

Autotrophic De-Nitrification Reactor: ADN - the safe nitrate filter -



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Nitrate will accumulate in aquaria very fast if you feed many fishes. Concentrations over 20 mg/l (ppm) should not be tolerated. The AquaCare ADN filter is very safe because the specialized bacteria reduce the nitrate autotrophically. This means that organic feeding substance are not necessary – the bacteria population grows on a special sulphur substrate. The AquaCare ADN filter has following advantages:

- intensive mixing with a rigid circulation pump – therefore the efficiency will rise
- high water inlet flows are possible
- long life of the sulphur substrate
- easy de-aeration
- low biomass production – therefore low organic pollution in the aquarium water



If you feed corals like *Tubastrea* spec. much nitrate will accumulate. So nitrate elimination is necessary.

Technical data of the AquaCare ADN filter: 70 ... 100

Size	ADN 70	ADN 100
Bestellnummer	ADN-70-45	ADN100-50
	ADN-70-70	ADN100-70
	ADN-70-100	ADN100-100
Maximum aquarium size in litres	1,000 / 1,800 / 2,700	2,400 / 3,700 / 5,700
Diameter in mm	70	100
Sulfur substrate in kg	1.3 / 2.1 / 3.2	2.5 / 3.8 / 5.8
Total height in cm*	45 / 70 / 100	50 / 70 / 100
Necessary height*	+ 5 cm	
Foot print size, L × W in mm	160 × 160	220 × 180
Erection	external or in the filter sump, hang-on, wall mounting	
Materials	PMMA, NBR o-rings, PA+PVC connectors	
Inlet connection	4 mm nozzle	
Outlet connection	10 mm nozzle	
Drain valve	no (can be retrofitted)	Valve for 6/4 PE hose
Build in pump	ADN70-45: UP300 (4W)	ADN100-50: UP1000 (10W)
	ADN70-70: UP500 (5W)	ADN100-70: UP1000 (10W)
	ADN70-100: UP500 (5W)	ADN100-100: UP2000 (18W)
Filter material	sulphur granules (99.8% purity), refillable	
Optimum water flow in l/h	2.7 / 5.4 / 8.1	7.4 / 11.3 / 17.3
Maximum water flow in l/h	11 / 22 / 33	29 / 45 / 69
Total weight in kg	3.8 / 4.9 / 6.2	5 / 7 / 11
pH value of water outlet	0.5-1.0 pH steps lower than inlet / carbonate hardness of min. 7°dKH is required! The pH value should not be lower than 8.0. A neutralization filter can be connected downstream.	
erforderliche Zulaufpumpe	Circulation pump with ball valve or dosing pump or solenoid valve	
Redox-Messkettenanschluss	For all probes with 12 mm diameter (option), order number: Con20x1.5-12mm	
1 l liter (approx. 1.2 kg) sulphur granules (99.8% pure), order number: 575-010 25 kg (approx. 21 liters) sulphur granules (99.8% pure), order number 575-250		

* Special heights are possible! With ORP electrode application, the required height increases by approx. 10 cm.
P-ADN_1GB.DOC, Jun. 23, modifications possible

Technical data of the AquaCare ADN filter: 150 ... 400

Size	ADN150	ADN 250	ADN 300	ADN 400
Order number	ADN150-50 ADN150-70 ADN150-100	300-025	ADN300-50 ADN300-100 ADN300-150	ADN400-100 ADN400-150
max. aquarium size in m ³	5.4 / 8.5 / 12.2	21	19 / 52 / 85	78 / 130
Diameter, mm	150	250	300	400
Automatic flushing function	no ⁴⁾		yes	
Flow meter for inlet flow	no	yes		
N degradation (at 16% N in protein) ³⁾	26 / 41 / 65 g/d	104 g/d	0.28 / 0.8 / 1.3 kg/d	1.2 / 1.9 kg/d
Protein degradation (60%TS in feed) ³⁾	160/250/405 g/d	0.65 kg/d	1.8 / 4.8 / 8 kg/d	7.2 / 12 kg/d
Feed degradation ³⁾	270/420/675 g/d	1 kg/d	2.9 / 8 / 13 kg/d	12 / 20 kg/d
Sulfur substrate, litres	5.4 / 8.5 / 13.3	26 kg	19 / 52 / 85 kg	87 / 146 kg
Height total, cm ¹⁾	50 / 70 / 100	77	50 / 100 / 150	100 / 150
Required height ¹⁾	+5 cm		+ 10 cm	
Foot print size, L × W, mm	310 × 280	430 × 400	515 × 400	800 × 500
Erection	External or in filter sump, wall mounting (d150 only)			
Materials	PVC, PMMA, NBR o-rings, PA+PVC connectors			
Inlet connection	4 mm nozzle	20 mm PVC	25 mm PVC	25 mm PVC
Outlet connection	12 mm nozzle	20 mm PVC	32 mm PVC	40 mm PVC
drain	valve for PE 6/4 hose	20 mm PVC ball valve	1/2 female thread; ball valve d16	
Build in pump	UP2000 (18 W) / UP2000/1 (33W) / UP2000/1 (33W)	UP 3000 (45W)	UP 11000 (max. 130 W)	RedDragon 5 (max. 200 W)
Filter material	Sulfur granules (99.8% purity), refillable			
Recommended flow rate in l/h	16 / 26 / 40	60	56 / 160 / 260	230 / 400
maximum water flow rate in l/h	64 / 102 / 160	300	230 / 620 / 1000	930 / 1600
Empty weight in kg	-	-	23 / 25 / 28	47 / 52
Transport weight in kg	12 / 18 / 23	45	49 / 92 / 140	145 / 210
pH value of water outlet	0.5-1.0 pH steps lower than inlet / carbonate hardness of min. 7°dKH is required! The pH value should not be lower than 8.0. A neutralization filter can be connected downstream.			
Water inlet pump	Circulation pump with ball valve or dosing pump or solenoid valve			
Redox (ORP) probe connector	For all probes with 12 mm diameter (option), order number: Con20x1.5-12mm			
1 liter (approx. 1.2 kg) sulphur granules (99.8% pure), order number: 575-010 25 kg (approx. 21 liters) sulphur granules (99.8% pure), order number 575-250				

1) Special heights are possible. With ORP electrode application, the required height increases by approx. 10 cm.

2) can be retrofitted; 3) at 25°C, pH ≥ 8.0, salinity ≤ 35/1000; 4) automatic rinsing on request.

For models with automatic rinsing function, the rinsing interval and the internal flow rates can be set by timer. A 0-10 V output is required for external control of the filter bed pump.

For high-performance systems, e.g. aquaculture systems, our technical ADN filters and heterotrophically operated bdeni reactors with degradation capacities from 40 kg N per day are also available.

