amiad® WATER SYSTEMS | ARKAL

NEW

Apollo Quadro

The Apollo Quadro is an automatic self-cleaning SpinKlin™ disc filter, designed as a highly efficient solution for high flow rate applications and for all types of water.

flow rates	filtration degrees	inlet/outlet diameter	minimum operating pressure
Batteries: from 180-1000 m³/h (800-4400 gpm) **Modules:** from 540-15,000 m³/h (2,375-66,000 gpm)	20 - 400 micron	12" - 18" (300-450mm)	2 bar (28 psi)

features:

- Arkal's proven Apollo Spin Klin™ disc, depth filtration and patented backwash technology
- Reduced number of components and modular flexibility
- Corrosion resistant materials
- Minimal maintenance
- **Applications:** Irrigation,Tertiary (Wastewater) treatment, Potable water treatment, Membrane protection and Industrial water
- Reduced flush flow per filter spine

*** Patent pending**

How the Apollo Quadro Works

General

The Apollo Quadro filter is based on Arkal's Apollo SpinKlin™ disc filtration technology which is a modular, automatic, self cleaning filter designed for high flow rates. With its unique grooved disc, depth filtration technology and patented self cleaning mechanism, SpinKlin™ filters are used in a wide range of industrial, marine, municipal and agricultural applications from 400 to as fine as 20 micron filtration degrees.

Each filter contains four (4) filtration spines on which the Apollo SpinKlin™ discs are installed. These thin, color-coded polymeric discs are diagonally grooved in opposite directions on both sides to a specific micron size. When mounted on the spine, the discs' grooves form a matrix of consecutive stopping points allowing the water pass through while stopping suspended solids. A tightening cylinder compresses the discs by a preloaded spring, piston and differential pressure, ensuring an accurate filtration degree with no possibility of breakthrough.

The Filtration Process

During the filtration process, the filtration discs are tightly compressed together by the spring's power and the differential pressure, thus providing high filtration efficiency. Water percolates through the filter element from its outer to its inner diameter. Suspended solids are trapped on and between the discs while filtered water flows out through the filter's outlet port.

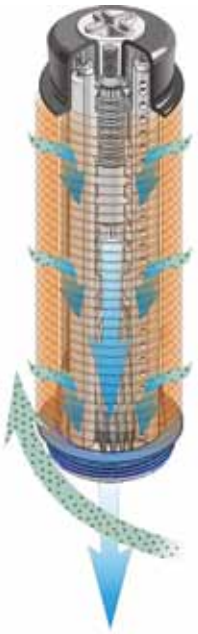
Unique accessories for the Apollo Quadro:

- New polymeric clamp for the filter housing, allows easy opening without any additional tools
- Newly designed polymeric connector between the filter pod and the manifold
- New and unique clamp for wafer butterfly valve connection for battery systems

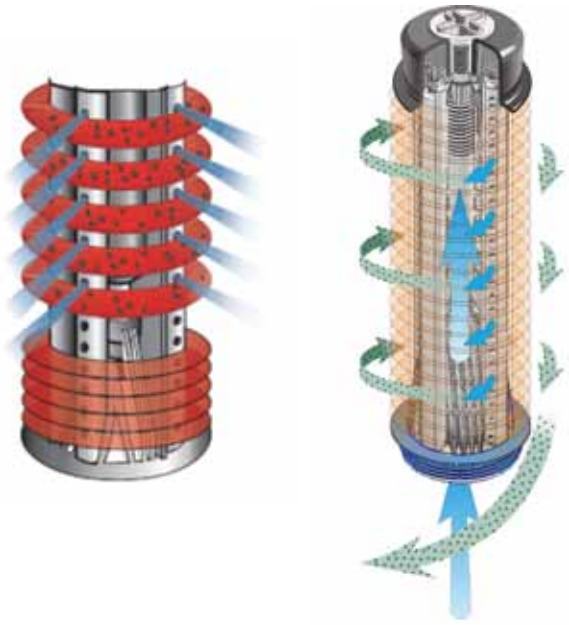
The Self-Cleaning Process

The gradual build-up of particles on the discs causes a pressure differential to develop across the system. At a pre-set level a signal from the DP Switch starts the self-cleaning cycle. An electric command reverses the flow direction through the filter, the compression springs of the filter modules are released; and the spine pistons rise up releasing the pressure on the discs.

High pressure tangential jets of filtered water are pumped at high velocity through the nozzles at the center of the spines causing the discs to spin free and clear. The retained and trapped solids are quickly and efficiently flushed out to the drain. On completion of its pre-programmed cleaning time (approximately 15 seconds) the filter returns to its filtration mode. The system continues to filter until another backwash cycle is triggered by time-interval, DP Switch or by a combination of the two.



Filtration mode



Backwash mode

- New supporting legs with clamps to secure the Apollo Quadro on any given manifold pipe size
- Different options for standard installation of Modules/Batteries
- PP Manifolds are custom made per design in house, full automation welding

Technical Specifications

Apollo Quadro - Batteries:

Design: Apollo Quadro SpinKlin™ Battery is a system of filters that are backwashed individually. The number of filters in a battery is determined according to the system designed flow rate and may range between 3 to 6 filters, with 14" - 18" inlet/outlet diameters.

Capacity: 180 - 960 m^3/h (792 – 4,224 gpm).

Filter Type		3 filter battery	4 filter battery	5 filter battery	6 filter battery
General Data					
Maximum working pressure		10 bar (145 psi)			
Minimum backwash pressure at 55 micron		4-5 bar (58-72 psi)			
Maximum recommended flow rate*	100µ	480 m^3/h (2,112 gpm)	640 m^3/h (2,816 gpm)	800 m^3/h (3,520 gpm)	960 m^3/h (4,224 gpm)
	55µ	312 m^3/h (1,373 gpm)	416 m^3/h (1,830 gpm)	520 m^3/h (2,288 gpm)	624 m^3/h (2,746 gpm)
	20µ	180 m^3/h (792 gpm)	240 m^3/h (1,056 gpm)	300 m^3/h (1,320 gpm)	360 m^3/h (1,584 gpm)
Filtration volume		37,704 cm^3 (2,300 in^3)	50,272 cm^3 (3,067 in^3)	62,840 cm^3 (3,833 in^3)	75,408 cm^3 (4,600 in^3)
Inlet/Outlet diameter		14" (350 mm)	14" (350 mm)	16" (400 mm)	18" (450 mm)
Maximum working temperature		60°C (140°F)			
Weight (empty)		620 kg (1,364)	760 kg (1,672 lb)	960 kg (2,112 lb)	1,120 kg (2,464 lb)

* Maximum recommended flow relates to average water quality. Flow may vary as water quality changes.

Backwash Data Per Unit*	
Drain valve	4" (100 mm)
Backwash time	15-20 sec
Minimum flow for backwash	96 m^3/h (422 gpm)

* Each filter unit (pod) backwashes separately in sequence.

Construction Materials	
Filter Housing	RPP (Reinforce Polypropylene)
Filter Body	RPP (Reinforce Polypropylene)
Grooved Disc	PP (Polypropylene) or PA (Polyamide)
Backwash mechanism	Backwash BF valves air or electrically activated, (main valve 8" & drain valve 4")
Backwash valve	PP (Polypropylene), butterfly valve
Seals	EPDM. NBR
Control	PLC or according to customer specifications

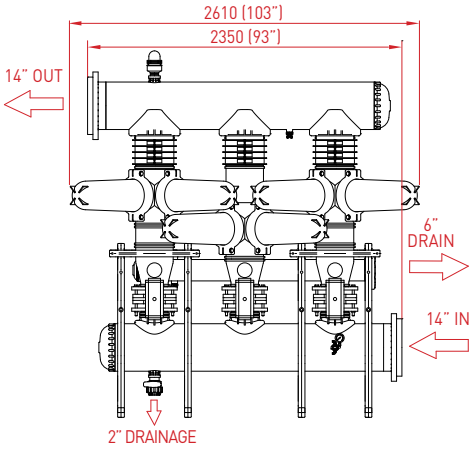
Standard Filtration Degrees

micron	400	200	130	100	55	20
mesh	40	80	120	140	300	625

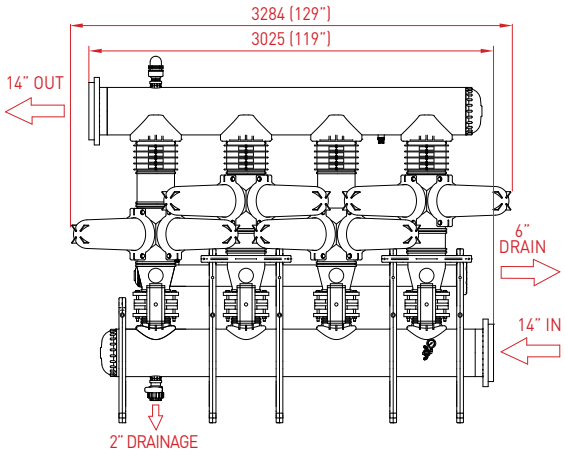
* 55 micron disc available in PA.

Dimensional Drawings - Batteries:

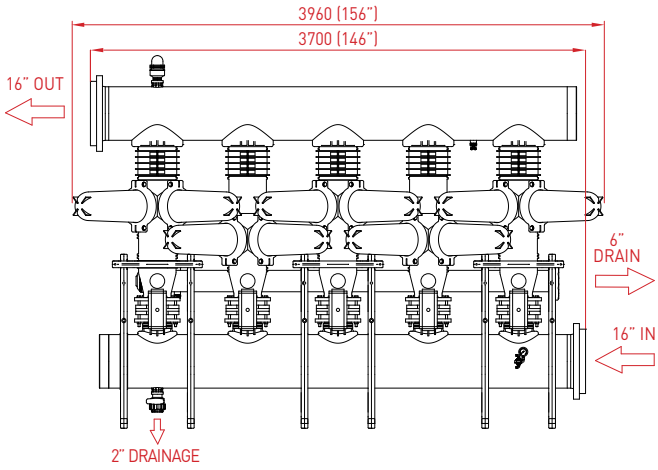
3 x 14” Battery



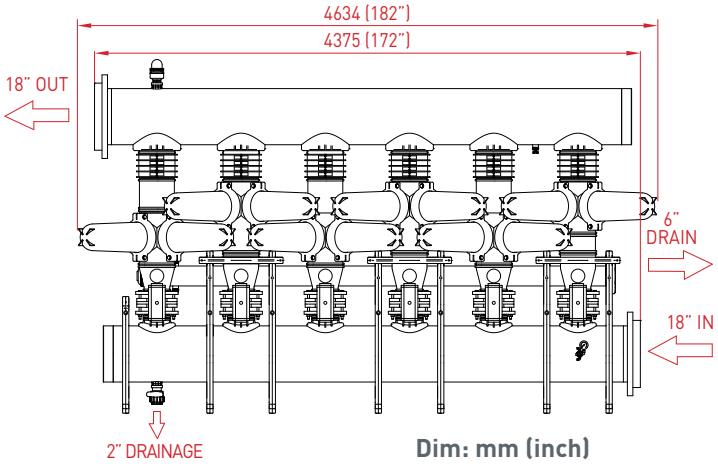
4 x 14” Battery



5 x 16” Battery

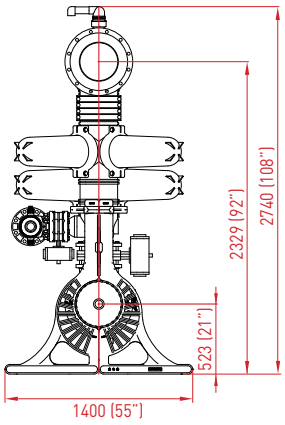


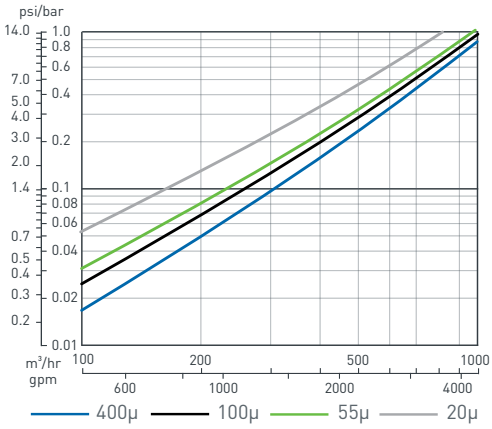
6 x 18” Battery

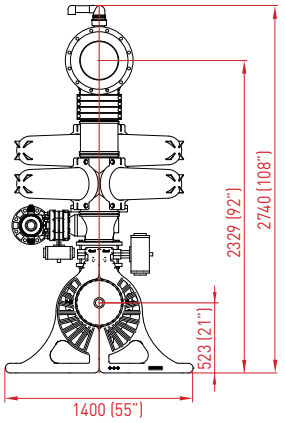


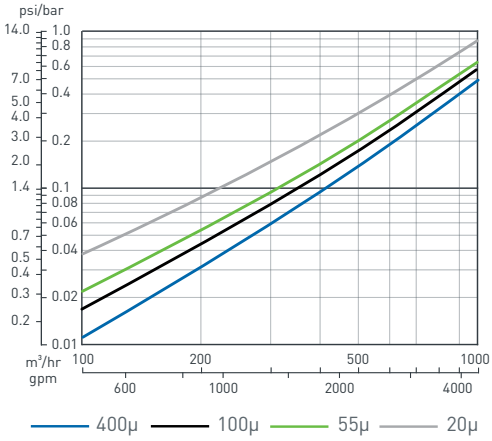
Dim: mm (inch)

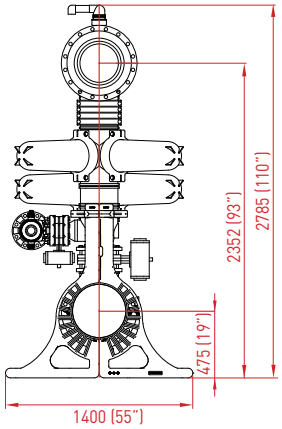
Pressure Loss Graphs
in clean water

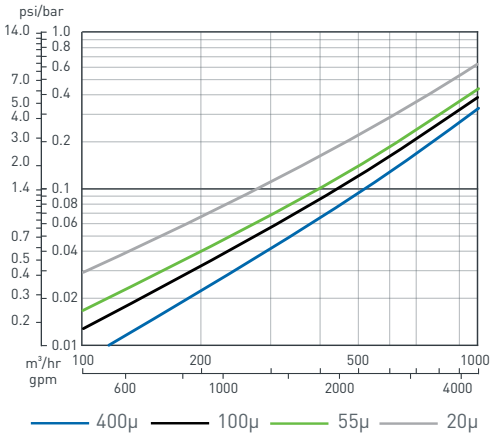


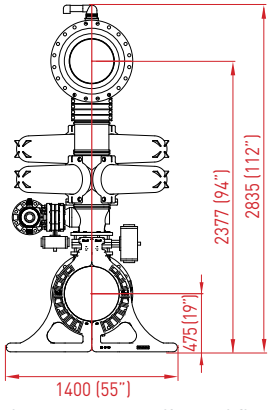


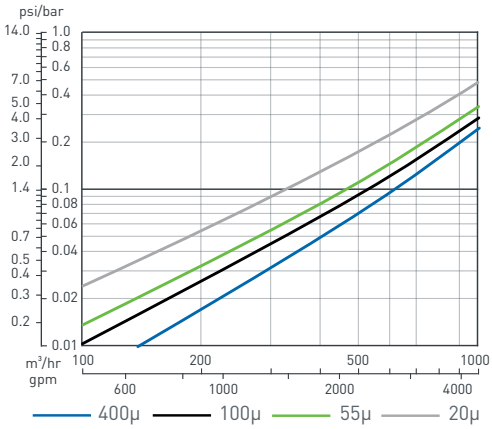












*Head loss may change due to water quality and flow.
Charts are for indication only.

Dim: mm (inch)

Technical Specifications

Apollo Quadro - Modules:

Design: Apollo Quadro SpinKlin™ Modules. Modules are groups of filters that backwash together as a single unit. The number of filters in the modules of a specific system is determined by the system flow rate and the water quality and may range between 3 and 6 filters with 14" - 18" inlet/outlet diameters.

Capacity: Very high flow rates: 180 - 960 m^3/h (792 - 4224 gpm).
When applying modular systems, consider 3 module units as a minimum system configuration.

Filter Type		3 filter module	4 filter module	5 filter module	6 filter module
General Data					
Maximum working pressure		10 bar (145 psi)			
Minimum backwash pressure at 55 micron		4-5 bar (58-72 psi)			
Maximum recommended flow rate	100µ	480 m^3/h (2,112 gpm)	640 m^3/h (2,816 gpm)	800 m^3/h (3,520 gpm)	960 m^3/h (4,224 gpm)
	55µ	312 m^3/h (1,373 gpm)	416 m^3/h (1,830 gpm)	520 m^3/h (2,288 gpm)	624 m^3/h (2,746 gpm)
	20µ	180 m^3/h (792 gpm)	240 m^3/h (1,056 gpm)	300 m^3/h (1,320 gpm)	360 m^3/h (1,584 gpm)
Filtration volume		37,704 cm^3 (2,300 in^3)	50,272 cm^3 (3,067 in^3)	62,840 cm^3 (3,833 in^3)	75,408 cm^3 (4,600 in^3)
Inlet/Outlet diameter		14" (350 mm)	14" (350 mm)	16" (400 mm)	18" (450 mm)
Maximum working temperature		60°C (140°F)			
Weight [empty]		520 kg (1,144 lb)	620 kg (1,364 lb)	780 kg (1,716 lb)	910 kg (2,002 lb)

* Maximum recommended flow relates to average water quality. Flow may vary as water quality changes.

Backwash Data Per Module				
Valves (inlet, outlet & drain, at customer's choice)	Inlet/Outlet 14" Drain/EX.S 10"	Inlet/Outlet 14" Drain/EX.S 12"	Inlet/Outlet 16" Drain/EX.S 14"	Inlet/Outlet 18" Drain/EX.S 16"
Backwash time	15-20 sec			
Minimum flow for backwash	288 m^3/h (1,268 gpm)	384 m^3/h (1,690 gpm)	480 m^3/h (2,113 gpm)	576 m^3/h (2,536 gpm)

Construction Materials	
Filter Housing	RPP (Reinforce Polypropylene)
Filter Body	RPP (Reinforce Polypropylene)
Grooved Disc	PP (Polypropylene) or PA (Polyamide)
Control	PLC or according to customer specifications

Standard Filtration Degrees

micron	400	200	130	100	55	20
mesh	40	80	120	140	300	625

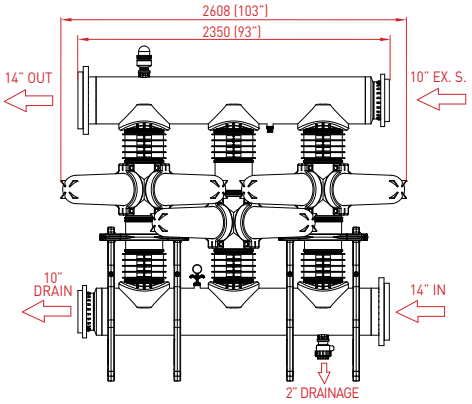
* 55 micron disc available in PA.

External Source Backwash Module System:

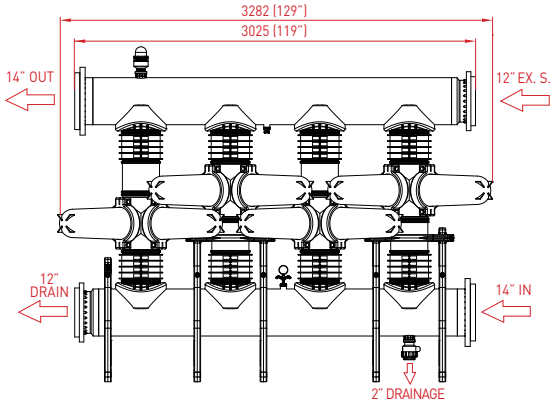
The system is designed to receive pressurized backwash water from an external source. Each module is equipped with 4 air activated butterfly valves: two inlet/outlet valves and two drain/external source valves.

Dimensional Drawings - Modules:

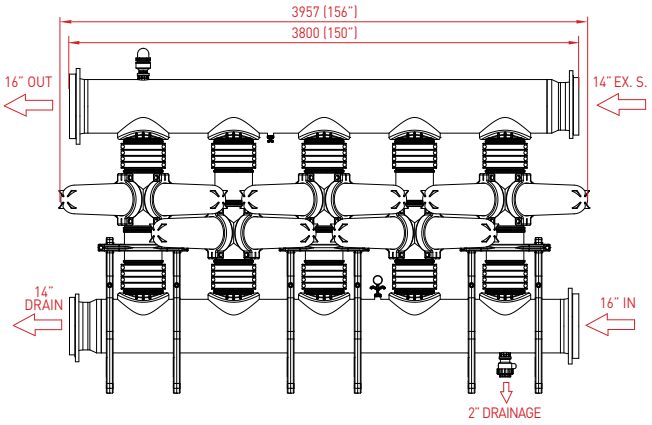
3 x 14” Module



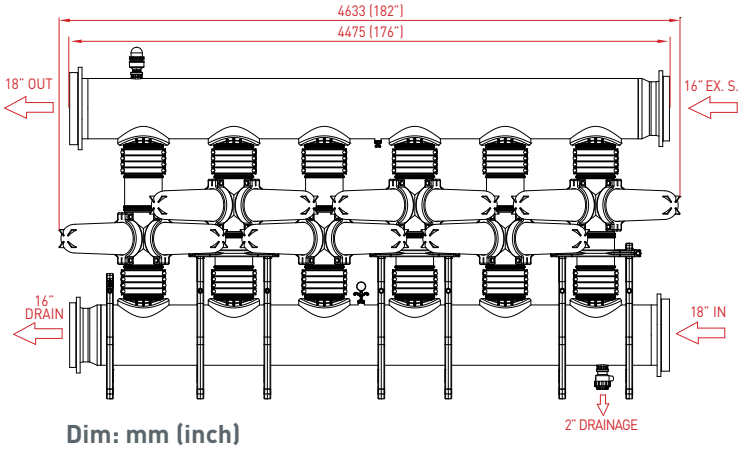
4 x 14” Module



5 x 16” Module

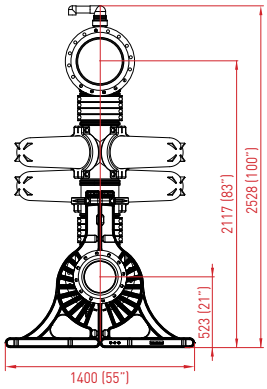


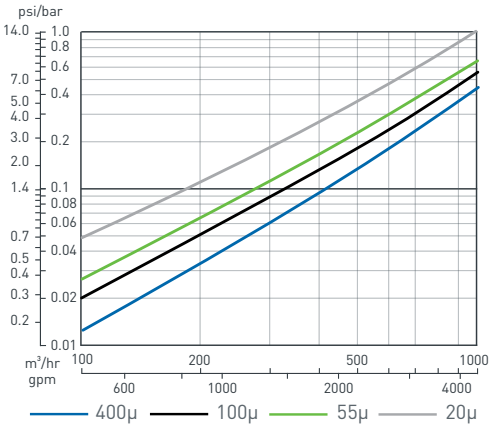
6 x 18” Module

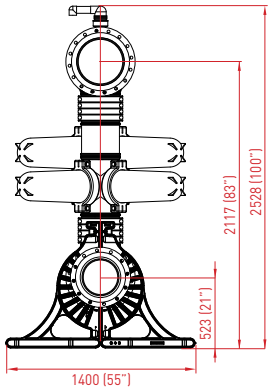


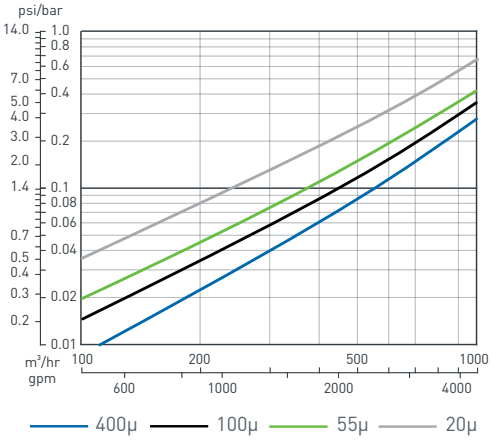
Dim: mm (inch)

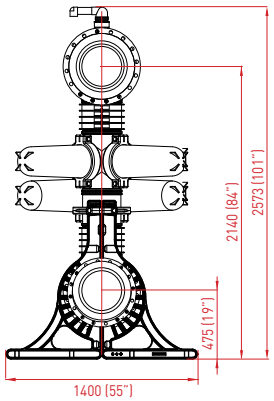
Pressure Loss Graphs
in clean water

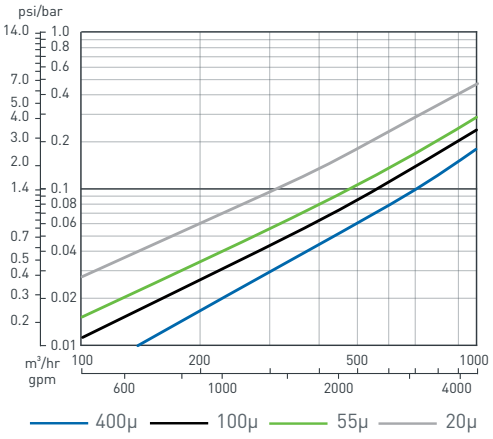


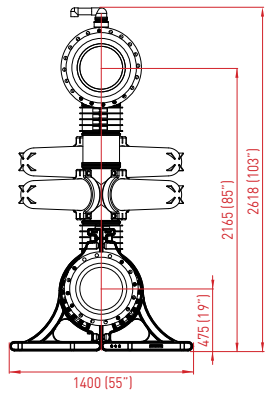


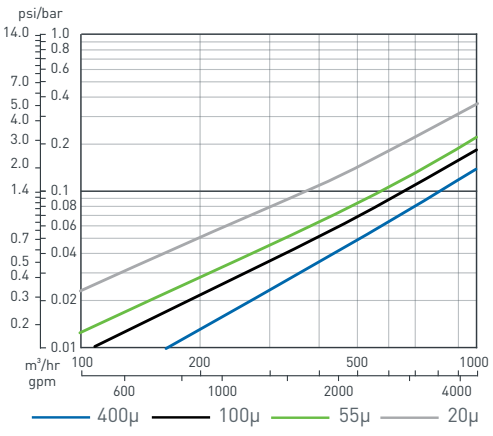












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Charts are for indication only.

Dim: mm (inch)

Headquarters

Amiad Water Systems Ltd. D.N. Galil Elyon 1, 1233500, Israel,
Tel: 972 4 690 9500, Fax: 972 4 814 1159,
E-mail: info@amiad.com

America

Amiad USA Inc. Main Office and Manufacturing: 120-J Talbert Road, Mooresville, NC 28117,
Tel: 1 704 662 3133, Fax: 1 704 662 3155, Toll Free: 1 800 24 FILTER,
E-mail: info@amiadusa.com www.amiadusa.com

West Coast Sales Office and Warehouse:
2220 Celsius Avenue, Oxnard, California 93030
Tel: 805 988 3323, Fax: 805 988 3313, Toll Free: 1 800 969 4055

Chile
Amiad Andina, Carretera General San Martín 16.500 No 30,
Loteo Industrial Los Libertadores, Colina, Santiago de Chile,
Tel: 56 2 24895100, Fax: 56 2 24895101, E-mail: amiadandina@amiad.com

Brazil
Amiad Sistemas de Água Ltda., Av. Funchal, 411, Conj. 42, Vila Olimpia, São Paulo, CEP 04551-060
Tel: +55 11 31923824, E-mail: infobrasil@amiad.com

Amiad Oil & Gas, E-mail: amisur@adinet.com.uy

Mexico
Amiad Mexico SA DE CV,
Priv. Retorno 8, Lote 3, Mza. 1, Interlomas Estado de Mexico
Tel/Fax: +52 55 636 28122, E-mail: info@amiadmexico.com

Asia

India
Amiad Filtration India Pvt Limited, 305 Sai Commercial Building,
Govandi St Rd, Govandi Mumbai 400 088,
Tel: 91 22-67997813/14, Fax: 91 22-67997814, Email: info@amiadindia.com

China
Amiad China (Yixing Taixing Environtec Co., Ltd.) 70 Baihe Chang, Xingjie Yixing Jiangsu, 214204,
Tel: 86 510 87134000, Fax: 86 510 87134999, E-mail: marketing@taixing.cc

South-East Asia
Filtration & Control Systems Pte. Ltd., 22 Sin Ming Lane #07-88 Midview City, Singapore 573969,
Tel: 65 6 337 6698, Fax: 65 6 337 8180, E-mail: amiad@amiad.com.sg

Australia

Amiad Australia Pty Ltd. 138 Northcorp Boulevard, Broadmeadows, Victoria 3047,
Tel: 61 3 93585800, Fax: 61 3 93585888, E-mail: sales@amiad.com.au

Europe

Amiad Water Systems Europe SAS, Ilot No4 ZI La Boitardière, 37530 Chargé, France,
Tel: 33 (0) 2 47 23 01 10, Fax: 33 (0) 2 47 23 80 67, E-mail: info@amiad-europe.com

Germany
Amiad Water Systems SAS Europe (German branch office)
Zweigniederlassung Deutschland Prinz-Regent-Str. 68 a 44795 Bochum,
Tel: 49 (0) 234 588082-0, Fax: 49 (0) 234 588082-10, E-mail: info@amiad.de

Turkey
FTS – Filtration & Treatment Systems, Istanbul yolu 26 Km, Yurt Orta Sanayii, Saray, Ankara,
Tel: 90 312 8155266/7, Fax: 90 312 8155248, E-mail: info@fts-filtration.com

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