



Joule

Battery-Electric Locomotive



EMD® Joule Series Battery Electric Locomotives

For 100 years, EMD® has produced the most durable, reliable and sustainable locomotive products in the rail industry. We design and manufacture locomotives for all commercial rail applications, with over 65,000 EMD-powered locomotives delivered to more than 75 countries. Our technology leadership and superior performance drive our reputation for exceptional quality, service and innovation.

Progress Rail is proud to offer the EMD Joule Battery Electric Locomotive series, available as new build or repowers. EMD Joule locomotives support a wide range of railway operations with battery capacities up to 14.5 MWh.

Joule locomotives recover energy through dynamic braking. When dynamic braking is activated to control train speed, the batteries are charged, saving what could otherwise be wasted energy. Alternatively the batteries can be charged through our range of wayside charging options tailored to meet operational needs.

Our growing family of zero exhaust emissions locomotives is just one way Progress Rail helps our customers achieve their sustainability goals.

Progress Rail
A Caterpillar Company

QUALITY. RELIABILITY. INNOVATION.

Progress moves you forward.

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EMD® Joule Series Technical Details

Features

- New or Repower Options Available
- Low noise (<70dB) and vibration
- AC traction with individual axle control
- Regenerative braking
- Inverter-driven auxiliary equipment
- Motor-driven rotary screw air compressor

Suitable Operations:

- Switching/shunting yards
- Regional service
- In consist with diesel-electric locomotives



Model Name	SD70J	SD70J-BB	SD40JR	GT38JB	GT38JC
Number of Axles	6	8	6	4	6
Power for Traction	3.2 MW	5.7 MW	2.1 MW	1.5 MW	2.1 MW
Tractive Effort:					
Starting	200,000 lb / 890 kN	225,000 lb / 1000 kN	135,000 lb / 600 kN	87,281 lb / 388 kN	121,400 lb / 540 kN
Continuous	155,000 lb / 690 kN	180,000 lb / 800 kN	93,500 lb / 416 kN	66,050 lb / 294 kN	92,172 lb / 410 kN
Weight, Total	428,000 lb / 194 t	540,000 lb / 245 t	353,000 lb / 160 t	236,000 lb / 107 t	308,560 lb / 140 t
Axle Load (min.)	72,000 lb / 32.7 t	67,500 lb / 32.5 t	58,834 lb / 26.7 t	59,000 lb / 26.8 t	51,425 lb / 23.3 t
Wheel Arrangement	C-C	B+B-B+B	C-C	B-B	C-C
Maximum Speed	75 mph / 120 km/h	50 mph / 80 km/h	50 mph / 80 km/h	50 mph / 80 km/h	50 mph / 80 km/h
Gear Ratio	83:16	85:16	96:15	85:16	96:15
Battery Capacity (max.)	8.0 MWh	14.5 MWh	4.0 MWh	4.0 MWh	4.0 MWh
Dynamic Brake Effort (max.)	105,000 lb / 467 kN	135,000 lb / 600 kN	67,500 lb / 300 kN	59,125 lb / 263 kN	67,500 lb / 300 kN
Track Gauge	Standard	Standard, Narrow, Broad	Standard	Standard, Narrow, Broad	Standard, Narrow, Broad
Dimensions					
Length Over Coupler Pulling Faces	74' 3" / 22,631 mm	78' 8.9" / 24,000 mm	68' 10" / 20,980 mm	64' 7" / 19,685 mm	58' 11.5" / 17,970 mm
Truck Wheel Base	13' 4" / 4,064 mm	6' 3" / 1,905 mm	13' 7" / 4,140 mm	9' 0" / 2,743 mm	6' 4.77" / 1,950 mm

