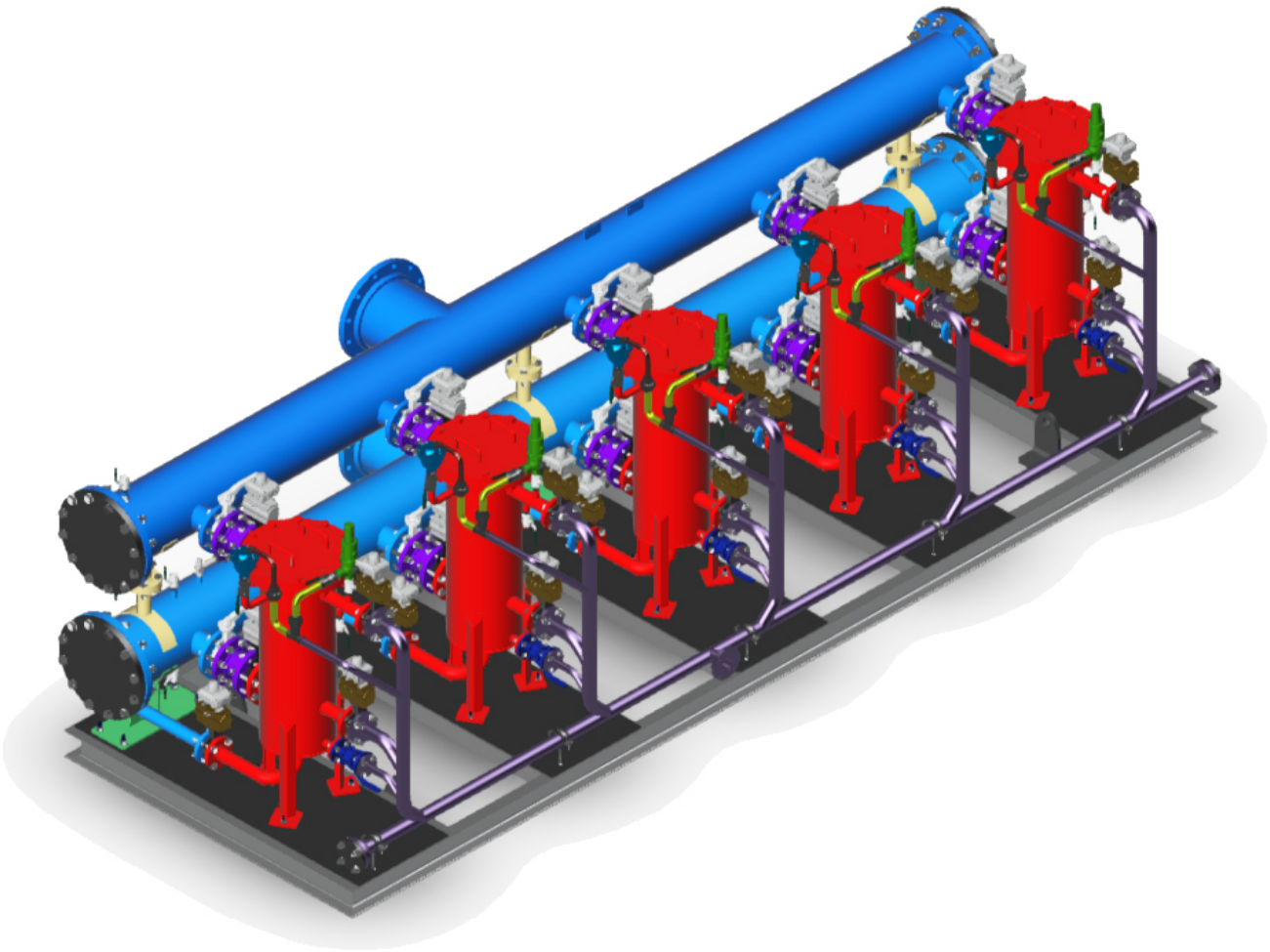
TIMEX
Filtration & Water Systems

HydroSpin
Modular Design Self-Cleaning Filter

Automatic self cleaning filtration system for medium to high flow rates
"Plug and Play"



inlet/outlet	flow rate	filtration degrees	max. operating pressure
100 - 800 mm (4" - 32")	up to 5000 m³/h (22000 gpm)	10 – 500 micron	10 bar (145 psi)

features:

- Two stage filtration; Combination of tangential separation and screen technology
- Innovative hydraulic turbine "HYDROTOR" for backwash - No need for electrical drive unit
- Long-term operation with minimal maintenance
- Easy and simple operation
- Short automatic backwash with regulated water volume for a small water footprint
- Permanently eliminates the need to replace filter media
- Plug and Play; Skid mounted design including all piping and control valves

How Does HYDROSPIN Series Work?

General

The Hydrospin series are modular, automatic screen filters with a patented self-cleaning backwash mechanism which is called HYDROTOR. Hydrospin systems are suitable for the flow rates that are started from 100 m^3/hour and have the capability of very fine filtration. Process fluid comes from the inlet collector and is separated by the appropriate filter number and enters each filter tangentially, forming a centrifugal flow through the inlet connection located at the top of the filter body. For the fluids that have specific gravity more than 2.4, centrifugal force moves particles to the sides of the filter screen without any adhesion and hence two steps filtration is achieved. These filters can provide filtration down to even 10 microns and are suitable for filtration ofdifferent kinds of fluids. Also, wire-mesh screen with the perforated support is used as filter element.

The Filtration Process

Liquid that comes from the inlet collector separated into filters per skid and enters to each filter tangentially by creating a centrifugal flow from the filter inlet connection located at the top of the filter body. Tangential flow can be shown with the Figure-1a as given below. Filtration takes place from the outer surface of the screen element to the inner surface. The gradual dirt particles that builds up on the outer surface of the screen causes a filter cake.

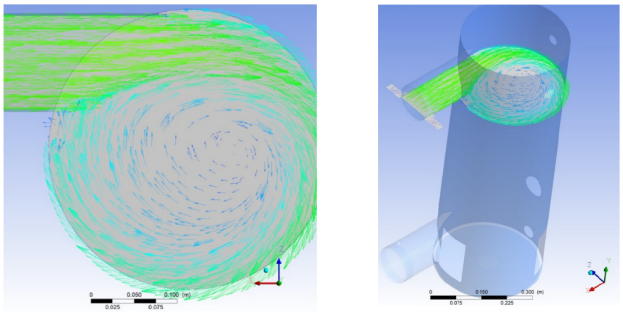


Figure-1a: Tangential Flow (Sample Configuration)

Filtration process is controlled by the help of individual pneumatic actuated butterfly valves which are installed at each filter inlet and outlet connections. During filtration in operation and related valves are on open mode. Also, with manual butterfly valves which are operated on normally open mode are installed at each filter inlet and outlet connections to achieve isolation in case any maintenance issue isrequired.

The Backwash Process

During filtration the gradual dirt particles that builds up on the outer surface of the screen causes a filter cake and creates differential pressure between the upstream and downstream of the filters accordingly. Each filter unit has its own differential pressure transmitter which sense the pressure difference to operate backwash process. Backwash takes place from the inside of the screen to the outside as a vice versa of the filtration process. Filtered water which is taken from the outlet collector is used as backwash stream. Since the operation pressure is enough for backwash, there is no need to use any backwash pump to create spray force inside the screen. If the operation pressure is not enough for backwash process according to filtration degree, additional backwash pump is used to create spray force inside the screen. Spray nozzles help self-cleaning process by spraying treated water with its rotational motion.

When the differential pressure reaches to the pre-set value, which is 0.5, or after a pre-set time has elapsed backwash starts. Pre-set time can be considered as 45 - 50 minutes during the start up. However, pre-set time can be manually re-set on the control panel after observe the optimum duration with respect to the inlet water quality. Pneumatic actuated butterfly valves on the backwash inlet and backwash outlet connections of each filter are used to control the backwash process.While the pneumatic actuated butterfly valves which are located at the filter inlet and filter outlet connections become closed mode, backwash related pneumatic actuated butterfly valves open.

The backwash process is occurred step by step as one filter to another, by achieving continuous filtration within the process. It is also possible to instant pressure control for the outlet of each filter by the help of pressure gauges which are located at the filter outlet connections. Reject water caused by backwash is discharged to the flushing collector.

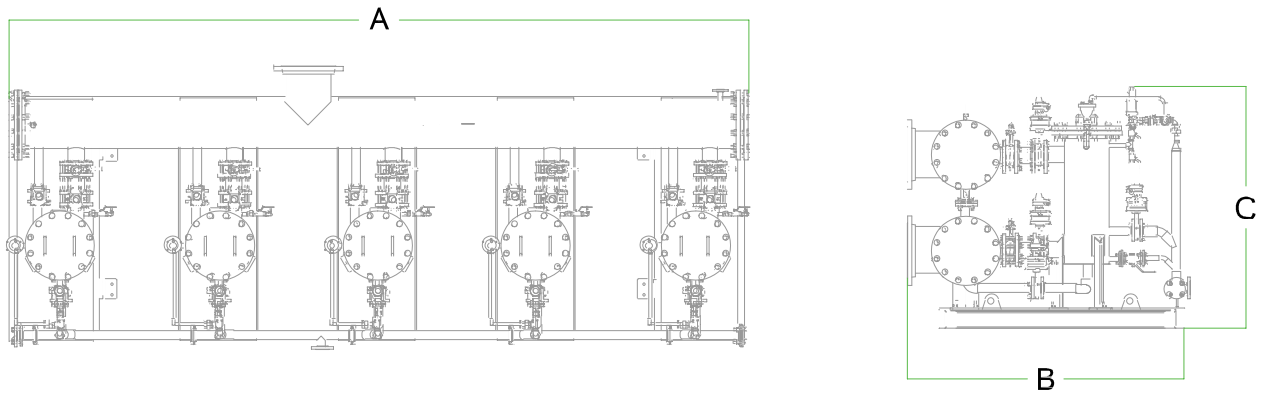
Construction materials	
Filter Housing & Lid	Coated Carbon Steel, Stainless Steel 304/316, Duplex or Super Duplex Stainless Steel
Screen Elements	Stainless Steel 304/316, Duplex or Super Duplex Stainless Steel, SMO254
Control Valves	Pneumatic Act. Butterfly Valves with GG25 or GGG40 Body, SS316L or Alu-Bronze Disc
Manifolds	Coated Carbon Steel, Stainless Steel 304/316, Duplex or Super Duplex Stainless Steel or PE
Seals	NBR or EPDM, (Viton optional)
Control Tubing	PE or PA

Filter Type		3 unit battery	4 unit battery	5 unit battery
General Data				
Max. working pressure*			10 bar (145 psi)	
Backwash pressure requirement		10 - 50 Mic.; 4 - 6 bar	/ 80 - 130 Mic.; 3 bar	/ 200 - 500 Mic.; 2 bar
Maximum recommended flow rate	130µ	1,050 m^3/h (4,623 gpm)	1,400 m^3/h (6,164 gpm	1,750 m^3/h (7,705 gpm)
Filtration volume		10,500 cm^3 (640 in^3)	14,000 cm^3 (854 in^3)	17,500 cm^3 (1,068 in^3)
Filtration area		30,000 cm^2	40,000 cm^2	50,000 cm^2
Inlet/Outlet diameter			100 mm - 400 mm (4" - 16")	
Max. working temperature*			60°C	
Dry weight (standard)		1,480 kg (3,263 lb)	1,960 kg (4,321 lb)	2,480 kg (5,467 lb)

* Maximum operating pressure and temperature are interdependent parameters and are given for general reference only. Please consult TIMEX for the application specific parameters.

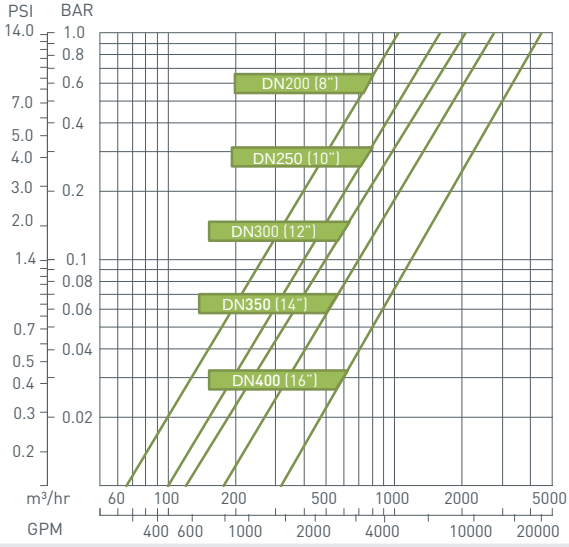
Backwash Data	
Valve drain port	80 mm (3")
Flushing time	30 - 60 seconds
Min. flow for backwash	50 - 80 m^3/h (220 - 352 gpm)

Typical Installation Drawing



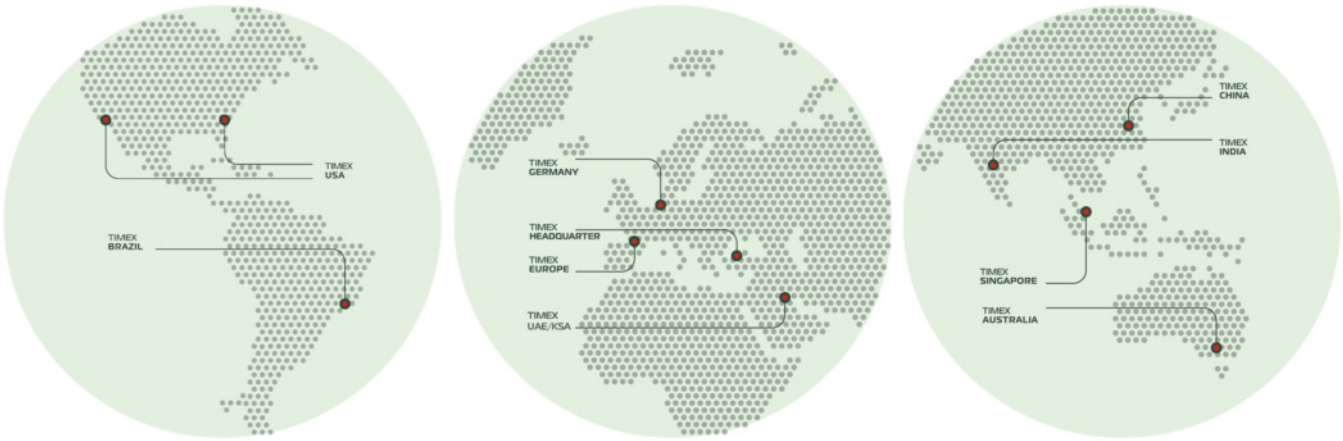
Dimensions		3 unit battery	4 unit battery	5 unit battery
A	Length	4,000 mm	4,600 mm	5,200 mm
B	Width		1,600 mm	
C	Height		2,000 mm	

Head Loss Graphs (in clean water)



Factory & Head Office

TIMEX Filtration & Water Systems
ASO 2 & 3 Industrial Zone, Alcı OSB District 2036. Street No:12
06930 Sincan / ANKARA / TURKEY
Tel: +90 312 210 210 40 - +90 312 815 52 46-47
Fax: +90 312 210 10 61 - +90 312 815 52 48
E-mail: info@timex.com.tr



TIMEX all over the WORLD

TIMEX
Filtration & Water Systems

www.timex.com.tr