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# Comprehensive package for you

## Microalgae Product Range

The technical data are not binding. They neither constitute expressly warranted characteristics nor guaranteed properties nor a guaranteed durability. They are subject to modification. Our General Terms of Sale apply.

# PBR-concepts allow a very efficient cultivation process

GF Piping Systems is the world's leading photo-bioreactor system supplier. Our comprehensive portfolio extends from individual components and fabricated subassemblies to complete contract manufacturing of PBR systems. Choose GF Piping Systems for your PBR pipes, fittings, manual and actuated valves, sensors and instrumentation. Benefit from customized spool pieces and headers or from turnkey manufacturing capabilities meeting your entire system need. With GF Piping Systems as your partner, you can rely on high-quality products, expert workmanship, design assistance and integrity to protect intellectual property.

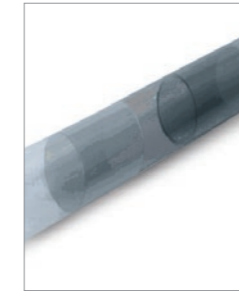
## Our comprehensive portfolio

We offer a wide selection of standard Schedule 40 and 80 PVC pipes from 1/8" to 24", plus the EnviroKing UV and the clear PVC pipe family in the dimension range 1/2" to 12".



### System range

Choose Dekadur G, EnviroKing UV ThinWall or Schedule 40.



### Customized Filter

Adapt the light source to the specific needs of your algae strain.



### Static Mixer

Improve temperature and nutrient mixing with simple ID installation.



### Push-Fit Jointing

Extend pipe length with Push-Fit twin socket jointing.



### Designed U-Bends

Decrease pressure losses and increase light exposure.

## Dekadur G

### + Benefits

- Optimal thermoforming
- Smooth inner surfaces reducing surface build up
- Dedicated optical properties for algae growth
- Superior chemical resistance (pH shifts, CIP process)
- Compatibility with optical functionalizers
- Variable jointing possibilities (welding, solvent cement, push-fit)
- Flexible concepts for durable UV protection
- European food approval available upon request
- Pipes can be dimensioned according to well-established DIN 8061/62 standards for PVC-U pressure pipes up to T = 40°C

#### Range (mm)

| Pipe Size * | Pipe Codes | Bends Codes | O.D. | Average I.D. | Min. Wall |
|-------------|------------|-------------|------|--------------|-----------|
| 63          | 325063097  | 325063082   | 63   | 60.6         | 1.2       |
| 110         | 325110065  | 325110070   | 110  | 106.6        | 1.7       |

\* Other dimensions available upon request

## EnviroKing UV - ThinWall

### + Benefits

EnviroKing ThinWall is a low-pressure containment pipe, manufactured in IPS sizes and specifically optimized for use in photo-bioreactor applications.

- Improved transmission characteristics
- Chemical and corrosion-resistant
- Non-conductive
- Lightweight, easy to handle and install
- Lower overall costs of installation than glass, acrylic or other transparent alternatives
- Compatible with standard Schedule PVC fittings and valves

#### Range (inches)

| Pipe Size | Pipe Codes     | Nominal Pipe Size | O.D.   | Average I.D. | Min. Wall | Nominal Wt./Ft. | Max. W.P. PSI ** |
|-----------|----------------|-------------------|--------|--------------|-----------|-----------------|------------------|
| 2         | HTW00200EK1000 | 2                 | 2.375  | 2.173        | 0.091     | 0.456           | 80               |
| 3         | HTW00300EK1000 | 3                 | 3.500  | 3.210        | 0.135     | 0.966           | 80               |
| 4         | HTW00400EK1000 | 4                 | 4.500  | 4.134        | 0.173     | 1.569           | 80               |
| 6         | HTW00600EK1000 | 6                 | 6.625  | 6.251        | 0.172     | 2.391           | 70               |
| 8         | HTW00800EK1000 | 8                 | 8.625  | 8.251        | 0.172     | 3.134           | 53               |
| 10        | HTW01000EK1000 | 10                | 10.750 | 10.376       | 0.172     | 3.923           | 43               |
| 12        | HTW01200EK1000 | 12                | 12.750 | 12.376       | 0.172     | 4.666           | 36               |

\*\* Pressure ratings shown are for water, non-shock at 73°F

## EnviroKing UV - Schedule 40

### + Benefits

In addition to ThinWall, EnviroKing UV is also manufactured in IPS sizes to Schedule 40 dimensions, which provide sufficient wall thickness for algae systems.

- Chemical and corrosion-resistant
- Non-conductive
- Lightweight, easy to handle and install
- Lower overall costs of installation than glass, acrylic or other transparent alternatives
- Manufactured in IPS dimensions
- Fully compatible with standard Schedule PVC pipes, fittings and valves

#### Range (inches)

| Pipe Size | Pipe Codes     | Nominal Pipe Size | O.D.  | Average I.D. | Min. Wall | Nominal Wt./Ft. | Max. W.P. PSI ** |
|-----------|----------------|-------------------|-------|--------------|-----------|-----------------|------------------|
| 1/2       | H0400050EK1000 | 1/2               | 0.840 | 0.602        | 0.109     | 0.170           | 300              |
| 3/4       | H0400075EK1000 | 3/4               | 1.050 | 0.804        | 0.113     | 0.226           | 240              |
| 1         | H0400100EK1000 | 1                 | 1.315 | 1.029        | 0.133     | 0.333           | 220              |
| 1 1/4     | H0400125EK1000 | 1 1/4             | 1.660 | 1.360        | 0.140     | 0.450           | 180              |
| 1 1/2     | H0400150EK1000 | 1 1/2             | 1.900 | 1.590        | 0.145     | 0.537           | 170              |
| 2         | H0400200EK1000 | 2                 | 2.375 | 2.047        | 0.154     | 0.720           | 140              |
| 2 1/2     | H0400250EK1000 | 2 1/2             | 2.875 | 2.445        | 0.203     | 1.136           | 150              |
| 3         | H0400300EK1000 | 3                 | 3.500 | 3.042        | 0.216     | 1.488           | 130              |
| 3 1/2     | H0400350EK1000 | 3 1/2             | 4.000 | 3.521        | 0.226     | 1.789           | 120              |
| 4         | H0400400EK1000 | 4                 | 4.500 | 3.998        | 0.237     | 2.118           | 110              |
| 6         | H0400600EK1000 | 6                 | 6.625 | 6.031        | 0.280     | 3.733           | 90               |

\*\* Pressure ratings shown are for water, non-shock at 73°F