



# **MARINE PROPULSION ORDER SURVEY**



**Diesel & Gas Turbine  
WORLDWIDE**



# Uncharted waters

## Reported orders show drop in 2017

By Jack Burke

**Diesel & Gas Turbine Worldwide's Marine Propulsion Order Survey is part three of three reports designed to provide details on the markets of large reciprocating engines, steam turbines and gas turbines used in power generation, mechanical drive and marine propulsion applications. We divide the data into three reports in order to provide a more in-depth look at each market segment. The Power Generation Order Survey examines reciprocating engines, steam turbines and gas turbines for power generation service. The Mechanical Drive Order Survey is devoted to engine orders for mechanical drive applications including pumps, compressors, oil exploration machinery, rail and other industrial applications. The Marine Propulsion Order Survey examines mechanical drive, auxiliary and diesel-electric marine propulsions systems.**

## PROCEDURES

The Marine Propulsion Order Survey includes drivers beginning at 500 kW (0.5 MW). New orders are broken into diesel-electric, mechanical drive and auxiliary generating set orders. Fuel types include diesel fuel, heavy fuel and natural gas.

All data found in the survey was provided by participating original equipment manufacturers (OEMs).

An accompanying table identifies those companies that participated in the 2018 survey. Every effort is made to ensure this survey is as complete and comprehensive as possible and it would not have the level of detail it contains without the generous contributions of the participating companies. However, two well-known manufacturers who have regularly contributed to the survey chose not to participate in this year's edition, which affected the overall totals.

It is important to note that the data in this survey does not represent units shipped, but only the total orders received during calendar year 2017. Geographic location refers to the shipbuilding site. For reference, the geographic breakdown that was presented to participating OEMs along with the survey forms is included in this report.

It is important to note, some units reported in the 2018 Marine Propulsion Order Survey did not have complete information. In some cases OEMs chose not to provide engine output, fuel type or geography for some of their reported orders.

## OVERVIEW

Total units reported in the 2018 Marine Propulsion Order Survey (2017 data) equaled 7570, a decrease of roughly 43% over the reported total of 13 306 in 2016. Last year's number represented an increase of nearly 18% over 2015 numbers. Again, two major manufacturers declined to participate in this year's survey, which obviously skewed the numbers downward.

The Far East was once again the top reported geographic location (all reported driver types.) With 3760 units destined for the Far East, the region claimed 50% of all reported orders last year. Western Europe and South East Asia & Australia came in second and third, respectively.

Western Europe logged 20% of the total orders reported, while South East Asia & Australia received roughly 12.5% of all orders reported. North America was fourth with 10% of all orders reported.

## COUNTRY INFORMATION FOR REGIONS/ REGIONAL CODES, D&GTW ANNUAL MARKET SURVEYS

### WESTERN EUROPE

Andorra  
Austria  
Belgium  
Denmark  
Finland  
France  
Germany  
Greece  
Iceland  
Liechtenstein  
Luxembourg  
Italy  
Ireland  
Netherlands  
Malta  
Norway  
Portugal  
San Marino  
Slovenia  
Spain  
Sweden  
Switzerland  
United Kingdom

### EASTERN EUROPE, RUSSIA & CIS

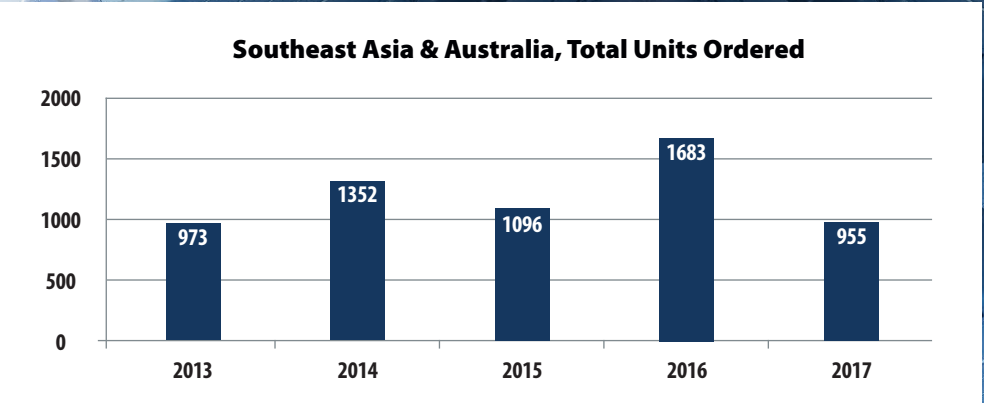
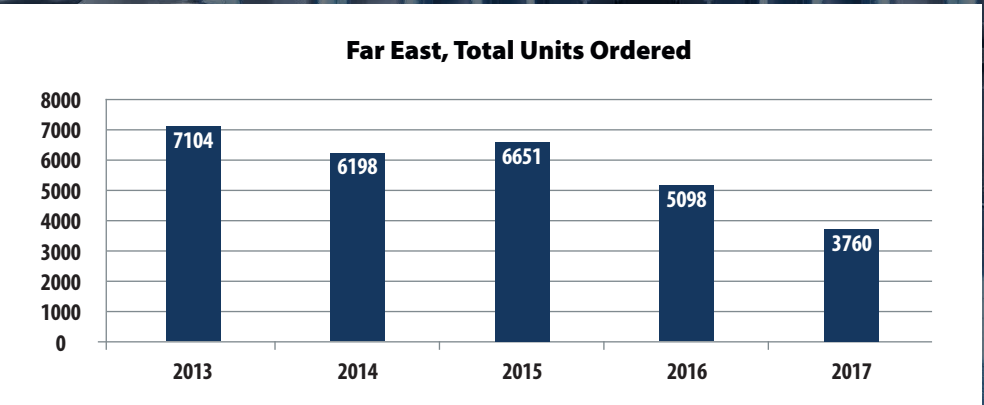
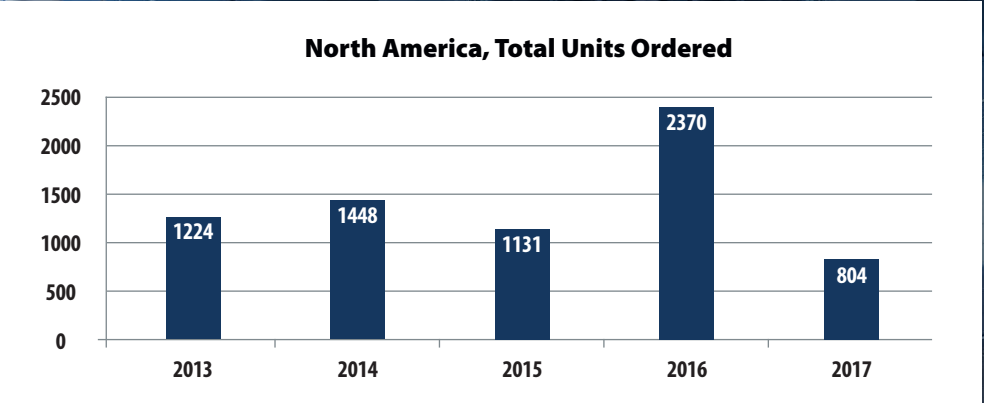
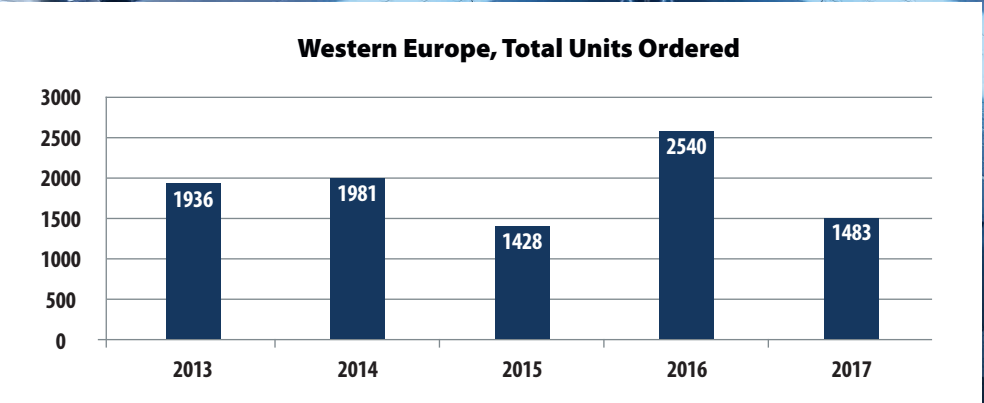
Albania  
Armenia  
Azerbaijan  
Belarus  
Bosnia and Herzegovina  
Bulgaria  
Croatia  
Czech Republic  
Estonia  
Georgia  
Hungary  
Kazakhstan  
Kyrgyzstan  
Latvia  
Lithuania  
Moldova  
Poland  
Republic of Macedonia  
Romania  
Russia  
Serbia  
Slovak Republic  
Tajikistan  
Turkmenistan



MECHANICAL DRIVE RECIPROCATING ENGINE ORDERS, January - December 2017																				
Output Range (MW)	Number of Units	Total Engine Output for Each Output Range (MW)	Engine operating speed ranges				Fuel			Western Europe	Eastern Europe, Russia & CIS	Middle East	Far East	Southeast Asia & Australia	Central Asia	North Africa	Central, West, East & south Africa	North America	Central America & Caribbean	South America
			Below 300 r/pm	300 to 600 r/pm	720 to 1000 r/pm	Above 1000 r/pm	Diesel Fuel	Heavy Fuel	Natural Gas											
0.50 to 1.00	2671	1781	6	10	79	2576	2123	506	0	494	32	39	1001	614	6	0	0	438	13	22
1.01 to 2.00	1744	2522	5	3	260	1473	1587	112	0	690	35	68	409	242	0	0	4	277	1	14
2.01 to 3.50	238	614	8	9	91	130	179	9	15	61	0	0	122	18	0	0	0	3	0	0
3.51 to 5.00	91	382	34	0	8	44	83	0	0	0	0	0	50	0	0	0	0	22	0	0
5.01 to 7.50	70	442	45	0	7	14	69	0	0	0	0	0	52	0	0	0	0	0	0	0
7.51 to 15.00	167	2565	137	0	0	30	143	18	6	20	0	0	137	0	10	0	0	0	0	0
15.01 to 30.00	322	3760	322	0	0	0	312	2	8	0	0	0	322	0	0	0	0	0	0	0
30.01 to 50.00	84	2764	84	0	0	0	84	0	0	0	0	0	84	0	0	0	0	0	0	0
50.01 and above	21	1460	21	0	0	0	21	0	0	0	0	0	21	0	0	0	0	0	0	0
Totals	5408	16290	662	22	445	4267	4601	647	29	1265	67	107	2198	874	16	0	4	740	14	36

MARINE AUXILIARY GENERATING SET ORDERS, January - December 2017																				
Output Range (MW)	Number of Units	Total Engine Output for Each Output Range (MWe)	Engine operating speed ranges				Fuel			Western Europe	Eastern Europe, Russia & CIS	Middle East	Far East	Southeast Asia & Australia	Central Asia	North Africa	Central, West, East & South Africa	North America	Central America & Caribbean	South America
			Below 300 r/pm	300 to 600 r/pm	720 to 1000 r/pm	Above 1000 r/pm	Diesel Fuel	Heavy Fuel	Natural Gas											
0.50 to 1.00	974	1366	45	729	200	926	0	1	59	7	2	824	22	2	0	0	31	7	5	22
1.01 to 2.00	597	789	20	476	101	544	0	8	69	14	0	482	7	0	0	5	9	7	4	14
2.01 to 3.50	189	309	10	126	53	154	0	0	14	0	0	127	0	8	0	0	20	2	3	0
3.51 to 5.00	73	330	24	49	0	65	0	0	0	0	0	65	0	0	0	0	2	6	0	0
5.01 and above	5	28	0	5	0	4	0	0	0	0	0	1	0	0	0	0	4	0	0	0
Totals	1838	2822	99	1385	354	1693	0	9	142	21	2	1499	29	10	0	5	66	22	12	36

DIESEL-ELECTRIC MARINE PROPULSION ORDERS, January - December 2017																		
Output Range (MW)	Number of Units	Total Engine Output for Each Output Range (MWe)	Engine operating speed ranges			Fuel		Western Europe	Eastern Europe, Russia & CIS	Middle East	Far East	Southeast Asia & Australia	Central Asia	North Africa	Central, West, East & South Africa	North America	Central America & Caribbean	South America
			300 to 600 r/pm	720 to 1000 r/pm	Above 1000 r/pm	Diesel Fuel	Heavy Fuel											
0.50 to 1.00	13	16	0	13	0	9	0	2	0	0	7	4	0	0	0	0	0	0
1.01 to 2.00	198	414	0	33	165	172	0	53	19	4	56	14	0	0	37	0	3	0
2.01 to 3.50	22	60	0	9	13	14	0	14	4	4	0	0	0	0	0	0	0	0
3.51 to 5.00	19	88	0	19	0	7	0	7	0	8	0	4	0	0	0	0	0	0
5.01 to 7.50	21	130	11	10	0	0	0	0	8	0	0	13	0	0	0	0	0	0
7.51 and above	51	370	47	4	0	0	0	0	34	0	0	17	0	0	0	0	0	0
Totals	324	1078	58	88	178	202	0	76	65	16	63	52	0	0	37	0	3	0



COUNTRY INFORMATION FOR REGIONS/ REGIONAL CODES, D&GTW ANNUAL MARKET SURVEYS

Ukraine  
Uzbekistan

MIDDLE EAST

Bahrain  
Cyprus  
Egypt  
Iran  
Iraq  
Israel  
Jordan  
Kuwait  
Lebanon  
Oman  
Qatar  
Saudi Arabia  
Syria  
Turkey  
United Arab Emirates  
Yemen

FAR EAST

China  
Hong Kong  
Japan  
Mongolia  
North Korea  
South Korea  
Taiwan

SOUTHEAST ASIA & AUSTRALIA

Australia  
Brunei  
Burma  
Cambodia  
Fiji Islands  
Indonesia  
Kiribati  
Laos  
Malaysia  
Marshall Islands  
Micronesia  
Palau  
Papua New Guinea  
Philippines  
Samoa  
Singapore  
Solomon Islands  
Tahiti  
Tonga



COUNTRY INFORMATION FOR REGIONS/ REGIONAL CODES, D&GTW ANNUAL MARKET SURVEYS

Thailand  
Tuvalu  
Vanuatu  
Vietnam

CENTRAL ASIA

Afghanistan  
Bangladesh  
India  
Maldives Islands  
Nepal  
Pakistan  
Sri Lanka

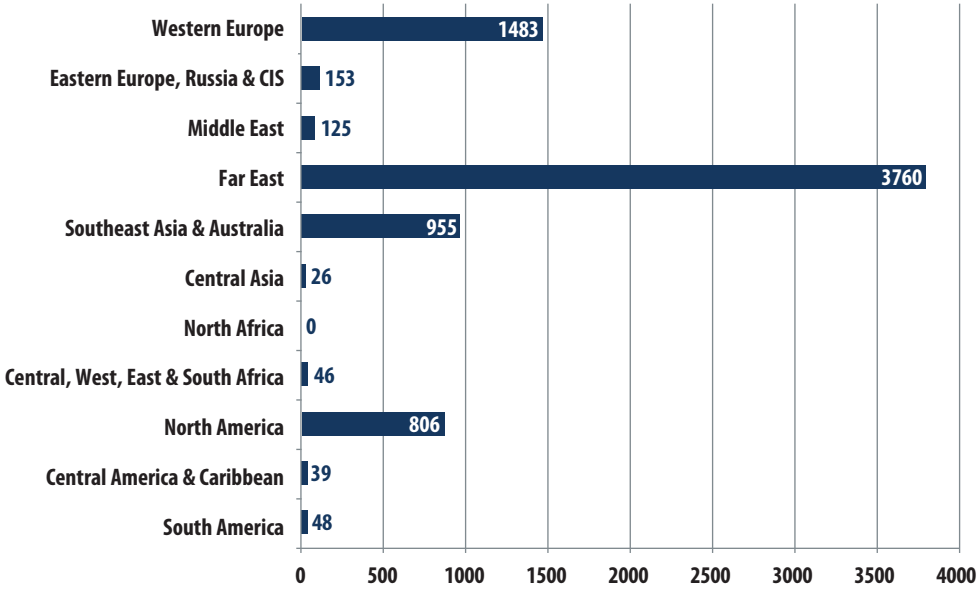
NORTH AFRICA

Algeria  
Libya  
Morocco  
Tunisia

CENTRAL, WEST, EAST & SOUTH AFRICA

Botswana  
Comoros  
Congo  
Cote d'Ivoire  
Djibouti  
Eritrea  
Ethiopia  
Gambia  
Ghana  
Madagascar  
Malawi  
Mozambique  
Seychelles  
Somalia  
Sudan  
Tanzania  
Angola  
Benin  
Burkina Faso  
Burundi  
Cameroon  
Cape Verde  
Cen. African Rep.  
Chad  
Equatorial Guinea  
Gabon  
Guinea  
Guinea Bissau  
Ivory Coast

2017 Combined Regions/Regional Codes



MECHANICAL DRIVE ORDERS

Total reported mechanical drive orders reported this year were 5408 units, a decrease of about 36% compared to last year's survey, which reported 8536 units.

The 2017 survey (2016 numbers) showed a 34% increase compared to the 2016 survey (2015 numbers). In this year's survey, units sized 0.50 to 1.00 MW accounted for 49% of the reported mechanical drive orders.

Engine operating speeds above 1000 r/min comprised 79% of the total mechanical drive units ordered in 2017. Diesel fuel again was the fuel type of choice, representing 85% of the reported orders. Mechanical drive marine propulsion engines



Diesel & Gas Turbine Worldwide 2018

destined for the Far East accounted for 40% of 2017 orders. Western Europe claimed the number two spot (23%) with Southeast Asia & Australia third (16%).

AUXILIARY GENERATING SET ORDERS

Marine auxiliary gen-set orders totaled 1838 units, a decrease of roughly 46% from last year's report of 3390 units ordered. The 3390 number was down 35% from the 2016 report of 5226 units ordered. In 2017, engines in the output range of 0.50 to 1.00 MW once again recorded the most orders (53%).

Engines operating at speeds between 720 to 1000 r/min received 75% of the reported orders. The Far East was the top geographic location for marine auxiliary genset orders, accounting for 82% of the total reported. Rounding out the top three spots: second place was Western Europe (8%) followed by North America (4%).

DIESEL-ELECTRIC ORDERS

Diesel-electric marine propulsion orders totaled 324 units, a decrease of 23% from the 422 units reported in last year's (2016 numbers)

MARINE GENERATION ORDER SURVEY PARTICIPANTS

MECHANICAL DRIVE

Caterpillar  
MAN  
Japanese Engine Corp.  
Mitsubishi Heavy Industries  
Engine & Turbocharger Ltd.  
Niigata Power Systems  
Rolls-Royce  
Wärtsilä  
Yanmar

MARINE AUXILIARY

Caterpillar  
MAN  
Niigata Power Systems  
Rolls-Royce  
Wärtsilä  
Yanmar

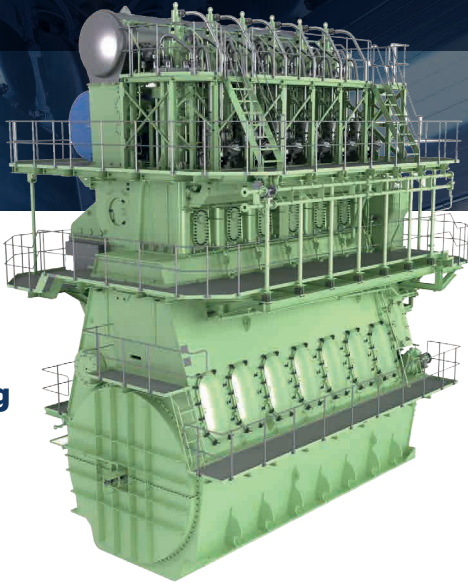
DIESEL-ELECTRIC

Caterpillar  
Rolls-Royce  
Wärtsilä  
Yanmar

The Far East was the top geographic location for marine auxiliary genset orders, accounting for 82% of the total reported."

survey. Demand was highest in the output range of 1.01 to 2 MW (61%). Engines operating at speeds above 1000 r/min received 55% of the orders.

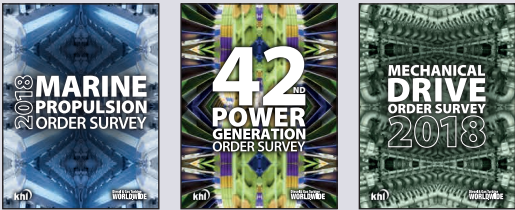
Western Europe was the top geographic location with 23% of the orders, followed



Eastern Europe, Russia and CIS with 20%, the Far East at 19% and Southeast Asia and Australia with 16% of the orders.

ANNUAL SURVEYS

On behalf of Diesel & Gas Turbine Worldwide, thank you to all contributors for your continued participation in this annual survey process. It is our hope that the three surveys combined will provide a helpful snapshot of the entire large-horsepower prime-mover landscape, with fine-tuned detail provided for three market segments through each individual report — power generation, marine propulsion and mechanical drive. Electronic versions of past surveys are available at our website: [www.diesलगasturbine.com](http://www.diesलगasturbine.com). Questions, comments and suggestions should be directed to [jack.burke@khl.com](mailto:jack.burke@khl.com).



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Kenya  
Lesotho  
Liberia  
Mali  
Mauritania  
Mauritius  
Namibia  
Niger  
Nigeria  
Rwanda  
Senegal  
Sierra Leone  
South Africa  
Swaziland  
Togo  
Uganda  
Zaire  
Zambia  
Zimbabwe

NORTH AMERICA

Canada  
U.S.A.

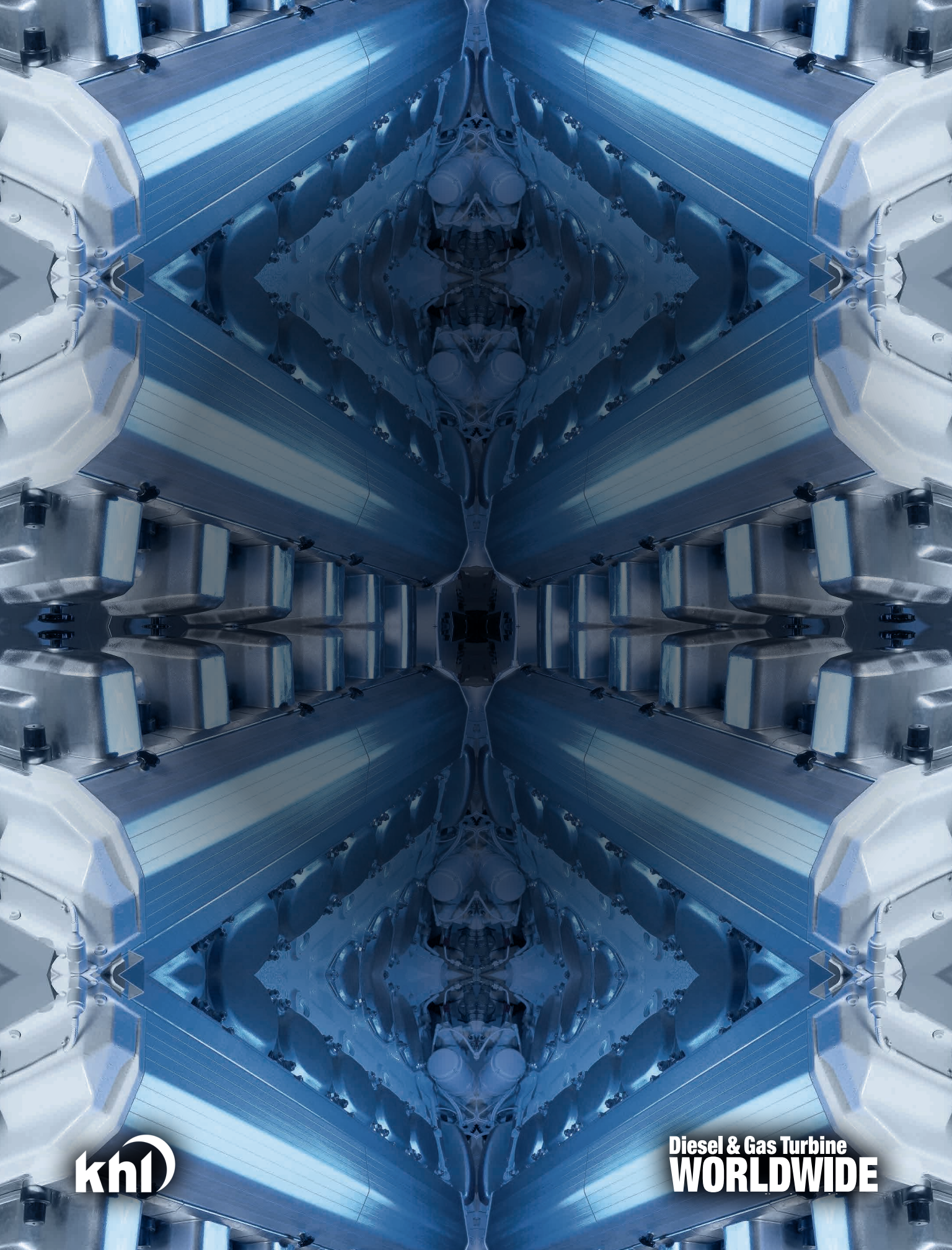
CENTRAL AMERICA & CARIBBEAN

Bahamas  
Bermuda  
Belize  
Costa Rica  
Cuba  
Dominica  
Domin. Republic  
El Salvador  
Guatemala  
Haiti  
Honduras  
Jamaica  
Mexico  
Nicaragua  
Panama  
Puerto Rico  
Virgin Islands  
West Indies

SOUTH AMERICA

Argentina  
Bolivia  
Brazil  
Chile  
Colombia  
Ecuador  
Guyana  
Paraguay  
Peru  
Surinam  
Uruguay  
Venezuela





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