



***The Science of Silence*** - Engineered Solutions

# Marine Exhaust Systems Noise & Vibration Control Environmental Protection



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Pleasure Craft

Commercial

Superyacht

## Customer Notes

# Halyard

**Established in 1979, Halyard has developed an international reputation as market leaders for providing customers with high quality, technically advanced, below decks equipment reducing engine room noise and vibration and making boating more comfortable.**

Managing engine noise, emissions and vibration, as well as overboard discharges, is becoming increasingly important as we all become far more responsible for the impact we have on the environment and our surroundings.

With in-house design and manufacture of individual components through to complete exhaust systems, Halyard offers the most advanced products available with a range of standard and bespoke solutions designed to suit your needs. We specialise in both water-cooled and dry exhaust systems and as a distributor for Emigreen aftertreatment solutions can also provide DPF and SCR packages to meet the latest emissions requirements.

Whether you require a simple silencer, separator, hose, bellows, tube, connector or a sophisticated full bespoke exhaust system Halyard have the solution. In addition we are also distributors for Aquadrive antivibration drive systems, Seatorque 'BOSS' enclosed shaft systems, Wave filtration products and Siderise noise insulating materials. We also supply a range of valves, mounts, couplings and thermal jackets. All products are supported by Halyard and our distributor and dealer network.

So whatever your project; yacht or cruiser, lifeboat, pilot boat, commercial vessel or superyacht, our designers will get involved from the initial stages, consulting, designing and specifying products and systems to best meet your requirements with a dedicated team managing each project from enquiry through to commissioning.



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## Distributors and Dealers List.....61

The information published by Halyard indicates the general suitability of our products for the types of applications for which they are designed. We cannot accept design responsibility for any specific installation unless we have confirmed in writing that the overall installation design is correct following our approval of detailed drawings or our physical survey of the vessel or equipment in which it will be used.



# Exhaust Systems and Accessories

*Watercooled or dry systems, standard or bespoke risers spray heads, silencers, separators, DPF & SCR aftertreatment solutions*

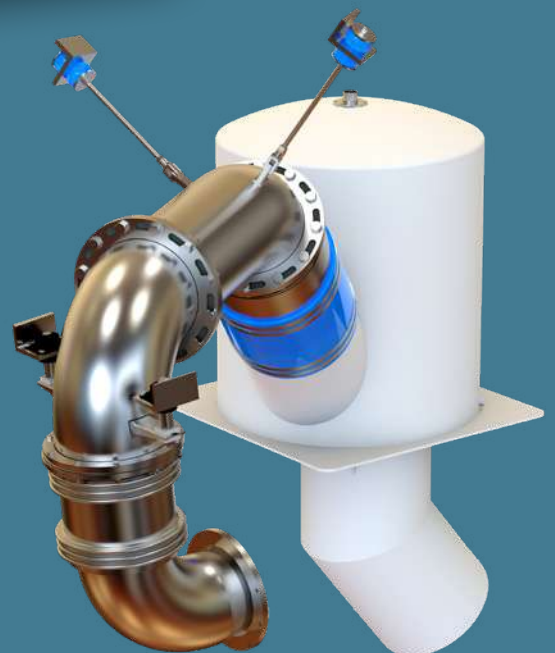


## Standard product range:

- To suit exhaust systems from 38mm to 203mm diameter
- Extensive range of different shapes and sizes

## Bespoke solutions:

- Designed to meet customers requirements
- Solutions to c. 4000hp
- Spray rings to DN700
- DPF & SCR solutions by Emigreen
- Lloyd's Type Approvals

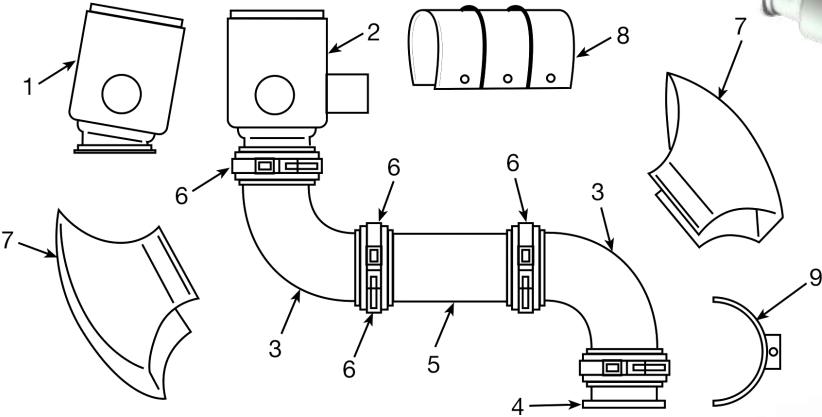
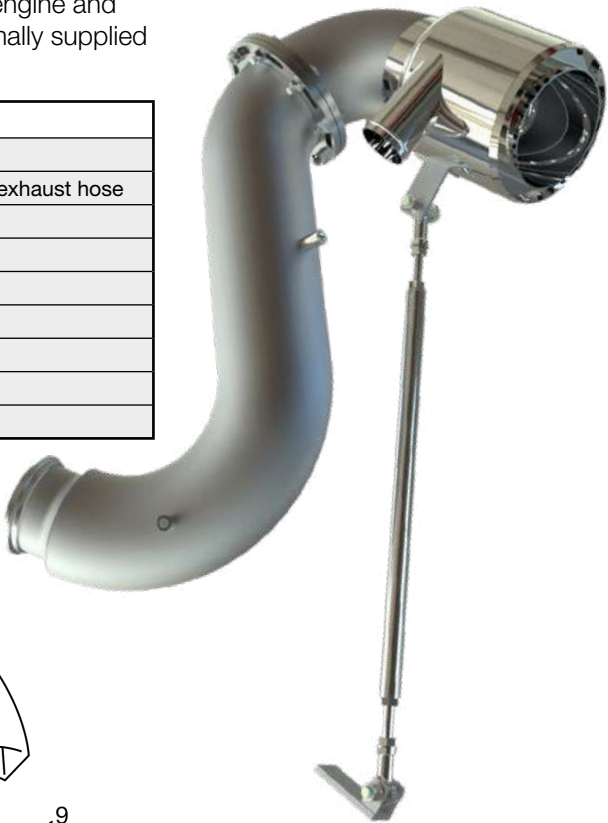


# Exhaust Systems and Accessories

## Bespoke Risers and Spray Heads

The general make-up of a riser and spray head assembly is shown below. Each system is designed and manufactured to suit the particular engine and engine room configuration. Supports and thermal jackets are normally supplied as part of the installation kit.

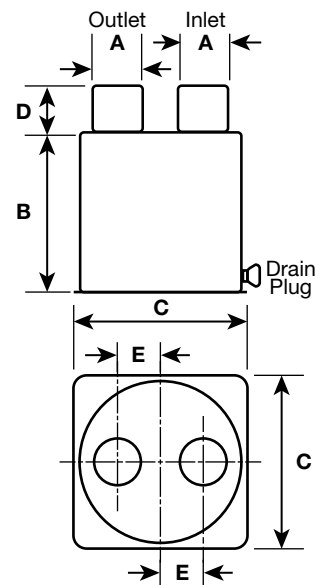
| Parts | Description                                                                         |
|-------|-------------------------------------------------------------------------------------|
| 1     | Optional down angled spray head                                                     |
| 2     | Spray head with water injection connection which is installed into the exhaust hose |
| 3     | Curved stainless steel bend, used in the upper and lower sections                   |
| 4     | Flange connector to suit engine turbo outlet                                        |
| 5     | Riser tube as required                                                              |
| 6     | Flange connection                                                                   |
| 7     | Heat protective jackets                                                             |
| 8     | Heat protective jacket for riser tube                                               |
| 9     | Support brackets as required                                                        |



## Lift Silencers - Top In Top Out



| Lift Silencers - Top In Top Out |           |      |     |     |     |     |     |              |
|---------------------------------|-----------|------|-----|-----|-----|-----|-----|--------------|
| Part No.                        | Reference | A    |     | B   | C   | D   | E   | Weight<br>kg |
|                                 |           | inch | mm  | mm  | mm  | mm  | mm  |              |
| H001671                         | HTT005    | 1.5  | 38  | 158 | 200 | 50  | 44  | 1.5          |
| H001673                         | HTT025    | 1.6  | 41  | 158 | 200 | 50  | 44  | 1.5          |
| H001674                         | HTT030    | 1.6  | 41  | 230 | 200 | 53  | 44  | 1.9          |
| H001675                         | HTT040    | 1.77 | 45  | 158 | 200 | 50  | 44  | 1.5          |
| H001676                         | HTT045    | 1.77 | 45  | 230 | 200 | 50  | 44  | 1.9          |
| H001677                         | HTT055    | 2    | 51  | 158 | 200 | 72  | 44  | 1.6          |
| H001678                         | HTT065    | 2    | 51  | 255 | 275 | 51  | 68  | 3.3          |
| H001679                         | HTT070    | 2    | 51  | 305 | 324 | 80  | 84  | 4.9          |
| H001680                         | HTT085    | 2.36 | 60  | 255 | 275 | 73  | 68  | 3.5          |
| H001681                         | HTT090    | 2.5  | 63  | 255 | 275 | 64  | 68  | 3.5          |
| H001682                         | HTT110    | 3    | 76  | 255 | 275 | 76  | 68  | 3.7          |
| H001683                         | HTT115    | 3.5  | 89  | 305 | 324 | 90  | 84  | 5.6          |
| H001684                         | HTT120    | 4    | 102 | 305 | 324 | 102 | 70  | 5.6          |
| H001685                         | HTT125    | 5    | 127 | 370 | 446 | 128 | 83  | 10.4         |
| H001686                         | HTT130    | 6    | 152 | 370 | 446 | 127 | 102 | 10.7         |
| H010299                         | HTT135    | 8    | 203 | 521 | 548 | 201 | 122 | 17.9         |

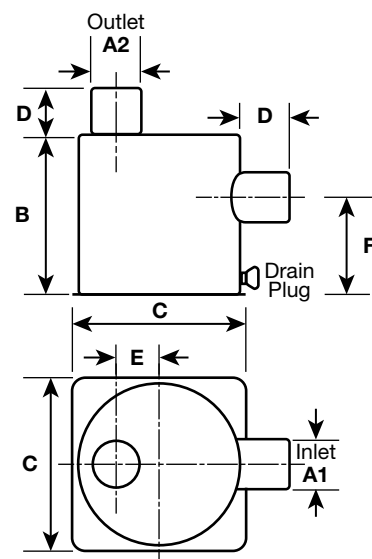


Drawings and dimensions are for guidance. Alternative sizes and configurations available on request. Reference numbers that end with B are not Lloyd's approved.

## Lift Silencers - Side In Top Out



| Lift Silencers - Side In Top Out |           |      |     |      |     |     |     |     |     |              |
|----------------------------------|-----------|------|-----|------|-----|-----|-----|-----|-----|--------------|
| Part No.                         | Reference | A1   |     | A2   |     | B   | C   | D   | F   | Weight<br>kg |
|                                  |           | inch | mm  | inch | mm  | mm  | mm  | mm  | mm  |              |
| H001615                          | HST005    | 1.5  | 38  | 1.5  | 38  | 169 | 200 | 38  | 95  | 1.5          |
| H001616                          | HST010    | 1.5  | 38  | 1.5  | 38  | 230 | 200 | 38  | 139 | 1.8          |
| H001617                          | HST025    | 1.6  | 41  | 1.6  | 41  | 169 | 200 | 38  | 95  | 2.2          |
| H001618                          | HST035    | 1.6  | 41  | 1.6  | 41  | 255 | 275 | 55  | 165 | 3.3          |
| H001619                          | HST055    | 1.77 | 45  | 1.77 | 45  | 230 | 200 | 50  | 139 | 1.9          |
| H009936                          | HST105    | 2    | 51  | 2    | 51  | 230 | 200 | 51  | 139 | 1.9          |
| H009525                          | HST110    | 2    | 51  | 2    | 51  | 255 | 275 | 51  | 165 | 3.3          |
| H001623                          | HST115    | 2    | 51  | 2    | 51  | 305 | 324 | 81  | 200 | 4.9          |
| H001624                          | HST145    | 2.36 | 60  | 2.36 | 60  | 305 | 324 | 75  | 200 | 5.1          |
| H001625                          | HST150    | 2.36 | 60  | 2.36 | 60  | 255 | 275 | 74  | 165 | 3.5          |
| H010352                          | HST165    | 2.5  | 63  | 2.5  | 64  | 255 | 275 | 64  | 165 | 3.5          |
| H009937                          | HST200    | 3    | 76  | 3    | 76  | 255 | 275 | 76  | 165 | 4.4          |
| H001629                          | HST205    | 3    | 76  | 3    | 76  | 305 | 324 | 100 | 184 | 6            |
| H001630                          | HST210    | 3.5  | 89  | 3.5  | 89  | 305 | 324 | 90  | 184 | 5.6          |
| H001631                          | HST215    | 4    | 102 | 4    | 102 | 305 | 324 | 102 | 184 | 5.6          |
| H001632                          | HST220    | 5    | 127 | 5    | 127 | 370 | 446 | 102 | 222 | 10           |
| H001633                          | HST225    | 5    | 127 | 5    | 127 | 343 | 342 | 114 | 219 | 6.6          |
| H001634                          | HST230    | 6    | 152 | 6    | 152 | 370 | 446 | 127 | 254 | 11.4         |
| H001635                          | HST235    | 6    | 152 | 8    | 203 | 370 | 446 | 152 | 222 | 12.4         |
| H001636                          | HST240    | 8    | 203 | 8    | 203 | 585 | 500 | 200 | 392 | 15.6         |
| H017157                          | HST250    | 10   | 254 | 10   | 254 | 576 | 635 | 250 | 400 | 30.1         |



Drawings and dimensions are for guidance. Alternative sizes and configurations available on request. Reference numbers that end with B are not Lloyd's approved.

# Exhaust Systems and Accessories

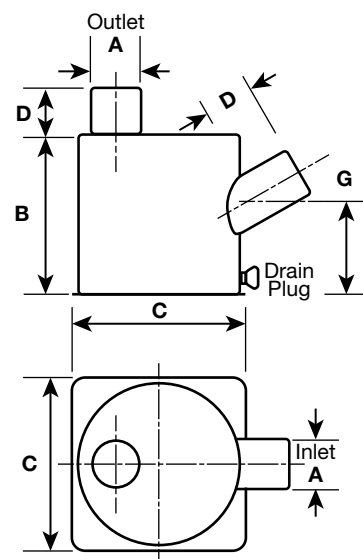
## Composite Silencers and Separators

### Lift Silencers - Side Angle In Top Out



| Part No. | Reference | A    |     | B   | C   | D   | F   | G ° | Weight kg |
|----------|-----------|------|-----|-----|-----|-----|-----|-----|-----------|
|          |           | inch | mm  | mm  | mm  | mm  | mm  |     |           |
| H001454  | HAT015    | 2.36 | 60  | 270 | 275 | 60  | 175 | 30  | 3.6       |
| H001456  | HAT020    | 3    | 76  | 270 | 275 | 76  | 175 | 30  | 3.9       |
| H001458  | HAT025    | 3.5  | 89  | 305 | 324 | 91  | 184 | 30  | 5.5       |
| H001459  | HAT030    | 3.5  | 89  | 266 | 275 | 89  | 152 | 30  | 4.4       |
| H001460  | HAT035    | 4    | 102 | 480 | 324 | 130 | 300 | 35  | 7.8       |
| H001461  | HAT040    | 4    | 102 | 305 | 324 | 85  | 184 | 35  | 5.7       |
| H001462  | HAT043    | 4.5  | 114 | 480 | 324 | 135 | 300 | 35  | 7.9       |
| H001463  | HAT045    | 5    | 127 | 480 | 324 | 140 | 300 | 35  | 8.7       |
| H001464  | HAT050    | 6    | 152 | 370 | 446 | 200 | 222 | 35  | 11.2      |
| H010302  | HAT055    | 8    | 203 | 521 | 548 | 201 | 323 | 55  | 18.6      |
| H017158  | HAT060    | 10   | 254 | 660 | 650 | 289 | 374 | 55  | 29.6      |

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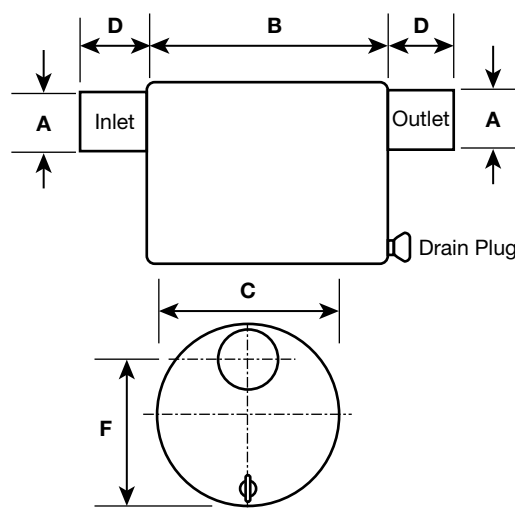


### Lift Silencers - End In End Out



| Part No. | Reference | A    |     | B   | C   | D   | F   | Weight kg |
|----------|-----------|------|-----|-----|-----|-----|-----|-----------|
|          |           | inch | mm  | mm  | mm  | mm  | mm  |           |
| H001496  | HEE005    | 1.5  | 38  | 250 | 178 | 55  | 141 | 1.7       |
| H001497  | HEE010    | 1.6  | 41  | 250 | 178 | 65  | 133 | 1.8       |
| H001498  | HEE020    | 1.77 | 45  | 250 | 178 | 65  | 133 | 1.8       |
| H001499  | HEE035    | 2    | 51  | 310 | 178 | 65  | 133 | 2.1       |
| H001500  | HEE040    | 2    | 51  | 420 | 254 | 65  | 195 | 4.2       |
| H001501  | HEE045    | 2    | 51  | 250 | 178 | 65  | 133 | 1.8       |
| H001502  | HEE060    | 2.36 | 60  | 310 | 254 | 75  | 195 | 3.7       |
| H001503  | HEE065    | 2.36 | 60  | 420 | 254 | 75  | 195 | 4.4       |
| H001504  | HEE070    | 2.5  | 63  | 420 | 254 | 75  | 195 | 4.4       |
| H001505  | HEE080    | 3    | 76  | 420 | 254 | 80  | 195 | 4.7       |
| H001506  | HEE090    | 3.5  | 89  | 465 | 254 | 89  | 188 | 5.2       |
| H001507  | HEE095    | 4    | 102 | 462 | 305 | 102 | 222 | 6.8       |
| H001508  | HEE100    | 4.5  | 114 | 462 | 305 | 114 | 220 | 7         |
| H001509  | HEE105    | 5    | 127 | 599 | 305 | 126 | 220 | 8.8       |
| H001510  | HEE110    | 6    | 152 | 640 | 346 | 152 | 260 | 11.4      |
| H010303  | HEE115    | 8    | 203 | 695 | 446 | 205 | 297 | 18.4      |

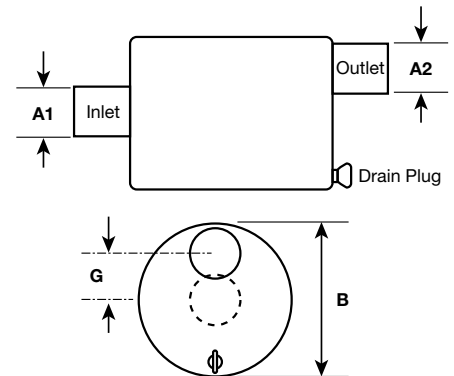
Drawings and dimensions are for guidance. Alternative sizes and configurations available on request.



## In-line Round Body Silencers



| In-line Round Body Silencers |           |      |     |      |     |     |      |     |    |              |
|------------------------------|-----------|------|-----|------|-----|-----|------|-----|----|--------------|
| Part No.                     | Reference | A1   |     | A2   |     | B   | C    | D   | G  | Weight<br>kg |
|                              |           | inch | mm  | inch | mm  | mm  | mm   | mm  | mm |              |
| H001524                      | HILR003   | 2.38 | 60  | 2.38 | 60  | 152 | 212  | 70  | 41 | 1.8          |
| H001525                      | HILR005   | 3    | 76  | 3    | 76  | 203 | 335  | 75  | 59 | 3.5          |
| H001526                      | HILR010   | 3.5  | 89  | 3.5  | 89  | 203 | 390  | 100 | 53 | 4.2          |
| H001527                      | HILR015   | 4    | 102 | 4    | 102 | 254 | 465  | 102 | 68 | 6.4          |
| H001528                      | HILR020   | 4.5  | 114 | 4.5  | 114 | 254 | 502  | 114 | 61 | 6.8          |
| H001529                      | HILR025   | 5    | 127 | 5    | 127 | 254 | 546  | 127 | 55 | 7.9          |
| H001530                      | HILR030   | 5    | 127 | 6    | 152 | 305 | 762  | 127 | 65 | 12.1         |
| H001531                      | HILR035   | 6    | 152 | 6    | 152 | 305 | 661  | 152 | 65 | 11.4         |
| H001532                      | HILR040   | 6    | 152 | 8    | 203 | 398 | 880  | 200 | 91 | 22           |
| H001533                      | HILR045   | 8    | 203 | 8    | 203 | 395 | 880  | 201 | 88 | 23           |
| H001534                      | HILR050   | 10   | 254 | 10   | 254 | 446 | 1092 | 254 | 87 | 32           |
| H001535                      | HILR055   | 12   | 305 | 12   | 305 | 489 | 1308 | 305 | 87 | 41           |

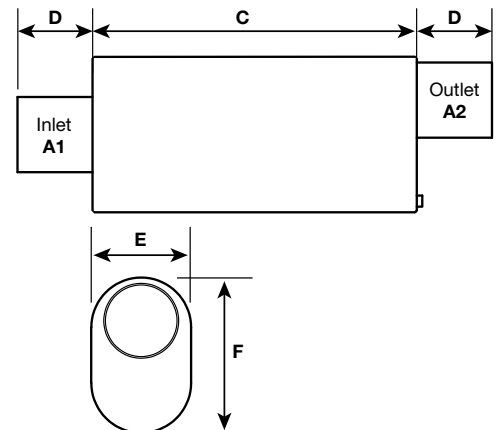


Drawings and dimensions are for guidance. Alternative sizes and configurations available on request. All units are made to order and customisable.

## In-line Oval Body Silencers



| In-line Oval Body Silencers |           |      |     |      |     |     |      |     |     |     |     |              |
|-----------------------------|-----------|------|-----|------|-----|-----|------|-----|-----|-----|-----|--------------|
| Part No.                    | Reference | A1   |     | A2   |     | B   | C    | D   | E   | F   | G   | Weight<br>kg |
|                             |           | inch | mm  | inch | mm  | mm  | mm   | mm  | mm  | mm  | mm  |              |
| H001517                     | HILO005   | 5    | 127 | 5    | 127 | 127 | 520  | 140 | 225 | 385 | 118 | 10.8         |
| H001518                     | HILO006   | 5    | 127 | 6    | 152 | 152 | 640  | 150 | 225 | 385 | 105 | 10.6         |
| H001519                     | HILO010   | 6    | 152 | 6    | 152 | 152 | 640  | 150 | 225 | 385 | 105 | 9.5          |
| H001520                     | HILO012   | 6    | 152 | 8    | 203 | 203 | 928  | 203 | 270 | 420 | 93  | 12.2         |
| H001521                     | HILO015   | 8    | 203 | 8    | 203 | 203 | 876  | 203 | 270 | 420 | 93  | 16.3         |
| H001522                     | HILO016   | 8    | 203 | 10   | 254 | 254 | 758  | 203 | 295 | 465 | 87  | 21.6         |
| H001523                     | HILO020   | 10   | 254 | 10   | 254 | 254 | 1092 | 254 | 365 | 630 | 164 | 39           |

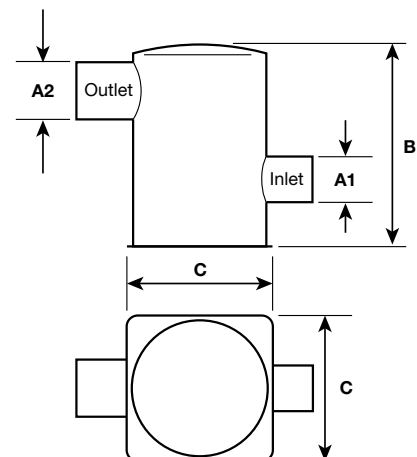


Drawings and dimensions are for guidance. Alternative sizes and configurations available on request. All units are made to order and customisable.

## Dual Chamber Silencers



| Dual Chamber Silencers |           |      |      |      |     |
|------------------------|-----------|------|------|------|-----|
| Part No.               | Reference | A1   | A2   | B    | C   |
|                        |           | inch | inch | mm   | mm  |
| H008419                | HDC025    | 4    | 4    | 600  | 446 |
| H001488                | HDC035    | 5    | 5    | 700  | 446 |
| H001489                | HDC040    | 5    | 6    | 800  | 446 |
| H001490                | HDC045    | 6    | 6    | 800  | 446 |
| H001491                | HDC050    | 6    | 8    | 800  | 446 |
| H001492                | HDC055    | 8    | 8    | 900  | 648 |
| H001493                | HDC060    | 8    | 10   | 900  | 650 |
| H001494                | HDC065    | 10   | 10   | 1000 | 650 |
| H001495                | HDC070    | 12   | 12   | 1000 | 650 |



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# Exhaust Systems and Accessories

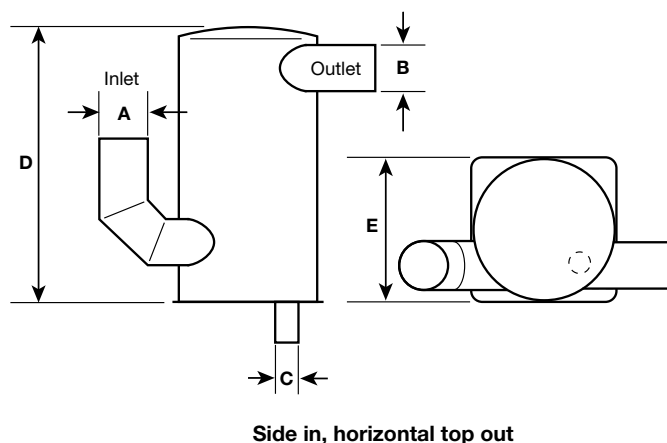
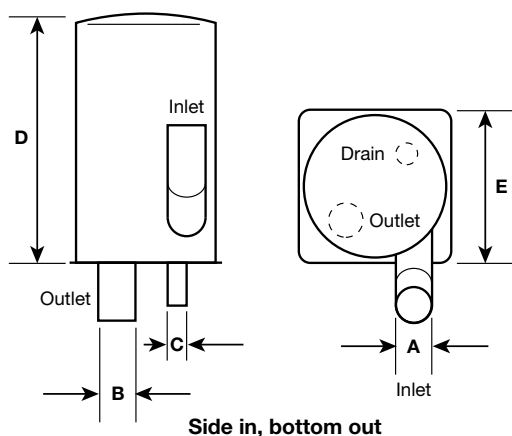
## Composite Silencers and Separators

### Combined Silencer / Separators



| Combined Silencer / Separators |                             |      |     |      |     |      |    |     |     |
|--------------------------------|-----------------------------|------|-----|------|-----|------|----|-----|-----|
| Part No.                       | Type                        | A    |     | B    |     | C    |    | D   | E   |
|                                |                             | inch | mm  | inch | mm  | inch | mm | mm  | mm  |
| ML-0382-01                     | Side in, bottom out         | 3.5  | 89  | 3.5  | 89  | 2    | 51 | 617 | 370 |
| ML-0382-02                     | Side in, bottom out         | 4    | 102 | 4    | 102 | 3    | 76 | 641 | 370 |
| ML-0382-03                     | Side in, bottom out         | 5    | 127 | 5    | 127 | 3    | 76 | 750 | 430 |
| ML-0382-04                     | Side in, bottom out         | 6    | 152 | 6    | 152 | 3    | 76 | 920 | 470 |
| ML-0364-01                     | Side in, horizontal top out | 3.5  | 89  | 3.5  | 89  | 2    | 51 | 595 | 370 |
| ML-0364-02                     | Side in, horizontal top out | 4    | 102 | 4    | 102 | 3    | 76 | 626 | 370 |
| ML-0364-03                     | Side in, horizontal top out | 5    | 127 | 5    | 127 | 3    | 76 | 725 | 430 |
| ML-0364-04                     | Side in, horizontal top out | 6    | 152 | 6    | 152 | 3    | 76 | 904 | 470 |

Drawings and dimensions are for guidance. Alternative sizes and configurations available on request. All units are made to order and customisable.



### Halyard UK Manufacturing Facilities



Halyard products including stainless steel risers, water injection spray heads, exhaust transom outlets, supports, high temperature GRP silencers and separators, tube and connectors, marine exhaust hose, silicone hoses and bellows are designed and manufactured in-house at our UK manufacturing facilities.

As a result Halyard are uniquely placed to be able to design and manufacture market leading exhaust systems and components to meet your exact requirements.



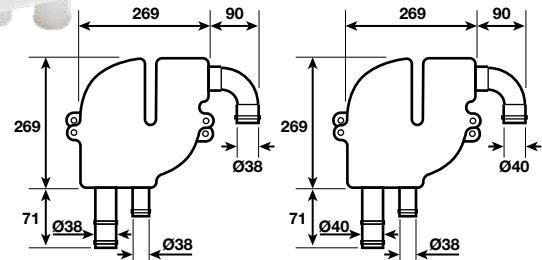
## Moulded Water Separators

### MS4000 Series Water Separator

Halyard's exhaust water separator range is available with inlet / outlet diameters from 38mm (1.5") to 76mm (3"). Manufactured from a special high temperature Polyolefin and available from stock.

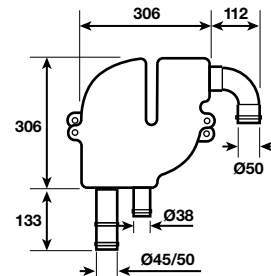


|                                          |
|------------------------------------------|
| <b>MS4020</b> 38mm 90° Outlet            |
| <b>MS4025</b> 40mm 90° Outlet            |
| Exhaust: 38mm and 40mm                   |
| Gas Outlet: 38mm and 40mm                |
| Maximum Water Flow: 18 Litres Per Minute |
| Weight: 1kg                              |

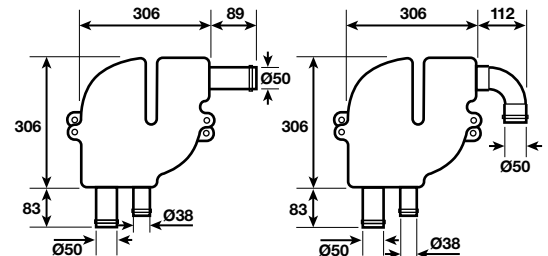


### MS5000 Series Water Separator

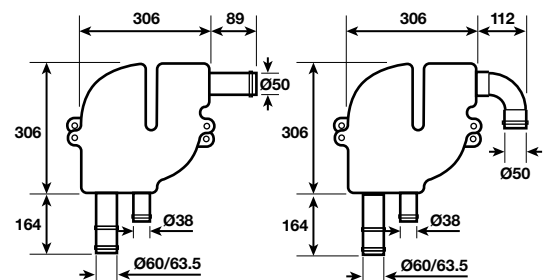
|                                          |
|------------------------------------------|
| <b>MS5020</b> 45mm and 50mm 90° Outlet   |
| Exhaust: 45mm and 50mm                   |
| Gas Outlet: 50mm                         |
| Maximum Water Flow: 42 Litres Per Minute |
| Weight: 1.7kg                            |



|                                          |
|------------------------------------------|
| <b>MS5010</b> 50mm Straight Outlet       |
| <b>MS5025</b> 50mm 90° Outlet            |
| Exhaust: 50mm                            |
| Gas Outlet: 50mm                         |
| Maximum Water Flow: 42 Litres Per Minute |
| Weight: 1.7kg                            |

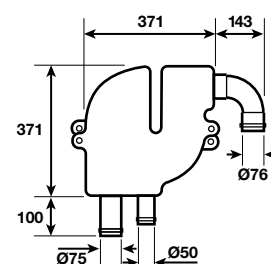


|                                               |
|-----------------------------------------------|
| <b>MS5015</b> 60mm and 63.5mm Straight Outlet |
| <b>MS5030</b> 60mm and 63.5mm 90° Outlet      |
| Exhaust: 60mm and 63.5mm                      |
| Gas Outlet: 50mm                              |
| Maximum Water Flow: 42 Litres Per Minute      |
| Weight: 1.7kg                                 |



### MS7000 Series Water Separator

|                                          |
|------------------------------------------|
| <b>MS7510</b> 75mm 90° Outlet            |
| Exhaust: 75mm                            |
| Gas Outlet: 76mm                         |
| Maximum Water Flow: 65 Litres Per Minute |
| Weight: 3.3kg                            |



# Exhaust Systems and Accessories

## GRP Water Separators

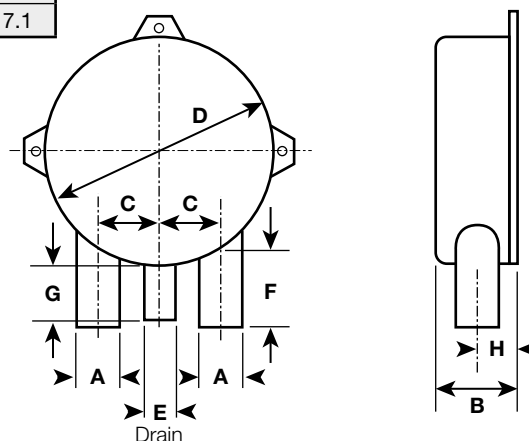
### GRP Low Profile Water Separator



| GRP Low Profile Water Separator |           |      |     |     |     |     |      |    |     |     |     |              |
|---------------------------------|-----------|------|-----|-----|-----|-----|------|----|-----|-----|-----|--------------|
| Part No.                        | Reference | A    |     | B   | C   | D   | E    |    | F   | G   | H   | Weight<br>kg |
|                                 |           | inch | mm  | mm  | mm  | mm  | inch | mm | mm  | mm  | mm  |              |
| H014054                         | HFS020    | 2    | 51  | 125 | 75  | 305 | 1.5  | 38 | 96  | 76  | 65  | 4.4          |
| H001511                         | HFS025    | 2.5  | 63  | 140 | 100 | 346 | 1.5  | 38 | 144 | 100 | 70  | 4.8          |
| H001514                         | HFS030    | 3    | 76  | 140 | 110 | 398 | 2    | 51 | 144 | 100 | 70  | 6.5          |
| H001515                         | HFS035    | 3.5  | 89  | 140 | 110 | 398 | 2    | 51 | 144 | 107 | 70  | 6.5          |
| H001516                         | HFS040    | 4    | 102 | 170 | 110 | 398 | 2    | 51 | 144 | 107 | 85  | 7            |
| H007116                         | HFS050    | 5    | 127 | 175 | 125 | 494 | 2.5  | 63 | 140 | 107 | 88  | 12.5         |
| H010304                         | HFS060    | 6    | 152 | 215 | 151 | 594 | 2.5  | 63 | 175 | 107 | 105 | 17.1         |

Drawings and dimensions are for guidance. Alternative sizes and configurations available on request.

This separator has universal inlet and outlet tubes. The tubes marked 'A' can be used as either inlet or outlet

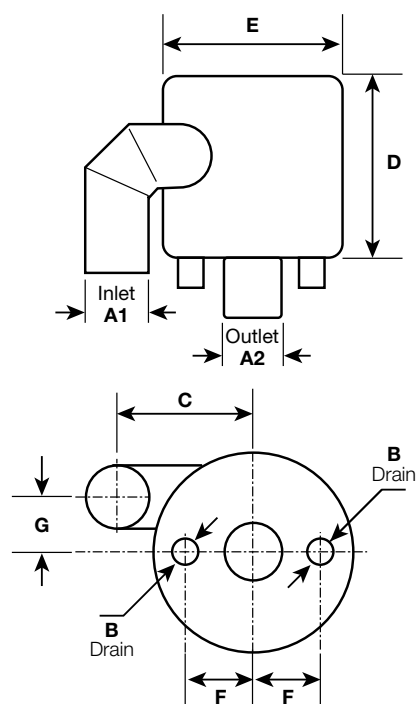


### GRP General Water Separator



| GRP General Water Separator |           |      |     |    |     |     |     |     |     |              |
|-----------------------------|-----------|------|-----|----|-----|-----|-----|-----|-----|--------------|
| Part No.                    | Reference | A1   | A2  | B  | C   | D   | E   | F   | G   | Weight<br>kg |
|                             |           | inch | mm  | mm | mm  | mm  | mm  | mm  | mm  |              |
| H001687                     | HWS030    | 76   | 76  | 38 | 240 | 356 | 346 | 120 | 110 | 7.6          |
| H001688                     | HWS035    | 89   | 89  | 38 | 264 | 356 | 346 | 120 | 110 | 7.8          |
| H001689                     | HWS040    | 102  | 102 | 38 | 282 | 356 | 346 | 120 | 100 | 9.5          |
| H001690                     | HWS050    | 127  | 127 | 51 | 310 | 406 | 398 | 150 | 110 | 11.1         |
| H001691                     | HWS060    | 152  | 152 | 51 | 335 | 406 | 398 | 158 | 100 | 12.1         |

Drawings and dimensions are for guidance. Alternative sizes and configurations available on request.



| GRP Tube |           |                |     |                        |                 |                   |
|----------|-----------|----------------|-----|------------------------|-----------------|-------------------|
| Part No. | Reference | A Nominal O.D. |     | Nominal Wall Thickness | Weight kg per m | B Standard Length |
|          |           | inch           | mm  |                        |                 |                   |
| H000526  | HT001     | 0.75           | 19  | 3.5                    | 0.25            | 1.2               |
| H000527  | HT005     | 1              | 25  | 2.6                    | 0.33            | 1.2               |
| H000528  | HT010     | 1.5            | 38  | 4                      | 0.5             | 1.2               |
| H000529  | HT015     | 1.6            | 41  | 2.3                    | 0.5             | 1.2               |
| H000530  | HT020     | 1.75           | 44  | 2.5                    | 0.6             | 1.2               |
| H009939  | HT030     | 2              | 51  | 2.5                    | 0.7             | 3                 |
| H009940  | HT040     | 2.36           | 60  | 3                      | 0.9             | 3                 |
| H009953  | HT045     | 2.5            | 63  | 3.5                    | 1               | 3                 |
| H009954  | HT055     | 3              | 76  | 4                      | 1.3             | 3                 |
| H009965  | HT060     | 3.5            | 89  | 4                      | 1.5             | 3                 |
| H009966  | HT065     | 4              | 102 | 4                      | 1.9             | 3                 |
| H010014  | HT070     | 4.5            | 114 | 4                      | 2.2             | 3                 |
| H010017  | HT075     | 5              | 127 | 4                      | 2.5             | 3                 |
| H010018  | HT080     | 6              | 152 | 4                      | 2.9             | 3                 |
| H010028  | HT082     | 7              | 178 | 4.5                    | 3.7             | 3                 |
| H010030  | HT085     | 8              | 203 | 4.5                    | 4.5             | 3                 |
| H010034  | HT090     | 10             | 254 | 4.5                    | 5.5             | 3                 |
| H010036  | HT095     | 12             | 305 | 4.5                    | 6.8             | 3                 |
| H010040  | HT100     | 13.6           | 346 | 5                      | 7.7             | 3                 |
| H010041  | HT105     | 15.7           | 398 | 4.5                    | 8.9             | 3                 |
| H010371  | HT115     | 19.3           | 493 | 5                      | 10.9            | 3                 |
| H010042  | HT120     | 23.3           | 593 | 5                      | 14.7            | 3                 |

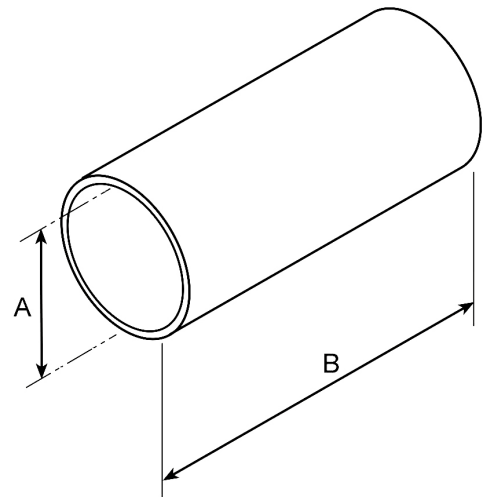
Drawings and dimensions are for guidance. Alternative sizes and up to 1000mm O.D. configurations available on request.

Diameters from 2" to 24" are supplied with peel-ply wrapping - a special layer which the customer peels off to leave a coarse surface requiring minimal preparation.

Lloyd's Approved resins with special temperature ratings are used in the manufacture of this tube (applies to tube over 2"/ 51mm only).

**Part numbers H000526 – H000530, do not have Lloyd's Approval.**

**Note:** Lloyds Type Approval is applicable for Halyard GRP products in exhaust system applications.



# Exhaust Systems and Accessories

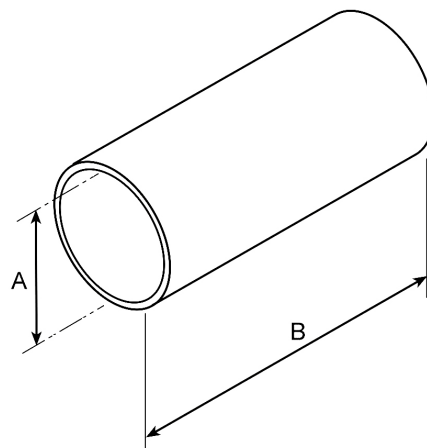
## GRP Tubes & Connectors

### GRP Exhaust Connectors



| GRP Exhaust Connectors |           |      |     |     |           |
|------------------------|-----------|------|-----|-----|-----------|
| Part No.               | Reference | A    |     | B   | Weight kg |
|                        |           | inch | mm  | mm  |           |
| H001536                | HJ010     | 1.5  | 38  | 175 | 0.1       |
| H001537                | HJ015     | 1.6  | 41  | 175 | 0.1       |
| H001538                | HJ020     | 1.77 | 45  | 175 | 0.1       |
| H001539                | HJ030     | 2    | 51  | 200 | 0.15      |
| H001540                | HJ040     | 2.36 | 60  | 200 | 0.2       |
| H001541                | HJ045     | 2.5  | 63  | 200 | 0.25      |
| H001542                | HJ055     | 3    | 76  | 250 | 0.4       |
| H001543                | HJ060     | 3.5  | 89  | 250 | 0.5       |
| H001544                | HJ065     | 4    | 102 | 300 | 0.65      |
| H001545                | HJ070     | 4.5  | 114 | 300 | 0.75      |
| H001546                | HJ075     | 5    | 127 | 300 | 0.85      |
| H001547                | HJ080     | 6    | 152 | 350 | 1.1       |
| H007269                | HJ082     | 7    | 178 | 350 | 1.35      |
| H001548                | HJ085     | 8    | 203 | 350 | 1.7       |
| H001549                | HJ090     | 10   | 254 | 400 | 2.4       |
| H001550                | HJ095     | 12   | 305 | 400 | 2.7       |

**Note:** Lloyds Type Approval is applicable for Halyard GRP products in exhaust system applications.



Drawings and dimensions are for guidance. Alternative sizes and configurations available on request.



### GRP Bow Thruster Tube

| GRP Bow Thruster Tube |           |                               |
|-----------------------|-----------|-------------------------------|
| Part No.              | Reference | Description                   |
| H008493               | HBT140/15 | 140mm bore by 5mm wall x 1.5m |
| H001470               | HBT185/15 | 185mm bore by 6mm wall x 1.5m |
| H001477               | HBT250/15 | 250mm bore by 8mm wall x 1.5m |
| H001482               | HBT300/15 | 300mm bore by 9mm wall x 1.5m |

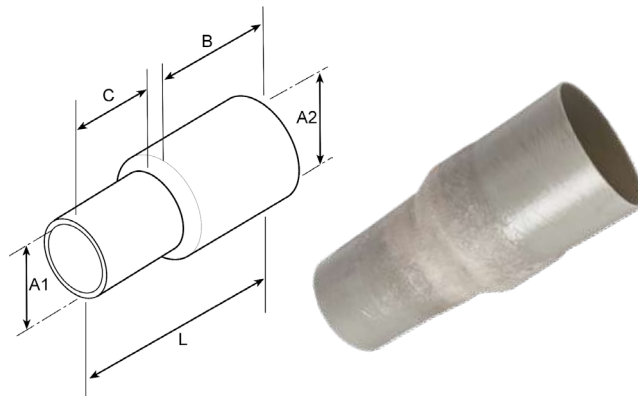
Drawings and dimensions are for guidance. Alternative sizes and configurations available on request.

**Note:** Lloyds Type Approval is applicable for Halyard GRP products in exhaust system applications.

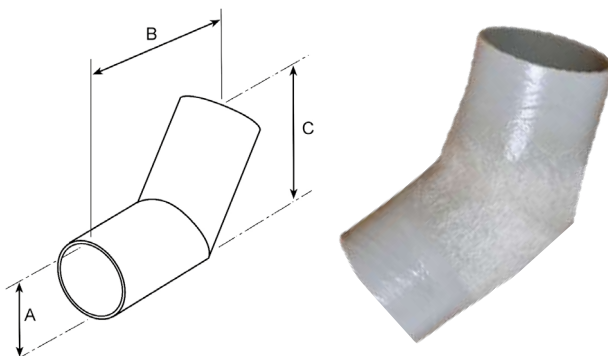


| GRP Reducers |           |         |     |         |     |     |     |     |              |
|--------------|-----------|---------|-----|---------|-----|-----|-----|-----|--------------|
| Part No.     | Reference | A1 O.D. |     | A2 O.D. |     | B   | C   | L   | Weight<br>kg |
|              |           | inch    | mm  | inch    | mm  | mm  | mm  | mm  |              |
| H001442      | HA020     | 2       | 51  | 3       | 76  | 102 | 78  | 205 | 0.4          |
| H001443      | HA035     | 2.5     | 63  | 3       | 76  | 102 | 95  | 222 | 0.4          |
| H001444      | HA050     | 3       | 76  | 3.5     | 89  | 125 | 102 | 252 | 0.5          |
| H001445      | HA055     | 3       | 76  | 4       | 102 | 142 | 102 | 269 | 0.6          |
| H001446      | HA060     | 3.5     | 89  | 4       | 102 | 142 | 125 | 293 | 0.7          |
| H001447      | HA065     | 3.5     | 89  | 4.5     | 114 | 140 | 125 | 290 | 0.9          |
| H001448      | HA070     | 4       | 102 | 5       | 127 | 158 | 142 | 326 | 1.1          |
| H001449      | HA075     | 4       | 102 | 6       | 152 | 177 | 142 | 370 | 1.7          |
| H001450      | HA095     | 5       | 127 | 6       | 152 | 177 | 158 | 361 | 1.8          |
| H001451      | HA096     | 6       | 152 | 7       | 178 | 240 | 177 | 467 | 1.9          |
| H001452      | HA110     | 6       | 152 | 8       | 203 | 225 | 177 | 452 | 2.1          |
| H001453      | HA115     | 8       | 203 | 10      | 254 | 279 | 225 | 555 | 3.5          |

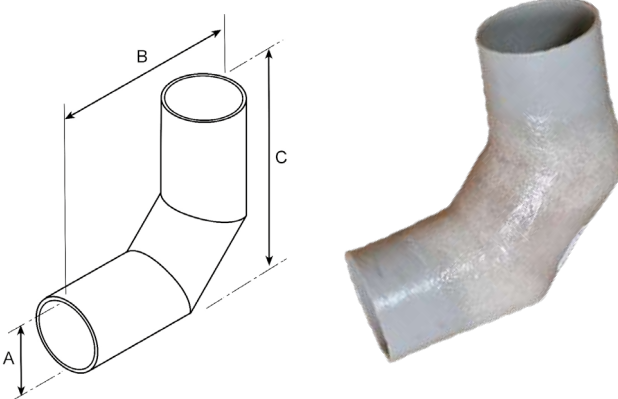
**Note:** Lloyd's Type Approval is applicable for Halyard GRP products in exhaust system applications.



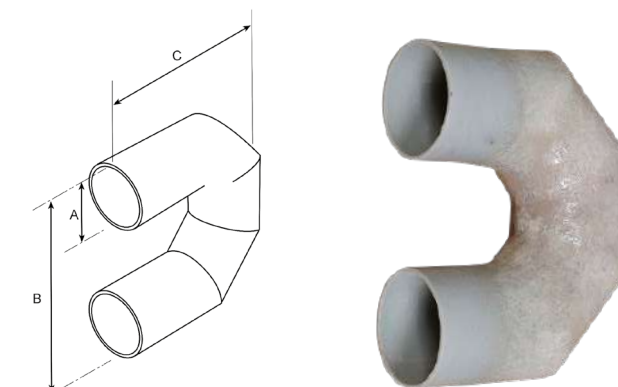
| GRP 45° Elbows |           |      |     |     |     |              |
|----------------|-----------|------|-----|-----|-----|--------------|
| Part No.       | Reference | A    |     | B   | C   | Weight<br>kg |
|                |           | inch | mm  | mm  | mm  |              |
| H001409        | H45025    | 2    | 51  | 161 | 103 | 0.2          |
| H001410        | H45035    | 2.36 | 60  | 166 | 111 | 0.3          |
| H001411        | H45040    | 2.5  | 63  | 188 | 123 | 0.4          |
| H001412        | H45050    | 3    | 76  | 213 | 142 | 0.6          |
| H001414        | H45055    | 3.5  | 89  | 282 | 181 | 0.8          |
| H001415        | H45060    | 4    | 102 | 243 | 173 | 0.7          |
| H001417        | H45065    | 4.5  | 114 | 181 | 208 | 1            |
| H001418        | H45070    | 5    | 127 | 339 | 230 | 1.2          |
| H001419        | H45075    | 6    | 152 | 376 | 263 | 2            |
| H007270        | H45077    | 7    | 178 | 599 | 374 | 2.5          |
| H001420        | H45080    | 8    | 203 | 710 | 438 | 4.5          |
| H001421        | H45085    | 10   | 254 | 776 | 501 | 5.5          |



| GRP 90° Elbows |           |      |     |     |     |              |
|----------------|-----------|------|-----|-----|-----|--------------|
| Part No.       | Reference | A    |     | B   | C   | Weight<br>kg |
|                |           | inch | mm  | mm  | mm  |              |
| H001422        | H90005    | 1.5  | 38  | 121 | 121 | 0.3          |
| H001424        | H90025    | 2    | 51  | 150 | 150 | 0.4          |
| H001425        | H90035    | 2.36 | 60  | 158 | 158 | 0.5          |
| H001426        | H90040    | 2.5  | 63  | 177 | 177 | 0.5          |
| H001427        | H90050    | 3    | 76  | 197 | 197 | 0.8          |
| H001428        | H90055    | 3.5  | 89  | 229 | 229 | 1            |
| H001429        | H90060    | 4    | 102 | 242 | 242 | 1.2          |
| H001430        | H90065    | 4.5  | 114 | 269 | 269 | 1.5          |
| H001431        | H90070    | 5    | 127 | 308 | 308 | 1.8          |
| H001433        | H90075    | 6    | 152 | 358 | 358 | 2.5          |
| H001435        | H90077    | 7    | 178 | 542 | 542 | 4            |
| H001436        | H90080    | 8    | 203 | 580 | 580 | 5.6          |
| H010290        | H90085    | 10   | 254 | 659 | 659 | 6.5          |
| H001438        | H90090    | 12   | 305 | 762 | 762 | 8            |



| GRP 180° Elbows |           |      |     |     |     |              |
|-----------------|-----------|------|-----|-----|-----|--------------|
| Part No.        | Reference | A    |     | B   | C   | Weight<br>kg |
|                 |           | inch | mm  | mm  | mm  |              |
| H001398         | H180015   | 1.75 | 44  | 133 | 124 | 0.3          |
| H001399         | H180025   | 2    | 51  | 153 | 154 | 0.6          |
| H001400         | H180035   | 2.36 | 60  | 181 | 150 | 0.6          |
| H001401         | H180040   | 2.5  | 63  | 192 | 166 | 0.7          |
| H001402         | H180050   | 3    | 76  | 214 | 187 | 1.1          |
| H001403         | H180055   | 3.5  | 89  | 268 | 219 | 1.6          |
| H001404         | H180060   | 4    | 102 | 293 | 228 | 1.8          |
| H001405         | H180070   | 5    | 127 | 380 | 310 | 3            |
| H001406         | H180075   | 6    | 152 | 427 | 327 | 3.6          |
| H007310         | H180080   | 7    | 178 | 531 | 455 | 5            |
| H001407         | H180085   | 8    | 203 | 684 | 547 | 7            |



Alternative sizes and configurations available on request.

# Exhaust Systems and Accessories

## Flexible Connectors

### Flexible Exhaust Bends



| Flexible 45° Black EPDM Bends 100°C Max. |           |      |     |     |    |    |     |
|------------------------------------------|-----------|------|-----|-----|----|----|-----|
| Part No.                                 | Reference | I.D. | A   | B   | C  | D  | W   |
| H003337                                  | CBR450040 | 51   | 125 | 125 | 50 | 50 | 5   |
| H003338                                  | CBR450050 | 76   | 145 | 145 | 50 | 50 | 6.5 |
| H003339                                  | CBR450055 | 89   | 155 | 155 | 50 | 50 | 6.5 |
| H003340                                  | CBR450060 | 102  | 160 | 160 | 50 | 50 | 7   |
| H003341                                  | CBR450065 | 127  | 240 | 240 | 50 | 50 | 8   |
| H003342                                  | CBR450070 | 152  | 350 | 350 | 60 | 60 | 8   |
| H003343                                  | CBR450075 | 203  | 400 | 400 | 65 | 65 | 10  |
| H003344                                  | CBR450080 | 254  | 425 | 425 | 65 | 65 | 12  |

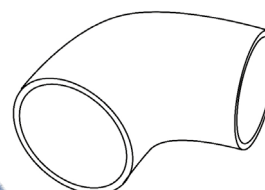
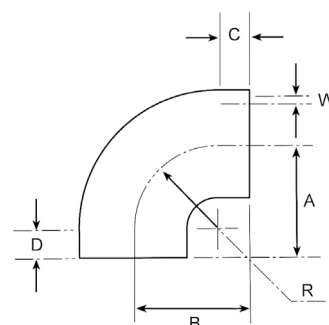
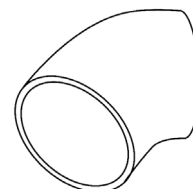
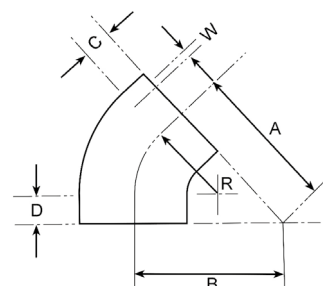
| Flexible 90° Black EPDM Bends 100°C Max. |           |      |     |     |    |    |     |     |
|------------------------------------------|-----------|------|-----|-----|----|----|-----|-----|
| Part No.                                 | Reference | I.D. | A   | B   | C  | D  | R   | W   |
| H003345                                  | CBR90040  | 51   | 125 | 125 | 50 | 50 | 50  | 5   |
| H003346                                  | CBR90045  | 63   | 145 | 145 | 50 | 50 | 95  | 5   |
| H003347                                  | CBR90050  | 76   | 145 | 145 | 50 | 50 | 95  | 6.5 |
| H003348                                  | CBR90055  | 89   | 155 | 155 | 50 | 50 | 100 | 6.5 |
| H003349                                  | CBR90060  | 102  | 160 | 160 | 50 | 50 | 110 | 7   |
| H003350                                  | CBR90065  | 127  | 240 | 240 | 50 | 50 | 187 | 8   |
| H003351                                  | CBR90070  | 152  | 350 | 350 | 60 | 60 | 250 | 8   |
| H003352                                  | CBR90070  | 203  | 400 | 400 | 65 | 65 | 300 | 10  |
| H003353                                  | CBR90080  | 254  | 425 | 425 | 65 | 65 | 350 | 12  |

| Flexible 45° Silicone Bends 180°C Max. |           |      |     |     |     |    |     |     |
|----------------------------------------|-----------|------|-----|-----|-----|----|-----|-----|
| Part No.                               | Reference | I.D. | A   | B   | C   | D  | R   | W   |
| H003319                                | CB45040   | 51   | 125 | 125 | 50  | 50 | 50  | 5.5 |
| H003320                                | CB45050   | 76   | 145 | 145 | 50  | 50 | 95  | 7   |
| H003321                                | CB45055   | 102  | 102 | 160 | 160 | 50 | 110 | 7   |
| H003322                                | CB45065   | 127  | 240 | 240 | 50  | 50 | 187 | 7   |
| H003318                                | CB45070   | 152  | 350 | 350 | 60  | 60 | 250 | 7   |

| Flexible 90° Silicone Bends 180°C Max. |           |      |     |     |    |    |     |     |
|----------------------------------------|-----------|------|-----|-----|----|----|-----|-----|
| Part No.                               | Reference | I.D. | A   | B   | C  | D  | R   | W   |
| H003324                                | CB90040   | 51   | 125 | 125 | 50 | 50 | 50  | 5.5 |
| H003325                                | CB90045   | 63   | 145 | 145 | 50 | 50 | 95  | 5.5 |
| H003326                                | CB90050   | 76   | 145 | 145 | 50 | 50 | 95  | 7   |
| H003327                                | CB90055   | 89   | 155 | 155 | 50 | 50 | 100 | 7   |
| H003328                                | CB90060   | 102  | 160 | 160 | 50 | 50 | 110 | 7   |
| H003329                                | CB90065   | 127  | 240 | 240 | 50 | 50 | 187 | 7   |
| H003330                                | CB90070   | 152  | 350 | 350 | 60 | 60 | 250 | 7   |
| H003331                                | CB90075   | 203  | 400 | 350 | 65 | 65 | 300 | 7   |

### Special Order Options

- Extremely high temperature bends rated to 260°C
- Alternative sizes and configurations



### Wire Reinforced Standard Range Exhaust Hose



| Wire Reinforced Standard Range Exhaust Hose                           |           |      |      |             |             |
|-----------------------------------------------------------------------|-----------|------|------|-------------|-------------|
| Temperature rating - Continuous: 100°C, intermittent: Contact Halyard |           |      |      |             |             |
| Part No.                                                              | Reference | I.D. |      | Bend Radius | Max. Length |
|                                                                       |           | inch | mm   |             |             |
| H000518                                                               | HS32      | 1.25 | 32   | 130         | 60          |
| H000519                                                               | HS38      | 1.50 | 38   | 150         | 60          |
| H000520                                                               | HS40      | 1.58 | 40   | 160         | 60          |
| H000521                                                               | HS44      | 1.77 | 45   | 170         | 60          |
| H000522                                                               | HS51      | 2.01 | 51   | 180         | 60          |
| H000523                                                               | HS60      | 2.36 | 60   | 190         | 60          |
| H000524                                                               | HS63      | 2.50 | 63.5 | 200         | 60          |
| H000525                                                               | HS76      | 3.00 | 76   | 250         | 60          |
| H013763                                                               | HS90      | 3.55 | 90   | 330         | 60          |
| H013764                                                               | HS102     | 4.00 | 102  | 410         | 60          |
| H018617                                                               | HS127     | 5.00 | 127  | 560         | 60          |
| H019437                                                               | HS152     | 6.00 | 152  | 680         | 60          |
| H019438                                                               | HS203     | 8.00 | 203  | 995         | 60          |
| Not available with soft cuffed ends                                   |           |      |      |             |             |



### Wire Reinforced 'HalFlex' Ultra Flexible Exhaust Hose



| Wire Reinforced 'HalFlex' Ultra Flexible Exhaust Hose                   |           |       |     |             |             |
|-------------------------------------------------------------------------|-----------|-------|-----|-------------|-------------|
| Temperature rating - Continuous: 100°C, intermittent: Contact Halyard   |           |       |     |             |             |
| Part No.                                                                | Reference | I.D.  |     | Bend Radius | Max. Length |
|                                                                         |           | inch  | mm  |             |             |
| H022112                                                                 | HFX38     | 1.50  | 38  | 75          | 11          |
| H022113                                                                 | HFX41     | 1.61  | 41  | 85          | 6           |
| H022114                                                                 | HFX44     | 1.73  | 44  | 90          | 12          |
| H022115                                                                 | HFX51     | 2.00  | 51  | 105         | 12          |
| H022116                                                                 | HFX60     | 2.36  | 60  | 120         | 12          |
| H022117                                                                 | HFX63     | 2.50  | 63  | 125         | 6           |
| H022118                                                                 | HFX76     | 3.00  | 76  | 175         | 12          |
| H022119                                                                 | HFX89     | 3.50  | 89  | 205         | 12          |
| H022120                                                                 | HFX102    | 4.00  | 102 | 235         | 12          |
| H022121                                                                 | HFX113    | 4.50  | 113 | 260         | 11          |
| H022122                                                                 | HFX127    | 5.00  | 127 | 295         | 12          |
| H022123                                                                 | HFX152    | 6.00  | 152 | 350         | 12          |
| H022124                                                                 | HFX177    | 7.00  | 177 | 410         | 6           |
| H022125                                                                 | HFX203    | 8.00  | 203 | 470         | 6           |
| H022126                                                                 | HFX254    | 10.00 | 254 | 700         | 6           |
| H022127                                                                 | HFX305    | 12.00 | 305 | 840         | 6           |
| H022128                                                                 | HFX356    | 14.00 | 356 | N/A         | 4.5         |
| H022129                                                                 | HFX406    | 16.00 | 406 | N/A         | 3.5         |
| H022130                                                                 | HFX458    | 18.00 | 458 | N/A         | 2           |
| Available as wired to end or with soft cuffed ends to aid hose clamping |           |       |     |             |             |



# Exhaust Systems and Accessories

## Marine Diesel Exhaust Hose

### Wire Reinforced 'HalFlex-HT' High Temperature Hose

| Wire Reinforced 'HalFlex-HT' High Temperature Hose                      |           |       |     |             |             |
|-------------------------------------------------------------------------|-----------|-------|-----|-------------|-------------|
| Temperature rating - Continuous: 150°C, intermittent: Contact Halyard   |           |       |     |             |             |
| Part No.                                                                | Reference | I.D.  |     | Bend Radius | Max. Length |
|                                                                         |           | inch  | mm  |             |             |
| H022131                                                                 | HFXHT38   | 1.50  | 38  | 75          | 11          |
| H022132                                                                 | HFXHT41   | 1.61  | 41  | 85          | 6           |
| H022133                                                                 | HFXHT44   | 1.73  | 44  | 90          | 12          |
| H022134                                                                 | HFXHT51   | 2.00  | 51  | 105         | 12          |
| H022135                                                                 | HFXHT60   | 2.36  | 60  | 120         | 12          |
| H022136                                                                 | HFXHT63   | 2.50  | 63  | 125         | 6           |
| H022137                                                                 | HFXHT76   | 3.00  | 76  | 175         | 12          |
| H022138                                                                 | HFXHT89   | 3.50  | 89  | 205         | 12          |
| H022139                                                                 | HFXHT102  | 4.00  | 102 | 235         | 12          |
| H022140                                                                 | HFXHT113  | 4.50  | 113 | 260         | 11          |
| H022141                                                                 | HFXHT127  | 5.00  | 127 | 295         | 12          |
| H022142                                                                 | HFXHT152  | 6.00  | 152 | 350         | 12          |
| H022143                                                                 | HFXHT177  | 7.00  | 177 | 410         | 6           |
| H022144                                                                 | HFXHT203  | 8.00  | 203 | 470         | 6           |
| H022145                                                                 | HFXHT254  | 10.00 | 254 | 700         | 6           |
| H022146                                                                 | HFXHT305  | 12.00 | 305 | 840         | 6           |
| H022147                                                                 | HFXHT358  | 14.00 | 356 | N/A         | 4.5         |
| H022148                                                                 | HFXHT406  | 16.00 | 406 | N/A         | 3.5         |
| H022149                                                                 | HFXHT458  | 18.00 | 458 | N/A         | 2           |
| Available as wired to end or with soft cuffed ends to aid hose clamping |           |       |     |             |             |



Pending Lloyds approval. Please contact Halyard for further information

### Silicone Exhaust Hose



| Silicone Exhaust Hose                                                 |           |       |     |
|-----------------------------------------------------------------------|-----------|-------|-----|
| Temperature rating - Continuous: 180°C, intermittent: Contact Halyard |           |       |     |
| Part No.                                                              | Reference | I.D.  |     |
|                                                                       |           | inch  | mm  |
| H022160                                                               | SS38      | 1.50  | 38  |
| H022161                                                               | SS41      | 1.61  | 41  |
| H022162                                                               | SS44      | 1.73  | 44  |
| H022163                                                               | SS51      | 2.01  | 51  |
| H022164                                                               | SS60      | 2.36  | 60  |
| H022165                                                               | SS63      | 2.48  | 63  |
| H022166                                                               | SS76      | 2.99  | 76  |
| H022167                                                               | SS89      | 3.50  | 89  |
| H022168                                                               | SS102     | 4.02  | 102 |
| H022169                                                               | SS113     | 4.45  | 113 |
| H022170                                                               | SS127     | 5.00  | 127 |
| H022171                                                               | SS152     | 5.98  | 152 |
| H022172                                                               | SS177     | 6.97  | 177 |
| H022173                                                               | SS203     | 7.99  | 203 |
| H022174                                                               | SS254     | 10.00 | 254 |
| H022175                                                               | SS305     | 12.01 | 305 |
| H022176                                                               | SS356     | 14.02 | 356 |
| H022177                                                               | SS406     | 15.98 | 406 |
| H022178                                                               | SS456     | 17.95 | 456 |

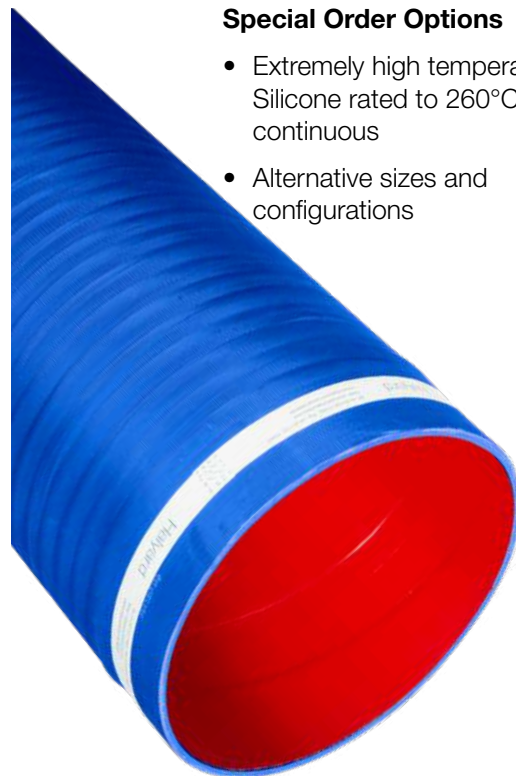
#### Special Order Options

- Extremely high temperature Silicone rated to 260°C continuous
- Alternative sizes and configurations



This product is designed for short flexible connections only – Please contact Halyard for further information

| Wire Reinforced Silicone Exhaust Hose                                   |           |       |     |             |
|-------------------------------------------------------------------------|-----------|-------|-----|-------------|
| Temperature rating - Continuous: 180°C, intermittent: Contact Halyard   |           |       |     |             |
| Part No.                                                                | Reference | I.D.  |     | Max. Length |
|                                                                         |           | inch  | mm  | metres      |
| H022181                                                                 | SW38      | 1.50  | 38  | 11          |
| H022182                                                                 | SW41      | 1.61  | 41  | 6           |
| H022183                                                                 | SW44      | 1.73  | 44  | 12          |
| H022184                                                                 | SW51      | 2.01  | 51  | 12          |
| H022185                                                                 | SW60      | 2.36  | 60  | 12          |
| H022186                                                                 | SW63      | 2.48  | 63  | 6           |
| H022187                                                                 | SW76      | 2.99  | 76  | 12          |
| H022188                                                                 | SW89      | 3.50  | 89  | 12          |
| H022189                                                                 | SW102     | 4.02  | 102 | 12          |
| H022190                                                                 | SW113     | 4.45  | 113 | 11          |
| H022191                                                                 | SW127     | 5.00  | 127 | 12          |
| H022192                                                                 | SW152     | 5.98  | 152 | 12          |
| H022193                                                                 | SW177     | 6.97  | 177 | 6           |
| H022194                                                                 | SW203     | 7.99  | 203 | 6           |
| H022195                                                                 | SW254     | 10.00 | 254 | 6           |
| H022196                                                                 | SW305     | 12.01 | 305 | 6           |
| H022197                                                                 | SW356     | 14.02 | 356 | 4.5         |
| H022198                                                                 | SW406     | 15.98 | 406 | 3.5         |
| H022199                                                                 | SW456     | 17.95 | 456 | 2           |
| Available as wired to end or with soft cuffed ends to aid hose clamping |           |       |     |             |

**Special Order Options**

- Extremely high temperature Silicone rated to 260°C continuous
- Alternative sizes and configurations

| Silicone Flexible Bellows                                             |           |       |     |                |                  |
|-----------------------------------------------------------------------|-----------|-------|-----|----------------|------------------|
| Temperature rating - Continuous: 180°C, intermittent: Contact Halyard |           |       |     |                |                  |
| Part No.                                                              | Reference | I.D.  |     | Length Overall | Single/Dual Hump |
|                                                                       |           | inch  | mm  | mm             |                  |
| H003300                                                               | CB1063    | 2.5   | 63  | 150            | Single           |
| H003301                                                               | CB1076    | 3.0   | 76  | 170            | Single           |
| H003302                                                               | CB1090    | 3.5   | 89  | 220            | Single           |
| H003303                                                               | CB1102    | 4.0   | 102 | 220            | Single           |
| H003304                                                               | CB1127    | 5.0   | 127 | 220            | Single           |
| H003305                                                               | CB1152    | 6.0   | 152 | 220            | Single           |
| H003306                                                               | CB1178    | 7.0   | 178 | 220            | Single           |
| H003307                                                               | CB1203    | 8.0   | 203 | 220            | Single           |
| H003308                                                               | CB1254    | 10.0  | 254 | 250            | Single           |
| H003309                                                               | CB1305    | 12.0  | 305 | 300            | Single           |
| H003310                                                               | CB2102    | 4.0   | 102 | 350            | Double           |
| H003311                                                               | CB2152    | 6.0   | 152 | 350            | Double           |
| H003312                                                               | CB2178    | 7.0   | 178 | 350            | Double           |
| H003313                                                               | CB2203    | 8.0   | 203 | 350            | Double           |
| H003314                                                               | CB2254    | 10.0  | 254 | 350            | Double           |
| H003315                                                               | CB2305    | 12.0  | 305 | 350            | Double           |
| H003316                                                               | CB2324    | 12.76 | 324 | 350            | Double           |
| H003317                                                               | CB2355    | 14.02 | 356 | 400            | Double           |

**Special Order Options**

- Extremely high temperature Silicone rated to 260°C continuous
- Alternative sizes and configurations



# Exhaust Systems and Accessories

## Stainless Steel Hose Clamps

| Stainless Steel Hose Clamps |            |                         |                          |
|-----------------------------|------------|-------------------------|--------------------------|
| Part No.                    | Reference  | Hose O.D.<br>Range - mm | Typical Hose<br>I.D - mm |
| H000505                     | HCSS4043   | 40 - 43                 | 32                       |
| H000507                     | HCSS4751   | 47 - 51                 | 38                       |
| H000507                     | HCSS4751   | 47 - 51                 | 40                       |
| H000509                     | HCSS5559   | 55 - 59                 | 45                       |
| H000510                     | HCSS5963   | 59 - 63                 | 50                       |
| H000512                     | HCSS6873   | 68 - 73                 | 60                       |
| H000512                     | HCSS6873   | 68 - 73                 | 63.5                     |
| H000515                     | HCSS8591   | 85 - 91                 | 76                       |
| H000517                     | HCSS97104  | 97 - 104                | 89                       |
| H000483                     | HCSS104112 | 104 - 112               | 102                      |
| H000486                     | HCSS131139 | 130 - 140               | 127                      |
| H000488                     | HCSS150162 | 150 - 162               | 152                      |
| H000489                     | HCSS162174 | 162 - 174               | 152                      |
| H000491                     | HCSS188200 | 187 - 200               | 178                      |
| H000492                     | HCSS201213 | 201 - 213               | 203                      |
| H000493                     | HCSS213226 | 213 - 226               | 203                      |
| H018791                     | HCSS260280 | 268 - 278               | 254                      |
| H011109                     | HCSS252265 | 252 - 265               | 254                      |
| H019846                     | HCSS300324 | 300 - 324               | 304                      |
| H000499                     | HCSS315325 | 317 - 330               | 304                      |
| H019851                     | HCSS361387 | 361 - 387               | 355                      |
| H000503                     | HCSS370380 | 369 - 382               | 355                      |
| H018627                     | HCSS413439 | 413 - 439               | 406                      |

### Note:

- Please contact Halyard or your local distributor or dealer to verify correct clamp size to suit your Halyard hose, connector or bellows

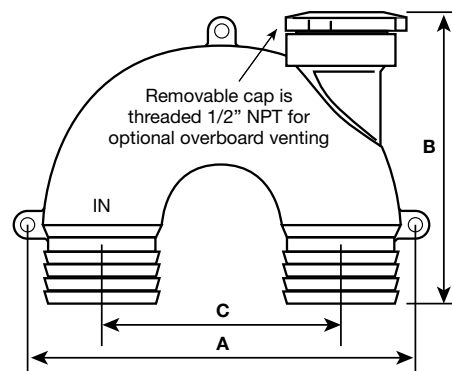


## Bronze Siphon Breakers

This range of siphon breakers are made from corrosion resistant bronze.

The siphon permits air to enter, but does not permit air and odours to escape. The cap is threaded 1/2" NPT to accept a barb fitting to facilitate overboard venting. Overboard venting is required if used in an exhaust system.

Vented loops assure clog-free anti-siphon protection for sanitation or engine exhaust systems. The oversized vent valve can easily be removed for inspection or cleaning.

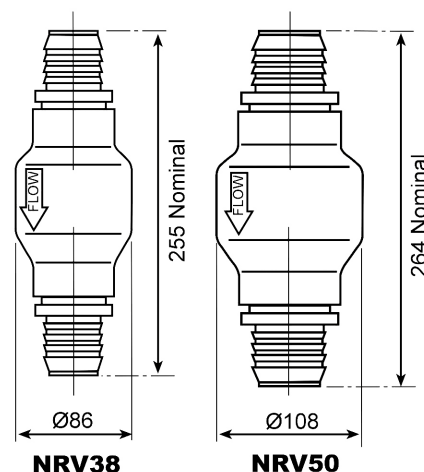


| Bronze Siphon Breakers |           |                                           |           |      |               |      |          |      |                |      |
|------------------------|-----------|-------------------------------------------|-----------|------|---------------|------|----------|------|----------------|------|
| Part No.               | Reference | Description                               | Hose I.D. |      | A Mount Holes |      | B Height |      | C Hose Centres |      |
|                        |           |                                           | mm        | inch | mm            | inch | mm       | inch | mm             | inch |
| H021061                | SB050     | Siphon breaker 1/2"                       | 12.7      | 0.5  | 120.65        | 4.75 | 109.22   | 4.3  | 76.2           | 3    |
| H021062                | SB0750    | Siphon breaker 3/4"                       | 19.05     | 0.75 | 120.65        | 4.75 | 109.22   | 4.3  | 76.2           | 3    |
| H018133                | SB100     | Siphon breaker 1"                         | 25.4      | 1    | 120.65        | 4.75 | 109.22   | 4.3  | 76.2           | 3    |
| H018134                | SB150     | Siphon breaker 1 1/2"                     | 38.1      | 1.5  | 170.18        | 6.7  | 109.22   | 4.3  | 101.6          | 4    |
| H021063                | SB200     | Siphon breaker 2"                         | 50.8      | 2    | 185.42        | 7.3  | 137.16   | 5.4  | 114.3          | 4.5  |
| H018171                | N/A       | 90 degree hose barb for overboard venting |           |      |               |      |          |      |                |      |

## Separator Non-Return Valves

Designed for use where there is a risk of water being pushed back up the separator drain.

| Separator Non-Return Valves |           |                       |                     |
|-----------------------------|-----------|-----------------------|---------------------|
| Part No.                    | Reference | Inlet/Outlet Dia inch | Inlet/Outlet Dia mm |
| H008743                     | NRV38     | 1.5                   | 38                  |
| H008744                     | NRV50     | 2                     | 51                  |



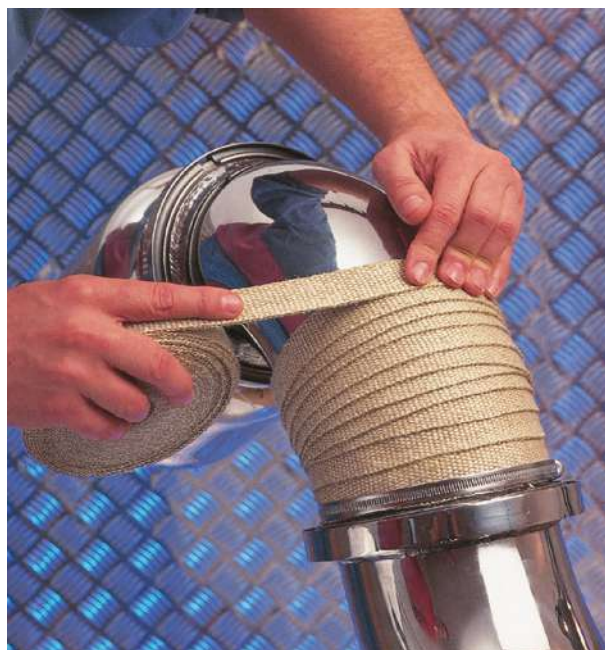
When part of an overboard system valves must not be installed below the waterline.

# Exhaust Systems and Accessories

## Hot Lag

| Hot Lag  |           |                            |
|----------|-----------|----------------------------|
| Part No. | Reference | Description                |
| H000532  | HTL05090  | 5m x 100mm wide, 6mm thick |

Hot lag is designed for lagging hot exhaust systems with a thermal insulator which is asbestos free. It has a nominal width of 100mm (4") by 5mm (0.25") and may be held in place with stainless steel hose clips.



## Thermal Insulation Jackets

Thermal insulation jackets can be supplied to suit your new exhaust system or can also be made and supplied as replacements for your existing system.

These are available with either a grey or black finish.



**NEW  
PRODUCT**

## Exhaust Alert System

# Water Cooled Exhaust Overheat Alert System

- IP67 waterproof  
52mm gauge
- Self test functionality
- Touch screen control
- Single and twin engine  
monitoring
- Single and dual  
station display
- Easy installation



***Halyard's new Exhaust Alert provides a class leading exhaust overheat alert system housed in a stylish new standard 52mm diameter, IP67 waterproof gauge.***

The new system incorporates self-test functionality with touchscreen control and is supplied as a 12/24 Volt dual voltage unit. Available with a choice of chrome or black bezel and black or white gauge faces to compliment your existing gauges.

# Exhaust Systems and Accessories

## Exhaust Alert - Gauge System

| Part No. | Reference | Exhaust Alert System                                                                      |
|----------|-----------|-------------------------------------------------------------------------------------------|
| Sets     |           |                                                                                           |
| H021247  | AS115     | Single engine single station gauge with through hose sensor with 16 metre cable           |
| H021248  | AS125     | Single engine single station gauge with removable through hose sensor with 16 metre cable |
| H021249  | AS135     | Single engine dual station gauges with through hose sensors with 16 metre cable           |
| H021250  | AS145     | Single engine dual station gauges with removable through hose sensors with 16 metre cable |
| H021251  | AS215     | Twin engine single station gauge with through hose sensor with 16 metre cable             |
| H021252  | AS225     | Twin engine single station gauge with removable through hose sensors with 16 metre cable  |
| H021253  | AS235     | Twin engine dual station gauges with through hose sensors with 16 metre cable             |
| H021254  | AS245     | Twin engine dual station gauges with removable through hose sensors with 16 metre cable   |
| H020170  | AS701     | Master gauge                                                                              |
| H020171  | AS702     | Repeater gauge                                                                            |
| H021389  | AS780     | Connector block                                                                           |

## Exhaust Alert - Legacy System



| Part No. | Reference | Exhaust Alert System                                                                                                                             |
|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Sets     |           |                                                                                                                                                  |
| H000419  | AS150     | Single engine system including control box, helm display with 10 metre cable, and through hose temperature sensor with 3 metre cable             |
| H000424  | AS180     | Single engine system for OEM use (supplied to wire into custom engine dash panel)                                                                |
| H000430  | AS250     | Twin engine system including control box, helm display with 10 metre cable, and two through hose temperature sensors each with 3 metre cable     |
| H000433  | AS280     | Twin engine system for OEM use (supplied to wire into custom engine dash panel)                                                                  |
| H000437  | AS350     | Triple engine system including control box, helm display with 10 metre cable, and three through hose temperature sensors each with 3 metre cable |
| H000439  | AS380     | Triple engine system for OEM use (supplied to wire into custom engine dash panel)                                                                |
| Options  |           |                                                                                                                                                  |
| H000447  | AS777     | Optional siren to supplement buzzer on helm display                                                                                              |
| Spares   |           |                                                                                                                                                  |
| H000441  | AS700     | Control box                                                                                                                                      |
| H000442  | AS705     | OEM Control box                                                                                                                                  |
| H000444  | AS710     | Single engine helm display with 10 metre cable                                                                                                   |
| H000445  | AS720     | Twin engine helm display with 10 metre cable                                                                                                     |
| H000446  | AS730     | Triple engine helm display with 10 metre cable                                                                                                   |
| H000449  | AS900     | Through hose sensor, 120 deg C, with 3 metre cable                                                                                               |
| H000450  | AS905     | Through hose sensor, 120 deg C, with bush fitting - allows replacement of a burnt out sensor without removing the exhaust hose                   |

## Dry Silencers

Halyard supply a range of dry exhaust gas silencers, designed to meet the requirements of every kind of application. The silencers use reactive and absorptive principles, or a combination of both. Spark arrestors or catalysts can also be incorporated. Where space is restricted and a more unusual configuration is required, we can supply a range of two, three and four pass box silencers. Variable inlet and outlet positions and mountings are available to suit the installation.



### Dry Exhaust Systems:

- For main propulsion, generator and auxiliary engines
- Standard and bespoke systems including mounting arrangement
- Mild steel or stainless steel
- Thermal insulation available
- Optional water injection for outlet cooling
- DPF and SCR aftertreatment solutions

# Exhaust Systems and Accessories

## Emigreen DPF and SCR Aftertreatment Systems



### DPF and SCR Systems:

- Designed to meet and exceed statutory emissions regulations
- Elimination of soot contamination
- Bespoke solutions to optimise available engine room space
- Integrated in a high-performance exhaust silencer

Emigreen is the leading innovator in the field of Selective Catalytic Reduction (SCR) and Diesel Particle Filters (DPF) producing integrated emission control solutions driven by the customer's requirements. This is where Emigreen stands out from the crowd; it is the customer's requirements that dictate the solution, not the products from any particular supplier.

Customer requirements are many and varied, ranging from the need to meet statutory regulations, through the need to stop soot blemishing the brilliant white deck of a luxury yacht to the need to fit the solution into an awkward space. Whether for a commercial vessel or superyacht, new build or retrofit Emigreen has the solution optimised for reliability, control and efficiency.

Please contact Halyard for further information and to discuss your specific requirements.



**Halyard are main Emigreen distributors**

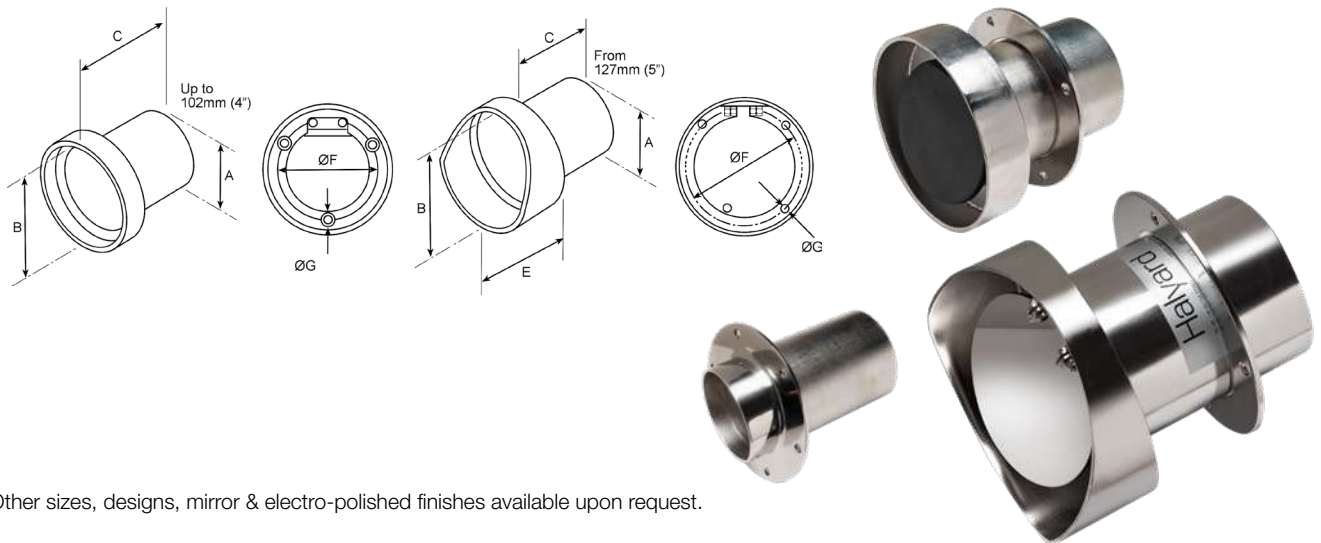
# Transom Outlets & Skin Fittings

*A range of standard 316L S/S fittings*

## 316L Stainless Steel Through-Hull Exhaust Outlets

| Stainless steel through-hull exhaust outlets |           |      |     |     |     |     |        |     |                     |                |                    |        |
|----------------------------------------------|-----------|------|-----|-----|-----|-----|--------|-----|---------------------|----------------|--------------------|--------|
| Part No.                                     | Reference | A    |     | B   | C   | E   | Fixing | G   | No. of Fixing Holes | Flap Material* | Bolting Flange Y/N | Weight |
|                                              |           | inch | mm  | mm  | mm  | mm  | PCD F  | mm  |                     |                |                    |        |
| H002524                                      | HF004     | 1.75 | 44  | 89  | 80  | 25  | 65     | 5.5 | 3                   | NBR            | N                  | 0.5    |
| H002525                                      | HF005     | 2    | 51  | 102 | 80  | 25  | 80     | 5.5 | 3                   | NBR            | N                  | 0.7    |
| H002526                                      | HF006     | 2.36 | 60  | 114 | 87  | 25  | 90     | 5.5 | 3                   | NBR            | N                  | 1      |
| H002527                                      | HF010     | 3    | 76  | 127 | 95  | 30  | 102    | 6.5 | 3                   | NBR            | N                  | 1.15   |
| H002528                                      | HF015     | 3.5  | 89  | 140 | 110 | 35  | 118    | 6.5 | 4                   | NBR            | Y                  | 1.5    |
| H002529                                      | HF020     | 4    | 102 | 152 | 123 | 35  | 130    | 6.5 | 4                   | NBR            | Y                  | 1.9    |
| H002531                                      | HF025     | 5    | 127 | 195 | 145 | 78  | 165    | 9   | 4                   | SS             | Y                  | 4      |
| H002532                                      | HF030     | 6    | 152 | 220 | 175 | 90  | 190    | 9   | 4                   | SS             | Y                  | 5      |
| H002533                                      | HF035     | 8    | 203 | 273 | 220 | 100 | 240    | 11  | 4                   | SS             | Y                  | 7.65   |

\*NBR = Nitrile Rubber, SS = Stainless Steel

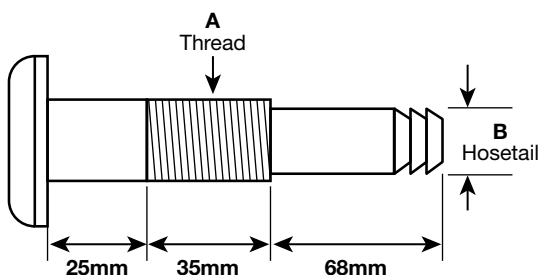


Other sizes, designs, mirror & electro-polished finishes available upon request.

## 316L Stainless Steel Skin Fitting

316L stainless steel skin fittings available in sizes 3/4"-2"  
BSP supplied with S/S washer and back nut.

- Mirror polished outlet
- Price on application
- Alternative sizes available on request



| A Thread   | B Hosetail |
|------------|------------|
| Inches BSP |            |
| 0.75       | 0.75       |
| 1          | 1          |
| 1.5        | 1.5        |
| 2          | 2          |

# Hose Connections & Manifolds

*A range of 316L S/S hose connections and manifolds*

## 316L Stainless Steel Deck Drain Manifolds

316L stainless steel deck drain manifolds available in 1½" - 4" tube main body with ¾" - 3" tube inlets and outlets or ¾" BSP male or female thread.

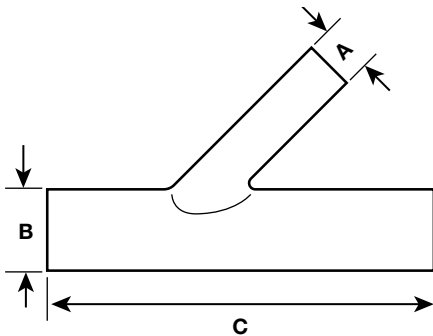
- Manufactured to customer specification
- Electro polished
- Price on application



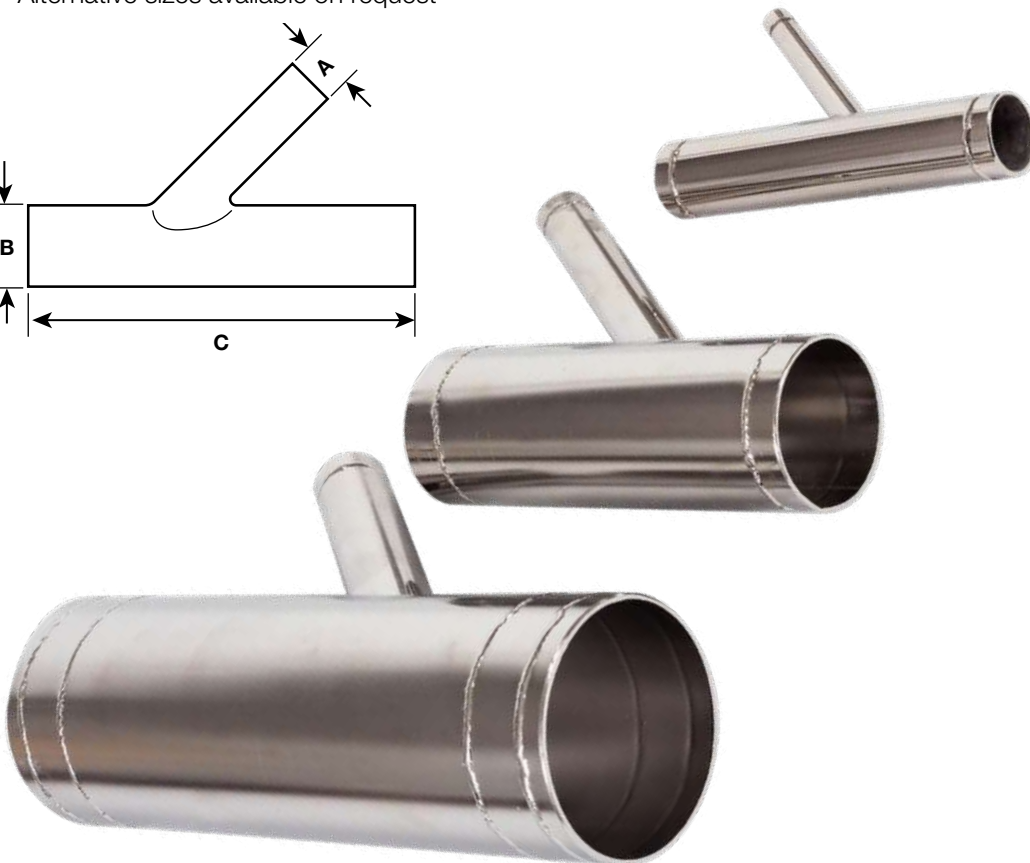
## 316L Stainless Steel Branch Connectors

316L stainless steel branch connectors made to order.

- Electro polished
- Price on application
- Alternative sizes available on request



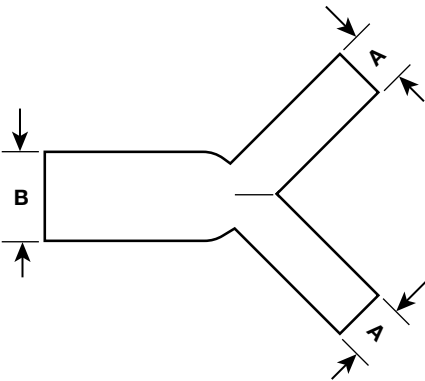
| A          | B    | C  |
|------------|------|----|
| Inches BSP |      |    |
| 0.5        | 0.75 | 5  |
| 0.5        | 1    | 5  |
| 0.5        | 1.25 | 6  |
| 0.5        | 1.5  | 6  |
| 0.5        | 2    | 7  |
| 0.5        | 2.5  | 8  |
| 0.5        | 3    | 10 |
| 0.75       | 0.75 | 5  |
| 0.75       | 1    | 5  |
| 0.75       | 1.25 | 6  |
| 0.75       | 1.5  | 6  |
| 0.75       | 2    | 7  |
| 0.75       | 2.5  | 8  |
| 0.75       | 3    | 10 |
| 1          | 1    | 5  |
| 1          | 1.25 | 6  |
| 1          | 1.5  | 6  |
| 1          | 2    | 7  |
| 1          | 2.5  | 8  |
| 1          | 3    | 10 |
| 1.25       | 1.25 | 6  |
| 1.25       | 1.5  | 6  |
| 1.25       | 2    | 7  |
| 1.25       | 2.5  | 8  |
| 1.25       | 3    | 10 |
| 1.5        | 1.5  | 7  |
| 1.5        | 2    | 8  |
| 1.5        | 2.5  | 8  |
| 1.5        | 3    | 10 |
| 2          | 2    | 8  |
| 2          | 2.5  | 10 |
| 2          | 3    | 10 |
| 2.5        | 2.5  | 8  |
| 2.5        | 3    | 10 |
| 3          | 3    | 10 |



### 316L Stainless Steel Y Connectors

316L stainless steel Y hose connectors made to order.

- Electro polished
- Ten off minimum order
- Price on application
- Alternative sizes available on request

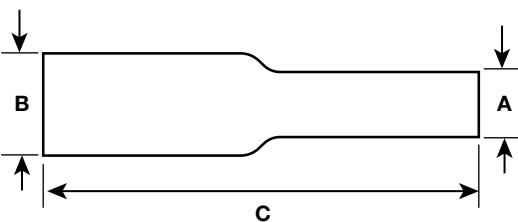


| A          | B    |
|------------|------|
| Inches BSP |      |
| 0.5        | 0.5  |
| 0.5        | 0.75 |
| 0.5        | 1    |
| 0.75       | 0.75 |
| 1          | 1    |
| 1          | 1.25 |
| 1          | 0.5  |
| 1.25       | 1.25 |
| 1.25       | 1.25 |
| 1.5        | 1.25 |
| 1.5        | 2    |
| 2          | 2    |
| 2          | 2.5  |
| 2.5        | 2.5  |

### 316L Stainless Steel In-line Reducers

A range of 316L stainless steel inline reducers made to order.

- Electro polished
- Ten off minimum order
- Price on application
- Alternative sizes available on request



| A          | B   | C  |
|------------|-----|----|
| Inches BSP |     |    |
| 0.75       | 1   | 5  |
| 1          | 1.5 | 6  |
| 1.5        | 2   | 7  |
| 2          | 2.5 | 8  |
| 2.5        | 3   | 10 |
| 3          | 3.5 | 10 |
| 3.5        | 4   | 10 |

# Replacement Engine Exhaust Elbows & Manifolds

*A range of fittings to replace OEM units*

## 316L Stainless Steel OEM Replacement Exhaust Injection Elbows

Suitable for both normally aspirated and turbocharged installations

- Replacement for OEM units: Ford Sabre, Ford Mermaid, Ford Lehman, Perkins, Perkins Sabre, Cummins, Volvo Penta, Yanmar etc.
- Electro or mirror polished to customer requirements
- Price on application
- Thermal jackets also available
- May require original unit as pattern



## Replacement Water Jacketed Manifolds

To suit normally aspirated and turbo installations mild steel or stainless steel water jacketed hot aluminium sprayed

- Replacement for OEM units including: Ford Sabre, Ford Mermaid, Ford Lehman, Perkins, Perkins Sabre and others on request
- Price on application
- May require original unit as pattern



# Engine Room Access Ladders

*A range of 316L S/S custom made ladders*



Engine room ladders with fixed, angled steps made from 316L stainless steel with 32mm (1¼") side tubes and anti-skid 6mm thick pattern treads. Adjustable angle top fixing bracket with removable pins included for easy mounting.

- Width - 330mm centres
- Tread spacing - 225mm
- Customer defined length
- Electro polished treads, mirror polished side tubes
- Price on application

# Radar Supports

*A range of 316L S/S radar support fittings*

Available with round or square main tube section with 4mm thick mounting plates, undrilled or pre-drilled to fit customer specified marine radars and vessel mounting.

- Manufactured to customer design specification
- Available as solid or folding
- Can be drilled to suit cable run
- Mirror polished
- Price on application





# Seatorque Shaft Systems

*The BOSS™ system is the internationally acclaimed Bolt On Shaft System by Seatorque Control Systems*



- Significant reduction of noise and vibration from engines, shafts and propellers
- Alignment issues eradicated
- Reduced installation times

- Mechanical losses reduced to 2% total
- Up to 8% reduction in fuel consumption and increased delivered horse power
- Reduced underwater drag



**Halyard is the Distributor  
for UK, Europe &  
Scandinavia**

# Seatorque Shaft Systems

## 'BOSS' - Bolt-on Shaft System

Developed over twenty-five years and fitted as standard equipment to a growing number of globally recognised boat manufacturers, the Seatorque 'BOSS' (Bolt On Shaft System) offers a multitude of noise and vibration, fuel consumption and delivered power benefits.

- The 'BOSS' is a self-contained shaft and thrust bearing assembly supplied as a complete unit from the transmission output coupling to the propeller shaft end
- An oil-filled stainless-steel tube, in which the propeller shaft rotates supported by roller bearings, hydrodynamic journal bearings, and thrust bearings reduces drag to an absolute minimum
- The thrust bearing housing, at the inboard end of the tube, bolts to the hull transferring thrust from the propellers to the vessel structure and not through the transmission and engine
- Flexible isolators located between the 'BOSS' system, the vessel's hull, and the strut absorb thrust loads as well as significantly reducing noise and vibration



### Features & Benefits

The enclosed shaft arrangement eliminates turbulence and drag, referred to as the 'Magnus Effect', so the water flow to the propeller is far less disturbed compared to a shaft spinning in open water. Inefficiency and drag created by cutlass bearings and shaft misalignment are also eliminated.

The system is completed with a Cardan shaft connecting the 'BOSS' system to the transmission reducing the need for very accurate and time-consuming engine alignment. An oil reservoir located in the engine room allows easy monitoring of the oil level.

Conventional shaft installations rely on anti-vibration mounts to absorb engine and transmission vibration as well as propeller thrust. The 'BOSS' system removes the thrust from the mounts so they can then be optimised for absorption of engine vibration and torque, reducing the transmission of vibration into engine beds and the vessels structure.

The combination of taper and needle roller bearings, the non-rotating full-length shaft casing, the resiliently mounted thrust bearing and strut, and the optimised engine mounts all contribute to the very significant reduction of noise and vibration, typically over 50%

In addition, the reduction of mechanical losses to only 2%, thus providing valuable extra power for propulsion, and fuel consumption reductions of circa 8%, as verified across a number of in-service case studies, are very valuable considerations when specifying your shaft system.

### System Maintenance

Recommended service intervals on the 'BOSS' are very realistic for the commercial operator as well as for recreational use. Cost effective oil and seal changes are not required until 3,000 hours while a major inspection is only necessary every 10,000 hours or ten years.

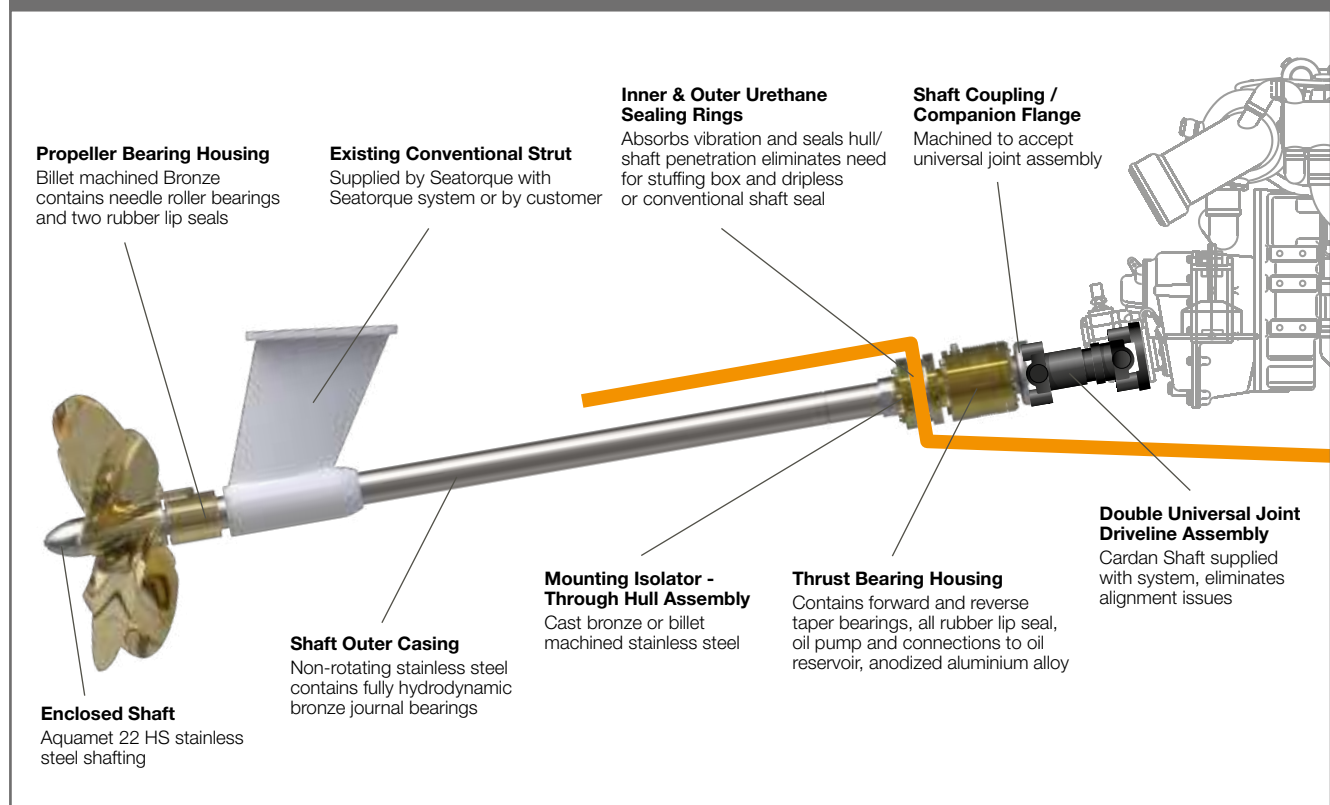


Seal and oil changes are carried out when the vessel is out of the water, a job that takes approximately 1-2 hours per system (excluding removal and refitting of the propeller) comparing very favourably with conventional shaft systems, including those with a thrust bearing, which require: gland/stuffing box maintenance or replacement, cutlass bearing replacement, shaft/ strut alignment, and even shaft replacement in very silty/sandy waters. It is therefore very clear to see the maintenance advantages with the 'BOSS' system.

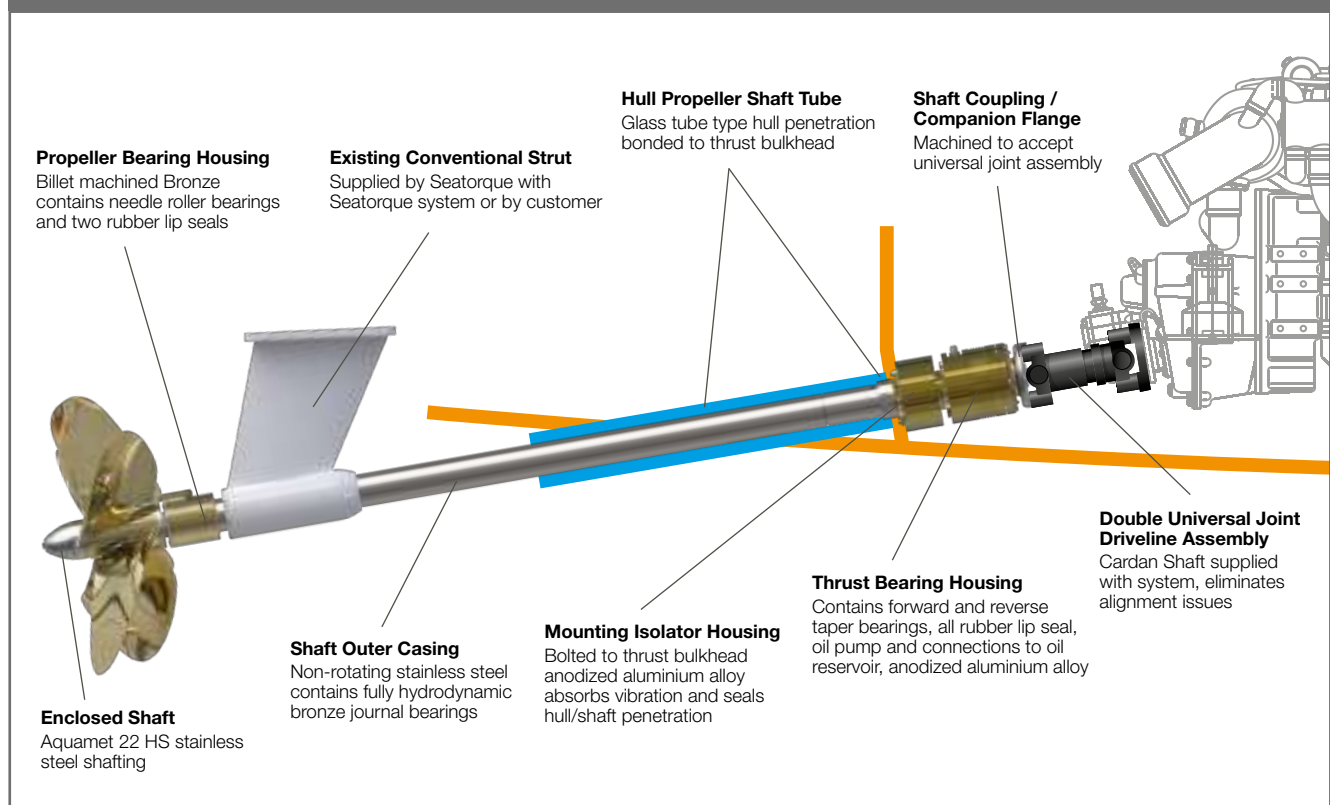
# Seatorque Shaft Systems

## Typical Installations

### STM3 Enclosed Bolt-on-Shaft System 'BOSS' - Typical Installation



### ST Series Tube Style System - Typical Installation



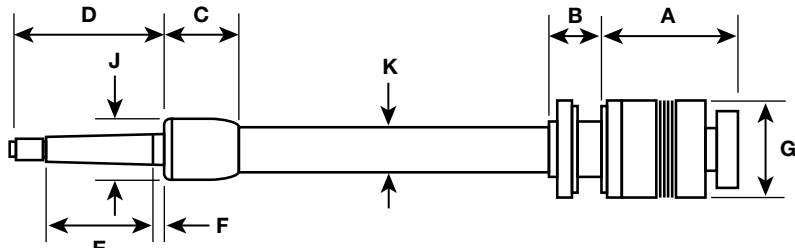
# Data Charts

## Conventional Shaft Versus Seatorque Enclosed Shaft



**Test Boat Specifications:** LOA - 64ft Displacement - 109,000lbs Engines: MTU 16V2000M91 2000hp

## Seatorque 'BOSS' Standard Range Dimensions



| STM3<br>SERIES | A                  |        | B                  |  | C                    |  | D                |  | E                   |  | F                                |  | G                   |  | H                 |  | J                         |  | K                    |  |
|----------------|--------------------|--------|--------------------|--|----------------------|--|------------------|--|---------------------|--|----------------------------------|--|---------------------|--|-------------------|--|---------------------------|--|----------------------|--|
|                | Thrust<br>Assembly |        | Mounting<br>Length |  | Propeller<br>Housing |  | Exposed<br>Shaft |  | SAE Taper<br>Length |  | Housing<br>Clearance to<br>Taper |  | Housing<br>Diameter |  | Shaft<br>Diameter |  | Propeller<br>Housing Dia. |  | Shaft Casing<br>O.D. |  |
| 100            | inch               | 5.5    | 3                  |  | 3                    |  | 4.5              |  | 2.75                |  | 1                                |  | 3.75                |  | 1                 |  | 2.25                      |  | 1.9                  |  |
|                | mm                 | 139.70 | 76.20              |  | 76.20                |  | 114.30           |  | 69.85               |  | 25.40                            |  | 95.25               |  | 25.40             |  | 57.15                     |  | 48.26                |  |
| 175            | inch               | 6.75   | 3.5                |  | 4.5                  |  | 7.75             |  | 5                   |  | 1                                |  | 5                   |  | 1.75              |  | 3.5                       |  | 2.375                |  |
|                | mm                 | 171.45 | 88.90              |  | 114.30               |  | 196.85           |  | 127.00              |  | 25.40                            |  | 127.00              |  | 44.45             |  | 88.90                     |  | 60.33                |  |
| 200            | inch               | 8      | 4                  |  | 5                    |  | 8.875            |  | 5.75                |  | 1                                |  | 6.125               |  | 2                 |  | 4.25                      |  | 3                    |  |
|                | mm                 | 203.20 | 101.60             |  | 127.00               |  | 225.43           |  | 146.05              |  | 25.40                            |  | 155.58              |  | 50.80             |  | 107.95                    |  | 76.20                |  |
| 250            | inch               | 10.54  | 4.15               |  | 5.5                  |  | 10.75            |  | 7.25                |  | 1                                |  | 7.37                |  | 2.5               |  | 4.75                      |  | 3.5                  |  |
|                | mm                 | 267.72 | 105.41             |  | 139.70               |  | 273.05           |  | 184.15              |  | 25.40                            |  | 187.20              |  | 63.50             |  | 139.70                    |  | 101.60               |  |
| 300            | inch               | 12.5   | 5.125              |  | 5.9                  |  | 13               |  | 8.625               |  | 1                                |  | 9                   |  | 3                 |  | 5.75                      |  | 4                    |  |
|                | mm                 | 317.50 | 130.18             |  | 149.86               |  | 330.20           |  | 219.08              |  | 25.40                            |  | 228.60              |  | 76.20             |  | 146.05                    |  | 101.60               |  |
| 350            | inch               | 12.5   | 6                  |  | 7.07                 |  | 15.25            |  | 10.125              |  | 1                                |  | 9.5                 |  | 3.5               |  | 6.25                      |  | 4.5                  |  |
|                | mm                 | 317.50 | 152.40             |  | 179.58               |  | 387.35           |  | 257.18              |  | 25.40                            |  | 241.30              |  | 88.90             |  | 158.75                    |  | 114.30               |  |
| 400            | inch               | 12.75  | 6                  |  | 7.98                 |  | 17.5             |  | 11.625              |  | 1                                |  | 10                  |  | 4                 |  | 6.5                       |  | 5.5                  |  |
|                | mm                 | 323.85 | 152.40             |  | 202.69               |  | 444.50           |  | 295.28              |  | 25.40                            |  | 254.00              |  | 101.60            |  | 165.10                    |  | 139.70               |  |

In summary, the Seatorque 'BOSS' is a premium engineered, proven system that offers significantly reduced levels of noise and vibration, improved onboard comfort, increased delivered propeller power and reduced fuel consumption with very low maintenance requirements. The 'BOSS' further delivers unrivalled ruggedness in operation coupled

with the lowest underbody drag of any system currently available.

With systems available for commercial and recreational power and sailing vessels from circa 30 to 200 feet, there is a system to suit your needs.



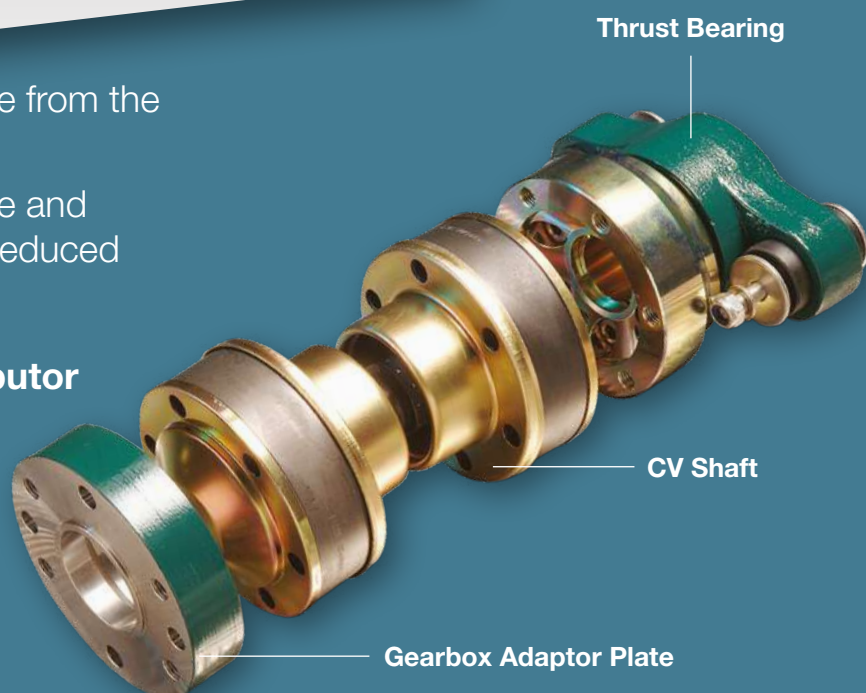
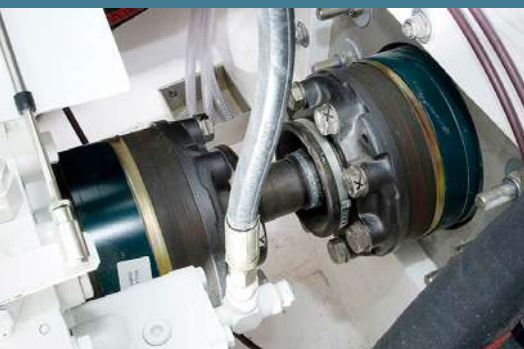
**aquadrive**<sup>®</sup>  
antivibration system

# Aquadrive Antivibration System

*40 years' experience of installations  
and aftersales service*

- Isolation of the engine from the hull structure
- Cabin & cockpit noise and vibration are greatly reduced by 50% or more

**Halyard is the Distributor  
for UK & Ireland**



Thrust Bearing

CV Shaft

Gearbox Adaptor Plate

# Aquadrive Antivibration System

## Model Range

### CVB 05.10 Aquadrive Moduline B10

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Sailing              | 35 / 45             | 3800           | 2.6:1         |
| Displacement         | 26 / 35             | 2600           | 3.0:1         |

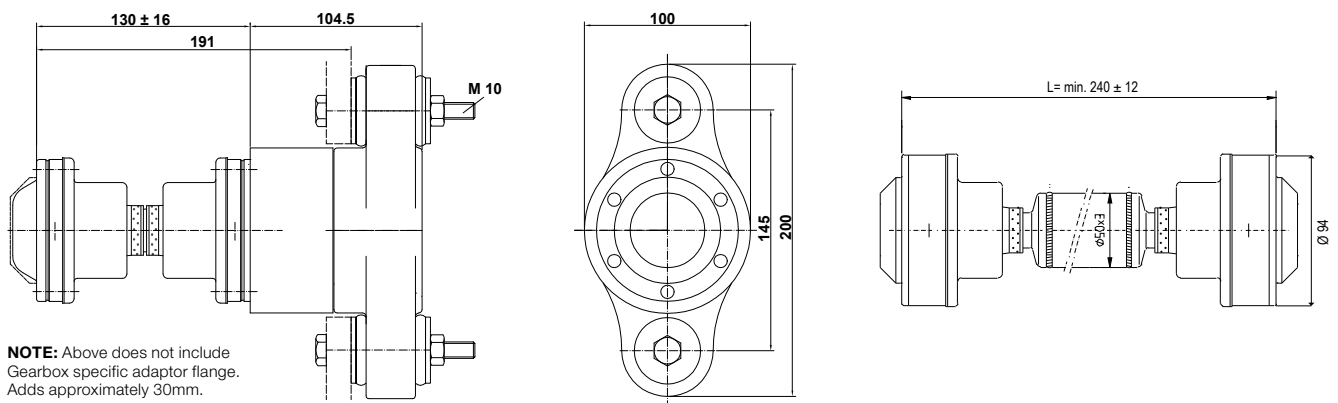
**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.

|                                     |                    |
|-------------------------------------|--------------------|
| Maximum Static Torque (ØA=20mm)     | 1034 Nm / 763 lbft |
| Maximum Propeller Shaft Revolutions | 4000 rpm           |
| Maximum Continuous Propeller Thrust | 11 kN / 2475 lbft  |

#### Drive Shafts

Custom-length CV 05 driveshaft is available in lengths from 150 mm (from 240 mm with tubeshaft design). Maximum length depends on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 30mm.

#### Propeller Shaft Options

B10 Standard version accepts propeller shaft ØA from 20mm (3/4") to 40mm (1 1/2"). Oversize version with external clamp mechanism available. All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

### CVB 10.10 Aquadrive Moduline B10

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Planing              | 62 / 85             | 3800           | 2.0:1         |
| Sailing              | 55 / 75             | 3800           | 2.6:1         |
| Displacement         | 40 / 55             | 2600           | 3.0:1         |

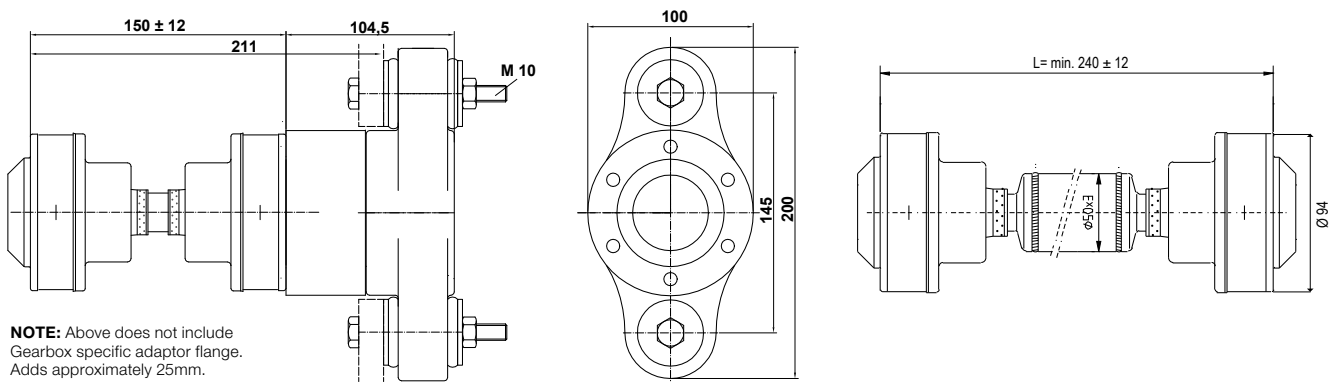
**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.

|                                     |                    |
|-------------------------------------|--------------------|
| Maximum Static Torque (ØA=1")       | 1300 Nm / 969 lbft |
| Maximum Propeller Shaft Revolutions | 4000 rpm           |
| Maximum Continuous Propeller Thrust | 11 kN / 2475 lbft  |

#### Drive Shafts

Custom-length CV 10 driveshaft is available in lengths from 150 mm (from 240 mm with tubeshaft design). Maximum length depends on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 25mm.

#### Propeller Shaft Options

B10 Standard version accepts propeller shaft ØA from 20mm (3/4") to 40mm (1 1/2"). Oversize version with external clamp mechanism available. All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

# Aquadrive Antivibration System

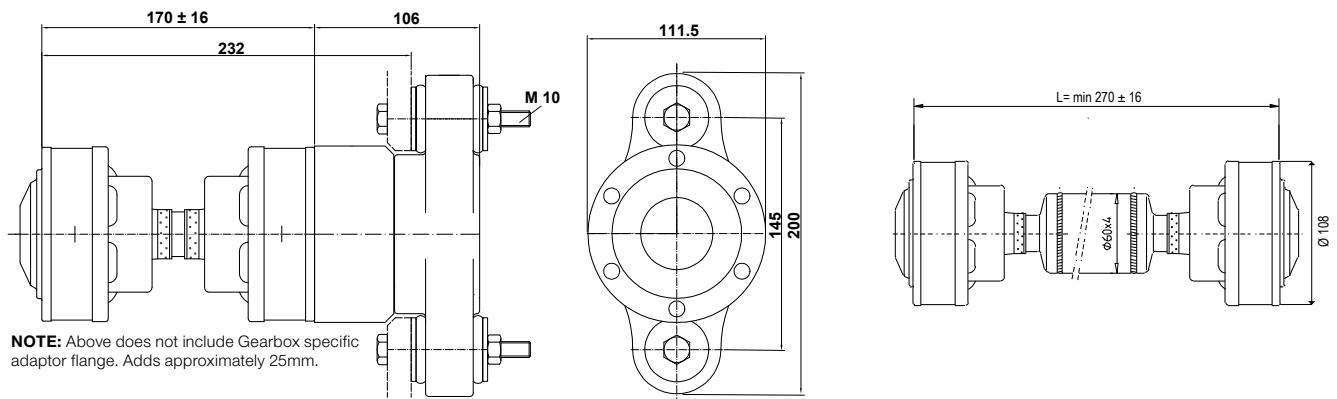
## Model Range

### CVB 15.10 Aquadrive Moduline B10

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Planing              | 114 / 155           | 3800           | 2.0:1         |
| Semi-displacement    | 96 / 130            | 3300           | 2.2:1         |
| Sailing              | 85 / 115            | 3300           | 2.6:1         |
| Displacement         | 66 / 90             | 2600           | 3.0:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.



#### Propeller Shaft Options

B10 Standard version accepts propeller shaft ØA from 20mm (3/4") to 40mm (1 1/2"). Oversize version with external clamp mechanism available. All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

|                                     |                     |
|-------------------------------------|---------------------|
| Maximum Static Torque (ØA=1 1/4")   | 1625 Nm / 1200 lbft |
| Maximum Propeller Shaft Revolutions | 4000 rpm            |
| Maximum Continuous Propeller Thrust | 11 kN / 2475 lbft   |

#### Drive Shafts

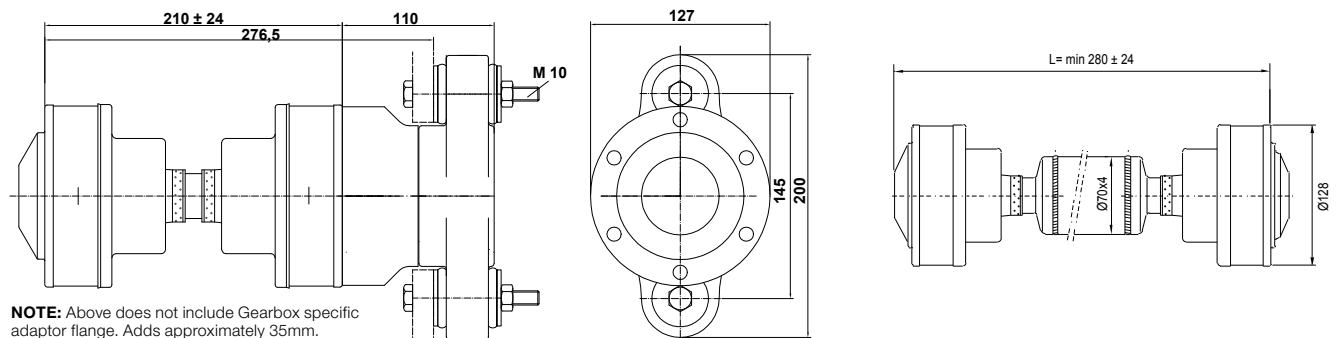
Custom-length CV 15 driveshaft is available in lengths from 170mm (from 270mm with tubeshaft design). Maximum length depends on shaft rpm.

### CVB 21.10 Aquadrive Moduline B10

| Application Examples        | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|-----------------------------|---------------------|----------------|---------------|
| Planing Boat                | 173 / 235           | 3800           | 2.0:1         |
| Semi-displacement Motorboat | 147 / 200           | 3300           | 2.2:1         |
| Displacement Motorboat      | 96 / 130            | 2500           | 3.1:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.



#### Propeller Shaft Options

B10 Standard version accepts propeller shaft ØA from 20mm (3/4") to 40mm (1 1/2"). Oversize version with external clamp mechanism available. All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

|                                     |                     |
|-------------------------------------|---------------------|
| Maximum Static Torque (ØA=40mm)     | 2068 Nm / 1526 lbft |
| Maximum Propeller Shaft Revolutions | 4000 rpm            |
| Maximum Continuous Propeller Thrust | 11 kN / 2475 lbft   |

#### Drive Shafts

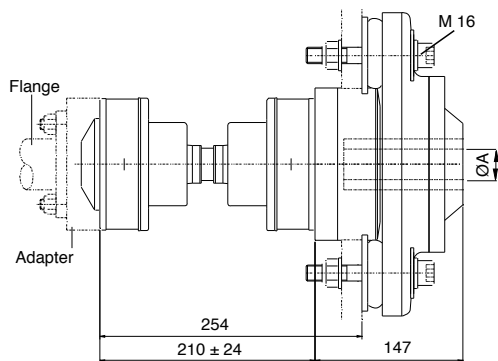
Custom-length CV 21 driveshaft is available in lengths from 210mm (from 280mm with tubeshaft design). Maximum length depends on shaft rpm.

## CVB 21.20 Aquadrive Moduline B20

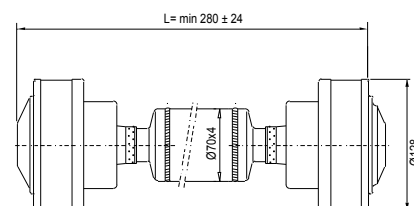
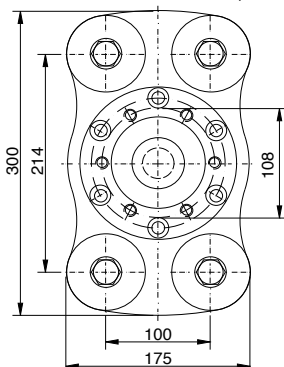
| Application Examples | Rated Power<br>kW / hp | Crankshaft<br>rpm | Gearbox<br>Ratio |
|----------------------|------------------------|-------------------|------------------|
| Displacement         | 100 / 135              | 2600              | 3.0:1            |
| Planing              | 165 / 225              | 3900              | 2.0:1            |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 35mm.



### Drive Shafts

Custom-length CV 21 driveshaft is available in lengths from 210mm (from 280mm with tubeshaft design). Maximum length depends on shaft rpm.

### Propeller Shaft Options

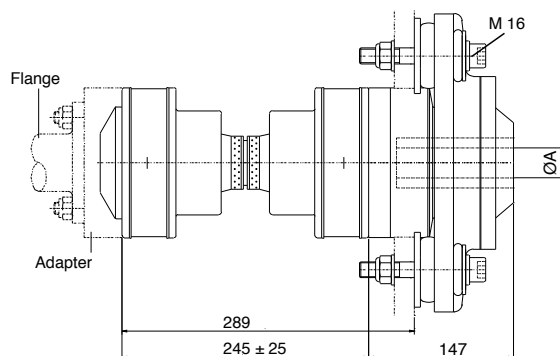
B20 Standard version accepts propeller shaft ØA from 35mm (1½") to 50mm (2"). Oversize version with external clamp mechanism available. All B20 systems are also available with flange coupling. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

## CVB 30.20 Aquadrive Moduline B20

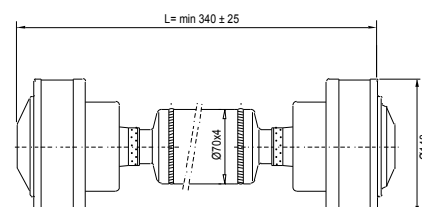
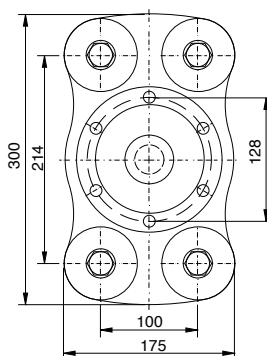
| Application Examples | Rated Power<br>kW / hp | Crankshaft<br>rpm | Gearbox<br>Ratio |
|----------------------|------------------------|-------------------|------------------|
| Displacement         | 130 / 175              | 2600              | 3.0:1            |
| Planing              | 200 / 270              | 3300              | 2.0:1            |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 40mm.



### Drive Shafts

Custom-length CV 30 driveshaft is available in lengths from 245mm (from 340mm with tubeshaft design). Maximum length depends on shaft rpm.

### Propeller Shaft Options

B20 Standard version accepts propeller shaft ØA from 35mm (1½") to 50mm (2"). Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

# Aquadrive Antivibration System

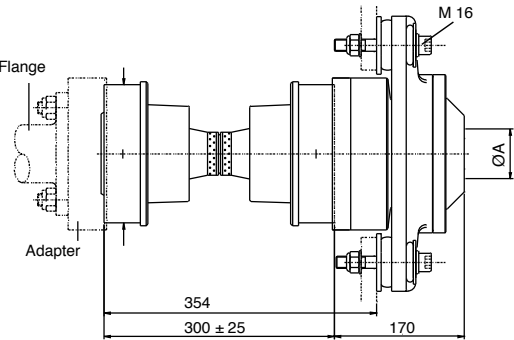
## Model Range

### CVB 32.30 Aquadrive Moduline B30

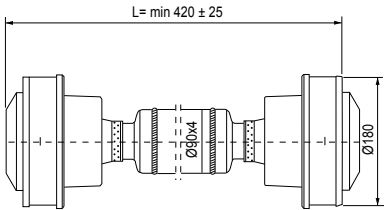
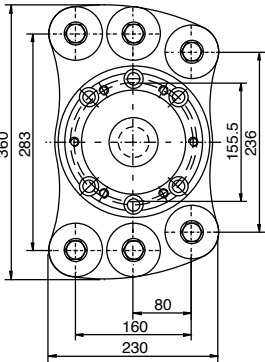
| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 195 / 265           | 2600           | 3.0:1         |
| Planing              | 270 / 365           | 3000           | 2.0:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 45mm.



|                                     |                     |
|-------------------------------------|---------------------|
| Maximum Static Torque (ØA=65mm)     | 3000 Nm / 2215 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm            |
| Maximum Continuous Propeller Thrust | 21 kN / 4725 lbft   |

**Drive Shafts**  
Custom-length CV 32 driveshaft is available in lengths from 300mm (from 420mm with tubeshaft design). Maximum length depends on shaft rpm.

#### Propeller Shaft Options

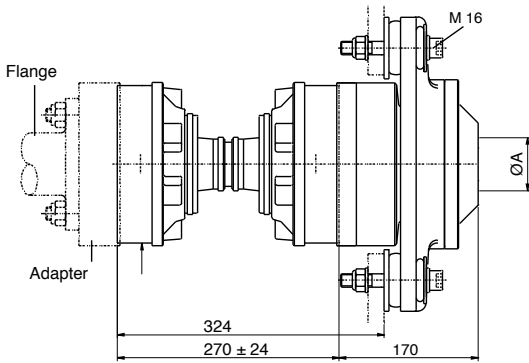
B30 Standard version accepts propeller shaft ØA from 40mm (1<sup>3</sup>/<sub>4</sub>") to 70mm (2<sup>1</sup>/<sub>2</sub>"). All B30 systems are also available with flange coupling. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

### CVB 42.30 Aquadrive Moduline B30

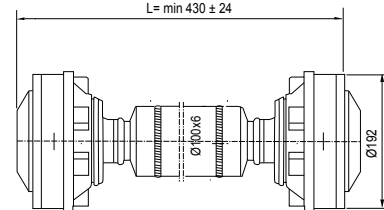
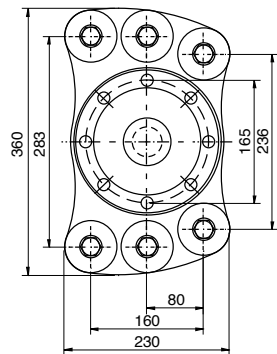
| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 240 / 325           | 2800           | 3.0:1         |
| Planing              | 310 / 420           | 2600           | 2.5:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 4-8° depending on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 50mm.



|                                     |                     |
|-------------------------------------|---------------------|
| Maximum Static Torque (ØA=40mm)     | 3000 Nm / 2215 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm            |
| Maximum Continuous Propeller Thrust | 21 kN / 4725 lbft   |

**Drive Shafts**  
Custom-length CV 42 driveshaft is available in lengths from 270mm (from 430mm with tubeshaft design). Maximum length depends on shaft rpm.

#### Propeller Shaft Options

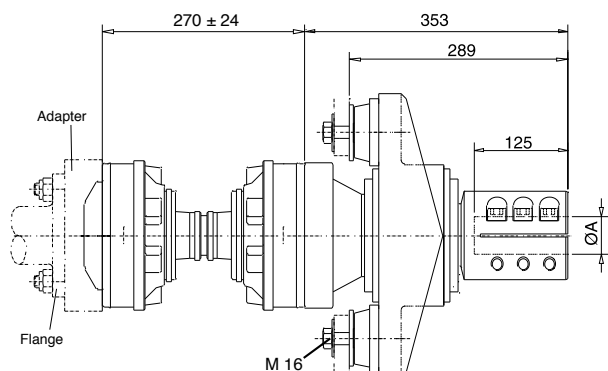
B30 Standard version accepts propeller shaft ØA from 40mm (1<sup>3</sup>/<sub>4</sub>") to 70mm (2<sup>1</sup>/<sub>2</sub>"). All B10 systems are also available with flange coupling. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

## CVB 42.680 Aquadrive Heavy Duty HDL

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 220 / 300           | 2100           | 3.0:1         |
| Planing              | 420 / 570           | 2600           | 2.0:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 5-8° depending on shaft rpm.

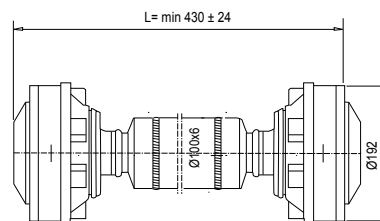
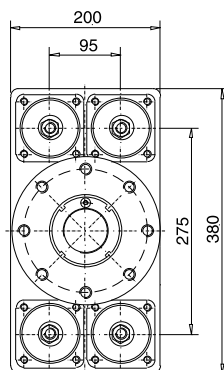


**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 50mm.

|                                     |                      |
|-------------------------------------|----------------------|
| Maximum Static Torque               | 10500 Nm / 7750 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm             |
| Maximum Continuous Propeller Thrust | 40 kN / 9000 lbft    |

### Drive Shafts

Custom-length CV 42 driveshaft is available in lengths from 270mm (from 430mm with tubeshaft design). Maximum length depends on shaft rpm.



### Propeller Shaft Options

HDL 680 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2").

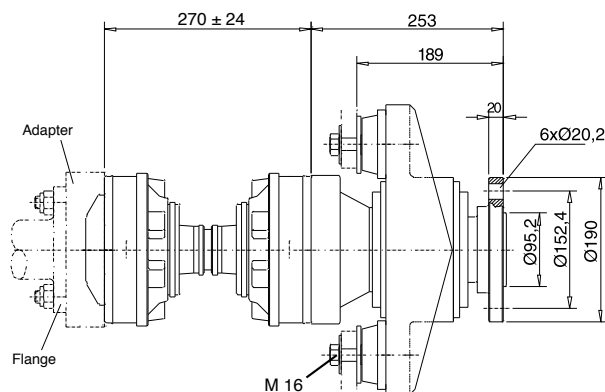
Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

## CVB 42.680 Aquadrive Heavy Duty HDL Flanged

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 220 / 300           | 2600           | 3.0:1         |
| Planing              | 420 / 570           | 2600           | 2.0:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 5-8° depending on shaft rpm.

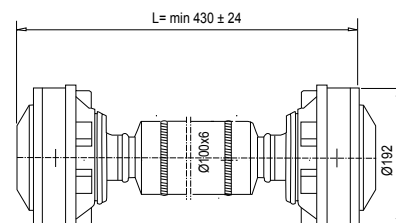
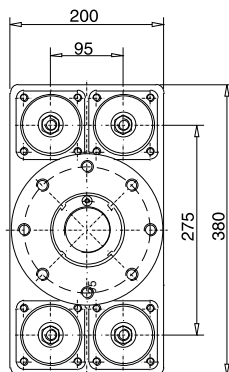


**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 50mm.

|                                     |                      |
|-------------------------------------|----------------------|
| Maximum Static Torque               | 10500 Nm / 7750 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm             |
| Maximum Continuous Propeller Thrust | 40 kN / 9000 lbft    |

### Drive Shafts

Custom-length CV 42 driveshaft is available in lengths from 270mm (from 430mm with tubeshaft design). Maximum length depends on shaft rpm.



### Propeller Shaft Options

HDL 680 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2").

Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

# Aquadrive Antivibration System

## Model Range

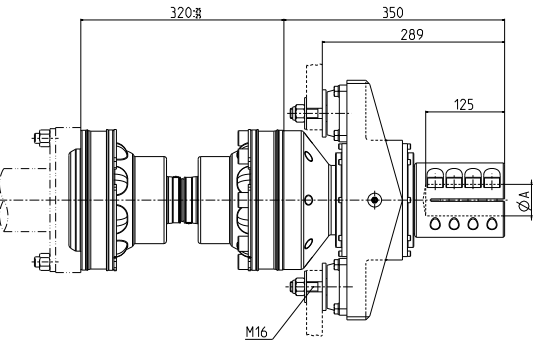
### HDL 48.690 Aquadrive Heavy Duty - Flanged Option Available

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 410 / 550           | 2100           | 3.0:1         |
| Planing              | 670 / 900           | 2800           | 2.0:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).  
The maximum allowable joint angle is 5-8° depending on shaft rpm.

|                                     |                      |
|-------------------------------------|----------------------|
| Maximum Static Torque               | 12240 Nm / 9060 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm             |
| Maximum Continuous Propeller Thrust | 40 kN / 9000 lbft    |

**Drive Shafts**  
Custom-length CV 48 driveshaft is available in lengths from 320mm (from 420mm with tubeshaft design). Maximum length depends on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 50mm.

#### Propeller Shaft Options

HDL 680 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2"). Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

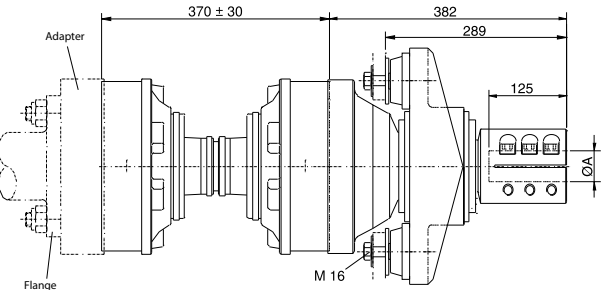
### HDL 60.700 Aquadrive Heavy Duty - Flanged Option Available

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 370 / 500           | 1900           | 2.7:1         |
| Planing              | 660 / 900           | 2300           | 1.75:1        |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).  
The maximum allowable joint angle is 3° depending on shaft rpm. For higher benching angles please consult Halyard.

|                                     |                      |
|-------------------------------------|----------------------|
| Maximum Static Torque               | 12240 Nm / 9060 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm             |
| Maximum Continuous Propeller Thrust | 40 kN / 9000 lbft    |

**Drive Shafts**  
Custom-length CV 60 driveshaft is available in lengths from 370mm (from 700mm with tubeshaft design). Maximum length depends on shaft rpm.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 60mm.

#### Propeller Shaft Options

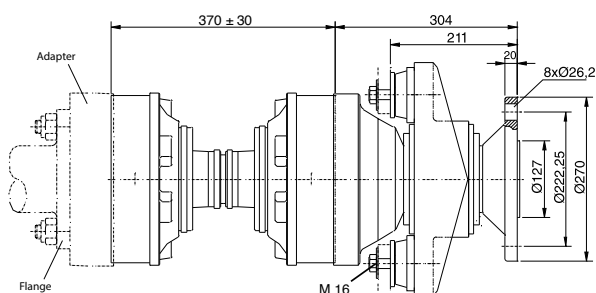
HDL 700 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2"). Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

## HDL 60.700 Aquadrive Heavy Duty HT - High Tensile Steel

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 515 / 700           | 1900           | 3.0:1         |
| Planing              | 735 / 1000          | 2300           | 2.5:1         |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 3° depending on shaft rpm. For higher benching angles please consult Halyard.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 60mm.

### Propeller Shaft Options

HDL 700 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2").

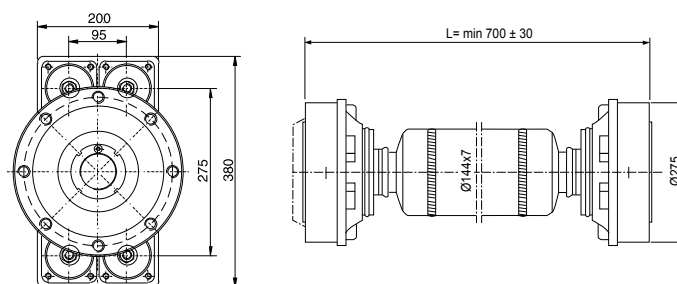
Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

|                                     |                       |
|-------------------------------------|-----------------------|
| Maximum Static Torque               | 22000 Nm / 16280 lbft |
| Maximum Propeller Shaft Revolutions | 1700 rpm              |
| Maximum Continuous Propeller Thrust | 40 kN / 9000 lbft     |

**Also available with 10 1/2" diameter flange**

### Drive Shafts

Custom-length CV 60 driveshaft is available in lengths from 370mm (from 700mm with tubeshaft design). Maximum length depends on shaft rpm.

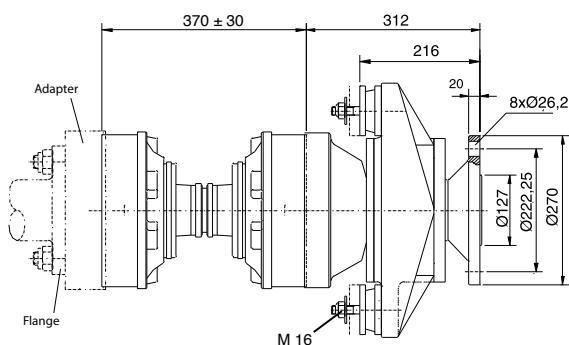


## HDL 60.780 Aquadrive Heavy Duty Flanged

| Application Examples | Rated Power kW / hp | Crankshaft rpm | Gearbox Ratio |
|----------------------|---------------------|----------------|---------------|
| Displacement         | 590 / 800           | 2100           | 3.0:1         |
| Planing              | 1100 / 1500         | 2300           | 1.75:1        |

**Note:** Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 3° depending on shaft rpm. For higher benching angles please consult Halyard.



**NOTE:** Above does not include Gearbox specific adaptor flange. Adds approximately 60mm.

### Propeller Shaft Options

HDL 780 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2").

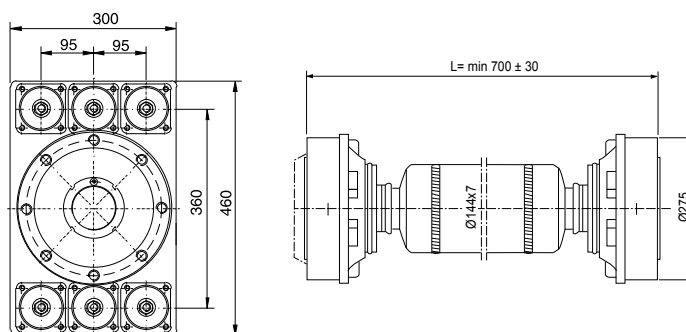
Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

|                                     |                       |
|-------------------------------------|-----------------------|
| Maximum Static Torque               | 25000 Nm / 18500 lbft |
| Maximum Propeller Shaft Revolutions | 1400 rpm              |
| Maximum Continuous Propeller Thrust | 60 kN / 13500 lbft    |

**Also available with 10 1/2" diameter flange**

### Drive Shafts

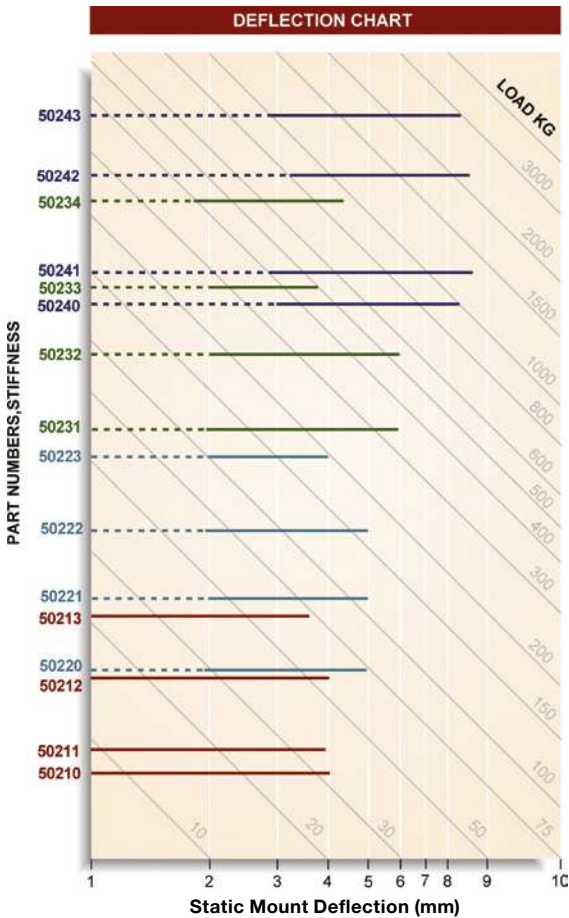
Custom-length CV 60 driveshaft is available in lengths from 370mm (from 700mm with tubeshaft design). Maximum length depends on shaft rpm.



# Aquadrive Antivibration System

Aquadrive System Engine Mounts

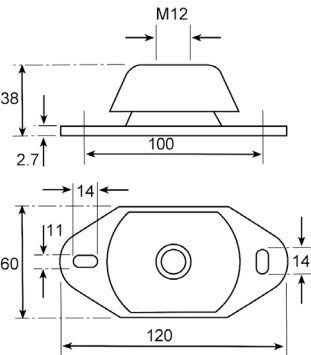
| Engine Mounts                                                         | Weight |
|-----------------------------------------------------------------------|--------|
| 50210 Series engine mounts complete with stud and any stiffness grade | 0.5kg  |
| 50220 Series engine mounts complete with stud and any stiffness grade | 1.1kg  |
| 50230 Series engine mounts complete with stud and any stiffness grade | 2.6kg  |
| 50240 Series engine mounts complete with stud and any stiffness grade | 9.5kg  |



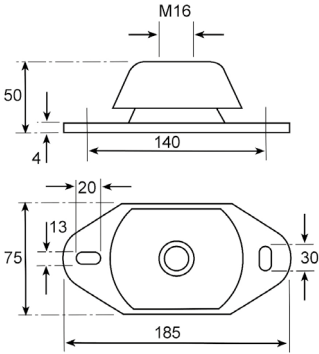
It is essential to select the correct rubber grade and mount for the engine or generator in question. For reference, the chart above shows the level of deflection (or squash) that will occur on each model of mount for a given loading.

In general you should aim for 3mm on the 50210, 4mm on the 50220, 5mm on the 50230 and 6mm on the 50240. The numbering system is simple: A 50223 mount is the 50220 model with number three rubber hardness and so on. Some engines, particularly those with less than four cylinders, require particular care and your distributor will help with these.

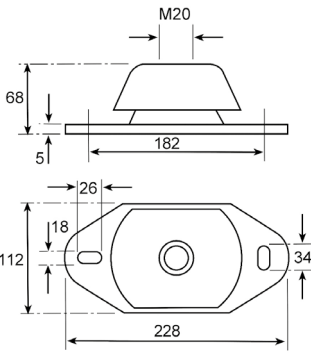
50210 Mounts



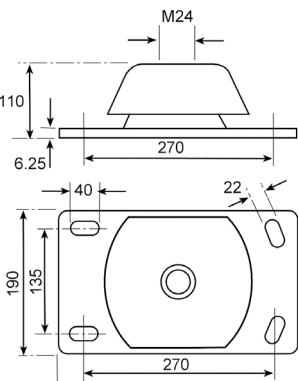
50220 Mounts

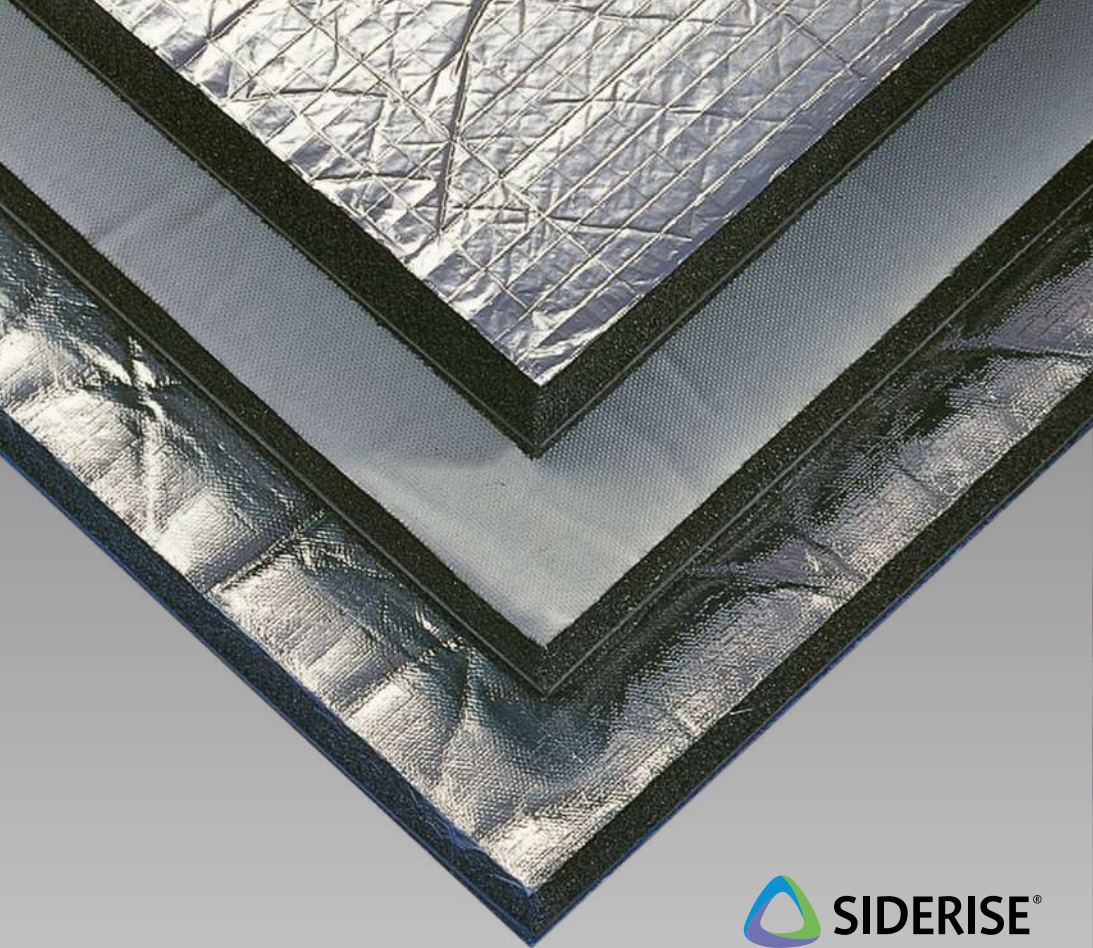


50230 Mounts



50240 Mounts





# Noise Insulation Materials and Accessories

*Main distributors for the Siderise proven range of high quality UK manufactured noise insulation materials*

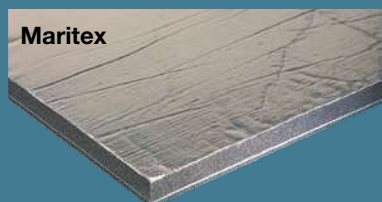


## A range of technically advanced noise insulation materials:

- Compliant with the European Recreational Craft Directive
- Standard sizes 12mm, 32mm, 45mm and 60mm
- Range of tapes & accessories



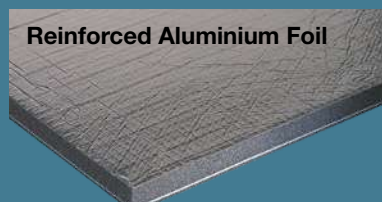
**Joining Tape**



**Maritex**



**Sealglass**



**Reinforced Aluminium Foil**

# Noise Insulation Materials and Accessories

## Noise Insulation Materials, Tapes and Accessories

| Part No.                                                                                                                      | Reference | Description                     |
|-------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------|
| <b>12mm (1/2") Materials (2.4 sq metre packs)</b>                                                                             |           |                                 |
| H000535                                                                                                                       | S3002     | Maritex                         |
| H000537                                                                                                                       | S3004     | Sealglass                       |
| H000536                                                                                                                       | S3003     | Re-inforced Silver              |
| <b>12mm (1/2") Self Adhesive Materials (2.4 sq metre packs)</b>                                                               |           |                                 |
| H000554                                                                                                                       | S5002     | Maritex                         |
| H000556                                                                                                                       | S5004     | Sealglass                       |
| H000555                                                                                                                       | S5003     | Re-inforced Silver              |
| <b>32mm (1 1/2") Materials (2.4 sq metre packs)</b>                                                                           |           |                                 |
| H000540                                                                                                                       | S3017     | Maritex                         |
| H000538                                                                                                                       | S3015     | Sealglass                       |
| H000539                                                                                                                       | S3016     | Re-inforced Silver              |
| <b>32mm (1 1/2") Self Adhesive Materials (2.4 sq metre packs)</b>                                                             |           |                                 |
| H000559                                                                                                                       | S5017     | Maritex                         |
| H000557                                                                                                                       | S5015     | Sealglass                       |
| H000558                                                                                                                       | S5016     | Re-inforced Silver              |
| <b>45mm (1 3/4") Materials (1.2 sq metre packs)</b>                                                                           |           |                                 |
| H000543                                                                                                                       | S3039     | Maritex                         |
| H000541                                                                                                                       | S3037     | Sealglass                       |
| H000536                                                                                                                       | S3038     | Re-inforced Silver              |
| <b>45mm (1 3/4") Self Adhesive Materials (1.2 sq metre packs)</b><br>Physical fixing required when hanging from the underside |           |                                 |
| H000562                                                                                                                       | S5039     | Maritex                         |
| H000560                                                                                                                       | S5037     | Sealglass                       |
| H000561                                                                                                                       | S5038     | Re-inforced Silver              |
| <b>60mm SilentWave (1.2 sq metre packs)</b>                                                                                   |           |                                 |
| H020841                                                                                                                       | S3018     | Foil Faced                      |
| <b>Joining Tapes</b>                                                                                                          |           |                                 |
| H020666                                                                                                                       | S4021     | 20m x 50mm Sealglass            |
| H020311                                                                                                                       | S4025     | 5m x 50mm Maritex               |
| H020158                                                                                                                       | S4026     | 20m x 50mm Maritex              |
| H000552                                                                                                                       | S4036     | 50m x 50mm Silver Polyester     |
| <b>Accessories</b>                                                                                                            |           |                                 |
| H000544                                                                                                                       | S4000     | 10m x 25mm Hatch Noise Tape     |
| H000545                                                                                                                       | S4010     | 3m x 19mm Hatch Noise Tape      |
| H000553                                                                                                                       | S4041     | 1.2m x 1m x 2.4mm Barrier Layer |

Siderise noise insulation uses high performance barrier materials to achieve excellent acoustic results with low frequency noise associated with diesel engines and other onboard noise generating equipment.

### Technical Specification

- Fire Safety - Materials available for RCD, MCA, and Class compliance
- Class 0 fire rated surfaces (BS476-7)
- All materials tested to ISO 4589-3 (oxygen index – elevated temperature)
- Compliant to ISO 9094-2 Fire Protection for craft with a hull over 15m
- Bulkhead performance up to  $R_w$  54dB (EN ISO 717-1)
- Fuel & oil resistant facing

### Packing (12mm and 32mm materials):

12mm and 32mm (1/2" and 1 1/4") materials are packed four sheets to a box.

Each sheet is 1000mm x 600mm (39" x 24") making the total area 2.4 sq. metres (26 sq. ft.).

Box weight is approximately 14kgs for 12mm and 19kgs for 32mm.

### Packing (45mm materials):

45mm (1 3/4") materials are packed two sheets to each box.

Each sheet is 1000mm x 600mm (39" x 24") making the total area 1.2 sq. metres (13 sq. ft.).

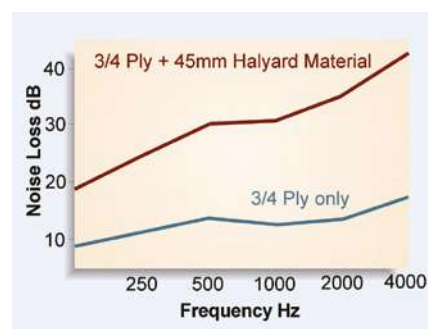
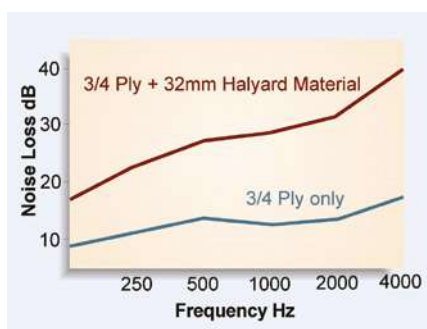
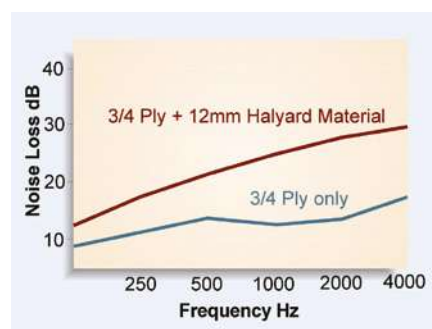
Box weight is approximately 16kgs.

### Packing (60mm materials):

60mm (2 3/8") materials are packed two sheets to each box.

Each sheet is 1000mm x 600mm (39" x 24") making the total area 1.2 sq. metres (13 sq. ft.).

Box weight is approximately 11kg.



Actual noise attenuation achievable with the products is dependant on many factors relating to the specific installation. Please note the above graphs are indicative only.

Please contact Halyard for further information and detailed product specifications to suit your particular installation requirements.



# Wave International Ltd Filtration Systems

*Main distributors for Wave International technically  
advanced marine filtration systems*

- **Wavestream** bilge filter systems
- **Wavebrite** waste water filter system
- **Flostream** drinking water filter system
- **Prostream** watermaker filter protection system
- **Waveair** holding tank vent filter system
- **Waveshine** wash & rinse system



# Wave Filtration Systems

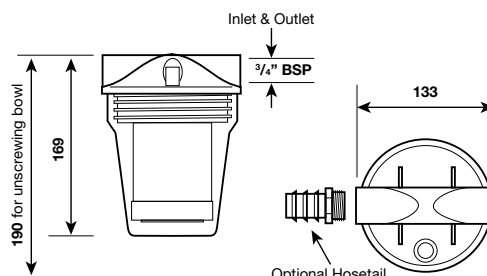
## Product Range

Effective control and prevention of oily contaminated bilge water. The Wavestream bilge filters are Lloyd's Register of shipping Type Approved and Boat Safety Scheme compliant. Wavestream provides an efficient way of managing bilge water removal without the need for holding tanks whilst still protecting the environment.

### Wavestream Micro Bilge Filter



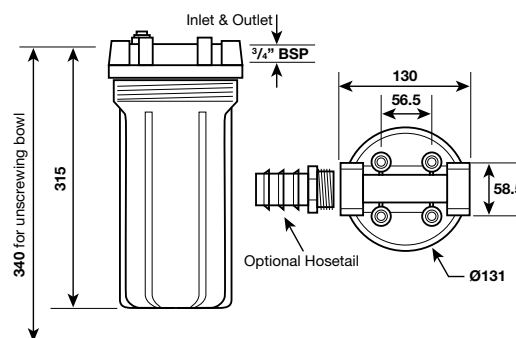
| Ref: WMS - Part No. H000610 |                              |
|-----------------------------|------------------------------|
| Flow Rate                   | 1 - 40 litres per minute     |
| Maximum Pressure            | 8 bar                        |
| Maximum Temperature         | 40°C                         |
| Minimum Temperature         | 1 °C                         |
| Connection                  | 3/4" BSP (3/4 NPT available) |
| Cartridge                   | WC-CM H000611                |
| With Whale Orca 12V Pump    | WMSFP H020978                |



### Wavestream System 1 Bilge Filter



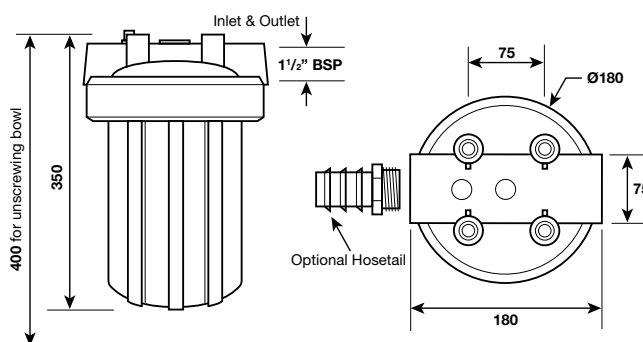
| Ref: WSS1 - Part No. H000596 |                          |
|------------------------------|--------------------------|
| Flow Rate                    | 1 - 40 litres per minute |
| Maximum Pressure             | 6.2 bar                  |
| Maximum Temperature          | 40°C                     |
| Minimum Temperature          | 1 °C                     |
| Connection                   | 3/4" BSP                 |
| Cartridge                    | WS-C1 H000597            |
| With Whale Orca 12V Pump     | WSS1FP H020982           |



### Wavestream System 2 Bilge Filter



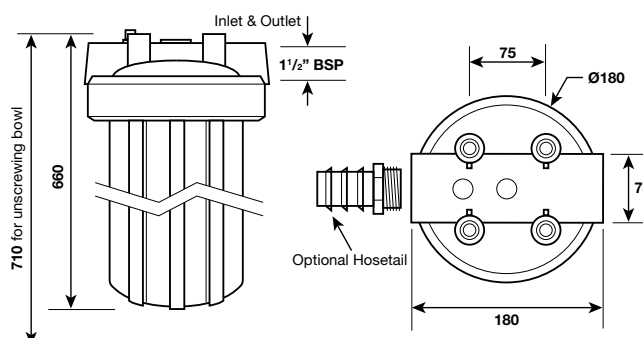
| Ref: WSS2 - Part No. H000601 |                           |
|------------------------------|---------------------------|
| Flow Rate                    | 1 - 265 litres per minute |
| Maximum Pressure             | 6.8 bar                   |
| Maximum Temperature          | 37°C                      |
| Minimum Temperature          | 1 °C                      |
| Connection                   | 1 1/2" BSP                |
| Cartridge                    | WS-C2 H000602             |
| With Whale Orca 12V Pump     | WSS2FP H020983            |



### Wavestream System 3 Bilge Filter



| Ref: WSS3 - Part No. H007262 |                           |
|------------------------------|---------------------------|
| Flow Rate                    | 1 - 265 litres per minute |
| Maximum Pressure             | 6.2 bar                   |
| Maximum Temperature          | 37°C                      |
| Minimum Temperature          | 1 °C                      |
| Connection                   | 1 1/2" BSP                |
| Cartridge                    | WS-C3 H000608             |
| With Whale Orca 12V Pump     | WSS3FP H020985            |



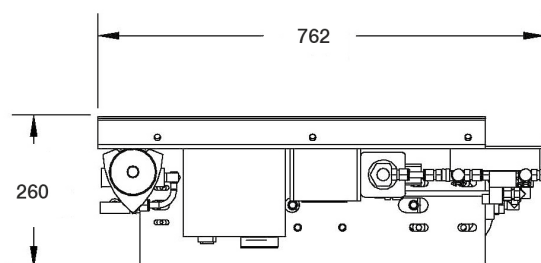
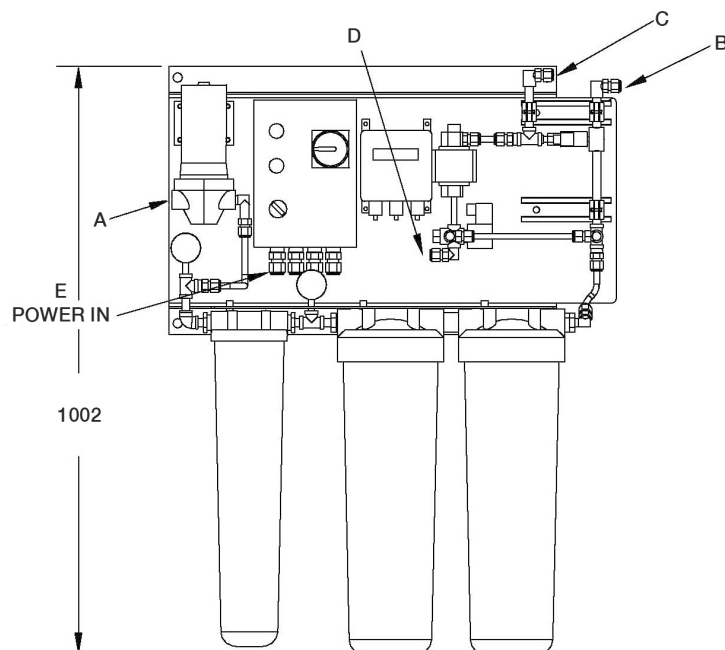
## Wavestream MiniBOSS IMO Bilge Filter System

**MPEC 107(49) Certified bilge filter system giving effective control and prevention of oily bilge water discharge using Wavestream System 3 filters.**

- MiniBOSS from Recovered Energy Inc., with Wavestream removes trace oils to less than 5 ppm, keeping within the IMO required 15 or 5 ppm levels
- IMO Certified Oil in Water Monitor with 18 month data logging, 2 models available
- Wave MiniBOSS 24 - 24V dc maximum flow rate 0.25m<sup>3</sup>/hr
- Wave MiniBOSS 110 - 110V ac maximum flow rate 0.50m<sup>3</sup>/hr
- Compact, light and easy to maintain with Wavestream high capacity cartridges



| MiniBOSS             |                                            |                               |
|----------------------|--------------------------------------------|-------------------------------|
| Reference            | Part No.                                   | Description                   |
| WMBOSS               | H020994                                    | Wave MiniBOSS System          |
| WS-C3                | H000608                                    | Wavestream System 3 Cartridge |
| Specifications       |                                            |                               |
| Power Supply Options | 24V dc or 110V ac                          |                               |
| A - Connection       | Oily Water Inlet 3/8 Nylon tube push lock  |                               |
| B - Connection       | Water out 3/8 Nylon tube push lock         |                               |
| C - Connection       | Recycle water out 3/8 Nylon tube push lock |                               |
| D - Connection       | Cell clean water 3/8 Nylon tube push lock  |                               |
| E - Connection       | Power in                                   |                               |



# Wave Filtration Systems

## Product Range

### Wavebrite Waste Water Filter System

#### Wavebrite discharge meets EU Council Directive concerning waste water treatment (91/271/EEC).

- Wavebrite has five main components with four stage waste water filtration; main Wavebrite module, pre-filters, pump, pump strainer and control
- Pump with automatic control, no holding tanks or pump out required
- The components are modular and can be located separately, connected by flexible hose for ease of installation
- Basic models have 15l/min maximum flow rate with an option to increase available on request

| Wavebrite |          |                                                                                                                                 |
|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------|
| Reference | Part No. | Description                                                                                                                     |
| WBS       | H020996  | Wavebrite System 12 / 24V dc - complete with pump, filters, guages, control pump, fittings and pipe                             |
| WBLite    | H020997  | Wavebrite Lite Syatem 12 / 24V dc - complete as WBS for smaller boats                                                           |
| WB2010    | H019882  | Wavebrite 2010 Syatem 12 / 24V dc - complete for boats with multiple showers and basins                                         |
| WB2020    | H020998  | Wavebrite 2020 Syatem 12 / 24V dc - complete as 2010 but larger capacity                                                        |
| WB100     | H020999  | Wavebrite 100 Syatem 12 / 24V dc or ac - complete for S/Y and boats requiring larger capacity, processes up to 100 cubic metres |
| WB300     | H02100   | Wavebrite 100 Syatem 12 / 24V dc or ac - complete for S/Y and boats requiring larger capacity, processes up to 300 cubic metres |

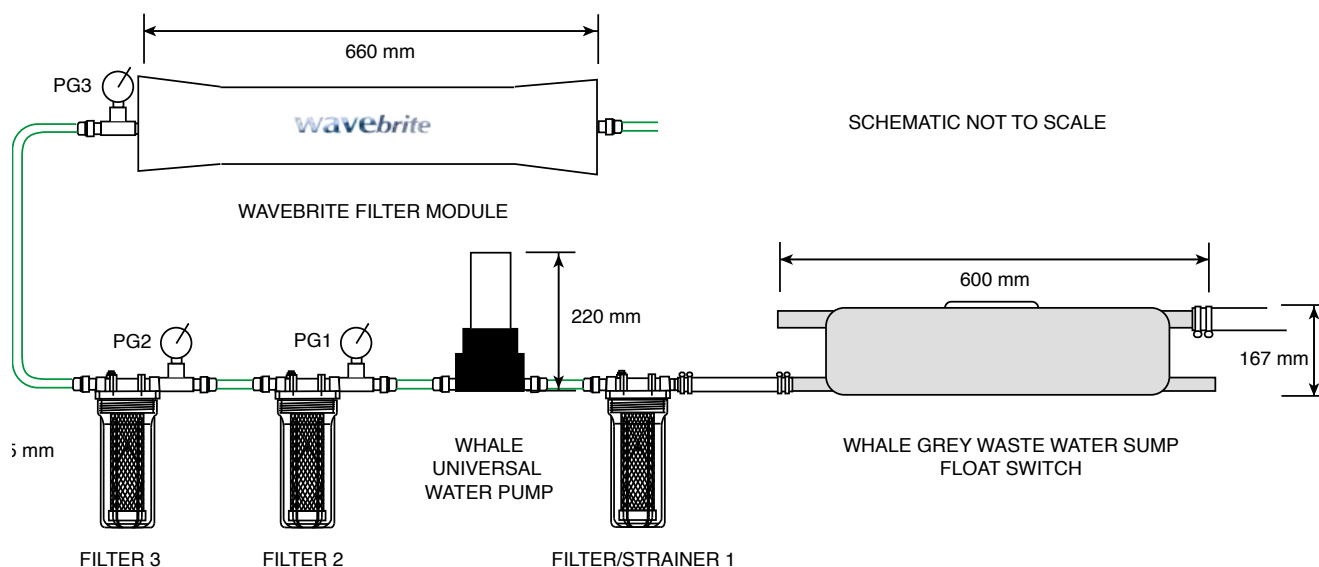
WB100 / 300



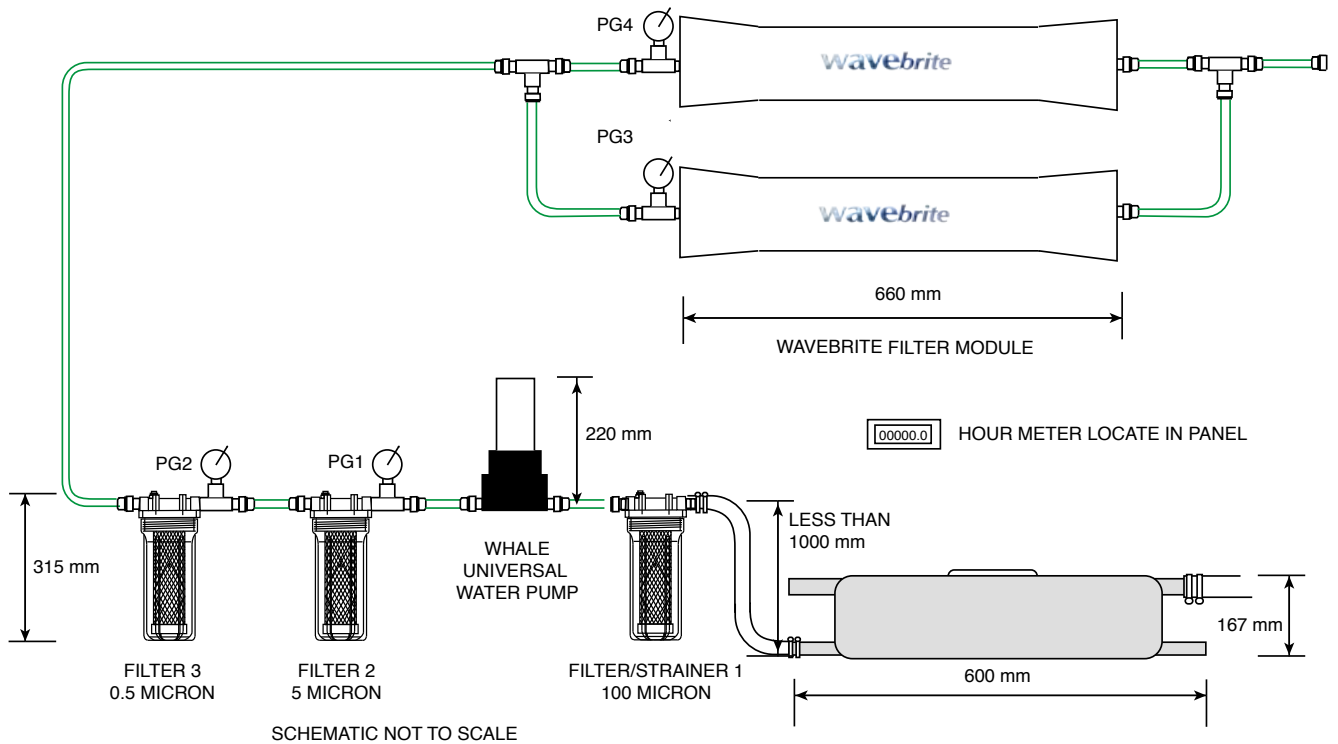
WBS / WBLite



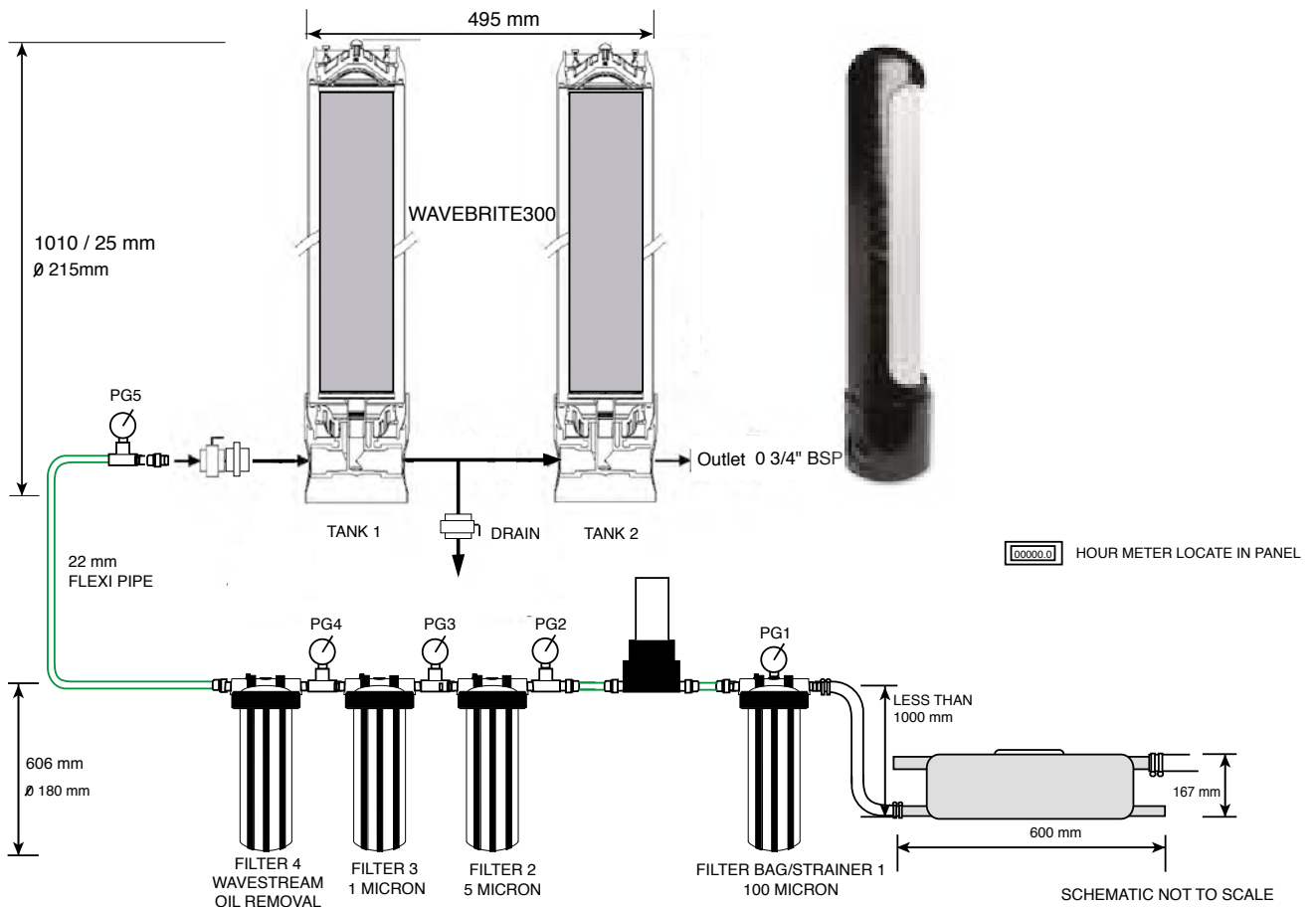
### Wavebrite WBS Schematic



## Wavebrite WB2010 Schematic



## Wavebrite WB300 Schematic



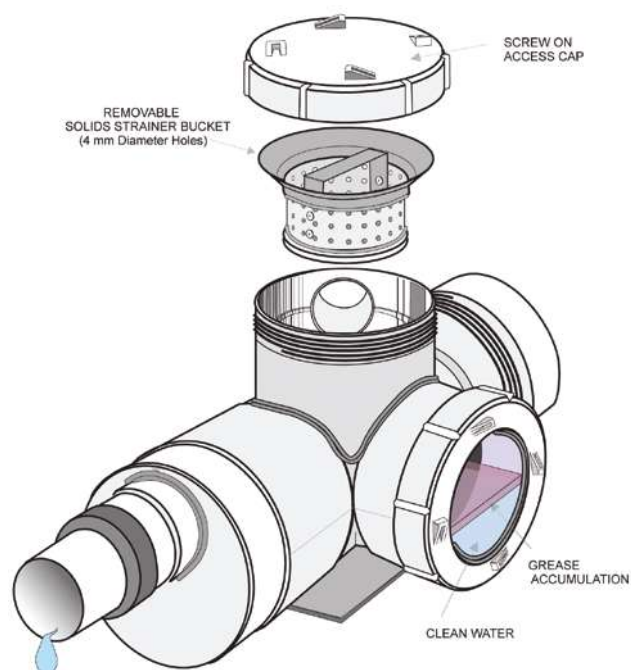
# Wave Filtration Systems

## Product Range

### Wavebrite Grease Trap

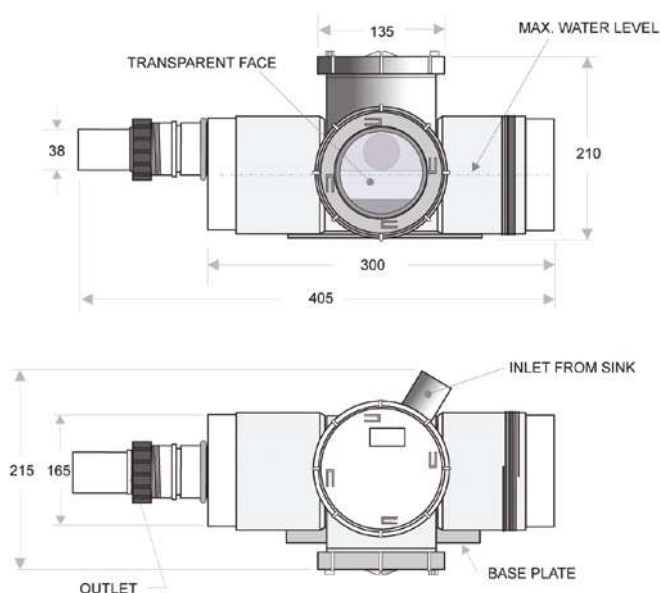
**The Wavebrite Grease Trap is a useful addition to any Wavebrite system when processing galley waste water. It removes food waste, fat and grease which helps prevent solids forming in the system and extends the life of the Wavebrite module and filter cartridges.**

- Simply installed in the drain from the galley sink or dishwasher
- Removes food debris, fat and grease retaining them in a food basket and grease trap reservoir
- Extends the life of the Wavebrite module and filter cartridges and improves pump efficiency
- The fat / grease level is visible through the inspection glass which indicates when the trap needs servicing
- Two sizes are available - 1.75 and 4.50 litre

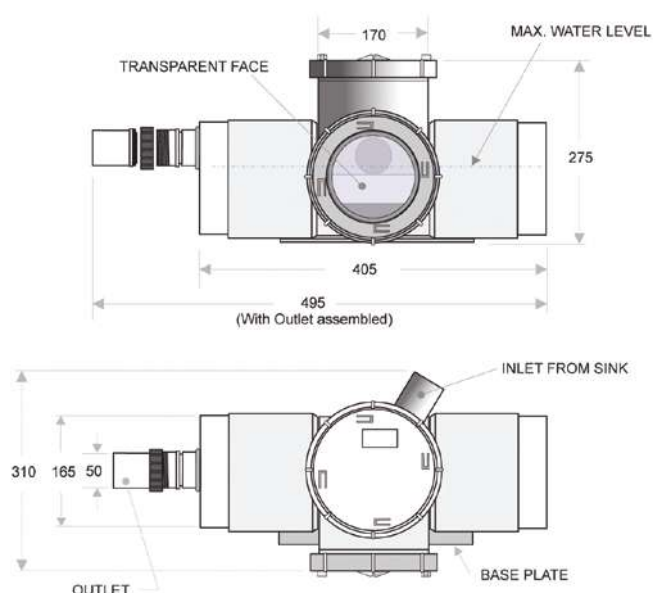


| Wavebrite |          |                                      |
|-----------|----------|--------------------------------------|
| Reference | Part No. | Description                          |
| WBG/1.75  | H021005  | Wavebrite Grease Trap 1.75l capacity |
| WBG/4.5   | H021006  | Wavebrite Grease Trap 4.50l capacity |

**Wavebrite 1.75l Dimensions**



**Wavebrite 4.50l Dimensions**



## Flostream Drinking Water Cartridge and Head

**Designed to provide premium quality drinking water and for all food service applications. Available in two sizes giving a practical, cost effective point of use solution for safe, healthy water.**

- NSF 42 & 53 Certified to meet health and aesthetic standards
- Chlorine, taste and odour reduction
- Limescale and KDF inhibition, anti-bacterial and reduces heavy metals
- Cyst reduction, removes contaminants that cause health issues
- Bacteriostatic control to inhibit microbial growth in the water system
- Cartridge easy connect / release with a quarter turn
- Pressure range 0.7 - 8.5 bar. Temperature range 2 - 38°C. Recommended flow rate 1.9l/min
- Simple installation with push-fit connectors for standard 10mm flxi-pipe. Install in vertical position with cartridge hanging down for easy replacement

| Flostream |          |                                                                                            |
|-----------|----------|--------------------------------------------------------------------------------------------|
| Reference | Part No. | Description                                                                                |
| FLOW2     | H019878  | Flostream Cartridge 2 replacement cartridge,length plus head 264mm. Capacity 3,800l        |
| FLOW4     | H021009  | Flostream Cartridge 4 replacement cartridge, length plus head 372mm. Capacity 7,600 litres |
| FLOWPHD   | H021008  | Flostream Universal Head with 10mm quick connect ports                                     |
| FLOWPHD15 | H019877  | Flowstream Universal Head with 15mm quick connect ports                                    |



## Flostream HiFlo Drinking Water Filter and Cartridge

- WRAS and NSF Certified components and filter cartridge
- Chlorine, taste and odour reduction
- Limescale inhibition and reduces heavy metals
- Bacteriostatic control to inhibit microbial growth in the water system
- Cartridge easy connect / release with a quarter turn.
- Pressure range 0.7 - 8 bar. Temperature range 2 - 38°C. Recommended flow rate 6l/min
- Simple installation with push-fit connectors for standard 10mm flxi-pipe. Conversion to BSP connectors on request

| Flostream HiFlo |          |                                                                                      |
|-----------------|----------|--------------------------------------------------------------------------------------|
| Reference       | Part No. | Description                                                                          |
| FLOHFSG         | H021010  | Flostream HiFlo cartridge and twist lock housing with 10mm quick connect ports       |
| FLOHFC          | H19880   | Flostream HiFlo replacement cartridge, length plus head 390mm. Capacity 6,000 litres |



# Wave Filtration Systems

## Product Range

### Flostream HiFlo 10 Drinking Water Filter and Cartridge

**The Flostream HiFlo 10 is designed for higher flow rate drinking applications to provide premium quality, safe, healthy drinking water.**

- WRAS and NSF Certified components and filter cartridge
- Chlorine, taste and odour reduction
- Limescale inhibition and reduces heavy metals
- Bacteriostatic control to inhibit microbial growth in the water system
- Filter body easily removed with spanner provided.
- Pressure range 0.7 - 8.60 bar. Temperature range 4 - 51.7°C. Recommended maximum flow rate 10l/min
- Simple installation with push-fit connectors for standard 10mm or 15mm flxi-pipe. Conversion to BSP connectors on request.

| Flostream HiFlo 10 |          |                                                                                      |
|--------------------|----------|--------------------------------------------------------------------------------------|
| Reference          | Part No. | Description                                                                          |
| FLOHF10            | H021011  | Flostream HiFlo housing, cartridge and spanner with 10mm quick connectors            |
| FLOHF10-15         | H020049  | Flostream HiFlo housing, cartridge and spanner with 15mm quick connectors            |
| FLOHF10C           | H021012  | Flostream HiFlo replacement cartridge, length plus head 337mm. Capacity 6,000 litres |



### Flostream Dock Water Filter, Cartridge and Hose

**The Flostream Dock Water Filter is installed in the water supply to pre-filter water when filling onboard tanks. Removing most impurities in three stages, further purification at the point of use can then be applied if required.**

- Removes particulates and chlorine improving the taste and smell as a pre-filter
- STAGE 1 - Removes large particulates
- STAGE 2 - Removes sediments down to one micron
- STAGE 3 - Effectively reduces Chlorines, smell and odours, improving taste and colour with bacteriostatic control
- Maximum pressure 6.20 bar. Temperature range 1 - 45°C. Recommended maximum flow rate 20l/min
- Simple installation, hose supplied with 3/4" BSP connectors. The filter is installed between the supply tap and the onboard tanks

| Flostream HiFlo |          |                                                                                                   |
|-----------------|----------|---------------------------------------------------------------------------------------------------|
| Reference       | Part No. | Description                                                                                       |
| FDF             | H021023  | Flostream dock water filter and housing, cartridge, connections and supply hose                   |
| FDF-C1          | H021024  | Flostream dock water filter replacement cartridge, length plus head 315mm. Capacity 20,000 litres |



## Waveair Holding Tank Vent Filter

**Eliminates foul smells in and around your boat from holding tank vents. Waveair is simply installed in the vent line after the tank and before the outlet. Removes the organic compounds that cause bad odours**

- Waveair uses a highly effective filter media, available in two sizes, 430mm and 200mm long, both for 16, 19 and 25mm hose connections
- Single module supplied with brackets and connections
- Easy filter replacement. Simply remove the complete filter after one year, retaining bracket and connections and insert replacement filter
- Not suitable for treated sewage with significant amounts of chemicals, chlorine or other oxidising agents within the tank

| Waveair   |          |                                              |
|-----------|----------|----------------------------------------------|
| Reference | Part No. | Description                                  |
| WAM16     | H021025  | Waveair Micro tank vent filter - 16mm        |
| WAM19     | H021026  | Waveair Micro tank vent filter - 19mm        |
| WAM25     | H021027  | Waveair Micro tank vent filter - 25mm        |
| WAMC      | H021028  | Waveair Micro replacement filter - 16 & 19mm |
| WAMC25    | H021030  | Waveair Micro replacement filter - 25mm      |
| WA16      | H021013  | Waveair tank vent filter - 16mm              |
| WA19      | H021014  | Waveair tank vent filter - 19mm              |
| WA25      | H021015  | Waveair tank vent filter - 25mm              |
| WAC       | H021016  | Waveair replacement filter - 16 & 19mm       |
| WAC25     | H021031  | Waveair replacement filter - 25mm            |



## PROstream Watermaker Duo Cartridge

**Unique pre-RO watermaker protection removes both sediment and trace oils. Combined string wound or melt blown cartridge with Wavestream oil removal technology. The PROstream cartridge replaces an existing pre-filter and offers additional oil protection phase**

- Protects main RO by efficient oil removal with high dirt holding properties
- Wide range of sizes, micron ratings and end cap configurations available.
- Consistent filtration over the life of the cartridge
- Marine, domestic and industrial applications

| PROstream   |          |                                                                                                |
|-------------|----------|------------------------------------------------------------------------------------------------|
| Reference   | Part No. | Description                                                                                    |
| PRO-C1      | H021017  | PROstream wound outer 5 micron oil removal cartridge fits standard 10" housings                |
| PRO-C1 / 20 | H021018  | PROstream wound outer 5 micron oil removal cartridge fits standard 20" housings                |
| PRO-C2      | H021019  | PROstream wound outer 5 micron oil removal cartridge fits large diameter Big Blue 10" housings |
| PRO-C2 / 20 | H021020  | PROstream wound outer 5 micron oil removal cartridge fits large diameter Big Blue 20" housings |



# Wave Filtration Systems

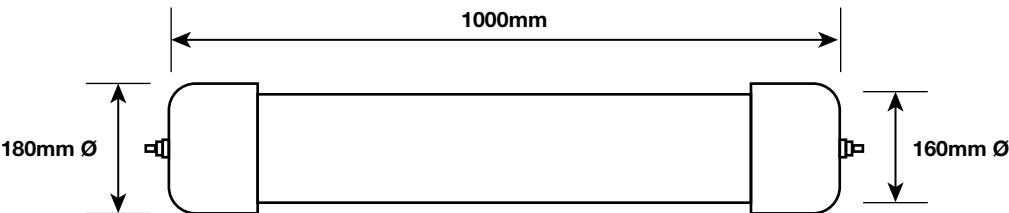
## Product Range

### Waveshine Wash and Rinse System

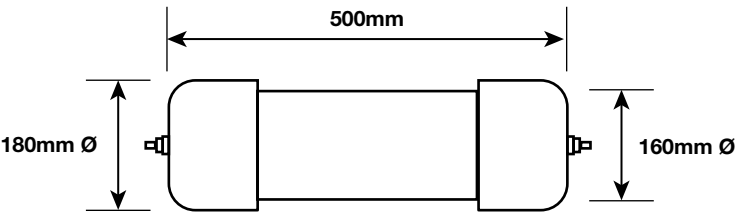
**Waveshine is a washdown filter system that removes the minerals from water that causes spotting and smears when washing and rinsing your boat. When also used to filter water going onboard it removes hardness softening the water for regular use, protecting appliances, taps, sinks, showers, pumps and systems.**

- Waveshine 4250 and 8500 use a highly effective resin media with 4250 and 8500 litre capacities, depending on water hardness
- Replacement salt cartridges and hardness test kits available
- Waveshine can be used free standing on the dock or installed onboard. Saddle clamps work as a stand on the dock or as installation brackets
- Softened water dramatically reduces scaling in appliances, pumps and systems and improves the effectiveness of soaps and detergents reducing the impact on the environment

| Waveshine |          |                                                                                                       |
|-----------|----------|-------------------------------------------------------------------------------------------------------|
| Reference | Part No. | Description                                                                                           |
| WSN4250   | H022157  | Waveshine system with 4250 litre capacity, regeneration filter, salt cartridge, hose and hardness kit |
| WSN8500   | H021021  | Waveshine system with 8500 litre capacity, regeneration filter, salt cartridge, hose and hardness kit |
| WSN-CS1   | H021022  | Waveshine 4250 & 8500 regeneration cartridge                                                          |
| WSN-HK    | H021029  | Waveshine hardness test kit                                                                           |



Waveshine 8500

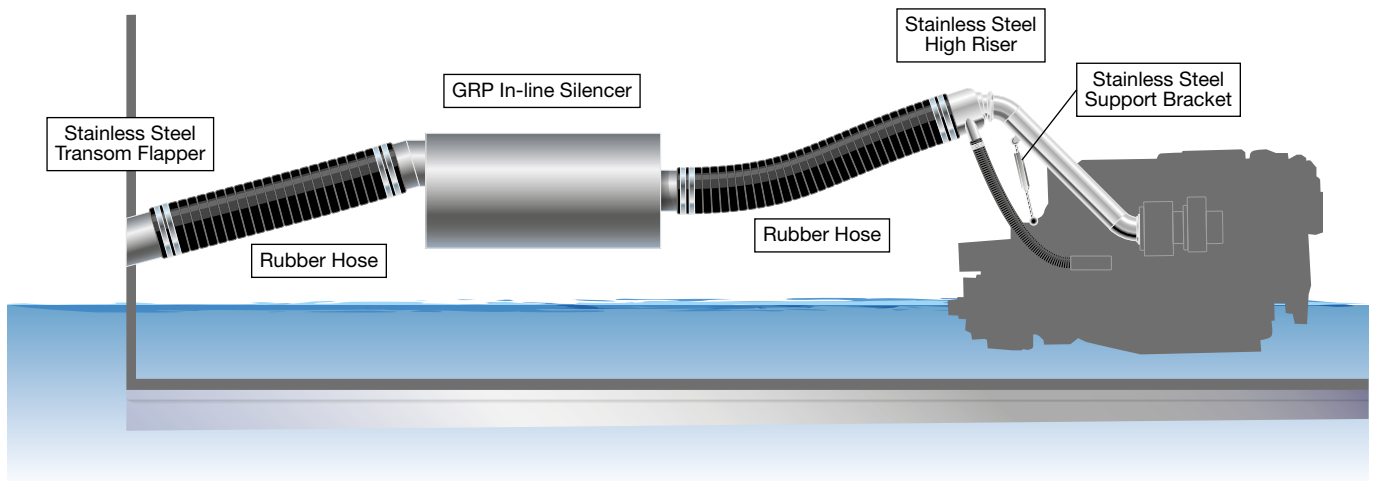


Waveshine 4250

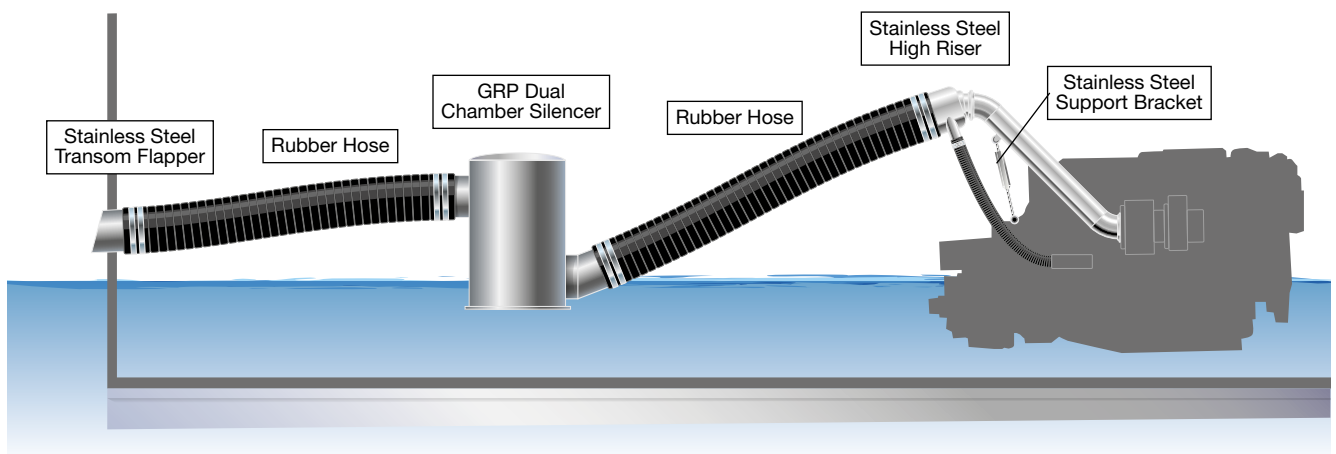
# System Drawings

## Typical Exhaust System Layout Diagrams

### Standard In-line Silencer with Discharge Above Waterline



### Dual Chamber Silencer with Above Water Discharge

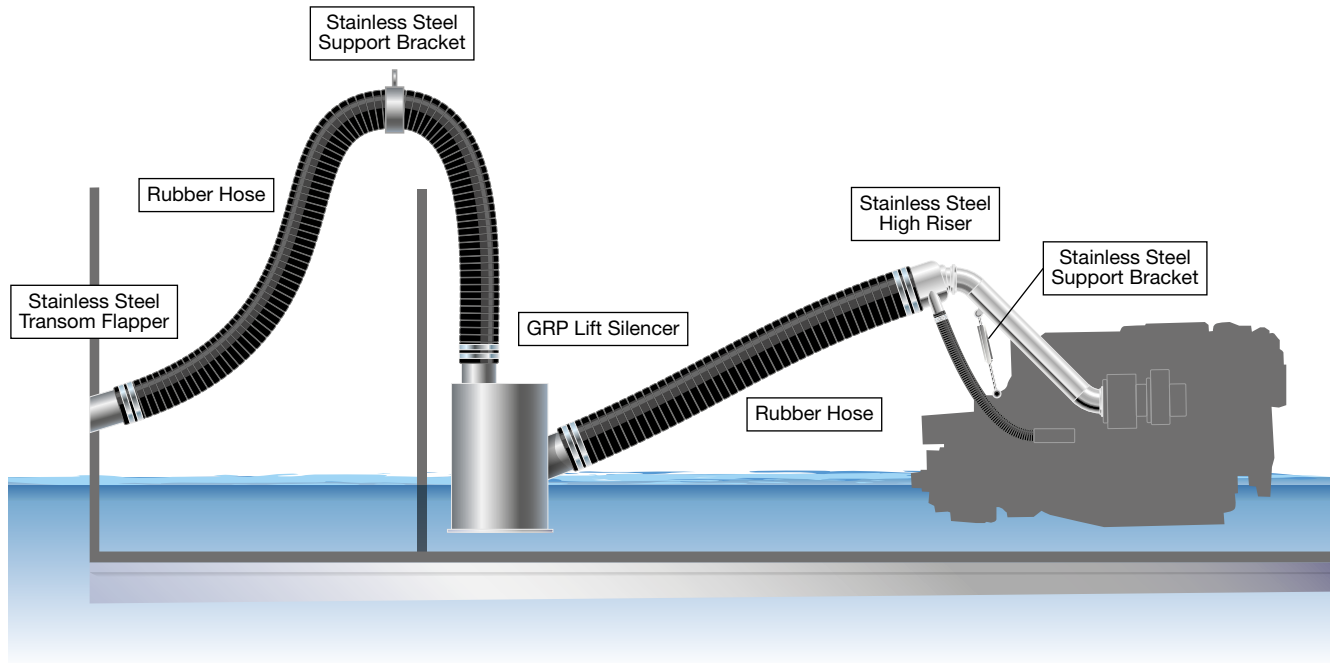


The information published by Halyard indicates the general suitability of our products for the types of applications for which they are designed. We cannot accept design responsibility for any specific installation unless we have confirmed in writing that the overall installation design is correct following our approval of detailed drawings or our physical survey of the vessel or equipment in which it will be used.

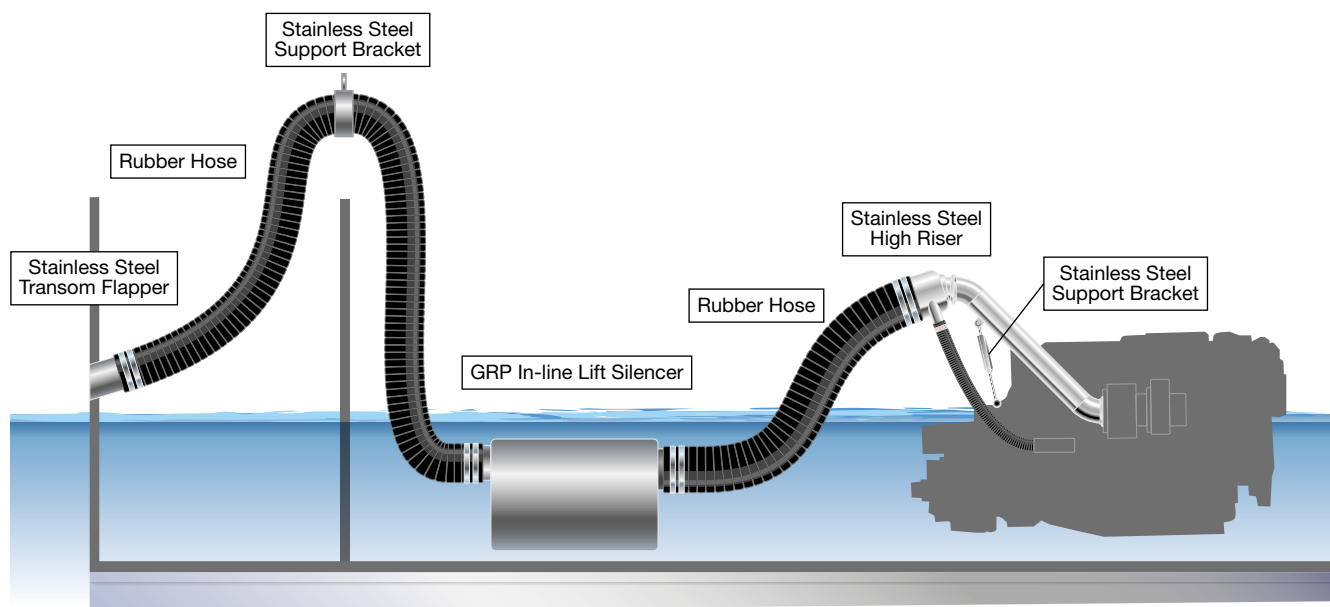
# System Drawings

## Typical Exhaust System Layout Diagrams

### Single Chamber Lift Silencer with Discharge Above Waterline

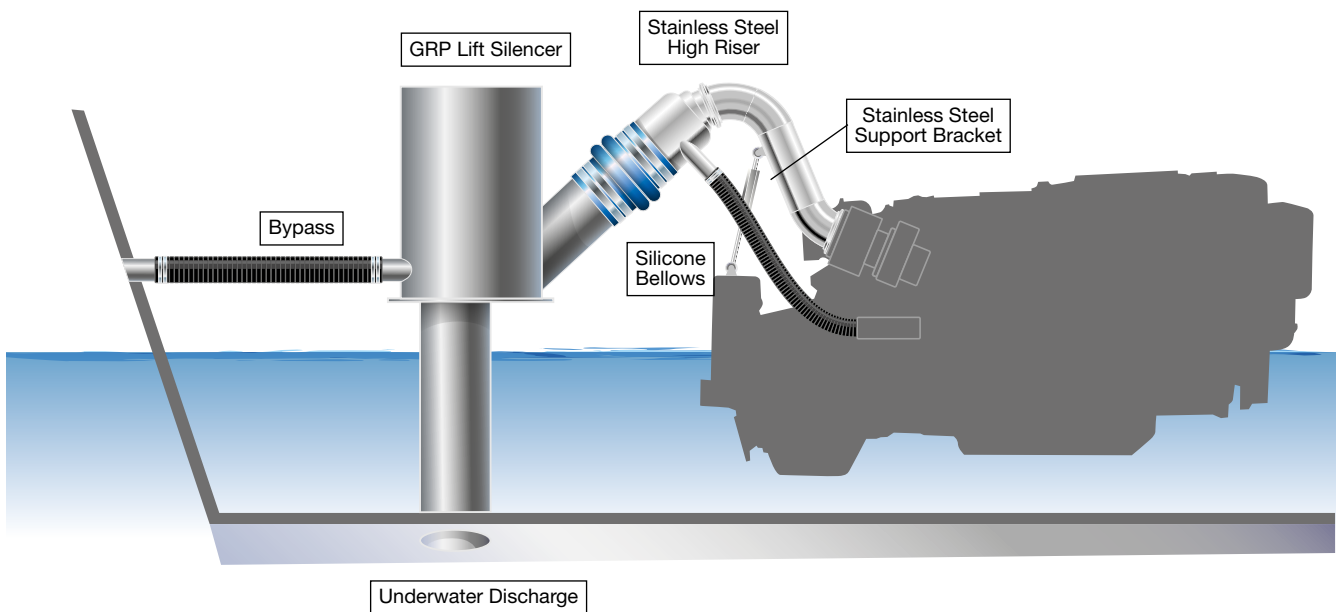


### Standard In-line Lift Silencer with Discharge Above Waterline

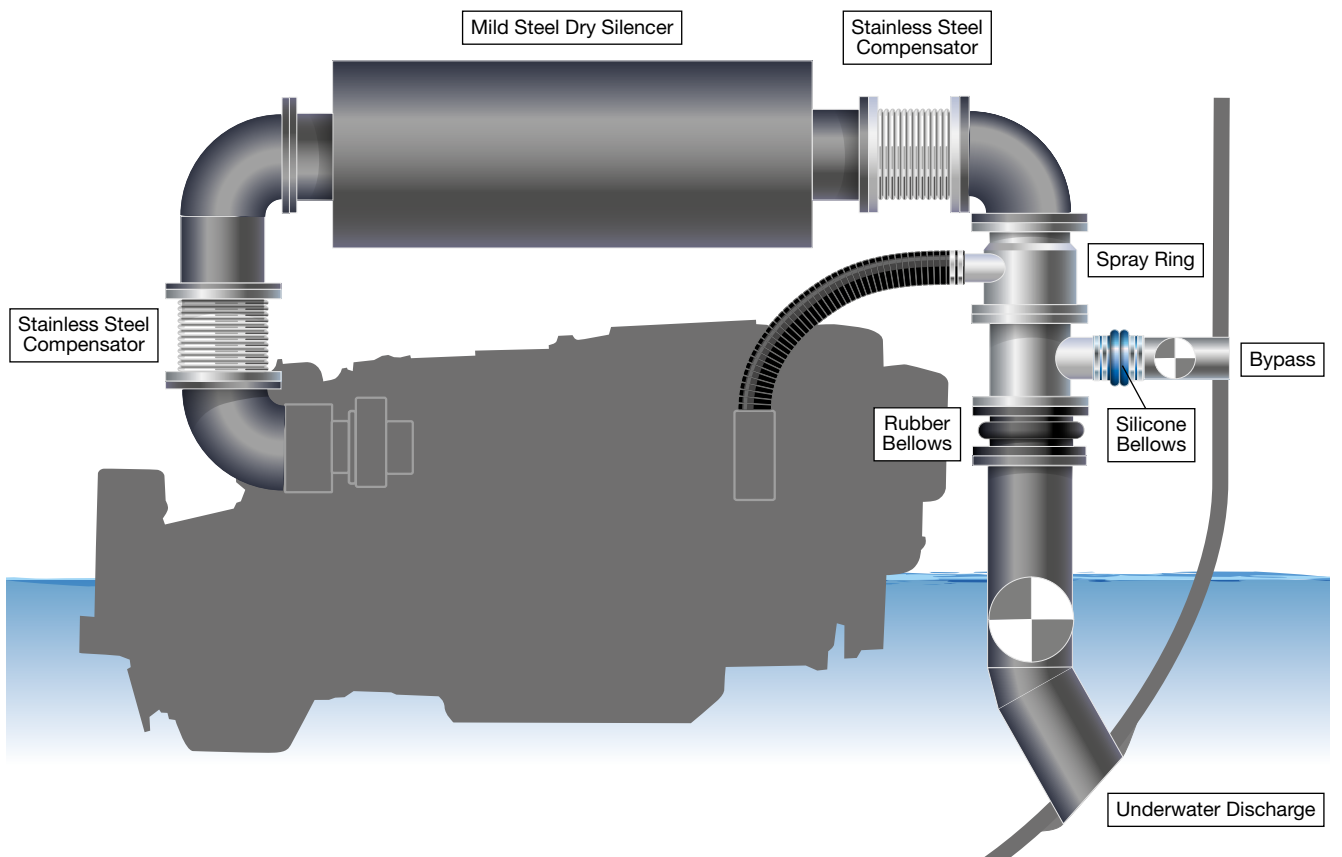


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## Single Chamber Lift Silencer with Bypass and Underwater Discharge



## Dry Silencer to Spray Ring with Bypass and Underwater Discharge

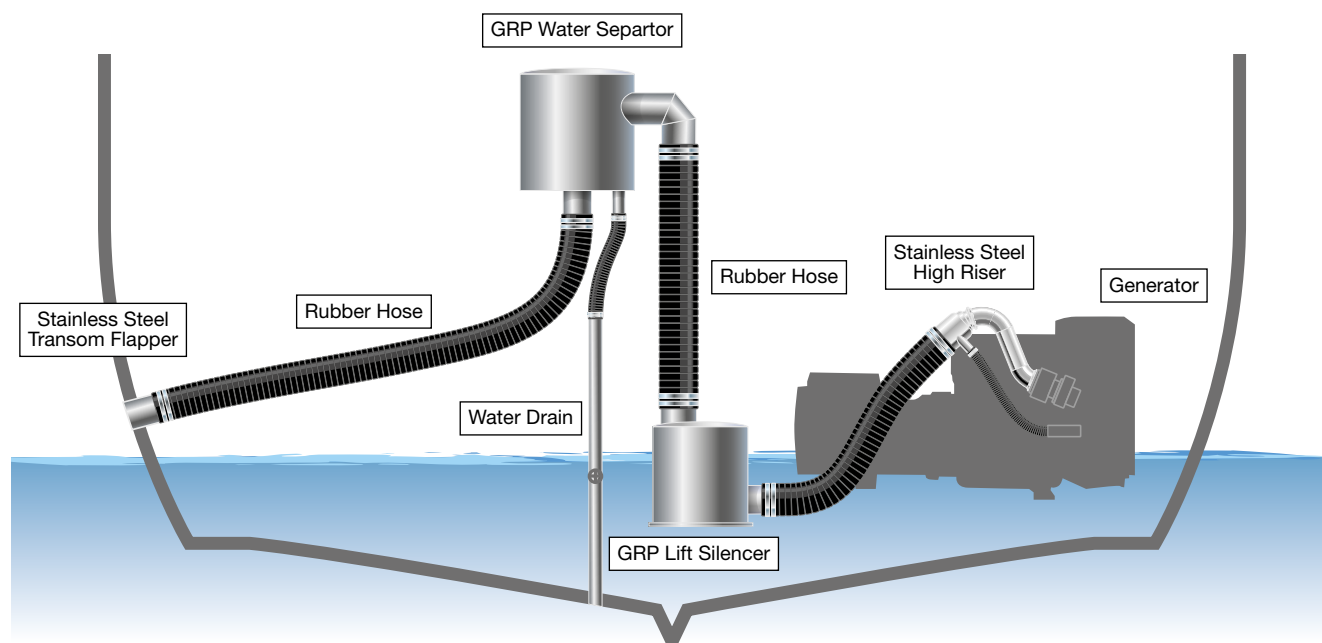


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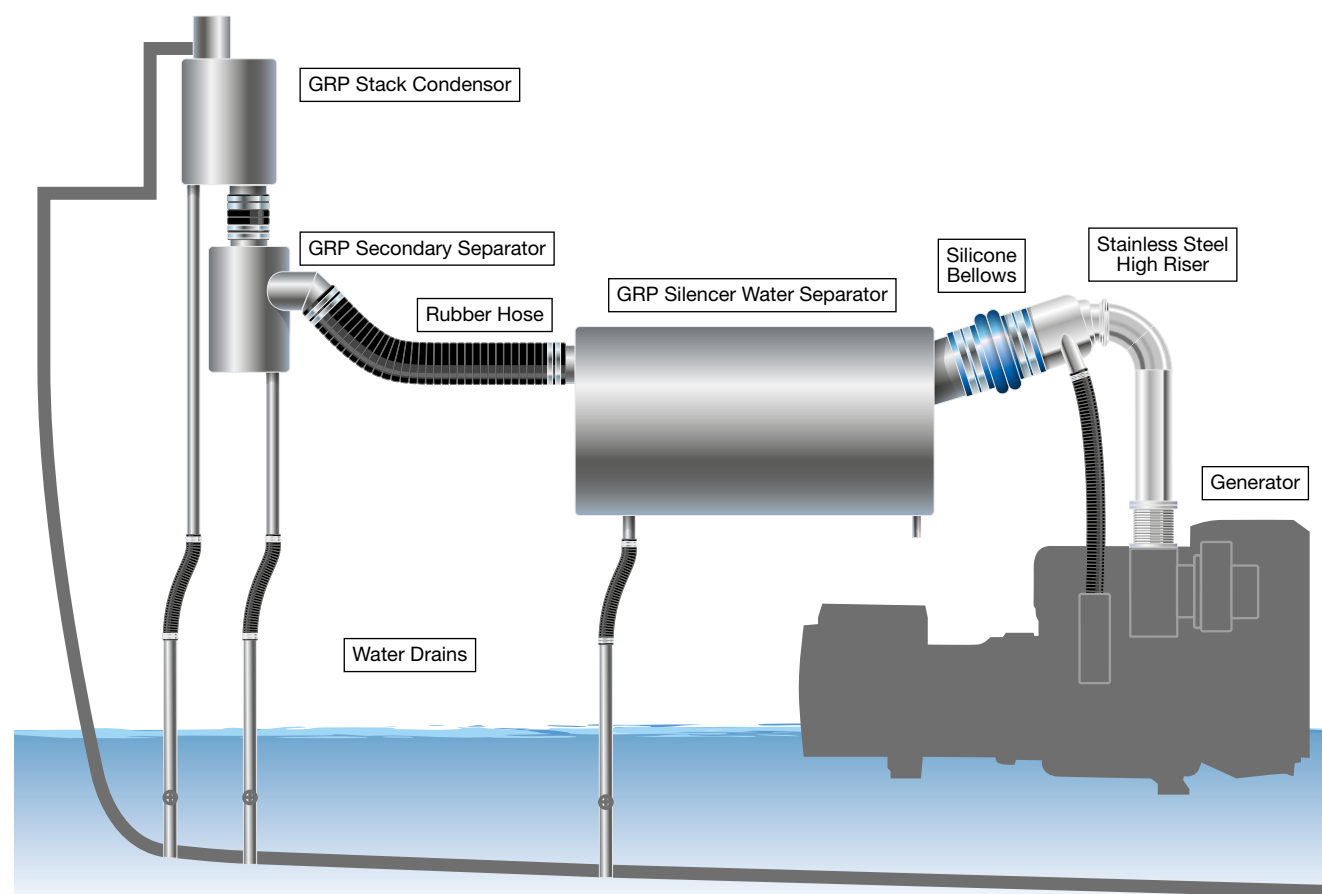
# System Drawings

## Typical Exhaust System Layout Diagrams

### Single Chamber Lift Silencer and Separator with Discharge Above Waterline



### Combined Silencer and Separator with Gas Discharge up the Stack



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www.chmarine.com

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www.ultraflexgroup.com

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www.marineworks.eu/pl

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