-Tech, freight prepaid, for examination and testing.

If Hi-Tech determines that the claimed failure is not covered by this Warranty, or that the tested Elements satisfy the applicable warranty requirements, Buyer shall reimburse Hi-Tech for inspection costs at USD 1,000 per person per day, together with reasonable direct travel, testing and related expenses.

Any Elements returned for examination may thereafter be returned to Buyer at Buyer's freight expense.

8. OPERATING AND HANDLING REQUIREMENTS

In addition to the foregoing warranty conditions:

- a. Where antiscalant is used, Buyer shall confirm compatibility of the antiscalant with the applicable membrane through the antiscalant supplier or manufacturer.
- b. Permeate produced during the first hour of initial operation should be discharged.
- c. Elements should operate normally for at least twenty-four (24) hours before formaldehyde is introduced as a biocide. Exposure to formaldehyde before this period may cause irreversible loss of membrane flux.



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d. Buyer must contact Hi-Tech and obtain return instructions before sending any Element to Hi-Tech for warranty evaluation.

9. WARRANTY EXCLUSIONS

This Warranty does not cover any failure, damage or performance deterioration resulting from causes including:

- misuse or improper handling;
- improper installation;
- operation outside applicable specifications or operating limits;
- improper system design or operation;
- fouling, scaling or biological contamination;
- exposure to harmful chemicals or oxidizing agents;
- improper cleaning or maintenance;
- mechanical shock or excessive back pressure;
- improper transportation or storage after risk of loss has passed to Buyer; or
- any other external condition not attributable to a defect in Hi-Tech materials, workmanship or warranted membrane performance.

10. DISCLAIMER AND LIMITATION

Except for the express warranties stated in this document, and to the maximum extent permitted by applicable law, Hi-Tech makes no other express or implied warranties, including warranties of merchantability or fitness for a particular purpose.

Hi-Tech shall not be liable for indirect, incidental, special, exemplary, punitive or consequential damages, including loss of profits, loss of production, loss of use, plant shutdown or downtime, or claims asserted against Buyer by third parties arising from an Element defect or performance failure.

The remedies stated in this Warranty are Buyer's exclusive remedies for claims covered by this Warranty.

Buyer shall provide Hi-Tech with complete and accurate information concerning the application, system design, feed water, operating conditions, maintenance history, chemical use and other information reasonably required to investigate a warranty claim. Failure or refusal to provide material operating information may void the Performance Warranty where such information is reasonably necessary to verify the claim.

The warranty exclusions, limitations of liability and remedy limitations contained herein shall survive expiration of the applicable warranty period.