

# ODIS

IRRIGATION EQUIPMENT LTD.

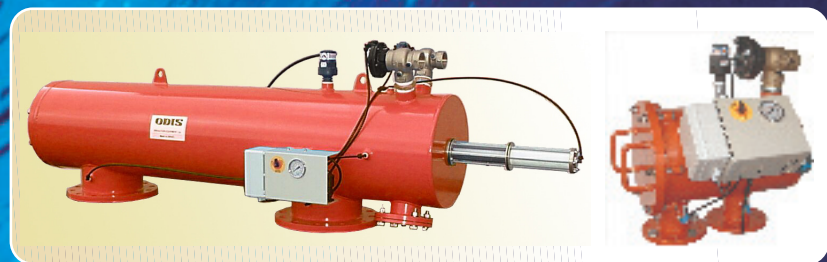
## ODISMATIC® HYDRAULIC FILTERS

SERIES

# 850

### APPLICATIONS

- Used as an automatic Screen Filter in places without electricity.
- The filter contains a Hydraulically operated Collector with Suction Nozzles to ensure continuous trouble free operation.
- For: Irrigation, Water recycling, Industry.



ODIS Filtration *is The Heart* of Every Irrigation System

## DESCRIPTION

The **Odismatic® Hydraulic Filter Model 850** is an automatic self cleaning screen filter. The filter uniqueness lies in the automatic suction system for cleaning the screen. This system is operated by the inline water pressure without interfering the filtration process. The screen cleaning process is short, efficient, saves water and leaves the screen clean.

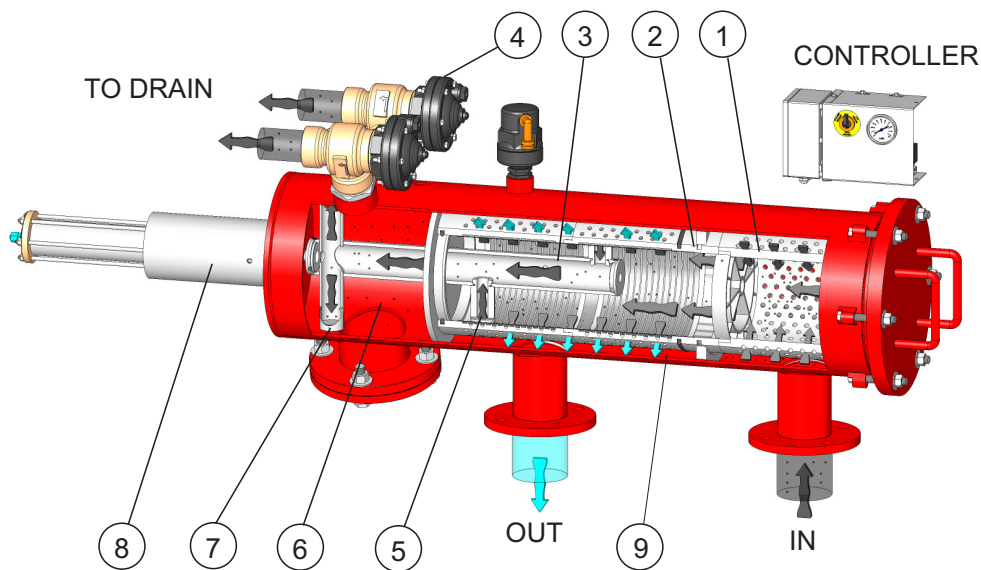
Dirty water enters the filter through the inlet port, passing through the coarse screen (1) and the fine screen (2) and flows out to the outlet. The sediments stopped on the screen (2) create a "cake" of sediment. This "cake" improves filtration efficiency as it performs a finer filtration. The sediments accumulated on the screen, create a differential pressure across the screen. The differential pressure rises until the predetermined value is reached normally 0.5 bar (7.5 psi).

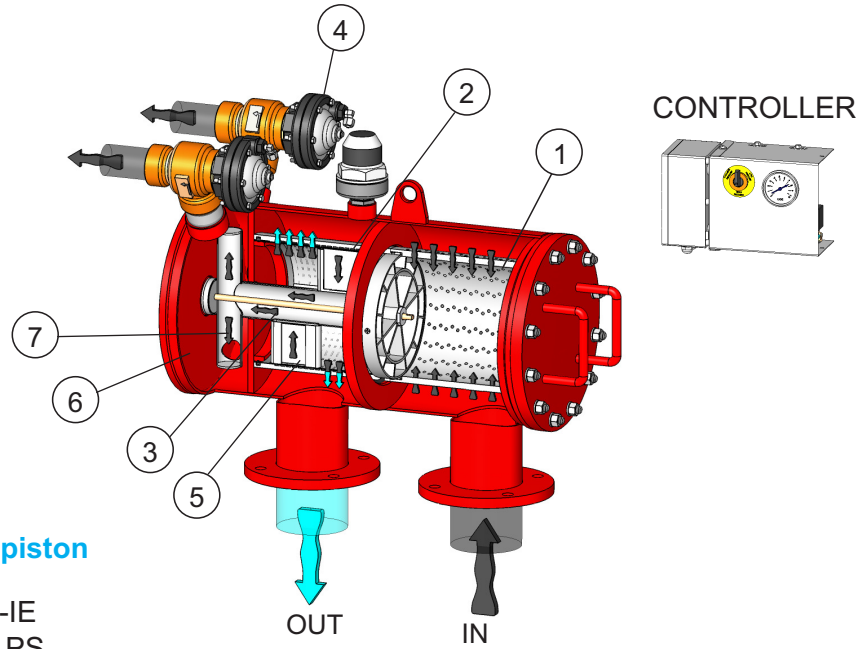
A pressure switch activates the self cleaning process. A timer backup guarantees that the time passed from the last self cleaning process will not be longer than the preset value determined by the user.

On a flushing command, the flushing valves (4) are opened to the atmosphere and create pressure drop in the motor chamber (6), causing the dirt to be sucked in from the screen by the nozzles (5) through the collector (3) into the motor chamber, and are flushed out to the drain through the flushing valves. The water passing through the collector is ejected out of the holes of the hydraulic motor, imparting a rotational movement to the collector. In addition, on the models equipped with hydraulic piston (8), the collector begins to move longitudinally, allowing the nozzles to sweep the entire screen area in a helical motion. The models without hydraulic piston, the collector assembly is designed to cover the entire screen area with no need for longitudinal motion.

Upon completion of the cleaning process the filter returns to its initial position. This self cleaning flushing cycle can be initiated by Differential Pressure switch, timer backup or manual.

The filter has a 120 micron protective coating of extra durable polyester applied electrostatically and oven cured on a zinc-phosphate layer for maximal anti-corrosion protection.





**Models without piston**

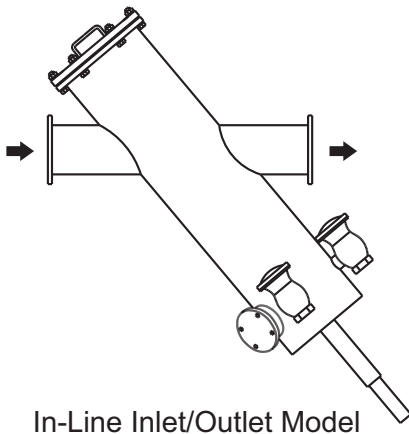
- 85002-PE, 85002-IE
- 85003-IS, 85003-PS
- 85004-IS, 85004-PS

Available in the following inlet sizes: 2", 3", 4", 6", 8", 10", 12", 14", 16".

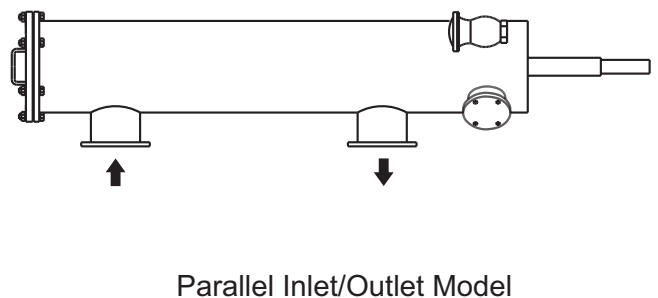
The filters are offered in four options:

- Models IS - In line configuration with standard screen length.
  - Models IE - In line configuration with extended screen length.
  - Models PS - Parallel configuration with standard screen length.
  - Models PE - Parallel configuration with extended screen length.
- Available with Flanged Connection (F) .

**I Series**



**P Series**



Key for Models Configuration:

- I - In-Line
- S - Standard
- P - Parallel
- E - Extended

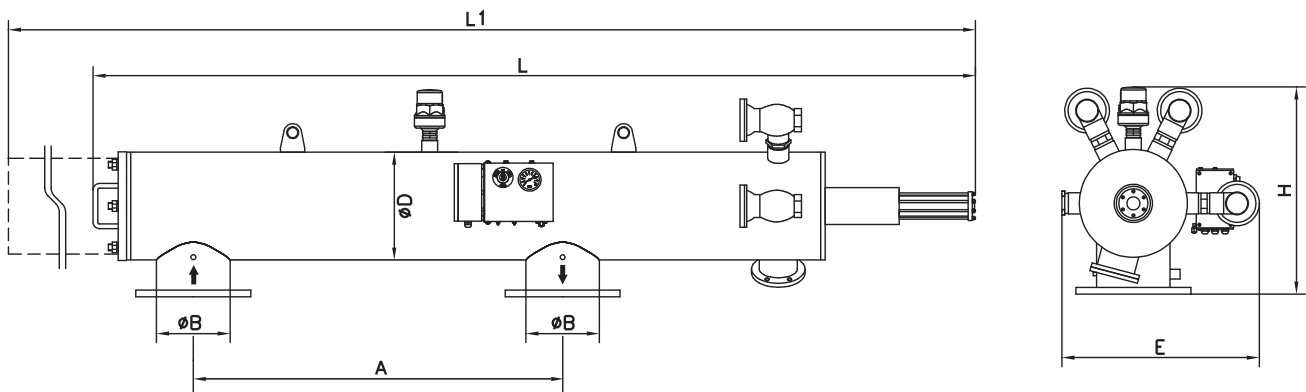


**Dimensions & Weight**

Metric Units

Model	B	D	A	H	E	L	L1	Weight
	inch	inch	mm	mm	mm	mm	mm	kg
85002M-PE*	2"	10"	150	----	390	450	600	57
85002F-IE*	2"	10"	810	----	390	450	600	57
85003F-PE	3"	10"	450	560	410	1580	2250	111
85003F-IE	3"	10"	604	----	500	1580	2250	107
85003F-IS	3"	10"	604	----	500	535	780	69
85003F-PS	3"	10"	205	590	410	535	780	69
85004F-IS	4"	10"	748	----	500	700	1100	79
85004F-PS	4"	10"	300	560	410	700	1100	79
85004F-PE	4"	10"	900	560	410	1980	3030	122
85004F-IE	4"	10"	748	----	500	1980	3030	130
85006F-PE	6"	12"	900	620	450	2050	3200	140
85006F-IE	6"	12"	910	----	550	2050	3200	144
85008F-PE	8"	12"	900	620	550	2640	4400	190
85008F-PS	8"	12"	900	620	450	2240	3600	183
85008F-IS	8"	12"	1176	----	550	2240	3600	187
85010F-PS	10"	16"	1100	700	500	2430	3890	267
85010F-IS	10"	16"	1340	----	620	2430	3890	263
85012F-PS	12"	16"	1100	700	600	3170	5370	291
85012F-IS	12"	16"	1450	----	620	3170	5370	299
85014F-PS	14"	18"	1270	750	650	3170	5370	315
85014F-IS	14"	18"	1530	----	670	3170	5370	315
85016F-PS	16"	18"	1270	750	650	3170	5370	350

\* Supplied with 2" outlet valve

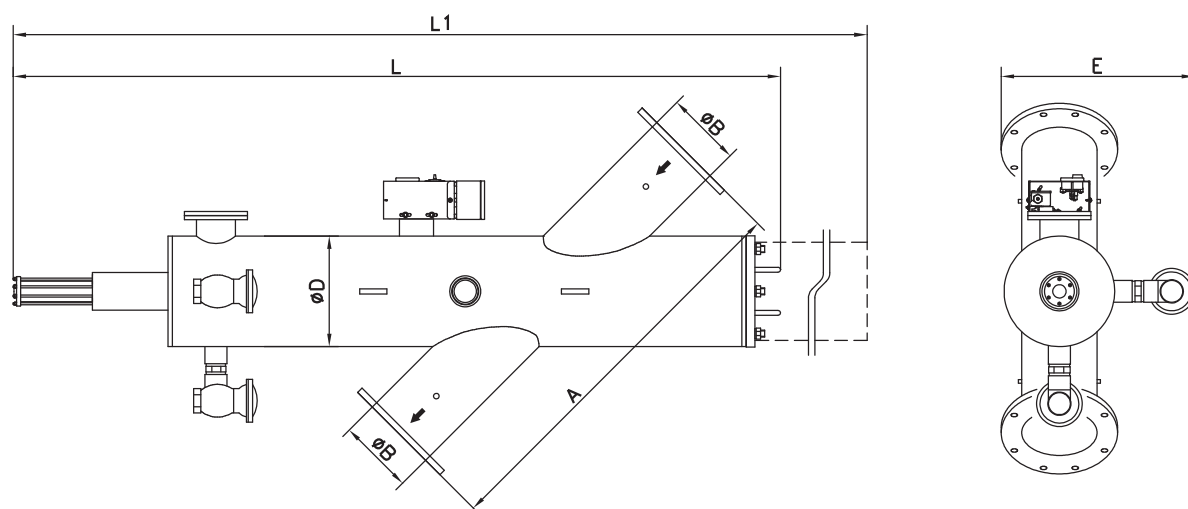

**Parallel Inlet/Outlet Model (PS, PE)**

**Dimensions & Weight**

U.S. Units

Model	B	D	A	H	E	L	L1	Weight
	inch	inch	inch	inch	inch	inch	inch	lbs
85002M-PE*	2"	10"	5.9	----	15.4	17.7	23.6	126
85002F-IE*	2"	10"	31.9	----	15.4	17.7	23.6	126
85003F-PE	3"	10"	17.7	22	16.2	62.2	88.6	245
85003F-IE	3"	10"	23.8	----	19.7	62.2	88.6	236
85003F-IS	3"	10"	23.8	----	19.7	21	30.7	152
85003F-PS	3"	10"	8	23.2	16.2	21	30.7	152
85004F-IS	4"	10"	29.4	----	19.7	27.5	43.3	174
85004F-PS	4"	10"	11.8	22	16.2	27.5	43.3	174
85004F-PE	4"	10"	35.4	22	16.2	78	119.3	269
85004F-IE	4"	10"	29.4	----	19.7	78	119.3	287
85006F-PE	6"	12"	35.4	24.4	17.7	80.7	126	309
85006F-IE	6"	12"	35.8	----	21.7	80.7	126	318
85008F-PE	8"	12"	35.4	24.4	21.7	104	173.2	420
85008F-PS	8"	12"	35.4	24.4	17.7	88.2	141.7	404
85008F-IS	8"	12"	46.3	----	21.6	88.2	141.7	412
85010F-PS	10"	16"	43.3	27.5	19.7	95.6	153.1	589
85010F-IS	10"	16"	52.7	----	24.4	95.6	153.1	580
85012F-PS	12"	16"	43.3	27.5	23.6	124.8	211.4	642
85012F-IS	12"	16"	57.1	----	24.4	124.8	211.4	660
85014F-PS	14"	18"	50	29.5	25.6	124.8	211.4	695
85014F-IS	14"	18"	60.2	----	26.4	124.8	211.4	695
85016F-PS	16"	18"	50	29.5	25.6	124.8	211.4	770

\* Supplied with 2" outlet valve


**Inline Inlet/Outlet Model (IS, IE)**

**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. in
85002M-PE**	2"	50	25	110	20-24	88-105	580	90
85002F-IE**	2"	50	25	110	20-24	88-105	580	90
85003F-PE	3"	80	40	175	18-24	80-105	2150	335
85003F-IE	3"	80	40	175	18-24	80-105	2150	335
85003F-IS**	3"	80	40	175	20-24	88-105	580	90
85003F-PS**	3"	80	40	175	20-24	88-105	580	90
85004F-IS**	4"	100	80	350	28-34	123-150	1100	170
85004F-PS**	4"	100	80	350	28-34	123-150	1100	170
85004F-PE	4"	100	80	350	27-36	119-159	4300	670
85004F-IE	4"	100	80	350	27-36	119-159	4300	670
85006F-PE	6"	150	150	660	27-36	119-159	4300	670
85006F-IE	6"	150	150	660	27-36	119-159	4300	670
85008F-PE	8"	200	300	1315	36-48	159-211	6550	1015
85008F-PS	8"	200	300	1315	27-36	119-159	4300	670
85008F-IS	8"	200	300	1315	27-36	119-159	4300	670
85010F-PS	10"	250	400	1750	27-36	119-159	5750	890
85010F-IS	10"	250	400	1750	27-36	119-159	5750	890
85012F-PS	12"	300	600	2630	36-48	159-211	8550	1325
85012F-IS	12"	300	600	2630	36-48	159-211	8550	1325
85014F-PS	14"	350	900	3960	36-48	159-211	9650	1500
85014F-IS	14"	350	900	3960	36-48	159-211	9650	1500
85016F-PS	16"	400	1100	4820	36-48	159-211	9650	1500

\*\* Models without piston

- The max. flow rate refers to screens over 200 microns/less than 80 mesh, For a finer filtration degrees consult our representative.

**Technical Data**

- Max. working pressure: 10 bar (150 psi).
- Min. working pressure: 2 bar (30 psi).
- Two filtering stages:
  - Coarse Screen: Perforated cylinder, prevents large particles from entering the cleaning mechanism.
  - Fine Screen: Woven stainless steel wire mesh mounted on the inner surface of a P.V.C. cylinder, stops the fine dirt particles.
- Wide range of screens down to 30 micron.
- Automatic self cleaning of the screen - activated by time elapsed or pressure difference
- Flushing controller operated by 6V DC battery. AC controller is available upon request.

- Available in two series:
  - I - Series - In line inlet and outlet
  - P-Series - Parallel inlet and outlet
- Available in the following inlet sizes:
  - M - 2" Female thread
  - F - Flange connections - 3" - 16"

### Protective Coating

120 micron extra- durable polyester applied electrostatically and oven-cured on a zinc-phosphate layer for maximal 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 designed and manufactured in order to achieve the highest standard of quality and finish.

### 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 – Woven stainless steel wire mesh mounted on the inner surface of a P.V.C. cylinder.

**HEAD LOSS/ FLOW RATE**

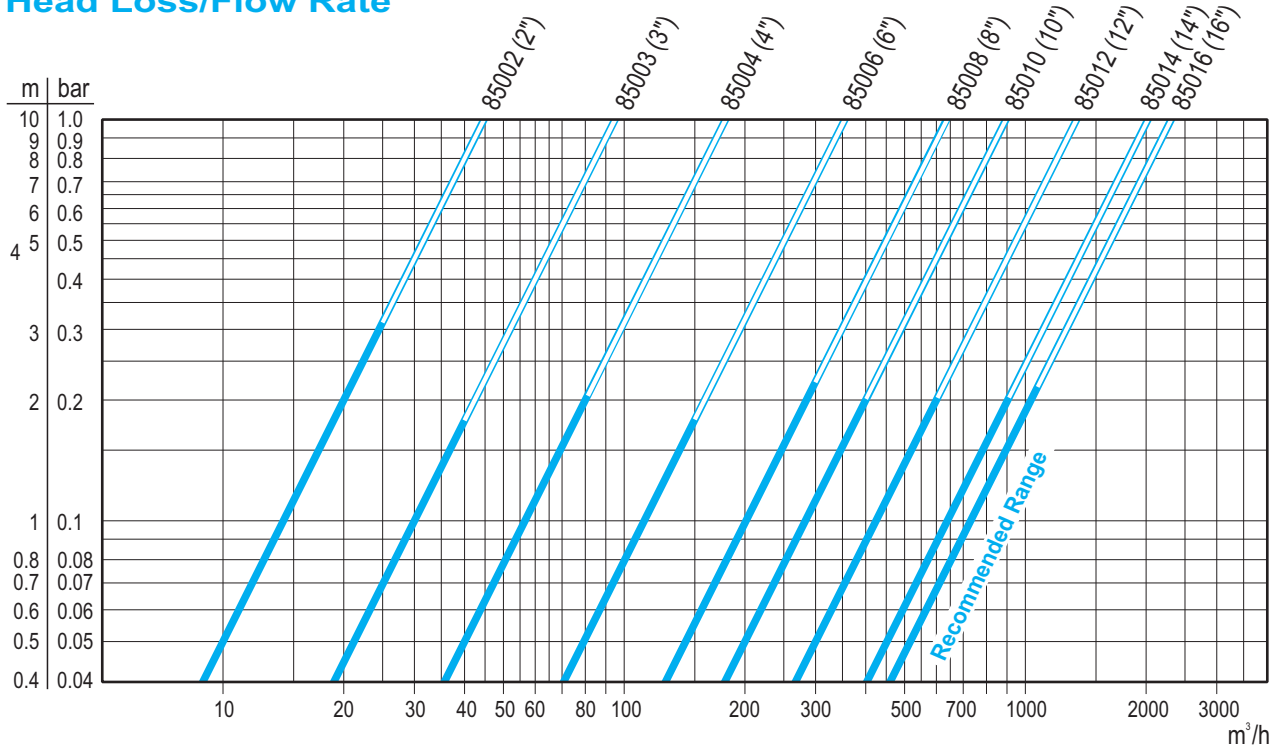
**Metric Units**

**Head Loss \*\***

Model	Flow rate Q (m <sup>3</sup> /h)												
	10	15	20	25	50	75	100	150	200	250	300	350	500
	Head Loss dP (bar)												
85002 (2")	0.05	0.11	0.20	0.31	1.23								
85003 (3")			0.04	0.07	0.28	0.62	1.11						
85004 (4")					0.08	0.17	0.31	0.69	1.23				
85006 (6")						0.04	0.08	0.17	0.31	0.48	0.69	0.95	
85008 (8")								0.06	0.10	0.16	0.23	0.31	0.63

Model	Flow rate Q (m <sup>3</sup> /h)												
	200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000
	Head Loss dP (bar)												
85010 (10")	0.05	0.11	0.19	0.30	0.43	0.58	0.76	0.96	1.18				
85012 (12")		0.05	0.09	0.14	0.20	0.27	0.35	0.44	0.55	0.79	1.23		
85014 (14")			0.04	0.07	0.09	0.13	0.17	0.21	0.26	0.38	0.59	0.85	1.05
85016 (16")				0.05	0.07	0.09	0.12	0.15	0.18	0.26	0.41	0.59	0.72

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



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

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



**HEAD LOSS/ FLOW RATE**

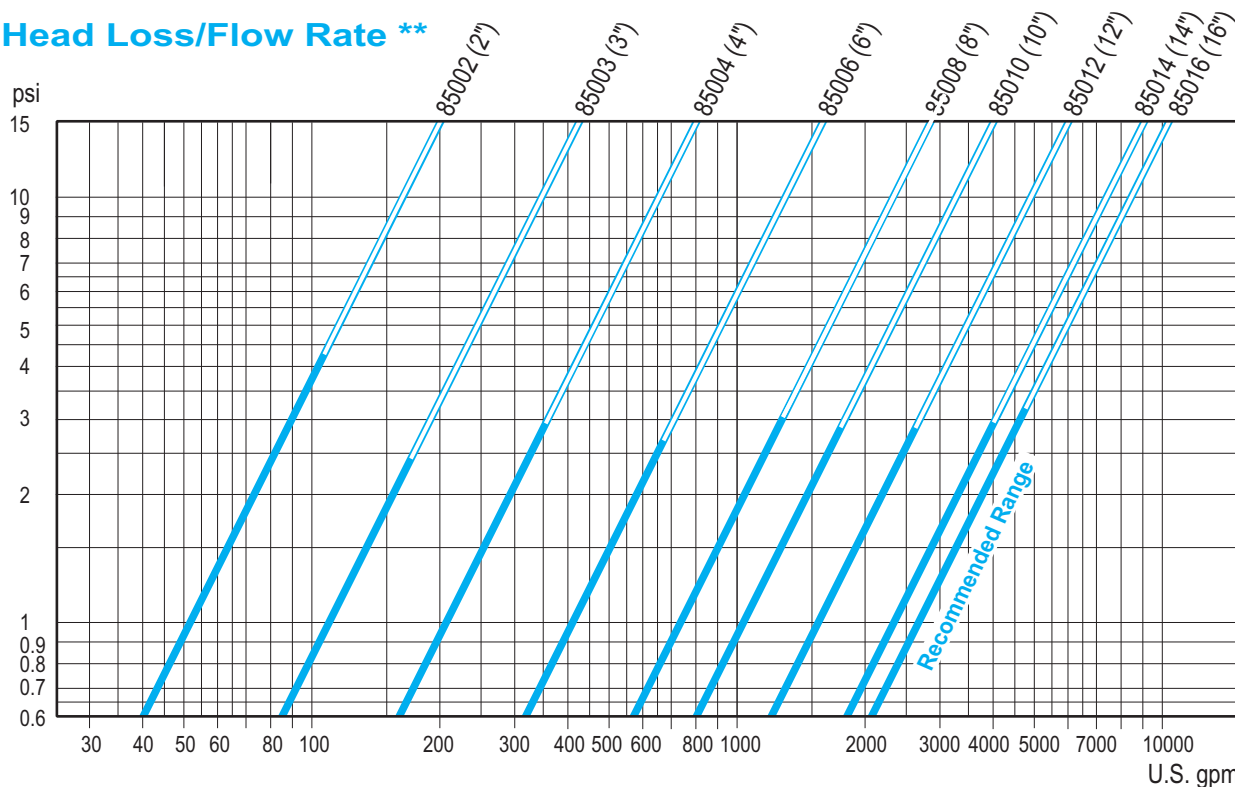
**U.S. Units**

**Head Loss \*\***

Model	Flow rate Q (U.S. gpm)												
	50	75	90	120	200	300	450	700	900	1100	1300	1500	2000
85002 (2")	0.9	2.1	3.0	5.3	14.8								
85003 (3")			2.7	1.2	3.3	7.5	16.8						
85004 (4")					0.9	2.1	4.7	11.3					
85006 (6")						0.5	1.2	2.8	4.7	7.0	9.8	13.0	
85008 (8")								0.9	1.5	2.3	3.2	4.2	7.5

Model	Flow rate Q (U.S. gpm)												
	900	1500	1800	2000	2600	3000	3500	4000	4500	5000	6500	8000	10000
85010 (10")	0.7	2.0	2.9	3.5	6.0	8.0	10.8	14.1					
85012 (12")		0.9	1.3	1.6	2.8	3.7	5.0	6.6	8.3	10.3			
85014 (14")			0.6	0.8	1.3	1.8	2.4	3.1	4.0	4.9	8.3	12.6	
85016 (16")				0.5	0.9	1.2	1.7	2.2	2.7	3.4	5.7	8.7	13.5

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



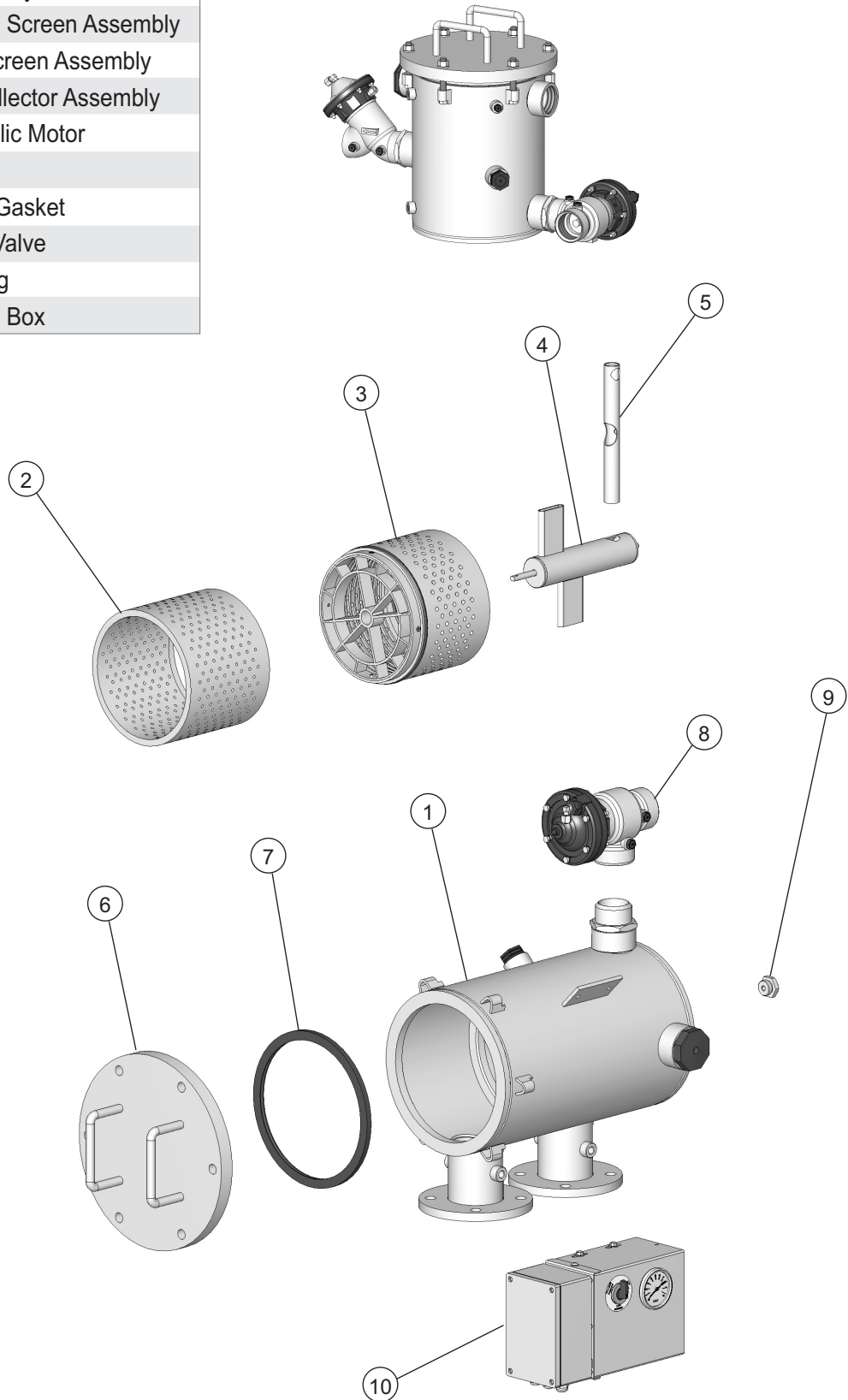
\*\* For a clean filter and 120 mesh screen.

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

**ILLUSTRATED PARTS BREAKDOWN**

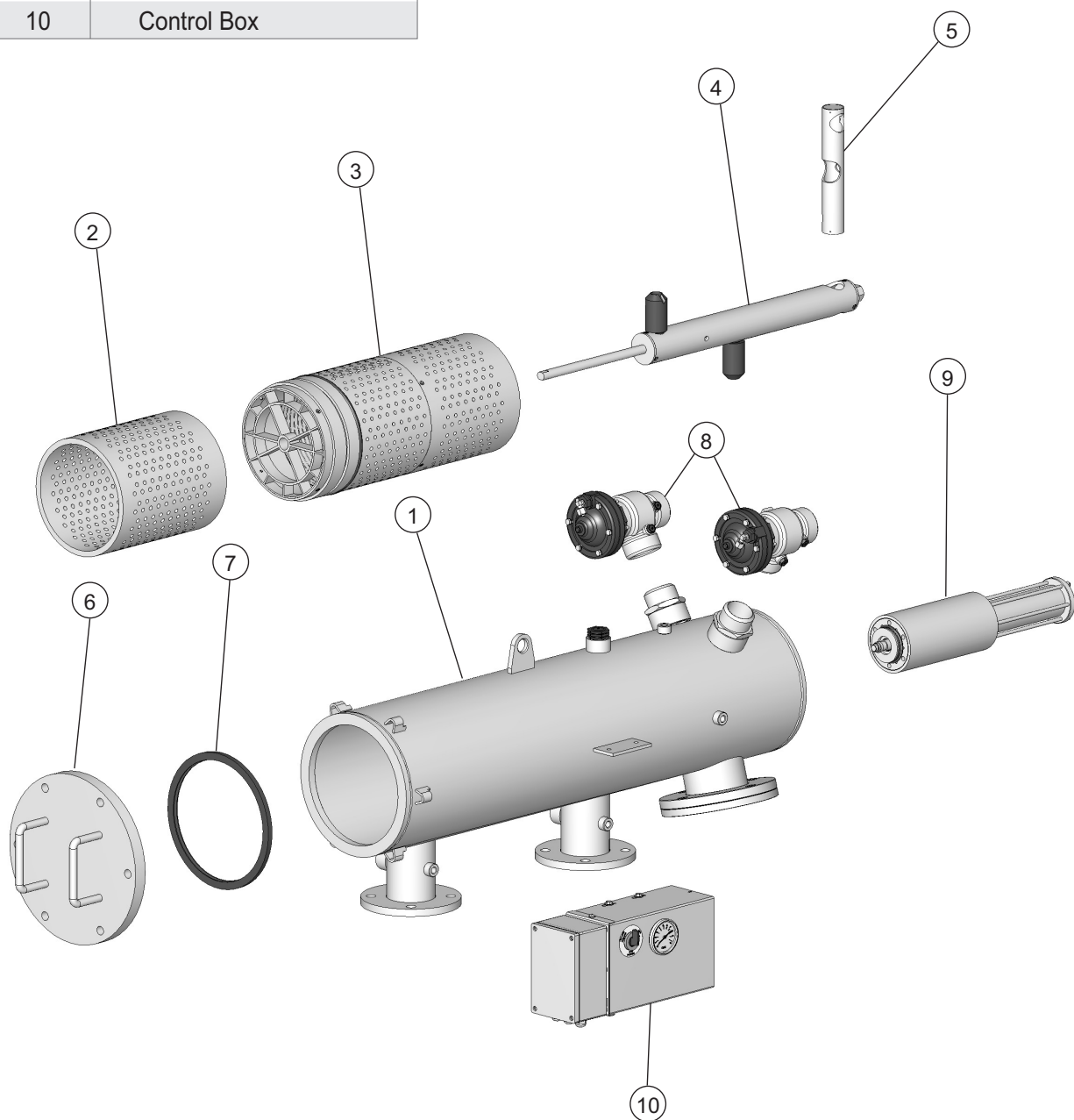
NO.	DESCRIPTION
1	Filter Body
2	Coarse Screen Assembly
3	Fine Screen Assembly
4	Dirt Collector Assembly
5	Hydraulic Motor
6	Cover
7	Cover Gasket
8	Rinse Valve
9	Bushing
10	Control Box

Model 85002M-PE



**ILLUSTRATED PARTS BREAKDOWN**

NO.	DESCRIPTION
1	Filter Body
2	Coarse Screen Assembly
3	Fine Screen Assembly
4	Dirt Collector Assembly
5	Hydraulic Motor
6	Cover
7	Cover Gasket
8	Rinse Valve
9	Hydraulic Piston
10	Control Box



## GENERAL INSTRUCTIONS

### Operation

- The **Odismatic® Hydraulic Filter** is equipped with an automatic suction system operated by the in line water pressure for cleaning the screen without interfering with the filtration 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 cleaning cycle takes about 10 to 16 sec.
- The minimum working pressure is 2 bar (30 psi).
- The maximum working pressure is 10 bar (150 psi).

### WARNING

- **Flushing time should not exceed 10 to 16 seconds. Longer flushing time might cause damage to the flushing collector bearing inside the filter.**

### Installation

The **Odismatic® Hydraulic 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 battery to the DC controller.

## Start-Up

- Slowly open the inlet valve to the filter, allowing the filter to pressurize.
- Disconnect the control tube from the Hydraulic piston and bleed until all of the air is displaced by water. Reconnect the control tube.
- Check for any external leakages and eliminate.
- Check to ensure that the filter inlet pressure is higher than 2 bar (30 psi).
- Slowly open the outlet valve of the filter.
- Initiate a manual flushing cycle. During this flushing, observe the inlet and hydraulic motor chamber pressures. The hydraulic motor chamber pressure should be between 25 to 40 percent of the filter inlet pressure during the flushing cycle.
- Observe the build up of the pressure differential across the filter. It is recommended to observe at least one automatic flushing cycle to ensure that the system is operating properly.
- Slide the plastic sleeve back into its original position on the Hydraulic piston.

## Manual Flushing

The manual flushing is activated through the flushing control box by depressing the manual button.

## Periodic Cleaning

- Initiate a manual flushing cycle and check for proper filter function by observing the pressures as described in Section start-up. This step should be performed for all individual filters in multiple installations.
- 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.
- 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.
- 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 / SHIPING DATA**
**Metric Units/ U.S. Units**

Model	Inlet / Outlet (inch)	Gross* Weight		Packaging	Gross Volume	
		(kg)	(lbs)		(m <sup>3</sup> )	(qu.ft)
85002M-PE*	2"	65	145	Packed on a pallet	0.1	3.5
85002F-IE*	2"	65	145	Packed on a pallet	0.1	3.5
85003F-PE	3"	130	290	Packed on a pallet	0.5	17.5
85003F-IE	3"	125	275	Packed on a pallet	0.6	21
85003F-IS	3"	75	165	Packed on a pallet	0.3	10.5
85003F-PS	3"	75	165	Packed on a pallet	0.3	10.5
85004F-IS	4"	90	200	Packed on a pallet	0.4	14
85004F-PS	4"	90	200	Packed on a pallet	0.3	10.5
85004F-PE	4"	175	385	Packed on a pallet	1.1	39
85004F-IE	4"	185	410	Packed on a pallet	0.9	32
85006F-PE	6"	190	420	Packed on a pallet	1.1	39
85006F-IE	6"	195	430	Packed on a pallet	1	35
85008F-PE	8"	260	575	Packed on a pallet	1.6	57
85008F-PS	8"	205	450	Packed on a pallet	1.1	39
85008F-IS	8"	210	465	Packed on a pallet	1.5	53
85010F-PS	10"	335	740	Packed on a pallet	1.7	60
85010F-IS	10"	335	740	Packed on a pallet	3	106
85012F-PS	12"	365	805	Packed on a pallet	1.6	57
85012F-IS	12"	365	805	Packed on a pallet	3.5	124
85014F-PS	14"	395	870	Packed on a pallet	2.2	78
85014F-IS	14"	395	870	Packed on a pallet	3.3	117
85016F-PS	16"	440	970	Packed on a pallet	2	71

\* Gross weight includes packaging materials.

**How To Order OdisMatic® Hydraulic**

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