



The Science of Silence - Engineered Solutions

Marine Exhaust Systems Noise & Vibration Control Environmental Protection



www.halyard.eu.com
technical@halyard.eu.com

Pleasure Craft

Commercial

Superyacht

Customer Notes



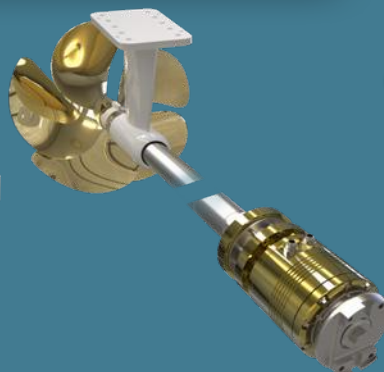
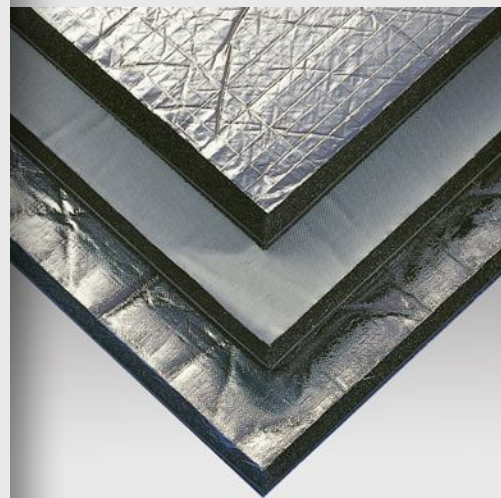
Established in 1979, Halyard has developed an international reputation as market leaders for providing customers with high quality, technically advanced, below decks equipment reducing engine room noise and vibration and making boating more comfortable.

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.



Contents

Exhaust Systems and Accessories.....5

Bespoke Risers and Spray Heads.....	6
Lift Silencers - Top In Top Out.....	7
Lift Silencers - Side In Top Out.....	7
Lift Silencers - Side Angle In Top Out.....	8
Lift Silencers - End In End Out.....	8
In-line Round Body Silencers.....	9
In-line Oval Body Silencers.....	9
Dual Chamber Silencers.....	9
Combined Silencer / Separators.....	10
Halyard UK Manufacturing Facilities.....	10
MS4000 Series Water Separator.....	11
MS5000 Series Water Separator.....	11
MS7000 Series Water Separator.....	11
GRP Low Profile Water Separator.....	12
GRP General Water Separator.....	12
GRP Tube.....	13
GRP Exhaust Connectors.....	14
GRP Bow Thruster Tube.....	14
GRP Adaptors and Bends.....	15
Flexible Exhaust Bends.....	16
Wire Reinforced Standard Range Exhaust Hose.....	17
Wire Reinforced 'HalFlex' Ultra Flexible Exhaust Hose.....	17
Wire Reinforced 'HalFlex-HT' High Temperature Hose.....	18
Silicone Exhaust Hose.....	18
Wire Reinforced Silicone Exhaust Hose.....	19
Silicone Flexible Bellows.....	19
Stainless Steel Hose Clamps.....	20
Bronze Siphon Breakers.....	21
Separator Non-Return Valves.....	21
Hot Lag.....	22
Thermal Insulation Jackets.....	22
Exhaust Alert System.....	23
Exhaust Alert - Gauge System.....	24
Exhaust Alert - Legacy System.....	24
Dry Silencers.....	25
Emigreen DPF and SCR Aftertreatment Systems.....	26

Transom Outlets & Skin Fittings.....27

316L Stainless Steel Through-Hull Exhaust Outlets.....	27
316L Stainless Steel Skin Fitting.....	27

Hose Connections & Manifolds.....28

316L Stainless Steel Deck Drain Manifolds.....	28
316L Stainless Steel Branch Connectors.....	28
316L Stainless Steel Y Connectors.....	29
316L Stainless Steel In-line Reducers.....	29

Replacement Engine Exhaust Elbows & Manifolds.....30

316L Stainless Steel OEM Replacement Exhaust Injection Elbows.....	30
Replacement Water Jacketed Manifolds.....	30

Engine Room Access Ladders.....31

Radar Supports.....31

Seatorque Shaft Systems.....32

STM3 Enclosed Bolt-on-Shaft System 'BOSS' - Typical Installation.....	34
ST Series Tube Style System - Typical Installation.....	34
Conventional Shaft Versus Seatorque Enclosed Shaft.....	35
Seatorque 'BOSS' Standard Range Dimensions.....	35

Aquadrive Antivibration System.....36

CVB 05.10 Aquadrive Moduline B10.....	37
CVB 10.10 Aquadrive Moduline B10.....	37
CVB 15.10 Aquadrive Moduline B10.....	38
CVB 21.10 Aquadrive Moduline B10.....	38
CVB 21.20 Aquadrive Moduline B20.....	39
CVB 30.20 Aquadrive Moduline B20.....	39
CVB 32.30 Aquadrive Moduline B30.....	40
CVB 42.30 Aquadrive Moduline B30.....	40
CVB 42.680 Aquadrive Heavy Duty HDL.....	41
CVB 42.680 Aquadrive Heavy Duty HDL Flanged.....	41
HDL 48.690 Aquadrive Heavy Duty - Flanged Option Available.....	42
HDL 60.700 Aquadrive Heavy Duty - Flanged Option Available.....	42
HDL 60.700 Aquadrive Heavy Duty HT - High Tensile Steel.....	43
HDL 60.780 Aquadrive Heavy Duty Flanged.....	43
Aquadrive System Engine Mounts.....	44

Noise Insulation Materials and Accessories.....45

Noise Insulation Materials, Tapes and Accessories.....	46
--	----

Wave International Ltd Filtration Systems.....47

Wavestream Micro Bilge Filter.....	48
Wavestream System 1 Bilge Filter.....	48
Wavestream System 2 Bilge Filter.....	48
Wavestream System 3 Bilge Filter.....	48
Wavestream MiniBOSS IMO Bilge Filter System.....	49
Wavebrite Waste Water Filter System.....	50
Wavebrite WBS Schematic.....	50
Wavebrite WB2010 Schematic.....	51
Wavebrite WB300 Schematic.....	51
Wavebrite Grease Trap.....	52
Flostream Drinking Water Cartridge and Head.....	53
Flostream HiFlo Drinking Water Filter and Cartridge.....	53
Flostream HiFlo 10 Drinking Water Filter and Cartridge.....	54
Flostream Dock Water Filter, Cartridge and Hose.....	54
Waveair Holding Tank Vent Filter.....	55
PROstream Watermaker Duo Cartridge.....	55
Waveshine Wash and Rinse System.....	56

System Drawings.....57

Standard In-line Silencer with Discharge Above Waterline.....	57
Dual Chamber Silencer with Above Water Discharge.....	57
Single Chamber Lift Silencer with Discharge Above Waterline.....	58
Standard In-line Lift Silencer with Discharge Above Waterline.....	58
Single Chamber Lift Silencer with Bypass and Underwater Discharge.....	59
Dry Silencer to Spray Ring with Bypass and Underwater Discharge.....	59
Single Chamber Lift Silencer and Separator with Discharge Above Waterline.....	60
Combined Silencer and Separator with Gas Discharge up the Stack.....	60

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

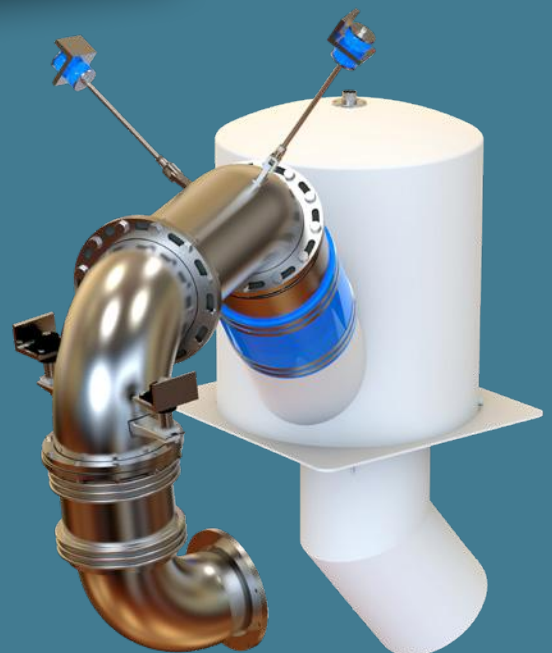


Standard product range:

- 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

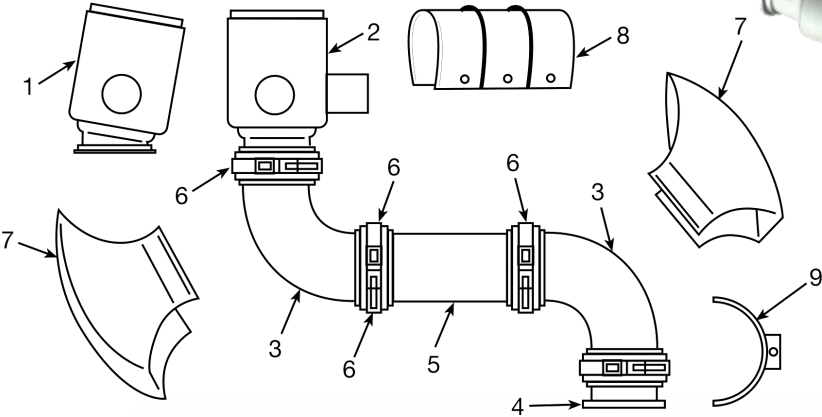
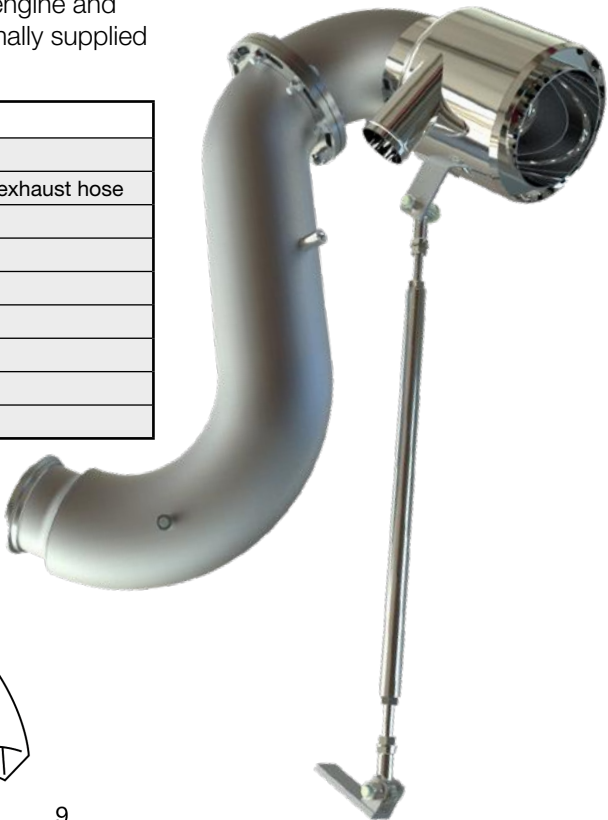


Exhaust Systems and Accessories

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.

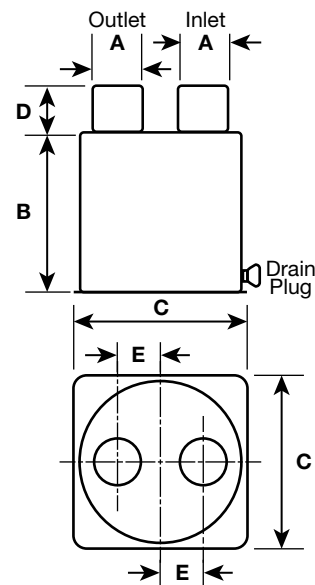
Parts	Description
1	Optional down angled spray head
2	Spray head with water injection connection which is installed into the exhaust hose
3	Curved stainless steel bend, used in the upper and lower sections
4	Flange connector to suit engine turbo outlet
5	Riser tube as required
6	Flange connection
7	Heat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

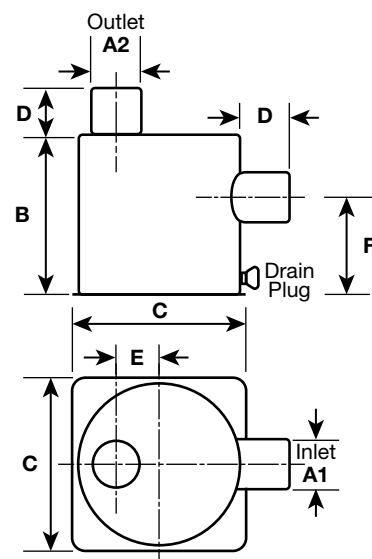


Drawings and dimensions are for guidance. Alternative sizes and configurations available on request. Reference numbers that end with B are not Lloyd's approved.

Lift Silencers - Side In Top Out



Lift Silencers - Side In Top Out										
Part No.	Reference	A1		A2		B	C	D	F	Weight 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

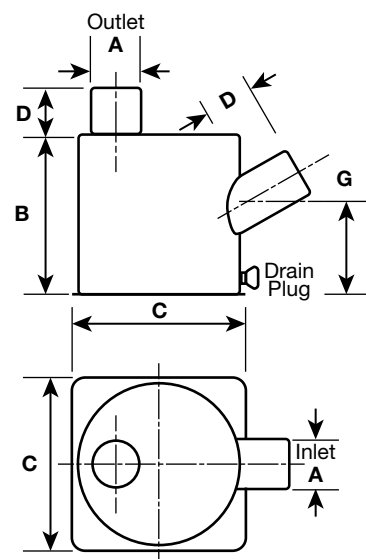
Composite Silencers and Separators

Lift Silencers - Side Angle In Top Out



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

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

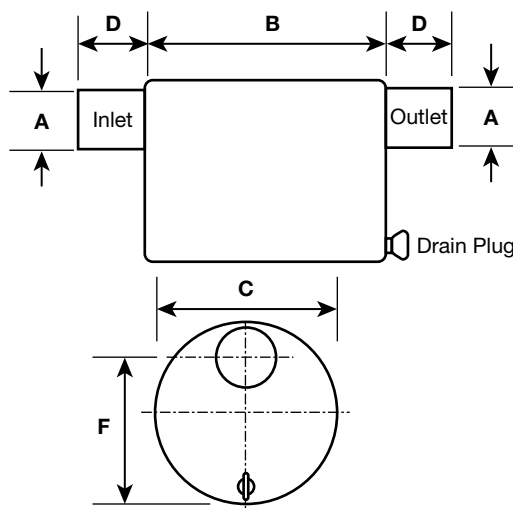


Lift Silencers - End In End Out



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.

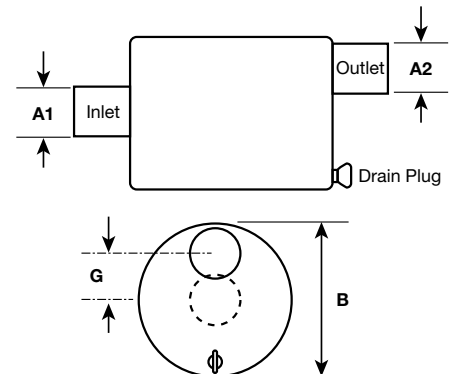


In-line Round Body Silencers



In-line Round Body Silencers										
Part No.	Reference	A1		A2		B	C	D	G	Weight 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.

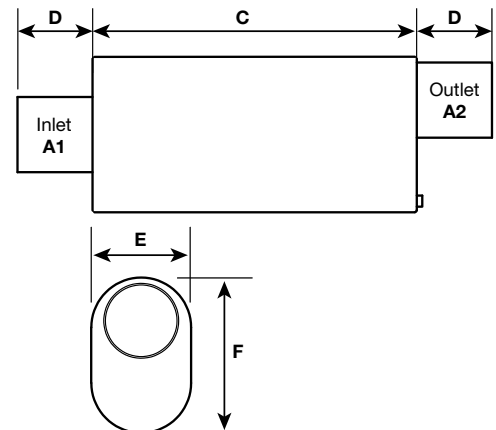


In-line Oval Body Silencers



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

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

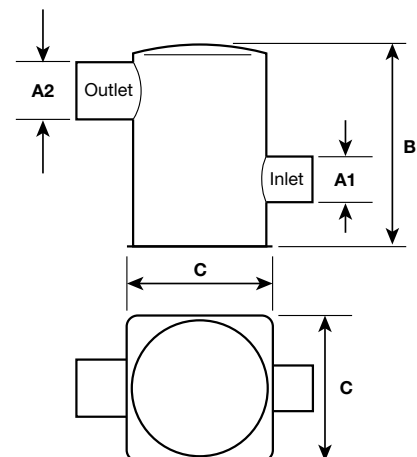


Dual Chamber Silencers



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

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



Exhaust Systems and Accessories

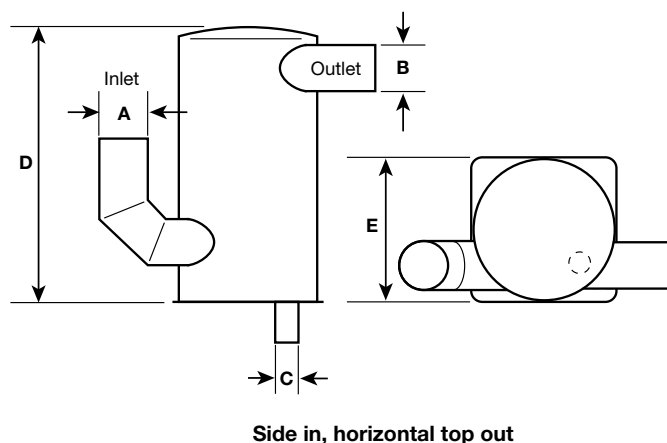
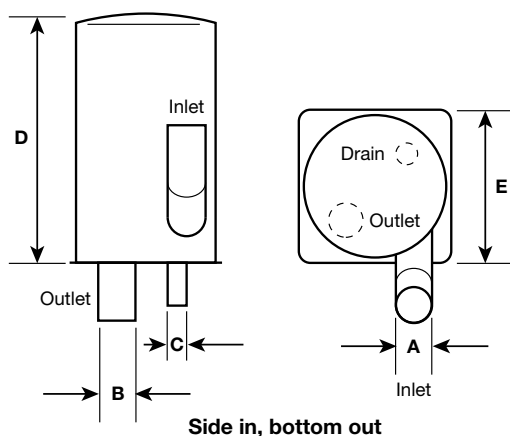
Composite Silencers and Separators

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.



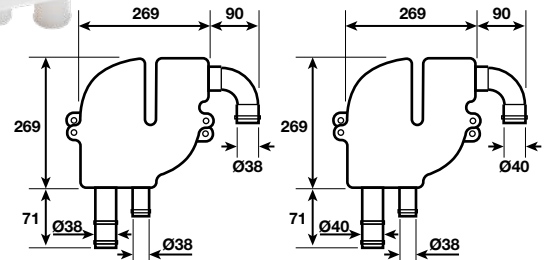
Moulded Water Separators

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.

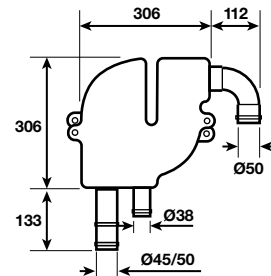


MS4020 38mm 90° Outlet
MS4025 40mm 90° Outlet
Exhaust: 38mm and 40mm
Gas Outlet: 38mm and 40mm
Maximum Water Flow: 18 Litres Per Minute
Weight: 1kg

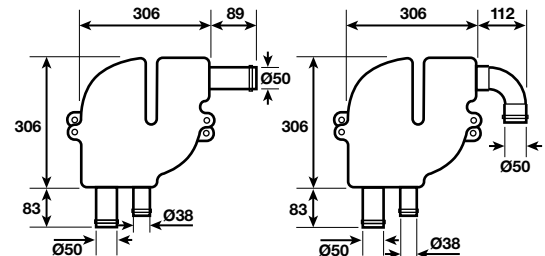


MS5000 Series Water Separator

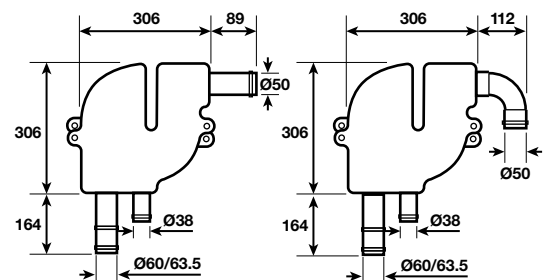
MS5020 45mm and 50mm 90° Outlet
Exhaust: 45mm and 50mm
Gas Outlet: 50mm
Maximum Water Flow: 42 Litres Per Minute
Weight: 1.7kg



MS5010 50mm Straight Outlet
MS5025 50mm 90° Outlet
Exhaust: 50mm
Gas Outlet: 50mm
Maximum Water Flow: 42 Litres Per Minute
Weight: 1.7kg

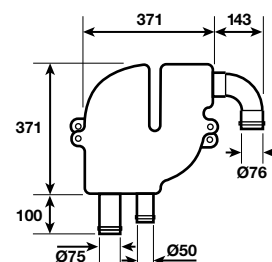


MS5015 60mm and 63.5mm Straight Outlet
MS5030 60mm and 63.5mm 90° Outlet
Exhaust: 60mm and 63.5mm
Gas Outlet: 50mm
Maximum Water Flow: 42 Litres Per Minute
Weight: 1.7kg



MS7000 Series Water Separator

MS7510 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

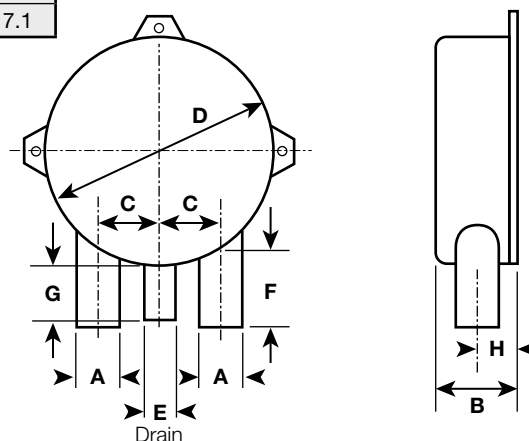
GRP Low Profile Water Separator



GRP Low Profile Water Separator												
Part No.	Reference	A		B	C	D	E		F	G	H	Weight 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

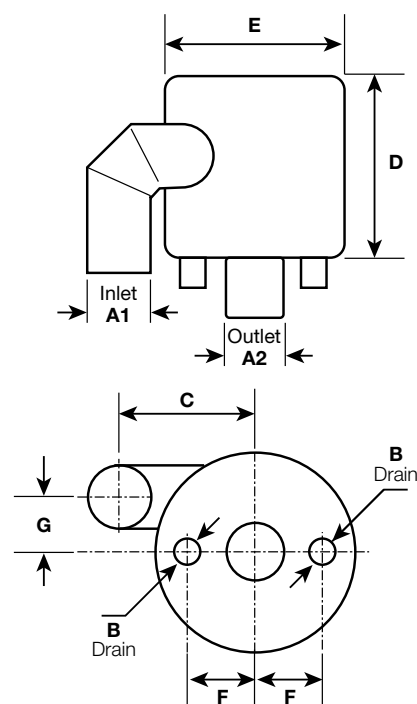


GRP General Water Separator



GRP General Water Separator										
Part No.	Reference	A1	A2	B	C	D	E	F	G	Weight 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

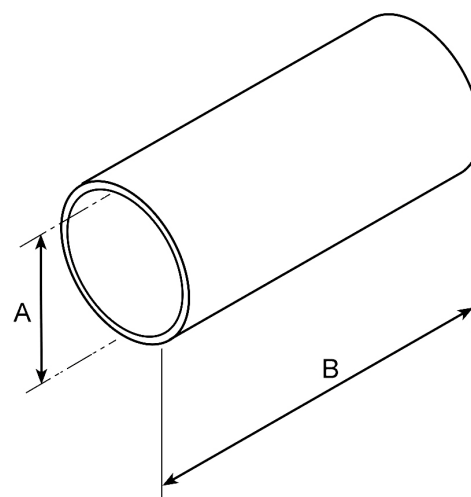
Drawings and dimensions are for guidance. Alternative sizes and up to 1000mm O.D. configurations available on request.

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

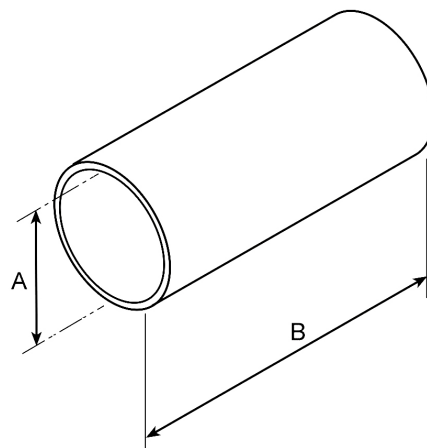
GRP Tubes & Connectors

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

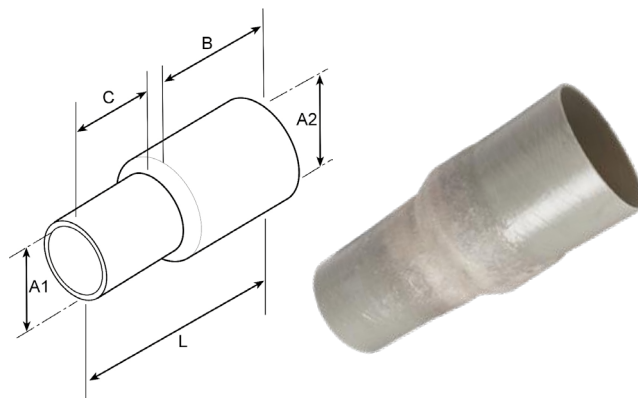
Drawings and dimensions are for guidance. Alternative sizes and configurations available on request.

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

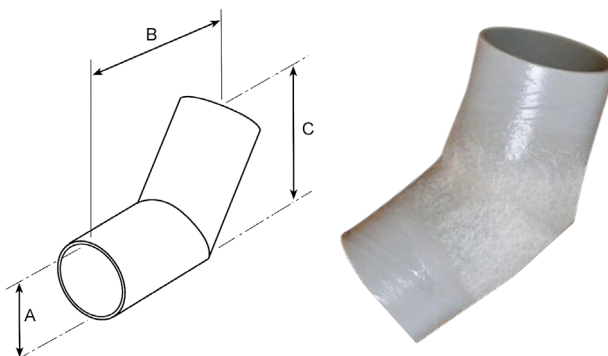


GRP Reducers									
Part No.	Reference	A1 O.D.		A2 O.D.		B	C	L	Weight kg
		inch	mm	inch	mm	mm	mm	mm	
H001442	HA020	2	51	3	76	102	78	205	0.4
H001443	HA035	2.5	63	3	76	102	95	222	0.4
H001444	HA050	3	76	3.5	89	125	102	252	0.5
H001445	HA055	3	76	4	102	142	102	269	0.6
H001446	HA060	3.5	89	4	102	142	125	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

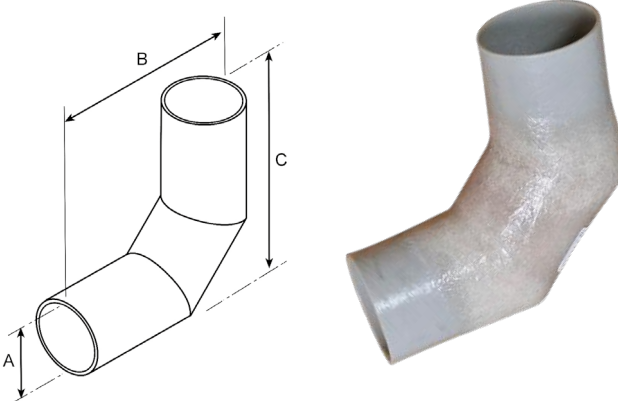
Note: Lloyd's Type Approval is applicable for Halyard GRP products in exhaust system applications.



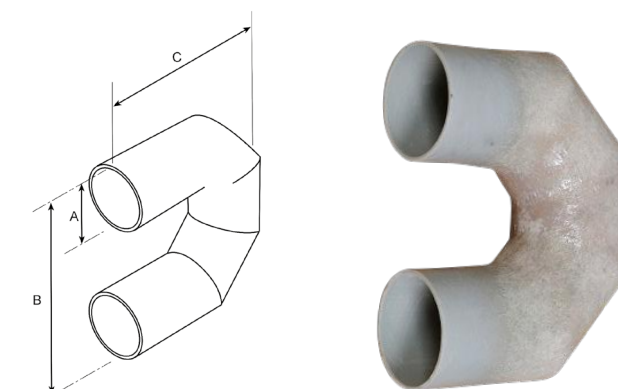
GRP 45° Elbows						
Part No.	Reference	A		B	C	Weight kg
		inch	mm	mm	mm	
H001409	H45025	2	51	161	103	0.2
H001410	H45035	2.36	60	166	111	0.3
H001411	H45040	2.5	63	188	123	0.4
H001412	H45050	3	76	213	142	0.6
H001414	H45055	3.5	89	282	181	0.8
H001415	H45060	4	102	243	173	0.7
H001417	H45065	4.5	114	181	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						
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						
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

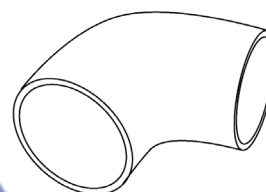
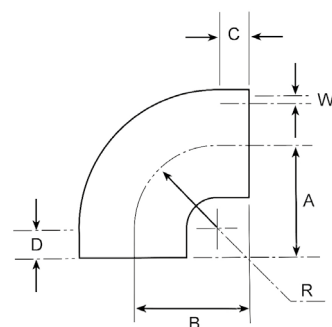
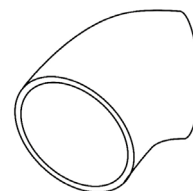
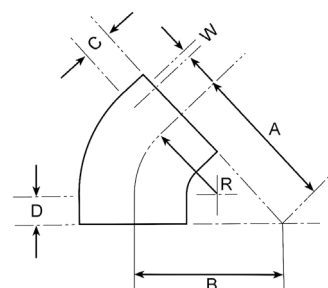
Flexible 90° Black EPDM Bends 100°C Max.								
Part No.	Reference	I.D.	A	B	C	D	R	W
H003345	CBR90040	51	125	125	50	50	50	5
H003346	CBR90045	63	145	145	50	50	95	5
H003347	CBR90050	76	145	145	50	50	95	6.5
H003348	CBR90055	89	155	155	50	50	100	6.5
H003349	CBR90060	102	160	160	50	50	110	7
H003350	CBR90065	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

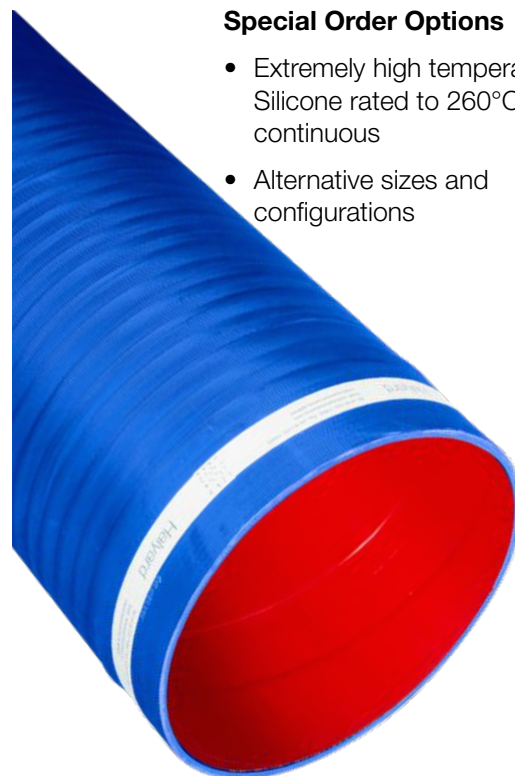
Special Order Options

- 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. Range - mm	Typical Hose 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

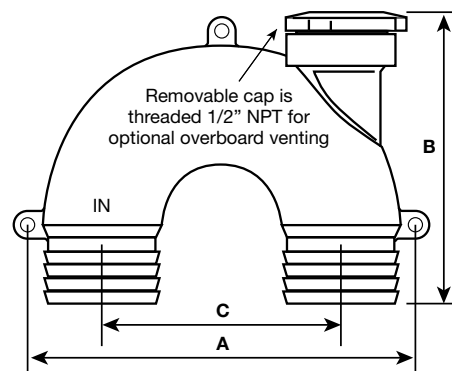


Bronze Siphon Breakers

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.

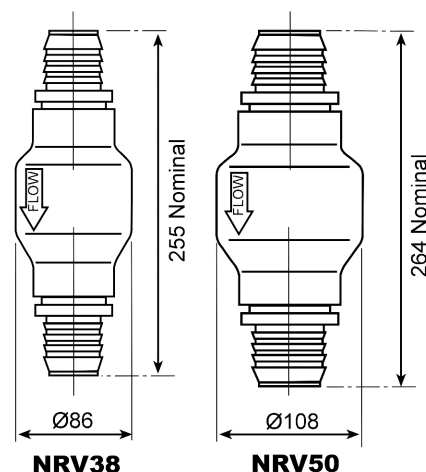


Bronze Siphon Breakers										
Part No.	Reference	Description	Hose I.D.		A Mount Holes		B Height		C Hose Centres	
			mm	inch	mm	inch	mm	inch	mm	inch
H021061	SB050	Siphon breaker 1/2"	12.7	0.5	120.65	4.75	109.22	4.3	76.2	3
H021062	SB0750	Siphon breaker 3/4"	19.05	0.75	120.65	4.75	109.22	4.3	76.2	3
H018133	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



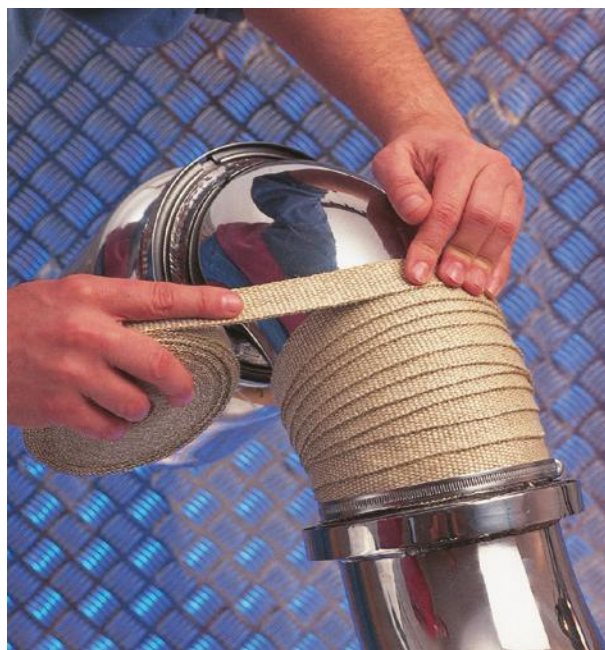
When part of an overboard system valves must not be installed below the waterline.

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.

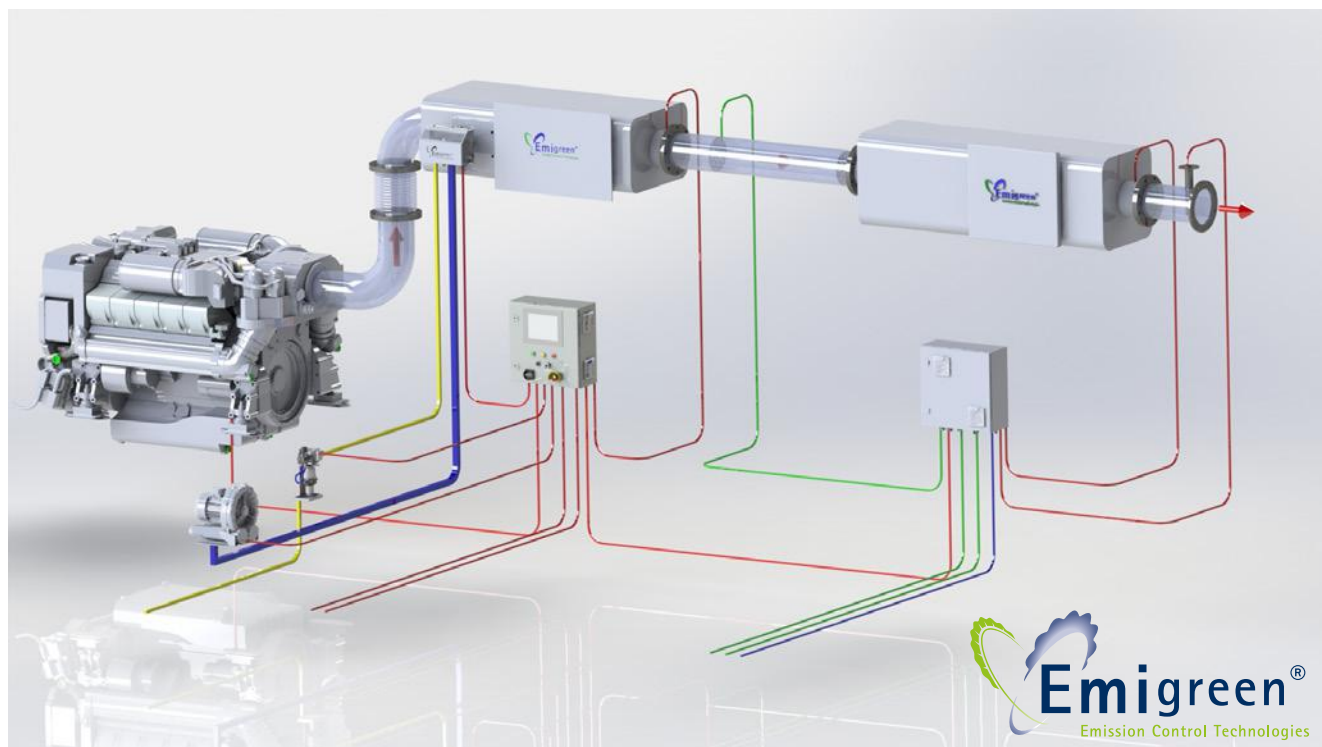


Dry Exhaust Systems:

- 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

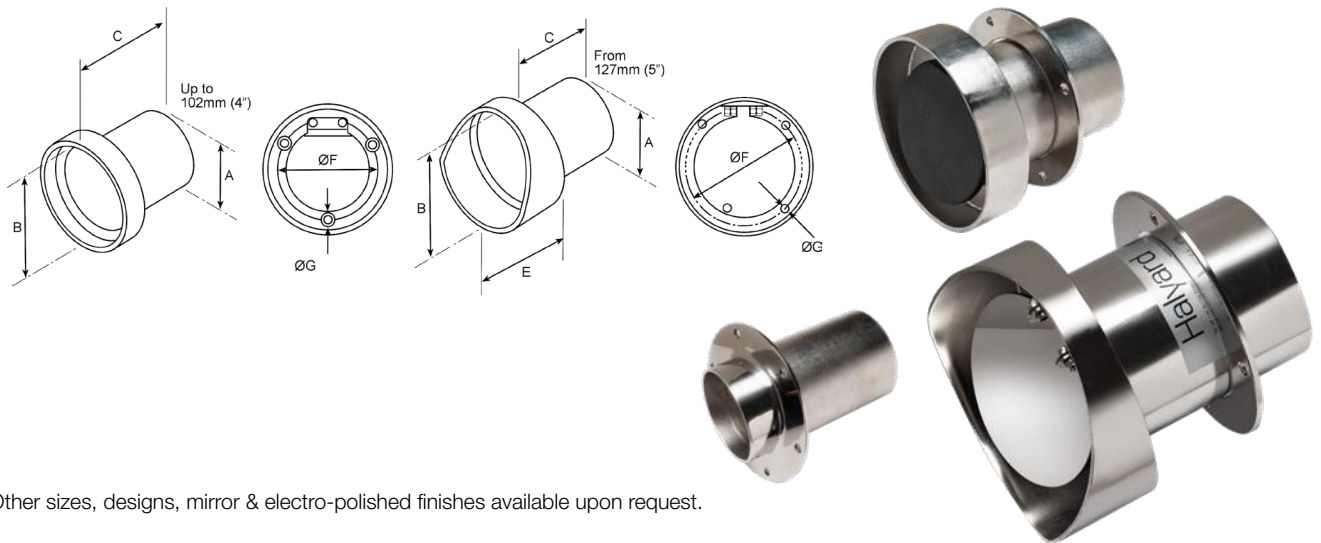
Transom Outlets & Skin Fittings

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

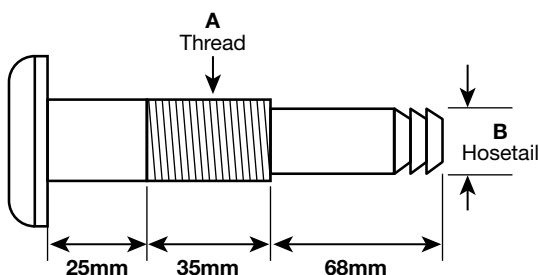


Other sizes, designs, mirror & electro-polished finishes available upon request.

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.

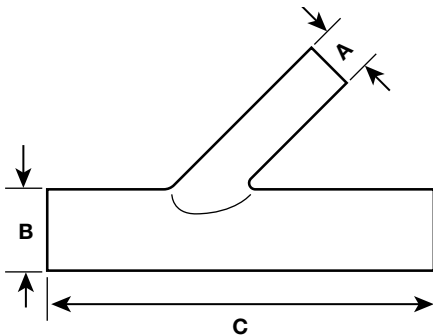
- Manufactured to customer specification
- Electro polished
- Price on application



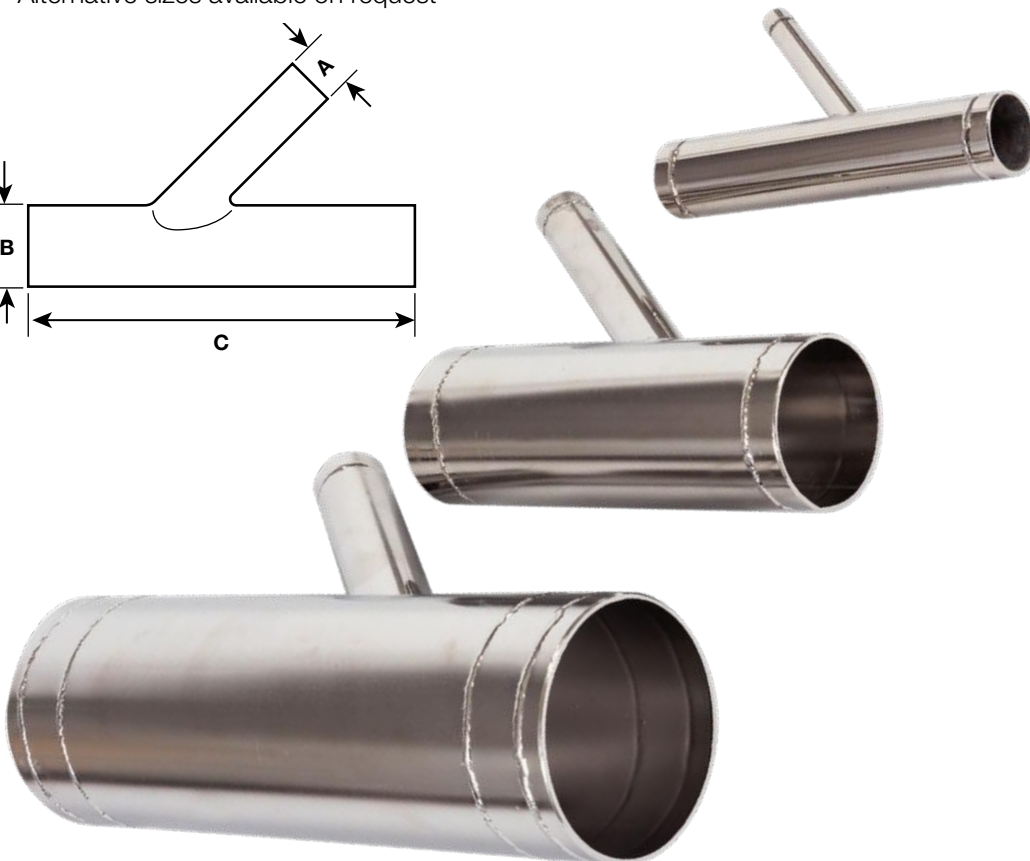
316L Stainless Steel Branch Connectors

316L stainless steel branch connectors made to order.

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



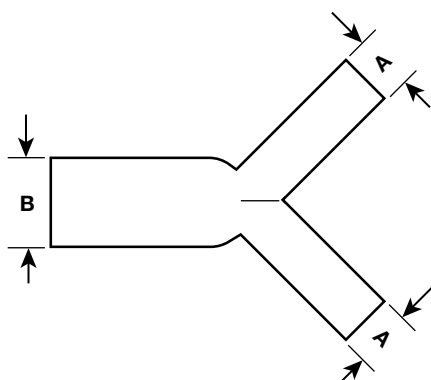
A	B	C
Inches BSP		
0.5	0.75	5
0.5	1	5
0.5	1.25	6
0.5	1.5	6
0.5	2	7
0.5	2.5	8
0.5	3	10
0.75	0.75	5
0.75	1	5
0.75	1.25	6
0.75	1.5	6
0.75	2	7
0.75	2.5	8
0.75	3	10
1	1	5
1	1.25	6
1	1.5	6
1	2	7
1	2.5	8
1	3	10
1.25	1.25	6
1.25	1.5	6
1.25	2	7
1.25	2.5	8
1.25	3	10
1.5	1.5	7
1.5	2	8
1.5	2.5	8
1.5	3	10
2	2	8
2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

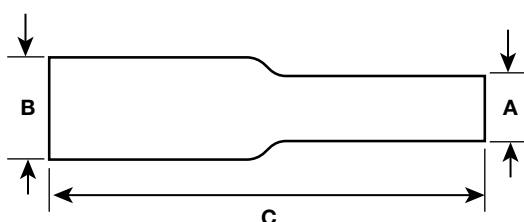


A	B
Inches BSP	
0.5	0.5
0.5	0.75
0.5	1
0.75	0.75
1	1
1	1.25
1	0.5
1.25	1.25
1.25	1.25
1.5	1.25
1.5	2
2	2
2	2.5
2.5	2.5

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.

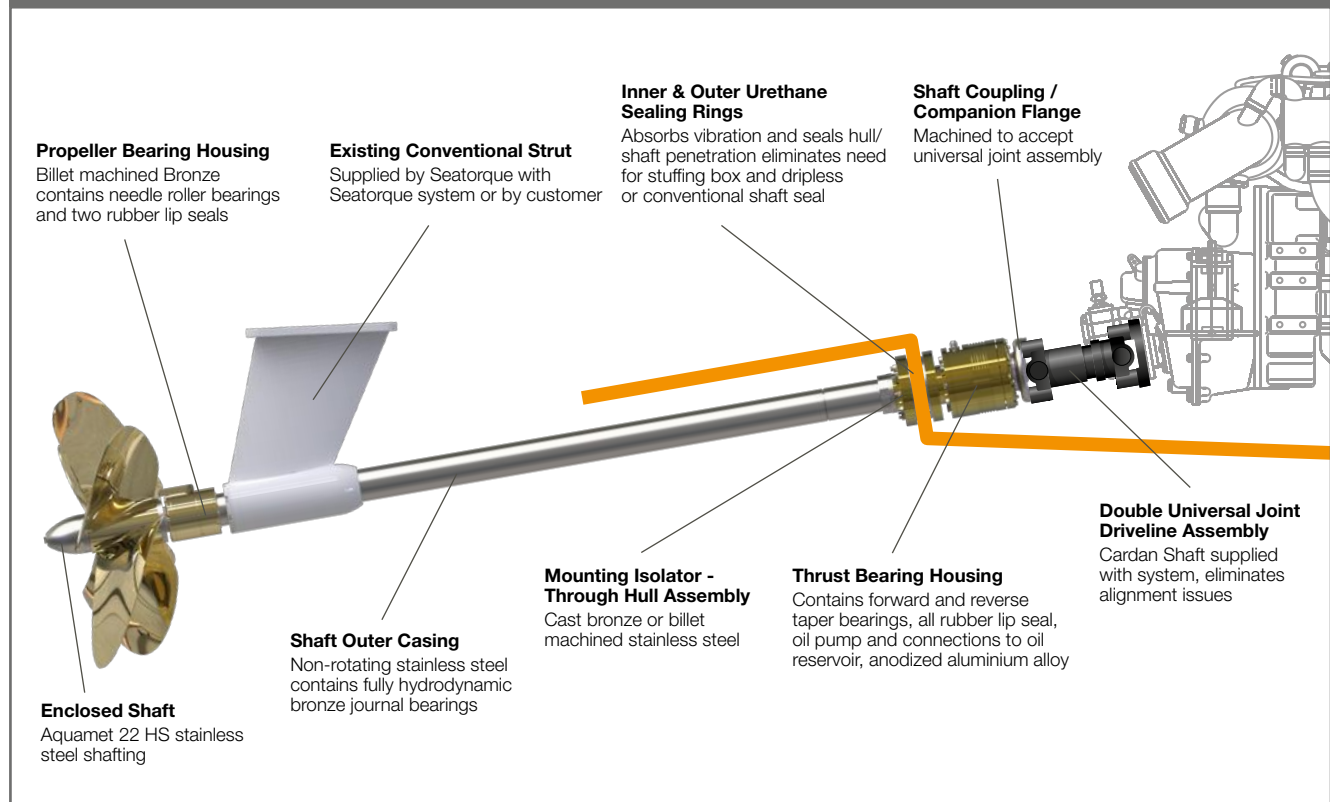


Seal and oil changes are carried out when the vessel is out of the water, a job that takes approximately 1-2 hours per system (excluding removal and refitting of the propeller) comparing very favourably with conventional shaft systems, including those with a thrust bearing, which require: gland/stuffing 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.

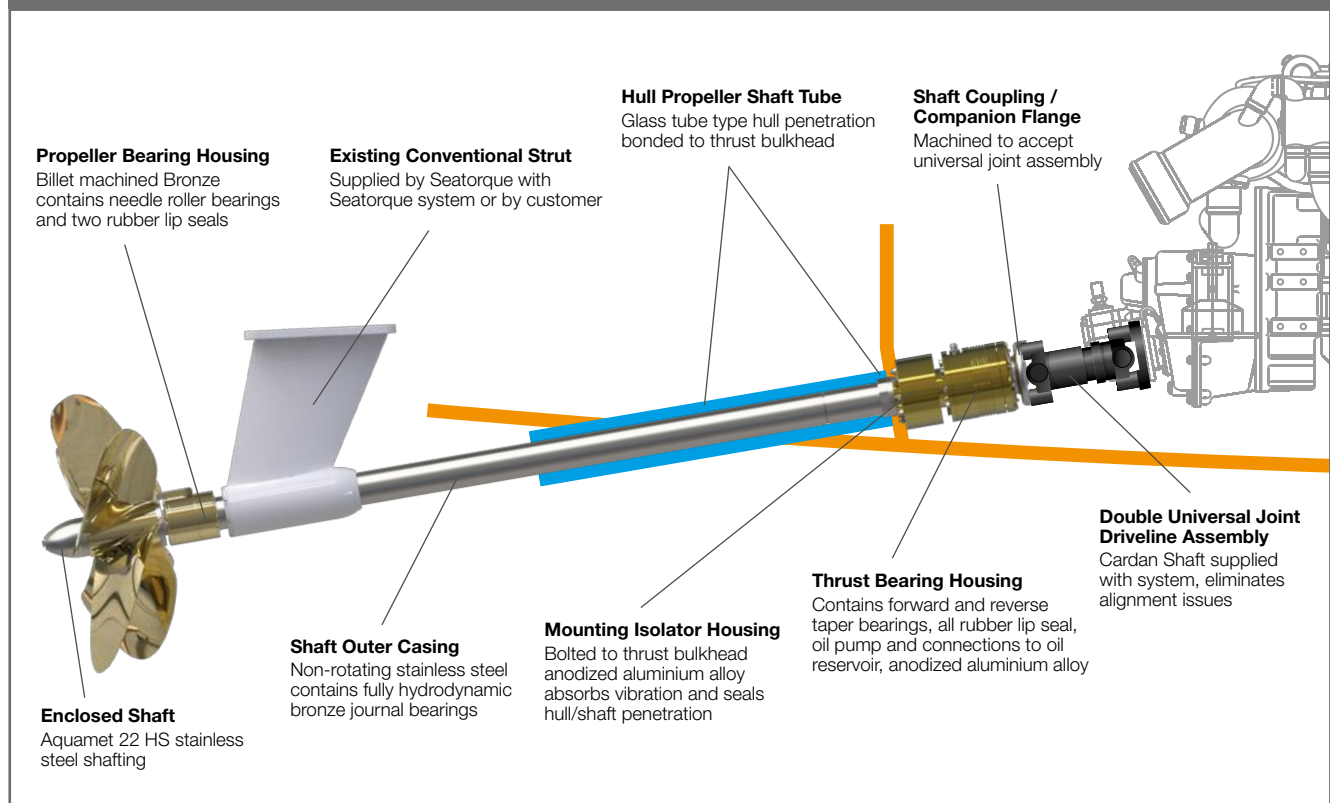
Seatorque Shaft Systems

Typical Installations

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



ST Series Tube Style System - Typical Installation

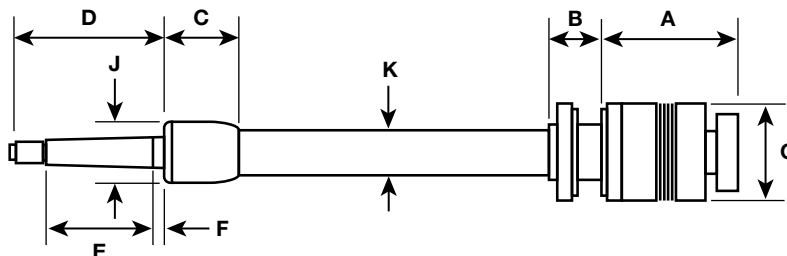


Conventional Shaft Versus Seatorque Enclosed Shaft



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

Seatorque 'BOSS' Standard Range Dimensions



STM3 SERIES		A	B	C	D	E	F	G	H	J	K
		Thrust Assembly	Mounting Length	Propeller Housing	Exposed Shaft	SAE Taper Length	Housing Clearance to Taper	Housing Diameter	Shaft Diameter	Propeller Housing Dia.	Shaft Casing 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.



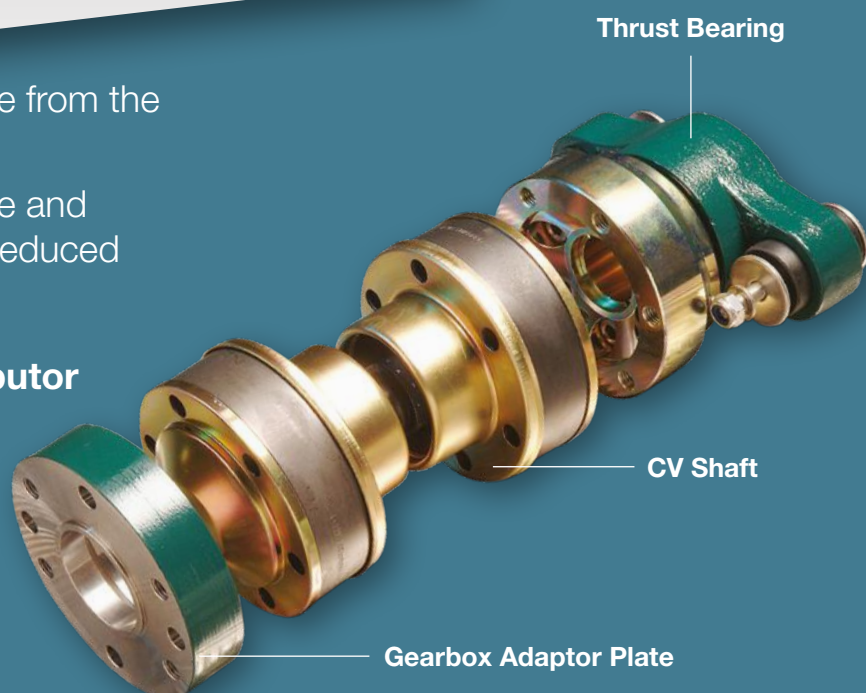
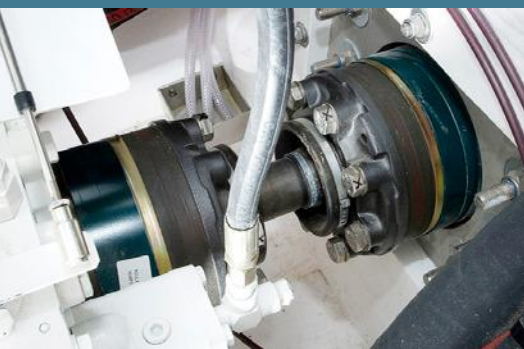
aquadrive[®]
antivibration system

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**



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

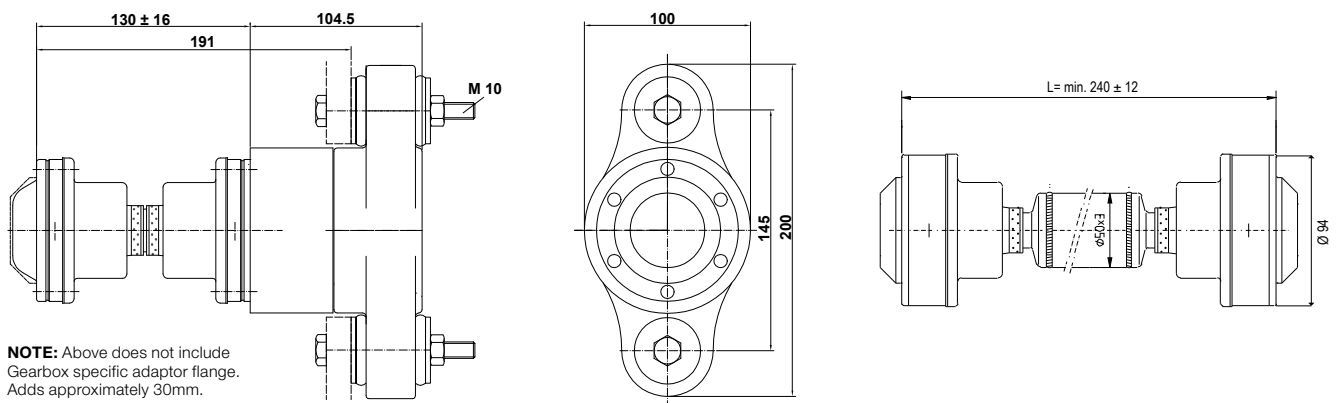
Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

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

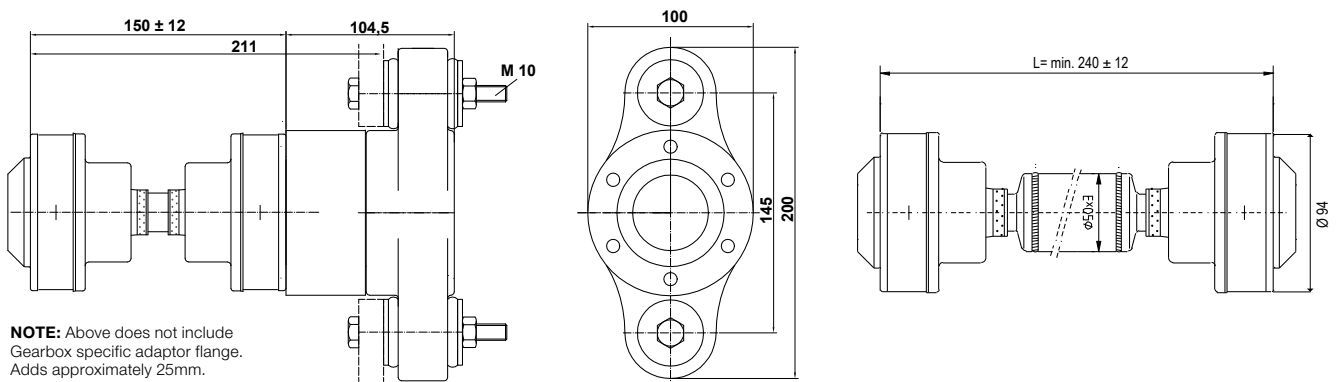
Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°).

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

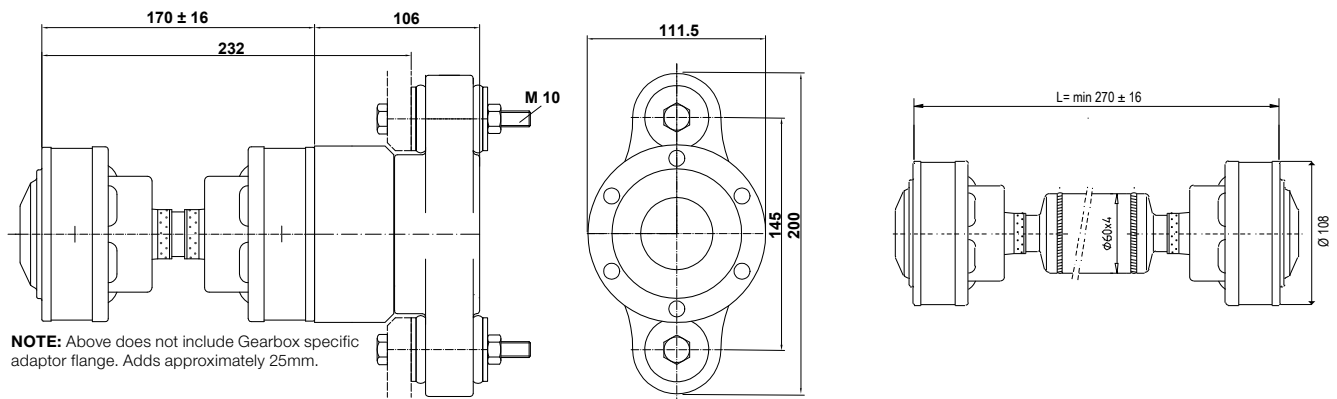
Model Range

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

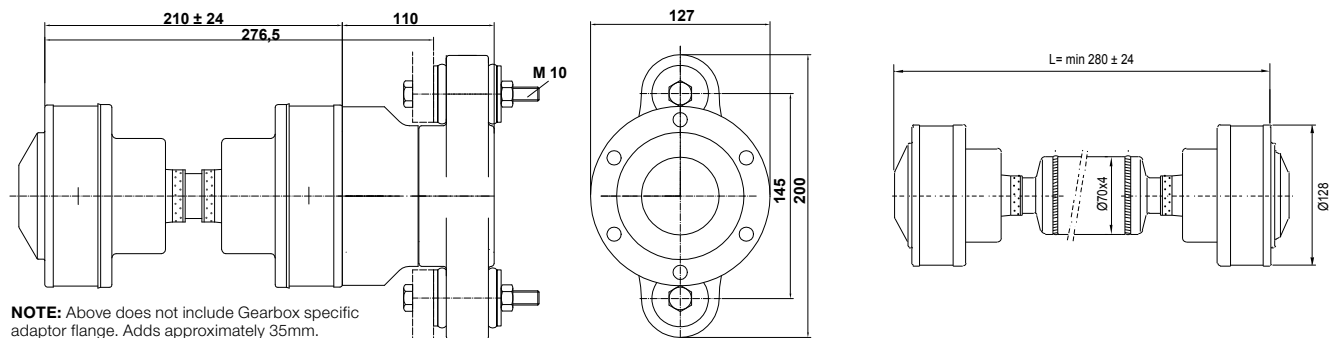
Custom-length CV 15 driveshaft is available in lengths from 170mm (from 270mm with tubeshaft design). Maximum length depends on shaft rpm.

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

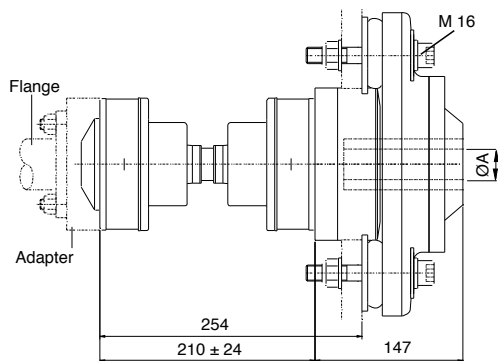
Custom-length CV 21 driveshaft is available in lengths from 210mm (from 280mm with tubeshaft design). Maximum length depends on shaft rpm.

CVB 21.20 Aquadrive Moduline B20

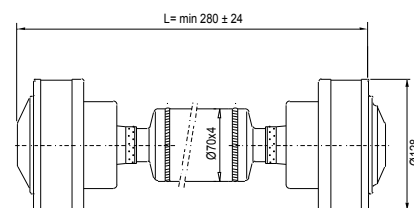
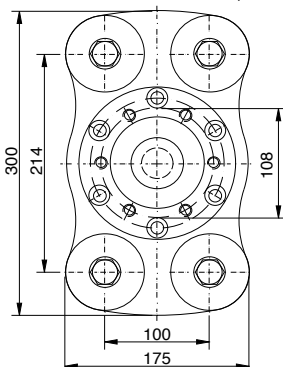
Application Examples	Rated Power kW / hp	Crankshaft rpm	Gearbox Ratio
Displacement	100 / 135	2600	3.0:1
Planing	165 / 225	3900	2.0:1

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

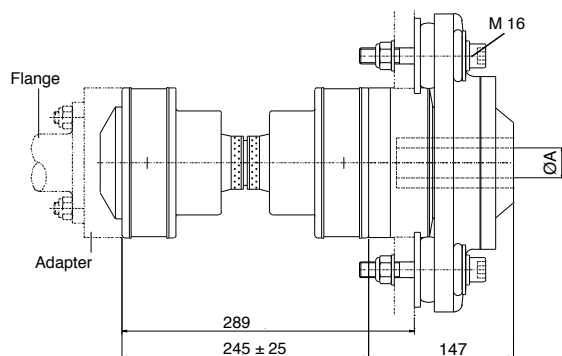
B20 Standard version accepts propeller shaft ØA from 35mm (1½") to 50mm (2"). Oversize version with external clamp mechanism available. All B20 systems are also available with flange coupling. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

CVB 30.20 Aquadrive Moduline B20

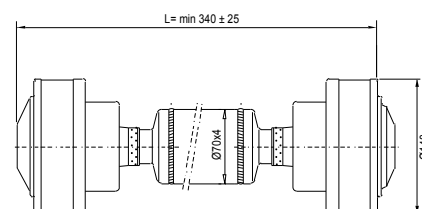
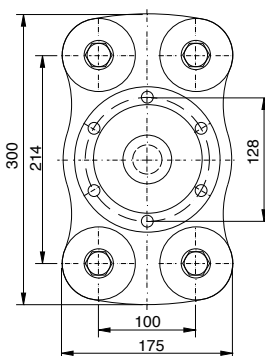
Application Examples	Rated Power kW / hp	Crankshaft rpm	Gearbox Ratio
Displacement	130 / 175	2600	3.0:1
Planing	200 / 270	3300	2.0:1

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

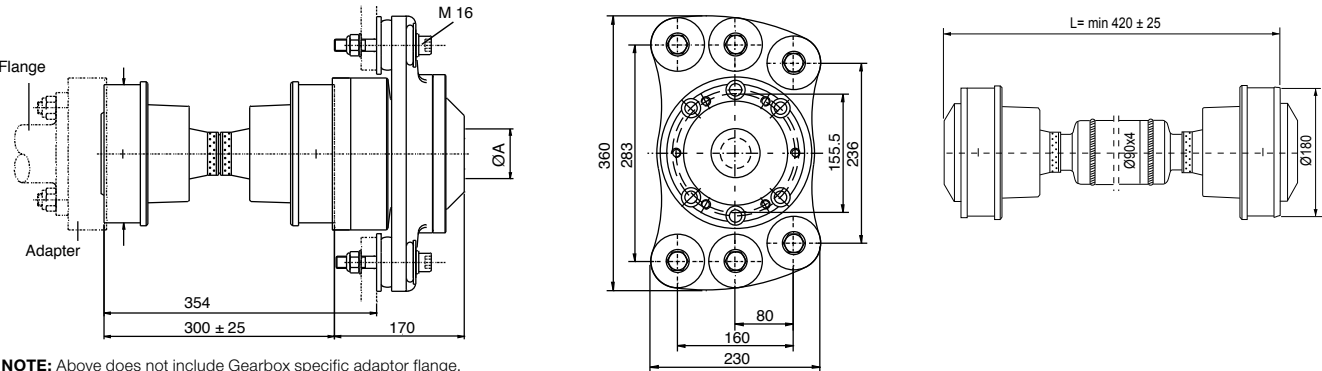
Application Examples	Rated Power kW / hp	Crankshaft rpm	Gearbox Ratio
Displacement	195 / 265	2600	3.0:1
Planing	270 / 365	3000	2.0:1

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.

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.



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

Propeller Shaft Options
B30 Standard version accepts propeller shaft ØA from 40mm (1 3/4") to 70mm (2 1/2"). 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

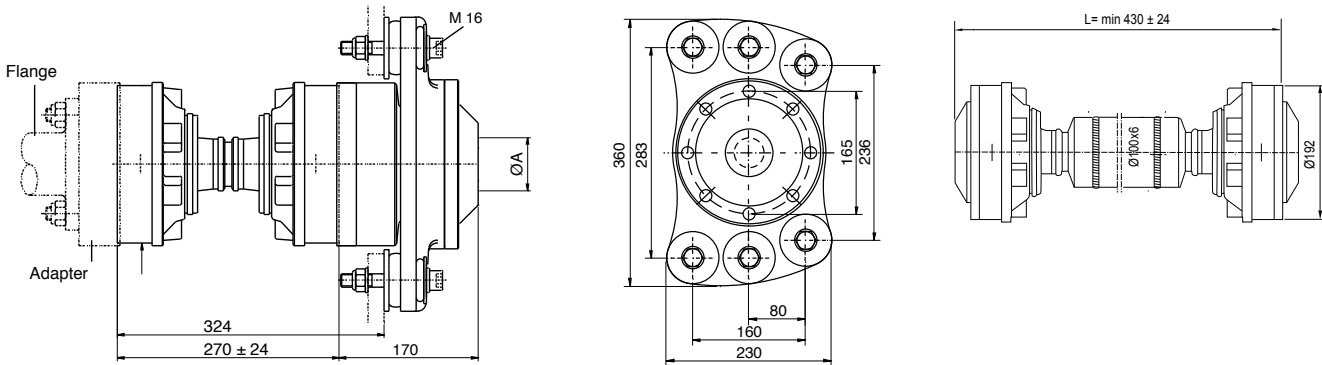
Application Examples	Rated Power kW / hp	Crankshaft rpm	Gearbox Ratio
Displacement	240 / 325	2800	3.0:1
Planing	310 / 420	2600	2.5:1

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.

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.



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

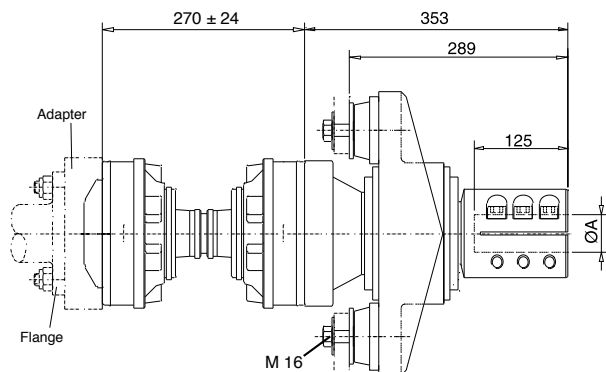
Propeller Shaft Options
B30 Standard version accepts propeller shaft ØA from 40mm (1 3/4") to 70mm (2 1/2"). All B10 systems are also available with flange coupling. Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

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.

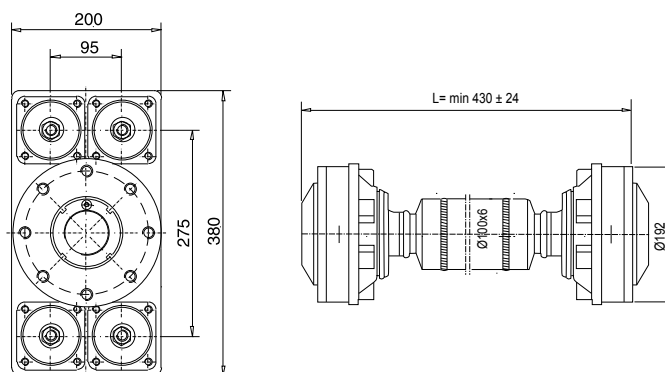


NOTE: Above does not include Gearbox specific adaptor flange. Adds approximately 50mm.

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").

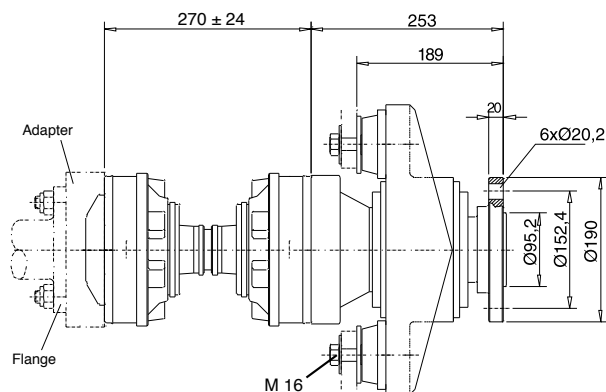
Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

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.

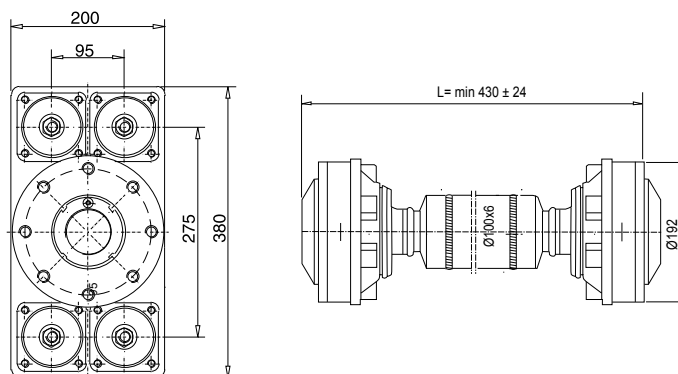


NOTE: Above does not include Gearbox specific adaptor flange. Adds approximately 50mm.

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

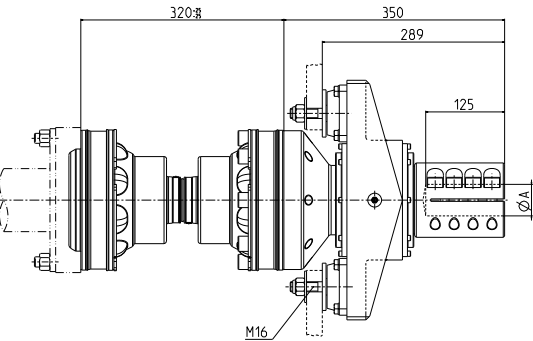
HDL 48.690 Aquadrive Heavy Duty - Flanged Option Available

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.

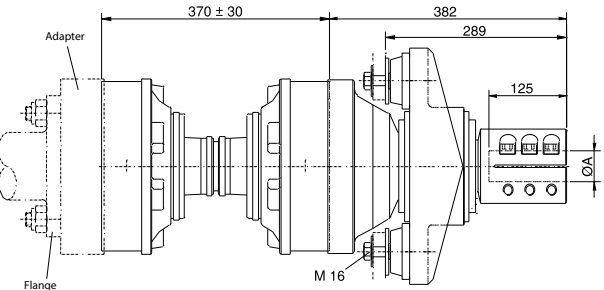
HDL 60.700 Aquadrive Heavy Duty - Flanged Option Available

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

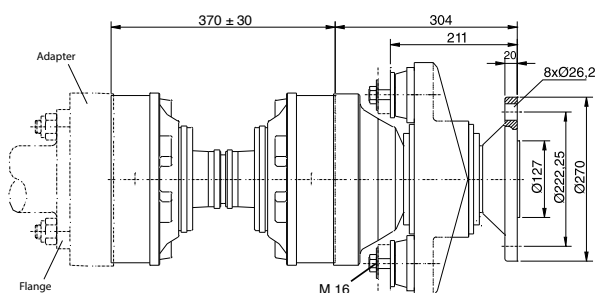
HDL 700 Standard version accepts propeller shaft ØA from 50mm (2") to 70mm (2 1/2"). Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

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").

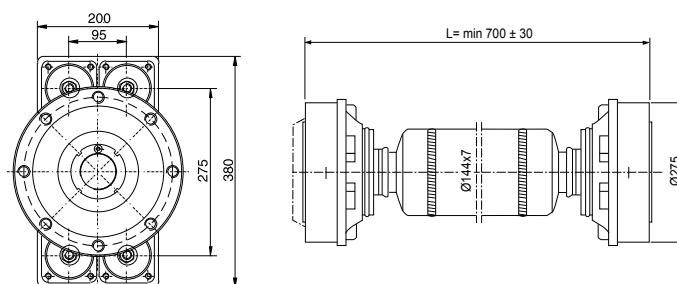
Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

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.

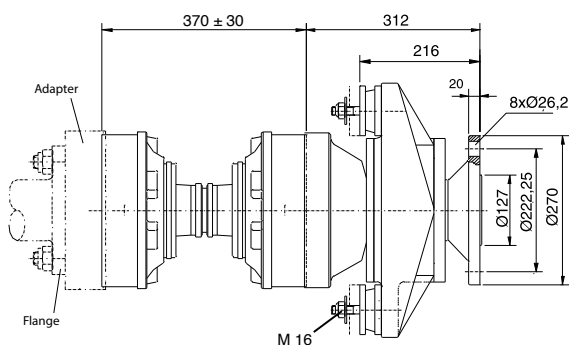


HDL 60.780 Aquadrive Heavy Duty Flanged

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").

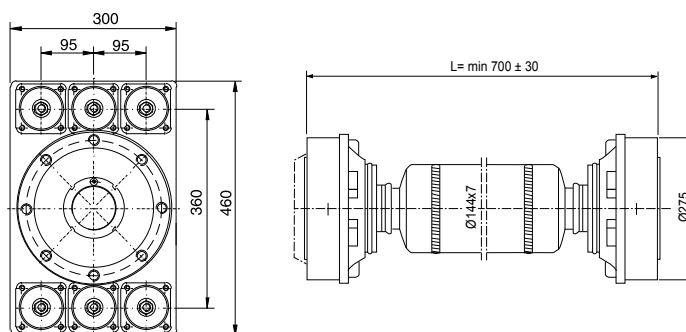
Contact your local Halyard representative to assist you in selecting a suitable Aquadrive system for your application.

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

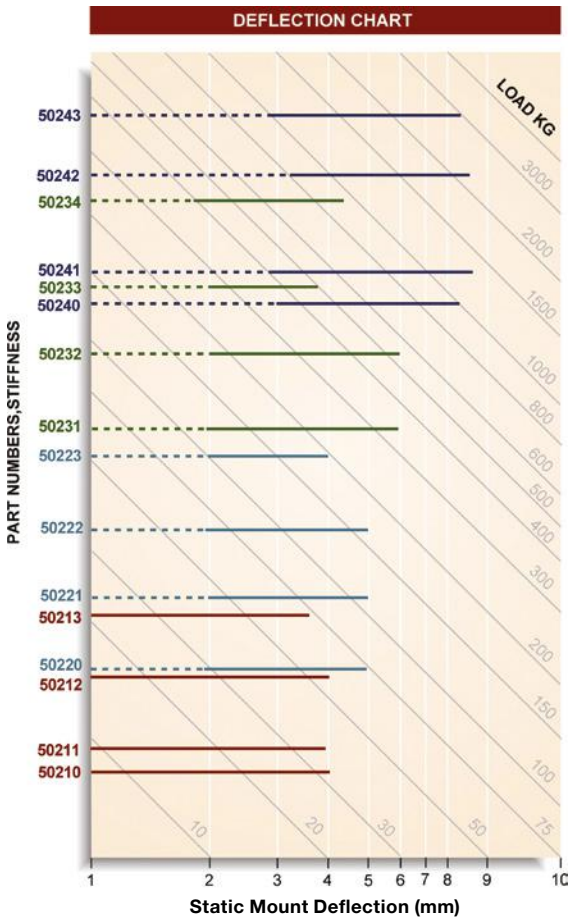
Custom-length CV 60 driveshaft is available in lengths from 370mm (from 700mm with tubeshaft design). Maximum length depends on shaft rpm.



Aquadrive Antivibration System

Aquadrive System Engine Mounts

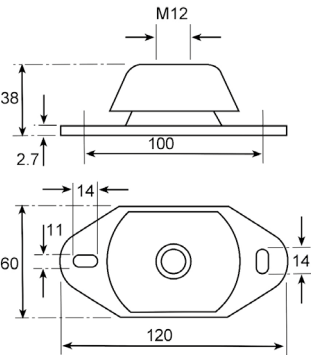
Engine Mounts	Weight
50210 Series engine mounts complete with stud and any stiffness grade	0.5kg
50220 Series engine mounts complete with stud and any stiffness grade	1.1kg
50230 Series engine mounts complete with stud and any stiffness grade	2.6kg
50240 Series engine mounts complete with stud and any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



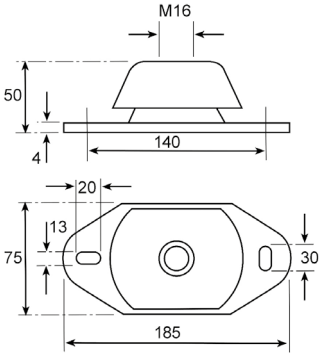
It is essential to select the correct rubber grade and mount for the engine or generator in question. For reference, the chart above shows the level of deflection (or squash) that will occur on each model of mount for a given loading.

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.

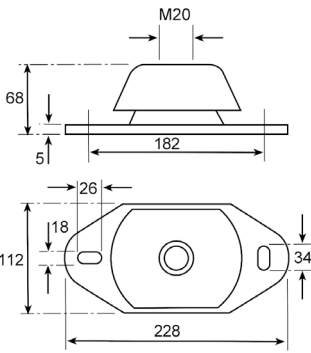
50210 Mounts



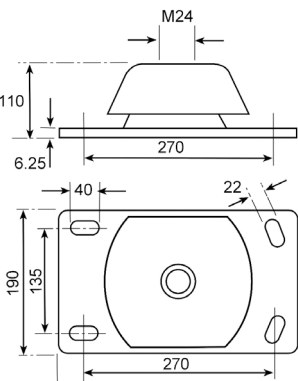
50220 Mounts

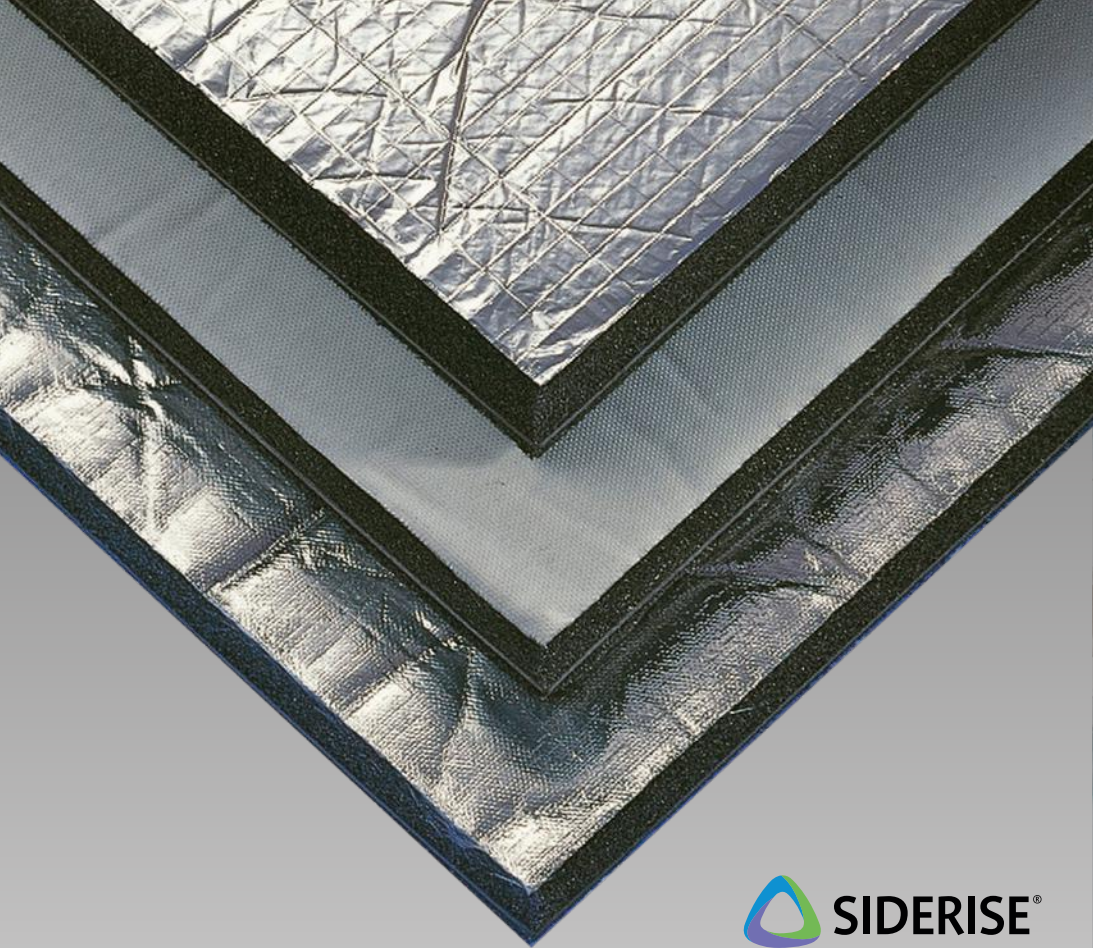


50230 Mounts



50240 Mounts





Noise Insulation Materials and Accessories

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

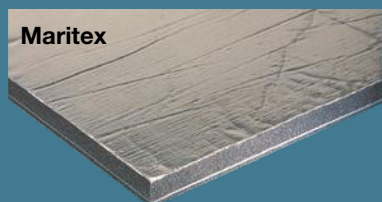


A range of technically advanced noise insulation materials:

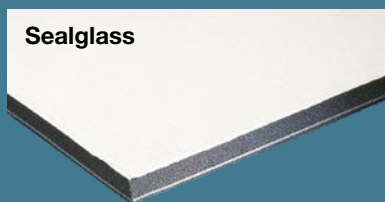
- Compliant with the European Recreational Craft Directive
- Standard sizes 12mm, 32mm, 45mm and 60mm
- Range of tapes & accessories



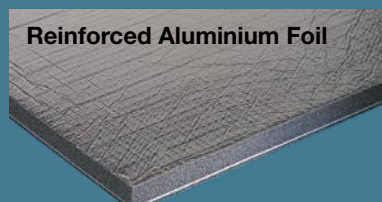
Joining Tape



Maritex



Sealglass



Reinforced Aluminium Foil

Noise Insulation Materials and Accessories

Noise Insulation Materials, Tapes and Accessories

Part No.	Reference	Description
12mm (1/2") Materials (2.4 sq metre packs)		
H000535	S3002	Maritex
H000537	S3004	Sealglass
H000536	S3003	Re-inforced Silver
12mm (1/2") Self Adhesive Materials (2.4 sq metre packs)		
H000554	S5002	Maritex
H000556	S5004	Sealglass
H000555	S5003	Re-inforced Silver
32mm (1 1/2") Materials (2.4 sq metre packs)		
H000540	S3017	Maritex
H000538	S3015	Sealglass
H000539	S3016	Re-inforced Silver
32mm (1 1/2") Self Adhesive Materials (2.4 sq metre packs)		
H000559	S5017	Maritex
H000557	S5015	Sealglass
H000558	S5016	Re-inforced Silver
45mm (1 3/4") Materials (1.2 sq metre packs)		
H000543	S3039	Maritex
H000541	S3037	Sealglass
H000536	S3038	Re-inforced Silver
45mm (1 3/4") Self Adhesive Materials (1.2 sq metre packs) Physical fixing required when hanging from the underside		
H000562	S5039	Maritex
H000560	S5037	Sealglass
H000561	S5038	Re-inforced Silver
60mm SilentWave (1.2 sq metre packs)		
H020841	S3018	Foil Faced
Joining Tapes		
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
Accessories		
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 Rw 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.).

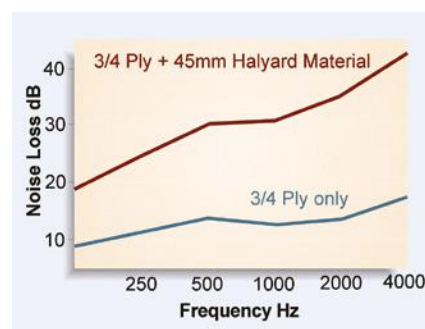
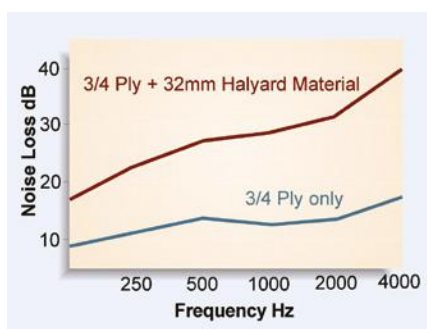
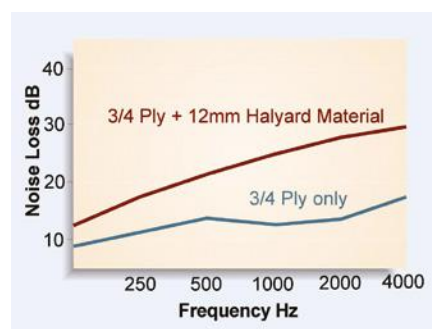
Box weight is approximately 16kgs.

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.

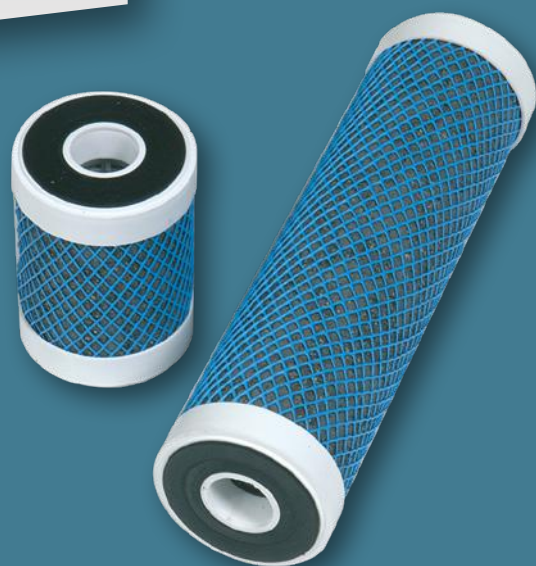
Please contact Halyard for further information and detailed product specifications to suit your particular installation requirements.



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

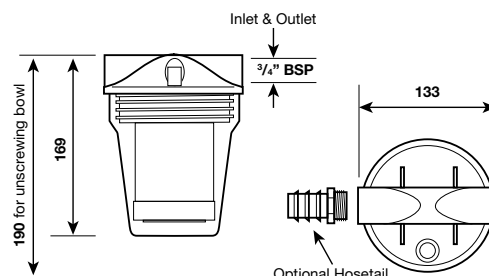
Product Range

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



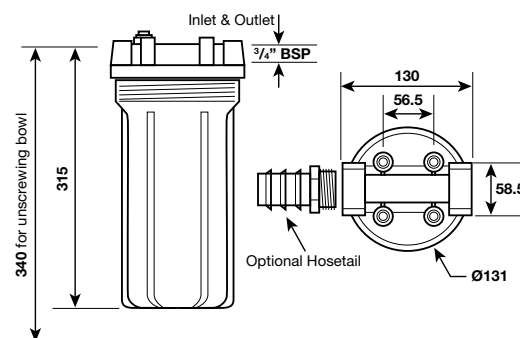
Ref: WMS - Part No. H000610	
Flow Rate	1 - 40 litres per minute
Maximum Pressure	8 bar
Maximum Temperature	40°C
Minimum Temperature	1 °C
Connection	3/4" BSP (3/4 NPT available)
Cartridge	WC-CM H000611
With Whale Orca 12V Pump	WMSFP H020978



Wavestream System 1 Bilge Filter



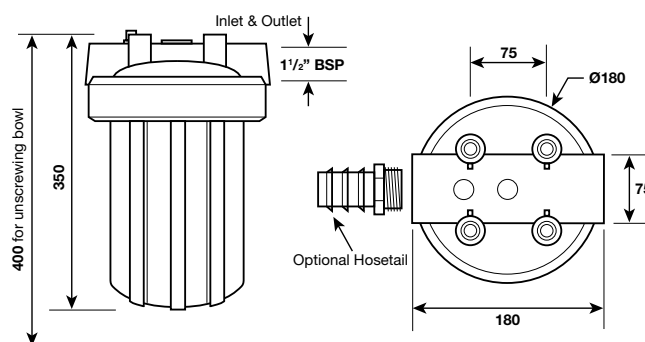
Ref: WSS1 - Part No. H000596	
Flow Rate	1 - 40 litres per minute
Maximum Pressure	6.2 bar
Maximum Temperature	40°C
Minimum Temperature	1 °C
Connection	3/4" BSP
Cartridge	WS-C1 H000597
With Whale Orca 12V Pump	WSS1FP H020982



Wavestream System 2 Bilge Filter



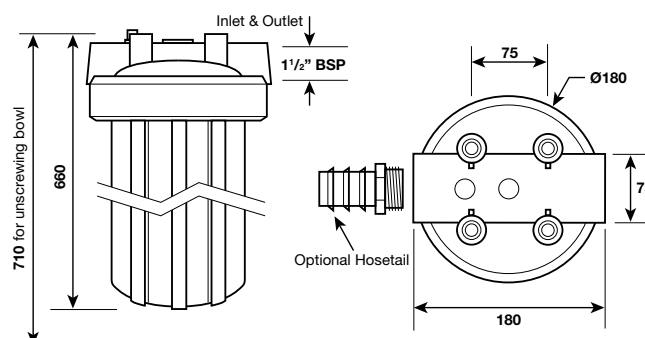
Ref: WSS2 - Part No. H000601	
Flow Rate	1 - 265 litres per minute
Maximum Pressure	6.8 bar
Maximum Temperature	37°C
Minimum Temperature	1 °C
Connection	1 1/2" BSP
Cartridge	WS-C2 H000602
With Whale Orca 12V Pump	WSS2FP H020983



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



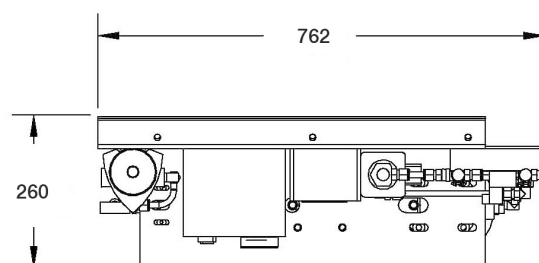
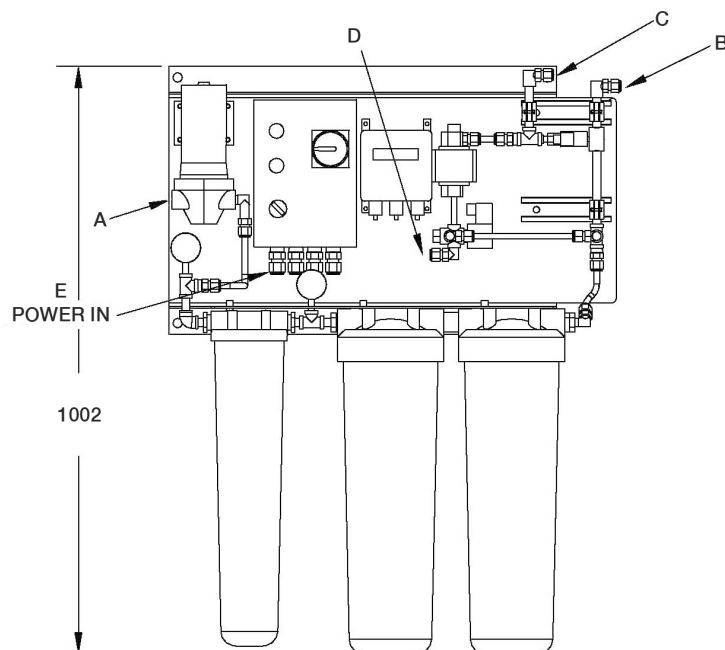
Wavestream MiniBOSS IMO Bilge Filter System

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 0.25m³/hr
- Wave MiniBOSS 110 - 110V ac maximum flow rate 0.50m³/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

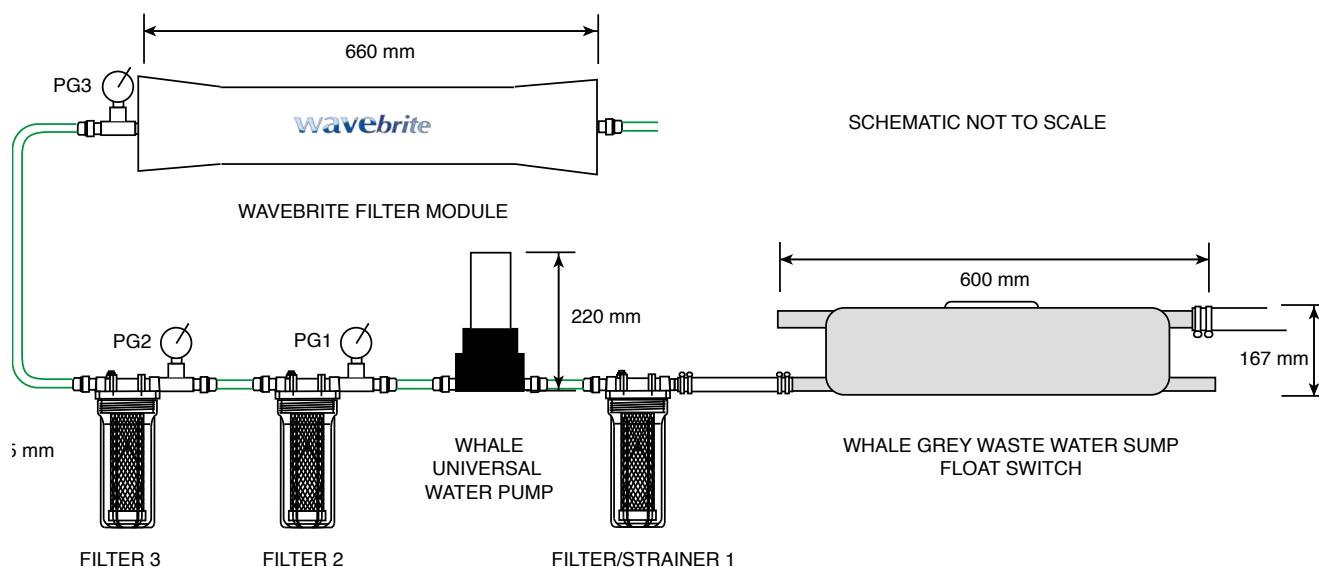
WB100 / 300



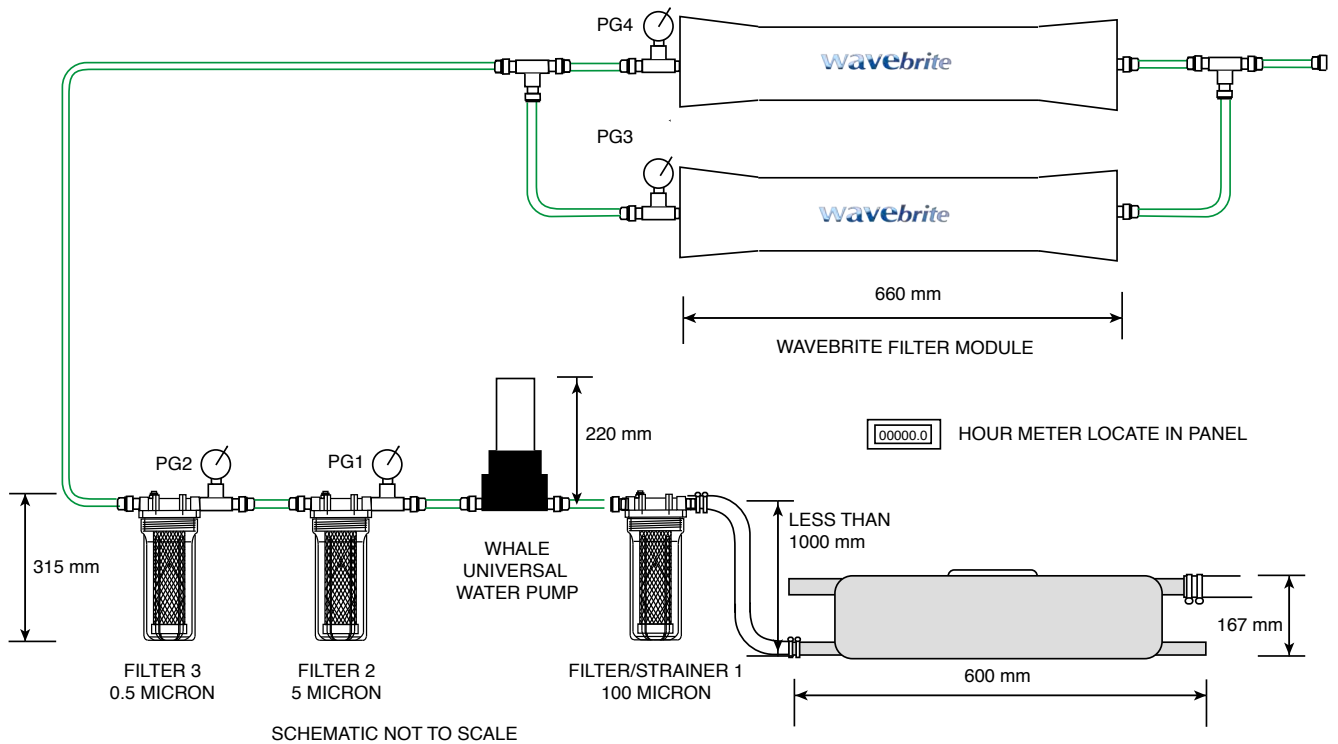
WBS / WBLite



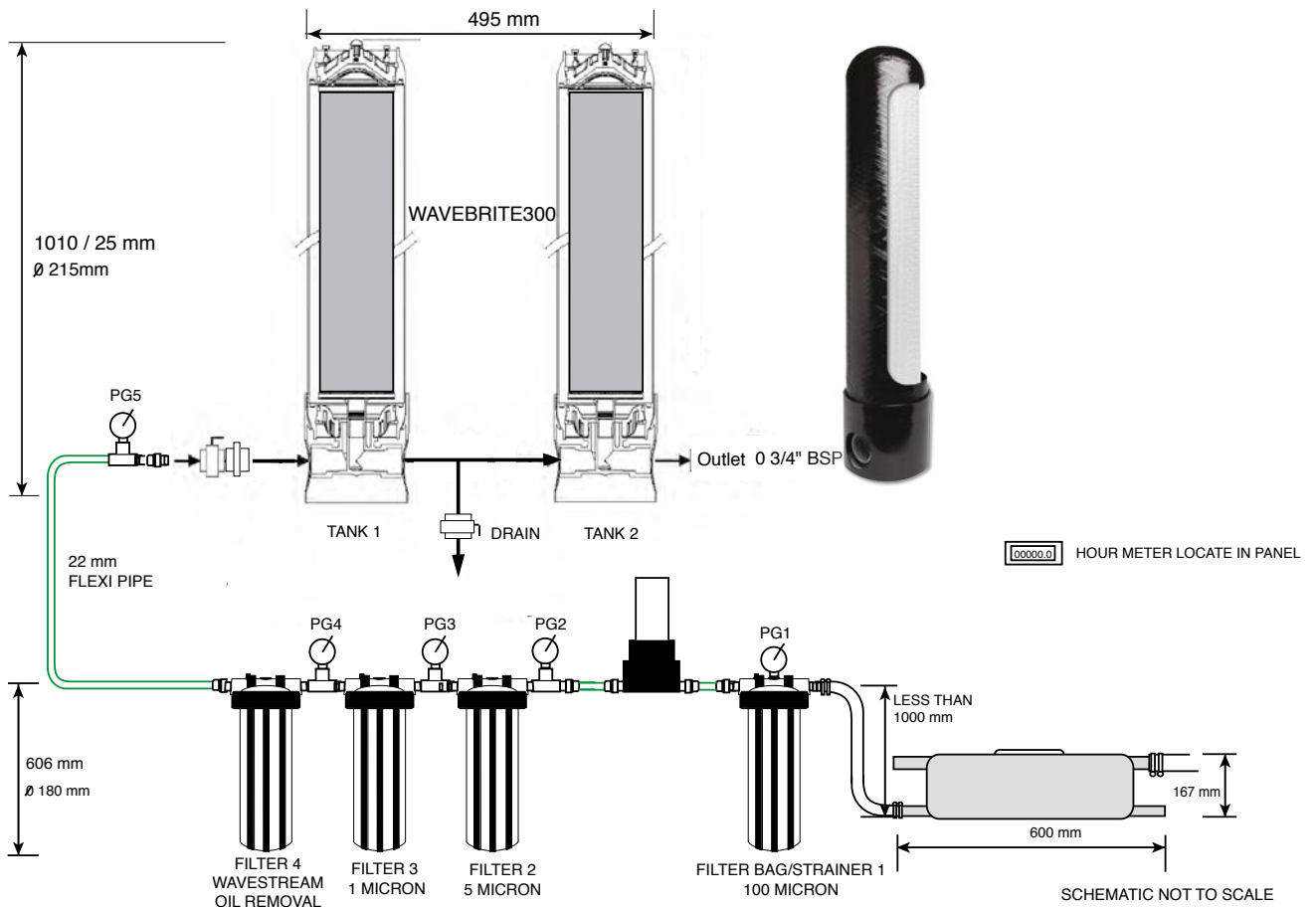
Wavebrite WBS Schematic



Wavebrite WB2010 Schematic



Wavebrite WB300 Schematic



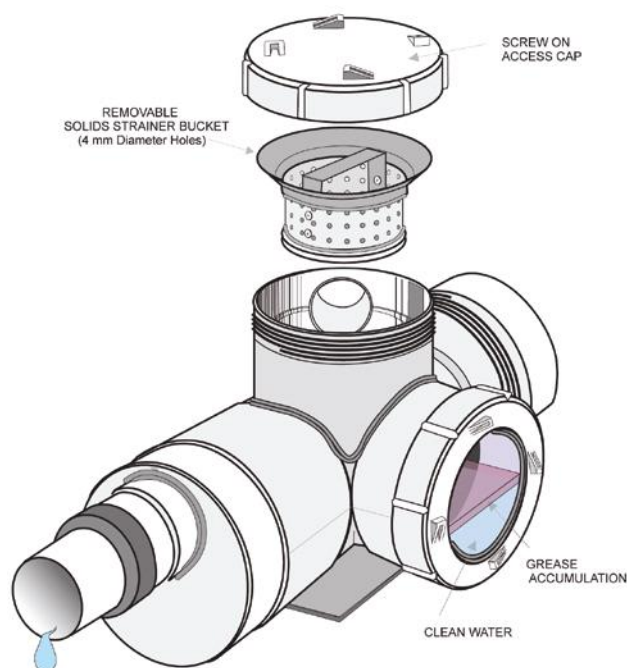
Wave Filtration Systems

Product Range

Wavebrite Grease Trap

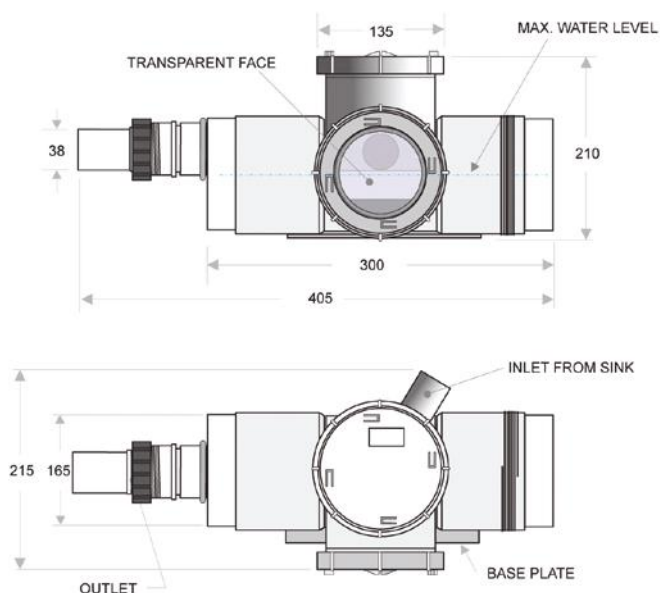
The Wavebrite Grease Trap is a useful addition to any Wavebrite system when processing galley waste water. It removes food waste, fat and grease which helps prevent solids forming in the system and extends the life of the Wavebrite module and filter cartridges.

- 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

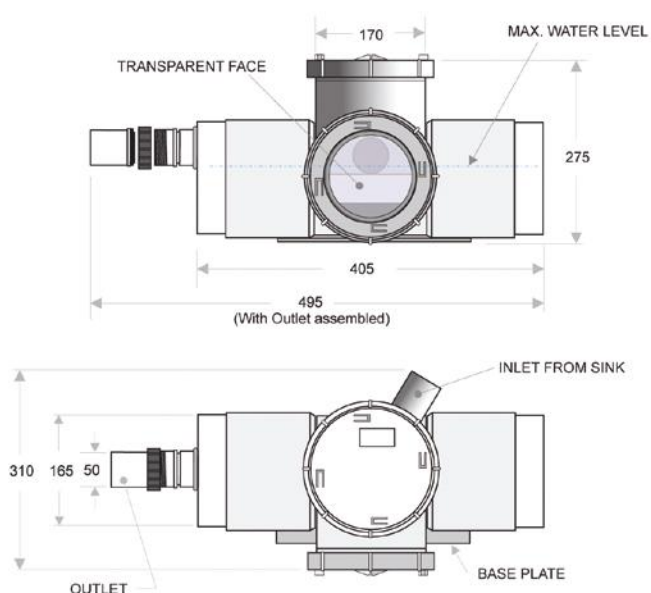


Wavebrite		
Reference	Part No.	Description
WBG/1.75	H021005	Wavebrite Grease Trap 1.75l capacity
WBG/4.5	H021006	Wavebrite Grease Trap 4.50l capacity

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 flexi-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	Flostream 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 flexi-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

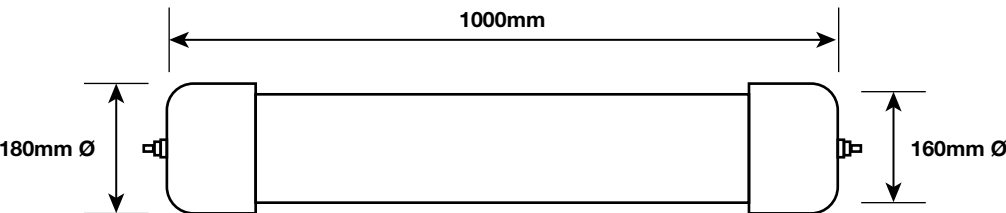
Product Range

Waveshine Wash and Rinse System

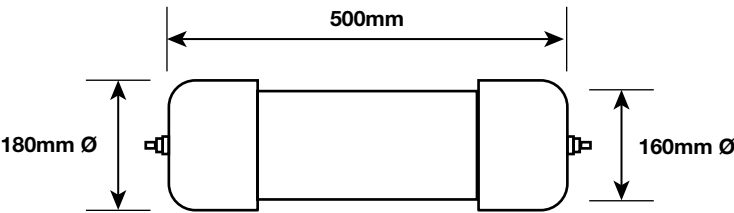
Waveshine is a washdown filter system that removes the minerals from water that causes spotting and smears when washing and rinsing your boat. When also used to filter water going onboard it removes hardness softening the water for regular use, protecting appliances, taps, sinks, showers, pumps and systems.

- 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

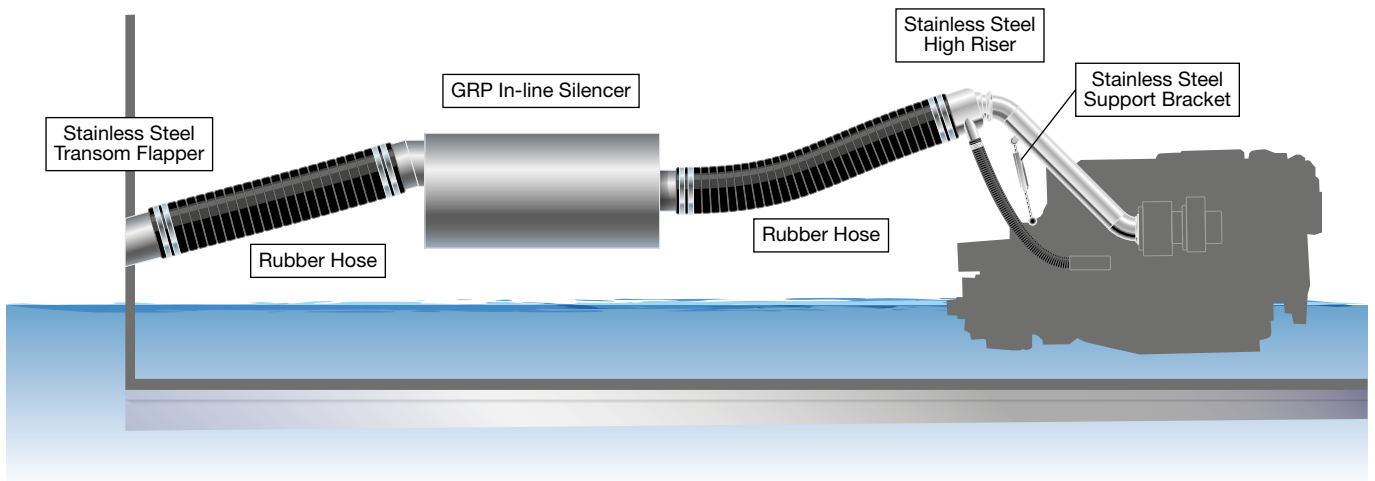


Waveshine 4250

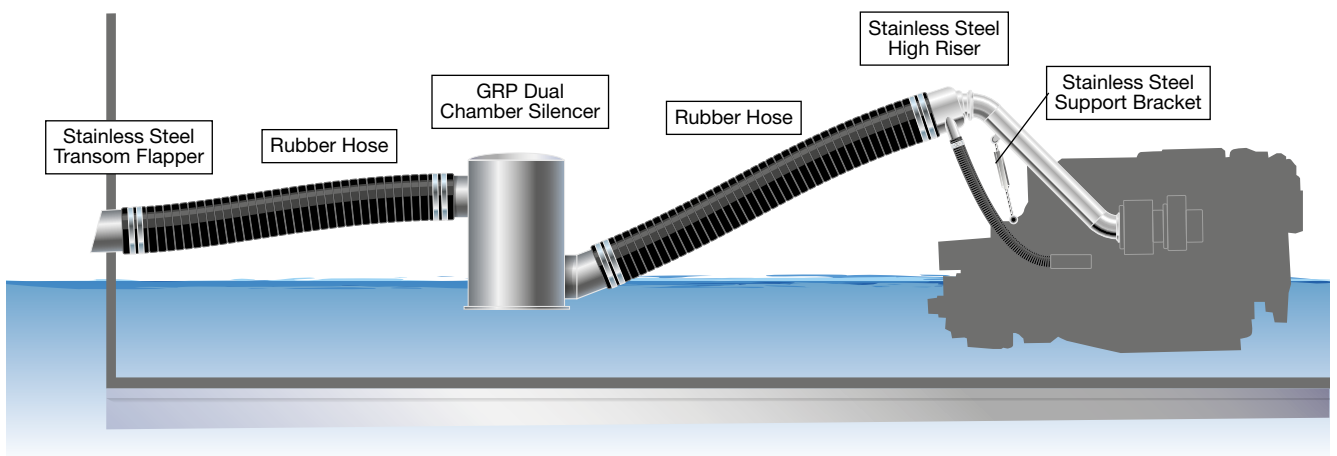
System Drawings

Typical Exhaust System Layout Diagrams

Standard In-line Silencer with Discharge Above Waterline



Dual Chamber Silencer with Above Water Discharge

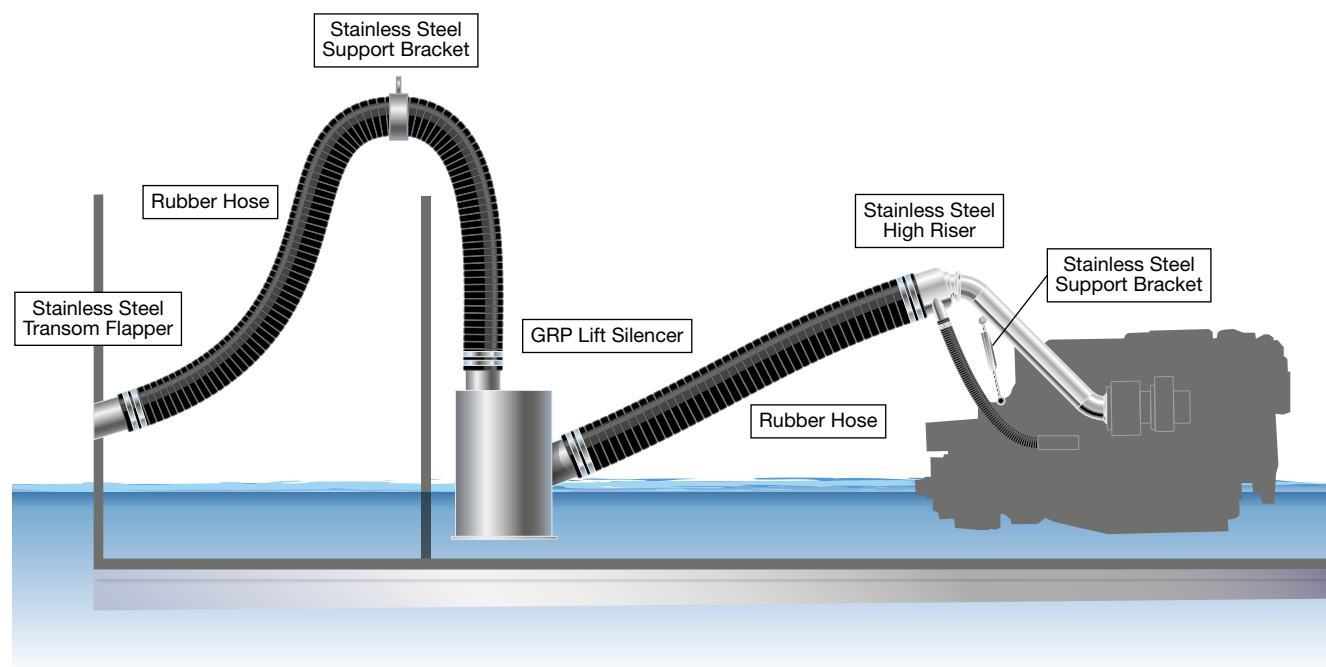


The information published by Halyard indicates the general suitability of our products for the types of applications for which they are designed. We cannot accept design responsibility for any specific installation unless we have confirmed in writing that the overall installation design is correct following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

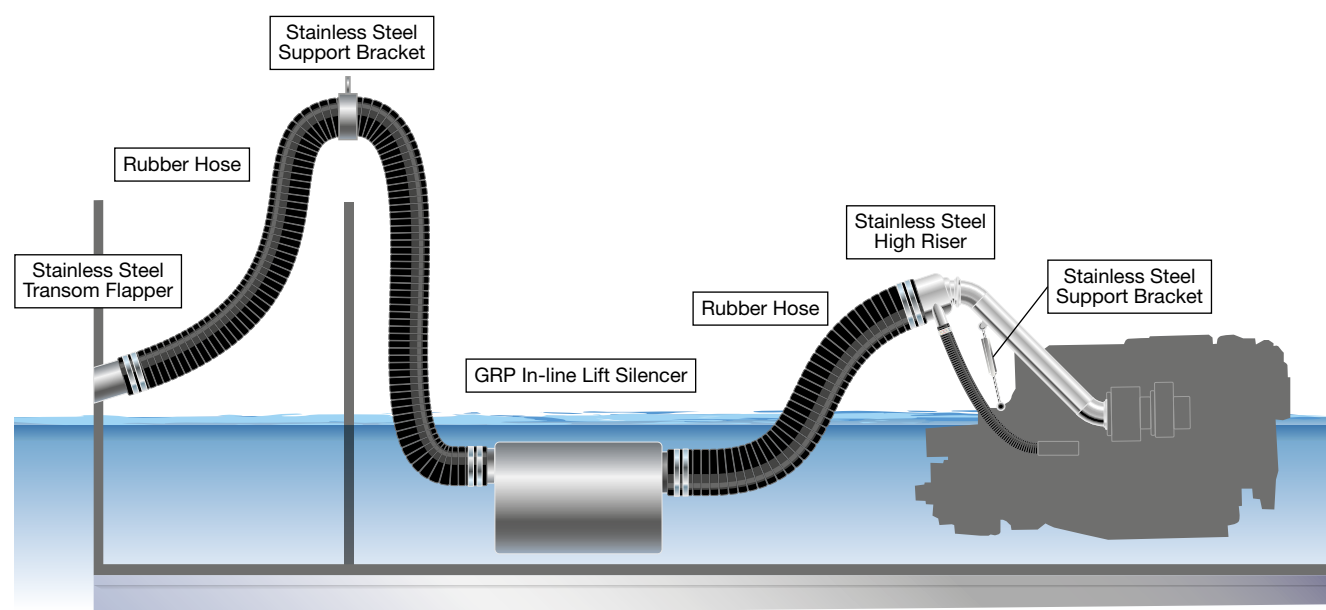
System Drawings

Typical Exhaust System Layout Diagrams

Single Chamber Lift Silencer with Discharge Above Waterline

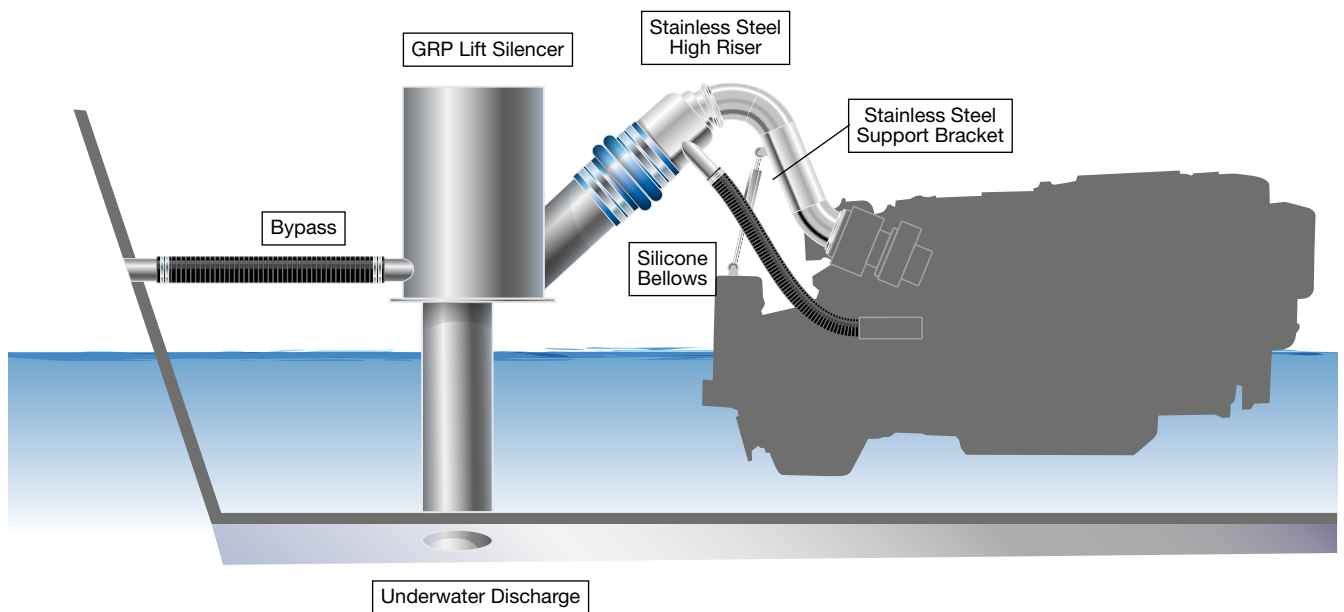


Standard In-line Lift Silencer with Discharge Above Waterline

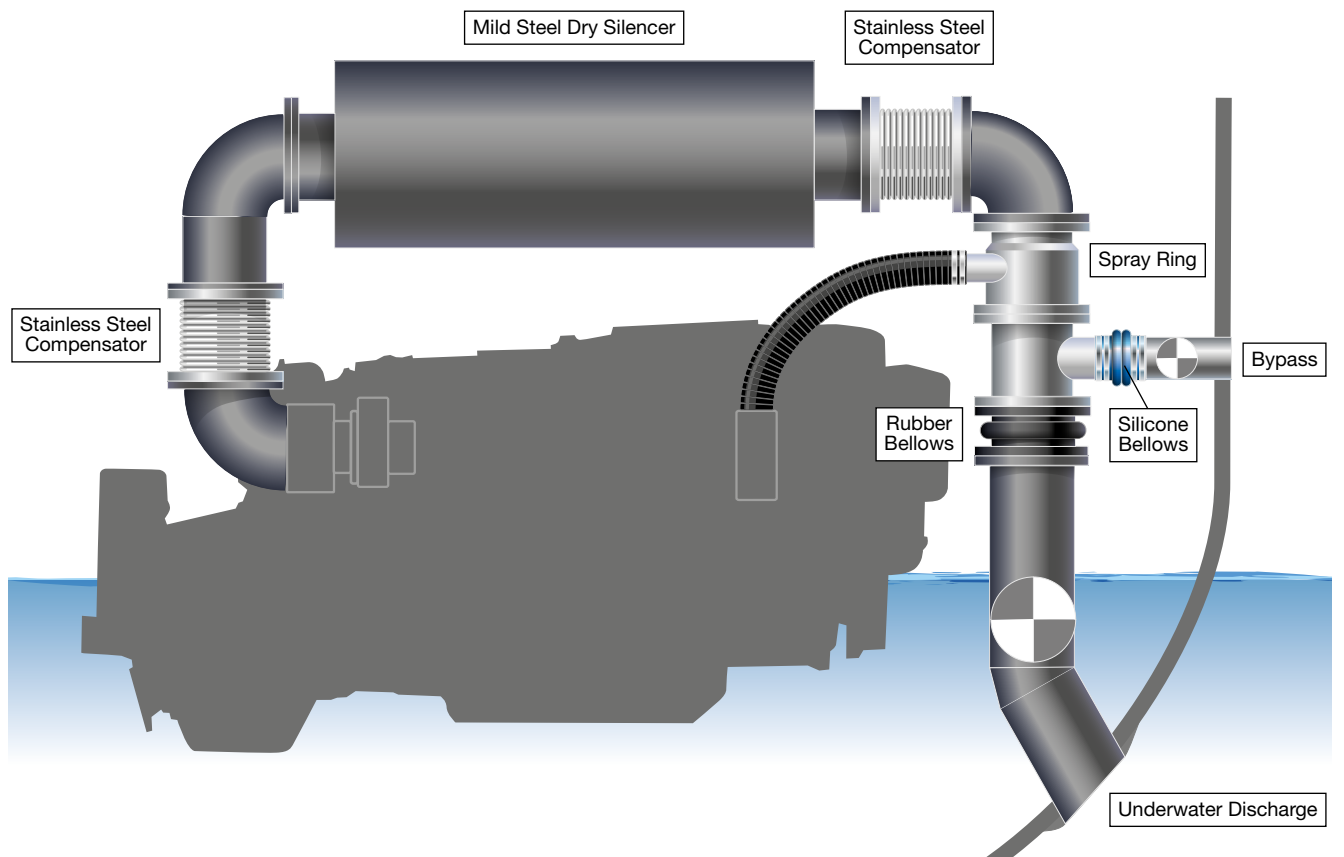


The information published by Halyard indicates the general suitability of our products for the types of applications for which they are designed. We cannot accept design responsibility for any specific installation unless we have confirmed in writing that the overall installation design is correct following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

Single Chamber Lift Silencer with Bypass and Underwater Discharge



Dry Silencer to Spray Ring with Bypass and Underwater Discharge

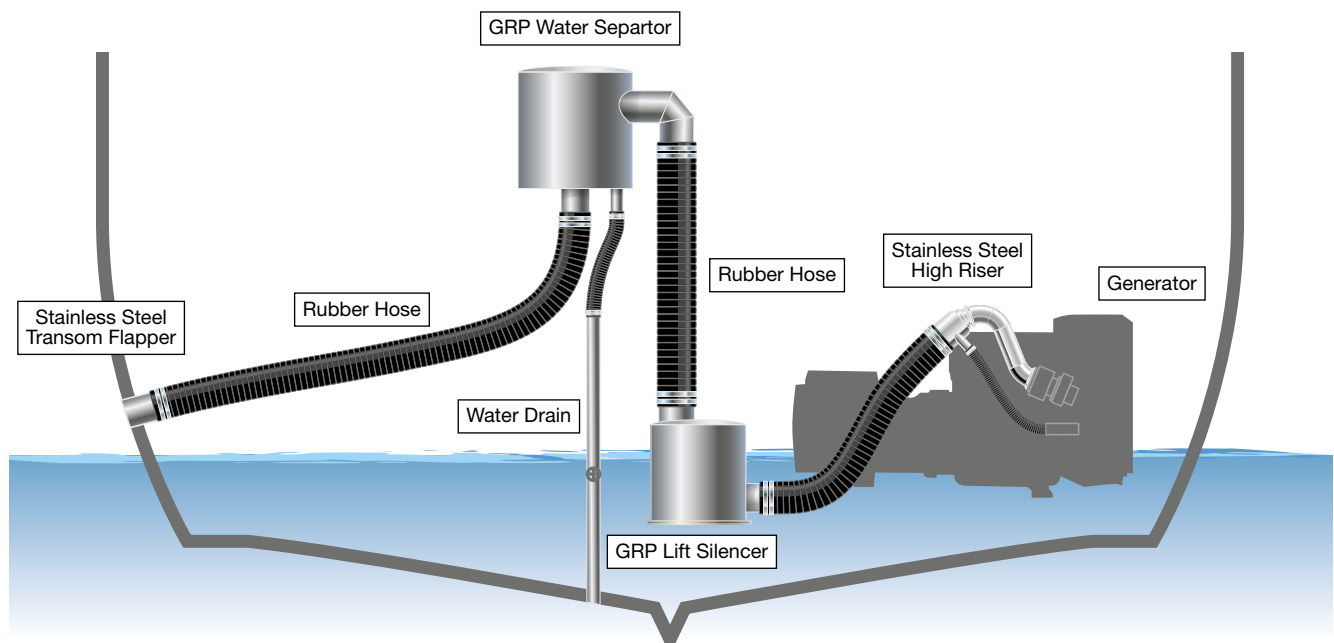


The information published by Halyard indicates the general suitability of our products for the types of applications for which they are designed. We cannot accept design responsibility for any specific installation unless we have confirmed in writing that the overall installation design is correct following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

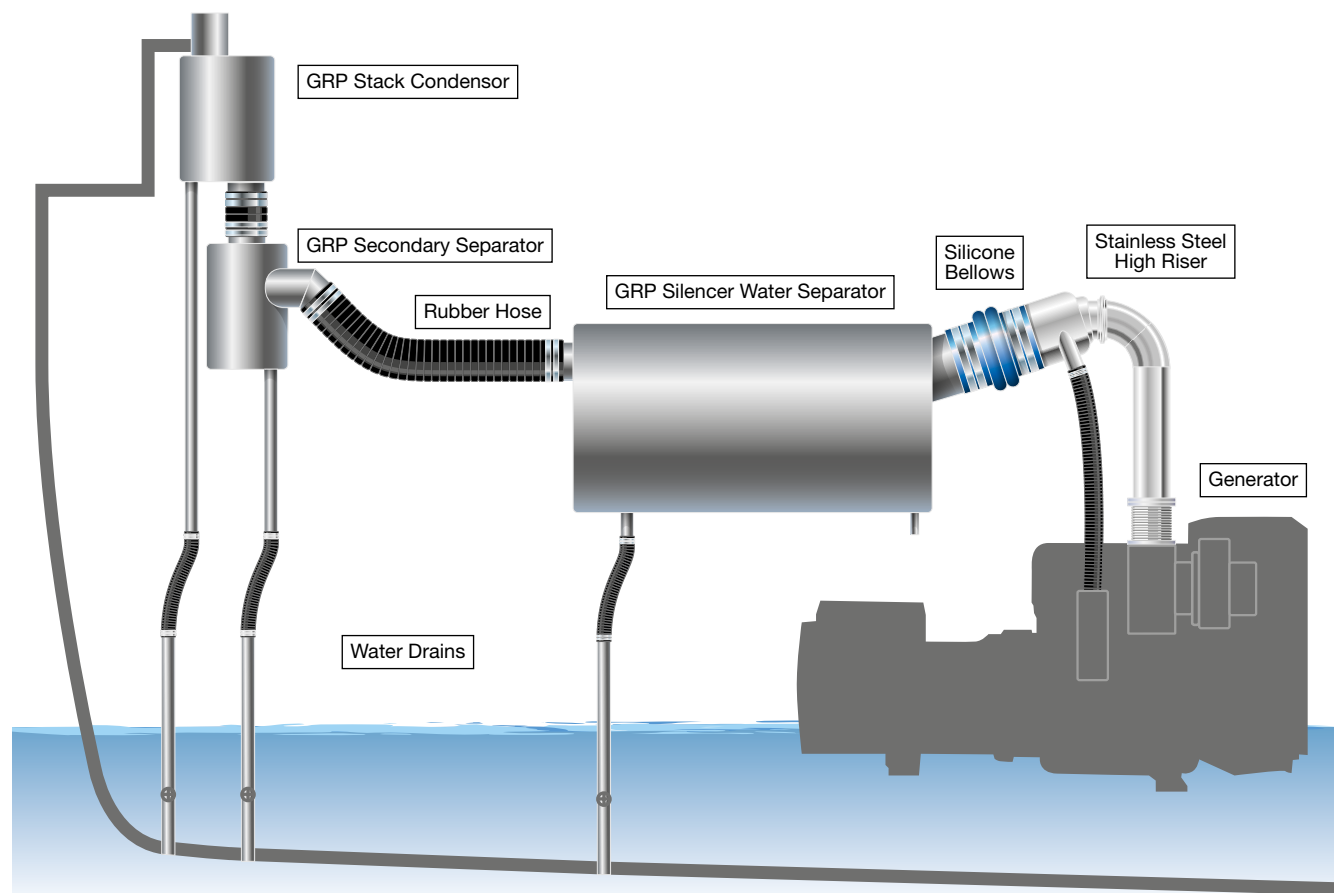
System Drawings

Typical Exhaust System Layout Diagrams

Single Chamber Lift Silencer and Separator with Discharge Above Waterline



Combined Silencer and Separator with Gas Discharge up the Stack



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.

Distributors and Dealers List

United Kingdom:

D B Marine International
Cookham Bridge
Cookham On Thames
Maidenhead
SL6 9SN
Tel: +44 (0) 1628 526032
www.dbmarine.co.uk

Mylor Yacht Harbour
Churchtown
Falmouth
TR11 5UF
Tel: +44 (0) 1326 372121
www.mylor.com

T Norris Marine
6 Wood Lane
Isleworth
TW7 5ER
Tel: +44 (0) 20 8560 3453
www.tnorrismarine.co.uk

Allboat Services
C2 Apollo Court
Neptune Park
Plymouth
PL4 0SW
Tel: +44 (0) 1752 492 609
www.allboatservices.co.uk

Mechanical Services (Wessex) LLP
19 Meerside
Osprey Quay
Portland
Dorset
DT5 1PY
+44 (0) 1305 779 379
info@mechanicalservicesltd.co.uk

AR Peachment Ltd
Riverside Estate
Brundall
Norwich
NR13 5PL
Tel: +44 (0) 1603 714077
www.peachment.co.uk

Darthaven Marina Ltd
Brixham Road
Kingswear
Dartmouth
TQ6 0SG
Tel: +44 (0) 1803 752242
www.darthaven.co.uk

TW Marine Ltd
The Marina
Station Road
Furness Vale
High Peak
SK23 7QA
Tel: +44 (0) 1663 745757
www.twmarine.co.uk

Seapower Marine Ltd
Woolverstone Marina
Woolverstone
Ipswich
IP9 1AS
Tel: +44 (0) 1473 780 090
www.seapowermarine.com

Ireland:

CH Marine Ltd
Nautic House
Marsh Road
Skibbereen
Co. Cork
Tel: +353 (0) 28 23190
www.chmarine.com

South Shore Marine & Diesel
27 Annaloise Road
Kinnego Marina
Lurgan, Co. Armagh
Northern Ireland
Tel: +44 (0) 283 8341010
www.southshoremachine.co.uk

France:

Seimi
74 Rue Amiral Troude
CS 41809
29218 Brest Cedex 2
Tel: +33 (0) 298 461102
www.seimi.com

Italy:

Uflex Srl
via Milite Ignoto 8A
16012 Bussalla GE
Tel: +39 (0) 10 9620213
www.ultraflexgroup.com

Netherlands:

Technautic BV
Industrieweg 35
1521 NE Wormerveer
Tel: +31 (0) 75 647 4545
www.technautic.nl

Spain:

**Central De Transmisiones
Y MANDOS S.L**
C/Newton, 1 - Edificio E3 - Nave 6
Pol. Ind NEINOR
28914 Leganes
Madrid
Tel: +34 (0) 916 653 330
www.centramar.com

Poland:

Marine Works
Ul. Atney 10
80-299
Gdansk
Tel: +44 (0) 48583244930
www.marineworks.eu/pl

Greece:

Motocraft
48 Alimou Avenue
17455 Alimos
Athens
Tel: +30 (0) 210 988 288
www.motocraft.gr

Norway:

Progress Ingeniorfirma AS
Frysjaeveien 33E
0884 Oslo
Tel: +47 (0) 220 27900
www.progressing.no

Sweden:

Trans Auto
Förrådsvägen 6,
151 48 Södertälje
Sweden
www.transauto.se

Finland:

Oy Unilink AB
Vattuniemenkatu 15
00210 Helsinki
Tel: +358 (0) 968 66 170
www.unilink.fi

Iceland:

Asafl ehf
Hjallahraun 2
220 Hafnarfjörður
Tel: +354 (0) 562 23833
www.asafl.is

Turkey:

**Marintek Deniz Ve Yat
Malzememeleri TIC**
Unalan Mah, Unalan Cad. No:9/1
Uskudar
34700 Istanbul
Tel: +90 (0) 216 317 1010
www.marinetek.com.tr

South Africa:

Entramarc Cape
Montague Park
Stella Road
Cape Town.
South Africa
Tel: +27 (0) 82 380 1467
www.entramarccape.co.za

For all other territories please contact Halyard directly



Halyard (M&I) Limited
86 Cobham Road
Ferndown Industrial Estate
Wimborne
BH21 7PQ

+44 (0) 1722 710 922
technical@halyard.eu.com
www.halyard.eu.com

Pleasure Craft

Commercial

Superyacht

Halyard (M&I) Ltd. makes no representations or warranties with respect to the contents or use of this manual and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Halyard (M&I) Ltd. reserves the right to revise this publication and make changes to its content at any time, without obligation to notify any person or entity of such revisions or changes. Further, Halyard (M&I) Ltd., reserve the right to make changes and all parts of Halyard products at any time, without obligation to notify any person or entity of such changes.