TORAY Industries, Inc. fuses nanotechnology into its operations, using organic synthetic chemistry, polymer chemistry and biotechnology as its core technologies. In addition to the “Foundation Businesses” of fibers & textiles and plastics & chemicals, TORAY has promoted the global development of IT-related products, carbon fiber composite materials, pharmaceuticals and medical products as well. We are also involved in environment & engineering including water treatment and making progress in other pivotal business fields. While we will continue to strengthen our existing plant engineering business, the environment & engineering segment is expected to expand, especially in the water treatment business.
TORAY Advanced Membrane Technology for a Sustainable Future


High Chemical Resistance & High Mechanical Strength
PVDF (polyvinylidene fluoride) gives the membrane superior physical strength and chemical resistance.

High Water Permeability & High-quality Effluent
Numerous and uniform small pores (0.08 micrometer) enable higher quality of treated water and high fouling resistance.

Why Flat Sheet Membrane?
High Fouling Resistance
Flat sheet membrane offers superior in fouling resistance compared with hollow fiber membrane.

Simple System & Operation
Flat sheet membrane does not require a backwash system to operate reliably.

Easy Maintenance
Simple module design with flat sheet membrane enables easy maintenance and cost savings.

Outstanding References Worldwide
TORAY’s membrane modules provide high-quality water on a daily basis for advanced wastewater treatment, RO pretreatment, water reuse and many other applications.

Worldwide Research & Development Organization
TORAY has been developing our innovative membrane products with polymer science and membrane fabrication technologies accumulated in our global R&D organizations for more than 30 years.

Comprehensive Global Production Network
TORAY has a comprehensive global production network of RO, UF and MBR products. We supply high-quality full-range water treatment products worldwide.

TORAY Membrane Products

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TORAY Membrane Products
### TORAY MEMBRAY™ Main Product List

**Series**
- **TMR140 Series**
  - **Model**: TMR140-050S, TMR140-100S, TMR140-200W, TMR140-200D, TMR140-400DW
  - **Effective Membrane Area (m²)**: 1.4, 0.9
  - **Nominal Pore Size**: 0.08 micrometer
  - **Dimensions (mm)**: 515 x 1,608 x 13.5 (Thickness)
  - **Material**: Membrane PVDF (polyvinylidene fluoride) + PET non-woven fabric, Supporting Panel ABS resin
  - **Design Flow (m³/day)**: 8 - 53, 15 - 105, 30 - 210, 32 - 210, 60 - 420
  - **Number of Membrane Elements**: 50, 100, 200, 200, 400
  - **Total Membrane Area (m²)**: 70, 140, 280, 280, 560
  - **Width (mm)**: 810, 810, 840, 810, 840
  - **Length (mm)**: 950, 1,620, 3,260, 1,620, 3,260
  - **Height (mm)**: 2,100, 2,100, 2,100, 4,160, 4,160
  - **Weight (dry)*1**: 400 kg, 695 kg, 1,430 kg, 1,365 kg, 2,690 kg
  - **Material**:
    - **Frame**: 316L stainless steel*²
    - **Permeated Water Manifold**: 316L stainless steel*², Polypropylene*³
    - **Diffuser**: 316L stainless steel*², Polypropylene*³
    - **Element fixing gasket**: EPDM Rubber
  - **Connection range**:
    - **Permeated Water Manifold**: ANSI 1 1/2 inch, ANSI 2 inch, ANSI 3 inch
    - **Diffuser**: ANSI 1 1/4 inch, ANSI 1 1/2 inch, ANSI 2 inch
  - **Operating Range**:
    - **Temperature**: 5 - 40 degree C
    - **pH* of liquid**: 5 - 10
    - **MLSS**: Not higher than 18,000 mg/l
    - **Trans-membrane pressure**: Not higher than 20 kPa (200 mbar)

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*Note: Specifications subject to change without notice.*

*1. Weight of the heaviest stainless steel manifold & diffuser model, slightly lighter when applying Polypropylene.
*2. 304 stainless steel is available as option.
*3. 304 stainless steel and 316L stainless steel are available as option.
*4. Except when the chemical cleaning with the designated chemical agents.