

Appendix B: Commercially Available CHE

This appendix provides a list of commercially available zero-emission bulk material CHE, container CHE, and facility support CHE. For the purposes of this assessment, commercially available means the zero-emission CHE is offered to the public by a manufacturer or an OEM either on their website or through a dealer or distributor. Staff conducted a search of available publications, the internet, and CARB resources to compile the following list of CHE that were commercially available on or before January 2025. Staff also researched the availability of the equipment in the U.S. by determining the location of the manufacturer and if the manufacturer has a dealership or equipment distributor in the U.S. CHE that is in prototype or pre-release phase is not considered commercially available and is listed in [Appendix E](#). Entries in each table are alphabetized first by CHE type, then by manufacturer, and then by model/platform. The tables indicate which of the three zero-emission technologies the CHE uses: battery-electric (BE), grid-electric (GE), or hydrogen fuel cell (HFC).

Commercially Available Bulk Material CHE

Table B-1 provides a list of commercially available zero-emission bulk material CHE. While bulk material handling equipment designated by the OEM as “compact” or “mini” may be subject to the CHE Regulation if it is diesel-powered, zero-emission CHE with these designations is not considered CHE for this assessment and is not listed here.

Table B-1: Commercially Available Bulk Material CHE

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Material Handling	Crawler (C), Wheeled (M)	Liebherr	LH 26 (C or M) Electro Industry Litronic ¹	BE, GE	Yes
Crane, Material Handling	Crawler (C), Wheeled (M)	Liebherr	LH 40 (C or M) Electro Industry Litronic ²	GE	Yes
Crane, Material Handling	Wheeled	Liebherr	LH 60 M Electro Industry Litronic ³	GE	Yes
Crane, Material Handling	Wheeled	Liebherr	LH 80 M Electro Industry Litronic ⁴	GE	Yes
Crane, Material Handling	Crawler	Liebherr	LH 110 C Electro Industry Litronic ⁵	GE	Yes

¹ Liebherr, “Electric Material Handling Machine: LH 26- LH E Litronic,” n.d. <https://assets-cdn.liebherr.com/assets/api/bc040175-be16-43b5-938e-43ac2a89e403/Original/>; Liebherr, “Optimized Operating Costs and Environmentally Friendly,” n.d. Accessed April 2, 2025. <https://www.liebherr.com/en-us/material-handling/products/material-handling-machines/electric-material-handling-machines-4672141?ps=100>.

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Material Handling	Wheeled	Liebherr	LH 150 M Electro Industry Litronic ⁶	GE	Yes
Crane, Material Handling	Tracked	Sany	SMHC50-D ⁷	BE	Yes
Crane, Material Handling	Wheeled	Sennebogen	817E ⁸ , 817E Electro Battery ⁹	BE, GE	Yes
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	818E (M or R) ¹⁰	GE	Yes
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	821E (M or R) ¹¹	GE	Yes
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	825E (M or R), ¹² 825E Electro Battery ¹³	BE, GE	Yes

⁶ Ibid.

⁷ Sany, "SMHC50V-D 50t Electric Material Handler," n.d. Accessed June 10, 2025.

https://www.sanyglobal.com/product/port_machinery/material_handler/70/501/; Sany, "SMHC50V-D," n.d. Accessed June 10, 2025.
<https://www.sany.in/port-machinery/material-handler-cranes/smhc50-d/>.

⁸ Sennebogen, "Reduce Your Operating Costs! Electric Material Handlers," n.d. Accessed April 2, 2025.

<https://www.sennebogen.com/en/products/electric-material-handler>.

⁹ Sennebogen, "Battery Excavator Sennebogen 817 E Electro Battery," n.d. Accessed April 2, 2025.

<https://www.sennebogen.com/en/products/material-handler/sennebogen-817/sennebogen-817-electro-battery>.

¹⁰ Sennebogen, "Reduce Your Operating Costs! Electric Material Handlers," n.d. Accessed April 2, 2025.

<https://www.sennebogen.com/en/products/electric-material-handler>.

¹¹ Ibid.

¹² Ibid.

¹³ Sennebogen, "Material Handler: Sennebogen 825 E Electro Battery," n.d. Accessed April 2, 2025.

<https://www.sennebogen.com/en/products/material-handler/sennebogen-825/sennebogen-825-e-electro-battery>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	830E/G (M or R) ¹⁴	GE	Yes
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	835E/G (M or R) ¹⁵	GE	Yes
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	840E (M or R) ¹⁶	GE	Yes
Crane, Material Handling	Wheeled (M), Crawler (R)	Sennebogen	850E (M or R) ¹⁷	GE	Yes
Crane, Material Handling	Wheeled	Sierra	E9.6	BE ¹⁸	Yes
Crane, Material Handling	Wheeled	Solmec	EXP 50ZE ¹⁹	BE	No
Crane, Material Handling	Wheeled	Solmec	EXP5015WW ²⁰	GE	No
Crane, Material Handling	Wheeled	Solmec	EXP5020ZE ²¹	BE	No

¹⁴ Sennebogen, "Reduce Your Operating Costs! Electric Material Handlers," n.d. Accessed April 2, 2025. <https://www.sennebogen.com/en/products/electric-material-handler>.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Sierra, "E9.6," n.d. Accessed December 8, 2025. <https://sierraintl.com/equipment/e96-material-handler/>.

¹⁹ Solmec, "EXP 50ZE Zero Emission," May 2022. https://www.solmec.it/brochures_pdf/New/EN/EXP50ZE_WEB_EN.pdf.

²⁰ Solmec, "EXP 5015ww," n.d. https://www.solmec.it/brochures_pdf/Inglese/SOLMEC5015WWUK.pdf.

²¹ Solmec, "SOLMEC, a Leading Manufacturer of Electric Rehandler with Batteries, Launches the New EXP5020ZE," n.d. Accessed April 2, 2025. <https://www.solmec.it/en/prodotti/caricatore-elettrici/exp-5020ze>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 810F ²²	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 820F/820 BATTERY+ ²³	BE, GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 831F ²⁴	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 835F ²⁵	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 840F/840 BATTERY+ ²⁶	BE, GE	Yes

²² Terex Fuchs, "MHL810 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/810>.

²³ Terex Fuchs, "MHL820 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/820>; Terex Fuchs, "MHL820 BATTERY+," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/battery-material-handler/820-battery>.

²⁴ Terex Fuchs, "MHL831 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/831>.

²⁵ Terex Fuchs, "MHL835 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/835>.

²⁶ Terex Fuchs, "MHL840 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/840>; Terex Fuchs, "Electric material handler," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/battery-material-handler/840-battery>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 845F ²⁷	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 850F ²⁸	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 855F ²⁹	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 860F ³⁰	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 865F ³¹	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 870F ³²	GE	Yes

²⁷ Terex Fuchs, "MHL845 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/845>.

²⁸ Terex Fuchs, "MHL850 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/850>.

²⁹ Terex Fuchs, "MHL855 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/855>.

³⁰ Terex Fuchs, "MHL860 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/860>.

³¹ Terex Fuchs, "MHL865 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/865>.

³² Terex Fuchs, "MHL870 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/870>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 875F ³³	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 880F ³⁴	GE	Yes
Crane, Material Handling	Wheeled, Crawler, Stationary	Terex Fuchs	MHL 890F ³⁵	GE	Yes
Crane, Material Handling	Wheeled	Volvo	EW240 ³⁶	BE	No
Crane, Mobile	Carry Deck	Manitex Valla	100SE ³⁷	BE	Yes
Crane, Mobile	Carry Deck	Manitex Valla	160SE ³⁸	BE	Yes
Crane, Mobile	Carry Deck	Manitex Valla	180SE ³⁹	BE	Yes
Crane, Mobile	Carry Deck	Manitex Valla	220SE ⁴⁰	BE	Yes

³³ Terex Fuchs, "MHL875 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/875>.

³⁴ Terex Fuchs, "MHL880 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/880>.

³⁵ Terex Fuchs, "MHL890 F," n.d. Accessed December 18, 2025. <https://www.terex.com/fuchs/en/product/electric-handling-machines/890>.

³⁶ Volvo Construction Equipment Europe, "Electric Construction Machines," n.d. Accessed June 16, 2025, <https://www.volvoce.com/europe/en/products/electric-machines/>.

³⁷ Manitex Valla, "100SE Carry Deck Crane," n.d. Accessed June 10, 2025. https://www.valla.com/us/self_propelled_cranes/100-se/.

³⁸ Manitex Valla, "160SE Carry Deck Crane," n.d. Accessed June 10, 2025. https://www.valla.com/us/self_propelled_cranes/160-se/.

³⁹ Manitex Valla, "180SE Carry Deck Crane," n.d. Accessed June 10, 2025. https://www.valla.com/us/self_propelled_cranes/180-se/.

⁴⁰ Manitex Valla, "220SE Carry Deck Crane," n.d. Accessed June 10, 2025. https://www.valla.com/us/self_propelled_cranes/220-se/.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Mobile	N/A	Tadano	EVOLT eGR-1000XLL-1 ⁴¹	BE	Yes
Crane, Mobile	Carry Deck	Zee Crane	4500 ⁴²	BE	Yes
Crane, Mobile	Carry Deck	Zee Crane	9000 ⁴³	BE	Yes
Crane, Mobile	N/A	Zoomlion	ZTC250N-EV ⁴⁴	BE	Yes
Crane, Mobile Harbor	N/A	Konecranes	Gottwald Generation 6 MHC ⁴⁵	GE	Yes
Crane, Mobile Harbor	N/A	Liebherr	LPS 420 E ⁴⁶	GE	Yes
Crane, Off-road	Crawler	Liebherr	LR 1130.1 Unplugged ⁴⁷	BE, GE	Yes

⁴¹ Tadano, "Tadano Introduces the US and Canada's First and Fully Electric Rough Terrain Crane," October 30, 2024. Accessed December 12, 2024. <https://group.tadano.com/uscan/en/news/tadano-introduces-the-us-and-canadas-first-fully-electric-rough-terrain-crane/>.

⁴² Grayson, Wayne. "With Zee Cranes Launch, the All-electric Heavy Equipment Era Is Upon Us (PHOTOS)." *Equipment World*, October 19, 2015. Accessed April 18, 2025. <https://www.equipmentworld.com/construction-equipment/article/14963862/with-zee-cranes-launch-the-all-electric-heavy-equipment-era-is-upon-us-photos>.

⁴³ Ibid.

⁴⁴ Dahm, Alex. "Zoomlion Claims First Electric Truck Crane." *KHL Group*, May 26, 2020. Accessed April 21, 2025. <https://www.khl.com/1144261.article>.

⁴⁵ Konecranes, "Time for a New Generation Konecranes Generation 6 Mobile Harbor Crane," n.d. Accessed April 2, 2025. <https://www.konecranes.com/Generation6/in-detail>.

⁴⁶ Liebherr, "Borg Havn Modernises Port with All-Electric LPS 420 E," June 6, 2023. Accessed April 2, 2025. <https://www.liebherr.com/en-ph/n/borg-havn-modernises-port-with-all-electric-lps-420-e-27416-5934641>; Liebherr, "Borg Havn Modernises Port with All-Electric LPS 420 E," June 6, 2023. Accessed April 2, 2025. <https://www.liebherr.com/en-us/n/borg-havn-modernises-port-with-all-electric-lps-420-e-27416-3782185>.

⁴⁷ California CORE, "Liebherr-Werk Nenzing LR 1130.1 Unplugged," n.d. Accessed April 2, 2025. <https://californiacore.org/equipment/lr-1130-1-unplugged/>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Crane, Off-road	Crawler	Liebherr	LR 1160.1 Unplugged ⁴⁸	BE, GE	Yes
Crane, Off-road	Crawler	Liebherr	LR 1250.1 Unplugged ⁴⁹	BE, GE	Yes
Crane, Off-road	Crawler	Marchetti	Marchetti CW 25.35 HY ⁵⁰	BE	Yes
Crane, Off-road	Crawler	Sennebogen	653 E Electro Battery ⁵¹	BE, GE	Yes
Dozer	Crawler	Shantui	DE26-X2 ⁵²	BE	No
Dozer	Crawler	Shantui	SD17e-X Electric Dozer ⁵³	BE	No
Excavator	Wheeled	HEVI	GEX8000 ⁵⁴	BE	Yes
Excavator	Wheeled	JinGong Machinery	JGM9085e ⁵⁵	BE	No

⁴⁸ California CORE, "Liebherr-Werk Nenzing LR 1160.1 Unplugged," n.d. Accessed April 2, 2025. <https://californiacore.org/equipment/lr-1160-1-unplugged/>.

⁴⁹ California CORE, "Liebherr-Werk Nenzing LR 1250.1 Unplugged," n.d. Accessed April 2, 2025. <https://californiacore.org/equipment/lr-1250-1/>.

⁵⁰ Silcom North, "Crawler Crane Marchetti CW-25.35-HY," February 26, 2025. <https://www.silcomnorth.com/crawler-cranes/crawler-crane-marchetti-cw-25-hy-shepina-full-electric-battery-powered>.

⁵¹ Sennebogen, "Telehandler Sennebogen 653 E Electro Battery," December 11, 2024. <https://www.sennebogen.com/en/products/telescopic-crane/sennebogen-653-e-electro-battery>.

⁵² Shantui, "Electric Bulldozer DE26-X2," n.d. Accessed March 27, 2025. <https://www.shantui-global.com/product/pro-detail-327.htm>.

⁵³ Made-in-China, "Shantui SD17e-X Electric Dozer 170HP Crawler Bulldozer for Sale," n.d. Accessed December 12, 2024. <https://acntruck.en.made-in-china.com/product/WZwtXurvLYd/China-Shantui-SD17e-X-Electric-Dozer-170HP-Crawler-Bulldozer-for-Sale.html>; Electrek, "This Massive Chinese Electric Bulldozer Could Wreck Your World, Emissions Free!" July 22, 2023. Accessed December 12, 2024. <https://electrek.co/2023/07/22/massive-chinese-electric-bulldozer>; Phate Zhang, "Pure Electric Bulldozer Goes into Service in China, First of its Kind in the World," CNEVPost, June 13, 2021. Accessed December 12, 2024. <https://cnevpost.com/2021/06/14/pure-electric-bulldozer-goes-into-service-in-china-first-of-its-kind-in-the-world/>.

⁵⁴ Hevi, "All Electric Excavator GEX-8000 Electric Excavator," n.d. Accessed December 11, 2024. <https://gethevi.com/electric-heavy-equipment/excavators/gex-8000/>.

⁵⁵ Ailisheng Construction Machinery, "JinGong Pure Electric Wheel Excavators JGM9085E," YouTube video, published on December 22, 2021, 1:05. Accessed 15, 2025. <https://www.youtube.com/watch?v=PiX8mAH6h-8>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Excavator	Crawler	Komatsu	PC210e ⁵⁶	BE	No
Excavator	Crawler	Liebherr	R 900 E Series ⁵⁷	GE	Yes
Excavator	Crawler	LiuGong	920 EV Series ⁵⁸	BE	Yes
Excavator	Crawler	LTMG	LTE210EV ⁵⁹	GE	No
Excavator	Crawler	LTMG	LTE240EV (Li-Ion)/(Wired) ⁶⁰	BE, GE	No
Excavator	Crawler	LTMG	LTE480EV ⁶¹	GE	No
Excavator	Crawler	Shantui	EE225-X2 ⁶²	BE	No

⁵⁶ Komatsu, "At CONEXPO-CON/AGG 2023 Komatsu Features its 20-ton PC210LCE Electric Excavator," March 14, 2023. Accessed April 2, 2025. <https://www.komatsu.com/en/newsroom/2023/20-ton-pc210lce-electric-excavator-featured/>.

⁵⁷ Liebherr, "Two New Local Zero Emission Excavators from Liebherr: R976-E and R 980 SME-E Electric Crawler Excavator," April 9, 2021. Accessed June 19, 2024. <https://www.liebherr.com/en-us/n/two-new-local-zero-emission-excavators-from-liebherr-r-976-e-and-r-980-sme-e-electric-crawler-excavators-26263-3782185>.

⁵⁸ Made-in-China, "Liugong 20 Ton Pure Electric Excavator 922f-E," n.d. Accessed April 2, 2025. <https://sinomada.en.made-in-china.com/product/EJURGvoYTLVz/China-Liugong-20-Ton-Pure-Electric-Excavator-922f-E.html>; Made-in-China, "Liuzhou Made New Design Liugong 924ftn-E Crawler Excavator High Quality for Sale," n.d. Accessed April 2, 2025. <https://canmaxcn.en.made-in-china.com/product/FZlaJtwchGfV/China-Liuzhou-Made-New-Design-Liugong-924ftn-E-Crawler-Excavator-High-Quality-for-Sale.html>.

⁵⁹ LTMG, "21 Ton Electric Excavator (Wired)," n.d. Accessed February 5, 2026. https://www.ltmg.com/Product_Details/689.html; LTMG, "Electric Crawler Excavator," n.d. Accessed October 6, 2024. <https://www.ltmg.com/Products/104.html>.

⁶⁰ LTMG, "2400 KG Electric Excavator (Li-Ion)," n.d. Accessed February 5, 2026. https://www.ltmg.com/Product_Details/682.html; LTMG, "2400 KG Electric Excavator (Wired)," n.d. Accessed February 5, 2026. https://www.ltmg.com/Product_Details/688.html; LTMG, "Electric Crawler Excavator," n.d. Accessed October 6, 2024. <https://www.ltmg.com/Products/104.html>.

⁶¹ LTMG, "4800 KG Electric Excavator (Wired)," n.d. Accessed February 5, 2026. https://www.ltmg.com/Product_Details/690.html; LTMG, "Electric Crawler Excavator," n.d. Accessed October 6, 2024. <https://www.ltmg.com/Products/104.html>.

⁶² Shantui, "Electric Excavator EE225-X2," n.d. Accessed April 2, 2025. <https://www.shantui-global.com/product/pro-detail-325.htm>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Excavator	Crawler	Sinomach	323Ev ⁶³	BE	No
Excavator	Crawler	Staad/Doosan	DX300LC Electric ⁶⁴	BE	No
Excavator	Crawler	Staad/Doosan	DX555LC Electric ⁶⁵	BE	No
Excavator	Crawler	Sunward	SWE550FE ⁶⁶	BE	No
Excavator	Wheeled	Terminalift/SOCMA	TL-X540E ⁶⁷	BE	Yes
Excavator	Crawler	Volvo	EC230 ⁶⁸	BE	Yes
Excavator	Wheeled	Volvo	EWR150 Electric ⁶⁹	BE	No
Excavator	Crawler	Xuzhou Construction Machinery Group (XCMG)	Heavy ⁷⁰	BE	Yes
Excavator	Crawler	XCMG	Medium ⁷¹	BE	Yes

⁶³ Seetao, "Sinomach Heavy Industry Changlin Electric Excavator Loader Heavy Release," November 26, 2020. Accessed April 2, 2025. <https://www.seetao.com/details/48766.html>.

⁶⁴ Staad, "DX355LC Electric," n.d. Accessed April 2, 2025. <https://www.staad-group.com/electric/electric-machines/dx355lc-electric/>.

⁶⁵ Ibid.

⁶⁶ Seetao, "Sunward's First Pure Electric Hydraulic Excavator Rolled off the Assembly Line," August 24, 2020. Accessed June 10, 2025. <https://www.seetao.com/details/36287.html>.

⁶⁷ Terminalift, "TL Electric Crawler Excavator," n.d. Accessed August 29, 2024. <https://www.terminalift.com/listings/5003390-tl-electric-crawler-excavator>.

⁶⁸ California CORE, "Volvo EC230 Electric MY23," n.d. Accessed April 5, 2025. <https://californiacore.org/equipment/ec230-electric-my23/>.

⁶⁹ Volvo Construction Equipment Europe, "Electric Construction Machines," n.d. Accessed June 16, 2025, <https://www.volvoce.com/europe/en/products/electric-machines/>.

⁷⁰ ChinaSPV, "Over 100 Units XCMG Electric Excavators Delivered to South America," August 31, 2022. Accessed April 2, 2025. <https://m.chinaspv.com/news/4999.html>.

⁷¹ Machmall, "Introduce XCMG's Electric Legion," July 15, 2022. Accessed April 2, 2025. <https://www.machmall.com/content-info/introduce-xcmgs-electric-legion/668>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Carer Electric Forklift Solutions	A120 ⁷²	BE	Yes
Forklift, Heavy Lift	N/A	Carer Electric Forklift Solutions	A140 ⁷³	BE	Yes
Forklift, Heavy Lift	N/A	Carer Electric Forklift Solutions	A160 ⁷⁴	BE	Yes
Forklift, Heavy Lift	N/A	Carer Electric Forklift Solutions	A200 ⁷⁵	BE	Yes
Forklift, Heavy Lift	N/A	Elwell Parker	ESE Series ⁷⁶	BE	Yes
Forklift, Heavy Lift	N/A	Hyster-Yale	J250XD ⁷⁷	BE	Yes

⁷² California CORE, "Carer Electric Forklift Solutions A120X," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/a120x/>; Care Forklifts, "Carer's Range of Electric Forklift Trucks," n.d. Accessed April 4, 2025. <https://www.carerforklifts.com/product-range/>.

⁷³ California CORE, "Carer Electric Forklift Solutions A140S," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/a140s/>; Carer Forklifts, "Carer's Range of Electric Forklift Trucks," n.d. Accessed April 4, 2025. <https://www.carerforklifts.com/product-range/>.

⁷⁴ California CORE, "Carer Electric Forklift Solutions A160 (at 1200X)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/a160-at-1200x/>; California CORE, "Carer Electric Forklift Solutions A160 (at 900S)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/a160-at-900s/>; California CORE, "Carer Electric Forklift Solutions A160S," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/a160s/>; California CORE, "Carer Electric Forklift Solutions A160X," n.d. Accessed <https://californiacore.org/equipment/a160x/>; Care Forklifts, "Carer's Range of Electric Forklift Trucks," n.d. Accessed April 4, 2025. <https://www.carerforklifts.com/product-range/>.

⁷⁵ California CORE, "Carer Electric Forklift Solutions A200 (at 1200X)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/a200-at-1200x/>; Carer Forklifts, "Carer's Range of Electric Forklift Trucks," n.d. Accessed April 4, 2025. <https://www.carerforklifts.com/product-range/>.

⁷⁶ Elwell-Parker, "ESE Electric Forklifts," n.d. Accessed April 2, 2025. <https://elwellparker.com/legacy-equipment/electric-forklifts/ease-electric-forklifts/>.

⁷⁷ California CORE, "Hyster-Yale Group, Inc. J250XD / ERP250DF (Li-Ion Battery)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j250xd-erp250df-2-70-kwh-li-ion/>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Hyster-Yale	J280XD ⁷⁸	BE	Yes
Forklift, Heavy Lift	N/A	Hyster-Yale	J300XD ⁷⁹	BE	Yes
Forklift, Heavy Lift	N/A	Hyster-Yale	J330XD ⁸⁰	BE	Yes
Forklift, Heavy Lift	N/A	Hyster-Yale	J360XD ⁸¹	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG120 ⁸²	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG140 ⁸³	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG150 ⁸⁴	BE	Yes

⁷⁸ California CORE, "Hyster-Yale Group, Inc. J280 XD / ERP280DF (Li-Ion Battery)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j280xd-erp280df-2-70-kwh-li-ion/>.

⁷⁹ California CORE, "Hyster-Yale Group, Inc. J300XD / ERP300EF (Li-Ion Battery)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j300xd-erp300ef-2-70-kwh-li-ion/>.

⁸⁰ California CORE, "Hyster-Yale Group, Inc. J330XD / ERP300EF (Li-Ion Battery)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j330xd-erp330ef-2-70-kwh-li-ion/>.

⁸¹ California CORE, "Hyster-Yale Group, Inc. J360XD / ERP360EF (Li-Ion Battery)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j360xd-erp360ef-3-70-kwh-li-ion/>; California CORE, "Hyster-Yale Group, Inc. J360XD36 (Li-Ion Battery)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j360xd36-li-ion-battery/>; California CORE, "Hyster-Yale Group, Inc. J360XD48 (Li-Ion Battery 2)," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/j360xd48-li-ion-battery-3/>.

⁸² California CORE, "Kalmar Mobile Solutions ECG120-12-Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg120-12-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG120-12S - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg120-12s-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG120-6 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg120-6-lead-acid-2/>; California CORE, "Kalmar Mobile Solutions ECG127-6 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg127-6-lead-acid/>.

⁸³ California CORE, "Kalmar Mobile Solutions ECG140-6 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg140-6-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG140-6S - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg140-6s-lead-acid/>.

⁸⁴ California CORE, "Kalmar Mobile Solutions ECG150-12 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg150-12-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG150-6 - Lead Acid," n.d.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Kalmar Global	ECG160 ⁸⁵	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG180 ⁸⁶	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG200 ⁸⁷	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG220 ⁸⁸	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG250 ⁸⁹	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG280 ⁹⁰	BE	Yes
Forklift, Heavy Lift	N/A	Kalmar Global	ECG300 ⁹¹	BE	Yes

Accessed April 4, 2025. <https://californiacore.org/equipment/ecg150-6-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG150-6S - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg150-6s-lead-acid/>.

⁸⁵ California CORE, "Kalmar Mobile Solution ECG160-12 - Lead Acid," n.d. Accessed April 4, 2025.

<https://californiacore.org/equipment/ecg160-12-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG160-6 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg160-6-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG160-6S - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg160-6s-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG160-9 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg160-9-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG160-9S - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg160-9s-lead-acid/>.

⁸⁶ Kalmar Global, "Heavy Electric Forklift Trucks 18-33 ton," n.d. Accessed April 2, 2025. <https://www.kalmarusa.com/equipment/forklift-trucks/electric-heavy-forklift-18-33-ton/>; California CORE, "Kalmar Mobile Solutions ECG180-6 - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg180-6-lead-acid/>; California CORE, "Kalmar Mobile Solutions ECG180-6S - Lead Acid," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/ecg180-6s-lead-acid/>.

⁸⁷ Kalmar Global, "Heavy Electric Forklift Trucks 18-33 ton," n.d. Accessed April 2, 2025. <https://www.kalmarusa.com/equipment/forklift-trucks/electric-heavy-forklift-18-33-ton/>.

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ Ibid.

⁹¹ Ibid.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Kalmar Global	ECG330 ⁹²	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 10 ⁹³	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 12 ⁹⁴	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 13.6 ⁹⁵	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 15 ⁹⁶	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 16 ⁹⁷	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 17 ⁹⁸	BE	Yes
Forklift, Heavy Lift	N/A	Konecranes Inc.	E-VER 18 ⁹⁹	BE	Yes
Forklift, Heavy Lift	N/A	SOCMA	13.5-ton Electric Forklift ¹⁰⁰	BE	No
Forklift, Heavy Lift	N/A	SOCMA	15-ton Electric Forklift ¹⁰¹	BE	No
Forklift, Heavy Lift	N/A	SOCMA	25-ton electric forklift ¹⁰²	BE	No

⁹² Kalmar Global, "Heavy Electric Forklift Trucks 18-33 ton," n.d. Accessed April 2, 2025. <https://www.kalmarusa.com/equipment/forklift-trucks/electric-heavy-forklift-18-33-ton/>.

⁹³ Konecranes Inc., "Konecranes Ecolifting Electric Forklifts," n.d. Accessed December 11, 2024. <https://www.kclifttrucks.com/equipment/forklifts/konecranes-e-ver-electric-forklifts>.

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ Socma, "13.5 TON Electric Forklift Heavy Duty Equipment," n.d. Accessed April 3, 2025. <https://www.socma-forklift.com/electric-heavy-duty-forklift/13-5-ton-electric-forklift-heavy-duty.html>.

¹⁰¹ Socma, "Electric Forklift 10Ton 15Ton 25Ton Battery," n.d. Accessed April 3, 2025. <https://www.socma-forklift.com/electric-heavy-duty-forklift/electric-forklift-10ton-15-ton-25-ton-battery.html>.

¹⁰² Socma, "25 Ton electric Forklift Lithium Battery," n.d. Accessed December 12, 2024. <https://www.socma-forklift.com/electric-heavy-duty-forklift/25-ton-electric-forklift-lithium-battery.html>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	SOCMA	30-ton Electric Forklift ¹⁰³	BE	No
Forklift, Heavy Lift	N/A	SOCMA	40-ton Electric Forklift ¹⁰⁴	BE	No
Forklift, Heavy Lift	N/A	SOCMA	50-ton Electric Forklift ¹⁰⁵	BE	No
Forklift, Heavy Lift	N/A	Taylor Machine Works	Z-350 ¹⁰⁶	BE	Yes
Forklift, Heavy Lift	N/A	Taylor Machine Works	Z-360 ¹⁰⁷	BE	Yes
Forklift, Heavy Lift	N/A	Taylor Machine Works	ZH-375M ¹⁰⁸	BE	Yes
Forklift, Heavy Lift	N/A	Taylor Machine Works	ZH-550M ¹⁰⁹	BE	Yes

¹⁰³ Socma, "30 Ton Electric Forklift Lithium Ion Battery," n.d. Accessed April 3, 2025. <https://www.socma-forklift.com/electric-heavy-duty-forklift/30-ton-electric-forklift-lithium-ion-battery.html>.

¹⁰⁴ Socma, "40 Ton Electric Forklift Lithium Ion Battery," n.d. Accessed April 3, 2025. <https://www.socma-forklift.com/electric-heavy-duty-forklift/40-ton-electric-forklift-lithium-ion-battery.html>.

¹⁰⁵ Socma, "SOCMA 50-Ton Electric Forklift: Embracing New Energy and Environmental Protection," June 16, 2024. Accessed August 29, 2024. <https://www.socma-forklift.com/news/socma-50-ton-electric-forklift-embracing-new-78205579.html>.

¹⁰⁶ Taylor Machine Works, "ZH-350L Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/ZH-350L>.

¹⁰⁷ Taylor Machine Works, "Z-360L Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/Z-360L>; Taylor Machine Works, "Z-360M Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/Z-360M>; Taylor Machine Works, "ZH-360L Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/ZH-360L>.

¹⁰⁸ Taylor Machine Works, "ZH-375M Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/ZH-375M>.

¹⁰⁹ Taylor Machine Works, "ZH-550M Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/ZH-550M>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Taylor Machine Works	ZH-650L ¹¹⁰	BE	Yes
Forklift, Heavy Lift	N/A	Taylor Machine Works	ZH-925L ¹¹¹	BE	Yes
Forklift, Heavy Lift	N/A	Taylor Machine Works	ZH-1000 ¹¹²	BE	Yes
Forklift, Heavy Lift	N/A	Terminalift	FL33E ¹¹³	BE	Yes
Forklift, Heavy Lift	N/A	Terminalift	TL ¹¹⁴	BE	Yes
Forklift, Heavy Lift	N/A	Wiggins	W1.0M2e ¹¹⁵	BE	Yes
Forklift, Heavy Lift	N/A	Wiggins	W1.3M2e ¹¹⁶	BE	Yes

¹¹⁰ Taylor Machine Works, "ZH-650L Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/ZH-650L>.

¹¹¹ Taylor Machine Works, "ZH-925L Electric Lifts," n.d. Accessed January 26, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/zh-925l>.

¹¹² Taylor Machine Works, "ZH-1000 Electric Lifts," n.d. Accessed April 3, 2025. <https://taylorforklifts.com/products/electric-lift-truck/pneumatic-tire-forklift/ZH-1000>.

¹¹³ Terminalift LLC., "Our Machines," n.d. Accessed April 3, 2025. <https://www.terminalift.com/listings>.

¹¹⁴ Terminalift LLC., "TL Electric Forklift," n.d. Accessed August 29, 2024. <https://www.terminalift.com/listings/5003430-tl-electric-forklift>.

¹¹⁵ California CORE, "Wiggins W1.0M2e-108-30/12," n.d. <https://californiacore.org/equipment/w1-0m2e-108-30-12/>; California CORE, "Wiggins W1.0M2e-108-30/12 XR," n.d. <https://californiacore.org/equipment/w1-0m2e-108-30-12-xr/>; California CORE, "Wiggins W1.0M2e-108-30/12 XXR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w1-0m2e-108-30-12-xxr/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹¹⁶ California CORE, "Wiggins W1.3M2e-108-30/12," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w1-3m2e-108-30-12/>; California CORE, "Wiggins W1.3M2e-108-30/12 XR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w1-3m2e-108-30-12-xr/>; California CORE, "Wiggins W1.3M2e-108-30/12 XXR," n.d. Accessed 4, 2025. <https://californiacore.org/equipment/w1-3m2e-108-30-12-xxr/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Wiggins	W3.2M2e ¹¹⁷	BE	Yes
Forklift, Heavy Lift	N/A	Wiggins	W260Y ¹¹⁸	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W300Ye ¹¹⁹	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W335Ye ¹²⁰	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W365Ye ¹²¹	HFC	Yes

¹¹⁷ California CORE, "Wiggins W3.2M2e-140-30/12," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w3-2m2e-140-30-12/>; California CORE, "Wiggins W3.2Me-140-30/12 XR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w3-2m2e-140-30-12-xr/>; California CORE, "Wiggins W3.2Me-140-30/12 XXR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w3-2m2e-140-30-12-xxr/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹¹⁸ Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹¹⁹ California CORE, "Wiggins W300Ye-130," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w300ye-130/>; California CORE, "Wiggins W300Ye-130 XR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w300ye-130-xr/>; California CORE, "Wiggins W300Ye-130 XXR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w300ye-130-xxr/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²⁰ California CORE, "Wiggins W335Ye-130," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w335ye-130/>; California CORE, "Wiggins W335Ye-130 XR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w335ye-130-xr/>; California CORE, "Wiggins W335Ye-130 XXR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w335ye-130-xxr/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²¹ California CORE, "Wiggins W365Ye-130," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365ye-130/>; California CORE, "Wiggins W365Ye-130 XR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365ye-130-xr/>; California CORE, "Wiggins W365Ye-130 XXR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365ye-130-xxr/>; California CORE, "Wiggins W365YeH-140," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365yeh-140/>; California CORE, "Wiggins W365YXXLe-150," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365yxxle-150/>; California CORE, "Wiggins W365YXXLe-150 XR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365yxxle-150-xr/>; California CORE, "Wiggins W365YXXLe-150 XXR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w365yxxle-150-xxr/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Heavy Lift	N/A	Wiggins	W450Y ¹²²	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W520Y ¹²³	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W550Y ¹²⁴	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W600Y ¹²⁵	HFC	Yes
Forklift, Heavy Lift	N/A	Wiggins	W700Y ¹²⁶	HFC	Yes
Forklift, Telehandler	N/A	Ausa/JLG	T164e ¹²⁷ /E313 ¹²⁸	BE	Yes
Forklift, Telehandler	N/A	Faresin	14.42, 17.40, 17.45 ¹²⁹	BE	Yes
Forklift, Telehandler	N/A	Galizia	GF600 ¹³⁰	BE	No

¹²² "Wiggins W450YXXLe-170," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w450yxxle-170/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²³ California CORE, "Wiggins W520YXXLe-150," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w520yxxle-150/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²⁴ California CORE, "Wiggins W550YXXLe-160 RR," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w550yxxle-160-rr/>; California CORE, "Wiggins W550YXXLe-170," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w550yxxle-170/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²⁵ California CORE, "Wiggins W600YXXLe-170," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w600yxxle-170/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²⁶ California CORE, "Wiggins W700Ye XXL-190," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/w700ye-xxl-190/>; Wiggins Lift, "Zero Emissions Wiggins Yard eBull & H2 eBull," 2023. <https://wigginslift.com/wp-content/uploads/2023/07/Yard-eBull-Brochure-2023.pdf>.

¹²⁷ Ausa, "T164E Electric Handler," n.d. Accessed April 15, 2025. <https://www.ausa.com/en-ch/telehandlers/t164e>.

¹²⁸ Vertikal.net, "JLG's first electric telehandler," February 10, 2024. Accessed January 14, 2026. <https://vertikal.net/en/news/story/44700/jlgs-first-electric-telehandler>.

¹²⁹ Faresin, "Full Electric," n.d. Accessed April 3, 2025. <https://www.faresin.com/us/full-electric/>.

¹³⁰ Galizia, "GF600 - 60 t - 2 mot fr drive 4 wheels," n.d. Accessed April 3, 2025. https://www.galiziagru.com/gru_en.php?id=48.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Forklift, Telehandler	N/A	Galizia	MULTIS 636 ¹³¹	BE	No
Forklift, Telehandler	N/A	JCB	505-20E ¹³²	BE	Yes
Forklift, Telehandler	N/A	JCB	525-60E ¹³³	BE	Yes
Forklift, Telehandler	N/A	Manitou	MRT 2260, MRT 2660 ¹³⁴	BE	Yes
Forklift, Telehandler	N/A	Manitou	MTE 625 ¹³⁵	BE	Yes
Forklift, Telehandler	N/A	Merlo	25.5 (2wd and 4wd) ¹³⁶	BE	Yes
Forklift, Telehandler	N/A	Snorkel	SR5719e ¹³⁷	BE	Yes
Forklift, Telehandler	N/A	Wacker Neuson	TH412e ¹³⁸	BE	Yes
Haul Truck	Straight	SANY	SKT90E ¹³⁹	BE	Yes

¹³¹ Galizia, "Galizia GRU: Our Products," n.d. Accessed April 3, 2025. https://www.galiziagru.com/gru_en.php.

¹³² California CORE, "JCB, Inc. JCB 505-20E," n.d. Accessed April 3, 2025. <https://californiacore.org/equipment/jcb-505-20e/>.

¹³³ Terra-World, "JCB 525-60E Electric Range," n.d. Accessed April 3, 2025. <https://www.terra-world.com/products/jcb-525-60e>.

¹³⁴ Construction Equipment Guide, "VIDEO: Manitou Introduces Electrified Telehandler Range in North America," February 14, 2023. Accessed April 3, 2025. <https://www.constructionequipmentguide.com/manitou-introduces-electrified-telehandler-range-in-north-america/59961>.

¹³⁵ Construction Equipment Guide, "VIDEO: Manitou Introduces Electrified Telehandler Range in North America," February 14, 2023. Accessed April 3, 2025. <https://www.constructionequipmentguide.com/manitou-introduces-electrified-telehandler-range-in-north-america/59961>.

¹³⁶ Merlo, "Electric Telehandler EW25.5," n.d. Accessed April 15, 2025. <https://www.merlo.com/usa/en/p/telehandlers/electric-telehandler/ew25-5/>.

¹³⁷ Snorkel, "Electric Power Snorkel SR571E," n.d. Accessed April 3, 2025. <https://snorkellifts.com/equipment/sr5719e/>.

¹³⁸ Wacker Neuson, "#Switchtogreen The Complete Zero Emission Pack-Age from Wacker Neuson," October 27, 2022. Accessed April 3, 2025. <https://www.wackerneuson.com/northerneurope/about-us/news/detail/switchtogreen-the-complete-zero-emission-package-from-wacker-neuson-8>.

¹³⁹ Sany Global, "SKT90E Electric Off-Highway Mining Truck," n.d. Accessed April 3, 2025. https://www.sanyglobal.com/product/truck/off-highway_mining_truck/75/559/.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Haul Truck	Articulated	Volvo	A30 ¹⁴⁰	BE	No
Haul Truck	Articulated	Volvo	A40 ¹⁴¹	BE	No
Loader or Loader-Excavator	Wheeled	Ahlmann	AZ95 ¹⁴²	BE	No
Loader or Loader-Excavator	Wheeled	Breton	BRT936EV ¹⁴³	BE	No
Loader or Loader-Excavator	Wheeled	Breton	BRT966EV ¹⁴⁴	BE	No
Loader or Loader-Excavator	Wheeled	Case Construction	CASE 580 EV ¹⁴⁵	BE	Yes

¹⁴⁰ Volvo Construction Equipment Europe, "Electric Construction Machines," n.d. Accessed June 16, 2025, <https://www.volvoce.com/europe/en/products/electric-machines/>.

¹⁴¹ Ibid.

¹⁴² Ahlmann Mecalac, "World Premiere Ahlmann Swing Shovel Loader AZ 95 Electric," n.d. Accessed April 3, 2025. <https://ahlmann.nl/wereldpremiere-ahlmann-zwenklader-az-95-electric/>.

¹⁴³ Echipamente și Atașamente Consulting, "China: Breton Starts Series Production Of EV Loaders," November 7, 2020. Accessed June 9, 2025. <https://www.echipamente-atasamente.ro/en/2020/11/07/china-breton-starts-series-production-of-ev-loaders/>; Made-in-China, "China Brand BRT936EV 3ton EV Electric Wheel Loader," n.d. Accessed June 9, 2025. <https://fullwon.en.made-in-china.com/product/YnMRivldrqVF/China-China-Brand-BRT936EV-3ton-EV-Electric-Wheel-Loader.html>.

¹⁴⁴ Made-in-China, "Breton BRT966EV Front End Loader Electric Wheel Loader with 340kw," n.d. Accessed June 9, 2025. <https://fullwon.en.made-in-china.com/product/FnTpeMSXEvkU/China-Breton-BRT966EV-Front-End-Loader-Electric-Wheel-Loader-with-340kw.html>.

¹⁴⁵ Case Construction, "Electric Vehicles," n.d. Accessed December 13, 2024. <https://www.casece.com/en-us/northamerica/solutions/case-ev>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Loader or Loader-Excavator	Wheeled	Ensign	YX656EV ¹⁴⁶	BE	Yes
Loader or Loader-Excavator	Wheeled	HEVI	GEL1800 ¹⁴⁷	BE	Yes
Loader or Loader-Excavator	Wheeled	HEVI	GEL5000 ¹⁴⁸	BE	Yes
Loader or Loader-Excavator	Wheeled	HEVI	H55L ¹⁴⁹	BE	Yes
Loader or Loader-Excavator	Wheeled	HEVI	H65L ¹⁵⁰	BE	Yes
Loader or Loader-Excavator	Wheeled	HEVI	GEL-5000 ¹⁵¹	BE	Yes

¹⁴⁶ Made-in-China, "Electric Wheel Loader, 5.5 Ton, Lithium Battery Power, Ensign Brand," n.d. Accessed June 10, 2025.

<https://ensign.en.made-in-china.com/product/zdoGhxjYbupB/China-Electric-Wheel-Loader-5-5-Ton-Lithium-Battery-Power-Ensign-Brand.html>.

¹⁴⁷ Hevi, "GEL-1800 Electric Wheel Loader," n.d. Accessed December 11, 2024. <https://gethevi.com/electric-heavy-equipment/electric-wheel-loaders/gel-1800/>.

¹⁴⁸ Hevi, "GEL-5000 Electric Wheel Loader," n.d. Accessed December 11, 2024. <https://gethevi.com/electric-heavy-equipment/electric-wheel-loaders/gel-5000/>.

¹⁴⁹ Hevi, "H55L Electric Wheel Loader," n.d. Accessed December 11, 2024. <https://gethevi.com/electric-heavy-equipment/electric-wheel-loaders/h55l/>.

¹⁵⁰ Hevi, "H65L Electric Wheel Loader," n.d. Accessed December 11, 2024. <https://gethevi.com/electric-heavy-equipment/electric-wheel-loaders/h65l/>.

¹⁵¹ Hevi, "Electric Heavy Equipment," n.d. Accessed April 3, 2025. <https://gethevi.com/electric-heavy-equipment/>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Loader or Loader-Excavator	Wheeled	Highland Industries	2N ¹⁵²	BE	Yes
Loader or Loader-Excavator	Wheeled	JinGong Machinery	JGM857E ¹⁵³	BE	No
Loader or Loader-Excavator	Wheeled	LiuGong	820T-E ¹⁵⁴	BE	Yes
Loader or Loader-Excavator	Wheeled	LiuGong	856H-E MAX ¹⁵⁵	BE	Yes
Loader or Loader-Excavator	Wheeled	LTMG	LT930EV ¹⁵⁶	BE	No

¹⁵² Highland Industries, "Model 2N," n.d. Accessed June 10, 2025. <https://hmcwv.com/lhd-1/>.

¹⁵³ Cruking Engineering Equipment (Xiamen) Co., Ltd., "Jingong Earthmoving Machinery 5.5T Electric Lithium Battery Wheel Loader Front Loaders JGM57E Price List," Alibaba.com, n.d. Accessed April 4, 2025. https://www.alibaba.com/product-detail/JINGONG-Earthmoving-Machinery-5-5T-Electric_1600430146162.html.

¹⁵⁴ California CORE, "LiuGong Construction Equipment N.A., LLC 820T-E," n.d. Accessed April 3, 2025. <https://californiacore.org/equipment/820t-e/>; Equipment India, "Loading the Future," June 29, 2024. Accessed April 9, 2025. <https://equipmentindia.com/construction-machinery-news/top-equipment-news/webexclusive/Loading-the-Future/129462>.

¹⁵⁵ LiuGong, "856H-E Max Zero Emissions + Greater ROI," n.d. Accessed August 29, 2024. <https://www.liugongna.com/wheel-loaders-856he-max>; LiuGong, "Liugong Brings Proven, Tested Battery Electric 856H-E Max Wheel Loader to North America," March 8, 2023. Accessed August 29, 2025. <https://www.liugongna.com/blog/liugong-news/2023/03/08/liugong-brings-proven-tested-battery-electric-856h-e-max-wheel-loader-to-north-america>; Equipment India, "Loading the Future," June 29, 2024. Accessed April 9, 2025. <https://equipmentindia.com/construction-machinery-news/top-equipment-news/webexclusive/Loading-the-Future/129462>.

¹⁵⁶ LTMG, "Battery Electric Wheel Loader For Construction Project," n.d. Accessed December 16, 2025. <https://www.ltmgloder.com/battery-electric-wheel-loader-for-construction-project>; LTMG Group, "LTMG Electric Wheel Loader - 3000kg Capacity," YouTube video, published on January 2, 2023, 0:25. Accessed December 16, 2025. https://youtu.be/_oxJcD2XFY?si=NbpZaVkn_5_k5mAR.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Loader or Loader-Excavator	Wheeled	LTMG	LT950EV ¹⁵⁷	BE	No
Loader or Loader-Excavator	Wheeled	LTMG	LT966EV ¹⁵⁸	BE	No
Loader or Loader-Excavator	Wheeled	LTMG	LT970EV ¹⁵⁹	BE	No
Loader or Loader-Excavator	Wheeled	SDLG/Volvo	L956HEV ¹⁶⁰	BE	Yes
Loader or Loader-Excavator	Wheeled	SDLG/Volvo	L968HEV ¹⁶¹	BE	Yes
Loader or Loader-Excavator	Wheeled	SEM/Caterpillar	Wheel loader ¹⁶²	BE	Yes

¹⁵⁷ LTMG, "Smart Control 5 Ton New Electric Loader," n.d. Accessed December 15, 2025. <https://www.ltmgloader.com/smart-control-5-ton-new-electric-loader>; LTMG Group, "LTMG LT950EV 5000KG Electric Wheel Loader Overview," YouTube video, published on January 4, 2024, 0:32. Accessed December 15, 2025. <https://youtu.be/9LD2vXvU-wc?si=woKtLPZflUp6ILPB>.

¹⁵⁸ LTMG, "6000KG New Battery Electric Wheel Loader," n.d. Accessed June 17, 2024, <https://web.archive.org/web/20240617053315/https://www.ltmgloader.com/6000kg-new-battery-electric-wheel-loader>.

¹⁵⁹ LTMG, "LTMG Machinery Shines at Bauma China 2024, Leading the Future of Construction Machinery," November 26, 2024. Accessed December 15, 2025. https://www.ltmg.com/news_Detail/75.html; LTMG, "7 Ton Electric Loader Quiet Efficient Long Lasting," n.d. Accessed December 15, 2025. <https://www.ltmgloader.com/7-ton-electric-loader-quiet-efficient-long-lasting>.

¹⁶⁰ SDLG, "SDLG Speed Up in the Development of Green Products," December 2, 2022. Accessed April 3, 2025. <https://www.sdlg.com/news/1128>; SDLG, "SDLG Speed Up in the Development of Green Products," December 2, 2022. Accessed April 3, 2025. <https://www.sdlg.com/news/1128>; Equipment India, "Loading the Future," June 29, 2024. Accessed April 9, 2025. <https://equipmentindia.com/construction-machinery-news/top-equipment-news/webexclusive/Loading-the-Future/129462>.

¹⁶¹ Ibid.

¹⁶² Seetao, "The First SEM Electric Wheel Loader SEM658F Launched in China," June 20, 2022. Accessed April 3, 2025. <https://www.seetao.com/details/164809.html>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Loader or Loader-Excavator	Wheeled	Shantui	LE56-X/X2 ¹⁶³	BE	No
Loader or Loader-Excavator	Wheeled	Shantui	LE59-X2 ¹⁶⁴	BE	No
Loader or Loader-Excavator	Wheeled	Shantui	LE60-X3 ¹⁶⁵	BE	No
Loader or Loader-Excavator	Wheeled	SOCMA	5-ton Electric Loader ¹⁶⁶	BE	No
Loader or Loader-Excavator	Wheeled	Terminalift/SOCMA	TL-WL5E ¹⁶⁷	BE	Yes
Loader or Loader-Excavator	Wheeled	Volvo	L90 Electric ¹⁶⁸	BE	No
Loader or Loader-Excavator	Wheeled	Volvo	L120 Electric ¹⁶⁹	BE	Yes

¹⁶³ Sang Xiaomei, "Shantui Holds 2022 Agent Annual Meeting and Marketing Theme Activities," Seetao, January 17, 2022, Accessed January 8, 2026. <https://www.seetao.com/details/134257.html>.

¹⁶⁴ Ibid.

¹⁶⁵ Shantui, "Electric Wheel Loader LE60-X3," n.d. Accessed April 3, 2025. <https://www.shantui-global.com/product/pro-detail-324.htm>.

¹⁶⁶ Socma, "Fully Electric Wheel Loader 5 Ton for Mining Area," n.d. Accessed August 29, 2024. <https://www.socma-forklift.com/electric-loader/fully-electric-wheel-loader-5-ton-for-mining.html>.

¹⁶⁷ Terminalift, "TL Electric Wheel Loader," n.d. Accessed August 29, 2024. <https://www.terminalift.com/listings/5003378-tl-electric-wheel-loader>.

¹⁶⁸ Volvo Construction Equipment Europe, "Electric Construction Machines," n.d. Accessed June 16, 2025, <https://www.volvoce.com/europe/en/products/electric-machines/>.

¹⁶⁹ Volvo Construction Equipment North America, "Electric Construction Equipment," n.d. Accessed June 16, 2025, <https://www.volvoce.com/united-states/en-us/products/electric-machines/>.

CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Loader or Loader-Excavator	Wheeled	Wings Machinery	5.0t Electric Loader ¹⁷⁰	BE	No
Loader or Loader-Excavator	Wheeled	XCMG	XC918EV ¹⁷¹	BE	Yes
Loader or Loader-Excavator	Wheeled	XCMG	XC938EV ¹⁷²	BE	Yes
Loader or Loader-Excavator	Wheeled	XCMG	XC968EV ¹⁷³	BE	Yes
Loader or Loader-Excavator	Wheeled	XCMG	XC975EV ¹⁷⁴	BE	Yes
Loader or Loader-Excavator	Wheeled	XCMG	XC988EV ¹⁷⁵	BE	Yes
Loader or Loader-Excavator	Wheeled	XCMG	XC9108EV ¹⁷⁶	BE	Yes

¹⁷⁰ Wings Machinery, "5.0t Electric Wheel Loader," n.d. Accessed April 3, 2025.

https://www.wingsmachinery.com/Electric_Wheel_Loader.html.

¹⁷¹ Business Insider, "XCMG Commissions the World's First New Energy Loader Production Line," December 26, 2023. Accessed April 3, 2025.

<https://markets.businessinsider.com/news/stocks/xcmg-commissions-the-world-s-first-new-energy-loader-production-line-1032925212>;

Etrucks, "XC918EV Electric Loaders," n.d. Accessed April 11, 2025. <https://etrucks.co.nz/project/xc918ev/>.

¹⁷² Etrucks, "XC938EV Electric Loaders," n.d. Accessed April 11, 2025. <https://etrucks.co.nz/project/xc938ev/>.

¹⁷³ Etrucks, "XC968EV Electric Loaders," n.d. Accessed April 11, 2025. <https://etrucks.co.nz/project/xc968ev/>.

¹⁷⁴ Etrucks, "XC975EV Electric Loaders," n.d. April 11, 2025. <https://etrucks.co.nz/project/xc975ev/>.

¹⁷⁵ Etrucks, "XC988EV Electric Loaders," n.d. April 11, 2025. <https://etrucks.co.nz/project/xc988ev-loader/>.

¹⁷⁶ Etrucks, "XC9108EV Electric Loaders," n.d. April 11, 2025. <https://etrucks.co.nz/project/xc9108ev/>.

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CHE Type	CHE Sub-Category	Manufacturer	Model/Platform	Fuel Type/ Power Source	Commercially Available in the US?
Loader or Loader-Excavator	Wheeled	XCMG	XC968-FCEV ¹⁷⁷	HFC	No

¹⁷⁷ ChinaSPV, "World's First! XCMG 6-ton hydrogen-powered loader operated in Shanxi," June 26, 2023. Accessed August 29, 2024. <https://www.chinaspv.com/news/2023/5549.html>.

Commercially Available Container CHE

Table B-2 provides a list of commercially available zero-emission container CHE.

Table B-2: Commercially Available Container CHE

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
AGV	N/A	Kalmar	Fastcharge ¹⁷⁸	BE	Yes
AGV	N/A	Konecranes	Gottwald AGV ¹⁷⁹	BE	Yes
AGV	N/A	Sany	SIGV8850 ¹⁸⁰	BE	Yes
AGV	N/A	Shanghai Zhenhua Heavy Industries (ZPMC)	Durapower Battery ¹⁸¹	BE	No
Rail-Mounted Gantry Crane	N/A	Aicrane	RMG ¹⁸²	GE	Yes

¹⁷⁸ Kalmar, "Kalmar FastCharge™ AGV Data Sheet," 2018. https://www.kalmar.no/globalassets/media/204161/204161_AGV-data-sheet-Web-singles.pdf.

¹⁷⁹ Konecranes, "Planning for a Sustainable Future," 2024. Accessed May 12, 2024. <https://www.konecranes.com/en-us/port-equipment-services/container-handling-equipment/automated-guided-vehicles/agv>.

¹⁸⁰ Sany, "SIGV8850 Intelligent Guided Vehicle," n.d. Accessed April 3, 2025. https://www.sanyglobal.com/product/port_machinery/electric_terminal_tractor/188/1350/.

¹⁸¹ WorldCargo News, "ZPMC supplies PSA Singapore with AGVs made in Malaysia," March 6, 2024. Accessed April 24, 2025. <https://www.worldcargonews.com/news/2024/03/zpmc-supplies-psa-singapore-with-agvs-made-in-malaysia>.

¹⁸² Aicrane, "Rail Mounted Gantry Crane," n.d. Accessed April 4, 2025. <https://aicraneliftingsolution.com/gantry-cranes/rail-mounted/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Rail-Mounted Gantry Crane	N/A	American Crane & Equipment Corporation (ACECO)	Gantry Crane ¹⁸³	GE	Yes
Rail-Mounted Gantry Crane	N/A	Huisman Equipment	ASC ¹⁸⁴	GE	Yes
Rail-Mounted Gantry Crane	N/A	Kalmar	ASC ¹⁸⁵	GE	Yes
Rail-Mounted Gantry Crane	N/A	Konecranes	RMG ¹⁸⁶	GE	Yes
Rail-Mounted Gantry Crane	N/A	Kuenz	ASC ¹⁸⁷	GE	Yes
Rail-Mounted Gantry Crane	N/A	Liebherr	RMG ¹⁸⁸	GE	Yes

¹⁸³ American Crane, "Maximizing Productivity with Gantry Cranes," n.d. Accessed April 4, 2025. <https://www.americancrane.com/gantry-cranes/>.

¹⁸⁴ Huisman, "Equipped for Impact," n.d. Accessed April 4, 2025. <https://www.huismanequipment.com/en/products/cranes/container-handling-cranes/automated-stacking-cranes>.

¹⁸⁵ Kalmar, "Brochure: Kalmar ASC System Your Foundation for the Future Today," 2017. <https://www.kalmarglobal.com/48d0fa/globalassets/equipment/automated-stacking-cranes/ASC-system-brochure>.

¹⁸⁶ Konecranes, "Rail-Mounted Gantry Cranes," n.d. Accessed April 4, 2025. <https://www.konecranes.com/en-us/port-equipment-services/container-handling-equipment/rail-mounted-gantry-cranes>.

¹⁸⁷ Kuenz, "ASC - Automated Stacking Cranes," n.d. Accessed April 4, 2025. <https://www.kuenz.com/cranes/asc-cranes/>.

¹⁸⁸ Liebherr, "Rail Mounted Gantry Cranes," n.d. Accessed April 4, 2025. <https://www.liebherr.com/en-us/maritime-cranes/products/port-equipment/rail-mounted-gantry-cranes-4433174?accordionModule-4432225-4432229-10=vantaggi-e-benefici-per-il-cliente&accordionModule-4432225-4432229-10=dati-tecnici#dati-tecnici>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Rail-Mounted Gantry Crane	N/A	Munck Cranes	Gantry Cranes ¹⁸⁹	GE	Yes
Rail-Mounted Gantry Crane	N/A	ZPMC	ASC ¹⁹⁰	GE	Yes
Reach Stacker	N/A	Kalmar	ERG-420 ¹⁹¹	BE	Yes
Reach Stacker	N/A	Kalmar	ERG-450 ¹⁹²	BE	Yes
Reach Stacker	N/A	LTMG	CRS4531E ¹⁹³	BE	No
Reach Stacker	N/A	Sany	SRSC45E ¹⁹⁴	BE	Yes
Reach Stacker	N/A	Taylor Machine Works	ZLC-994 ¹⁹⁵	BE	Yes
Reach Stacker	N/A	Taylor Machine Works	ZLC-995 ¹⁹⁶	BE	Yes
Reach Stacker	N/A	Taylor Machine Works	ZLC-996 ¹⁹⁷	BE	Yes

¹⁸⁹ Munck, "Gantry Cranes & Semi Gantry Cranes," n.d. Accessed April 4, 2025. <https://www.munckcranes.com/products/gantry-cranes/>.

¹⁹⁰ ZPMC, "News," n.d. Accessed April 4, 2025. <https://www.zpmc.com/news/cont.aspx?id=258>.

¹⁹¹ Kalmar, "Electric Reachstacker Kalma's Most Sustainable Reachstacker," n.d. Accessed December 5, 2024. <https://www.kalmarglobal.com/equipment/reachstackers/electric-reachstacker/>; Kalmar, "The Kalmar Electric Reachstacker," 2022. https://www.kalmarglobal.com/49c9b7/globalassets/media/268853/268853_Electric-Reachstacker-Brochure_EN2-Ir-web.pdf.

¹⁹² Ibid.

¹⁹³ LTMG, "45 Ton Reach Stacker," n.d. Accessed December 15, 2025. <https://www.ltmgforklift.com/port-machine/container-reach-stacker/45-ton-reach-stacker.html>; LTMG Group, "LTMG Reach Stackers Azerbaijani Customer Reviews," YouTube video, published on December 9, 2023, 2:30. Accessed December 15, 2025. <https://youtu.be/ggTiiEeCNos?si=171Ja3QyBW5qNupk>.

¹⁹⁴ Sany, "SRSC45E 45t Electric Reach Stacker," n.d. Accessed August 29, 2024. https://www.sanyglobal.com/product/port_machinery/reach_stack/58/557/.

¹⁹⁵ California CORE, "Taylor Machine Works ZLC-994," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/zlc-994/>.

¹⁹⁶ California CORE, "Taylor Machine Works ZLC-995," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/zlc-995/>.

¹⁹⁷ California CORE, "Taylor Machine Works ZLC-996," n.d. Accessed April 4, 2025. <https://californiacore.org/equipment/zlc-996/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Reach Stacker	N/A	Taylor Machine Works	ZRS-9972 ¹⁹⁸	BE	Yes
Reach Stacker	N/A	Terminalift/SOCMA	TL-RS55E ¹⁹⁹	BE	Yes
Reach Stacker	N/A	XCMG	XCS4531E ²⁰⁰	BE	No
Rubber-Tired Gantry Crane	N/A	Cavotec	Grid-Electric Conversion ²⁰¹	GE	Yes
Rubber-Tired Gantry Crane	N/A	Conductix-Wampfler	Grid-Electric Conversion ²⁰²	GE	[Staff is seeking information.]
Rubber-Tired Gantry Crane	N/A	Electroflex	Grid-Electric Conversion ²⁰³	GE	[Staff is seeking information.]
Rubber-Tired Gantry Crane	N/A	Huadelift	Electric Straddle Carrier ²⁰⁴	BE	Yes

¹⁹⁸ Taylor, "ZRS-9972 Electric Lifts," n.d. Accessed April 4, 2025. <https://taylorforklifts.com/products/electric-lift-truck/reach-stacker/ZRS-9972>.

¹⁹⁹ Terminalift, "Terminalift Electric Container Reach Stacker," n.d. Accessed December 6, 2024. <https://www.terminalift.com/listings/5120201-terminalift-electric-container-reach-stacker>.

²⁰⁰ China XCMG Group, "Port Machinery XCS4531E Container Reach Stacker," 2023. <https://chinaxcmgroup.com/wp-content/uploads/2023/03/XCS4531E-Container-reach-stacker-pdf.pdf>; XCMG Melbourne, "Container Reach Stacker XCS4531E," n.d. Accessed August 29, 2024. <https://xcmgmelbourne.com.au/products/xcs4531e/>.

²⁰¹ Port Strategy, "Era of the eRTG," January 6, 2023. Accessed April 4, 2025. <https://www.portstrategy.com/era-of-the-ertg/1485459.article>.

²⁰² Conductix-Wampfler, "Conductix-Wampfler Achieves Several Firsts with Port of Montreal's E-RTG Conversion Project," December 19, 2016. Accessed April 3, 2025. <https://www.conductix.us/en/news/2016-12-16/conductix-wampfler-achieves-several-firsts-port-montreals-e-rtg-conversion-project>.

²⁰³ ElectroFlex, "Case Study Electrification of RTG - Navkar CFS Mumbai," n.d. Accessed April 3, 2025. <https://electroflexengineering.com/case-study/electrification-of-RTG-Navkar-CFS-Mumbai.php>.

²⁰⁴ Huadelift, "Electric Straddle Carrier | Zero Emissions," September 6, 2024. Accessed April 3, 2025. <https://www.huadelift.com/blog/electric-straddle-carrier-zero-emissions/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Rubber-Tired Gantry Crane	N/A	Hyundai-Samho	Inductively charged electric RTG ²⁰⁵	GE	No
Rubber-Tired Gantry Crane	N/A	Kalmar	Fully Electric RTG ²⁰⁶	BE, GE	Yes
Rubber-Tired Gantry Crane	N/A	Konecranes	Battery, cable reel, and busbar electric power options ²⁰⁷	BE, GE	Yes
Rubber-Tired Gantry Crane	N/A	Liebherr	RTG ²⁰⁸	GE	Yes
Rubber-Tired Gantry Crane	N/A	Liebherr	Grid-Electric Conversion ²⁰⁹	GE	Yes
Rubber-Tired Gantry Crane	N/A	Mi-Jack	JL1400P ²¹⁰	GE	Yes

²⁰⁵ WorldCargo News, "Hyundai-Samho's Inductive Reasoning," January 7, 2019. Accessed April 8, 2025.

<https://www.worldcargonews.com/cargo-handling-equipment/2019/07/hyundai-samhos-inductive-reasoning/>; Hyundai Cranes, "[Hyundai Cranes] Wireless Power Transmission Yard Crane (Eng)," YouTube video, published on June 25, 2019, 3:25. Accessed April 8, 2025. <https://www.youtube.com/watch?v=TDUNsD-XOIM>.

²⁰⁶ Danny Gill, "Kalmar to Supply TCPH Terminal with Fully Electric RTG Solution," Logistics Manager, October 13, 2020. Accessed April 3, 2025. <https://logistics-manager.com/kalmar-to-supply-tcph-terminal-with-fully-electric-rtg-solution/>.

²⁰⁷ Konecranes, "Konecranes Puts the Battery in RTGs, Straddle Carriers and Mobile Harbor Cranes with Ecolifting," June 15, 2022. Accessed May 12, 2024. <https://www.konecranes.com/en-us/press-releases/konecranes-puts-the-battery-in-rtgs-straddle-carriers-and-mobile-harbor-cranes-with-ecolifting>.

²⁰⁸ Liebherr, "Rubber Tyre Gantry Cranes," n.d. Accessed April 3, 2025. <https://www.liebherr.com/en-us/maritime-cranes/products/port-equipment/rubber-tyre-gantry-cranes-4433172?accordionModule-4432236-4432241-19=rtg-elettrica#rtg-elettrica>.

²⁰⁹ Port Strategy, "Era of the eRTG," January 6, 2023. Accessed April 4, 2025. <https://www.portstrategy.com/era-of-the-ertg/1485459.article>.

²¹⁰ Mi-Jack, "JL1400P | Electric RTG Crane," n.d. Accessed June 19, 2024. <https://mi-jack.com/jl1400p-electric-rtg-crane/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Rubber-Tired Gantry Crane	N/A	PACECO	Grid-Electric Conversion ²¹¹	GE	Yes
Rubber-Tired Gantry Crane	N/A	Vahle	Grid-Electric Conversion ²¹²	GE	Yes
Rubber-Tired Gantry Crane	N/A	ZPMC	Electric RTG ²¹³	GE	Yes
Rubber-Tired Gantry Crane	N/A	ZPMC	Grid-Electric Conversion ²¹⁴	GE	Yes
Ship-to-Shore Crane	N/A	Doosan Vina	Electric ship-to-shore crane ²¹⁵	GE	Yes
Ship-to-Shore Crane	N/A	Hyundai-Samho	Electric ship-to-shore crane ²¹⁶	GE	No

²¹¹ Electric Power Research Institute (EPRI), Inc., "Electric Cable Reel Rubber-Tired Gantry Cranes: Costs and Benefits," EPRI, March 2010. <https://restservice.epri.com/publicdownload/000000000001020646/0/Product>.

²¹² Port Technology Team, "Vahle Electrifies Mexico's Billion Dollar Terminal," Port Technology International, March 27, 2017. Accessed April 4, 2025. https://www.porttechnology.org/news/vahle_electrifies_mexicos_billion_dollar_terminal/.

²¹³ Gabriel Malheiros, "Port of Santos: Arrival of Eco-Friendly Cranes and RTGs," Datamar News, November 17, 2023. Accessed January 21, 2026. <https://datamarnews.com/noticias/port-of-santos-arrival-of-eco-friendly-cranes-and-rtgs>.

²¹⁴ Port Technology International, "RTG Conversion Finishes Ahead of Schedule," July 4, 2014. Accessed April 4, 2025. https://www.porttechnology.org/news/rtg_to_ertg_conversion_finishes_ahead_of_schedule/.

²¹⁵ Breakbulk, "Doosan Completes Gemalink STS Crane Delivery from Quang Ngai," September 11, 2020. Accessed April 3, 2025. <https://breakbulk.com/Articles/doosan-completes-gemalink-sts-cranes>; Doosan Enerbility Vietnam, "Port Crane," n.d. Accessed April 3, 2025. <https://www.doosanvina.com.vn/Product/Port/PortIndex>; Foss Maritime, "Doosan Crane Delivery," n.d. Accessed April 8, 2025. <https://foss-maritime.com/projects/doosan-crane-delivery/>.

²¹⁶ Hyundai Samho, "Industrial Plant & Crane," n.d. Accessed April 3, 2025. <https://www.hshi.co.kr/eng/PageLink.do?link=work%2Fequip2>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Ship-to-Shore Crane	N/A	Kalmar (Cargotec/Hiab)	Electric ship-to-shore crane ²¹⁷	GE	Yes
Ship-to-Shore Crane	N/A	Konecranes	Electric ship-to-shore crane ²¹⁸	GE	Yes
Ship-to-Shore Crane	N/A	Liebherr	Electric ship-to-shore crane ²¹⁹	GE	Yes
Ship-to-Shore Crane	N/A	PACECO-MITSUI	Electric ship-to-shore crane ²²⁰	GE	Yes
Ship-to-Shore Crane	N/A	Sany	Electric ship-to-shore crane ²²¹	GE	Yes
Ship-to-Shore Crane	N/A	ZPMC	Electric ship-to-shore crane ²²²	GE	Yes

²¹⁷ Kalmar Global, "Kalmar STS Crane Experience that Counts," Kalmar Global, 2017.

https://www.kalmarglobal.com/49b8ec/globalassets/media/9529/9529_STS-Brochure-web-spreads.pdf.

²¹⁸ Konecranes, "Ship-to-Shore Crane," n.d. Accessed April 4, 2025. <https://www.konecranes.com/en-us/port-equipment-services/container-handling-equipment/konecranes-ship-to-shore-cranes>.

²¹⁹ Liebherr, "Ship to Shore Container Cranes," n.d. Accessed April 4, 2025. <https://www.liebherr.com/en-us/maritime-cranes/products/port-equipment/ship-to-shore-container-cranes-4433170>.

²²⁰ Paceco Corp., "The Largest Paceco-Mitsui Portainer Cranes and Most Advanced Low Emissions Transtainer Cranes to be Delivered to the U.S.," January 21, 2022. Accessed April 4, 2025. <https://pacecocorp.com/paceco-mitsui-secures-new-order/>.

²²¹ Sany, "Ship-To-Shore Container Cranes Balance Between Cost and Performance," n.d. Accessed April 4, 2025. https://www.sanyglobal.com/product/port_machinery/customized_container_cranes/71/.

²²² Port Technology, "RTG Conversion Finishes Ahead of Schedule," July 4, 2014. Accessed April 4, 2025. https://www.porttechnology.org/news/rtg_to_ertg_conversion_finishes_ahead_of_schedule/.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Shuttle and Straddle Carriers	N/A	Kalmar Global	Electric Straddle Carrier ²²³	BE	Yes
Shuttle and Straddle Carriers	N/A	Konecranes	Electric Straddle Carrier ²²⁴	BE	Yes
Side Handler	N/A	Kalmar Global	ECG70 ²²⁵	BE	Yes
Side Handler	N/A	Kalmar Global	ECG90-110 ²²⁶	BE	Yes
Side Handler	N/A	Sany	SDCE100K7-T ²²⁷	BE	Yes
Side Handler	N/A	Sany	SDCE90K7 ²²⁸	BE	Yes
Side Handler	N/A	Sany	SDCE90K7E5 ²²⁹	BE	Yes
Side Handler	N/A	SOCMA	ECH907E ²³⁰	BE	No

²²³ Kalmar, "Kalmar Electric Straddle Carrier," n.d. Accessed December 13, 2024. <https://www.kalmarusa.com/equipment/straddle-carriers/electric-straddle-carrier/>.

²²⁴ Konecranes, "Features and Technical Information Konecranes Noell Straddle Carriers," May 2023. https://www.konecranes.com/sites/default/files/2023-05/Konecranes_Straddle_Carriers_tech_document_2023.pdf.

²²⁵ Kalmar USA, "Electric Empty Container Handler," n.d. Accessed April 8, 2025. <https://www.kalmarusa.com/equipment/masted-container-handlers/electric-empty-handler-ecg70/>.

²²⁶ Kalmar USA, "Kalmar Electric Empty Container Handler," n.d. Accessed April 8, 2025. <https://www.kalmarusa.com/equipment/masted-container-handlers/electric-empty-container-handler-ecg90-110/>.

²²⁷ Sany, "SCDE100K7-T 10t Electric Empty Container Handler," n.d. Accessed April 8, 2025. https://www.sanyglobal.com/product/port_machinery/empty_container_handler/67/694/.

²²⁸ Sany, "Electric Empty Container Handler the Pioneer in Electric ECH," n.d. Accessed August 29, 2024. https://www.sanyglobal.com/product/port_machinery/empty_container_handler/67/.

²²⁹ Sany Europe, "SCD90K7E5 - Full Electric Empty Container Handler Sustainable Technology for Your Container Logistics," n.d. Accessed April 8, 2025. <https://www.sanyeurope.com/en/produkte/hafenmaschinen/sdce90k7e5/>.

²³⁰ Socma, "9tons 9t Electric Empty Handler ECH," n.d. Accessed August 29, 2024. <https://www.socma-forklift.com/reach-stacker/9tons-9t-electric-empty-container-handler-ech.html>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Side Handler	N/A	Taylor Machine Works	ZEC-205/6 ²³¹	BE	Yes
Side Handler	N/A	Taylor Machine Works	ZEC-206/7 ²³²	BE	Yes
Side Handler	N/A	Taylor Machine Works	ZEC-207/8 ²³³	BE	Yes
Side Handler	N/A	XCMG	XCH907E ²³⁴	BE	Yes
Side Handler	N/A	XingHao	ECH80E ²³⁵	BE	No
Side Handler	N/A	XingHao	ECH90E ²³⁶	BE	No
Top Handler	N/A	Taylor Machine Works	ZLC-994 ²³⁷	BE	Yes
Top Handler	N/A	Taylor Machine Works	ZLC-995 ²³⁸	BE	Yes

²³¹ Taylor Machine Works, "ZEC-205/6 Electric Lifts," n.d. Accessed April 8, 2025. <https://taylorforklifts.com/products/electric-lift-truck/empty-container-handler/ZEC-205/6>.

²³² Taylor Machine Works, "ZEC-206/7 Electric Lifts," n.d. Accessed April 8, 2025. <https://taylorforklifts.com/products/electric-lift-truck/empty-container-handler/ZEC-206/7>.

²³³ Taylor Machine Works, "ZEC-207/8 Electric Lifts," n.d. Accessed April 8, 2025. <https://taylorforklifts.com/products/electric-lift-truck/empty-container-handler/ZEC-207/8>.

²³⁴ Machmall, "XCMG 9 tons Empty Container Handler XCH907E Pure Electric Container Reach Stacker," n.d. Accessed August 29, 2025. <https://www.machmall.com/item-detail/xcmg-xch907e-6778.html>.

²³⁵ XingHao, "ECH80E Electric Empty Container Handler," n.d. Accessed December 12, 2025. <https://www.xinghaoforklift.com/products/xinghao-ech80e-eletric-battery-empty-container-handler.html>.

²³⁶ XingHao, "ECH90E Electric Empty Container Handler," n.d. Accessed December 12, 2025. <https://www.xinghaoforklift.com/products/xinghao-ech90e-eletric-empty-container-handler.html>; XingHao Forklift Co., LTD, "electric empty container handler made in china," YouTube video, published on April 11, 2023, 2:22. Accessed December 12, 2025. <https://youtu.be/YcaXbkcuE?si=9jucLYiDAd6y1UsN>.

²³⁷ Taylor Machine Works, "ZLC-994 Electric Lifts," n.d. Accessed April 25, 2025. <https://taylorforklifts.com/products/electric-lift-truck/loaded-container-handler/zlc-994>.

²³⁸ Taylor Machine Works, "ZLC-995 Electric Lifts," n.d. Accessed April 8, 2025. <https://taylorforklifts.com/products/electric-lift-truck/loaded-container-handler/ZLC-995>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Top Handler	N/A	Taylor Machine Works	ZLC-996 ²³⁹	BE	Yes
Yard Truck	N/A	Autocar	E-ACTT ²⁴⁰	BE	Yes
Yard Truck	N/A	BYD/Ride	8Y ²⁴¹	BE	Yes
Yard Truck	N/A	Capacity	Battery-Electric Terminal Truck ²⁴²	BE	Yes
Yard Truck	N/A	Capacity	TJ9000 Fuel Cell ²⁴³	HFC	Yes
Yard Truck	N/A	Hyster-Yale	182,000 GCWR ²⁴⁴	BE	Yes

²³⁹ Taylor Machine Works, "ZLC-996 Electric Lifts," n.d. Accessed April 8, 2025. <https://taylorforklifts.com/products/electric-lift-truck/loaded-container-handler/ZLC-996>.

²⁴⁰ Autocar, "Autocar, LLC Launches the E-ACTT, An Emissions-Free, All-Electric Terminal Tractor," May 13, 2021. Accessed April 8, 2025. <https://www.autocartruck.com/news/autocar-llc-launches-the-e-actt-an-emissions-free-all-electric-terminal-tractor>; Autocar, "Zero Emissions Electric Yard Truck | E-ACTT," n.d. Accessed January 19, 2025. <https://www.autocartruck.com/actt/eactt>.

²⁴¹ California CORE, "BYD 8Y (Off-Road)," n.d. Accessed April 8, 2025. <https://californiacore.org/equipment/8y-off-road/>; California CORE, "BYD 8Y (Off-Road)," n.d. Accessed April 8, 2025. <https://californiacore.org/equipment/8y/>; California CORE, "BYD 8Y (On-Road)," n.d. Accessed April 8, 2025. <https://californiacore.org/equipment/8y-on-road/>; California CORE, "BYD 8Y (On-Road)," n.d. Accessed April 8, 2025. <https://californiacore.org/equipment/8y-on-road-2/>.

²⁴² Capacity Trucks, "Capacity Trucks Zero Emissions H2 and EV," YouTube video, published on May 10, 2024, 2:45. Accessed January 22, 2026. <https://youtu.be/YxGoUIT0DUU?si=TxTeY1ziNKm9TA7R>; Rafael Granato, "Top OEM Manufacturing Electric Yard Trucks Or Yard Tractors in the US for Logistics Purposes," YMX Logistics, October 31, 2024. Accessed January 22, 2026. <https://ymxlogistics.com/blog/top-oem-manufacturing-electric-yard-trucks-or-yard-tractors-in-the-us-for-logistics-purposes>.

²⁴³ Ibid.; Capacity Trucks, "Capacity Hydrogen Fuel Cell Electric Hybrid Walk-Through," YouTube video, published on May 10, 2024, 6:17. Accessed January 22, 2026. https://youtu.be/sn9r2aQ4ZqY?si=lwmM6_Aqt2WaUoB0.

²⁴⁴ Hyster, "Hyster to Supply 10 Zero-Emission Battery Electric Terminal Tractors to APM Terminals," March 4, 2024. Accessed April 8, 2025. <https://www.hyster.com/en-us/north-america/why-hyster/press-releases/2024/hyster-to-supply-10-electric-terminal-tractors-to-apm-terminals/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Yard Truck	N/A	Kalmar (Global)	TX Electric Terminal Tractor ²⁴⁵	BE	Yes
Yard Truck	N/A	Kalmar (Ottawa)	T2 EV ²⁴⁶	BE	Yes
Yard Truck	N/A	Lonestar	S12 ²⁴⁷	BE	Yes
Yard Truck	N/A	Lonestar	S22 ²⁴⁸	BE	Yes
Yard Truck	N/A	MAFI	MAFI T 230 e ²⁴⁹	BE	Yes
Yard Truck	N/A	Orange EV	eTrieve ²⁵⁰	BE	Yes
Yard Truck	N/A	Orange EV	Husk-e ²⁵¹	BE	Yes
Yard Truck	N/A	Sany	SM4256 ²⁵²	BE	Yes
Yard Truck	N/A	Sany	SM4600 (charging) ²⁵³	BE	Yes
Yard Truck	N/A	Sany	SM4602 (swapping) ²⁵⁴	BE	Yes

²⁴⁵ Kalmar, "Kalmar TX Electric Terminal Tractor," n.d. Accessed April 15, 2025. <https://www.kalmarglobal.com/equipment/terminal-tractors/tx-electric-terminal-tractor-shunt-truck/>.

²⁴⁶ Kalmar Ottawa, "T2 EV Electric Terminal Tractor," January 27, 2025. <https://www.kalmarottawa.com/terminal-tractors/t2-ev-electric-terminal-tractor-yard-truck/>.

²⁴⁷ Lonestar SV, "Electric Terminal Tractors 4x2," n.d. Accessed December 10, 2024. <https://www.lonestarsv.com/4x2models>.

²⁴⁸ Ibid.

²⁴⁹ Mafi, "Overview MAFI: Products," n.d. Accessed April 8, 2025. <https://mafi.de/en/products/#tractorselectric-terminal-tractor-t-230e/>.

²⁵⁰ Orange, "Getting the Job Done with Zero Emissions Since 2015," n.d. Accessed January 18, 2025. <https://orangeev.com/etrieve/>.

²⁵¹ Orange, "Purpose Built Electric Yard Trucks," n.d. Accessed January 18, 2025. <https://orangeev.com/electric-trucks/>.

²⁵² Sany, "SM4256 Electric Terminal Tractor," n.d. Accessed August 29, 2024. https://www.sanyglobal.com/product/port_machinery/electric_terminal_tractor/188/1346/.

²⁵³ Sany, "SM4600 Electric Terminal Tractor," n.d. Accessed April 8, 2025. https://www.sanyglobal.com/product/port_machinery/electric_terminal_tractor/188/1347/.

²⁵⁴ Sany, "SM4602 Electric Terminal Tractor," n.d. Accessed April 8, 2025. https://www.sanyglobal.com/product/port_machinery/electric_terminal_tractor/188/1349/.

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CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Yard Truck	N/A	Terberg	YT203-EV ²⁵⁵	BE	Yes
Yard Truck	N/A	Tico	Pro-Spotter Electric ²⁵⁶	BE	Yes

²⁵⁵ Terberg Special Vehicles, "YT193/YT223 Yard and Terminal Tractor," n.d. December 10, 2024. <https://www.terbergspecialvehicles.com/en/vehicles/terminal-tractors/>.

²⁵⁶ Tico Tractors, "Tico Pro-Spotter EV Electric Terminal Tractor," n.d. Accessed April 8, 2025. <https://ticottractors.com/tico-pro-spotter-ev/>.

Commercially Available Facility Support CHE

Table B-3 provides a list of commercially available zero-emission facility support CHE.

Table B-3: Commercially Available Facility Support CHE

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Aerial Lift	N/A	ACN Truck Trading Company	Mobile Electric Boom Lift 14m ²⁵⁷	BE	No
Aerial Lift	N/A	Genie	Z-30/20 N and RJ ²⁵⁸	BE	Yes
Aerial Lift	N/A	Genie	Z-34/22 N / Z-34/22 DC ²⁵⁹	BE	Yes
Aerial Lift	N/A	Genie	Z-40/23 N / Z-40/23 N RJ ²⁶⁰	BE	Yes
Aerial Lift	N/A	Genie	Z-45 DC ²⁶¹	BE	Yes
Aerial Lift	N/A	Genie	Z-60 DC ²⁶²	BE	Yes
Aerial Lift	N/A	JLG	EC600 Series ²⁶³	BE	Yes

²⁵⁷ Made-in-China, "Mobile Electric Boom Lift 14m Height Aerial Work Platform," n.d. Accessed April 8, 2025. <https://acntruck.en.made-in-china.com/product/mZiGSNDPhEYK/China-Mobile-Electric-Boom-Lift-14m-Height-Aerial-Work-Platform.html>.

²⁵⁸ Genie, "Z-30/20 N RJ Articulated Boom Lifts," n.d. Accessed April 8, 2025. <https://www.genielift.com/en/aerial-lifts/articulated-boom-lifts/z3020nrj>.

²⁵⁹ Genie, "Electric Lifts and Hybrid Lifts," n.d. Accessed April 8, 2025. <https://www.genielift.com/en/aerial-lift/electric-hybrid-lifts#hybrid>.

²⁶⁰ Ibid.

²⁶¹ Genie, "Electric Lifts and Hybrid Lifts," n.d. Accessed April 8, 2025. <https://www.genielift.com/en/aerial-lift/electric-hybrid-lifts#hybrid>.

²⁶² Ibid.

²⁶³ JLG Industries, "Telescopic Boom Lifts EC600 & H600 Series," n.d. Accessed December 13, 2024. <https://www.jlg.com/equipment/boom-lifts/telescopic/electric-hybrid/ec600-and-h600-series>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Aerial Lift	N/A	JLG	H600 Series ²⁶⁴	BE	Yes
Aerial Lift	N/A	Niftylift	SP34 ²⁶⁵	BE	Yes
Aerial Lift	N/A	Niftylift	SP45 ²⁶⁶	BE	Yes
Aerial Lift	N/A	Niftylift	SP45H ₂ E (HR15 in Europe) ²⁶⁷	HFC	Yes
Aerial Lift	N/A	Niftylift	SP50 ²⁶⁸	BE	Yes
Aerial Lift	N/A	Niftylift	SP50 H ₂ E (HR17 in Europe) ²⁶⁹	HFC	Yes
Aerial Lift	N/A	Niftylift	SP64 ²⁷⁰	BE	Yes
Aerial Lift	N/A	Niftylift	SP85 ²⁷¹	BE	Yes

²⁶⁴ JLG Industries, "Telescopic Boom Lifts EC600 & H600 Series," n.d. Accessed December 13, 2024. <https://www.jlg.com/equipment/boom-lifts/telescopic/electric-hybrid/ec600-and-h600-series>.

²⁶⁵ NiftyLift, "Self Propelled – Electric Booms," n.d. Accessed April 8, 2025. <https://www.niftylift.com/usa/products/self-propelled-electric>.

²⁶⁶ Ibid.

²⁶⁷ Jordanne Waldschmidt, "UK Companies Launch World's First Hydrogen-Electric Powered Access Platform," Equipment World, July 17, 2023. Accessed April 8, 2025. <https://www.equipmentworld.com/aeriallifting-equipment/aerial-lifts/article/15542244/the-worlds-first-hydrogenelectric-powered-access-platform>; Niftylift, "Hydrogen-Electric: The Future of Green Construction," n.d. Accessed April 8, 2025. <https://www.niftylift.com/usa/innovations/hydrogen-electric>; Niftylift, "Introducing the Hydrogen-Electric HR15E & HR17E," n.d., Accessed April 8, 2025. https://www.niftylift.com/application/files/9117/1164/9242/HR15E_-_HR17E_Hydrogen-Electric_2-Pager_IS-01.pdf.

²⁶⁸ NiftyLift, "Self Propelled – Electric Booms," n.d. Accessed April 8, 2025. <https://www.niftylift.com/usa/products/self-propelled-electric>.

²⁶⁹ Jordanne Waldschmidt, "UK Companies Launch World's First Hydrogen-Electric Powered Access Platform," Equipment World, July 17, 2023. Accessed April 8, 2025. <https://www.equipmentworld.com/aeriallifting-equipment/aerial-lifts/article/15542244/the-worlds-first-hydrogenelectric-powered-access-platform>; Niftylift, "Hydrogen-Electric: The Future of Green Construction," n.d. Accessed April 8, 2025. <https://www.niftylift.com/usa/innovations/hydrogen-electric>; Niftylift, "Introducing the Hydrogen-Electric HR15E & HR17E," n.d., Accessed April 8, 2025. https://www.niftylift.com/application/files/9117/1164/9242/HR15E_-_HR17E_Hydrogen-Electric_2-Pager_IS-01.pdf.

²⁷⁰ NiftyLift, "Self Propelled – Electric Booms," n.d. Accessed April 8, 2025. <https://www.niftylift.com/usa/products/self-propelled-electric>.

²⁷¹ Ibid.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Aerial Lift	N/A	XCMG	XGA20K Boom Lift ²⁷²	BE	Yes
Aerial Lift	N/A	XCMG	XGA60ACJ Boom Lift ²⁷³	BE	Yes
Aerial Lift	N/A	XCMG	XGS20AC Boom Lift ²⁷⁴	BE	Yes
Aerial Lift	N/A	YG-Machinery	Electric Articulating Boom Lift ²⁷⁵	BE	Yes
Cone Vehicle	N/A	JCB Incorporated	S1932E ²⁷⁶	BE	Yes
Cone Vehicle	N/A	MEC	Nano10-XD ²⁷⁷	BE	Yes
Cone Vehicle	N/A	Motrec	MX-700 ²⁷⁸	BE	Yes
Cone Vehicle	N/A	XCMG	XG2225RT ²⁷⁹	BE	Yes
Railcar Mover	N/A	Colmar	Railcar Mover ²⁸⁰	BE	No

²⁷² XCMG Machmall, "XCMG 20m Articulated Boom Lift XGA20K," YouTube video, published on July 11, 2021, 1:03. Accessed April 8, 2025. <https://www.youtube.com/watch?v=w-iL9TgrWjo>.

²⁷³ CanLift, "XCMG XGA60ACJ Boom Lift," n.d. Accessed April 8, 2025. <https://www.canlift.ca/equipment/xcmg/xga60acj/>.

²⁷⁴ Machmall, "XCMG XGS20AC Electric Telescopic Lift 20m Aerial Lift," n.d. Accessed April 15, 2025. <https://www.machmall.com/item-detail/XCMG-XGS20AC-electric-telescopic-lift-20m-aerial-lift-platform-price-9533.html>.

²⁷⁵ YG Machinery, "Articulated Boom Lift for Sale," n.d. Accessed December 6, 2024. <https://www.yugongmachinery.com/articulated-boom-lift-for-sale/>.

²⁷⁶ JCB, "Electric Scissors," n.d. Accessed December 11, 2024. <https://www.jcb.com/en-us/products/access-platforms/electric-scissors>.

²⁷⁷ Mec Aerial Work Platforms, "NetZero™-All Electric Lifts," n.d. Accessed April 8, 2025. <https://www.mecawp.com/about-mec/mec-netzero-all-electric-lifts/>.

²⁷⁸ Motrec, "MX 700 The Best Way to Work at a Height," n.d. Accessed April 8, 2025. <https://motrec.com/vehicles/series/mx-series/mx-700/>.

²⁷⁹ Vertikal.net, "New 66t Electric RT Scissor," July 15, 2024. Accessed April 8, 2025. <https://vertikal.net/en/news/story/44235/new-66t-electric-rt-scissor>.

²⁸⁰ Colmar Equipment, "Railroad Equipment Mobile Railcar Movers Electric," n.d. Accessed April 8, 2025. <https://www.colmarequipment.com/en/equipment/railway/railcar-movers-electric>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Railcar Mover	N/A	Nordco	NVX- Electric ²⁸¹	BE	Yes
Railcar Mover	N/A	RailQuip	E-Maxi S ²⁸²	BE	Yes
Railcar Mover	N/A	RailQuip	E-Maxi M ²⁸³	BE	Yes
Railcar Mover	N/A	RailQuip	E-Maxi L ²⁸⁴	BE	Yes
Railcar Mover	N/A	RailQuip	E-Maxi XL ²⁸⁵	BE	Yes
Railcar Mover	N/A	Shuttlewagon	NVX-E140 ²⁸⁶	BE	Yes
Railcar Mover	N/A	Shuttlewagon	NVX-E200 ²⁸⁷	BE	Yes
Railcar Mover	N/A	Shuttlewagon	SWX e90 ²⁸⁸	BE	Yes
Railcar Mover	N/A	Shuttlewagon	SWX e120 ²⁸⁹	BE	Yes
Railcar Mover	N/A	Shuttlewagon	SWX e160 ²⁹⁰	BE	Yes
Railcar Mover	N/A	Zephir	EZ1 ²⁹¹	BE	Yes

²⁸¹ Nordco, "Navigator; Electric NVX-Electric," n.d. Accessed April 8, 2025. <https://www.nordco.com/products-catalog/mobile-rail-car-movers/navigator-series/NVX5025e.htm>.

²⁸² Railquip, "2024 Catalog Products & Services," 2024. https://railquip.com/wp-content/uploads/2024/07/RQ-BROCHURE-RAILCAR-MOVERS_compressed.pdf.

²⁸³ Ibid.

²⁸⁴ Ibid.

²⁸⁵ Ibid.

²⁸⁶ California CORE, "Railcar Mover and Freight Locomotives," n.d. Accessed April 5, 2025. <https://californiacore.org/equipment-category/railcar-movers-switchers/?oem=123>.

²⁸⁷ California CORE, "Railcar Mover and Freight Locomotives," n.d. Accessed April 5, 2025. <https://californiacore.org/equipment-category/railcar-movers-switchers/?oem=123>.

²⁸⁸ Ibid.

²⁸⁹ Ibid.

²⁹⁰ Ibid.

²⁹¹ Zephir, "Leading Innovators of Railcar Shunting Technology Products Overview," 2024. https://zephir.eu/cms/wp-content/uploads/2024/05/New_Brochure-Zephir_2024-USA.pdf.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Railcar Mover	N/A	Zephir	EZ3 ²⁹²	BE	Yes
Railcar Mover	N/A	Zephir	EZ5 ²⁹³	BE	Yes
Railcar Mover	N/A	Zephir	LOK 5.5 MPV E ²⁹⁴	BE	Yes
Railcar Mover	N/A	Zephir	LOK 7.90 E ²⁹⁵	BE	Yes
Railcar Mover	N/A	Zephir	LOK 10.90 E ²⁹⁶	BE	Yes
Railcar Mover	N/A	Zephir	LOK 13.90 E ²⁹⁷	BE	Yes
Railcar Mover	N/A	Zephir	LOK 16.150 E ²⁹⁸	BE	Yes
Railcar Mover	N/A	Zephir	LOK 20.150 E ²⁹⁹	BE	Yes
Railcar Mover	N/A	Zephir	LOK 22.150 E ³⁰⁰	BE	Yes
Utility Truck, Other	Cab-chassis	Battle Motors	LNT Electric ³⁰¹	BE	Yes

²⁹² Ibid.

²⁹³ Ibid.

²⁹⁴ Foursite Pape Production, "Electric Railcar Mover LOK 5.5 E - MPV," August 2018. <https://foursite-pape-production.s3.amazonaws.com/papemh.com/f4de48b0-edce-4bac-97e6-a521a15ac8ab.pdf>.

²⁹⁵ Zephir, "Leading Innovators of Railcar Shunting Technology Products Overview," 2024. https://zephir.eu/cms/wp-content/uploads/2024/05/New_Brochure-Zephir_2024-USA.pdf.

²⁹⁶ Ibid.

²⁹⁷ Zephir, "Leading Innovators of Railcar Shunting Technology Products Overview," 2024. https://zephir.eu/cms/wp-content/uploads/2024/05/New_Brochure-Zephir_2024-USA.pdf.

²⁹⁸ Ibid.

²⁹⁹ California CORE, "Railcar Mover and Freight Locomotives," n.d. Accessed April 5, 2025. <https://californiacore.org/equipment-category/railcar-movers-switchers/?oem=123>.

³⁰⁰ Zephir, "Leading Innovators of Railcar Shunting Technology Products Overview," 2024. https://zephir.eu/cms/wp-content/uploads/2024/05/New_Brochure-Zephir_2024-USA.pdf.

³⁰¹ California HVIP, "Battle Motors LNT Battery Electric Vehicle," n.d. Accessed April 15, 2025. <https://californiahvip.org/vehicles/battle-motors-lnt-battery-electric-vehicle-class6-7/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Utility Truck, Other	Straight	BYD	6F ³⁰²	BE	Yes
Utility Truck, Other	Straight	Freightliner	eM2 ³⁰³	BE	Yes
Utility Truck, Other	Cab-chassis	GreenPower	EV Star ³⁰⁴	BE	Yes
Utility Truck, Other	Commercial Truck	Hyundai	XCIENT ³⁰⁵	HFC	No
Utility Truck, Other	Vocational	International	eMV ³⁰⁶	BE	Yes
Utility Truck, Other	Straight	Kenworth	K270E ³⁰⁷	BE	Yes
Utility Truck, Other	Straight	Kenworth	K370E ³⁰⁸	BE	Yes
Utility Truck, Other	Tractor or cab-chassis	Kenworth	T680E ³⁰⁹	BE	Yes
Utility Truck, Other	Straight	Lion	LION6 ³¹⁰	BE	Yes

³⁰² California HVIP, "BYD Motors BYD 6F (T011N01) Battery Electric Truck," n.d. Accessed December 9, 2024.

<https://californiahvip.org/vehicles/byd-6f-cab-forward-truck/>.

³⁰³ Freightliner, "eM2," n.d. Accessed January 23, 2025. <https://www.freightliner.com/trucks/em2/>.

³⁰⁴ GreenPower Motor Company, "EV Star Cab & Chassis features," n.d. Accessed April 8, 2025. <https://greenpowermotor.com/gp-products/ev-star-cc/>.

³⁰⁵ Hyundai, "XCIENT Fuel Cell Truck: World's first commercialized fuel cell heavy duty truck," n.d. Accessed January 22, 2025. <https://ecv.hyundai.com/global/en/products/xcient-fuel-cell-truck-fcev>. Note that the XCIENT class 8 fuel cell tractor is available in the U.S., but is not yet available as a straight truck, cab-chassis, or custom upfitting. See Hyundai, "XCIENT Fuel Cell Tractor: Introducing the Hydrogen Electric 6x4 Tractor," n.d. Accessed December 8, 2024. <https://ecv.hyundai.com/global/en/products/xcient-fuel-cell-tractor-fcev>.

³⁰⁶ International, "eMV™ Series Electric Powered," n.d. Accessed December 14, 2024.

<https://www.international.com/products/trucks/series/electric-mv>.

³⁰⁷ Kenworth, "K270E / K370E," n.d. Accessed April 8, 2025. <https://www.kenworth.com/trucks/k270e-k370e/>.

³⁰⁸ Ibid.

³⁰⁹ Kenworth, "T680E," n.d. Accessed January 21, 2025. <https://www.kenworth.com/trucks/t680e/>.

³¹⁰ California HVIP, "Lion Electric Lion LION6 Battery Electric Truck," n.d. Accessed April 15, 2025. <https://californiahvip.org/vehicles/lion-lion6-battery-electric-truck/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Utility Truck, Other	Straight	Lion	LION8 ³¹¹	BE	Yes
Utility Truck, Other	Cab-chassis	Mack	MD Electric ³¹²	BE	Yes
Utility Truck, Other	Straight	Peterbilt	220EV ³¹³	BE	Yes
Utility Truck, Other	Vocational/ePTO	Peterbilt	567EV ³¹⁴	BE	Yes
Utility Truck, Other	Cab-chassis	REE	P7-C ³¹⁵	BE	No
Utility Truck, Other	Cab-chassis	Rizon	e16 (e16L, e16M) ³¹⁶	BE	Yes
Utility Truck, Other	Cab-chassis	Rizon	e18 (e18L, e18M) ³¹⁷	BE	Yes
Utility Truck, Other	Battery Swap Vehicle	Sany	SM5180 ³¹⁸	BE	Yes
Utility Truck, Other	Straight	Volvo	VNRe Class 7 ³¹⁹	BE	Yes
Utility Truck, Other	Straight	Volvo	VNRe Class 8 ³²⁰	BE	Yes

³¹¹ Lion Electric, "LION8 Tractor," n.d. Accessed April 15, 2025. <https://thelionelectric.com/lion8-tractor/>.

³¹² Mack, "MD Electric," n.d. Accessed January 25, 2025. <https://www.macktrucks.com/trucks/md-electric/>.

³¹³ Peterbilt, "220EV," n.d. Accessed April 8, 2025. <https://www.peterbilt.com/trucks/zero-emission/220EV>.

³¹⁴ Peterbilt, "567EV," n.d. Accessed June 2, 2025. <https://www.peterbilt.com/trucks/zero-emission/567EV>.

³¹⁵ Ree Auto, "P7-C Chassis Cab Medium-Duty Electric Commercial Truck," n.d. Access December 29, 2024. <https://ree.auto/vehicles/p7-c-chassis-cab/>.

³¹⁶ California HVIP, "Straight Truck," n.d. Accessed January 8, 2025. <https://californiahvip.org/vehicle-category/straight-truck/>; Rizon, "Ready for Whatever Your Business Demands," n.d. Accessed December 5, 2024. <https://www.rizontruck.com/product/rizon/>.

³¹⁷ Ibid.

³¹⁸ Sany, "SM5180 Battery-Swap Mobile Vehicle," n.d. Accessed April 8, 2025.

https://www.sanyglobal.com/product/port_machinery/electric_terminal_tractor/188/1348/.

³¹⁹ California HVIP, "Volvo VNRe Battery Electric Truck Class 7," n.d. Accessed April 15, 2025. <https://californiahvip.org/vehicles/volvo-vnr-electric-straight-truck/>.

³²⁰ California HVIP, "Volvo VNRe Battery Electric Truck Clas 8," n.d. Accessed April 15, 2025. <https://californiahvip.org/vehicles/volvo-vnre-battery-electric-truck/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Utility Truck, Other	Vocational	XCMG	E700 ³²¹	BE	No
Utility Truck, Other	Straight	XOS	CC ³²²	BE	Yes
Utility Truck, Other	Straight	XOS	CV ³²³	BE	Yes
Utility Truck, Other	Cab-chassis	Zeus	Z19 ³²⁴	BE	Yes
Utility Truck, Other	Cab-chassis	Zeus	Z22 ³²⁵	BE	Yes
Utility Trucks, Sweeper	N/A	Aebi Schmidt/ Shyft	eCityJet 3030 ³²⁶	BE	No
Utility Trucks, Sweeper	N/A	Aebi Schmidt/ Shyft	eCleango 550 ³²⁷	BE	No

³²¹ Heavy Equipment World News, "Global favour! XCMG's pure electric products are exported to the high-end market in Oceania!," May 2, 2025. Accessed February 11, 2026. <https://www.heavyequipworld.com/overseas/4747.html>. Note: 2025 article indicates production as early as 2019.

³²² California HVIP, "Xos CC Battery Electric Vehicle," n.d. Accessed April 8, 2025. <https://californiahvip.org/vehicles/xos-cc-battery-electric-vehicle/>.

³²³ California HVIP, "Xos CV Battery Electric Vehicle," n.d. Accessed April 8, 2025. <https://californiahvip.org/vehicles/xos-cv-battery-electric-vehicle/>.

³²⁴ Zeus Electric Chassis, "Zeus Electric Chassis Signs Their First Dealer Agreement to Distribute Class 5 Zero Emission Work Trucks," October 24, 2024. Accessed December 19, 2025. <https://zeuselectricchassis.com/zeus-electric-chassis-signs-their-first-dealer-agreement-to-distribute-class-5-zero-emission-work-trucks/>.

³²⁵ Zeus Electric Chassis, "Zeus Electric Chassis Z-19 & Z-22 Receive Executive Order from California Air Resources Board," April 14, 2022. Accessed April 8, 2025. <https://zeuselectricchassis.com/zeus-electric-chassis-z-19-z-22-receive-executive-order-from-california-air-resources-board/>.

³²⁶ Aebi Schmidt Group, "eCityJet 3030," n.d. Accessed April 17, 2025. <https://www.aebi-schmidt.com/en/products/schmidt/street-washers/ecityjet-3030/>.

³²⁷ Aebi Schmidt Group, "eCleango 550," n.d. Accessed April 17, 2025. <https://www.aebi-schmidt.com/en/products/schmidt/sweepers/ecleango-550/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Utility Trucks, Sweeper	N/A	Aebi Schmidt/Shyft	eSwingo 200 ⁺³²⁸	BE	No
Utility Trucks, Sweeper	N/A	Bai Yi	BY-S50 ³²⁹	BE	No
Utility Trucks, Sweeper	N/A	Bucher Municipal	MaxPowa V65e ³³⁰	BE	Yes
Utility Trucks, Sweeper	N/A	Boschung	Urban-Sweeper S2.0 ³³¹	BE	No
Utility Trucks, Sweeper	N/A	BYD/CBM	16 CBM ³³²	BE	No
Utility Trucks, Sweeper	N/A	Dulevo	D.Zero ²³³³	BE	Yes

³²⁸ Aebi Schmidt Group, "eSwingo 200+," n.d. Accessed April 17, 2025. <https://www.aebi-schmidt.com/en/products/schmidt/sweepers/eswingo-200/>.

³²⁹ Bai Yi, "Electric Street Sweeper BY-S50," n.d. Accessed April 18, 2025. <https://www.baiyienviro.com/product/electric-street-sweeper-by-s50>.

³³⁰ Bucher Municipal, "MaxPowa V65e: Engineered to last, designed to perform," n.d. Accessed April 18, 2025. <https://www.buchermunicipal.com/int/products/sweepers/truck-mounted-sweepers/maxpowa-v65e>.

³³¹ Boschung, "Urban-Sweeper S2.0," n.d. Accessed April 8, 2025. <https://www.boschung.com/na-en/product/urban-sweeper-s2-0/>.

³³² CSC Truck, "16 CBM Street Sweeper With Zero Emissions," n.d. Accessed April 17, 2025. <https://www.csctrucks.com/sweeper-truck/road-sweeper-truck/16-cbm-street-sweeper-with-zero-emissions.html>; Hubei Itruck Import & Export Trading Co., Ltd., "Chinese 12 Tons Electric Street Sweepers with Zero Emissions." Alibaba.com, n.d. Accessed April 17, 2025. https://www.alibaba.com/product-detail/Chinese-12-Tons-Electric-Street-Sweepers_1600738402118.html.

³³³ Duvelo, "New Duvelo D.Zero²," n.d. Accessed April 15, 2025. <https://www.dulevo.com/products/street-sweepers/new-dulevo-d-zero2-1/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Utility Trucks, Sweeper	N/A	Elgin	Electric Broom Bear ³³⁴	BE	Yes
Utility Trucks, Sweeper	N/A	Global	M3EV ³³⁵	BE	Yes
Utility Trucks, Sweeper	N/A	Global	M4EV ³³⁶	BE	Yes
Utility Trucks, Sweeper	N/A	Global	M4EVHSD ³³⁷	HFC	Yes
Utility Trucks, Sweeper	N/A	Green Machines/ Holthausen	500H2 ³³⁸	HFC	No
Utility Trucks, Sweeper	N/A	Johnston Sweepers	EVIE ³³⁹	BE	No

³³⁴ Elgin Sweeper Company, "Electric Broom Bear 100% Electric Zero Emissions," n.d. Accessed April 8, 2025.

<https://www.elginsweeper.com/products/all-electric/electric-broom-bear>.

³³⁵ Global Environmental Products, "M3EV," n.d. Accessed April 8, 2025. <https://globalsweeper.com/products/mechanical/m3-electric-100-plug-in>.

³³⁶ Global Environmental Products "M4EV," n.d. Accessed April 8, 2025. <https://globalsweeper.com/products/mechanical/m4-electric-100-plug-in>.

³³⁷ Global Environmental Products, "M4/M4HSD Hydrogen Fuel Cell," n.d. Accessed April 8, 2025.

<https://globalsweeper.com/products/mechanical/m4hsd-fuel-cell>.

³³⁸ Fuel Cell Works. "Green Machines Is Introducing GM 500H2, the First Hydrogen Fuel Cell Sweeper." November 11, 2020. Accessed April 17, 2025. <https://fuelcellworks.com/news/green-machines-is-introducing-gm-500h2-the-first-hydrogen-fuel-cell-sweeper>; Holthausen, "HYDROGEN SWEEPERS," n.d. Accessed August 7, 2024. <https://www.cleantechnology.nl/index.php/portfolio/h2sweepers/>.

³³⁹ E-Mobility Engineering, "EVIE Street Sweeper," n.d. Accessed April 8, 2025. <https://www.emobility-engineering.com/evie-street-sweeper/>.

CHE Type	CHE Sub-Category	Manufacturer	Platform/Model	Fuel Type/ Power Source	Commercially Available in the US?
Utility Trucks, Sweeper	N/A	Tenax International	Electra 1.0 ³⁴⁰	BE	No
Utility Trucks, Sweeper	N/A	Tenax International	Electra 2.0 evos ³⁴¹	BE	No
Utility Trucks, Sweeper	N/A	Tenax International	Electra 5.0 ³⁴²	BE	No
Utility Trucks, Sweeper	N/A	Trombia	Free ³⁴³	BE	Yes

³⁴⁰ Tenax International, "Electra 1.0.," n.d. Accessed April 18, 2025. <https://www.tenaxinternational.com/en/prodotto/street-sweepers-electra-1/>.

³⁴¹ Tenax International, "Electra 2.0 evos +," n.d. Accessed April 18, 2025. <https://www.tenaxinternational.com/us/prodotto/electra-2-0-evos/>.

³⁴² Tenax International, "Electra 5.0 life," n.d. Accessed April 18, 2025. <https://www.tenaxinternational.com/us/prodotto/electra-5-0/>.

³⁴³ Trombia, "Trombia Free," n.d. Accessed January 21, 2025. <https://trombia.com/products/trombia-free/>.