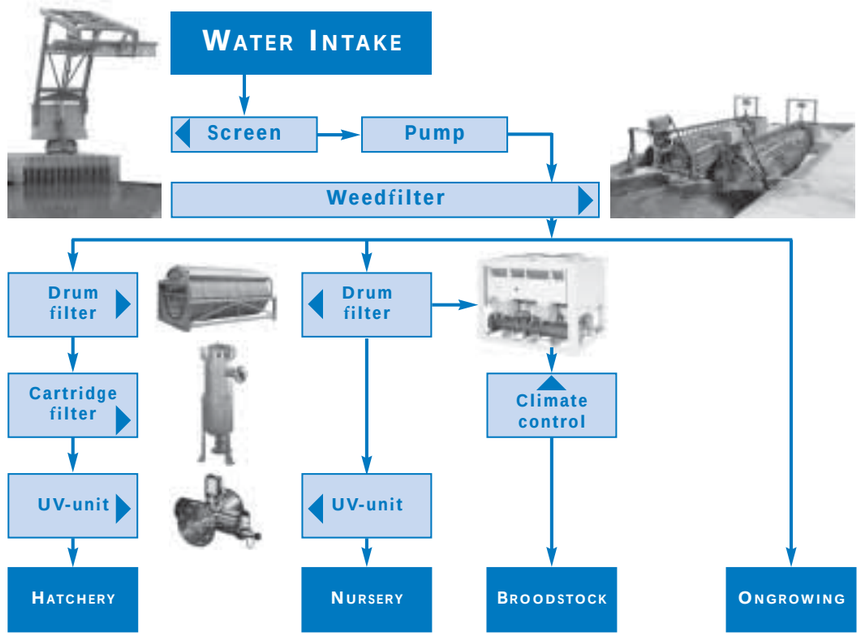
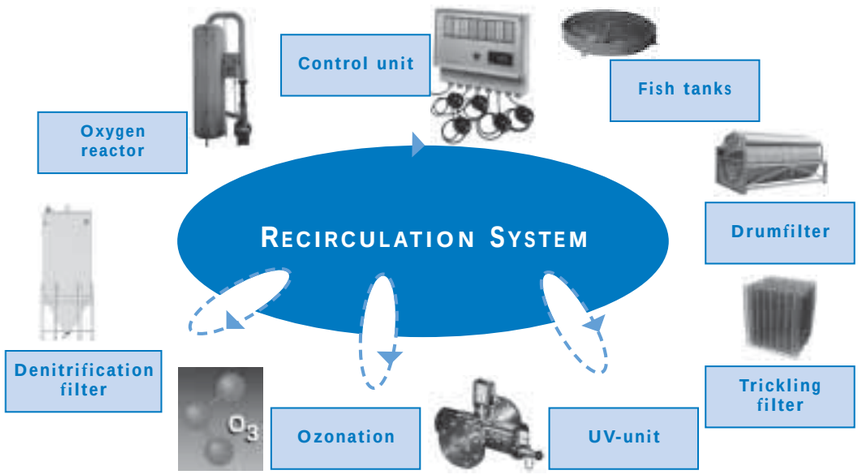
Landbased Farming





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Weedfilters

The weedfilter is an efficient method of filtering out seaweed, leaves and other materials that are carried by the water.

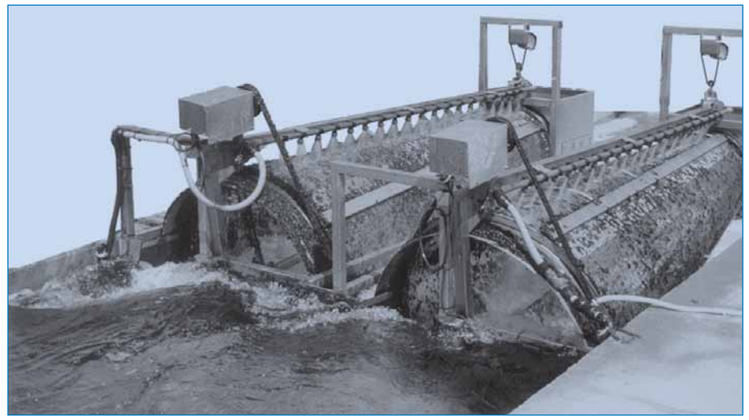
- Filtration: Stainless steel grid.
- Available mesh sizes: 3, 5, and 10 mm openings.
- Construction: Stainless steel AISI 304 or 316.
- Filter rotation speed: 6.6 rpm.
- Electric filter motor: 380 VAC/50Hz.
- Transmission: Belt drive.
- Lifting device: Galvanized steel.

The materials to be removed, enter with the water flow in the filter cone, and are forced towards the narrow end of the cone where they are seperated and discharged in a waste pipe. Thanks to its hight adjustable filter cone, the functioning of the weedfilter can be adapted to the actual water flow. With very high loadings, it is possible to add an auger (or similar) to the unit, resulting in improved waste removal. Installing the weedfilter is a simple task requiring no special skills.

Technical specifications:

• Capacity (indicative)	:	1,0 m^3/s	0,8 m^3/s	0,4 m^3/s	0,2 m^3/s
• Dimensions (m)	:				
length	:	4,70 m	4,00 m	3,25 m	1,80 m
width	:	2,00 m	1,50 m	1,10 m	0,80 m
diameter (max)	:	1,76 m	1,26 m	0,90 m	0,64 m
total height (max)	:	2,50 m	2,10 m	1,75 m	1,40 m
water height	:	1,15 m	0,90 m	0,65 m	0,45 m

Above figures shall regarded as guidance. Please contact Catvis for final sizing.



Watertreatment

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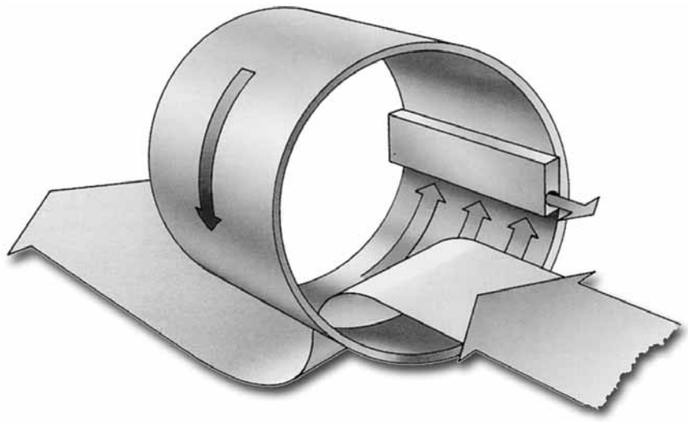
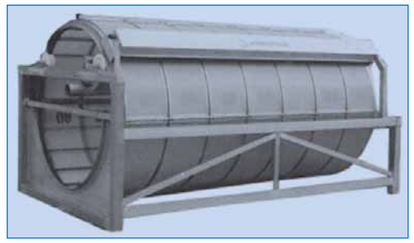
Drumfilters



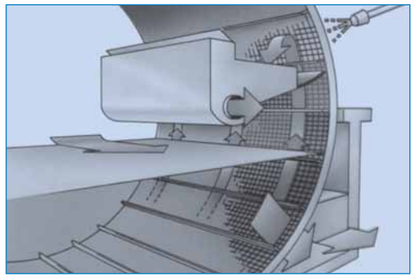
Microsieving is an efficient and reliable technique for separation of particles from all kinds of liquids. Hydrotech develops and manufactures high performance filters for water purification and product recovery.

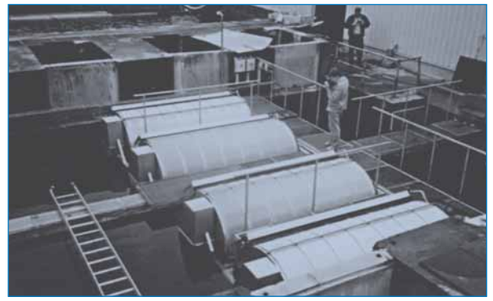


The Hydrotech drumfilter is a mechanical and self cleaning filter.
The filter works without pressure and is robustly designed with few moving parts to ensure long life and low maintenance costs.

The liquid is filtered through the periphery of the slowly rotating drum. Assisted by the filter elements' special cell structure, the particles are carefully separated from the liquid. Separated solids are rinsed off the filter cloth into the solids collection tray and discharged.

Careful handling of the solids to prevent fragmentation is essential to achieve high filtration efficiency. Hydrotechs unique design of the filter elements makes this possible.





Hydrotech's patented filter elements greatly simplify both the replacement of the elements and the change of the filter opening size. The drum is constructed in sections, each with three, four or five filter elements depending on the diameter.
This facilitates maintenance operations and makes it easy to adapt the filter to the actual need of flow capacity and performance requirements of filtration.

Various options exist for the lay out of the filter.

Filter with tank

Filter for open channel with "pipe "inlet

Filter with extra inlet overflow panels

Filter with open inlet

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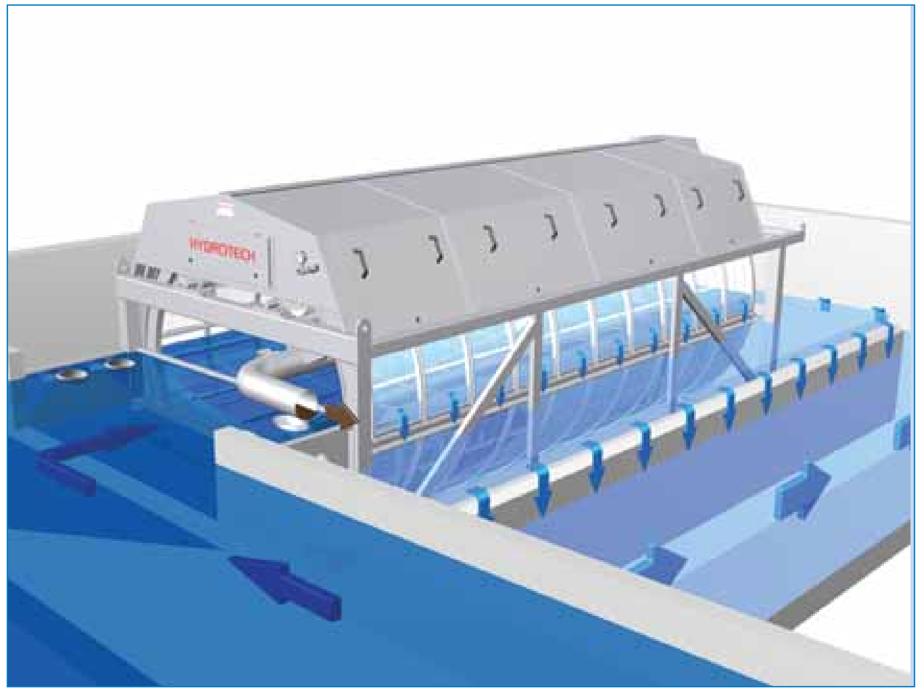
Landbased Farming

Drumfilters

The drum and tank of the drumfilters are available in various grades of stainless steel. For use in extremely corrosive surroundings all-plastic motels are available. The filter cloth is made of stainless steel or polyester.

The operation of the drumfilter can be continuous or automatically controlled. Typically the backwash requires 1-2% of the total flow and filtered water is used.
Automatic level control is available.
The table on the next page shows the flow capacity with different levels of pollution of the various types of drumfilters.
For even larger flows of water or in situations where space is limited, Hydrotech discfilters are available.
For sludge-thickening applications Hydrotech supplies Beltfilters.



The figures in the table on the next page, shall be regarded as guidance.
Please contact Catvis or representative for final sizing.

* Figures valid for standard type H & F filters with standard connections. Type 2S & 3S filters might have a higher flow capacity.

** With standard connections. High flow capacities are only valid for open inlet constructions. Some inlets eg pipe inlet connections might restrict flow.

Watertreatment

Flow capacity for Hydrotech Drumfilters

Maximum flow capacity (l/s) *

Flow Capacity examples	Filter opening (micron) / Filter size	501	801	802	803	1201	1202	1203	1204	1601	1602	1603	1604	1605	1606	1607	2005	2006	2007	2008	2009	2010
Intake water	10	2	4	8	12	6	12	18	24	8	16	24	32	40	48	56	50	60	70	80	90	100
from stream	15	4	10	20	30	15	30	45	60	20	40	60	79	99	119	139	124	149	174	199	224	249
Lake or sea	18	5	12	24	36	18	36	54	72	24	48	72	96	120	144	168	150	180	210	240	270	300
Max 10 mg TSS/l	25	6	15	30	45	23	45	68	91	30	60	91	121	151	181	212	189	227	264	301	338	375
	30	8	20	40	60	30	60	90	120	40	80	120	160	200	240	280	250	300	350	400	450	500
	40	9	24	48	72	36	72	108	144	48	96	144	192	240	288	336	300	360	420	480	540	600
	60	10	30	60	90	45	90	135	180	60	120	180	240	300	360	420	375	450	525	600	675	750
	90	10	36	72	108	54	108	162	216	72	144	216	288	360	432	504	450	540	630	720	810	900
Recirculated	30	5	12	24	36	18	36	54	72	24	48	72	96	120	144	168	150	180	210	240	270	300
fish farm	40	6	16	32	48	24	48	72	96	32	64	96	128	160	192	224	200	240	280	320	360	400
Max 25 mg TSS/l	60	8	22	44	66	33	66	99	132	44	88	132	176	220	264	308	275	330	385	440	495	550
Cold water	90	10	28	56	84	42	84	126	168	56	112	168	224	280	336	392	350	420	490	560	630	700
Recirculated	30	3	8	17	25	13	25	38	50	17	34	50	67	84	101	118	105	126	147	168	189	210
fish farm	40	4	11	22	34	17	34	50	68	22	45	67	90	112	134	157	140	168	196	224	252	280
Max 25 mg TSS/l	60	6	15	31	46	23	46	69	92	31	62	92	123	154	185	216	193	231	270	309	348	387
Warm water	90	8	20	39	59	29	59	88	118	39	78	118	157	196	235	274	245	294	343	392	441	490
Outlet water	30	7	18	36	54	27	54	81	108	36	72	108	144	180	216	252	225	270	315	360	405	450
from flow	40	8	22	44	66	33	66	99	132	44	88	132	176	220	264	308	275	330	385	440	495	550
through type	60	10	28	56	84	42	84	126	168	56	112	168	224	280	336	392	350	420	490	560	630	700
fish farm	90	10	34	68	102	51	102	153	204	68	136	204	272	340	408	476	425	510	595	680	765	850
Max 15 mg TSS/l	100	10	36	72	108	54	108	162	216	72	144	216	288	360	432	504	450	540	630	720	810	900
	500	10	52	104	130	78	156	234	312	104	208	312	416	520	624	728	650	780	910	1040	1170	1300
Maximum hydraulic capacity for filter with standard tank**		10	30	40	40	30	50	70	70	50	70	125	180	180	180	180	200	200	200	200	200	200

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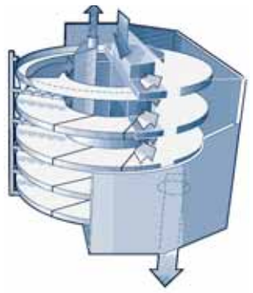
Discfilters

Hydrotech Discfilters, are especially suitable when you need a compact filter with fine filtration and large capacity. Thanks to the modular structure, you can choose just a small number of discs for the initial installation and then, if increased flow is required, extra discs can easily be added. The compact design of the discfilter makes this system a good choice for recirculation systems, effluent polishing of waste water, fine filtration of intake water or other applications where a space-saving filter with fine filter openings and high capacity is required.
The water to be treated flows by gravity into the filter segments from the centre drum. The water flows through the filter panels mounted on the two sides of the disc segments. The solids remain on the inside of the filterdiscs and thus can be removed. High pressure rinsewater washes the solids off the filter media and into the solids collection trough. Typically the backwash requires 1-2% of the total flow and filtered water can be used for this backwashing. The tank version of the Hydrotech Discfilter is provided with an internal emergency by-pass and a level weir to maintain the water level after the filter. The versions without tanks are designed for installation in a concrete channel or basin.

Flow capacity: Up to 1000 l/s per filter. **Filter opening**: 10-100µm.
The filter elements are easy to change thanks to the innovative design. Moving backwash system for better cleaning, minimal water use and less wear on filter media.

Typical applications: • Intake water • Aquaculture systems • Effluent polishing • Industrial process water.

The figures in this table shall be regarded as guidance. Please contact Catvis or representative for final sizing.
* Figures valid for standard type H & F filters with standard connections.
* * With standard connections. High flow capacities are only valid for open inlet constructions. Some inlets eg pipe inlet connections might restrict flow.



Action principal disc filter

Application examples	Filter opening (micron)	Maximum flow capacity (ls) Filter size 1702	1704/3	1704	1706/5	1706	1708/7	1708	2102	2104/3	2104	2106/5	2106	2108/7	2108	2110/9	2110	2112/11	2112
Intake water from stream, lake or sea	10	22	33	43	54	65	76	87	35	52	70	87	105	122	140	157	175	192	210
Max 10 mg TSS/l	15	58	87	116	145	174	200	200	93	140	186	233	279	326	372	419	466	512	559
	18	65	98	130	163	196	200	200	105	157	210	262	314	367	419	471	524	576	629
	25	82	123	164	200	200	200	200	132	198	264	330	396	462	528	594	660	726	792
	30	109	163	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
	40	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
	60	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
	90	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Recirculated	30	45	68	91	114	137	160	183	73	110	147	183	220	257	293	330	367	403	440
Fish Farm	40	60	91	122	152	183	200	200	98	147	196	244	293	342	391	440	489	538	587
Max 25 mg TSS/l	60	83	125	167	200	200	200	200	134	202	269	336	403	471	538	605	672	739	800
Cold water (<20°C)	90	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Recirculated	30	98	147	196	200	200	200	200	157	236	314	393	471	550	628	707	786	800	800
Fish Farm	40	130	179	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Max 25 mg TSS/l SS	60	125	167	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Warm water (>20°C)	90	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Outlet water from	30	98	147	196	200	200	200	200	157	236	314	393	471	550	628	707	786	800	800
flow through type	40	119	179	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Fish Farm	60	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Max 15 mg/l SS	90	120	180	200	200	200	200	200	160	240	320	400	480	560	640	720	800	800	800
Maximum hydraulic capacity for filter with standard tank **		30	70	70	125	125	180	180	70	125	125	200	200	200	200	200	200	200	200

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Beltfilter

The beltfilter is used in the process of removal of suspended solids from water with higher pollution loads for fish farms and for the fish processing industry.

By using chemical flocculation in combination with the beltfilter, impressive results can be achieved. When the sludge water has been filtered in a microscreen, it usually has a dry matter content of 300-500mg/ litre, or approx. 0,03-0,05%. After passing the flocculation tank and the beltfilter, the dry matter content has normally increased to 8-12%. This means that the volume of the dewatered sludge has been reduced by a factor of 200. This in turn means a radical reduction in both labour and expense for handling the final sludge.

Sludge water is mixed with a flocculant and channeled to the beltfilter, where it is forced to pass through the inlet pipe and up the endless polyester band, which moves around two plastic rollers. The water passes by gravity through the filter cloth. The separated particles are transported to the top of the belt and drained to a high dry matter content.
A scraper removes the sludge, which is dumped down and leaves the beltfilter through an outlet pipe for final treatment. Just after the scraper a rinse water bar is placed to backwash the cloth before returning.

The beltfilter, which can be delivered built into a steel tank, is usually run intermittently by a level stick. The velocity of the moving belt can be regulated by a frequency converter. The standard filter opening is 120 microns. The combination of beltfilter and flocculation tank offers great advantages because of volumes of the final sludge are radically reduced. This saves a lot of work and handling costs.

Beltfilter

Cartridge filters and cartridges

Our cartridge filters are designed and manufactured using the latest computer techniques to provide unsurpassed flow characteristics and economy. Our cartridge filters are constructed in stainless steel 316-L or plastics to ensure a long lifetime.
Cartridge filters can be supplied in many models and sizes.

Both precision wound and thermally bonded filter cartridges are available in nominal micron ratings from 0.5 to 100 µm. Standard lengths are available from 4" to 40". Both filter cartridges are compatible with most existing knife edge filter housings. When necessary industry standard end caps can be fitted. We recommend the use of an 'O' ring seal, particularly for the finer micron ratings.

Precision wound depth cartridges

Thermally bonded depth cartridges

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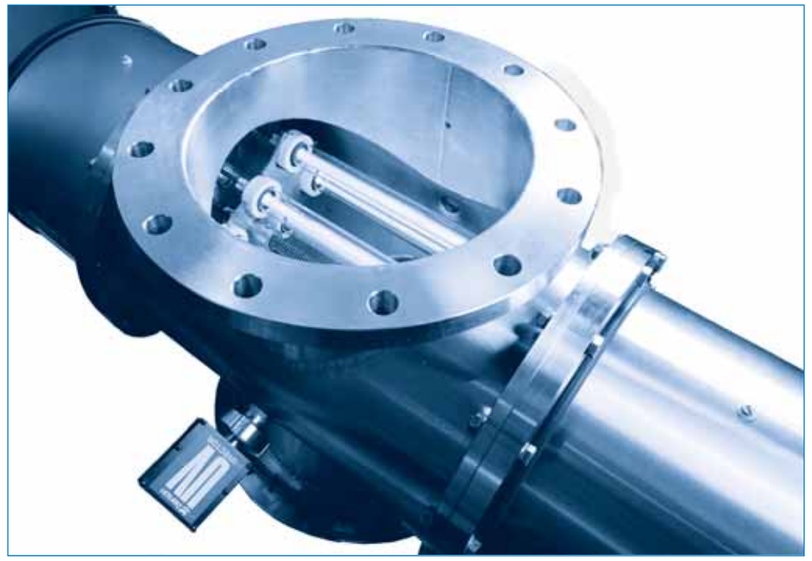
UV-systems

In-line UV-systems are used all over the world to disinfect water. Pathogenic bacteria, viruses and fungi can be efficiently eliminated from the water, avoiding the outbreak of diseases.
In-line UV- systems can operate with low pressure or medium pressure UV lamps. The medium pressure UV lamps produce a broad spectrum of UV-light. Besides the destruction of the DNA bonds, the broad UV-spectrum also affects cell membranes, proteins, lipids and enzymes of the micro organism. Therefore the effect of the medium pressure UV-system is much stronger than conventional low pressure UV-systems. Photo reactivation (repair of the DNA bonds by the micro organism after treatment with mono chromatic UV-light) will be limited with the use of medium pressure lamps.

In-line UV-systems are easily installed in existing pipework and have a very low resistance (often smaller than 0,1 m water column).
A UV sensor can be installed on the UV-system to continuously monitor the UV-radiation applied to the water.

An alarm is given when the UV-dose drops below a preset level. This for example can be caused by extra pollution of the incoming water.
The quartz tubes in the UV-chamber can be cleaned with a manual or automatic wiper, even when the unit is in function.



Why use medium pressure lamps:

- broad UV-spectrum
- efficient UV–output
- effective disinfection
- multiple damaging effects
- limited photo reactivation
- low ageing

Why use UV-light instead of chemicals:

- no danger of toxicity
- no hazardous by-products
- no corrosive effects
- no safety concerns
- no persistent residuals
- proven technology

Why use In-line UV systems:

- homogeneous UV-intensity
- in line construction
- easy to install
- reliable control
- compact size
- perpendicular treatment
- low risk of quartz breakage

Watertreatment

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