



# ODISMATIC ELECTRIC FILTER

## SERIES 860

### APPLICATIONS

- Automatic Self Cleaning Screen Filter for liquid containing extremely heavy dirt load
- Industrial effluents
- Industrial waste water
- Cooling towers process water
- Process water
- Water recycling
- Municipal sewage.
- For various industrial liquids and Sea water.

## DESCRIPTION

The **Odismatic® Electric Filter Model 860** is an automatic self cleaning screen filter.

The Self Cleaning System is electrically operated and contains a suction system for cleaning the screen, an electric motor with a worm gear to drive the suction system in a helical movement, a booster pump creating a high speed water stream sprayed on the screen's surface to assist in cleaning clogged areas of the screen and a PLC (Programmable Logic Controller) to perform the cleaning process.

The cleaning process is short, efficient, saves water and leaves the screen clean.

Dirty water enters the filter and is pre-filtered through a coarse screen (1). The water then flows through a sintered multi layer stainless steel fine screen (2) and flows out through the outlet port. The dirt particles gradually build up a filter "cake" on the inside of the fine screen. This "cake" improves filtration efficiency as it performs a finer filtration, and creates a pressure differential across the screen. The differential pressure rises until the predetermined value is reached [normally 0.5 bar (7.5 psi)].

A pressure switch activates the self cleaning process. A timer backup guarantees that the time passed from the last self cleaning process will not be longer than the preset value determined by the user.

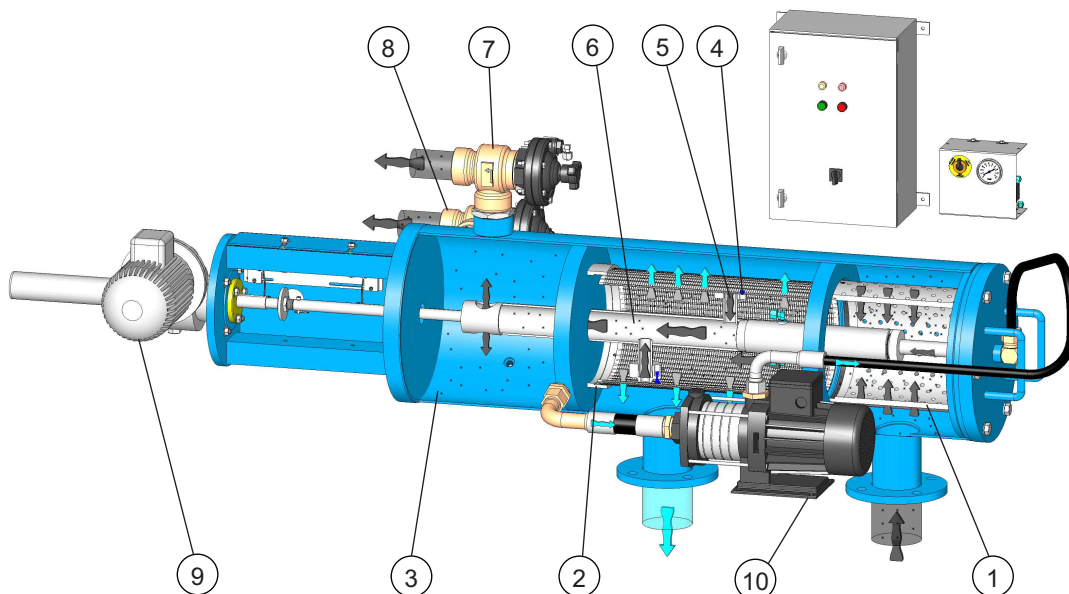
On a flushing command, the flushing valves (7, 8) open to the atmosphere and create pressure drop in the flushing chamber (3) as well as in the collector pipe (6), causing the dirt to be sucked in from the screen by the nozzles (5) outward to drain through the collector (6) and the flushing valves (7, 8). Simultaneously the electric motor with the worm gear (9) creates a helical motion of the collector with the suction nozzles to "cover" the entire screen's surface and the booster pump (10) creates a high-speed water spray through the spraying nozzles (4) to assist in cleaning the clogged screen, enabling complete and effective cleaning of the screen.

The PLC controls the process and activates intensive flushing cycles as necessary to overcome heavy dirt capacity in the raw water.

Available in the following inlet sizes: 2", 3", 4", 6", 8", 10", 12", 14".

Filter is supplied with Flanged Connection (F).

The filter has a 100 micron protective coating of extra durable polyester applied electrostatically and oven cured on a zinc-phosphate layer for maximal anti-corrosion protection.

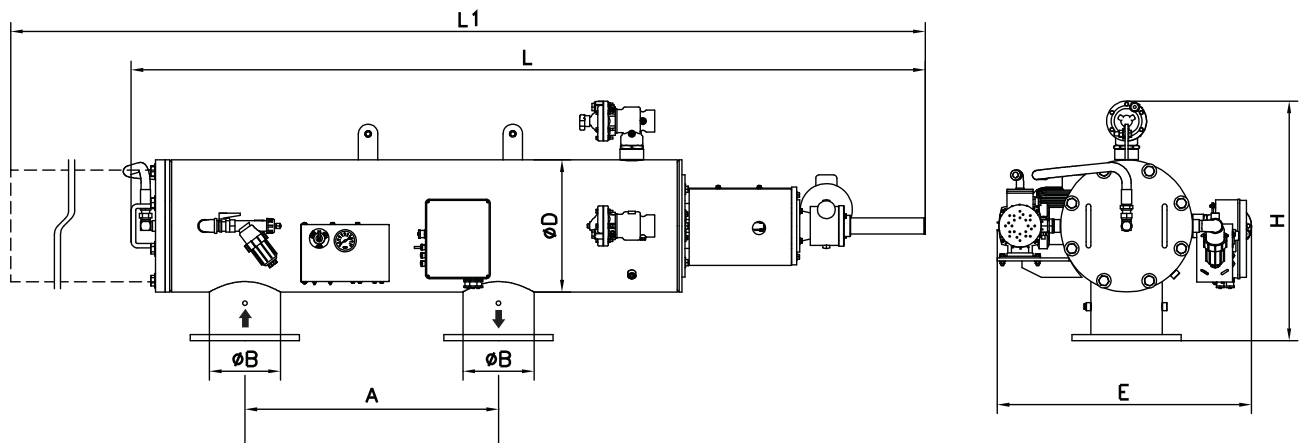


**Dimensions & Weight** Metric Units

Model	B		D	A	H	E	L	L1	Weight
	mm	inch	inch	mm	mm	mm	mm	mm	kg
86002	50	2"	12"	300	580	440	1360	1660	186
86003	80	3"	12"	300	635	440	1360	1660	190
86004	100	4"	12"	600	635	685	2155	3000	211
86006	150	6"	12"	600	635	685	2155	3000	215
86008	200	8"	16"	780	760	785	2395	3500	322
86010	250	10"	16"	780	760	785	2395	3500	327
86012	300	12"	16"	990	760	785	2395	3970	356
86014	350	14"	16"	990	760	785	2685	3970	373

**Dimensions & Weight** U.S. Units

Model	B	D	A	H	E	L	L1	Weight
	inch	inch	inch	inch	inch	inch	inch	lbs
86002	2"	12"	11.7	22	18	54	66	410
86003	3"	12"	11.7	25	18	54	66	419
86004	4"	12"	23.5	25	27	85	116	465
86006	6"	12"	23.5	25	27	85	116	474
86008	8"	16"	30.7	30	31	95	137	710
86010	10"	16"	30.7	30	31	95	137	721
86012	12"	16"	39	30	31	106	157	785
86014	14"	16"	39	30	31	106	157	833





### Screen Area & Recommended Flow Rates

Model	Inlet/Outlet diameter		Max. Flow Rate		Flushing Flow Rate		Screen Area	
	inch	mm	m <sup>3</sup> /h	U.S. gpm	m <sup>3</sup> /h	U.S. gpm	cm <sup>2</sup>	sq.inch
86002	2"	50	25	110	16	70	2500	390
86003	3"	80	50	215	16	70	2500	390
86004	4"	100	110	485	16	70	4000	620
86006	6"	150	200	880	16	70	4000	620
86008	8"	200	360	1580	25	110	6000	930
86010	10"	250	470	2050	25	110	6000	930
86012	12"	300	560	2500	30	135	8000	1240
86014	14"	350	650	2850	30	135	8000	1450

■ Max. flow rate refers to screens over 200 microns/less than 80 mesh.

### Stainless Steel Filter Screens

#### Filtering Grades

Mesh Grade	Micron
40	400
50	300
80	200
100	150
120	120
150	100
200	80
300	50
500	30

■ Coarse screen – Perforated cylinder.

■ Fine screen – Multi layer stainless steel wire mesh sintered together.

■ Screen grades down to 5 micron are available upon request.



## Technical Data

- Max. recommended working pressure: 10 bar (150 psi).
- Min. recommended working pressure: 2 bar (30 psi).
- Temperature range: 0°C - 50°C - higher temp. capability is available upon request.
- Two filtering stages:
  - Coarse Screen: Perforated cylinder, prevents large particles from entering the cleaning mechanism.
  - Fine Screen: Multi layer stainless steel wire mesh sintered together, stops the fine dirt particles.
- Wide range of screens down to 5 micron.
- Automatic self cleaning of the screen – activated by time elapsed or DP (differential pressure).
- Suction system with nozzles.
- Electric motor with worm gear – to drive the suction system in a helical movement on the screen
- Booster pump – to create a high speed water stream sprayed on the screen surface to assist in cleaning clogged areas of the screen.
- PLC – to control the cleaning process.
- Electrical data.
  - Mains – 3 phase 380V / 50Hz, 220V/440V/60Hz
  - Drive assembly – 1/3HP, 1/4 KW.
  - Booster Pump – 0.75 HP, 0.55KW
- PLC operated by 24VDC

## Protective Coating

100 micron extra durable polyester, applied electrostatically and oven cured on a zinc phosphate layer for anti corrosion protection.

## Pressure Relief Valve

A pressure relief valve must be inserted before the filtering installation if pressure is not controlled effectively.

- Each filter is designed and manufactured in order to achieve the highest standard of quality and finish.

## HEAD LOSS/ FLOW RATE

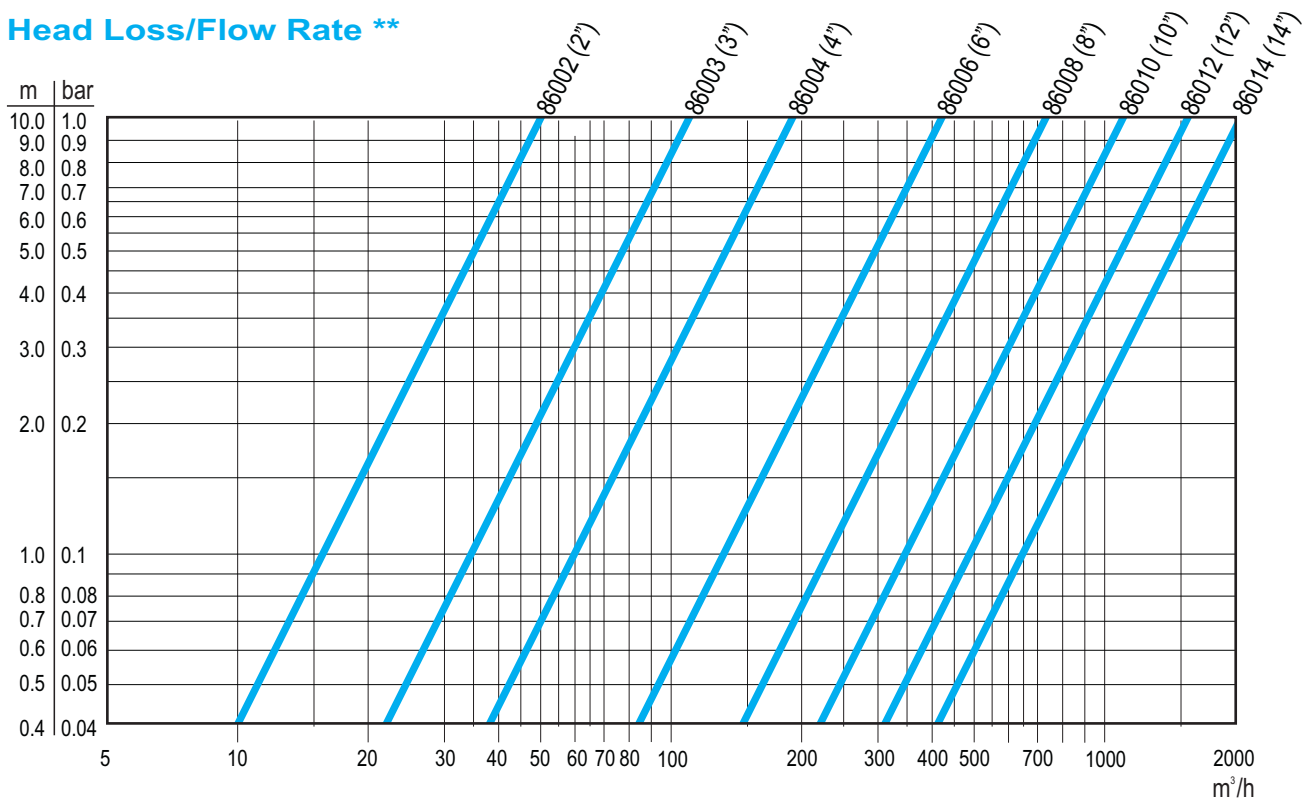
### Metric Units

#### Head Loss \*\*

Model	Flow Rate Q (m <sup>3</sup> /h)												
	15	20	25	50	75	100	125	150	200	250	300	350	400
<b>Head Loss dP (bar)</b>													
86002 (2")	0.09	0.16	0.25	1.00									
86003 (3")			0.05	0.21	0.46	0.83							
86004 (4")				0.07	0.16	0.28	0.43	0.62	1.11				
86006 (6")						0.06	0.09	0.13	0.23	0.35	0.51	0.69	0.91

Model	Flow Rate Q (m <sup>3</sup> /h)												
	200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000
<b>Head Loss dP (bar)</b>													
86008 ( 8")	0.08	0.17	0.30	0.47	0.68	0.92	1.20						
86010 (10")		0.07	0.13	0.21	0.30	0.40	0.53	0.67	0.83	1.19			
86012 (12")			0.07	0.10	0.15	0.20	0.27	0.34	0.42	0.60	0.94		
86014 (14")				0.06	0.09	0.12	0.15	0.19	0.24	0.34	0.54	0.77	0.95

#### Head Loss/Flow Rate \*\*



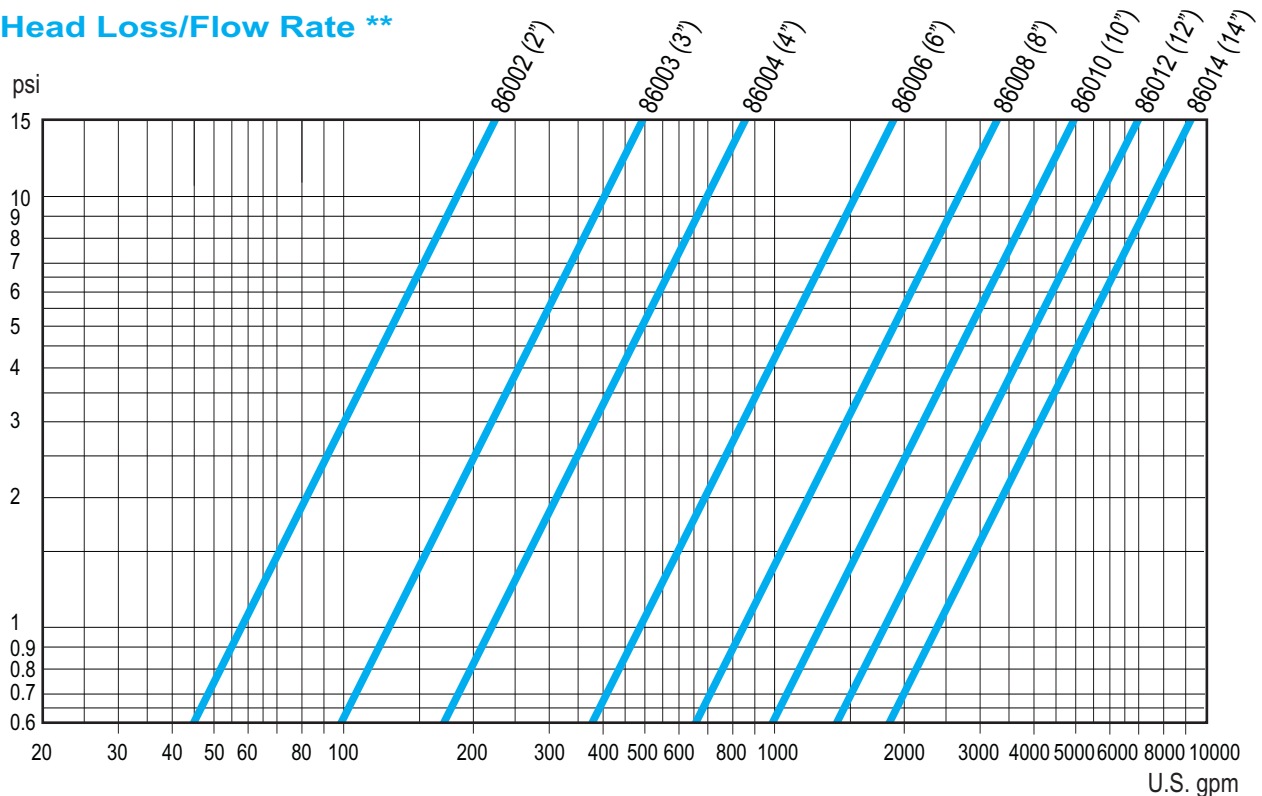
\*\* For a clean filter and 120 mesh screen.

■ 1 bar=100 kPa=1.02 kg/cm<sup>2</sup>=10.2 m (W.C)=14.5 psi

**HEAD LOSS/ FLOW RATE**
**U.S. Units**
**Head Loss \*\***

Model	Flow Rate Q (U.S. gpm)												
	50	90	120	200	300	450	600	700	900	1100	1300	1500	1800
	Head Loss dP (psi)												
86002 (2")	0.7	2.4	4.3	12.0									
86003 (3")		0.5	0.9	2.5	5.6	12.5							
86004 (4")				0.8	1.9	4.2	7.5	10.2	16.8				
86006 (6")						0.9	1.5	2.1	3.4	5.1	7.2	9.5	13.7

Model	Flow Rate Q (U.S. gpm)												
	900	1300	1500	1800	2000	2600	3000	3500	4000	4500	5000	6500	8000
	Head Loss dP (psi)												
86008 ( 8")	1.1	2.4	3.2	4.5	5.6	9.5	12.6	17.2					
86010 (10")	0.5	1.0	1.4	2.0	2.5	4.2	5.6	7.6	9.9	12.5	15.5		
86012 (12")		0.5	0.7	1.0	1.2	2.1	2.8	3.8	5.0	6.3	7.8	13.2	
86014 (14")				0.6	0.7	1.2	1.6	2.2	2.8	3.6	4.4	7.5	11.4

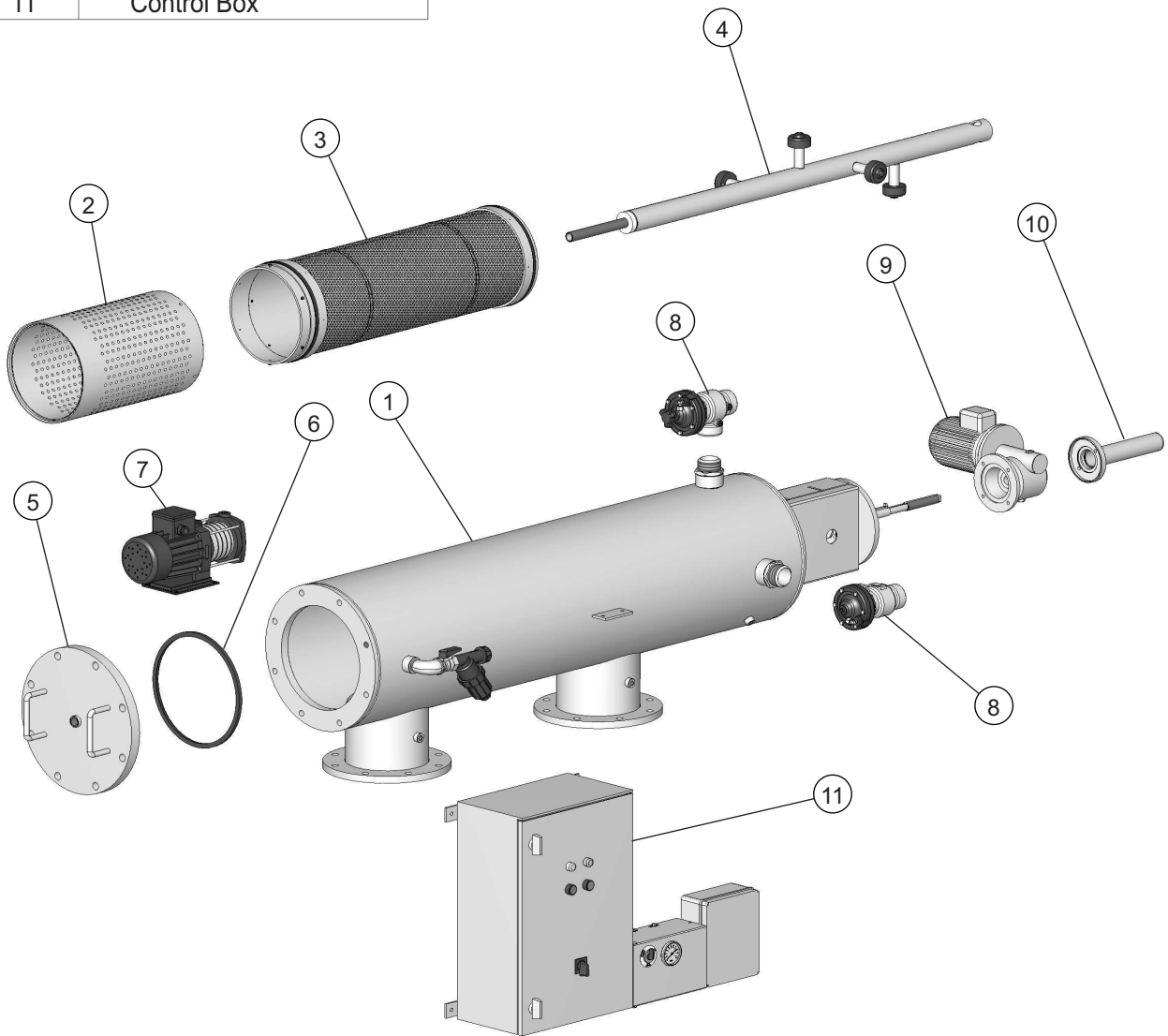
**Head Loss/Flow Rate \*\***


\*\* For a clean filter and 120 mesh screen.

■ 1 psi=0.069 bar=6.9 kPa=0.07 kg/cm<sup>2</sup>=0.7 m (W.C)

**ILLUSTRATED PARTS BREAKDOWN**

NO.	DESCRIPTION
1	Filter Body
2	Coarse Screen Assembly
3	Fine Screen Assembly
4	Dirt Collector Assembly
5	Cover
6	Cover Gasket
7	High Pressure Pump
8	Rinse Valve
9	Worm Gear Motor
10	Drive Protection Cover
11	Control Box







## GENERAL INSTRUCTIONS

### Operation

- The **Odismatic<sup>®</sup> Electric Filter** is equipped with an automatic cleaning system electrically operated which includes: Suction System for cleaning the screen, Electric Motor with worm gear to drive the suction nozzles in a helical movement, a Booster Pump creating a high speed water stream sprayed on the screen's surface to assist in cleaning clogged areas and PLC to control the cleaning process.
- The cleaning cycle is activated when the differential pressure across the screen reaches 0.5 bar (7.5 psi) with a timer backup.
- The minimum working pressure is 2 bar (30 psi).
- The maximum working pressure is 10 bar (150 psi).

### Installation

The **Odismatic<sup>®</sup> Electric Filter** can be installed in any position, although for ease of maintenance, a horizontal installation is recommended.

- For best results, the filter should be installed as near as possible to the system it is required to protect. However, if low filter inlet pressure is a concern, either before or during flushing, the filter may need to be installed closer to the pressure source.
- Ensure that the upstream pipe size from pressure source to filter is equal to or greater than filter inlet size.
- It is recommended to install inlet and outlet isolation valves for easy maintenance.
- In situations where a constant supply of water is required downstream during filter servicing it is recommended to install Inlet and bypass valves. Note that this also applies in installation of bypass units.
- It is recommended to install a check valve downstream of the filter to prevent reverse flow and to protect the filter from water hammer.
- An Air-Release Valve must be installed on top of the inlet manifold.
- Ensure that the filter is mounted in the proper direction of flow as indicated by the arrows on the filter housing.
- A drain line should be attached to each flushing valve. For details see Technical Manual.
- If pressure is not controlled effectively a pressure relief valve must be inserted before the filtering installation.
- Connect power supply



## Start-Up

1. Slowly open the inlet valve to the filter allowing the filter to pressurize.
2. Check for any external leakage and eliminate.
3. Check to ensure that the filter inlet pressure is higher than 2 bar (30 psi).
4. Slowly open the outlet valve of the filter.
5. Initiate a manual flushing cycle by depressing the manual flushing button on the electrical control box and see the movement of the screw.

## Periodic Cleaning

- Initiate a manual flushing cycle and check for proper filter function by observing pressure. This step should be performed for all individual filters in multiple installations.
- Check coarse screen and clean as required.
- Filters equipped with by-pass should be engaged at least once a month. This will clean the valve seat of any accumulated dirt, as well as ensuring proper by-pass operation.

## WARNING

- **Do not tighten or open cover during operation or under pressure.**

## Maintenance

- Each filter is supplied with Technical Manual for detailed maintenance instructions, as well as assembly, installation and operation instructions.
- Apply a layer of grease to bolt threads once a year.
- Apply Molykote grease to the screw of the drive assembly every 3 months.
- Clean Control Filter every 3 month at least.
- Any damage to the protective coating of filter must be repaired without delay. Prior to the application of the protective paint, thoroughly clean the damaged spot with the wire brush.



### PACKING / SHIPPING DATA

#### Metric Units

Model	Inlet / Outlet (inch)	Gross * Weight (kg)	Packaging	Gross Volume (m <sup>3</sup> )
86002	2"	250	Packed on a pallet	1.5
86003	3"	254	Packed on a pallet	1.5
86004	4"	286	Packed on a pallet	1.7
86006	6"	290	Packed on a pallet	1.7
86008	8"	390	Packed on a pallet	2.3
86010	10"	405	Packed on a pallet	2.3
86012	12"	435	Packed on a pallet	2.6
86014	14"	445	Packed on a pallet	2.6

#### U.S. Units

Model	Inlet / Outlet (inch)	Gross * Weight (lbs)	Packaging	Gross Volume (cu.ft)
86002	2"	550	Packed on a pallet	53
86003	3"	560	Packed on a pallet	53
86004	4"	630	Packed on a pallet	60
86006	6"	640	Packed on a pallet	60
86008	8"	860	Packed on a pallet	81
86010	10"	893	Packed on a pallet	81
86012	12"	959	Packed on a pallet	92
86014	14"	981	Packed on a pallet	92

\* Gross weight includes packaging materials

### How To Order *OdisMatic*<sup>®</sup> Electric Filter

1. Type of filter required.
2. Catalog Number of filter.
3. Preferred mesh grade.
4. Min. / Max. pressure.
5. Maximal Flow rate.
6. Electricity.
7. Additional accessories: Nipples/Valves/Pilots/Relays/Manifolds/Pressure Gauges.
8. Other than standard material, required for filter body and cover.
9. Special Coating Requirements.