

Hydrogen IC Engines Market by State (Gas and Liquid), Application (Transportation and Power Generation), Power Rating (Low, Medium, and High), Blending (Mix Blend and Pure Hydrogen) and Region - Global Forecast to 2035

<https://marketpublishers.com/r/H74581C42ADCEN.html>

Date: June 2024

Pages: 201

Price: US\$ 4,950.00 (Single User License)

ID: H74581C42ADCEN

Abstracts

The global hydrogen IC engines market is estimated to grow from USD 12 million in 2024 to USD 327 million by 2035; it is expected to record a CAGR of 34.7% during the forecast period. Hydrogen internal combustion engines (ICEs) are gaining traction as a potential alternative to traditional fossil-fuel engines and even to battery electric vehicles (EVs), driving the demand for hydrogen IC engines infrastructure.

“Liquid”: The fastest growing segment of the Hydrogen IC Engines market, by state “

Based on state, the hydrogen IC engines market has been segmented into gas and liquid. The liquid segment is expected to be the fastest-growing segment during the forecast period. Recent advancements in the production and storage of liquid hydrogen are significantly enhancing its viability as a fuel option for internal combustion engines (IC engines). These improvements span several key areas, including cost reductions, increased efficiency, and technological innovations, making hydrogen a more practical and attractive alternative to traditional fossil fuels.

“By power rating, the medium segment is expected to be the fastest growing segment during the forecast period.”

Based on power rating, the hydrogen IC engines market is segmented into low, medium and high. The medium segment is expected to be the fastest-growing segment of the hydrogen IC engines market during the forecast period. Industries such as shipping,

heavy-duty transport, and stationary power generation are looking for sustainable alternatives to diesel and natural gas engines. Hydrogen ICEs provide a feasible option due to their similar operational characteristics.

“Asia Pacific” is expected to be the largest region in the Hydrogen IC Engines market.”

Asia Pacific is expected to be the largest region in the hydrogen IC engines market during the forecast period. The rapid economic growth and urbanization in the Asia-Pacific region are boosting the demand for clean and efficient transportation solutions, creating a substantial market opportunity for hydrogen IC engines. Governments in the Asia Pacific region are increasingly implementing policies and providing incentives to promote the adoption of hydrogen technology. Countries like Japan and South Korea have set ambitious hydrogen roadmaps, offering subsidies and tax incentives for hydrogen-powered vehicles and infrastructure development.

Breakdown of Primaries:

In-depth interviews have been conducted with various key industry participants, subject-matter experts, C-level executives of key market players, and industry consultants, among other experts, to obtain and verify critical qualitative and quantitative information and assess future market prospects. The distribution of primary interviews is as follows:

By Company Type: Tier 1- 65%, Tier 2- 24%, and Tier 3- 11%

By Designation: C-Level- 30%, Director Level- 25%, and Others- 45%

By Region: North America- 20%, Europe- 25%, Asia Pacific- 30%, ROW-25%

Note: Others include sales managers, engineers, and regional managers.

Note: The tiers of the companies are defined on the basis of their total revenues as of 2022. Tier 1: > USD 1 billion, Tier 2: From USD 500 million to USD 1 billion, and Tier 3: The hydrogen IC engines market is dominated by a few major players that have a wide regional presence. The leading players in the hydrogen IC engines market are Wärtsilä (Finland), GARRETT MOTION INC. (Switzerland), BeHydro (Belgium), DEUTZ AG (Germany), MAN Energy Solutions (Germany). The major strategy adopted by the players includes new product launches, contracts, agreements, partnerships, joint ventures, acquisitions, and investments & expansions.

Research Coverage:

The report defines, describes, and forecasts the global hydrogen IC engines Market based on state, power rating, application, blending and region. It also offers a detailed qualitative and quantitative analysis of the market. The report comprehensively reviews the major market drivers, restraints, opportunities, and challenges. It also covers various important aspects of the market. These include an analysis of the competitive landscape, market dynamics, market estimates in terms of value, and future trends in the hydrogen IC engines market.

Key Benefits of Buying the Report

Government initiatives at the national and international levels amplify the impact of investment on the hydrogen IC engines market. Robust policy frameworks, often accompanied by financial incentives, subsidies, and regulatory support, encourage widespread adoption of hydrogen IC engines. Factors such as high initial cost and lack of infrastructure restrain the growth of the market. The growing energy transition towards renewable energy sources and rapid urbanization are expected to present lucrative opportunities for the players operating in the hydrogen IC engines.

Product Development/ Innovation: The hydrogen IC engines market is witnessing significant product development and innovation, driven by the growing demand for environmentally friendly, safe and sustainable products. Companies are investing in developing advanced hydrogen IC engines technologies for various applications.

Market Development: DEUTZ AG and RheinEnergie AG have partnered to initiate a pilot project focused on generating power using a stationary hydrogen engine. The objective is to utilize this engine to drive a generator capable of producing 170 kilovolt-amperes of electricity. The trial will take place at RheinEnergie's cogeneration plant in Cologne-Niehl, where RheinEnergie is responsible for sourcing the hydrogen and ensuring its supply. Initially, the two partners plan to invest a combined total of approximately USD 1.54 million in the trial operation at the Niehl facility.

Market Diversification: Wärtsilä has entered into a partnership with energy firms EPV Energy and Vaasan Sähkö to develop a hydrogen engine power plant. This collaboration presents a significant opportunity to explore Power-to-X-to-Power

solutions. Extensive research will be conducted on various future fuels and engine technologies to expedite progress towards a cleaner environment. Additionally, both hydrogen production and storage capacities can be expanded in the future.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players, like include Wärtsilä (Finland), GARRETT MOTION INC. (Switzerland), BeHydro (Belgium), DEUTZ AG (Germany), MAN Energy Solutions (Germany), among others in the hydrogen IC engines market.

Contents

1 INTRODUCTION

1.1 STUDY OBJECTIVES

1.2 MARKET DEFINITION

1.2.1 INCLUSIONS AND EXCLUSIONS

1.3 STUDY SCOPE

1.3.1 MARKETS COVERED

FIGURE 1 HYDROGEN IC ENGINES MARKET SEGMENTATION

1.3.2 REGIONAL SCOPE

FIGURE 2 HYDROGEN IC ENGINES MARKET SEGMENTATION, BY REGION

1.3.3 YEARS CONSIDERED

FIGURE 3 STUDY PERIOD CONSIDERED

1.4 CURRENCY CONSIDERED

1.5 RESEARCH LIMITATIONS

1.6 STAKEHOLDERS

1.7 RECESSION IMPACT

2 RESEARCH METHODOLOGY

2.1 RESEARCH APPROACH

FIGURE 4 HYDROGEN IC ENGINES MARKET: RESEARCH DESIGN

2.2 PRIMARY AND SECONDARY RESEARCH

2.2.1 SECONDARY DATA

2.2.1.1 List of key secondary sources

TABLE 1 LIST OF KEY SECONDARY SOURCES

2.2.1.2 Key data from secondary sources

FIGURE 5 KEY DATA FROM SECONDARY SOURCES

2.2.2 PRIMARY DATA

2.2.2.1 List of primary interview participants

TABLE 2 LIST OF PRIMARY INTERVIEW PARTICIPANTS

2.2.2.2 Key data from primary sources

FIGURE 6 KEY DATA FROM PRIMARY SOURCES

2.2.2.3 Breakdown of primaries

FIGURE 7 BREAKDOWN OF PRIMARY SOURCES, BY COMPANY TYPE, DESIGNATION, AND REGION

2.3 MARKET SIZE ESTIMATION METHODOLOGY

2.3.1 BOTTOM-UP APPROACH

FIGURE 8 HYDROGEN IC ENGINES MARKET: BOTTOM-UP APPROACH

2.3.2 TOP-DOWN APPROACH

FIGURE 9 HYDROGEN IC ENGINES MARKET: TOP-DOWN APPROACH

2.3.3 DEMAND-SIDE ANALYSIS

FIGURE 10 METRICS CONSIDERED TO ANALYZE AND ASSESS DEMAND FOR HYDROGEN IC ENGINES

2.3.3.1 Assumptions for demand-side analysis

2.3.3.2 Calculations for demand-side analysis

2.3.4 SUPPLY-SIDE ANALYSIS

FIGURE 11 KEY METRICS CONSIDERED TO ASSESS SUPPLY OF HYDROGEN IC ENGINES

2.3.4.1 Assumptions for supply-side analysis

2.3.4.2 Calculations for supply-side analysis

2.4 FORECAST

2.5 DATA TRIANGULATION

FIGURE 12 DATA TRIANGULATION

2.6 RISK ASSESSMENT

2.7 RECESSION IMPACT

3 EXECUTIVE SUMMARY

TABLE 3 HYDROGEN IC ENGINES MARKET SNAPSHOT

FIGURE 13 EUROPE ACCOUNTED FOR LARGEST SHARE OF HYDROGEN IC ENGINES MARKET IN 2023

FIGURE 14 LOW RATING HYDROGEN IC ENGINES TO DOMINATE MARKET THROUGH 2035

FIGURE 15 LIQUID HYDROGEN IC ENGINES TO ACCOUNT FOR SIGNIFICANT SHARE OF MARKET THROUGH 2035

FIGURE 16 TRANSPORTATION APPLICATION TO DOMINATE HYDROGEN IC ENGINES MARKET THROUGH 2035

4 PREMIUM INSIGHTS

4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN HYDROGEN IC ENGINES MARKET

FIGURE 17 INVESTMENT IN HYDROGEN INFRASTRUCTURE TO DRIVE MARKET DURING FORECAST PERIOD

4.2 HYDROGEN IC ENGINES MARKET, BY REGION

FIGURE 18 NORTH AMERICA TO RECORD HIGHEST CAGR DURING FORECAST

PERIOD

4.3 HYDROGEN IC ENGINES MARKET, BY STATE

FIGURE 19 LIQUID SEGMENT DOMINATED MARKET IN 2023

4.4 HYDROGEN IC ENGINES MARKET, BY POWER RATING

FIGURE 20 LOW POWER RATING WAS LARGEST SEGMENT IN 2023

4.5 HYDROGEN IC ENGINES MARKET, BY APPLICATION

FIGURE 21 TRANSPORTATION APPLICATION ACCOUNTED FOR LION'S SHARE IN 2023

4.6 ASIA PACIFIC: HYDROGEN IC ENGINES MARKET, BY STATE & APPLICATION

FIGURE 22 LIQUID AND TRANSPORTATION ACCOUNTED FOR LARGEST SEGMENTAL SHARES IN 2023

5 MARKET OVERVIEW

5.1 INTRODUCTION

5.2 MARKET DYNAMICS

FIGURE 23 HYDROGEN IC ENGINES MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES

5.2.1 DRIVERS

5.2.1.1 Potential for long range and fast refueling

5.2.1.2 Growing Investments and government policies

FIGURE 24 POTENTIAL DEMAND AND PRODUCTION TARGETS FOR LOW-EMISSION HYDROGEN, BY SECTOR, 2030 (METRIC TON)

5.2.2 RESTRAINTS

5.2.2.1 Safety concerns regarding flammability

5.2.3 OPPORTUNITIES

5.2.3.1 Continuous technological advancements

5.2.3.2 Growing consumer interest

5.2.4 CHALLENGES

5.2.4.1 Competition from electric and fuel cell vehicles

5.2.4.2 Challenge in storing and distributing hydrogen safely and efficiently

5.3 TRENDS/DISRUPTIONS IMPACTING CUSTOMERS' BUSINESSES

FIGURE 25 TRENDS/DISRUPTIONS IMPACTING CUSTOMERS' BUSINESSES

5.4 PRICING ANALYSIS (QUALITATIVE)

5.5 SUPPLY CHAIN ANALYSIS

FIGURE 26 HYDROGEN IC ENGINES MARKET: SUPPLY CHAIN ANALYSIS

5.5.1 MANUFACTURERS

5.5.2 DISTRIBUTORS

5.5.3 END USERS

5.6 ECOSYSTEM

TABLE 4 COMPANIES AND THEIR ROLES IN HYDROGEN IC ENGINES MARKET ECOSYSTEM

FIGURE 27 ECOSYSTEM ANALYSIS

5.7 TECHNOLOGY ANALYSIS

5.7.1 KEY TECHNOLOGIES

5.7.1.1 Fuel cell stack

5.7.1.2 Hydrogen management

5.7.1.3 Power electronics

5.7.2 COMPLEMENTARY TECHNOLOGIES

5.7.2.1 Renewable energy sources

5.7.2.2 Electrolyzers

5.7.2.3 Battery storage

5.7.3 ADJACENT TECHNOLOGIES

5.7.3.1 Solid-state hydrogen storage

5.7.3.2 High-temperature superconductors

5.7.3.3 Ammonia engines

5.8 CASE STUDY ANALYSIS

5.8.1 EVOLUTION OF HYDROGEN TECHNOLOGY IN HEAVY-DUTY TRANSPORTATION

5.8.2 TUPY PARTNERED WITH AVL AND WESTPORT IN QUEST FOR ZERO-EMISSION SOLUTIONS

5.8.3 HYDROGEN-POWERED MINE TRUCK FOR ANGLO AMERICAN MINE

5.9 PATENT ANALYSIS

FIGURE 28 HYDROGEN IC ENGINES MARKET: INNOVATIONS AND PATENT REGISTRATIONS, 2013–2023

5.9.1 LIST OF KEY PATENTS

TABLE 5 HYDROGEN IC ENGINES MARKET: INNOVATIONS AND PATENT REGISTRATIONS, 2019–2023

5.10 TRADE ANALYSIS

5.10.1 EXPORT SCENARIO

TABLE 6 EXPORT DATA FOR HS CODE 280410, BY COUNTRY, 2021–2023 (USD THOUSAND)

FIGURE 29 EXPORT DATA FOR HS CODE 280410 FOR TOP FIVE COUNTRIES, 2021–2023 (USD THOUSAND)

5.10.2 IMPORT SCENARIO

TABLE 7 IMPORT DATA FOR HS CODE 280410, BY COUNTRY, 2021–2023 (USD THOUSAND)

FIGURE 30 IMPORT DATA FOR HS CODE 280410 FOR TOP FIVE COUNTRIES,

2021–2023 (USD THOUSAND)

5.11 KEY CONFERENCES AND EVENTS

TABLE 8 HYDROGEN IC ENGINES MARKET: LIST OF KEY CONFERENCES AND EVENTS, 2023–2024

5.12 REGULATORY LANDSCAPE

5.12.1 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 9 ASIA PACIFIC: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 10 NORTH AMERICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 11 EUROPE: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 12 ROW: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

5.12.2 REGULATORY FRAMEWORK

TABLE 13 HYDROGEN IC ENGINES MARKET: REGULATIONS

5.13 PORTER'S FIVE FORCES ANALYSIS

FIGURE 31 HYDROGEN IC ENGINES MARKET: PORTER'S FIVE FORCES ANALYSIS

TABLE 14 HYDROGEN IC ENGINES MARKET: PORTER'S FIVE FORCES ANALYSIS

5.13.1 THREAT OF SUBSTITUTES

5.13.2 BARGAINING POWER OF SUPPLIERS

5.13.3 BARGAINING POWER OF BUYERS

5.13.4 THREAT OF NEW ENTRANTS

5.13.5 INTENSITY OF COMPETITIVE RIVALRY

5.14 KEY STAKEHOLDERS AND BUYING CRITERIA

5.14.1 KEY STAKEHOLDERS IN BUYING PROCESS

FIGURE 32 INFLUENCE OF KEY STAKEHOLDERS ON BUYING PROCESS, BY APPLICATION

TABLE 15 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY APPLICATION

5.14.2 BUYING CRITERIA

FIGURE 33 KEY BUYING CRITERIA, BY POWER RATING

TABLE 16 KEY BUYING CRITERIA, BY POWER RATING

5.15 INVESTMENT AND FUNDING SCENARIO

FIGURE 34 INVESTMENT AND FUNDING SCENARIO (USD MILLION)

6 HYDROGEN IC ENGINES MARKET, BY BLENDING

6.1 INTRODUCTION

6.2 MIX BLEND

6.3 PURE HYDROGEN

7 HYDROGEN IC ENGINES MARKET, BY STATE

7.1 INTRODUCTION

FIGURE 35 HYDROGEN IC ENGINES MARKET SHARE, BY STATE, 2023

TABLE 17 HYDROGEN IC ENGINES MARKET, BY STATE, 2023–2035 (USD MILLION)

7.2 GAS

7.2.1 INCREASE IN HYDROGEN REFUELING STATIONS DESIGNED FOR GASEOUS HYDROGEN TO ENCOURAGE ADOPTION

TABLE 18 GASEOUS HYDROGEN IC ENGINES MARKET, BY REGION, 2023–2035 (USD MILLION)

7.3 LIQUID

7.3.1 ADVANCES IN CRYOGENIC TECHNOLOGY IMPROVED FEASIBILITY OF STORING LIQUID HYDROGEN SAFELY AND EFFICIENTLY

TABLE 19 LIQUID HYDROGEN IC ENGINES MARKET, BY REGION, 2023–2035 (USD MILLION)

8 HYDROGEN IC ENGINES MARKET, BY POWER RATING

8.1 INTRODUCTION

FIGURE 36 HYDROGEN IC ENGINES MARKET SHARE, BY POWER RATING, 2023

TABLE 20 HYDROGEN IC ENGINES MARKET, BY POWER RATING, 2023–2035 (USD MILLION)

8.2 LOW

8.2.1 SMOOTH POWER DELIVERY, WELL-SUITED FOR LOW-POWER APPLICATIONS

TABLE 21 LOW-POWER HYDROGEN IC ENGINES MARKET, BY REGION, 2023–2035 (USD MILLION)

8.3 MEDIUM

8.3.1 INVESTMENTS IN HYDROGEN INFRASTRUCTURE DEVELOPMENT AND INITIATIVES TOWARD BUILDING EXTENSIVE NETWORK

TABLE 22 MEDIUM-POWER HYDROGEN IC ENGINES MARKET, BY REGION, 2023–2035 (USD MILLION)

8.4 HIGH

8.4.1 INVESTMENT BY PROMINENT ENGINE MANUFACTURERS AND ENERGY COMPANIES

TABLE 23 HIGH-POWER HYDROGEN IC ENGINES MARKET, BY REGION, 2023–2035 (USD MILLION)

9 HYDROGEN IC ENGINES MARKET, BY APPLICATION

9.1 INTRODUCTION

FIGURE 37 HYDROGEN IC ENGINES MARKET SHARE, BY APPLICATION, 2023

TABLE 24 HYDROGEN IC ENGINES MARKET, BY APPLICATION, 2023–2035 (USD MILLION)

9.2 TRANSPORTATION

9.2.1 ENVIRONMENTAL REGULATIONS ADVOCATING FOR CLEANER TRANSPORTATION SOLUTIONS

TABLE 25 HYDROGEN IC ENGINES MARKET IN TRANSPORTATION, BY REGION, 2023–2035 (USD MILLION)

9.3 POWER GENERATION

9.3.1 KEY DRIVERS IN POWER GENERATION: GRID BALANCING AND PEAK POWER DEMANDS

TABLE 26 HYDROGEN IC ENGINES MARKET IN POWER GENERATION, BY REGION, 2023–2035 (USD MILLION)

10 HYDROGEN IC ENGINES MARKET, BY REGION

10.1 INTRODUCTION

FIGURE 38 HYDROGEN IC ENGINES MARKET IN NORTH AMERICA TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD

FIGURE 39 HYDROGEN IC ENGINES MARKET SHARE, BY REGION, 2023

TABLE 27 HYDROGEN IC ENGINES MARKET, BY REGION, 2023–2035 (USD MILLION)

10.2 ASIA PACIFIC

FIGURE 40 ASIA PACIFIC: REGIONAL SNAPSHOT, 2023

10.2.1 ASIA PACIFIC: RECESSION IMPACT

TABLE 28 ASIA PACIFIC: HYDROGEN IC ENGINES MARKET, BY STATE, 2023–2035 (USD MILLION)

TABLE 29 ASIA PACIFIC: HYDROGEN IC ENGINES MARKET, BY POWER RATING, 2023–2035 (USD MILLION)

TABLE 30 ASIA PACIFIC: HYDROGEN IC ENGINES MARKET, BY APPLICATION,

2023–2035 (USD MILLION)**10.2.2 CHINA**

10.2.2.1 Largest market for evs; focus on innovations in HICE

10.2.3 INDIA

10.2.3.1 Oems working toward goals set by National Green Hydrogen Mission

10.2.4 JAPAN

10.2.4.1 Policies mandating plans supporting non-fossil fuel-powered vehicles, with focus on trucks and passenger cars

10.2.5 REST OF ASIA PACIFIC**10.3 EUROPE****FIGURE 41 EUROPE: REGIONAL SNAPSHOT, 2023****10.3.1 EUROPE: RECESSION IMPACT****TABLE 31 EUROPE: HYDROGEN IC ENGINES MARKET, BY STATE, 2023–2035 (USD MILLION)****TABLE 32 EUROPE: HYDROGEN IC ENGINES MARKET, BY POWER RATING, 2023–2035 (USD MILLION)****TABLE 33 EUROPE: HYDROGEN IC ENGINES MARKET, BY APPLICATION, 2023–2035 (USD MILLION)****10.3.2 GERMANY**

10.3.2.1 Rapid refueling advantage of hydrogen IC engine trucks

10.3.3 UK

10.3.3.1 HICE vehicles to reshape UK maritime landscape

10.3.4 NORWAY

10.3.4.1 Norway's commitment to green mobility aligning with global shifts

10.3.5 FRANCE

10.3.5.1 France's strategic move toward affordable hydrogen cars

10.3.6 ITALY

10.3.6.1 Increase in public awareness and acceptance of hydrogen as clean and sustainable energy source

10.3.7 REST OF EUROPE**10.4 NORTH AMERICA****10.4.1 NORTH AMERICA: RECESSION IMPACT****TABLE 34 NORTH AMERICA: HYDROGEN IC ENGINES MARKET, BY STATE, 2023–2035 (USD MILLION)****TABLE 35 NORTH AMERICA: HYDROGEN IC ENGINES MARKET, BY POWER RATING, 2023–2035 (USD MILLION)****TABLE 36 NORTH AMERICA: HYDROGEN IC ENGINES MARKET, BY APPLICATION, 2023–2035 (USD MILLION)****10.4.2 US**

10.4.2.1 Addressing concerns about emissions in heavy-duty transportation with regulations

10.4.3 CANADA

10.4.3.1 Potential for scalable hydrogen production methods

10.5 REST OF THE WORLD (ROW)

10.5.1 ROW: RECESSION IMPACT

TABLE 37 ROW: HYDROGEN IC ENGINES MARKET, BY STATE, 2023–2035 (USD MILLION)

TABLE 38 ROW: HYDROGEN IC ENGINES MARKET, BY POWER RATING, 2023–2035 (USD MILLION)

TABLE 39 ROW: HYDROGEN IC ENGINES MARKET, BY APPLICATION, 2023–2035 (USD MILLION)

10.5.2 SOUTH AMERICA

10.5.2.1 Potential for easy recycling and reuse of components in hydrogen IC engines

10.5.3 MIDDLE EAST & AFRICA

10.5.3.1 Projects and initiatives aligning with vision for hydrogen export

11 COMPETITIVE LANDSCAPE

11.1 OVERVIEW

11.2 STRATEGIES ADOPTED BY KEY PLAYERS

TABLE 40 HYDROGEN IC ENGINE MARKET: OVERVIEW OF STRATEGIES ADOPTED BY KEY PLAYERS, 2019–2024

11.3 INDUSTRY CONCENTRATION, 2023

FIGURE 42 INDUSTRY CONCENTRATION OF PLAYERS IN HYDROGEN IC ENGINE MARKET, 2023

11.4 MARKET EVALUATION FRAMEWORK

TABLE 41 MARKET EVALUATION FRAMEWORK, 2019–2023

11.5 SEGMENTAL REVENUE ANALYSIS OF TOP MARKET PLAYERS

FIGURE 43 HYDROGEN IC ENGINE MARKET: SEGMENTAL REVENUE ANALYSIS, 2019–2023 (USD MILLION)

11.6 COMPANY VALUATION AND FINANCIAL METRICS

FIGURE 44 COMPANY VALUATION, 2024 (USD MILLION)

FIGURE 45 EV/EBITDA, 2024

11.7 BRAND/PRODUCT COMPARISON

FIGURE 46 BRAND/PRODUCT COMPARISON

11.8 COMPANY EVALUATION MATRIX: KEY PLAYERS, 2023

11.8.1 STARS

11.8.2 EMERGING LEADERS

11.8.3 PERVASIVE PLAYERS

11.8.4 PARTICIPANTS

FIGURE 47 HYDROGEN IC ENGINE MARKET: COMPANY EVALUATION MATRIX (KEY PLAYERS) 2023

11.8.5 COMPANY FOOTPRINT, KEY PLAYERS, 2023

11.8.5.1 Company footprint

FIGURE 48 HYDROGEN IC ENGINE: PRODUCT FOOTPRINT, 2023

FIGURE 49 HYDROGEN IC ENGINE: MARKET FOOTPRINT, 2023

11.8.5.2 Regional footprint

TABLE 42 HYDROGEN IC ENGINE MARKET: REGIONAL FOOTPRINT, 2023

11.8.5.3 State footprint

TABLE 43 HYDROGEN IC ENGINE MARKET: STATE FOOTPRINT, 2023

11.8.5.4 Application footprint

TABLE 44 HYDROGEN IC ENGINE MARKET: APPLICATION FOOTPRINT, 2023

11.8.5.5 Power rating footprint

TABLE 45 HYDROGEN IC ENGINE MARKET: POWER RATING FOOTPRINT, 2023

11.9 COMPETITIVE BENCHMARKING: KEY PLAYERS, 2023

11.9.1 LIST OF KEY PLAYERS

TABLE 46 HYDROGEN IC ENGINE MARKET: KEY PLAYERS, 2023

11.9.2 COMPETITIVE BENCHMARKING OF KEY PLAYERS

TABLE 47 HYDROGEN IC ENGINE: KEY PLAYERS, 2023

11.10 COMPETITIVE SCENARIOS AND TRENDS

11.10.1 PRODUCT LAUNCHES

TABLE 48 HYDROGEN IC ENGINE MARKET: PRODUCT LAUNCHES, JANUARY 2019–MARCH 2024

11.10.2 DEALS

TABLE 49 HYDROGEN IC ENGINE MARKET: DEALS, JANUARY 2019–MARCH 2024

11.10.3 OTHER DEVELOPMENTS

TABLE 50 HYDROGEN IC ENGINE MARKET: EXPANSIONS, JANUARY 2019–MARCH 2024

TABLE 51 HYDROGEN IC ENGINE MARKET: OTHERS, JANUARY 2019–MARCH 2024

12 COMPANY PROFILES

12.1 KEY PLAYERS

(Business Overview, Products Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive

Threats))*

12.1.1 W?RTSIL?

TABLE 52 W?RTSIL?: BUSINESS OVERVIEW

FIGURE 50 W?RTSIL?: COMPANY SNAPSHOT

TABLE 53 W?RTSIL?: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 54 W?RTSIL?: PRODUCT LAUNCHES

TABLE 55 W?RTSIL?: DEALS

12.1.2 GARRETT MOTION INC.

TABLE 56 GARRETT MOTION INC.: BUSINESS OVERVIEW

FIGURE 51 GARRETT MOTION INC.: COMPANY SNAPSHOT

TABLE 57 GARRETT MOTION INC.: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 58 GARRETT MOTION INC.: PRODUCT LAUNCHES

12.1.3 BEHYDRO

TABLE 59 BEHYRDO: BUSINESS OVERVIEW

TABLE 60 BEHYRDO: PRODUCTS SOLUTIONS/SERVICES OFFERED

TABLE 61 BEHYRDO: PRODUCT LAUNCHES

12.1.4 DEUTZ AG

TABLE 62 DEUTZ AG: BUSINESS OVERVIEW

FIGURE 52 DEUTZ AG: COMPANY SNAPSHOT

TABLE 63 DEUTZ AG: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 64 DEUTZ AG: PRODUCT LAUNCHES

TABLE 65 DEUTZ AG: DEALS

TABLE 66 DEUTZ AG: OTHERS

12.1.5 MAN ENERGY SOLUTIONS

TABLE 67 MAN ENERGY SOLUTIONS: BUSINESS OVERVIEW

TABLE 68 MAN ENERGY SOLUTIONS: PRODUCTS/SERVICES/SOLUTIONS OFFERED

TABLE 69 MAN ENERGY SOLUTIONS: PRODUCT LAUNCHES

TABLE 70 MAN ENERGY SOLUTIONS: DEALS

12.1.6 CUMMINS INC.

TABLE 71 CUMMINS INC.: BUSINESS OVERVIEW

FIGURE 53 CUMMINS INC.: COMPANY SNAPSHOT

TABLE 72 CUMMINS INC.: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 73 CUMMINS INC.: PRODUCT LAUNCHES

TABLE 74 CUMMINS INC.: DEALS

TABLE 75 CUMMINS INC.: EXPANSIONS

TABLE 76 CUMMINS INC.: OTHERS

12.1.7 KAWASAKI HEAVY INDUSTRIES, LTD.

TABLE 77 KAWASAKI HEAVY INDUSTRIES, LTD.: BUSINESS OVERVIEW

FIGURE 54 KAWASAKI HEAVY INDUSTRIES, LTD.: COMPANY SNAPSHOT
TABLE 78 KAWASAKI HEAVY INDUSTRIES, LTD.: PRODUCTS/SOLUTIONS/
SERVICES OFFERED

TABLE 79 KAWASAKI HEAVY INDUSTRIES, LTD.: PRODUCT LAUNCHES

TABLE 80 KAWASAKI HEAVY INDUSTRIES, LTD.: DEALS

TABLE 81 KAWASAKI HEAVY INDUSTRIES, LTD.: OTHERS

12.1.8 TOYOTA MOTOR CORPORATION

TABLE 82 TOYOTA MOTOR CORPORATION: BUSINESS OVERVIEW

FIGURE 55 TOYOTA MOTOR CORPORATION: COMPANY SNAPSHOT

TABLE 83 TOYOTA MOTOR CORPORATION: PRODUCTS/SOLUTIONS/
SERVICES OFFERED

TABLE 84 TOYOTA MOTOR CORPORATION: DEALS

12.1.9 MAZDA MOTOR CORPORATION

TABLE 85 MAZDA MOTOR CORPORATION: BUSINESS OVERVIEW

FIGURE 56 MAZDA MOTOR CORPORATION: COMPANY SNAPSHOT

TABLE 86 MAZDA MOTOR CORPORATION: PRODUCTS/SOLUTIONS/
SERVICES OFFERED

12.1.10 RELIANCE INDUSTRIES LIMITED

TABLE 87 RELIANCE INDUSTRIES LIMITED: BUSINESS OVERVIEW

FIGURE 57 RELIANCE INDUSTRIES LIMITED: COMPANY SNAPSHOT

TABLE 88 RELIANCE INDUSTRIES LIMITED: PRODUCTS/SOLUTIONS/
SERVICES OFFERED

TABLE 89 RELIANCE INDUSTRIES LIMITED: PRODUCT LAUNCHES

12.1.11 AVL

TABLE 90 AVL: BUSINESS OVERVIEW

TABLE 91 AVL: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 92 AVL: PRODUCT LAUNCHES

TABLE 93 AVL: DEALS

12.1.12 AB VOLVO PENTA

TABLE 94 AB VOLVO PENTA: BUSINESS OVERVIEW

TABLE 95 AB VOLVO PENTA: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 96 AB VOLVO PENTA: DEALS

12.1.13 FAW JIEFANG AUTOMOTIVE CO.,LTD

TABLE 97 FAW JIEFANG AUTOMOTIVE CO., LTD: BUSINESS OVERVIEW

TABLE 98 FAW JIEFANG AUTOMOTIVE CO., LTD:
PRODUCTS/SOLUTIONS/SERVICES OFFERED

12.1.14 KOHLER ENERGY

TABLE 99 KOHLER ENERGY: BUSINESS OVERVIEW

TABLE 100 KOHLER ENERGY: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 101 KOHLER ENERGY: PRODUCT LAUNCHES

12.1.15 J C BAMFORD EXCAVATORS LTD

TABLE 102 J C BAMFORD EXCAVATORS LTD: BUSINESS OVERVIEW

TABLE 103 J C BAMFORD EXCAVATORS LTD: PRODUCTS

SOLUTIONS/SERVICES OFFERED

TABLE 104 J C BAMFORD EXCAVATORS LTD: OTHERS

12.2 OTHER PLAYERS (PRODUCT UNDER DEVELOPMENT)

12.2.1 LIEBHERR GROUP

TABLE 105 LIEBHERR GROUP: BUSINESS OVERVIEW

TABLE 106 LIEBHERR GROUP: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 107 LIEBHERR GROUP: PRODUCT LAUNCHES

12.2.2 ROBERT BOSCH GMBH

TABLE 108 ROBERT BOSCH GMBH: BUSINESS OVERVIEW

TABLE 109 ROBERT BOSCH GMBH: PRODUCTS/SOLUTIONS/SERVICES
OFFERED

TABLE 110 ROBERT BOSCH GMBH: PRODUCT LAUNCHES

12.2.3 YANMAR HOLDINGS CO., LTD.

TABLE 111 YANMAR HOLDINGS CO., LTD.: BUSINESS OVERVIEW

TABLE 112 YANMAR HOLDINGS CO., LTD.: PRODUCTS/SOLUTIONS/SERVICES
OFFERED

TABLE 113 YANMAR HOLDINGS CO., LTD.: PRODUCT LAUNCHES

12.2.4 KEYOU GMBH

TABLE 114 KEYOU GMBH: BUSINESS OVERVIEW

TABLE 115 KEYOU GMBH: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 116 KEYOU GMBH: PRODUCT LAUNCHES

TABLE 117 KEYOU GMBH: DEALS

12.2.5 MITSUBISHI HEAVY INDUSTRIES, LTD.

TABLE 118 MITSUBISHI HEAVY INDUSTRIES, LTD.: BUSINESS OVERVIEW

FIGURE 58 MITSUBISHI HEAVY INDUSTRIES, LTD.: COMPANY SNAPSHOT

TABLE 119 MITSUBISHI HEAVY INDUSTRIES, LTD.:

PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 120 MITSUBISHI HEAVY INDUSTRIES, LTD.: PRODUCT LAUNCHES

12.2.6 ROLLS-ROYCE PLC

TABLE 121 ROLLS-ROYCE PLC: BUSINESS OVERVIEW

FIGURE 59 ROLLS-ROYCE PLC: COMPANY SNAPSHOT

TABLE 122 ROLLS-ROYCE PLC: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 123 ROLLS-ROYCE PLC: PRODUCT LAUNCHES

TABLE 124 ROLLS-ROYCE PLC: DEALS

*Details on Business Overview, Products Offered, Recent Developments, and MnM

View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

13 APPENDIX

13.1 INSIGHTS OF INDUSTRY EXPERTS

13.2 DISCUSSION GUIDE

13.3 KNOWLEDGESTORE: MARKETSandMARKETS' SUBSCRIPTION PORTAL

13.4 RELATED REPORTS

13.5 AUTHOR DETAILS

I would like to order

Product name: Hydrogen IC Engines Market by State (Gas and Liquid), Application (Transportation and Power Generation), Power Rating (Low, Medium, and High), Blending (Mix Blend and Pure Hydrogen) and Region - Global Forecast to 2035

Product link: <https://marketpublishers.com/r/H74581C42ADCEN.html>

Price: US\$ 4,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/H74581C42ADCEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below

and fax the completed form to +44 20 7900 3970