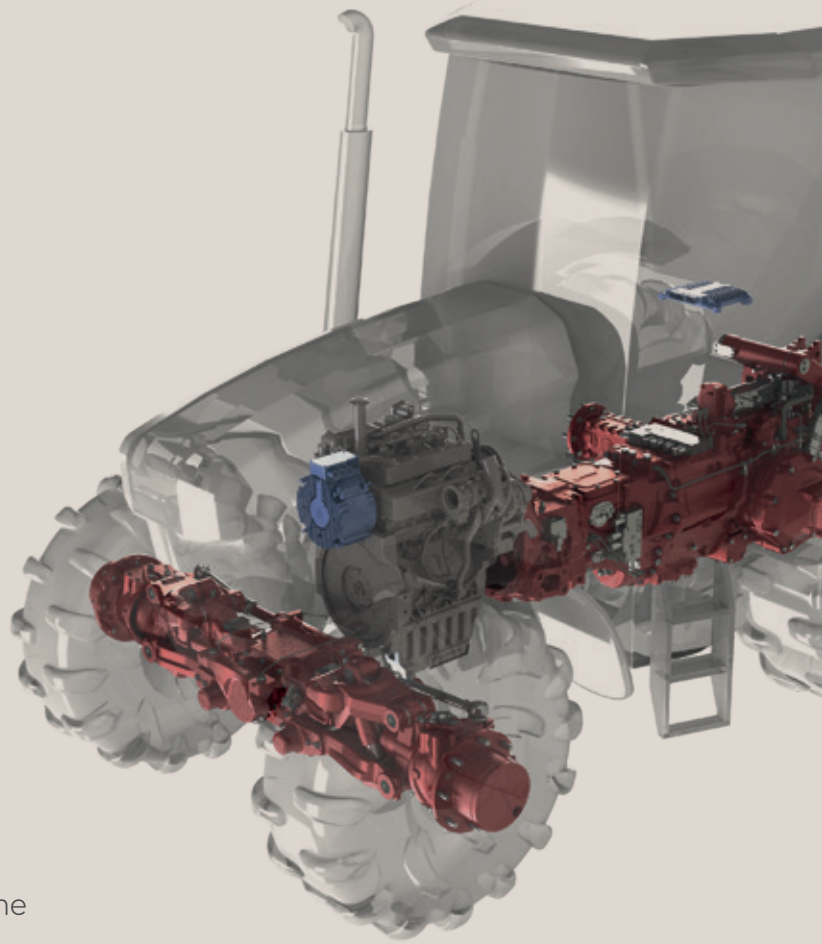




# Carraro Mild Hybrid Powertrain



Same advantages of a 100 HP powertrain but with a 55 Kw internal combustion engine thanks to the 48V electric motor

Minimized fuel consumption thanks to engine downsize and smart boost function management

Optimized support for diesel engine overload issues (i.e. transport & working phases) thanks to smart boost function

## Carraro electrified Vision

### P0 / P1

E-motor linked to ICE

### Mild Hybrid Powertrain

Agritechnica  
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### P2

E-motor installed between ICE and transmission

### ibrido



### P3

E-motor linked to the axle through a dropbox

### eTransmission



### P4

E-motor installed in front/rear axle or in wheels

### eAxle



# Mild Hybrid Powertrain core

## Carraro Engine & Electric Motor

Developed to satisfy agriculture specialized applications, Carraro 3E22 engine is also available with a no-structural version to be applied on construction equipment machines. It's designed in order to perfectly fit with the Carraro drivetrain solutions according with T3B, Stage V, China IV and Bharat IV emission limits. Moving up to 75Hp (55 kW) with a peak torque of 280 Nm, the 3E22 engine is thought as global platform adapted to suit most severe space requirements. The peak power can be also increased to 100Hp with the combination of a 20kW PMS electric motor able to supply a boost function along transport or working phases.

### Carraro 3E22 engine

|                           |  |                 |
|---------------------------|--|-----------------|
| Ignition Type             | Compression ignition                         |                 |
| Fuel Type                 | Diesel<br>(non-road gas-oil)                 |                 |
| N. of cylinders           | 3  |                 |
| Bore x Stroke             | <b>mm</b>                                    | 94 x 107 – 1,13 |
| Displacement              | <b>cm<sup>3</sup></b>                        | 2227            |
| Rated power               | <b>kW-rpm</b>                                | 55.8 - 2200     |
| Max torque                | <b>Nm-rpm</b>                                | 280 - 1600      |
| Compression ratio         | 17.5 : 1                                     |                 |
| Emission level compliance | EU (Tier3b, Stage V),<br>China IV, Bharat IV |                 |

### eMotor

|                    |                             |            |
|--------------------|-----------------------------|------------|
| Motor Type         | Axial flux permanent magnet |            |
| DC Voltage         | <b>V</b>                    | 24-150 VDC |
| Peak Power (48V)   | <b>kW</b>                   | 20         |
| Peak Torque (48V)  | <b>Nm</b>                   | 53         |
| Cont. Power (48V)  | <b>kW</b>                   | 10,5       |
| Cont. Torque (48V) | <b>Nm</b>                   | 30         |
| Max Speed          | <b>rpm</b>                  | 6000       |
| Cooling Weight     | Air cooled                  |            |

