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TREATMENT PLANT APPROVAL 09/2021

Plumbing and Drainage Act 2018

Approval

1. The **Klaro EPro15** ("the system") described in the Specifications and Drawings in the attached Schedule and manufactured by **Graf Australia Pty Ltd** (ABN 16 159 402 178) ("the manufacturer") has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code) dated 26 October 2017.

2. Approval is granted for the secondary quality wastewater treatment system, subject to compliance by the manufacturer with the requirements of the *Plumbing and Drainage Regulation 2018*, and the conditions of approval detailed below.

3. This approval, the conditions of approval and the Schedule comprise the entire Treatment Plant Approval document.

4. Any modification by the manufacturer to the design, drawings or specifications scheduled to this approval must be approved by the Chief Executive.

Conditions of approval

5. The manufacture, installation, operation, service and maintenance of the systems must be in conformity with the conditions of this Treatment Plant Approval.

6. The secondary quality wastewater treatment system, which is an example of the approved systems, may only be used on premises that generate per day:

   (a) a maximum hydraulic loading of 1,500 litres; and

   (b) a maximum organic loading of 70grams/per person BOD^5

7. The system must continue to meet the requirements of secondary quality wastewater treatment system, producing the following effluent quality:

   (a) 90% of the samples taken must have a BOD^5 less than or equal to 20 g/m^3 with no sample greater than 30g/m^3.

   (b) 90% of the samples taken must have total suspended solids less than or equal to 30g/m^3 with no sample greater than 45g/m^3.

   (c) 90% of the samples taken must have a thermotolerant coliform count not exceeding 200 organisms per 100 mL with no sample exceeding 1000 organisms per 100 mL.

   (d) Total chlorine concentration must be between 0.5g/m^3 and 2.0 g/m^3 in four out of five samples taken.

8. Each system must be serviced in accordance with the details supplied in the owner's operation and maintenance manual.

9. This approval does not extend, apply to, or include the land application system used in conjunction with an approved system installed on premises.

Treatment Plant Approval
Approved by: Stacey McInnes
Delegated Authority
Department of Energy & Public Works

Queensland Government

Queensland Government

10. Each system must be supplied with —

    (a) a copy of this Treatment Plant Approval document;
    (b) details of the system;
    (c) instructions for authorised persons for its installation;
    (d) a copy of the owner's manual to be given to the owner at the time of installation; and
    (e) detailed instructions for authorised service personal for its operation and maintenance.

11. At each anniversary of the Treatment Plant Approval date, the supplier must submit to the Chief Executive a list of all systems installed in Queensland during the previous 12 months. Where the Chief Executive is notified of any system failures the Chief Executive may randomly select a number of installed systems for audit. The Chief Executive will notify the supplier's nominated NATA accredited laboratory which systems are to be audited for BOD^5 and TSS. The sampling and testing of the selected systems, if required, is to be done at the supplier's expense. The following results must be reported to the Chief Executive;

    a) Address of premises;

    b) Date inspected and sampled;

    c) Sample identification number;

    d) BOD^5 for influent and effluent; and

    e) TSS for influent and effluent.

12. The Chief Executive may, by written notice, cancel this approval if the manufacturer/supplier fails —

    a) to comply with one or more of the conditions of approval; or

    b) within 30 days, to remedy a breach, for which a written notice been given by the Chief Executive.

13. This approval may only be assigned with the prior written consent of the Chief Executive.

14. This approval expires on 01 January 2024 unless cancelled earlier in accordance with paragraph 12 above.

Stacey McInnes

A/Director
Plumbing, Drainage and Special Projects
Building Legislation and Policy
Date approved: 16 March 2021

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Treatment Plant Approval
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Queensland Government

TREATMENT PLANT APPROVAL No. 09/2021
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SCHEDULE

Attachment 1

Drawings and Specifications for the

Klaro EPro15

Treatment Plant Approval
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Queensland Government

Technical data sheet for GRAF EPro15 One Wastewater Treatment System

Graf Plastics Australia PTY Limited
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Henderson WA 6166
Tel. (+61) 1300 131 971
Email: info@grafplasticsaustralia.com.au

plant size 10 EP

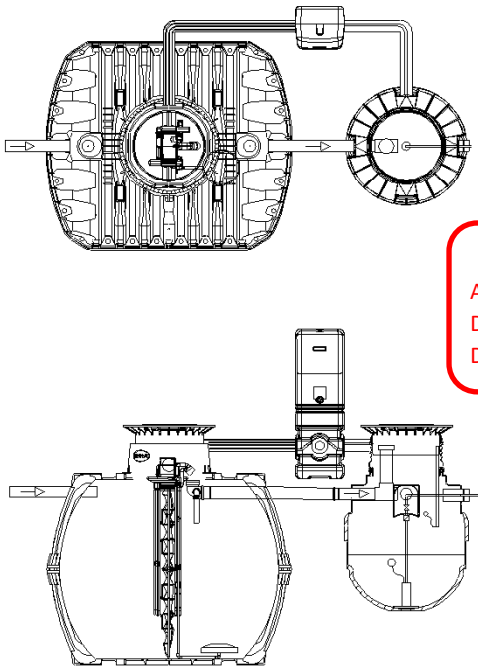
Maximum hydraulic load	Qd	1,50	KL/d
Maximum organic load	Bd	0,60	kg/d

Design according to EN 12566-3

effluent values:

	BOD5	COD	SS	NH4N	Ntot	P	colif. germs
<	20 mg/l		30 mg/l				10 cfu/100ml

Total tank capacity:				5,1 m³
air compressor	type:	piston		LA 80
	installed motor power			0,08 kW
	power consumption at 0 bar			0,09 kW
	motor design		50 Hz 1~	230 V
calculated maximum daily operating time				14,5 h/d



symbolic representation

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Queensland Government

stage	number	container, material	diameter width [m]	length [m]	water depth maximum [m]	volume maximum [m³]
ss + b	1/2	Carat 4.800L, PP	1,99	2,28	1,45	2,1
sbr	1/2	Carat 4.800L, PP	1,99	2,28	1,45	2,1
disinfection/pump-out	1	Saphir 900, PE	1,06	1,06	1,04	0,8

calculation for GRAF Professional wastewater treatment plant according to EN 12566-3

basic data / project data

customer	Graf Plastics Australia PTY Limited	date	26.09.2016
project		editor	juk
type of waste water	domestic		
specialties			

base of calculation

	BOD5	COD	SS	NH4N	Ntot	P	colif. germs
outlet	< 20 mg/l		< 30 mg/l				< 10 cfu/100ml

population equivalent				10	EP
wastewater	Q_d	at Q_{EP}	150 l/(EP*d)	1,50	KL/d
waste load	BOD5	B_d	60 g/(EP*d)	0,60	kg/d
waste load	COD		120 g/(EP*d)	1,2	kg/d
cleaning cycles per day				4	

1. Stage: sludge storage and buffer

type of container			Carat 4.800L	
number of containers / proportion of chambers			50%	
width			1,99	m
length			2,28	m
water depth			1,45	m
partition height			1,61	m
total area			2,27	m²
sludge storage (ss)	required volume	10EPx250l/(EP*a)x(6/12) =	1,25	m³
	required water depth		0,89	m
	selected water depth		1,06	m
	removal interval		6	months
	required water depth		0,89	m
	selected water depth		1,06	m
buffer (b)	percentage of daily load		40%	
	required volume		0,60	m³
	required water depth		0,40	m
	selected water depth		0,40	m
	selected volume	40% =	0,60	m³
overall (ss + b)	required water depth		1,24	m
	required volume	1,25m³ + 0,6m³ =	1,85	m³
	existing total volume	1,54m³ + 0,6m³ =	2,15	m³

2. Stage: biological treatment (SBR)

type of container			Carat 4.800L	
number of containers / proportion of chambers			50%	
width			1,99	m
length			2,28	m
water depth			1,45	m
total area			2,27	m²
reactor	required average volume		1,82	m^3
before loading phase	required minimum volume		1,63	m^3
	required minimum water depth		1,10	m
	selected minimum water depth		1,11	m
	selected average volume		1,83	m^3
after loading phase	existing volume		2,01	m^3
	existing water depth		1,35	m
	total water depth		1,45	m
existing total volume	V_{BB}		2,15	m^3
BOD5 volume load	B_R		0,33	kg/(KL*d)

3. Stage: chlorine disinfection and pump-out

buffer	percentage of daily load		25%	
	safety coefficient		1,2	
	required volume	25% x 1,5KL/d x 1,2 =	0,45	m³
type of container			Saphir 900	
number of containers / proportion of chambers			100%	
width			1,06	m
length			1,06	m
water depth			1,04	m
total area			0,79	m²
existing volume			0,79	m³

Treatment Plant Approval
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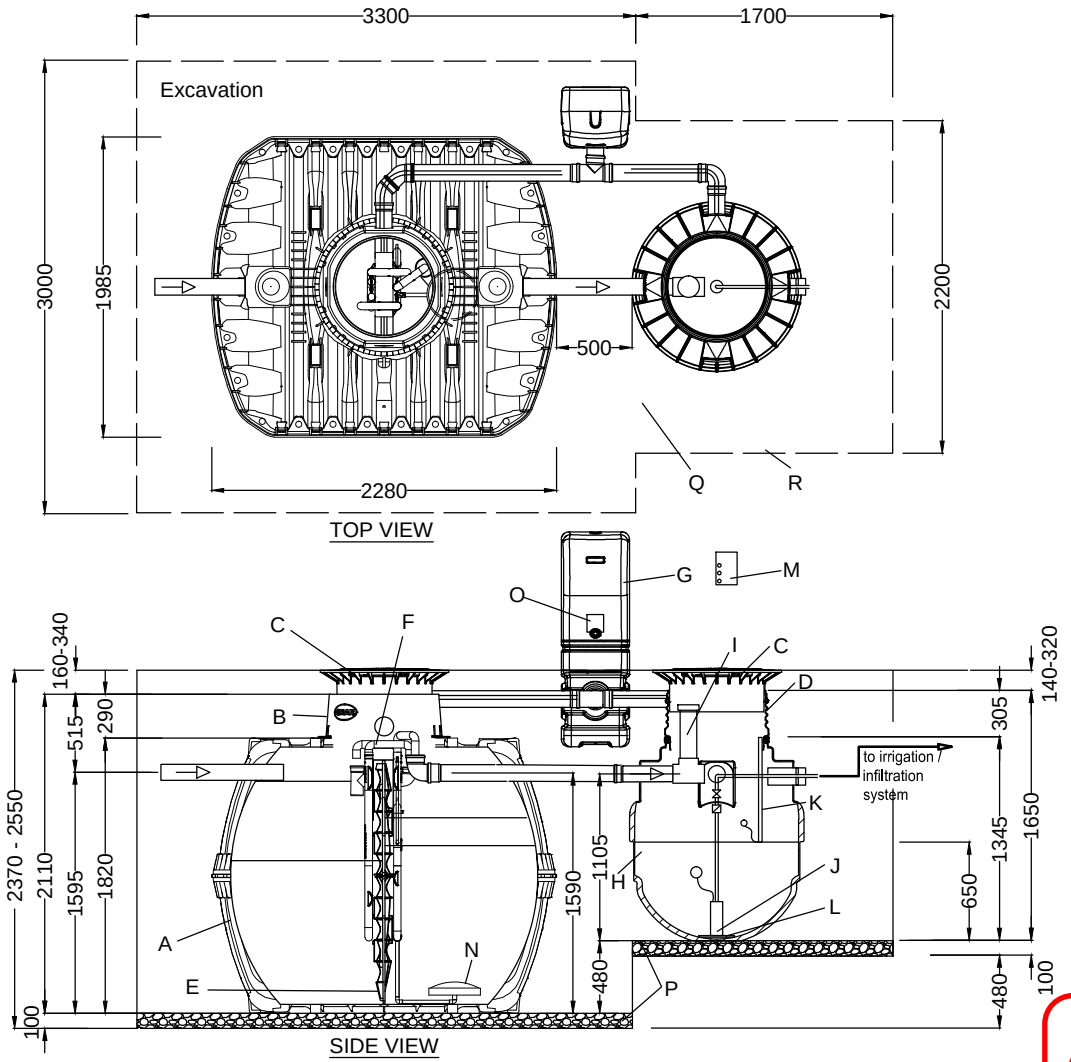
Queensland Government



A	Carat Tank 4800L
B	Tank Dom Mini
C	Tele Lid Mini
D	Riser Extension
E	Baffle
F	Air Lift / Aeration
G	Outdoor Cabinet Poly
H	Saphir 900L
I	Chlorine Tablet Feeder
J	Irrigation Pump
K	Highlevel Float
L	Pump Platform
M	Internal Alarm Plate
N	Air Diffusor
O	Cabinet Ventilation Fan
P	100mm Compacted Base Material
Q	Approved Backfill
R	Excavation

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GRAF EPro15 One 1500 L/d (10EP) - 1x Carat S 4800 L, 1x Saphir 900 L

Artikel-Nr.
product no.
article no.
artículo no.
20.0001

drawn	ISC	weight		revision			
date	2017.05.31	tolerance	+/- 3%	scale	M 1:50	units	mm / L

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