

Rating definitions:

hp $\approx$ 0.7355kW Ratings are based on conditions of 100kPa, 30% relative humidity at 25°C.

S=For applications where use of rated power is less than 30 minutes continuous.

L=For applications where use of rated power is less than 2 hours continuous.

M=For applications where use of rated power is less than 10 hours continuous.

H=For applications where use of rated power is less than 24 hours continuous.

Fuel rates: Specific gravity 0.835g/cc, low calorific value 42700kj/kg (10200kcal/kg), Cetane No.45.

Note: All data subject to alteration without notice.

Photograph may show optional equipment.



YANMAR

**MARINE DIESEL ENGINE
PRODUCT GUIDE**

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Yanmar Europe B.V.

Brugplein 11, 1332 BS Almere-de Vaart, The Netherlands

Tel : 31-36-5493200 Fax : 31-36-5493209

Yanmar Marine U.S.A. Corp.

101 International Parkway, Adairsville, GA 30103, U.S.A.

Tel : 1-770-877-9894 Fax : 1-770-877-9009

Yanmar Engine (Shanghai) Co., Ltd.

18F, North Tower, Shanghai Stock Exchange Building,
528 South Pudong Road, Pudong Shanghai, China, P.C. (200120)

Tel : 86-21-6880-5090 Fax : 86-21-6880-8090

Yanmar Marine System Co., Ltd.

5-3-1, Tsukaguchi-honmachi, Amagasaki, Hyogo, Japan

Tel : 81-6-7711-6405 Fax : 81-6-6428-0485

Yanmar Co., Ltd.

1-32, Chayamachi, Kita-ku, Osaka, Japan



**Reliability,
Economical efficiency
& Comfort
for customers
dedicated to
maritime activity.**

Our pride is to contribute to
tough and valuable activities
of customers on the sea.

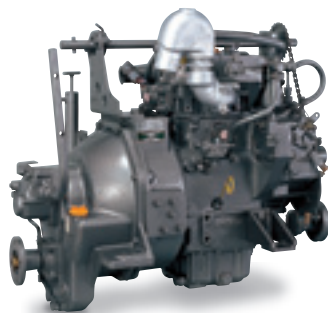


MARINE PROPULSION

DIESEL ENGINE

2GMY

M·L-rating 8.8~9.7kW(12.0~13.2mhp)

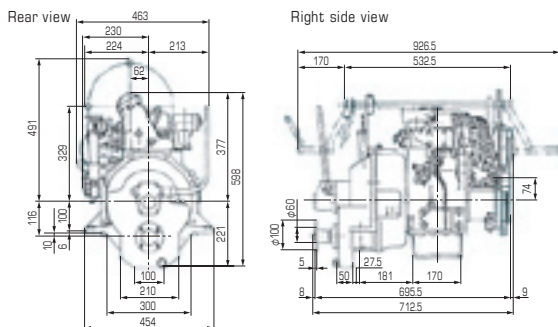


- Pre-combustion chamber. Two cylinders.
- 2GMY is equipped with mechanical marine gear.

Specifications

Model	2GMY
Number of cylinders	2 in-line
Bore × stroke	mm 72 × 72
Displacement	lit. 0.586
Rated output	kW(hp)/rpm M : 8.8(12.0)/3200 L : 9.7(13.2)/3300
Combustion system	Special swirl precombustion chamber
Aspiration	Natural aspirated
Starting system	Electric motor (12V 1.3kW)
Cooling system	Direct sea water cooling
Marine gear	Mechanical
Dry mass	kg 155 with Y-5M
Dimensions (L × W × H)	mm 712.5 × 463 × 598 with Y-5M

Dimensions Unit:mm



Accessories

- Exhaust pipe
- Kingston cock
- Stop cable 3m
- Battery switch
- A-type instrument panel
- Wiring harness 3m
- LO evacuation pump
- Installation parts
- Half coupling
- Standard tools

4JHYE

M·L-rating 25.7~29.4kW(35~38mhp)

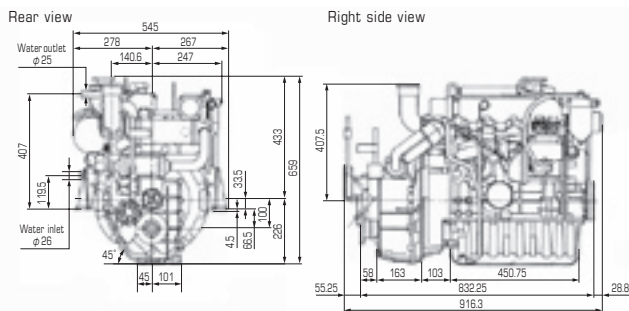


- 4-cylinder, direct injection, heat exchanger cooling.
- Natural aspiration.
- Yanmar YX marine gear is standard.

Specifications

Model	4JHYE
Number of cylinders	4 in-line
Bore × stroke	mm 78 × 86
Displacement	lit. 1.644
Rated output	kW(hp)/rpm M : 25.7(35)/3400 L : 29.4(38)/3600
Combustion system	Direct injection
Aspiration	Natural aspirated
Starting system	Electric motor (12V 1.8kW)
Cooling system	Heat exchanger
Marine gear	Hydraulic
Dry mass	kg 243 with YX-10
Dimensions (L × W × H)	mm 916.3 × 545 × 659 with YX-10

Dimensions Unit:mm



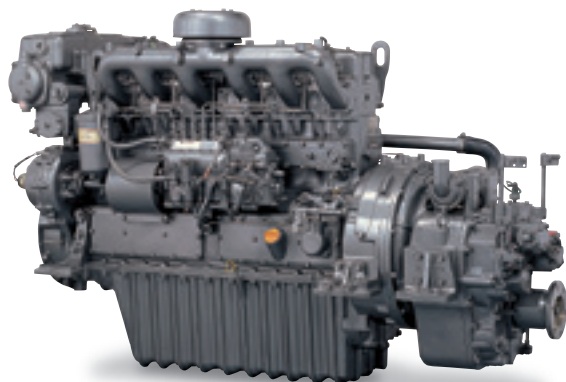
Accessories

- Exhaust pipe
- Remote control head
- Remote control cable 4m
- B-type instrument panel
- Wiring harness 4m
- Standard spare parts
- Standard tools
- Installation parts
- Battery switch
- Kingston cock
- LO evacuation pump
- FO water separator
- Bilge pump

4CHE3 / 6CHE3

M·L-rating 57.4~95.6kW (78~130mhp)

**MARINE
PROPULSION**
DIESEL ENGINE



- Direct injection, heat exchanger cooling.
- Natural aspirated 4- and 6-cylinder.
- Durable hydraulic marine gear.

Specifications

Model	4CHE3	6CHE3
Number of cylinders	4 in-line	6 in-line
Bore × stroke	mm 105 × 125	
Displacement	lit. 4.330	6.494
Rated output	kW(hp)/rpm M : 57.4(78)/2550 L : 62.5(85)/2600	M : 84.6(115)/2550 L : 95.6(130)/2600
Combustion system	Direct injection	
Aspiration	Natural aspirated	
Starting system	Electric starting motor (24V 4.0kW)	
Cooling system	Heat exchanger	
Marine gear	Hydraulic	
Dry mass	kg 568	700
Dimensions(L×W×H)	mm 1183.5×688×1021 with YX20	1496.3×690×1018 with YX30

Marine gear specifications

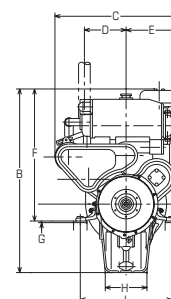
Engine model : 4CHE3·6CHE3				
Model	YX-20	YX-30		
Type	Hydraulic multi-disc clutch, wet type			
Reduction ratio (Ahead)	2.03	2.55	2.96	3.48
Direction of rotation (propeller shaft)	Clockwise or counter-clockwise viewed from stem			
Dry weight	kg 68	70		

Accessories

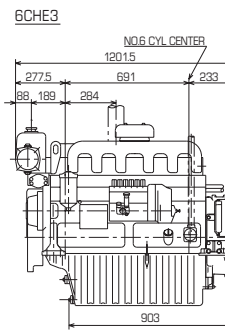
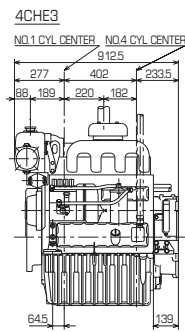
- Breather hose with fittings
- Instrument panel for wheel house (B/D-type)
- Drain separator
- Evacuation hand pump
- Half coupling
- Standard spare parts kit
- Fresh water sub-tank
- Standard tool kit
- Operation manual
- Alternator 600W

Dimensions Unit:mm

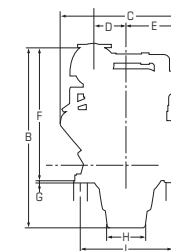
Engine only / Front view



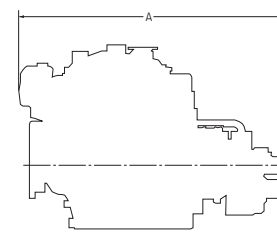
Engine only / Left side view



With gearbox / Rear view



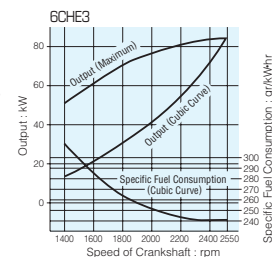
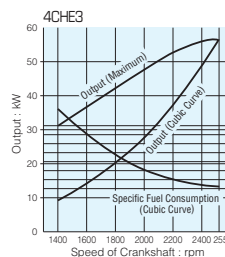
With gearbox / Left side view



Model	A	B	C	D	E	F	G	H	I
4CHE3×YX-20-1	1183.5	1021	688	232	292	734	9	234	510
6CHE3×YX-30-2	1496.3	1018	690	232.5	300	737	9	233	550

— Marine gear

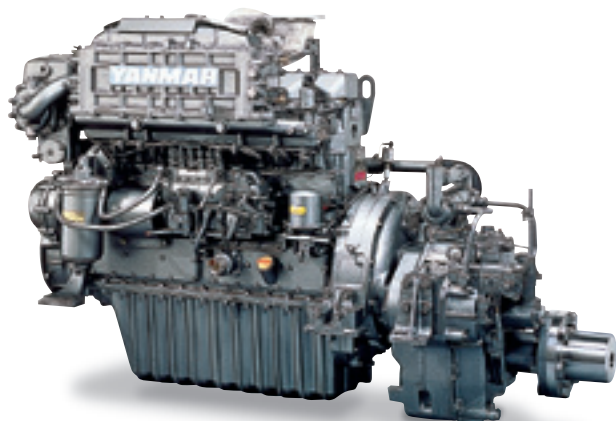
Performance curves



6CH-HTE3/DTE3/UTE

M·L-rating 125~206kW(170~280mhp)

MARINE
PROPULSION
DIESEL ENGINE



- Direct injection, heat exchanger cooling.
- Turbocharger + intercooler.
- Durable hydraulic marine gear.
- 6CH-DTE3 and 6CH-UTE conform to IMO emissions regulations.

Specifications

Model	6CH-HTE3	6CH-DTE3	6CH-UTE
Number of cylinders	6 in-line		
Bore × stroke	mm 105 × 125		
Displacement	lit. 6.494		
Rated output	kW(hp)/rpm M : 125(170)/2550 L : 140(190)/2600	M : 154(210)/2550 L : 169(230)/2600	M : 188(255)/2550 L : 206(280)/2600
Combustion system	Direct injection		
Aspiration	Turbocharger + intercooler		
Starting system	Electric starting motor (24V 4.0kW)		
Cooling system	Heat exchanger		
Marine gear	Hydraulic		
Dry mass	kg 795	900	940
Dimensions(L×W×H)	mm 1575×736×1096	1599.5×736×1096	1599.5×736×1111

Marine gear specifications

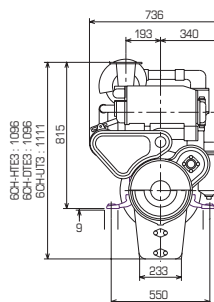
Engine model : 6CH-HTE3, 6CH-DTE3, 6CH-UTE		
Model	YX-50S(or YX-71)	YX-71
Type	Hydraulic multi-disc clutch, wet type	
Reduction ratio (Ahead)	2.07	2.58
Direction of rotation (propeller shaft)	Clockwise or counter-clockwise viewed from stern	
Dry weight	kg 117(or 214)	214

Accessories

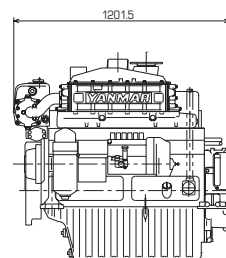
- Breather hose with fittings
- Instrument panel for wheel house (D-type)
- Installation parts
- Exhaust silencer
- Remote control head & cable
- Drain separator
- Evacuation hand pump
- Half coupling
- Standard spare parts kit
- Sea water filter
- Kingston
- Pipes for exhaust, sea water, fuel oil
- Fresh water sub-tank
- Standard tool kit
- Operation manual
- Bilge pump
- Battery switch
- Alternator 600W
- Exhaust bellows

Dimensions Unit:mm

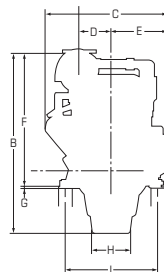
Engine only / Front view



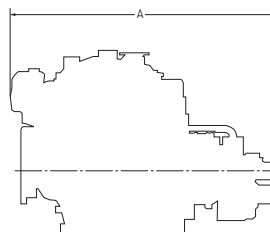
Engine only / Left side view



With gearbox / Front view



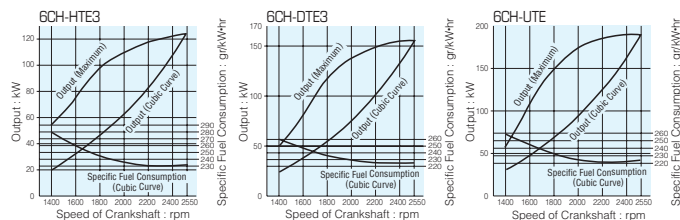
With gearbox / Left side view



	A	B	C	D	E	F	G	H	I
6CH-HTE3×YX-50S	1575	1096	736	193	340	815	9	233	550
6CH-HTE3×YX-71	1599.5	1096	736	193	340	815	9	233	550
6CH-DTE3×YX-71	1599.5	1096	736	193	340	815	9	233	550
6CH-UTE×YX-71	1599.5	1111	736	193	340	815	9	233	550

— Marine gear

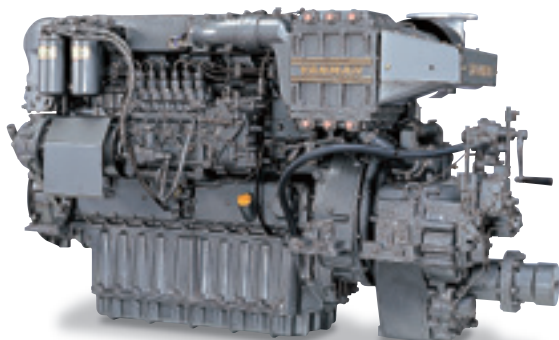
Performance curves



6CX-GTYE

M·L-rating 265~294kW(360~400mhp)

MARINE
PROPULSION
DIESEL ENGINE



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler.
- Durable hydraulic marine gear.
- 4-valves per cylinder for higher combustion efficiency.
- Conform to IMO emissions regulations.

Specifications

Model	6CX-GTYE
Number of cylinders	6 in-line
Bore × stroke	mm 110 × 165
Displacement	lit. 7.413
Rated output	kW(hp)/rpm M : 265(360)/2600 L : 294(400)/2700
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 4.0kW)
Cooling system	Heat exchanger
Marine gear	Without marine gear
Dry mass	kg 1060 with YX-71-1 marine gear
Dimensions(L×W×H)	mm 1586×897×964

Marine gear specifications

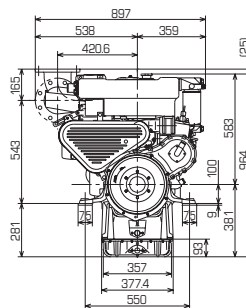
Engine model : 6CX-GTYE	
Model	YX-71-1
Type	Hydraulic multi-disc clutch, wet type
Reduction ratio (Ahead)	2.07 2.58 2.91
Direction of rotation (propeller shaft)	Clockwise or counter-clockwise viewed from stern
Dry weight	kg 210

Accessories

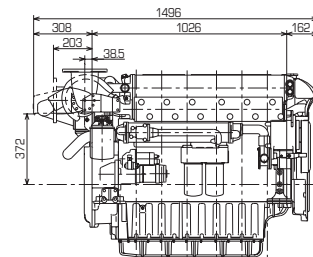
- Breather hose with fittings
- Exhaust flexible joint for T/C out
- Drain separator
- Evacuation hand pump
- Fresh water sub tank
- Alternator 980W
- Instrument panel for wheel house (D-type)
- Half coupling
- Daily maintenance tool kit
- Operation manual
- Standard spare parts
- Installation parts
- Flexible mounting
- Exhaust silencer
- Sea water filter
- Kingston
- Bilge pump
- Battery switch
- Remote control head & cable
- Wiring harness
- Pipes for exhaust, sea water, fuel oil

Dimensions Unit:mm

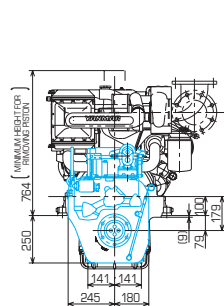
Engine only / Front view



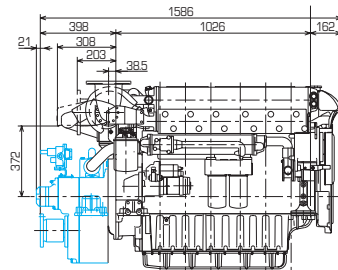
Engine only / Right side view



With gearbox / Rear view

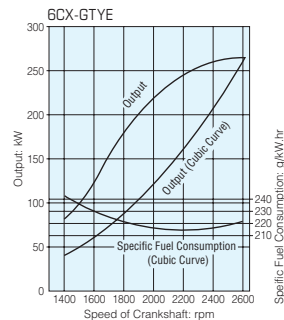


With gearbox / Right side view



— Marine gear

Performance curves





- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler models.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by BV, GL, RINA.

Specifications

Model	6HA2M-HTE
Number of cylinders	6 in-line
Bore × stroke	mm 130 × 165
Displacement	lit. 13.140
Rated output	kW(hp)/rpm H : 204(278)/1880
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 6.0kW)
Cooling system	Heat exchanger
Dry mass (without marine gear)	kg 1340
Dimensions(L × W × H)	mm 1584.5 × 1016 × 1260

Marine gear specifications

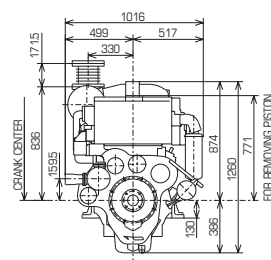
Engine model : 6HA2M-HTE						
Model	YX120				YX120L	
Type	Hydraulic multi-disc clutch					
Reduction ratio (Ahead)	2.03	2.57	3.04	3.55	4.00	4.59
Direction of rotation (propeller shaft)	Clockwise or counterclockwise					
Dry weight	310				385	

Accessories

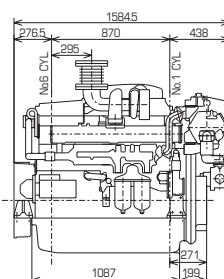
- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Evacuation hand pump
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual

 Dimensions Unit:mm

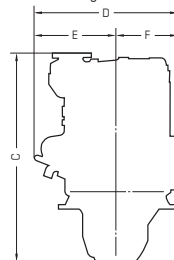
Engine only / Front view



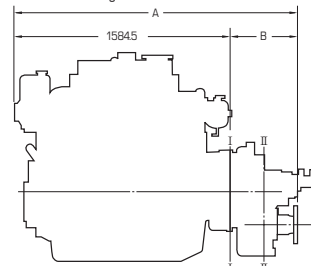
Engine only / Right side view



With YX120L gearbox / Front view



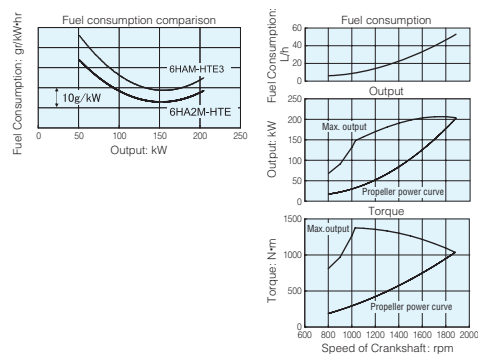
With YX120L gearbox / Left side view



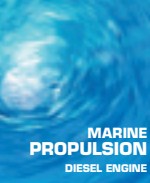
Model	A	B	C	D	E	F
6HA2M-HTE×YX-120	2004.5	420	1272	1016	499	517
6HA2M-HTE×YX-120L	2038.5	454	1384	1016	499	517

- Marine gear

Performance curves



- YX gearbox
- Installation parts
- 2 pole wiring
- Alternator 980W
- FPTH V-pulley
- Exhaust silencer
- Remote control head & cable
- Exhaust flexible joint for piping
- 2 station instrument panel (C-type)
- Sea water filter
- Kingston
- Bilge pump
- Duplex FO filter
- Drain separator
- Stop solenoid
- Wiring harness
- Pipes for exhaust, sea water, fuel oil



6HA2M-HTE

M-rating 257kW (350mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler models.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by BV, GL, RINA.

Specifications

Model	6HA2M-HTE		
Number of cylinders	6 in-line		
Bore × stroke	mm	130 × 165	
Displacement	lit.	13.140	
Rated output	kW(hp)/rpm	M: 257(350)/1950	
Combustion system	Direct injection		
Aspiration	Turbocharger + intercooler		
Starting system	Electric starting motor (24V 6.0kW)		
Cooling system	Heat exchanger		
Dry mass (without marine gear)	kg	1340	
Dimensions(L × W × H)	mm	1584.5 × 1016 × 1260	

Marine gear specifications

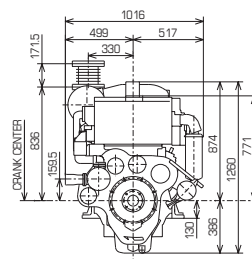
Engine model : 6HA2M-HTE						
Model	YX120				YX120L	
Type	Hydraulic multi-disc clutch					
Reduction ratio (Ahead)	2.03	2.57	3.04	3.55	4.00	4.59
Direction of rotation (propeller shaft)	Clockwise or counterclockwise					
Dry weight	kg	310			385	

Accessories

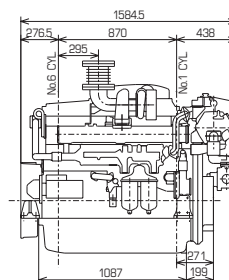
- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Evacuation hand pump
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual

Dimensions Unit:mm

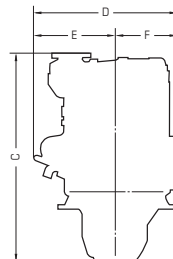
Engine only / Front view



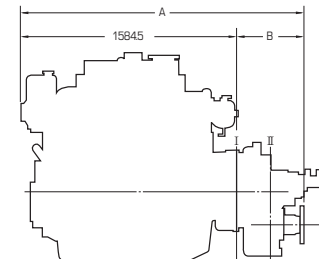
Engine only / Right side view



With YX120 gearbox / Front view



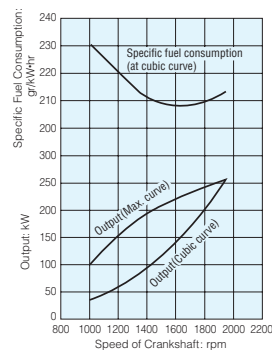
With YX120 gearbox / Left side view



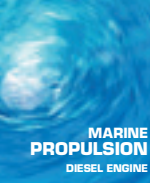
	A	B	C	D	E	F
6HA2M-HTE×YX-120	2004.5	420	1272	1016	499	517
6HA2M-HTE×YX-120L	2038.5	454	1384	1016	499	517

— Marine gear

Performance curves



- YX gearbox
- Installation parts
- FPTO V-pulley
- Exhaust silencer
- Exhaust flexible joint for piping
- Sea water filter
- Kingston
- Bilge pump
- Duplex FO filter
- Drain separator
- 2 pole wiring
- Alternator 980W
- Remote control head & cable
- 2 station instrument panel (C-type)
- Stop solenoid
- Wiring harness
- Pipes for exhaust, sea water, fuel oil



6HA2M-DTE

M-rating 298kW (405mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler models.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by BV, GL, RINA.

Specifications

Model	6HA2M-DTE	
Number of cylinders	6 in-line	
Bore × stroke	mm	130 × 165
Displacement	lit.	13140
Rated output	kW(hp)/rpm	M: 298(405)/1950
Combustion system	Direct injection	
Aspiration	Turbocharger + intercooler	
Starting system	Electric starting motor (24V 6.0kW)	
Cooling system	Heat exchanger	
Dry mass (without marine gear)	kg	1350
Dimensions(L×W×H)	mm	1586×1036.5×1260

Marine gear specifications

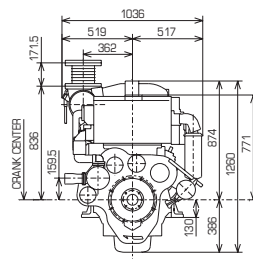
Engine model : 6HA2M-DTE						
Model	YX120			YX120L		
Type	Hydraulic multi-disc clutch					
Reduction ratio (Ahead)	2.03	2.57	3.04	3.46	4.00	4.59
Direction of rotation (propeller shaft)	Clockwise or counterclockwise					
Dry weight	kg	310			385	

Accessories

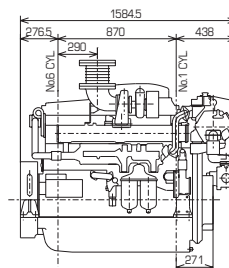
- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Evacuation hand pump
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual

Dimensions Unit:mm

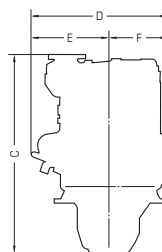
Engine only / Front view



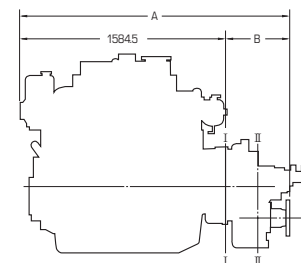
Engine only / Left side view



With YX120 gearbox / Front view



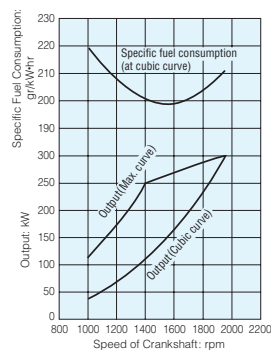
With YX120 gearbox / Left side view



	A	B	C	D	E	F
6HA2M-DTE×YX-120	2004.5	420	1272	1036	519	517
6HA2M-DTE×YX-120L	2038.5	454	1384	1036	519	517

— Marine gear

Performance curves

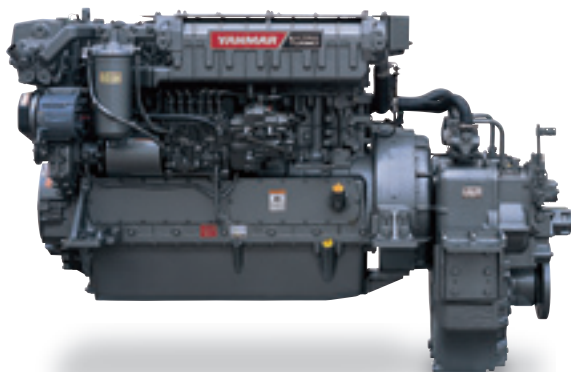


- YX gearbox
- Installation parts
- FPTO V-pulley
- Exhaust silencer
- Exhaust flexible joint for piping
- Sea water filter
- Kingston
- Bilge pump
- Duplex FO filter
- Drain separator
- 2 pole wiring
- Alternator 980W
- Remote control head & cable
- 2 station instrument panel (C-type)
- Stop solenoid
- Wiring harness
- Pipes for exhaust, sea water, fuel oil

6HYM-ETE

H-rating 368kW (500mhp)

MARINE
PROPULSION
DIESEL ENGINE



- 6-cylinder, direct injection, heat exchanger cooling.
- Twin-turbocharger + intercooler.
- Available either with marine gear or without marine gear.
- 4-valves per cylinder for higher combustion efficiency.
- Conform to IMO emissions regulations.
- Type approved by NK, ABS, BV, RINA.

Specifications

Model	6HYM-ETE
Number of cylinders	6 in-line
Bore × stroke	mm 132.9 × 165
Displacement	lit. 13.733
Rated output	kW(hp)/rpm 368(500)/1950
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 6.0kW)
Cooling system	Heat exchanger
Dry mass	kg 1385(without marine gear)
Dimensions(L×W×H)	mm 1556×1014×1133

Marine gear specifications

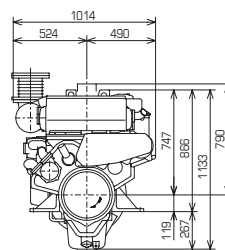
Engine model : 6HYM-ETE						
Model	YXH-160		YX-16 1L			
Type	Hydraulic multi-disc clutch					
Reduction ratio (Ahead)	1.97	2.46	3.05	3.65	4.08	4.55
Direction of rotation (propeller shaft)	Clockwise or counterclockwise					
Dry weight	kg 390		620			

Accessories

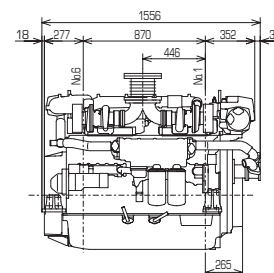
- Breather hose with fittings
- Fresh water sub-tank
- Alternator 980W
- 2 pole wiring
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual
- YX gearbox
- Remote control head & cable
- Wiring harness
- 2 station instrument panel (C-type)
- Installation parts
- FPTO V-pulley
- Double walled FO pipes
- Duplex FO filter

Dimensions Unit:mm

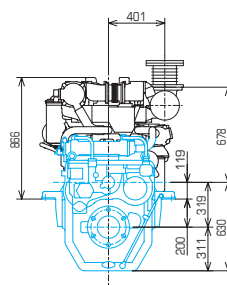
Engine only / Front view



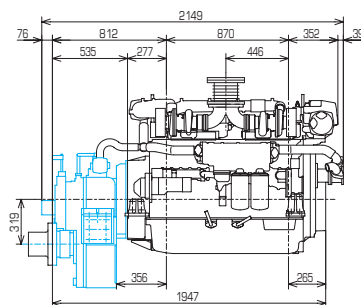
Engine only / Right side view



With YX161L gearbox / Rear view

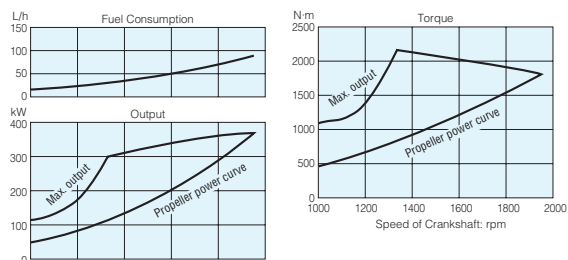


With YX161L gearbox / Right side view



— Marine gear

Performance curves





6HYM-ETE

M-rating 441kW (600mhp)
L-rating 478kW (650mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Twin-turbocharger + intercooler.
- Available either with marine gear or without marine gear.
- 4-valves per cylinder for higher combustion efficiency.
- Conform to IMO emissions regulations.
- Type approved by NK, ABS, BV, RINA.

Specifications

Model	6HYM-ETE L-rating / M-rating				
Number of cylinders	6 in-line				
Bore × stroke	mm	132.9 × 165			
Displacement	lit.	13.733			
Rated output	kW(hp)/rpm	M : 441(600)/2100 L : 478(650)/2150			
Combustion system	Direct injection				
Aspiration	Turbocharger + intercooler				
Starting system	Electric starting motor (24V 6.0kW)				
Cooling system	Heat exchanger				
Dry mass	kg	1385(without marine gear)			
Dimensions(L × W × H)	mm	1556 × 1014 × 1133			

Marine gear specifications

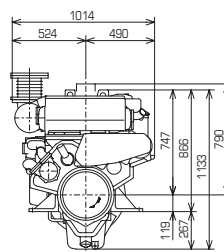
Engine model : 6HYM-ETE L-rating / M-rating						
Model	YXH160			YXH161L		
Type	Hydraulic multi-disc clutch					
Reduction ratio (Ahead)	1.97	2.46	3.05	3.65	4.08	4.55
Direction of rotation (propeller shaft)	Clockwise or counterclockwise					
Dry weight	kg	390		620		

Accessories

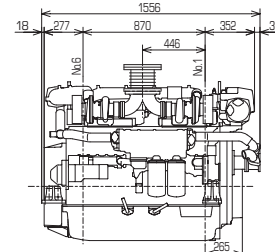
- Breather hose with fittings
- Fresh water sub-tank
- Alternator 980W •2 pole wiring
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit •Operation manual
- YX gearbox
- Remote control head & cable
- Wiring harness
- 2 station instrument panel (C-type)
- Installation parts •FPTO V-pulley
- Double walled FO pipes •Duplex FO filter

Dimensions Unit:mm

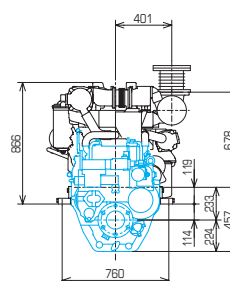
Engine only / Front view



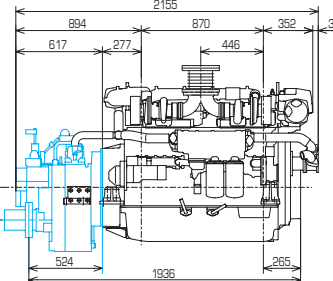
Engine only / Right side view



With YXH160 gearbox / Rear view

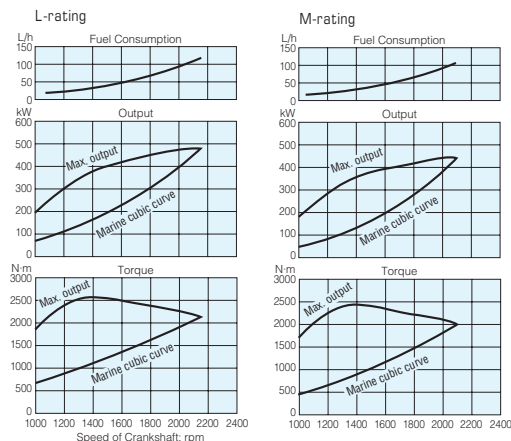


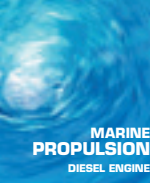
With YXH160 gearbox / Right side view



— Marine gear

Performance curves





6HYM-ETE

S-rating 515kW (700mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Twin-turbocharger + intercooler.
- Available either with marine gear or without marine gear.
- 4-valves per cylinder for higher combustion efficiency.
- Conform to IMO emissions regulations.

Specifications

Model	6HYM-ETE S-rating		
Number of cylinders	6 in-line		
Bore × stroke	mm	132.9 × 165	
Displacement	lit.	13.733	
Rated output	kW(hp)/rpm	515(700)/2200	
Combustion system	Direct injection		
Aspiration	Turbocharger + intercooler		
Starting system	Electric starting motor (24V 6.0kW)		
Cooling system	Heat exchanger		
Dry mass	kg	1385(without marine gear)	
Dimensions(L × W × H)	mm	1556 × 1014 × 1133	

Marine gear specifications

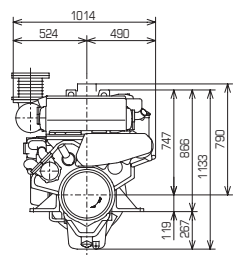
Engine model : 6HYM-ETE S-rating			
Model	YXH130		
Type	Hydraulic multi-disc clutch		
Reduction ratio (Ahead)	2.03	2.57	3.04
Direction of rotation (propeller shaft)	Clockwise or counterclockwise		
Dry weight	kg	280	

Accessories

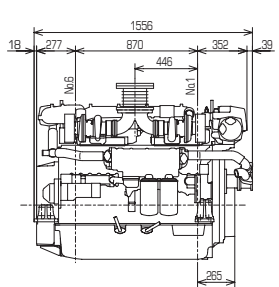
- Breather hose with fittings
 - Fresh water sub-tank
 - Alternator 980W
 - Instrument panel for wheel house (D-type)
 - Standard spare parts
 - Standard tool kit
- YX gearbox
 - Remote control head & cable
 - Wiring harness
 - 2 station instrument panel (C-type)
 - Installation parts •FPTO V-pulley
 - Double walled FO pipes •Duplex FO filter
- Intake air heater
 - Horizontal exhaust outlet
 - Mixing elbow
 - Flexible mounts
 - Sea water filter
 - Kingston
 - Bilge pump
 - LO priming pump
 - LO evacuation pump
 - Drain separator
 - Exhaust thermometer
- Flexible joint at T/C outlet
 - Flexible joint for piping
 - Exhaust silencer
 - Battery switch
 - Pipes for sea water; fuel oil

Dimensions Unit:mm

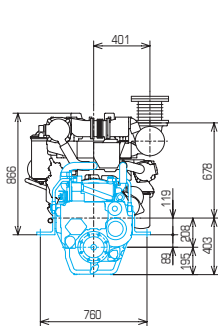
Engine only / Front view



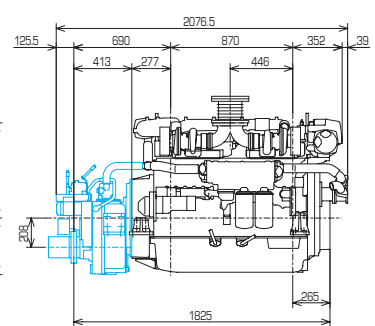
Engine only / Right side view



With YXH130 gearbox / Rear view

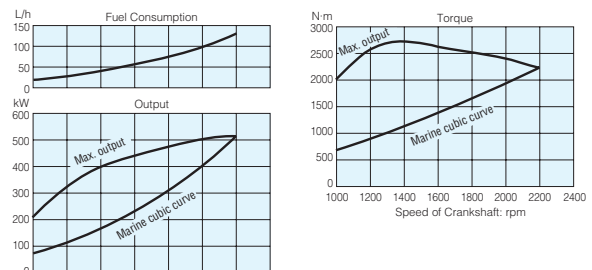


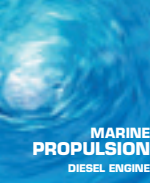
With YXH130 gearbox / Right side view



— Marine gear

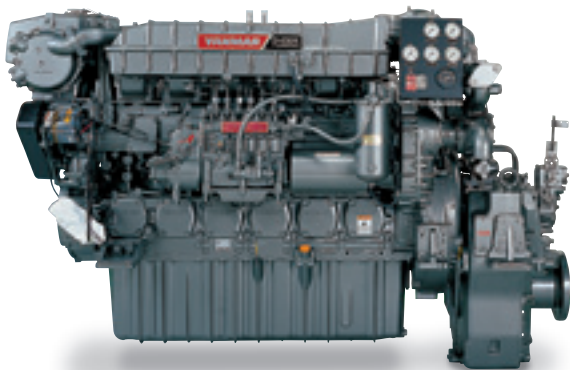
Performance curves





6AYM-STE

H-rating 485kW (659mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler.
- 4-valves per cylinder for higher combustion efficiency.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by NK, ABS, BV, RINA, CCS.

Specifications

Model	6AYM-STE
Number of cylinders	6 in-line
Bore × stroke	mm 155 × 180
Displacement	lit. 20.379
Rated output	kW(hp)/rpm H : 485(659)/1900
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 7.0kW)
Cooling system	Heat exchanger
Dry mass	kg 2365

Marine gear specifications

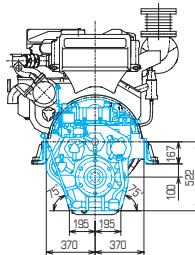
Engine model : 6AYMSTE			
Model	YX181	YX180L	YXH-240L
Type	Hydraulic multi-disc clutch		
Reduction ratio (Ahead)	2.08	2.55 3.03 3.50 4.00 4.54	4.89 5.36 5.91 6.57 6.95
Direction of rotation (propeller shaft)	Clockwise or counterclockwise		
Dry weight	kg 560	680	1240

Accessories

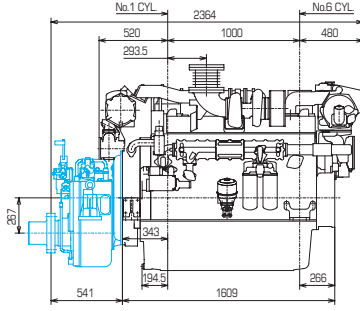
- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual
- YX gearbox
- Remote control head & cable
- 2 station instrument panel (C-type)
- Wiring harness
- Air starting motor
- Flexible mounts (for engine)
- FPTO V-pulley
- Horizontal exhaust
- Shallow sump

Dimensions Unit:mm

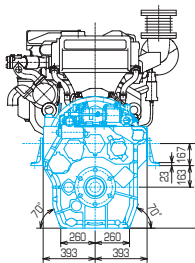
With YX181 gearbox / Rear view



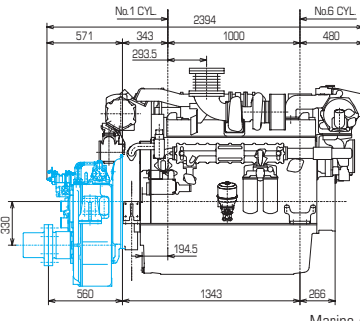
With YX181 gearbox / Right side view



With YX180L gearbox / Rear view

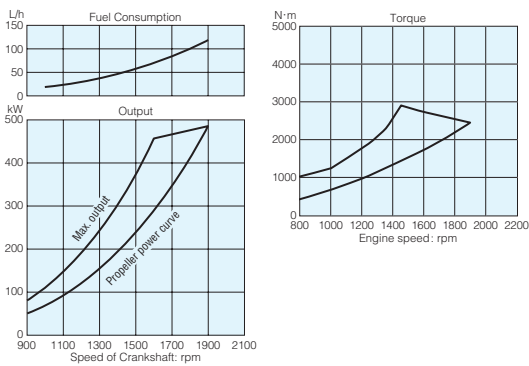


With YX180L gearbox / Right side view



— Marine gear

Performance curves

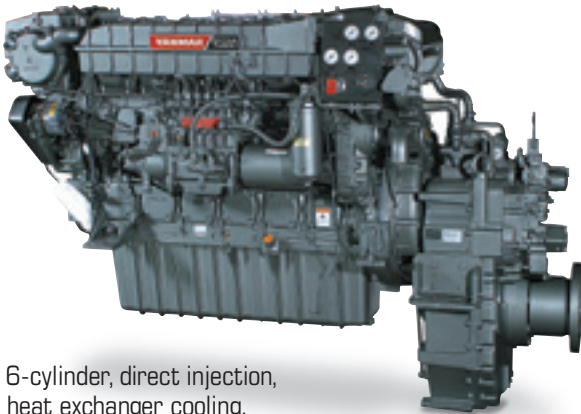


- Duplex LO filter
- Duplex FO filter
- Double walled FO pipes
- 2 pole wiring
- Engine-mounted instrument panel
- Intake air heater
- Exhaust thermometer
- Installation parts
- Sea water filter
- Kingston
- Bilge pump
- Flexible joint for exhaust piping
- Exhaust silencer
- Battery switch
- Alternator 980W
- Pipes for exhaust, sea water, fuel oil



6AYM-ETE

H-rating 555kW (755mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler.
- 4-valves per cylinder for higher combustion efficiency.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by NK, ABS, BV, RINA, CCS.

Specifications

Model	6AMY-ETE H
Number of cylinders	6 in-line
Bore × stroke	mm 155 × 180
Displacement	lit. 20.379
Rated output	kW(hp)/rpm H : 555(755)/1840
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 7.0kW)
Cooling system	Heat exchanger
Dry mass	kg 2365

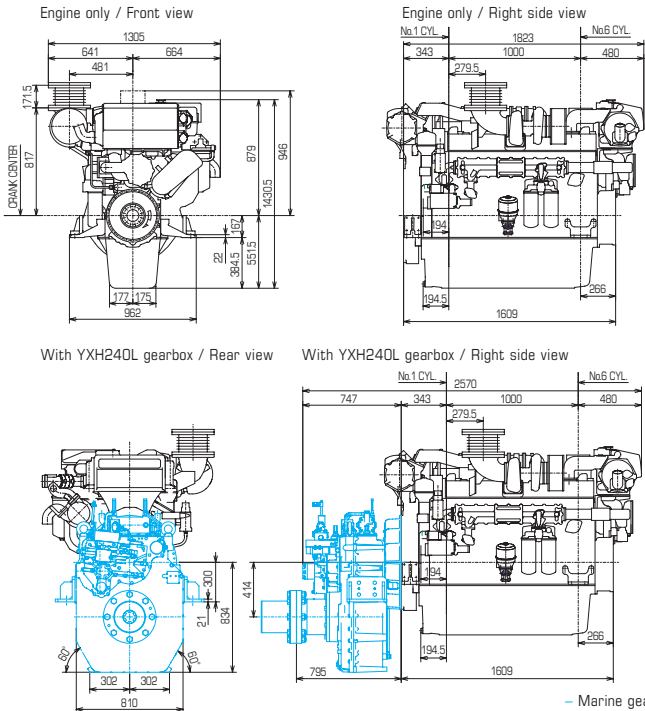
Marine gear specifications

Engine model : 6AYM-ETE H	
Model	YXH-240 YXH-240L
Type	Hydraulic multi-disc clutch
Reduction ratio (Ahead)	1.95 2.27 2.56 3.03 348 4.89 5.36 5.91 6.57 6.95
Direction of rotation (propeller shaft)	Clockwise or counterclockwise
Dry weight	kg 645 1240

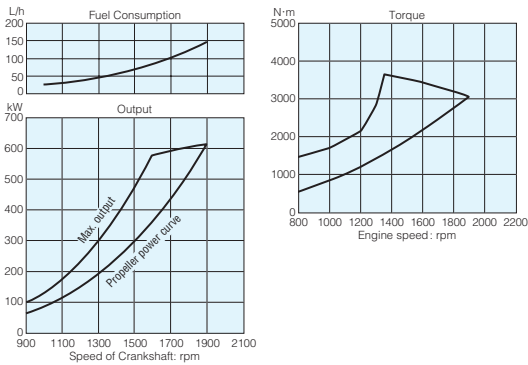
Accessories

- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual
- YX gearbox
- Remote control head & cable
- 2 station instrument panel (C-type)
- Wiring harness
- Air starting motor
- Flexible mounts (for engine)
- FPTO V-pulley
- Horizontal exhaust
- Shallow sump

Dimensions Unit:mm



Performance curves



- Duplex LO filter
- Duplex FO filter
- Double walled FO pipes
- 2 pole wiring
- Engine-mounted instrument panel
- Intake air heater
- Exhaust thermometer
- Installation parts
- Sea water filter
- Kingston
- Bilge pump
- Flexible joint for exhaust piping
- Exhaust silencer
- Battery switch
- Alternator 980W
- Pipes for exhaust, sea water, fuel oil



6AYM-ETE

M-rating 610kW (829mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler.
- 4-valves per cylinder for higher combustion efficiency.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by NK, ABS, BV, RINA, CCS.

Specifications

Model	6AMY-ETE M
Number of cylinders	6 in-line
Bore × stroke	mm 155 × 180
Displacement	lit. 20.379
Rated output	kW(hp)/rpm M : 610(829)/1900
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 7.0kW)
Cooling system	Heat exchanger
Dry mass	kg 2365

Marine gear specifications

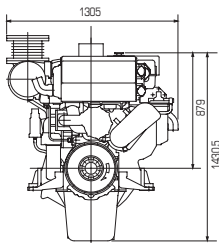
Engine model : 6AYM-ETE M		
Model	YXH-240	YXH-240L
Type	Hydraulic multi-disc clutch	
Reduction ratio (Ahead)	1.95 2.27 2.56 3.03 3.48	4.89 5.36 5.91 6.57 6.95
Direction of rotation (propeller shaft)	Clockwise or counterclockwise	
Dry weight	kg 645	1240

Accessories

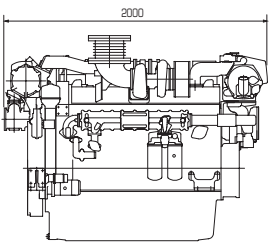
- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual
- YX gearbox
- Remote control head & cable
- 2 station instrument panel (C-type)
- Wiring harness
- Air starting motor
- Flexible mounts (for engine)
- FPTO V-pulley
- Horizontal exhaust
- Shallow sump

Dimensions Unit:mm

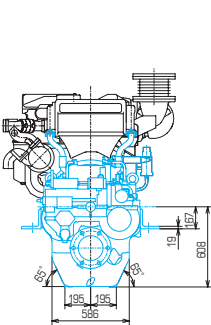
Engine only / Front view



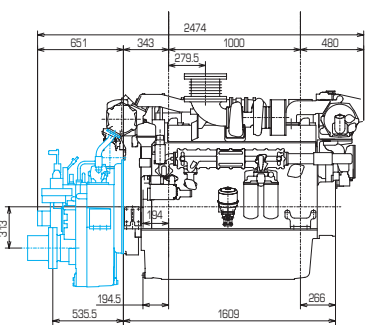
Engine only / Right side view



With YXH240 gearbox / Rear view

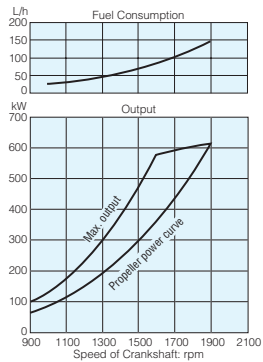


With YXH240 gearbox / Right side view

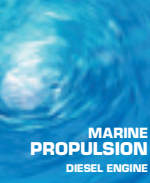


— Marine gear

Performance curves



- Duplex LO filter
- Duplex FO filter
- Double walled FO pipes
- 2 pole wiring
- Engine-mounted instrument panel
- Intake air heater
- Exhaust thermometer
- Installation parts
- Sea water filter
- Kingston
- Bilge pump
- Flexible joint for exhaust piping
- Exhaust silencer
- Battery switch
- Alternator 980W
- Pipes for exhaust, sea water, fuel oil



6AYM-GTE

L-rating 670kW (911mhp)



- 6-cylinder, direct injection, heat exchanger cooling.
- Turbocharger + intercooler.
- 4-valves per cylinder for higher combustion efficiency.
- Available either with marine gear or without marine gear.
- Conform to IMO emissions regulations.
- Type approved by NK, ABS, BV, RINA, CCS.

Specifications

Model	6AMY-GTE
Number of cylinders	6 in-line
Bore × stroke	mm 155 × 180
Displacement	lit. 20.379
Rated output	kW(hp)/rpm L : 670(911)/1938
Combustion system	Direct injection
Aspiration	Turbocharger + intercooler
Starting system	Electric starting motor (24V 7.0kW)
Cooling system	Heat exchanger
Dry mass	kg 2365(without marine gear)

Marine gear specifications

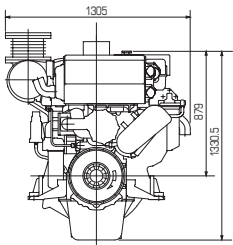
Engine model : 6AYM-GTE					
Model	YXH-240				
Type	Hydraulic multi-disc clutch				
Reduction ratio (Ahead)	1.95	2.27	2.56	3.03	3.48
Direction of rotation (propeller shaft)	Clockwise or counterclockwise				
Dry weight	kg	645			

Accessories

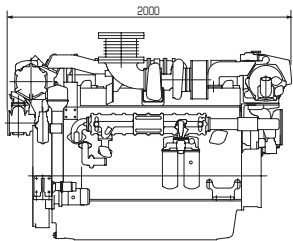
- Breather hose with fittings
- Exhaust flexible joint (T/C out)
- Fresh water sub-tank
- Instrument panel for wheel house (D-type)
- Standard spare parts
- Standard tool kit
- Operation manual
- YX gearbox
- Remote control head & cable
- 2 station instrument panel (C-type)
- Wiring harness
- Air starting motor
- Flexible mounts (for engine)
- FPTO V-pulley
- Horizontal exhaust
- Shallow sump

Dimensions Unit:mm

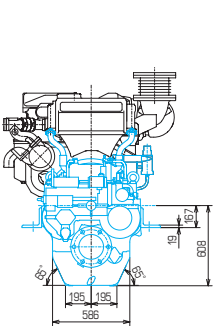
Engine only / Front view



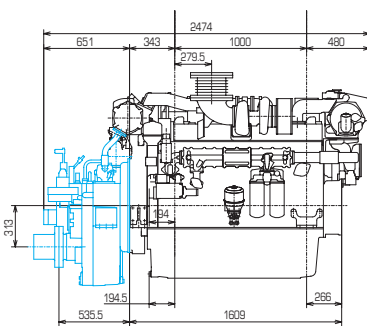
Engine only / Right side view (Shallow sump)



With YXH240 gearbox / Rear view

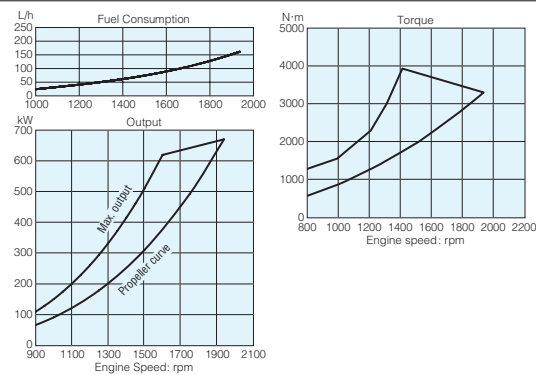


With YXH240 gearbox / Right side view



— Marine gear

Performance curves



- Duplex LO filter
- Duplex FO filter
- Double walled FO pipes
- 2 pole wiring
- Engine-mounted instrument panel
- Intake air heater
- Exhaust thermometer
- Installation parts
- Sea water filter
- Kingston
- Bilge pump
- Flexible joint for exhaust piping
- Exhaust silencer
- Battery switch
- Alternator 980W
- Pipes for exhaust, sea water, fuel oil



JH series (Life Boat Engines)

18.4~24.3kW (25~33mhp)



- Comply with SOLAS'96.
- Engine keeps on running after a 360 degree roll.
- Engine can run at least five minutes in water up to centerline of crankshaft.
- Engine is designed to withstand a free fall (fitted on a life boat).

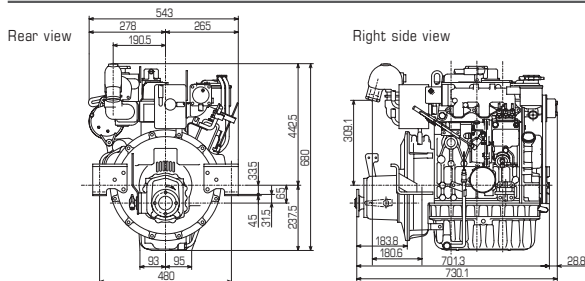
Specifications

Model	3JH25A	3JH30A
Number of cylinders	3	
Bore × stroke	mm 82 × 86	
Displacement	lit. 1.363	
Rated output	kW(PSI)/rpm 18.4(25)/3200	22.1(30)/2900
Max. output	kW(PSI)/rpm 20.2(27.5)/3300	24.3(33)/3000
Combustion system	Direct injection	
Aspiration	Natural aspirated	
Starting system	Electric starting motor (12V 1.8kW)	
Cooling system	Heat exchanger / Keel cooling	
Marine gear	Mechanical	
Dry weight	kg 187	

Marine gear specifications

Engine model : JH	
Model	KM35P1
Type	Hydraulic multi-disc clutch
Reduction ratio	Ahead: 2.36 Astern: 3.16
Direction of rotation (propeller shaft)	Clockwise or counterclockwise

Dimensions Unit:mm



Accessories

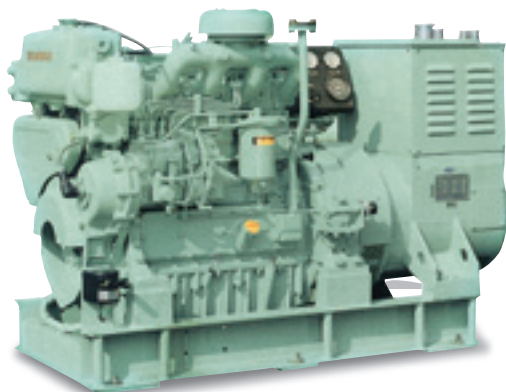
- Breather hose with fittings
- Evacuation hand pump
- Charging alternator
- Instrument panel for wheel house (B-type)
- Kingston cock
- Wiring harness 4m
- Half coupling (rough bore type)
- Standard spare parts
- Standard tool kit
- Operation manual

MARINE AUXILIARY DIESEL ENGINE

4CHL series

MARINE
AUXILIARY
DIESEL ENGINE

38~62hp / 1500~1800rpm
30~50kVA (24~40kW)



- 4-cylinder, direct injection.
- Natural aspirated or turbocharged.
- Type approved by BV.

Specifications

Model		4CHL-N		4CHL-TN	
Number of cylinders		In-line 4			
Bore × stroke	mm	105 × 125			
Displacement	lit.	4.33			
Continuous rated engine speed	rpm	1500	1800	1500	1800
Continuous rated output	hp	38	50	50	62
Applicable generator capacity	kVA(kW)	30(24)	40(32)	40(32)	50(40)
Frequency	Hz	50	60	50	60
Combustion system		Direct injection			
Aspiration		Natural aspiration		Exhaust Turbocharger	
Dry weight (Engine only)	kg	500		520	
Dry weight (Gen. set)	kg	960		1010	

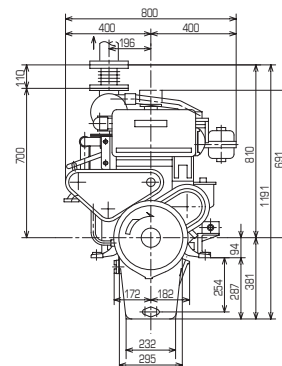
Accessories

- Instrumental panel (attached to engine)
- Cooling system : Rubber impeller type sea water pump
/ Centrifugal type fresh water pump / Heat exchanger / Fresh water reservoir
/ Thermostat for fresh water / Emergency use sea water inlet
- Lubrication system : Lubrication oil pump / Lubrication oil cooler
/ Lubrication oil filter (Single type)
- Fuel system : Paper filter type fuel strainer / Drain separator to be mounted on vessel
- Turbocharging system : Exhaust gas outlet expansion joint from engine (TN)
- Electrical equipment : Starter motor (DC24V) 4.0kW / Battery switch / 2 pole wiring
- Thermometer : Exhaust gas at outlet of each cylinder (N)
/ Exhaust gas at inlet of turbocharger (TN) / Cooling water outlet
/ Lubrication oil at cooler inlet

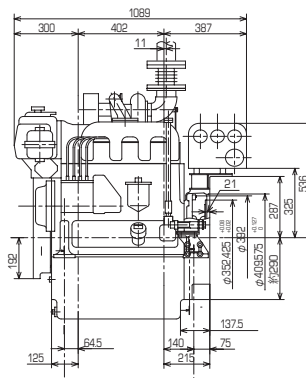
Dimensions Unit:mm

Engine only (4CHL-TN)

Front view



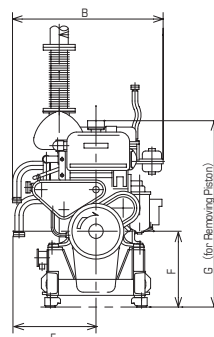
Left side view



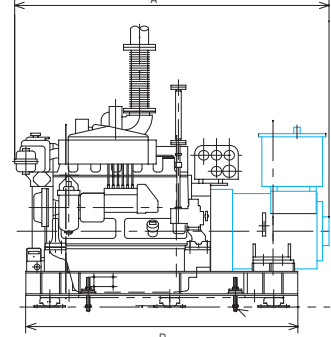
Generator set dimensions for your reference Unit:mm

Generator set dimensions shown below depend on generator model

Front view



Left side view



Model	A	B	D	E	F	G
4CHL-N	1555	922	1350	522	473	1164
4CHL-TN	1567	922	1350	522	473	1164

— Generator

- Cooling system : Kingston cock
- Lubrication system : Manual priming pump / Inlet and outlet joint for semi dry sump
- Fuel system : Primary fuel strainer to be mounted on vessel
- Electrical equipment : Alternator (DC24V600W)
- Generator (and common bed) : Taiyo or Stamford
- Thermometer : Lubrication oil at cooler outlet
- Electrical governor for parallel operation
- Exhaust piping : Expansion joint for piping / Silencer
- Compressed air starting device
- Remote control device : Trip panel / Stop solenoid / LO pressure switch
/ FW temperature switch / Speed relay / Junction box & wiring

6CHL series

MARINE
AUXILIARY
DIESEL ENGINE

62~120hp / 1500~1800rpm
50~100kVA (40~80kW)



- 6-cylinder, direct injection.
- Natural aspirated or turbocharged.
- Type approved by BV.

Specifications

HTN is not Type approved.

Model	6CHL-N	6CHL-TN	6CHL-HTN
Number of cylinders	In-line 6		
Bore × stroke	mm 105 × 125		
Displacement	lit. 6.494		
Continuous rated engine speed	1500 1800	1500 1800	1500 1800
Continuous rated output	hp 62 74	74 100	100 120
Applicable generator capacity	kVA(kW) 50(40) 60(48)	60(48) 80(64)	80(64) 100(80)
Frequency	Hz 50 60	50 60	50 60
Combustion system	Direct injection		
Aspiration	Natural aspiration	Exhaust Turbocharger	Exhaust Turbocharger with intercooler
Dry weight (Engine only)	kg 625	645	675
Dry weight (Gen. set)	kg 1170	1310	1340

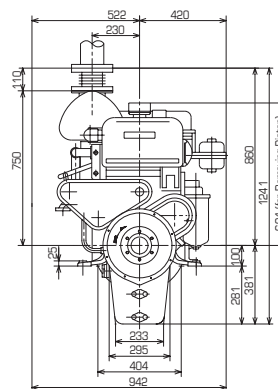
Accessories

- Instrumental panel (attached to engine)
- Cooling system : Rubber impeller type sea water pump / Centrifugal type fresh water pump / Heat exchanger / Fresh water reservoir / Thermostat for fresh water / Emergency use sea water inlet
- Lubrication system : Lubrication oil pump / Lubrication oil cooler / Lubrication oil filter (Single type)
- Fuel system : Paper filter type fuel strainer / Drain separator to be mounted on vessel
- Turbocharging system : Exhaust gas outlet expansion joint from engine (TN, HTN)
- Electrical equipment : Starter motor (DC24V) 4.0kW / Battery switch / 2 pole wiring
- Thermometer : Exhaust gas at outlet of each cylinder (N) / Exhaust gas at inlet of turbocharger (TN, HTN) / Cooling water outlet / Lubrication oil at cooler inlet

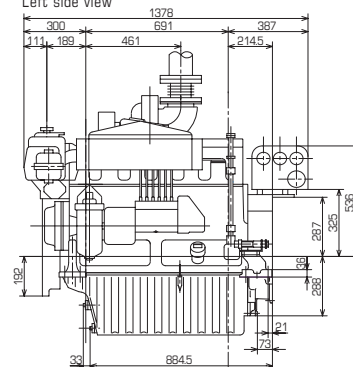
Dimensions Unit:mm

Engine only (6CHL-HTN)

Front view



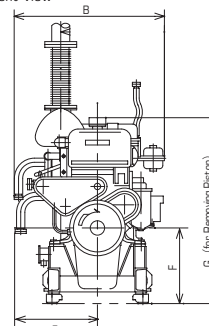
Left side view



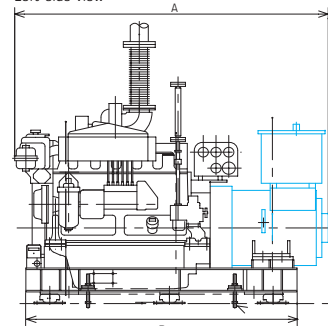
Generator set dimensions for your reference Unit:mm

Generator set dimensions shown below depend on generator model

Front view



Left side view



Model	A	B	D	E	F	G
6CHL-N	1885.5	942	1650	522	474	1165
6CHL-TN	1945.5	942	1700	522	474	1165
6CHL-HTN	1965.5	942	1700	522	474	1165

— Generator

- Cooling system : Kingston cock
- Lubrication system : Manual priming pump / Inlet and outlet joint for semi dry sump
- Fuel system : Primary fuel strainer to be mounted on vessel
- Electrical equipment : Alternator (DC24V/600W)
- Generator (and common bed) : Taiyo or Stamford
- Thermometer : Lubrication oil at cooler outlet
- Electrical governor for parallel operation
- Exhaust piping : Expansion joint for piping / Silencer
- Compressed starting device
- Remote control device : Trip panel / Stop solenoid / LO pressure switch / FW temperature switch / Speed relay / Junction box & wiring

4HAL2 series

98~183hp / 1200~1800rpm
80~150kVA (64~120kW)



- 4-cylinder, direct injection.
- Type approved by BV, GL.

Specifications

Model		4HAL2-TN1			4HAL2-TN		
Number of cylinders		In-line 4					
Bore × stroke		130 × 165					
Displacement	mm lit.	8.76					
Continuous rated engine speed	rpm	1200	1500	1800	1200	1500	1800
Continuous rated output	hp	98	121	157	122	156	183
Applicable generator capacity	kVA(kW)	80 (64)	100 (80)	130 (104)	100 (80)	125 (100)	150 (120)
Frequency	Hz	50	60	50	60	50	60
Combustion system		Direct injection					
Aspiration		Exhaust Turbocharger					
Dry weight (Engine only)	kg	1030					
Dry weight (Gne. set)	kg	1785	1855	1855	1845	1855	1855

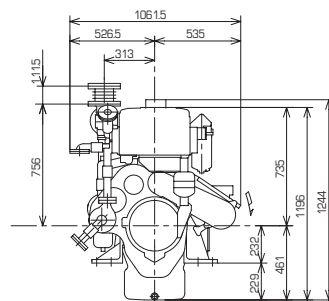
Accessories

- Instrumental panel (attached to engine)
- Cooling system : Sea water pump / Centrifugal type fresh water pump / Heat exchanger / Fresh water reservoir / Thermostat for fresh water / Emergency use sea water inlet
- Lubrication system : Lubrication oil pump / Lubrication oil cooler / Lubrication oil filter (Single type) / Manual priming pump
- Fuel system : Paper filter type fuel strainer / Drain separator to be mounted on vessel
- Turbocharging system : Exhaust gas outlet expansion joint from engine
- Electrical equipment : Starter motor (DC24V) 5.5kW / Alternator (DC24V600W) / Battery switch / 2 pole wiring
- Thermometer : Exhaust gas at outlet of each cylinder / Cooling water outlet / Lubrication oil at cooler inlet

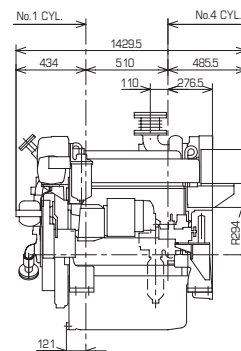
Dimensions Unit:mm

Engine only

Front view



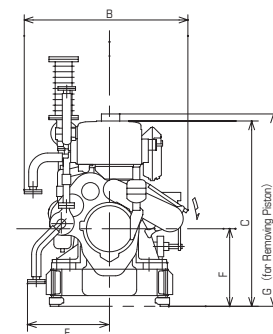
Left side view



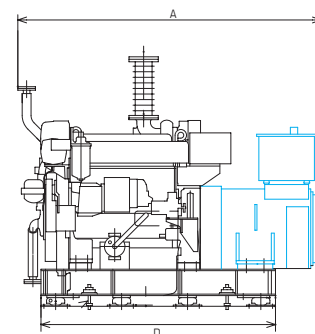
Generator set dimensions for your reference Unit:mm

Generator set dimensions shown below depend on generator model

Front view



Left side view



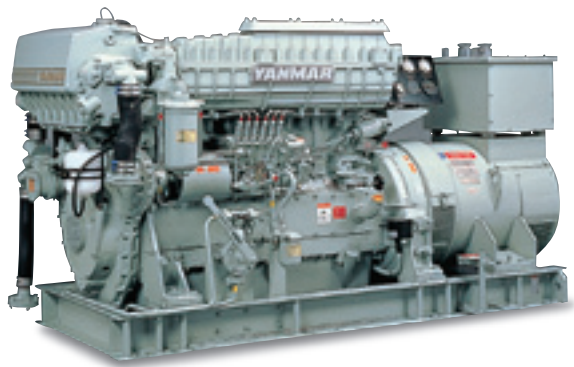
Model	A	B	C	D	E	F	G
4HAL2-TN1	2070.5	1116.5	1264	1600	559	529	1312
4HAL2-TN	2070.5	1116.5	1264	1600	559	529	1312

— Generator

- Cooling system : Kingston cock
- Lubrication system : Inlet and outlet joint for semi dry sump
- Fuel system : Primary fuel strainer to be mounted on vessel
- Generator (and common bed) : Taiyo or Stamford
- Thermometer : Exhaust gas at inlet of turbocharger / Lubrication oil at cooler outlet
- Electrical governor for parallel operation
- Exhaust piping : Expansion joint for piping / Silencer
- Compressed air starting device
- Remote control device : Trip panel / Stop solenoid / LO pressure switch / FW temperature switch / Speed relay / Junction box & wiring

6HAL2 series

122~414hp / 1200~1800rpm
100~350kVA (80~280kW)



- 6-cylinder, direct injection.
- Natural aspirated or turbocharged. (with intercooler)
- Type approved by NK, BV, GL.

Specifications

Model	6HAL2-N	6HAL2-TN	6HAL2-HTN	6HAL2-DTN
Number of cylinders	In-line 6			
Bore × stroke	mm 130 × 165			
Displacement	lit. 13.14			
Continuous rated engine speed	rpm 1200 1500	1200 1500 1800	1200 1500 1800	1200 1500 1800
Continuous rated output	hp 122 156	163 204 244	217 299 360	271 346 414
Applicable generator capacity	kVA(kW) 100 (80) 125 (100)	130 (104) 170 (136) 200 (160)	180 (144) 250 (200) 300 (240)	225 (180) 290 (232) 350 (280)
Frequency	Hz 60 50	60 50 60	60 50 60	60 50 60
Combustion system	Direct injection			
Aspiration	Natural aspiration	Exhaust Turbocharger	Exhaust Turbocharger with intercooler	
Dry weight (Engine only)	kg 1380	1395	1410	1420
Dry weight (Gen. set)	kg 2220	2330 2380 2380	2670 2720 2720	2790 2820 2820

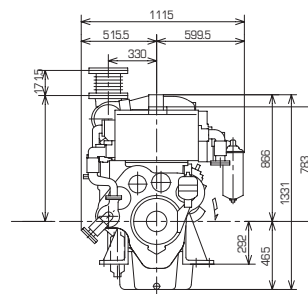
Accessories

- Instrumental panel (attached to engine)
- Cooling system : Sea water pump / Centrifugal type fresh water pump / Heat exchanger / Fresh water reservoir / Thermostat for fresh water / Emergency use sea water inlet
- Lubrication system : Lubrication oil pump / Lubrication oil cooler / Lubrication oil filter (Tandem switch type) / Manual priming pump
- Fuel system : Paper filter type fuel strainer / Drain separator to be mounted on vessel
- Turbocharging system : Exhaust gas outlet expansion joint from engine
- Electrical equipment : Starter motor (DC24V) 6.0kW / Alternator (DC24V600W) / Battery switch / 2 pole wiring
- Thermometer : Exhaust gas at outlet of each cylinder / Cooling water outlet / Lubrication oil at cooler inlet

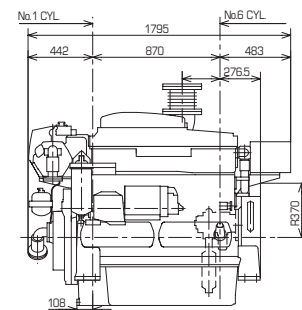
Dimensions Unit:mm

Engine only (6HAL2-TN, -HTN, -DTN)

Front view



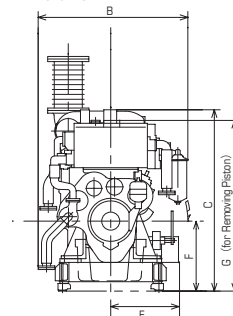
Left side view



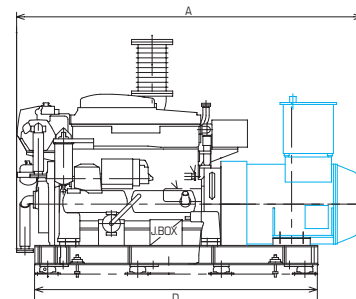
Generator set dimensions for your reference Unit:mm

Generator set dimensions shown below depend on generator model

Front view



Left side view



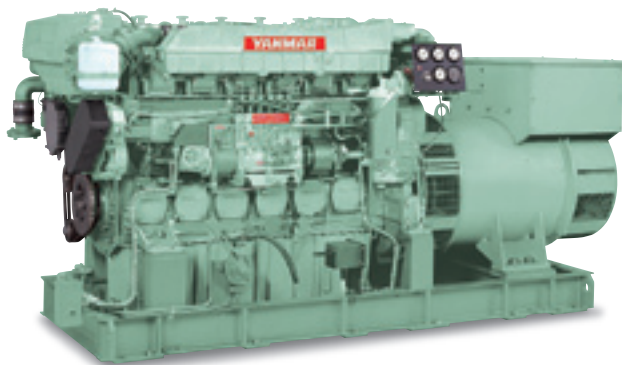
Model	A	B	C	D	E	F	G
6HAL2-N	2388.5	1163.5	1344	2100	495	544	1327
6HAL2-TN	2498.5	1163.5	1410	2100	527	544	1327
6HAL2-HTN	2573.5	1163.5	1410	2200	527	544	1327
6HAL2-DTN	2683.5	1163.5	1410	2200	527	544	1327

— Generator

- Cooling system : Kingston cock
- Lubrication system : Inlet and outlet joint for semi dry sump
- Fuel system : Primary fuel strainer to be mounted on vessel
- Generator (and common bed) : Taiyo or Stamford
- Thermometer : Exhaust gas at inlet of turbocharger (TN, HTN, DTN) / Lubrication oil at cooler outlet
- Electrical governor for parallel operation
- Exhaust piping : Expansion joint for piping / Silencer
- Compressed air starting device
- Remote control device : Trip panel / Stop solenoid / LO pressure switch / FW temperature switch / Speed relay / Junction box & wiring

6AYL series

480~668hp / 1500~1800rpm
400~562.5kVA (320~450kW)



- 6-cylinder, direct injection.
- Turbocharged with intercooler.
- Type approved by NK, ABS, BV, RINA, CCS.

Specifications

Model	6AYL-ST	6AYL-ET
Number of cylinders	In-line 6	
Bore × stroke	mm 155 × 180	
Displacement	lit. 20.379	
Continuous rated engine speed	rpm 1800	1500 1800
Continuous rated output	hp 480	596 668
Applicable generator capacity	kVA(kW) 400(320)	500(400) 562.5(450)
Frequency	Hz 60	50 60
Combustion system	Direct injection	
Aspiration	Exhaust Turbocharger with intercooler	
Dry weight (Engine only)	kg 2435	
Dry weight (Gen. set)	kg 4120 4300	4780 5300

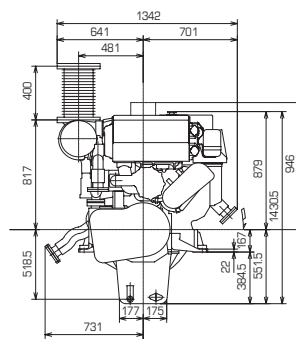
Accessories

- Instrumental panel (attached to engine)
- Cooling system : Sea water pump / Centrifugal type fresh water pump / Heat exchanger / Fresh water reservoir / Thermostat for fresh water / Emergency use sea water inlet
- Lubrication system : Lubrication oil pump / Lubrication oil cooler / Lubrication oil filter (Tandem switch type) / Manual priming pump
- Fuel system : Paper filter type fuel strainer / Drain separator to be mounted on vessel
- Turbocharging system : Exhaust gas outlet expansion joint from engine
- Electrical equipment : Starter motor (DC24V) 70kW / Alternator (DC24V600W) / Battery switch / 2 pole wiring
- Thermometer : Exhaust gas at outlet of each cylinder / Cooling water outlet / Lubrication oil at cooler inlet

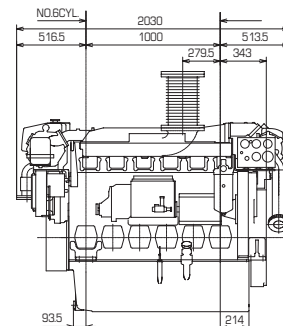
Dimensions Unit:mm

Engine only

Front view



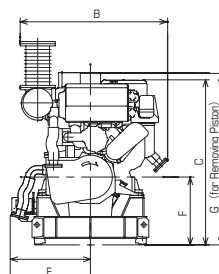
Left side view



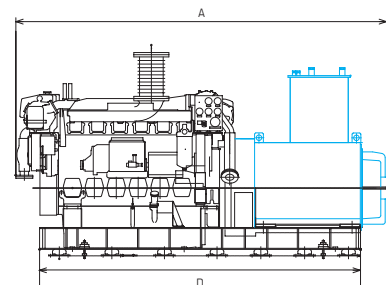
Generator set dimensions for your reference Unit:mm

Generator set dimensions shown below depend on generator model

Front view



Left side view



Model	A	B	C	D	E	F	G
6AYL-ST	3042.5	1346	1508	2380	738	619	1565
6AYL-ET	3389.5	1346	1508	2930	738	619	1565

— Generator

- Cooling system : Kingston cock
- Lubrication system : Inlet and outlet joint for semi dry sump / Large wet sump
- Fuel system : Primary fuel strainer to be mounted on vessel
- Generator (and common bed) : Taiyo or Stamford
- Thermometer : Exhaust gas at inlet of turbocharger / Lubrication oil at cooler outlet
- Electrical governor for parallel operation
- Exhaust piping : Expansion joint for piping / Silencer
- Compressed starting device
- Remote control device : Trip panel / Stop solenoid / LO pressure switch / FW temperature switch / Speed relay / Junction box & wiring