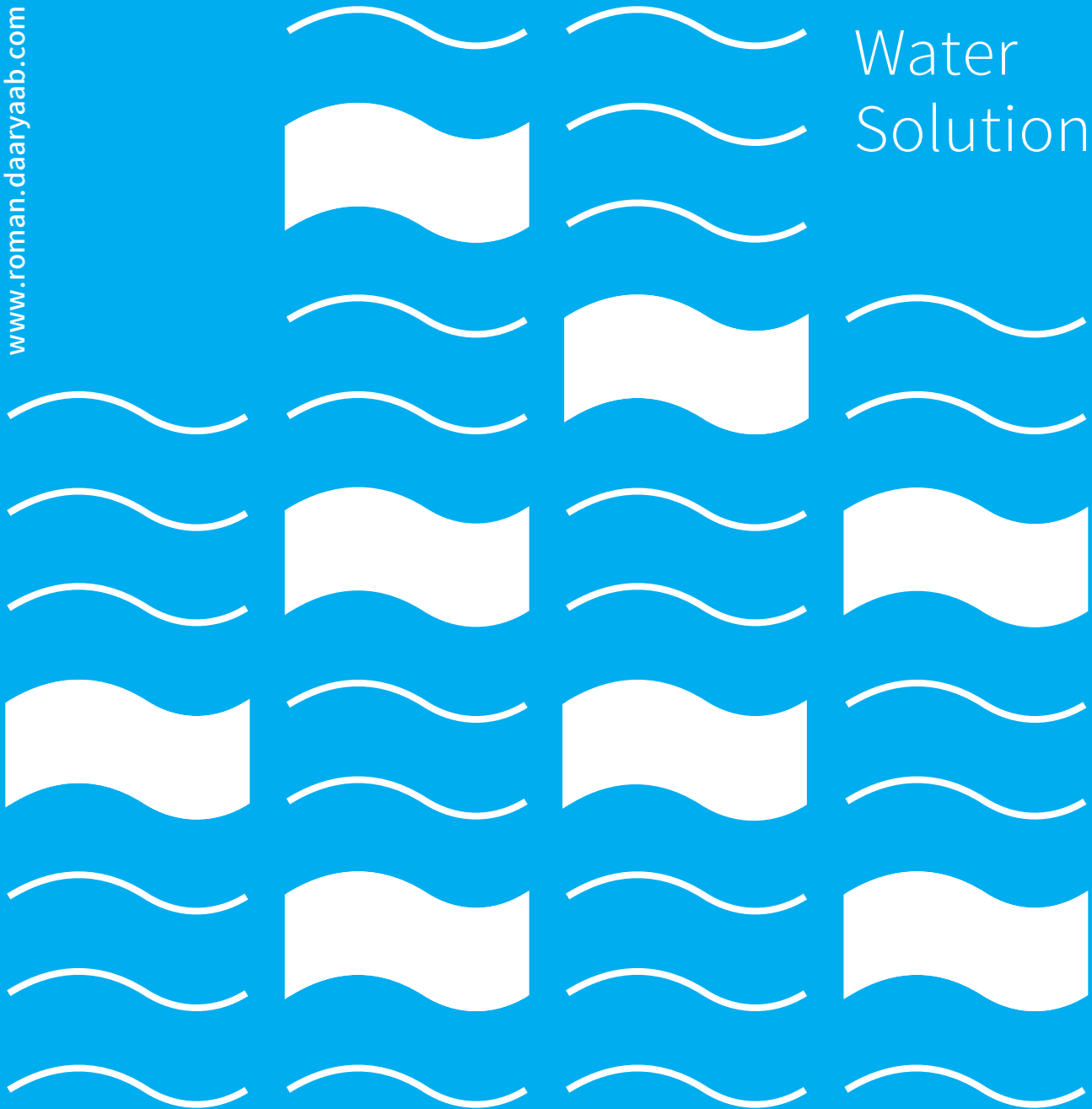


www.roman.daaryaab.com

Water  
Solution



**ROMAN**  
Water solution



Sand Filter

powered by PACKMAN industrial group



# Sand Filter



## Product Description

Sand Filtration is a frequently used very robust method to remove suspended solids from water. The filtration medium consists of multiple layers of sand with different sizes and specific weight. Packman's pressure sand filters are mostly used to purify water. A process called backwash is necessary in specified intervals to clean the filter.

## Applications For Sand Filtration

- Preparation of cooling water
- Treatment of waste water
- Production of drinking water
- Filtration in swimming pools
- Pre filtration for membrane systems
- Filtration of grey or surface water
- Iron removal from water

When the filters are loaded with particles, the flow direction is reversed and the flow rate is increased to clean the filter again. This step is called backwash. Cleaning time is determined by one of the following criteria's: The type of water, suspended solids concentration, oil and grease, COD/ BOD and iron contents. The arrangement of sand layers allow the largest dirt particles to be removed at top of the filter bed and smaller dirt particles being retained deeper in the media. This down-flow filtration permits delivery of high quality filtered water at much faster flow rates.

## PACKMAN Sand Filter Properties

PACKMAN'S Sand Filters are used to filter water-insoluble particles with a diameter is larger than 1 NTU. These Filters which are used in swimming pools and industrial applications, are made of steel plates of ST37 grade (recommended for the manufacturing of pressure vessels with no direct fire contact). In case of customer's request, the filters can be made of 17MN4 (suitable for boiler construction) without any changes in product's price.

The Sand filters are vertical cylinders in different diameters with two heads. The diameter of the fitting, quantity of nozzles and filtration velocity are the most important features of sand filters.



The installed geyser on top of the sand filter, uniform the water flow and causes water to pass through the silica substrate in a balanced manner.

### Manufacturing Standards

ASME Sec VIII, Div. 1 is observed in construction of sand filter tanks.

### Torispherical / Elliptical Head

PACKMAN's sand filter's head is Torispherical. This type of head has a longer life and a higher pressure strength compared to other shapes with the same thickness. The production price per kilo of these heads can reach to twice the price ratio of the usual heads on the market.

### Welding Procedure

Welding is done with the Swedish ISBU submerged arc welding equipment. After constructing the tank and welding the lugs, the body of the tank is connected to the heads using a submerged welding method. The heads are welded internally and externally, which increases their life & strength. In the root pass, the TIG, argon or other welding methods with the 6010 cellulose electrode is used. The EW7018 electrode is used in the fill pass. The submerged method with EW7018 electrodes is than used in the cover pass.

### Back Wash Piping

PACKMAN'S Sand Filters are equipped with necessary valve. If it is required, PACKMAN can also do the Back-Wash piping.

### Silica And Filter

High grade silica with a purity of 98% with the following specifications will be delivered along with tanks:

Silica Specification	
0.5-1.5 mm	Silica diameter-Grade 1
1.5-3 mm	Silica diameter-Grade 2
3-5 mm	Silica diameter-Grade 3
5-8 mm	Silica diameter-Grade 4
1 m	Total height of Silica
1.35	The silica uniformity coefficient inside the filters

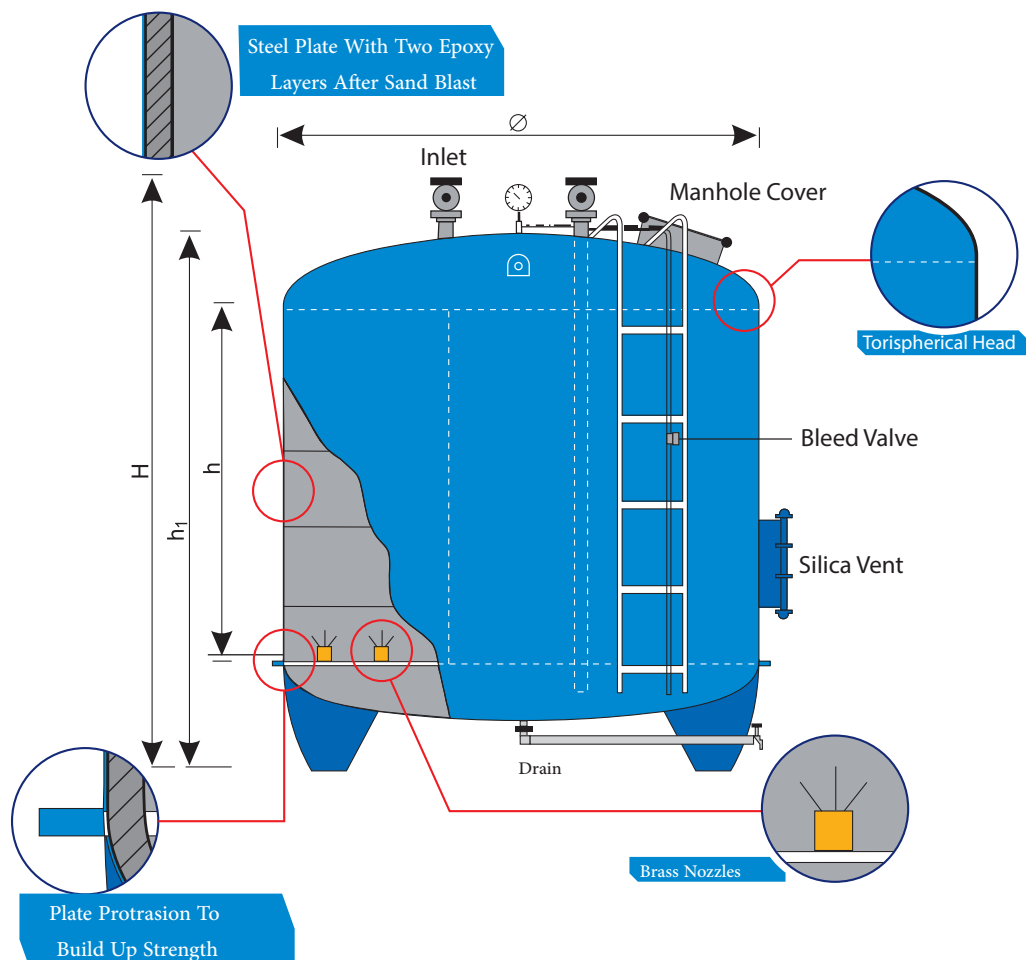


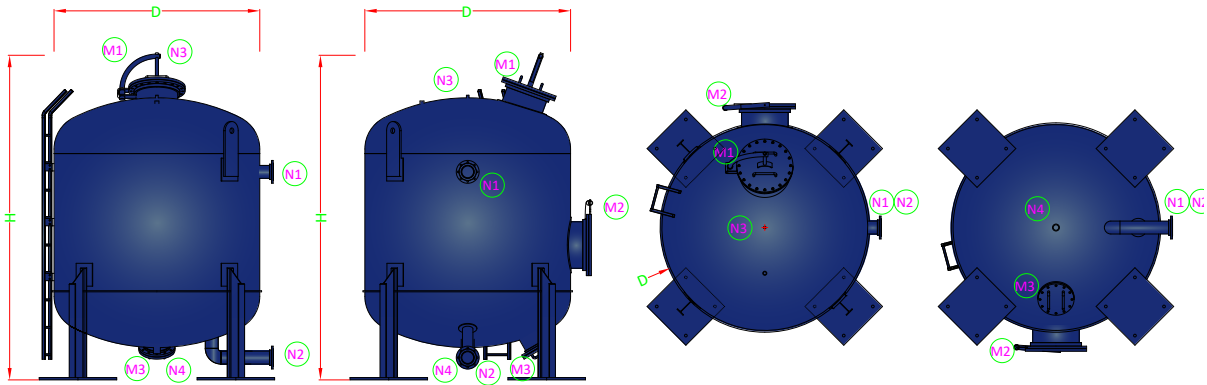
## Sand Filter Coating

The outer coating of the sand filters consists of special industrial color and epoxy in three layers (275 microns thickness). The internal coating is made up of 100 micron thickness epoxy on a sandblasted layer.

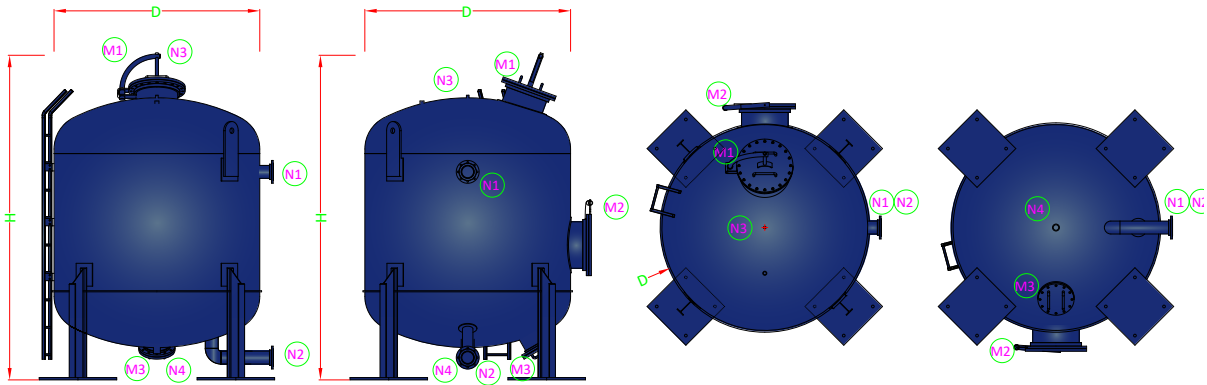
## Nozzles

The nozzles used in PACKMAN'S sand filters are all made of brass, and for each square meter of sand surface, about 50 nozzles are placed, which makes the optimum washing procedure possible.





Model	Unit	PSF-24	PSF-32	PSF-44	PSF-50	PSF-60	PSF-70	
<b>Technical Data</b>								
Vessel Type	Type	Vertical						
Flowrate Capacity	6 gpm/ft <sup>2</sup>	Gpm	18	33	60	80	120	160
	7 gpm/ft <sup>2</sup>	Gpm	21	38	70	90	135	185
	8 gpm/ft <sup>2</sup>	Gpm	24	43	70	110	155	210
Working Pressure	bar	4	4	4	4	4	4	
Vessel Water Pressure Drop	bar	0.1	0.1	0.1	0.1	0.1	0.1	
Working Water Temperature	°C	55	55	55	55	55	55	
<b>Connectoins Size</b>								
Hand Hole (M1)	in	6	6	8	10	12	14	
ManHole (M2)	in	14	14	16	16	16	20	
Hand Hole (M3)	in	5	6	8	10	10	10	
Inlet (N1)	in	11/4	11/2	2	21/2	3	4	
Outlet (N2)	in	11/4	1/2	2	21/2	3	4	
Manometer (N3)	in	1/2	1/2	1/2	1/2	1/2	1/2	
Drain (N4)	in	1	1	1	1	11/2	2	
<b>Material</b>								
Shell	Type	Carbon Steel/Stainless Steel/Galvanized Steel Based on Client Request						
Head								
<b>Vessel Dimensions</b>								
Vessel Diameter (D)	mm	600	800	1100	1250	1500	1750	
Vessel Height (H)	mm	1750	1850	2250	2650	2900	3100	
<b>Silica Sand</b>								
Weight	kg	325	560	1,730	2,300	3,235	4,395	



Model	Unit	PSF-80	PSF-90	PSF-100	PSF-110	PSF-120	
<b>Technical Data</b>							
Vessel Type	Type	Vertical					
Flowrate Capacity	6 gpm/ft <sup>2</sup>	Gpm	210	265	325	385	470
	7 gpm/ft <sup>2</sup>	Gpm	245	300	380	450	550
	8 gpm/ft <sup>2</sup>	Gpm	280	350	435	550	625
Working Pressure	bar	4	4	4	4	4	
Vessel Water Pressure Drop	bar	0.1	0.1	0.1	0.1	0.1	
Working Water Temperature	°C	55	55	55	55	55	
<b>Connectoin Size</b>							
Hand Hole (M1)	in	18	18	18	20	20	
ManHole (M2)	in	20	20	20	20	20	
Hand Hole (M3)	in	10	10	10	10	10	
Inlet (N1)	in	5	5	5	6	6	
Outlet (N2)	in	5	5	5	6	6	
Manometer (N3)	in	1/2	1/2	1/2	1/2	1/2	
Drain (N4)	in	2	2	2	2	2	
<b>Material</b>							
Shell	Type	Carbon Steel/Stainless Steel/Galvanized Steel Based on Client Request					
Head							
<b>Vessel Dimensions</b>							
Vessel Diameter (D)	mm	2000	2250	2500	2750	3000	
Vessel Height (H)	mm	3500	3550	3700	3850	3950	
<b>Silica Sand</b>							
Weight	kg	5,755	7,295	9,020	11,010	13,000	

# PACKMAN GROUP

## History

The Packman Company was founded in February 1975, and was soon afterwards registered in companies Registration Office. In early years the Packman construction and service branch focused on building installations. Different mega power plants were built by cooperating with Brown Boveri and Asseck companies in 1976.

The company started its official activities in construction of High-Pressure Vessels such as Hot-Water Boilers, Steam Boilers , Storage Tanks, Softeners and Heat Exchangers from 1984.

Packman Company is one of the first companies which supplied the high quality and standard hot water boilers to the customers.

Packman has exported its products to countries such as Uzbekistan, United Arab Emirates and other countries in the Middle East. It is one of the largest producers of hot-water and steam boilers in the Middle East.

Now we are proud to announce that the Packman industrial group has five major sub-brands that have product titles in all field of HVAC equipment and engineering services, and we do not know this success except with the help and support of our customers.

1. Construction Services Industry Association
2. Industry Association
3. Construction Companies' Syndicate
4. Technical Department Association
5. Mechanical Engineering Association
6. Engineering Standard Association

### Departements:

#### Sales Deps:

- ∩ Power Plant & Petrochemical
- ∩ Industrial
- ∩ Hospitally Service
- ∩ Commercial & Residential
- ∩ Sport Complex & Pool

#### Technical Deps:

- ≡ Manufacturing R&D
- ≡ Innovation Center
- ≡ EPC Execute Unit
- ≡ Product Develop Unit
- ≡ Sales Engineering Dep.

#### Others:

- ≈ After Sales Service
- ≈ Project Control
- ≈ Financial Office
- ≈ Commercial Office
- ≈ Marketing Department



# PACKMAN GROUP Brands



**PACKMAN**  
Industrial Group

Designer & manufacturer of Condensing, Hot Water, Steam, Hot Oil & Waste Heat Boilers, Heat Exchangers, Autoclave Pressure & Storage Vessels & etc



**GREENMAN**  
Green mindset, green future

Engineering & Designing Commercial Greenhouse Plant, CO2 Dosing System, Flue gas Condenser & Special HVAC Systems, Sustainable Agriculture & etc



**ROMAN**  
Water solution

Designer & manufacturer Reverse Osmosis Plant & Package, Water Treatment, Softener & Filters and Chemical Dosing Systems & etc



**RAADMAN**  
a look to the future

Designer & manufacturer of Industrial Mono & Dual Block Gas, LPG, Light & Heavy Oil Burners, Premixed & Postmixed Burners, Watertube burners, Process burners, Special application burners & Combustion Solutions & etc



**CHILLMAN**  
Coolest hvac around

Designer & manufacturer of Air & Water Cooled Chillers, Air Handling Units, Fancoil, HVAC Equipment, Cold Storage Room & etc



1. Isfahan Factory



2. Vilashahr Factory



3. Parand Factory



4. Parand (2) Factory



5. Bonyad Factory

# SOME OF Certificates are





# Knowledge Based



**PACKMAN**



**GREENMAN**



**ROMAN**



**RAADMAN**



**CHILLMAN**

+9821 42 362

[www.packmangroup.com](http://www.packmangroup.com)

No 14, 10th Alley, Beihaghi St., Argentina Sq., Tehran-Iran