## Carat XXL Underground Tank The new dimension

$$
16.000 \mathrm{TO} 100.000 \text { LITER }
$$

RAINWATER TANKS
FIREFIGHTING WATER TANKS

RETENTION CISTERNS
PROCESS WATER TANKS


GRAF - the market leader with superior quality
For more than 50 years, the GRAF brand has represented high-quality plastic products. The company launched the first products for rainwater harvesting in 1974 - a breakthrough at the time. Today, GRAF offers an extensive range of products for water resource management.

## Commitment to Germany as our

 corporate siteGRAF continually invests in the develop ment of its headquarters in Teningen, Germany. Covering an area of 155,000 quare metres - equivalent to 31 foo all pitches - it is one of the world's most modern masts products. We fel a strites sense of loyalty to Germany as our ense orte site For one thing our lon history means we have deep-rooted ties with the site And for another, in Teningen we have access to a highly killed and motivated workforce who able us to maitain our high quatity enable us to maintain our high quality standards.

## From pioneer to market leader

GRAF has over 50 years' experience in the development and production of exceptionally high-quality plastic products. The company launched its first ainwater barrels in 1974 with the slogan 'Rainwater is free' and soon started marketing other products too. Since then GRAF has become the Luropean maket with harvesting, with over 200 utility models and patents.

Quality comes first
GRAF uses state-of-the-art production facilities. A high standard of quality in production is an essential foundation for unique products. End-to-end quality assurance and a high level of automa ion guarantee maximum reliability in production. Each individual tank is checked to make sure it meets our high
standards. All production parameters as well as the workforce involved in the production process are documented for every single product. Because of our high standard of quality, we offer warranty of up to 25 vears on GRAF a warranty of up to 25 years on GRAF products.

## Plastic - clear advantages

 over concretePlastic tanks are extremely durable and their smooth inner walls ensure consistently high water quality and easy cleaning. Their comparatively low weight reduces logistics and installation costs. Even larger sizes can be lation costs. Even larger sizes can be
transported without the need for special vehicles. There is no need to assemble multiple parts on site.

## $99 \%$ availability guaranteed by

 modern logisticsGRAF products are exported around the globe. Intelligent logistics and good tock levels ensure first-class availability. Products are shipped from the logistics centres in Teningen (Germany) and Dachstein (France) to over 60 countries around the world.

## Our goal:

your satisfaction
Over one million customers worldwide already enjoy the advantages of GRAF products for water resource management. We feel confident that you will be equally inspired!


Teningen warehouse


Teningen logistics centre


$2 \times 26,0001(2 \times 6,850$ US gal.), Neu-I senburg (DE)


56,000 I ( 14,750 US gal.), Bad Sauerbrunn (AT)


26,000 I ( 6,850 US gal.), Münchenstein (CH)


26,000 I ( 6,850 US gal.), Baden-Baden (DE)


46,000 I ( 12,150 US gal.), Hendschiken (CH)

Available with a second tank dome as an option
On request the Carat XXL can be fitted with an additional dome. This increases the tank volume by $6,000 \mathrm{l}$ ( 1,550 US gal.)

## Lighter than concrete

 or steelIn spite of its large capacity, the Carat XXL has all the advantages of a plastic tank: its comparatively low weight redu ces both logistics and installation costs.

Up to 76,000 1 ( 20,050 US gal.) without abnormal load
Because the tank makes maximum use of the $2,5 \mathrm{~m}$ wide loading space, a 76,0001 (20,050 US gal.) tank can be transported without the need for an abnormal load vehicle. Lifting straps are included in the delivery.



## 15

| 15 |
| :---: |
| warranty |



Suitable for lorry-bearing
up to SLW 40
The GRAF Carat XXL underground tank
can be driven over by vehicles of up
o SLW 40 with an earth covering of
1000 mm (39.37").

## Flexible connection up

 to DN 300 (12')The rotating tank dome is easy to align with the connecting pipe. The telescopic tilting dome shaft makes it easy to align the tank with the level of the ground. Connecting faces up to DN 200 ( $8^{\prime \prime}$ ) are already fitted as standard. If necessary the Carat XXL can be fitted with connectors up to DN 300 (12"), either on the tank dome $\mathbf{0}$ or on the tank end $\mathbf{O}$

## Flexible

in use

- Rainwater tank $»$ Page 8
- Retention cistern $\geqslant$ Page 14


## - Wastewater tank " see GRAF wastewater <br> see tRAF wa catalague

$\qquad$

Up to 102,000 ( 26,950 US gal.)


Illustration shows tank with Maxi tank dome without cover. The total the total tank height ( $H_{\text {tot }}$ ) plus the telescopic dome shaft. " pages 18/19

Also available as retention cistern
" ${ }^{\text {page } 14}$

Technical data

| Volume [litres] | Connection A1 [mm] | Connection A2 [mm] | Connection A3 [mm] | Connection A4 [mm] | Max. earth covering: | 1500 mm (59") |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 16,000 | 800 | 2360 | 435 | 2725 | Max. axle load: |  |
| 22,000* | 800 | 2360 | 435 | 2725 | Max. vehicle weight: | $\text { cover, } 40 \mathrm{t} \text { (SLW 40) with tele- }$ |
| 26,000 | 800 | 2360 | 435 | 2725 |  | scopic dome shaft lory |
| 32,000* | 800 | 2360 | 435 | 2725 | Earth covering with | $800-1500 \mathrm{~mm}$ |
| 36,000 | 800 | 2360 | 435 | 2725 | loading capacity: | (31.5"-59") |
| 42,000* | 800 | 2360 | 435 | 2725 | Groundwater stability: | up to the middle of the tank |
| 46,000 | 800 | 2360 | 435 | 2725 | Earth covering with | $800-1500 \mathrm{~mm}$ |
| 52,000* | 800 | 2360 | 435 | 2725 | groundwater installation: | (31.5"-59") |
| 56,000 | 800 | 2360 | 435 | 2725 | Connection options: | DN 100 (4") - DN 200 (8") |
| 62,000* | 800 | 2360 | 435 | 2725 | Cormectionoptions. | Optionally up to DN 300 (12") |
| 66,000 | 800 | 2360 | 435 | 2725 |  |  |
| 72,000* | 800 | 2360 | 435 | 2725 |  |  |
| 76,000 | 800 | 2360 | 435 | 2725 |  |  |
| 82,000* | 800 | 2360 | 435 | 2725 |  |  |
| 86,000 | 800 | 2360 | 435 | 2725 |  |  |
| 92,000* | 800 | 2360 | 435 | 2725 |  |  |
| 96,000 | 800 | 2360 | 435 | 2725 |  |  |
| 102,000* | 800 | 2360 | 435 | 2725 |  |  |

Scope of supply: Carat XXL underground rainwater tank with Maxi dome
Delivery time by arrangement. Dispatched from the factory - shipping costs on request
$\qquad$
$\qquad$

- Water yield of over $95 \%$
- Self-cleaning filter principle

Stainless steel filter insert with
$0.35 \mathrm{~mm}\left(0.01^{\prime \prime}\right) \mathrm{mesh}$
Max (12") cont area $3000 \mathrm{~m}^{2}$ with DN 300 (12") connections and $6000 \mathrm{~m}^{2}$ with DN 400 (16) connections Parer mon
Langercone
cludes cleaning unt
ust 45 mm ( 1.75 ") between inlet and dirty water outlet
$\overline{\text { Q Webcode G2207 }}$


| Overflow siphon |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Connections <br> DN | Width B <br> $[\mathbf{m m}]$ | Length $\mathbf{L}$ <br> $[\mathbf{m}]$ | Height H <br> $[\mathbf{m m}]$ | Weight <br> $[\mathrm{kg}]$ | Order <br> no. |  |  |
| 150 | 275 | 445 | 355 | 2 | 330450 |  |  |
| 200 | 275 | 605 | 420 | 3 | 330451 |  |  |
| 300 | 400 | 955 | 660 | 12 | 330452 |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

DN $150\left(6^{\prime \prime}\right)$ )

"with fitting

DN 200 ( $8^{\prime \prime}$ ) / DN $300\left(12^{\prime \prime}\right)^{2 /}$

${ }^{2}$ with sleeve

## Including filter cleaning unit

 Consisting of four adjustable flat jet nozzles with a very powerful water jet to clean the filter screen. This means fewe
## Example installation*



Simplified representation
maintenance intervals. Automatic control possible with Aqua Center Silentio.


## Calmed inlet digester



## Accessories

DN 300 (12") connection kit
Order no. 340098
DN 400 ( 16 ") connection kit
Order no. 340100

DN 150 (6")


| Onnections <br> DN | Width B <br> $[\mathbf{m m}]$ | Length L <br> $[\mathbf{m m}]$ | Height H <br> [mm] | Weight <br> $[\mathbf{k g ]}$ | Order <br> no. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 150 | 200 | 400 | 180 | 1,5 | 330453 |
| $200 / 300$ | 400 | 750 | 377 | 9,0 | 330454 |
|  |  |  |  |  |  |

DN 200 ( $8^{\prime \prime}$ ) / DN 300 ( $12^{\prime \prime}$ )


## Drinking water feeding console

Incl. float switch, with 20 m ( $65^{\prime} 7.5^{\prime \prime}$ ) connecting cable

- Low-cost private drinking water feed Float switch controlled
- High-quality KSB pump technology

Q Webcode G3101


## Aqua Center Silentio

Incl. sensor, sensor line and 20 m ( $\left.65^{\prime} 7.5^{\prime \prime}\right)$ data cable

- Optional automatic filter cleaning
- Automatic flushing of feed tank
prevents build-up of bacteria
- Digital control and level measurement - Display showing fill level and operating status
Q Webcode G3102


| Properties | Drinking water feeding console |  | Aqua Center Silentio |  |
| :---: | :---: | :---: | :---: | :---: |
| Pump | 15/4 | 25/4 | 15/4 | 25/4 |
| Order no. | 350021 | 350022 | 350209 | 350210 |
| Rated power | 0.66 kW | 0.8 kW | 0.66 kW | 0.8 kW |
| Operating noise | $55 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ | $49 \mathrm{~dB}(\mathrm{~A})$ | $49 \mathrm{~dB}(\mathrm{~A})$ |
| Protection class | IP 44 | IP 44 | IP 44 | IP 44 |
| Operating pressure | 3.5 bar | 4.3 bar | 3.5 bar | 4.3 bar |
| Delivery height | 35 m | 43 m | 35 m | 43 m |
| Max. flow rate | 3.6 m ${ }^{3}$ | $4.2 \mathrm{~m}^{3}$ | 3.6 m ${ }^{3}$ | $4.2 \mathrm{~m}^{3}$ |
| Max. suction lift | 6.0 m | 6.0 m | 6.0 m | 6.0 m |
| Max. suction length | 15 m | 15 m | 15 m | 15 m |
| Operating pressure gauge | - | - | - | - |
| Optionally as Silentio Press package for distances of $\geq 15 \mathrm{~m}$ from house | - | - | - | - |
| Drinking water feed |  |  |  |  |
| Volume | 10 litres (2) | US gal.) | 6.5 litres | U US gal.) |
| Manual switchover to drinking water possible |  |  |  |  |
| Automatic water exchange in feed tank |  |  |  |  |
| Overflow according to DIN EN 1717 |  |  |  |  |
| Control |  |  |  |  |
| Float switch | - |  |  |  |
| Electronic level measurement | - |  | - |  |
| Optional automatic filter cleaning | - |  | - |  |
| Fault indicator | LED (on pressure monitor) |  | LED / full text |  |
| Adjustable operating parameters | Drinking water feed threshold via float switch, start-up pressure |  | Drinking water feed threshold, start-up pres sure, flushing interval / duration for drinking water feed tank and filter, filter flushing suppression in drinking water mode |  |



## DPA-IRM dual pump system

Incl. level sensor with 25 m ( $\left.82^{\prime} 0.3^{\prime \prime}\right)$ connecting line, floating extraction 1 m (39.5"), $11 / 4$ ", inspection kit

## Feeder pump*

Dual pump system with self-priming,
horizontal centrifugal pumps

- Alternating start-up
- Second pump activated at peak
extraction times
ntegrated dry running protection
Protection against stagnation to German drinking water standards Digital contro
Pump system pressure gaug
- Rainwater level gauge

Level sensor with 25 m ( $\left.82^{\prime} 0.3^{\prime \prime}\right)$ connecting cable, also available with 50 m ( 164 ' $0.5^{\prime \prime}$ ) cable
Q Webcode G3104

High-quality staine housing, 10 m (32' $9.7^{\prime \prime}$ ) connecting cable Order no. 355008

## Optional accessories:

## Pressure sensor

50 m (164' $0.5^{\prime \prime}$ ) connecting cable Order no. 355006

Diaphragm expansion tank
100 l ( 26.5 US gal.)
Order no. 355009

| Properties | DPA-IRM dual pump system |  |  | Feeder pump* |
| :---: | :---: | :---: | :---: | :---: |
| Pump | C-class RM 6-40 | C-class RM 8-40 | C-class RM 14-40 | Feeder pump |
| Order no. | 353002 | 353007 | 353009 | 355008 |
| Rated power | $2 \times 700 \mathrm{~W}$ | $2 \times 880 \mathrm{~W}$ | $2 \times 1200 \mathrm{~W}$ | 1100 W |
| Operating noise | - | - | - |  |
| Protection class | 1P44 | IP 44 | IP 44 | IP 68 |
| Operating pressure | 4.2 bar | 4.2 bar | 4.7 bar | 1.4 bar |
| Delivery height | 42 m | 42 m | 47 m | 14 m |
| Max. flow rate | $6 \mathrm{~m}^{3} / \mathrm{h}$ | $9 \mathrm{~m} / \mathrm{h}$ | $14 \mathrm{~m} / \mathrm{h}$ | $16.5 \mathrm{~m}^{3} / \mathrm{h}$ |
| Max. suction lift / suction length | Feeder pump required |  |  | - |
| Operating pressure gauge | - | - | - |  |

## Drinking water feed

Volume
100 l (26.5 US gal.) 100 I ( 26.5 US gal.) 100 l ( 26.5 US gal.)
Manual switchover to drinking water possible
-
Automatic water exchange in
eed tank
Control
Float switch
Electronic level measurement
Optional automatic filter cleaning
Fault indicator

| Width | 570 mm (22.5") | 160 mm (6") |
| :---: | :---: | :---: |
| Height | $1540 \mathrm{~mm}(60.5$ ") - 1560 mm (61.5") (adjustable) | 474 mm (18.5") |
| Depth | 665 mm (26") | - |
| Weight | $100 \mathrm{~kg}(220 \mathrm{lbs}) \quad .100 \mathrm{~kg}(220 \mathrm{lbs}) \quad .100 \mathrm{~kg}(220 \mathrm{lbs}$. | $22 \mathrm{~kg}(48 \mathrm{lbs}$ ) |


| Dimensions |  |  |
| :--- | :--- | :--- |
| Width | $680 \mathrm{~mm}\left(27^{\prime \prime}\right)$ | $580 \mathrm{~mm}\left(23^{\prime \prime}\right)$ |
| Height | $760 \mathrm{~mm}\left(30^{\prime \prime}\right)$ | $530 \mathrm{~mm}\left(21^{\prime \prime}\right)$ |
| Depth | $210 \mathrm{~mm}\left(8.5^{\prime \prime}\right)$ | $295 \mathrm{~mm}\left(11.5^{\prime \prime}\right)$ |
| Weight | $30 \mathrm{~kg}(66 \mathrm{lbs})$. | $34 \mathrm{~kg}(74 \mathrm{ls})$. |

ALSO AVAILABLE AS RETEST
ALSO ALUS UPON REQUEST
TION

GRAF retention cisterns
A retention cistern collects rainwater and discharges it into the sewer system on sewers during periods of rainfall.

For controlled discharge of the water
the retention cistern is fitted with a flow regulator. This discharges water to the sewer at a rate of 0.05-16 ( $0.01-4$ US cistern rises temporarily during heavy
rain and falls once the rain stops. GRAF etention cisterns are also equipped with an emergency overflow to prevent the tank from overflowing.

| The GRAF retention cistern Plus is a | allowing some of the rainwater can be |
| :--- | :--- |
| combination of rainwater retention and | used in addition to the required retenti- |
| rainwater harvesting. A lager tank is | on volume. | on volume.



Retentionszisterne / Retentionszisterne Plus Carat XXL

| Volume [litres] | $\begin{gathered} \hline \text { Width B } \\ {[\mathrm{mm}]} \\ \hline \end{gathered}$ | Length L [mm] | Height $\mathrm{H}_{\text {tot }}$ [mm] | Height H [mm] | Hight of tank dome Ht [mm] | Inner $\varnothing$ of tank dome [mm] | Weight [kg] | Order | Order no. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 16.000 | 2500 | 4660 | 3160 | 2550 | 610 | 650 | 805 | 380500 | 380520 |
| 22.000* | 2500 | 6145 | 3160 | 2550 | 610 | 650 | 1015 | 380501 | 380521 |
| 26.000 | 2500 | 7045 | 3160 | 2550 | 610 | 650 | 1150 | 380502 | 380522 |
| 32.000* | 2500 | 8530 | 3160 | 2550 | 610 | 650 | 1360 | 380503 | 380523 |
| 36.000 | 2500 | 9430 | 3160 | 2550 | 610 | 650 | 1495 | 380504 | 380524 |
| 42.000* | 2500 | 10915 | 3160 | 2550 | 610 | 650 | 1705 | 380505 | 380525 |
| 46.000 | 2500 | 11815 | 3160 | 2550 | 610 | 650 | 1840 | 380506 | 380526 |
| 52.000* | 2500 | 13300 | 3160 | 2550 | 610 | 650 | 2050 | 380507 | 380527 |
| 56.000 | 2500 | 14200 | 3160 | 2550 | 610 | 650 | 2185 | 380508 | 380528 |
| 62.000* | 2500 | 15685 | 3160 | 2550 | 610 | 650 | 2395 | 380509 | 380529 |
| 66.000 | 2500 | 16585 | 3160 | 2550 | 610 | 650 | 2530 | 380510 | 380530 |
| 72.000* | 2500 | 18070 | 3160 | 2550 | 610 | 650 | 2740 | 380511 | 380531 |
| 76.000 | 2500 | 18970 | 3160 | 2550 | 610 | 650 | 2875 | 380512 | 380532 |
| 82.000* | 2500 | 20455 | 3160 | 2550 | 610 | 650 | 3085 | 380513 | 380533 |
| 86.000 | 2500 | 21355 | 3160 | 2550 | 610 | 650 | 3220 | 380514 | 380534 |
| 92.000* | 2500 | 22840 | 3160 | 2550 | 610 | 650 | 3430 | 380515 | 380535 |
| 96.000 | 2500 | 23740 | 3160 | 2550 | 610 | 650 | 3565 | 380516 | 380536 |
| 102.000* | 2500 | 25225 | 3160 | 2550 | 610 | 650 | 3775 | 380517 | 380537 |




Illustration shows tank with Maxi tank dome without cover. The total installation height results from the total tank height $\left(\mathrm{H}_{\text {tot }}\right)$ plus the telescopic dome shaft
$\#$ pages $18 / 19$

Flow restrictor
For Carat XXL underground tank $0.05-2.01$ ( $0.01-0.53$ US gal.)/ sec,

Best.-Nr. 369020
Other drainage rates available on request

Scope of supply: Carat XXL retention cistern with Maxi dome
Delivery time by arrangement. Dispatched from the factory - shipping costs on request
*with a second tank dome


- Delivery includes all firefighting water accessory parts to DIN 14230
- Complete system fully factory-assembled if required - no on-site assembly rescue from tank
- Individual tanks can be enlarged/ connected to create large volumes - Fill with drinking water or rainwater - Individual adjustment to ground level (earth covering / angle of slope) Low procurement costs
- Incl. telescopic dome shaft lorry to DIN 3223



Technical data

Max. earth covering:
Max. eaxte load:
Max. vehicle weigh
Earth covering
with loading capacity:
Groundwater stability: Earth covering with groundwater installation Connection options:
$1500 \mathrm{~mm}\left(59^{\prime \prime}\right)$
8 t
$40 \mathrm{t}(\mathrm{SLW} 40)$
$1000 \mathrm{~mm}-1500 \mathrm{~mm}$
$\left(399.5^{\prime \prime}-59^{\prime \prime}\right)$
up to the middle of the tank
$800-1500 \mathrm{~mm}$
(31.5" $\left.59^{\prime \prime}\right)$
DN $100\left(4^{\prime \prime}\right)-$ DN 200 ( $8^{\prime \prime}$ ) Optionally up to DN 300 (12")

DN 250 ( $10^{\circ}$ ) connection fittin To connect multiple Carat XXL firefightin water tanks (optionally up to DN 300 (12")) Order no. 360023

## Scope of supply:

Welded-in plastic intake pipe $\mathrm{DN} 125\left(5^{\prime \prime}\right)$ with flange, stainless steel strainer and anti-vortex plate, including stainless steel intake pipe exten sion piece DN $125(5$ ") with flange, firefighting water intake connection with rod fitting and A fixed coupling to DIN 14244, © stainless steel vendome, holder for sign "Firefighting Water Extraction Point" with stainless steel post to DIN 4066 (B2), telescopic dome shaft lorry to DIN 3223

Delivery time by arrangement. Dispatched from the factory - shipping costs on request
*with a second tank dome

## Select the tank cover you require

## 图

Mini telescopic dome shaft
－with PE cover
utable for pedestrian loading
－Weight： 9 kg （ 19 lbs ．）
－Adjustable earth covering ac－
ross upper tank surface
plus $140-340 \mathrm{~mm}(5.5$＂-13.5 ＂）earth covering Order no． 371010

## 图

Maxi telescopic dome shaft
with PE cover
suitable for pedestrian loading
Weight： 15 kg （ 33 lbs ．）
－Adjustable earth covering
across upper tank surface
plus $140-440 \mathrm{~mm}(5.5 "-17$＂）earth covering Order no． 371011

## Spacer for shafts and domes

Weight： 6 kg （ 13 lbs ．
－The earth covering can be raised 300 mm using the spacer．

Order no． 371003 $\qquad$

## 园

Cast iron telescopic dome shaft
－Suitable for vehicle loading－with
Childproof Class B cast iron cover
－Weight： 55 kg （ 121 lbs ．）
－Adjustable earth covering across upper tank surface
plus $140-440 \mathrm{~mm}\left(5.5^{\prime \prime}-17^{\prime \prime}\right)$ earth covering Order no． 371020

## 탕

Telescopic dome shaft lorry
－Suitable for vehicle／lorry－bearing loading
－Weight： 11 kg （24 lbs．）
－Cover to be provided on site
－Adjustable earth covering across upper
tank surface
－For commercially available concrete
rings／covers（to be provided on site）

plus $140-440 \mathrm{~mm}(5.5$＂-17 ＂）earth covering Order no． 371021


Lorry－bearing telescopic dome shaft allows standard concrete rings and covers to be used．


