Hybrid propulsion technology

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BACKGROUND

Consumers like hybrid electric vehicles for their higher fuel efficiency and mileage compared to conventional gasoline ones, and for the lower cost and no range anxiety compared to fully electric battery vehicles.

Goldman Sachs | Cars 2025

“By 2025, 25% of cars sold will have electric engines, up from 5% today. But most of those will be hybrids, and 95% of cars will still rely on fossil fuels for at least part of their power.”

Ford Slows Its Push Into Electric Vehicles - The New York Times (nytimes.com)

“The automaker said it would delay new battery-powered models and shift its focus to hybrid cars, sales of which are rising fast.”

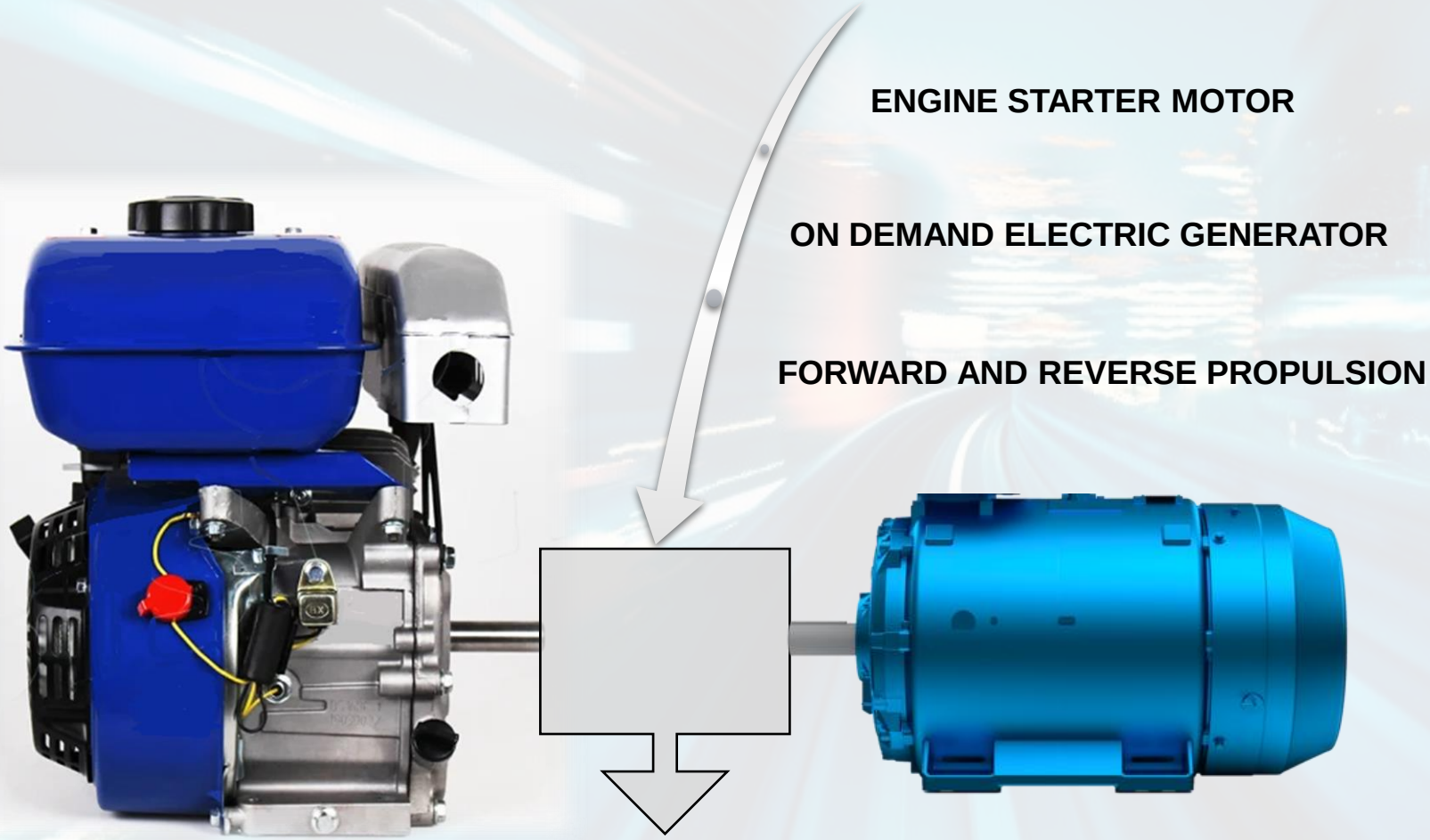
PROBLEM

HYBRID POWERTRAINS HAVE MANY ADVANTAGES AND WOULD BE VERY CONVENIENT FOR OFF-ROAD AND MARINE APPLICATIONS.

BUT THESE SECTORS ARE LAGGING BEHIND IN THE PATH TO ELECTRIFICATION BECAUSE THERE ARE NO SIMPLE, COMPACT AND INEXPENSIVE TECHNOLOGIES TAILORED FOR THEM.

SOLUTION

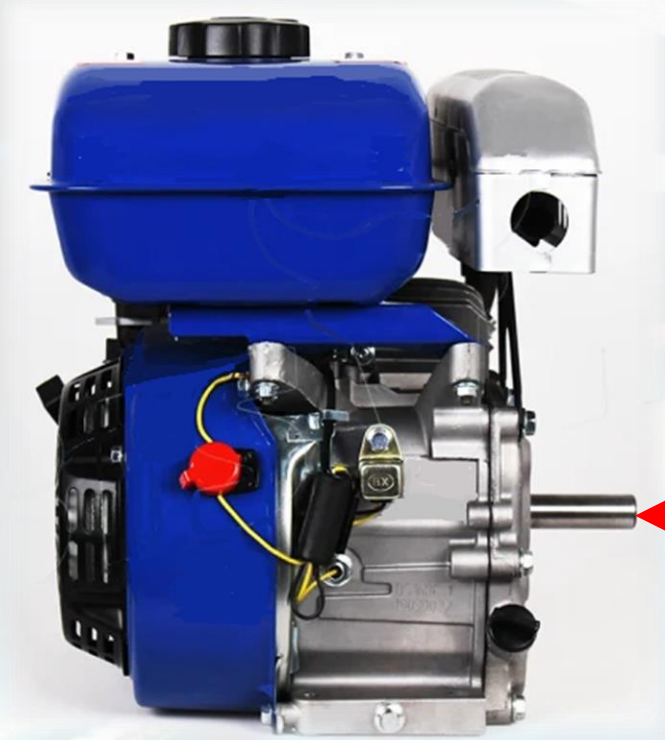
MOST ECONOMICAL AND VERSATILE GEARLESS PARALLEL HYBRID POWERTRAIN WITH ON DEMAND ELECTRIC GENERATOR

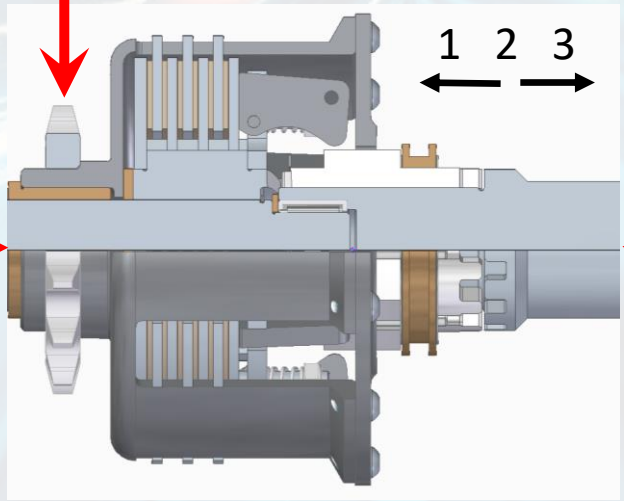


PATENTED DESIGN

CLUTCH WORK POSITIONS:

1. ENGINE STARTER
2. GENERATOR
3. DRIVE

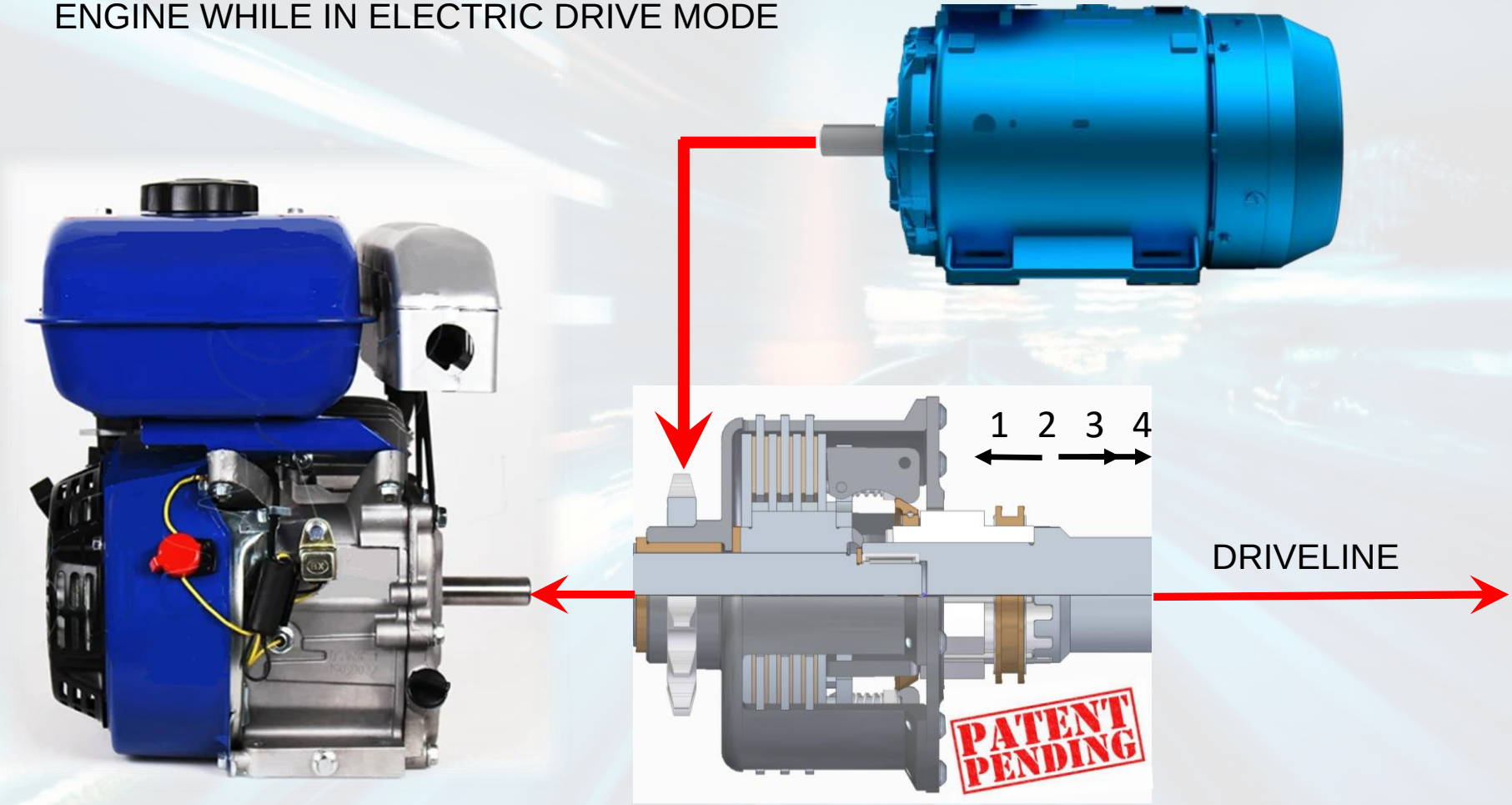




DRIVELINE

DESIGN ADVANCEMENTS

4. FOURTH POSITION TO START THE ENGINE WHILE IN ELECTRIC DRIVE MODE



TECHNOLOGY ROADMAP

2020	IDEA AND CONCEPT DEVELOPMENT (TRL 1, 2) / PROVISIONAL PATENT
2021	COMPONENTS VALIDATION ACTIVITIES (TRL 3) / PATENT APPLICATION
2022	FIRST FUNCTIONAL PROTOTYPE (TRL 4) / GRANTED US PATENT
2023	SECOND MORE ADVANCED PROTOTYPE (TRL 5) / NEW PROVISIONALS
2024	MINIMUM VIABLE PRODUCT INTEGRATION (TRL 6) / PCT APPLICATION
2025	MINIMUM VIABLE PRODUCT DEMONSTRATION AND TESTING (TRL 7)
2026	MINIMUM VIABLE PRODUCT REGULATORY COMPLIANCE (TRL 8)