



The locomotives are available in the range of 5 to 50 tons.

### Technical features

- High speed
  - High traction force
  - Easy to customize
  - Can easily be prepared for tandem operation
  - Easy to service and maintain
  - The chassis and cabin are made of heavy-duty plate joined together with continuous welds for maximum fatigue strength.
  - The end plates consist of thick plate adaptable to most occurring couple variants.
  - The hood plates are made of thick bent plate.
  - The loco has a solid carrying axle with center mounted conical bevel gear. The gear steps are precision milled and lapped gear wheels in pairs. The gear housing is in cast steel with solid conical roller bearings.
  - The wheel axle is carried in spherical roller bearings in the axle boxes. The bearing is tightened with labyrinth and sleeve cover.
  - The axle suspension is a service free rubber element of "Chevron" type mounted directly on the axle box.
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- The wheels are of "solid wheel type" with rolled steel design and shrinkage fit between wheel and axle.
- The loco has a pneumatic brake system with fiber brake shoes acting directly on all wheels. Depending on tonnage one or two brake shoes per wheel. The spring suspended parking/emergency brake of safety type is automatically applied when the air pressure falls.
  - The locos have pin couplers as standard.
  - The cabin has a sliding door. The front window of the cabin is supplied with a windscreen wiper and washer. There is one portable fire extinguisher located in the cabin.
  - The driver's seat is in front driving position.
  - The operating system is the Plus1 Danfoss system.
  - Fogmaker fire system, camera with monitor and sanding device is standard.

### Standard

CE mark according to European standards.

### Options

- Wagon brakes.
- Willson couplers or similar.
- Climate system.
- Tandem drive.
- Camera/light box for rolling stock.

Other options and dimensions on request.

## Technical data

Types	E - N	E	E	E
Weight / ton	5 - 20	12 - 20	20 - 35	30 - 50
Width	1000 - 1200	1400 - 1500	1400 - 1500	1550 - 1650
Gauge	600 - 750	600 - 1000	750 - 1000	750 - 1000
Length	3200 - 6000	5900	7270	7270
Hight	1500 - 2200	1760 - 2200	1800 - 2200	2030 - 2450
Axle dist.	1000 - 2200	2200	2700	2600
Battery / kW (E)	31 - 100	100 - 200	100 - 200	100 - 200

N	Narrow
E	Battery

### Standard electric system

Voltage	24 V
Battery capacity	2 x 180 Ah
Generator capacity	55 A
Loud-tone horn	1 x 24 V 335 Hz

Lamps, 4 white and 2 red (changing when driving in rear direction)

### Powertrain

Danfoss solution for smooth and well controlled speed regulation mainly consists of battery, converter, electric motor connected to Dromos transfer case, air shifting Hi/Low, including manually actuated neutral for towing. Prop shafts connecting to the axle gears.

### Speed forward/reverse

E - N	100 - 200 kW
Low gear	0 - 22 km/h
High gear	0 - 30 km/h

### Other types

These dimensions are also available in diesel version.

*To adjust the weight of the loco for future coming projects the ballast can easily be removed or added. The ballast can be supplied by GIA or by the end user out from supplied drawings from GIA.*

Contact us for further information.

### Battery type

Powered by Northvolt Energy Systems.

### The Battery

Name	Voltpack Core 94
Type	Lithium-ion cell
Nominally Voltage	691
Rated capacity Ah	130
Full initial energy kWh	94
Recommended energy useable kWh	80
Operating temp	-20 to +50

The battery is interconnected using CAN bus: communicating with the vehicle computer/ steering system.

The battery is equipped with a liquid cooling system.

*Due to dimensions the locomotive can be equipped with up to 4 batteries operating in parallel.*

### Conformity

**CE Mark** \* EN 62619:2017 \* EN 62485-5:2021 \* EN 62485-6:2021 \* ISO 13849-1:2015, -2:2012 \* IEC 61000-6-2:2016 \* IEC 61000-6-4:2018 \* IEC 61000-6-7: 2014.