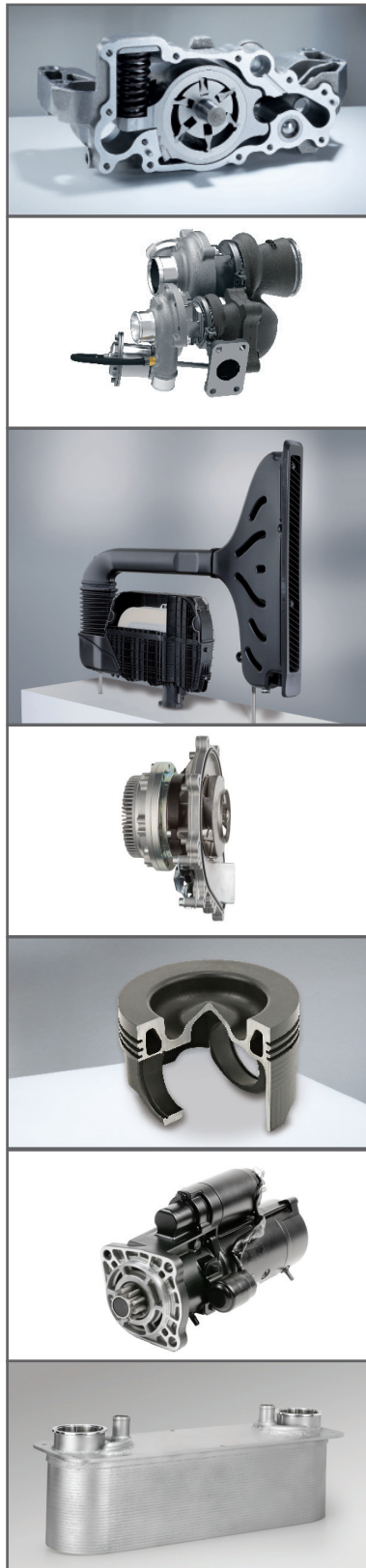


North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**Caterpillar**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Cat	C	C2.2	2.2	Peterborough, UK; Griffin, Georgia	1,500	Tier 4 Final / Stage V	4, inline	DI	36.4-55 (48.8-74) @ 2800	165-270 (121.6-199) @ 1600-1800	84 x 100 (3.3 x 3.9)	18.0:1	AG, IS, OH	✓
Cat	C	C2.2	2.2	Peterborough, UK; Griffin, Georgia	4,600	* Available in other regulated or non-regulated areas	4, inline	IDI	31.4-49.3 (42.1-66.1) @ 2400-3000	142.7-208.4 (105.3-153.7) @ 1800	84 x 100 (3.3 x 3.9)	23.3:1	AG, IS, OH	✓
Cat	C	C2.8	2.8	Peterborough, UK	75	Tier 4 Final / Stage V	4, inline	DI	50-55 (67-74) @ 2200-2400	300 (221) @ 1600 / 380 (280) @ 1380	90 x 110 (3.5 x 4.3)	17.0:1	GS, IS, OH	✓
Cat	C	C3.6	3.6	Peterborough, UK	50	Tier 4 Final / Stage V	4, inline	DI	55-100 (74-134) @ 2000-2400	550 (406) @ 1500	98 x 120 (3.9 x 4.7)	17.0:1	AG, GS, IS, OH	✓
Cat	C	C4.4	4.4	Peterborough, UK	300	Tier 4 Final / Stage V	4, inline	DI	74-150 (99-201) @ 2000-2200	450-825 (332-608) @ 1400	105 x 127 (4.1 x 5.0)	16.5:1	AG, IS, OH	✓
Cat	C	C4.4	4.4	Peterborough, UK; Wuxi, China; Curitiba, Brazil	1,500	* Available in other regulated or non-regulated areas	4, inline	DI	54-83 (72-111) @ 2200-2400	265-418 (195-308) @ 1400	105 x 127 (4.1 x 5.0)	16.2:1	AG, IS, OH	✓
Cat	C	C7.1	7	Peterborough, UK	4,000	Tier 4 Final / Stage V	6, inline	DI	116-239 (156-321) @ 1800-2200	755-1282 (557-946) @ 1400	105 x 135 (4.1 x 5.3)	16.5:1	AG, IS, OH	✓
Cat	C	C7.1	7	Peterborough, UK; Wuxi, China; Curitiba, Brazil	900	* Available in other regulated or non-regulated areas	6, inline	DI	112-162 (150-220) @ 2000-2200	672-900 (495-664) @ 1100-1400	105 x 135 (4.1 x 5.3)	18.2:1	AG, IS, OH	✓
Cat	C	C9.3B	9.3	Seguin, Texas	500	Tier 4 Final / Stage V	6, inline	DI	250-340 (335-456) @ 1800-2200	1537-2088 (1134-1540) @ 1400	115 x 149 (4.53 x 5.87)	17.0:1	AG, IS, OH	✓
Cat	C	C13	12.5	Seguin, Texas	1,200	Tier 4 Final / Stage V	6, inline	DI	287-388 (385-520) @ 1800-2100	1760-2381 (1298-1756) @ 1400	130 x 157 (5.1 x 6.2)	17.0:1	AG, IS, OH	✓
Cat	C	C13B	12.5	Seguin, Texas	6,100	Tier 4 Final / Stage V	6, inline	DI	340-430 (456-577) @ 1800-2100	2082-2634 (1536-1943) @ 1400	130 x 157 (5.1 x 6.2)	15.8:1	AG, IS, OH	✓
Cat	C	C15	15.2	Seguin, Texas	14,000	Tier 4 Final / Stage V	6, inline	DI	354-433 (475-580) @ 1800-2100	2176-2655 (1605-1959) @ 1400	137 x 171 (5.4 x 6.73)	17.0:1	AG, IS, OH	✓
Cat	C	C18	18.1	Seguin, Texas	4,700	Tier 4 Final / Stage V	6, inline	DI	429-597 (575-800) @ 1800-2000	2696-3710 (1988-2736) @ 1300	145 x 183 (5.71 x 7.2)	16.0:1	AG, IS, OH	✓
Cat	C	C27	27	Griffin, Georgia	1,750	Tier 4 Final / Stage V	V12	DI	597-783 (800-1050) @ 1800	3635-4674 (2681-3447) @ 1200	137.2 x 152.4 (5.4 x 6.0)	16.0:1	AG, IS, OH	✓
Cat	C	C32	32.1	Griffin, Georgia	2,309	Tier 4 Final / Stage V	V12	DI	746-839 (1000-1125) @ 1800	5184-5499 (3824-4056) @ 1200	145 x 162 (5.71 x 6.38)	15.0:1 / 16.0:1	AG, IS, OH	✓
Cat	3500	3508B	34.5	Lafayette, Indiana	160	* Available in other regulated or non-regulated areas	V8	DI	746-820 (1000-1100) @ 1800	4353-4569 (3210-3370) @ 1450	170 x 190 (6.7 x 7.5)	14.0:1	AG, IS, OH	✓
Cat	3500	3512	51.8	Lafayette, Indiana	445	* Available in other regulated or non-regulated areas	V12	DI	761-1119 (1020-1500) @ 1200-1800	6188-6210 (4564-4580) @ 1400	170 x 190 (6.7 x 7.5)	13.0:1	AG, IS, OH	✓
Cat	3500	3512B	51.8	Lafayette, Indiana	1,250	* Available in other regulated or non-regulated areas	V12	DI	1119-1230 (1501-1649) @ 1800	6526-7180 (4813-5296) @ 1450	170 x 190 (6.7 x 7.5)	14.0:1	AG, IS, OH	✓
Cat	3500	3516	69	Lafayette, Indiana	1,700	* Available in other regulated or non-regulated areas	V16	DI	1011-1492 (1356-2001) @ 1200-1800	7032-9211 (5187-6794) @ 1000-1400	170 x 190 (6.7 x 7.5)	13.0:1	AG, IS, OH	✓
Cat	3500	3516E	69	Lafayette, Indiana	-	Tier 4 Final / Stage V	V16	DI	1566 (2100) @ 1650	11,220 (8275) @ 1100	170 x 215 (6.7 x 8.5)	16.5:1	AG, IS, OH	✓
Perkins	Perkins® Syncro	404J-E22T / -22TA	2.2	Peterborough, UK	1,700	Tier 4 Final / Stage V	4, inline	DI	45-55 (60-74) @ 2800	270 (199) @ 1600	84 x 100 (3.3 x 3.9)	18.0:1	AG, IS, OH	✓
Perkins	400	404D-22 / -22T	2.2	Peterborough, UK; Griffin, Georgia; Wuxi, China	1,100	* Available in other regulated or non-regulated areas	4, inline	IDI	31-46 (42-61) @ 2200-3000	143 (105) @ 1800	84 x 100 (3.3 x 3.9)	24.4:1 / 23.3:1	AG, GS, IS, OH	✓
Perkins	Perkins® Syncro	904J-E28T / -E28TA	2.8	Peterborough, UK	1,000	Tier 4 Final / Stage V	4, inline	DI	50-55 (67-74) @ 2200-2400	300 (221) @ 1600 / 380 (280) @ 1380	90 x 110 (3.5 x 4.3)	17.0:1	GS, IS, OH	✓
Perkins	Perkins® Syncro	904F-E28T	2.8	Peterborough, UK	2,300	Tier 4 Final	4, inline	DI	50-55 (67-74) @ 2200-2400	300 (221) @ 1600	90 x 110 (3.5 x 4.3)	17.0:1	GS, IS, OH	✓
Perkins	Perkins® Syncro	904J-E36TA	3.6	Peterborough, UK	800	Tier 4 Final / Stage V	4, inline	DI	55-100 (74-134) @ 2000-2400	550 (406) @ 1500	98 x 120 (3.9 x 4.7)	17.0:1	AG, GS, IS, OH	✓
Perkins	1200	1204F-E44TA / -E44TTA	4.4	Peterborough, UK	37,000	Tier 4 Final / Stage V	4, inline	DI	70-129 (94-174) @ 2200	450-750 (332-553) @ 1400	105 x 127 (4.1 x 5.0)	16.5:1	AG, IS, OH	✓
Perkins	1200	1204J-E44TA / -E44TTA	4.4	Peterborough, UK	25,000	Tier 4 Final / Stage V	4, inline	DI	82-150 (83-200) @ 2200	347-825 (256-553) @ 1400	105 x 127 (4.1 x 5.0)	16.5:1	AG, IS, OH	✓
Perkins	1100	1104D-E44T / -E44TA	4.4	Peterborough, UK; Wuxi, China	2,500	* Available in other regulated or non-regulated areas	4, inline	DI	68-106 (91.2-142) @ 2200	395-558 (291-412) @ 1400	105 x 127 (4.1 x 5.0)	16.2:1	AG, GS, IS, OH	✓
Perkins	1100	1104C-44	4.4	Peterborough, UK; Curitiba, Brazil	1,000	* Available in other regulated or non-regulated areas	4, inline	DI	64 (86) @ 2400	308 (227) @ 1400	105 x 127 (4.1 x 5.0)	19.3:1	AG, GS, IS, OH	✓
Perkins	1100	1104C-44T / -44TA	4.4	Peterborough, UK; Curitiba, Brazil	1,000	* Available in other regulated or non-regulated areas	4, inline	DI	75 (100) @ 2300 / 97 (130) @ 2200	415 (306) @ 1350 / 500 (369) @ 1400	105 x 127 (4.1 x 5.0)	18.2:1	AG, GS, IS, OH	✓
Perkins	1100	1104D-44T / -44TA	4.4	Peterborough, UK; Wuxi, China; Curitiba, Brazil	3,000	* Available in other regulated or non-regulated areas	4, inline	DI	56-83 (75-111) @ 2200-2400	307-418 (226-308) @ 1400	105 x 127 (4.1 x 5.0)	18.2:1	AG, GS, IS, OH	✓
Perkins	1200	1206F-E70TA / -E70TTA	7	Peterborough, UK	6,500	Tier 4 Final / Stage IV	6, inline	DI	116-240 (156-320) @ 2200	755-1274 (557-940) @ 1400	105 x 135 (4.1 x 5.3)	16.5:1	AG, IS, OH	✓
Perkins	1200	1206J-E70TTA	7	Peterborough, UK	1,500	Tier 4 Final / Stage V	6, inline	DI	151-240 (202-320) @ 2200	890-1257 (656-927) @ 1400	105 x 135 (4.1 x 5.3)	16.5:1	AG, IS, OH	✓
Perkins	1100	1106D-E70TA	7	Peterborough, UK; Wuxi, China; Curitiba, Brazil	4,000	* Available in other regulated or non-regulated areas	6, inline	DI	116-205 (156-275) @ 2200-2500	706-1050 (520-774) @ 1400	105 x 135 (4.1 x 5.3)	16.8:1	AG, IS, OH	✓
Perkins	1100	1106C-70TA	7	Peterborough, UK; Wuxi, China	1,000	* Available in other regulated or non-regulated areas	6, inline	DI	112-162 (150-217) @ 1950-2200	687-900 (507-664) @ 1200-1400	105 x 135 (4.1 x 5.3)	18.2:1	AG, IS, OH	✓
Perkins	1100	1106D-70TA	7	Wuxi, China	500	* Available in other regulated or non-regulated areas	6, inline	DI	112-129 (150-172) @ 1800-2200	672-750 (495-552) @ 1100-1300	105 x 135 (4.1 x 5.3)	18.2:1	AG, IS, OH	✓
Perkins	1700	1706J-E93TA	9.3	Seguin, Texas	Under Cat (50)	Tier 4 Final / Stage V	6, inline	DI	250-340 (335-456) @ 1800-2200	1537-2088 (1134-1540) @ 1400	115 x 149 (4.53 x 5.87)	17.0:1	AG, IS, OH	✓
Perkins	2000	2206J-E13TA	12.5	Seguin, Texas	Under Cat (50)	Tier 4 Final / Stage V	6, inline	DI	287-388 (385-520) @ 1800-2100	1760-2381 (1298-1756) @ 1400	130 x 157 (5.1 x 6.2)	17.0:1	AG, IS, OH	✓
Perkins	2000	2406J-E13TA	12.5	Seguin, Texas	Under Cat (30)	Tier 4 Final / Stage V	6, inline	DI	340-430 (456-577) @ 1800-2100	2082-2634 (1536-1943) @ 1400	130 x 157 (5.1 x 6.2)	15.8:1	AG, IS, OH	✓
Perkins	2000	2506J-E15TA	15.2	Seguin, Texas	Under Cat (25)	Tier 4 Final / Stage V	6, inline	DI	354-433 (475-580) @ 1800-2100	2176-2655 (1605-1959) @ 1400	137 x 171 (5.4 x 6.73)	17.0:1	AG, IS, OH	✓
Perkins	2000	2806J-E18TA / TTA	18.1	Seguin, Texas	Under Cat (10)	Tier 4 Final / Stage V	6, inline	DI	429-597 (575-800) @ 1800-2000	2696-3710 (1988-2736) @ 1300	145 x 183 (5.71 x 7.2)	16.0:1	AG, IS, OH	✓

Legend – 2020 North American heavy-duty diesel engines

**AG:** Agriculture  
**DI:** Direct Injection  
**GS:** Generator Set

**IDI:** Indirect Injection  
**IS:** Industrial/Stationary  
**M:** Marine

**NA:** Not Available  
**O&G:** Oil and Gas  
**OH:** Off-Highway Mobile

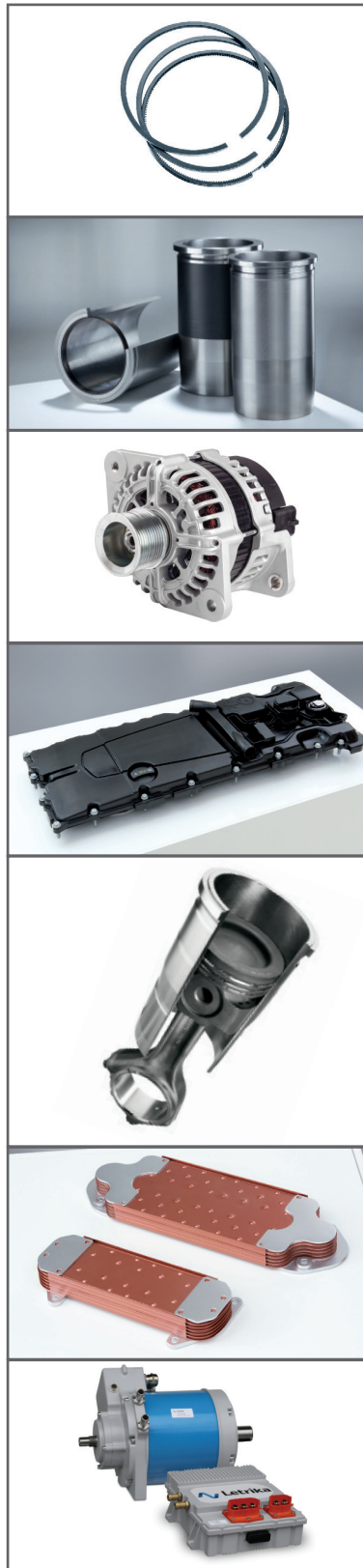
**TB:** Truck/Bus/Coach  
**VPC:** Valves per Cylinder

\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.

North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



### Cummins

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Cummins	F	QSF2.8	2.8	Beijing, China	1,000	Tier 4 Final	4, inline	DI, 4	37-55 (49-74) @ 2200-2500	190-300 (140-221) @ 1600	94 x 100 (3.7 x 3.94)	NA	AG, GS, IS, OH	✓
Cummins	F	QSF3.8	3.8	Beijing, China	500	Tier 4 Final	4, inline	DI, 4	55-99 (74-132) @ 2200-2500	376-488 (277-360) @ 1300-1600	102 x 115 (4.02 x 4.53)	NA	AG, GS, IS, OH	✓
Cummins	F	F3.8	3.8	Beijing, China	500	Tier 4 Final / Stage V	4, inline	DI, 4	55-129 (74-173) @ 2200-2500	295-457 (400-620) @ 1300-1600	102 x 115 (4.02 x 4.53)	NA	AG, GS, IS, OH	✓
Cummins	B	QSB4.5	4.5	Rocky Mount, North Carolina	1,500	Tier 4 Final	4, inline	DI, 4	90-130 (121-173) @ 1700-2500	470-705 (347-520) @ 1500	107 x 124 (4.21 x 4.88)	NA	AG, GS, IS, OH	✓
Cummins	B	B4.5	4.5	Rocky Mount, North Carolina	100	Tier 4 Final / Stage V	4, inline	DI, 4	90-149 (121-200) @ 2000-2500	500-578 (369-426) @ 1200-1500	107 x 124 (4.21 x 4.88)	NA	AG, GS, IS, OH	✓
Cummins	B	QSB6.7	6.7	Rocky Mount, North Carolina	26,000	Tier 4 Final	6, inline	DI, 4	109-231 (146-310) @ 1500-2500	672-1044 (496-770) @ 1500	107 x 124 (4.21 x 4.88)	NA	AG, GS, IS, M, OH	✓
Cummins	B	B6.7	6.7	Rocky Mount, North Carolina	86,000	Tier 4 Final / Stage V	6, inline	DI, 4	116-243 (155-326) @ 1800-2200	746-1375 (550-1014) @ 1300-1500	107 x 124 (4.21 x 4.88)	NA	AG, GS, IS, M, OH	✓
Cummins	B	B6.7	6.7	Rocky Mount, North Carolina	95,000	EPA 2017	6, inline	DI, 4	149-242 (200-325) @ 2400	705-1017 (520-750) @ 1600-1800	107 x 124 (4.21 x 4.88)	NA	TB	✓
Cummins	L	QSL9	8.9	Rocky Mount, North Carolina	14,000	Tier 4 Final	6, inline	DI, 4	186-298 (250-400) @ 1600-2100	1085-1627 (800-1200) @ 1400-1500	114 x 145 (4.49 x 5.69)	NA	AG, GS, IS, OH	✓
Cummins	L	L9	8.9	Rocky Mount, North Carolina	5,000	Tier 4 Final / Stage V	6, inline	DI, 4	209-321 (280-430) @ 1800-2100	1472-1846 (1085-1361) @ 1400-1500	114 x 145 (4.49 x 5.69)	NA	AG, GS, IS, OH	✓
Cummins	L	L9	8.9	Rocky Mount, North Carolina	31,000	EPA 2017	6, inline	DI, 4	194-283 (260-380) @ 1900-2100	976-1695 (720-1250) @ 1300-1400	114 x 145 (4.49 x 5.69)	NA	TB	✓
Cummins	X	X12	11.8	Beijing, China	500	Tier 4 Final / Stage V	6, inline	DI, 3	250-383 (335-513) @ 1800-2100	1695-2299 (1250-1696) @ 1400	132 x 144 (5.2 x 5.67)	NA	AG, GS, IS, OH	✓
Cummins	X	X12	11.8	Jamestown, New York	7,500	EPA 2017	6, inline	DI, 3	261-373 (350-500) @ 1900	1695-2305 (1250-1700) @ 1000	132 x 144 (5.2 x 5.67)	NA	TB	✓
Cummins	X	X15	14.9	Jamestown, New York	84,000	EPA 2017	6, inline	DI, 4	298-451 (400-605) @ 1800-2000	1966-2778 (1450-2050) @ 1000-1200	137 x 169 (5.39 x 6.65)	NA	TB	✓
Cummins	X	X15	14.9	Jamestown, New York	500	Tier 4 Final / Stage V	6, inline	DI, 4	336-503 (450-675) @ 1800-2100	2169-2778 (1600-2050) @ 1400	137 x 169 (5.39 x 6.65)	NA	AG, GS, IS, OH, O&G	✓
Cummins	K	QSK19	19.0	Seymour, Indiana	3,500	Tier 4 Final	6, inline	DI, 4	567 (760) @ 1800-2000	3084 (2275) @ 1500	159 x 159 (6.26 x 6.26)	NA	OH	✓
Cummins	K	QSK23	23.0	Phaltan, India	1,000	Tier 4 Final*	6, inline	DI, 4	567-708 (760-950) @ 1800-2100	3468-4128 (2558-3005) @ 1350-1600	170 x 170 (6.69 x 6.69)	NA	GS, IS, M, OH, O&G	✓
Cummins	T	QST30	30.5	Seymour, Indiana	900	Tier 4 Final*	V12	DI, 4	708-1119 (950-1500) @ 1800-2100	4628-6612 (3414-4877) @ 1300-1400	140 x 165 (5.51 x 6.5)	NA	GS, IS, M, OH, O&G	✓
Cummins	K	QSK38	37.7	Daventry, UK	50	Tier 4 Final*	V12	DI, 4	809-1193 (1085-1600) @ 1800-1900	4869-5909 (3591-4358) @ 1350-1500	159 x 159 (6.26 x 6.26)	NA	GS, IS, M, OH	✓
Cummins	K	QSK50	50.3	Daventry, UK	200	Tier 4 Final	V16	DI, 4	1119-1864 (1500-2500) @ 1800-1900	6570-9600 (4846-7081) @ 1300-1700	159 x 159 (6.26 x 6.26)	NA	GS, IS, M, OH, O&G	✓
Cummins	K	QSK60	60.0	Daventry, UK	250	Tier 4 Final	V16	DI, 4	1398-2125 (1875-2850) @ 1800-1900	8364-11,830 (6169-8726) @ 1500	159 x 190 (6.26 x 7.48)	NA	GS, IS, M, OH	✓

### Daimler

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Detroit Diesel	DD Platform	DD5	5.1	Detroit, Michigan; Mannheim, Germany	3,000	GHG 2017	4, inline	DI, 4	150-179 (200-240) @ 2200	760-895 (560-660) @ 1400	110 x 135 (4.33 x 5.31)	17.6:1	TB	✓
Detroit Diesel	DD Platform	DD8	7.7	Detroit, Michigan; Mannheim, Germany	4,000	GHG 2017	6, inline	DI, 4	194-280 (260-375) @ 2200	895-1424 (660-1050) @ 1400	110 x 135 (4.33 x 5.31)	17.6:1	TB	✓
Detroit Diesel	DD Platform	DD13	12.8	Detroit, Michigan; Mannheim, Germany	43,000	GHG 2017	6, inline	DI, 4	261-377 (350-505) @ 1625	1695-2509 (1250-1850) @ 975	132 x 156 (5.20 x 6.15)	18.4:1	OH, TB	✓
Detroit Diesel	DD Platform	DD15	14.8	Detroit, Michigan; Mannheim, Germany	57,000	GHG 2017	6, inline	DI, 4	298-377 (400-505) @ 1625	2102-2373 (1550-1750) @ 975	139 x 163 (5.47 x 6.42)	18.5:1	OH, TB	✓
Detroit Diesel	DD Platform	DD16	15.6	Detroit, Michigan; Mannheim, Germany	2,000	GHG 2017	6, inline	DI, 4	373-448 (500-600) @ 1800	2508-2780 (1850-2050) @ 975	139 x 171 (5.47 x 6.73)	17.0:1	OH, TB	✓

### Deutz

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Deutz	D 1.2 L3	-	1.18	Korea	50	Tier 4 Final / Stage V	3, inline	-	17 (24) @ 2600	73.2 (54) @ 1800	78 x 82 (3.07 x 3.23)	NA	OH	✓
Deutz	TCD 2.2 L3	-	2.2	Germany	150	Tier 4 Final / Stage V	3, inline	-	55.4 (75) @ 2600	280 (207) @ 1600	92 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	TD 2.2 L3	-	2.2	Germany	250	Tier 4 Final / Stage V	3, inline	-	44.5 (60) @ 2600	205 (151) @ 1600	92 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	D 2.2 L3	-	2.2	Germany	400	Tier 4 Final / Stage V	3, inline	-	18 (25) @ 2600	125 (92) @ 1600	93 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	TCD 2.9 L4 (High Power)	-	2.9	Germany	800	Tier 4 Final / Stage V	4, inline	-	75 (100) @ 2300	400 (295) @ 1600	92 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	TCD 2.9 L4 (High Torque)	-	2.9	Germany	2,800	Tier 4 Final / Stage V	4, inline	-	55.4 (75) @ 2600	375 (277) @ 1600	92 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	TCD 2.9 L4	-	2.9	Germany	1,000	Tier 4 Final / Stage V	4, inline	-	55.4 (75) @ 2600	300 (221) @ 1600	92 x 110 (3.6 x 4.3)	NA	OH	✓

DEUTZ CONTINUED NEXT PAGE

### Legend – 2020 North American heavy-duty diesel engines

**AG:** Agriculture      **DI:** Indirect Injection      **NA:** Not Available      **TB:** Truck/Bus/Coach  
**DL:** Direct Injection      **IS:** Industrial/Stationary      **O&G:** Oil and Gas      **VPC:** Valves per Cylinder  
**GS:** Generator Set      **M:** Marine      **OH:** Off-Highway Mobile

\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

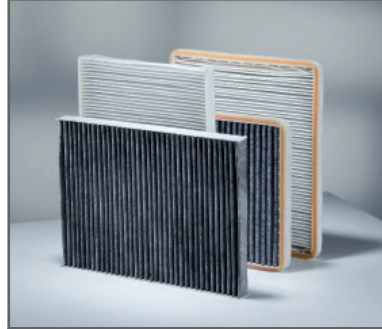
<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.

www.us.mahle.com



North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**Deutz (continued)**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Deutz	D 2.9 L4	-	2.9	Germany	900	Tier 4 Final / Stage V	4, inline	-	36.4 (50) @ 2600	147 (192) @ 1600	92 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	TD 2.9 L4	-	2.9	Germany	11,500	Tier 4 Final / Stage V	4, inline	-	55.4 (75) @ 2600	260 (192) @ 1600-1800	92 x 110 (3.6 x 4.3)	NA	OH	✓
Deutz	TCD 3.6 L4 (High Power)	-	3.6	Germany	1,000	Tier 4 Final / Stage V	4, inline	-	105 (141) @ 2300	550 (406) @ 1600	98 x 120 (3.9 x 4.7)	NA	OH	✓
Deutz	TCD 3.6 L4 (High Torque)	-	3.6	Germany	14,000	Tier 4 Final / Stage V	4, inline	-	55.4 (74) @ 2300	390 (288) @ 1300	98 x 120 (3.9 x 4.7)	NA	OH	✓
Deutz	TD 3.6 L4	-	3.6	Germany	5,500	Tier 4 Final / Stage V	4, inline	-	55.4 (74) @ 2600	330 (243) @ 1600	98 x 120 (3.9 x 4.7)	NA	OH	✓
Deutz	TCD 3.6 L4	-	3.6	Germany	1,500	Tier 4 Final / Stage V	4, inline	-	100 (136) @ 2300	500 (369) @ 1600	98 x 120 (3.9 x 4.7)	NA	OH	✓
Deutz	TCD 4.1 L4	-	4.1	Germany	26,000	Tier 4 Final / Stage V	4, inline	-	115 (154) @ 2300	610 (450) @ 1600	101 x 126 (4.0 x 5.0)	NA	OH	✓
Deutz	TCD 6.1 L6	-	6.1	Germany	21,000	Tier 4 Final / Stage V	6, inline	-	180 (241) @ 2300	1000 (738) @ 1450	101 x 126 (4.0 x 5.0)	NA	OH	✓
Deutz	TCD 7.8 L6	-	7.8	Germany	8,000	Tier 4 Final / Stage V	6, inline	-	260 (348) @ 2200	1400 (1033) @ 1450	110 x 136 (4.3 x 5.4)	NA	OH	✓
Deutz	TCD 9.0 L4	-	9.0	Germany	200	Tier 4 Final / Stage V	4, inline	-	303 (406) @ 1200-1700	1710 (1261) @ 1200	135 x 157 (5.3 x 6.2)	NA	OH	✓
Deutz	TCD 12.0 V6	-	11.9	Germany	3,500	Tier 4 Final / Stage V	V6	-	390 (524) @ 2100	2130 (1571) @ 1400	132 x 145 (5.2 x 5.7)	NA	OH	✓
Deutz	TCD 12.0 L6	-	12.0	Germany	500	Tier 4 Final / Stage V	6, inline	-	403 (540) @ 1200-1400	2505 (1848) @ 1200	130 x 150 (5.1 x 5.9)	NA	OH	✓
Deutz	TCD 13.5 L6	-	13.5	Germany	100	Tier 4 Final / Stage V	6, inline	-	453 (608) @ 1100-1500	2757 (2033) @ 1350	135 x 157 (5.3 x 6.2)	NA	OH	✓
Deutz	TCD 16.0 V8	-	15.9	Germany	300	Tier 4 Final / Stage V	V8	-	520 (697) @ 2100	2890 (2132) @ 1400	132 x 145 (5.2 x 5.7)	NA	OH	✓
Deutz	TCD 18.0 L6	-	18.0	Germany	50	Tier 4 Final / Stage V	6, inline	-	623 (835) @ 1700-1900	3650 (2692) @ 1300	148 x 174 (5.83 x 6.85)	NA	OH	✓

**Ford**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Ford	Power Stroke® (Lion)	3.0L	3.0	Dagenham Engine Plant, UK	30,000	-	V6	DI, 4	186 (250) @ 3250	597 (440) @ 1750	84.1 x 89.9 (3.31 x 3.54)	16.0:1	TB	✓
Ford	Power Stroke® (Scorpion)	6.7L	6.7	Chihuahua, Mexico	152,500	Interim Tier 3 Bin 340 / Bin 570	V8	DI, 4	354 (475) @ 2800	1268 (935) @ 1600	99.1 x 108 (3.90 x 4.25)	15.8:1	TB	✓

**FPT Industrial**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
FPT Industrial	F1 Series	F30	3.0	Foggia, Italy	20,000	EPA 2017 / JP09 / Euro VI D	4, inline	DI, 4	96-155 (131-211) @ 3500	300-470 (221-347) @ 1300-1600	95.8 x 104 (3.77 x 4.09)	17.2:1	TB	✓
FPT Industrial	F5 Series	F34	3.4	Torino, Italy	13,000	Stage V / Tier 4 Final	4, inline	DI, 2	43-55 (58-74) @ 1800-2500	243-318 (179-234) @ 1400-1600	99 x 110 (3.90 x 4.33)	17.0:1	AG, IS, OH	✓
FPT Industrial	F5 Series	F34	3.4	Torino, Italy	3,000	Tier 4 Final	4, inline	DI, 4	61-92 (82-125) @ 2000-2500	334-506 (246-373) @ 1500	99 x 110 (3.90 x 4.33)	17.0:1	AG, IS, OH	✓
FPT Industrial	NEF Series	N45	4.5	Torino, Italy	60,000	Euro VI D	4, inline	DI, 4	118-152 (160-207) @ 2500	580-750 (428-553) @ 1250-1400	104 x 132 (4.09 x 5.2)	17.0:1	TB	✓
FPT Industrial	F5 Series	F36	3.6	Torino, Italy	1,000	Stage V / Tier 4 Final	4, inline	DI, 4	61-105 (82-143) @ 2000-2500	334-600 (246-442) @ 1300-1500	102 x 110 (4.02 x 4.33)	18.5:1	AG, IS, OH	✓
FPT Industrial	NEF Series	N45	4.5	Torino, Italy	8,000	Stage V / Tier 4 Final	4, inline	DI, 4	66-129 (89-173) @ 1800-2200	405-719 (299-530) @ 1200-1600	104 x 132 (4.09 x 5.2)	17.0:1	AG, OH	✓
FPT Industrial	NEF Series	N67	6.7	Torino, Italy	20,000	Euro VI D	6, inline	DI, 4	162-235 (220-320) @ 2500	800-1100 (590-811) @ 1250	104 x 132 (4.09 x 5.2)	17.0:1	TB	✓
FPT Industrial	NEF Series	N67	6.7	Torino, Italy	16,000	Stage V / Tier 4 Final	6, inline	DI, 4	100-260 (136-354) @ 2000	1420 @ 1400	104 x 132 (4.09 x 5.2)	17.0:1	AG, OH	✓
FPT Industrial	Cursor Series	Cursor 9	8.7	Chongqing, China	43,000	Euro VI D	6, inline	DI, 4	228-294 (310-400) @ 2200	1300-1700 (959-1254) @ 1200	117 x 135 (4.60 x 5.31)	16.0:1	TB	✓
FPT Industrial	Cursor Series	Cursor 9	8.7	Chongqing, China	1,500	Stage V / Tier 4 Final	6, inline	DI, 4	210-330 (286-449) @ 2000-2200	1349-1800 (995-1327) @ 1300-1500	117 x 135 (4.60 x 5.31)	16.0:1	AG, OH	✓
FPT Industrial	Cursor Series	Cursor 11	11.1	Bourbon-Lancy, France	13,000	Euro VI D	6, inline	DI, 4	309-353 (420-480) @ 1900	1900-2300 (1401-1696) @ 950-1050	128 x 144 (5.04 x 5.67)	16.5:1	TB	✓
FPT Industrial	Cursor Series	Cursor 11	11.1	Bourbon-Lancy, France	25	Stage V / Tier 4 Final	6, inline	DI, 4	300-380 (408-517) @ 2100	2000-2082 (1475-1536) @ 1500	128 x 144 (5.04 x 5.67)	16.5:1	AG	✓
FPT Industrial	Cursor Series	Cursor 13	12.9	Bourbon-Lancy, France	16,000	Euro VI D	6, inline	DI, 4	302-420 (411-570) @ 1900	2100-2500 (1549-1844) @ 1000	135 x 150 (5.31 x 5.91)	16.5:1	TB	✓
FPT Industrial	Cursor Series	Cursor 13	12.9	Bourbon-Lancy, France	6,000	Stage V / Tier 4 Final	6, inline	DI, 4	320-515 (429-700) @ 2100	2003-2980 (1477-2197) @ 1400-1500	135 x 150 (5.31 x 5.91)	16.5:1	AG, OH	✓
FPT Industrial	Cursor Series	Cursor 16	15.9	Bourbon-Lancy, France	100	Stage V / Tier 4 Final	6, inline	DI, 4	480-570 (634-764) @ 2100	2751-3323 (2029-2450) @ 1500	141 x 170 (5.55 x 6.69)	16.5:1	AG	✓
FPT Industrial	V20	V20	20.1	Torino, Italy	25	Stage V / Tier 4 Final	V8	DI, 4	570-670 (775-911) @ 1800	4100 (3024) @ 1500	145 x 152 (5.71 x 5.98)	NA	AG	✓
FPT Industrial	F5 Series	F32	3.2	Pregnana, Italy	13,000	Tier 3	4, inline	DI, 2	47-57 (63-76) @ 1800	NA	99 x 104 (3.90 x 4.09)	17.0:1	GS	✓
FPT Industrial	F5 Series	F34	3.4	Pregnana, Italy	4,000	Tier 4 Final	4, inline	DI, 2	54-90 (72-120) @ 1800	NA	99 x 110 (3.90 x 4.33)	16.5:1	GS	✓

FPT INDUSTRIAL CONTINUED NEXT PAGE

Legend – 2020 North American heavy-duty diesel engines

**AG:** Agriculture  
**DI:** Direct Injection  
**GS:** Generator Set  
**IDI:** Indirect Injection  
**IS:** Industrial/Stationary  
**M:** Marine  
**NA:** Not Available  
**O&G:** Oil and Gas  
**OH:** Off-Highway Mobile  
**TB:** Truck/Bus/Coach  
**VPC:** Valves per Cylinder

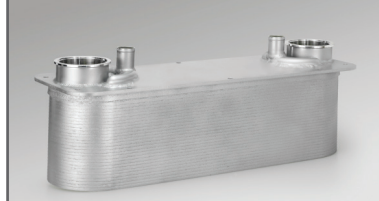
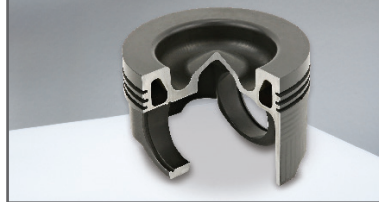
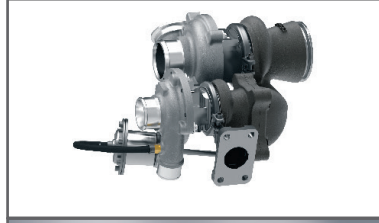
\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.

www.us.mahle.com

North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**FPT Industrial (continued)**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
FPT Industrial	NEF Series	N45	4.5	Pregnana, Italy	2,500	Tier 3	4, inline	DI, 2/4	67-122 (90-164) @ 1800	NA	104 x 132 (4.09 x 5.2)	17.5:1	GS	✓
FPT Industrial	NEF Series	N45	4.5	Torino, Italy	2,000	Tier 4 Final	4, inline	DI, 4	85-126 (114-169) @ 1800	NA	104 x 132 (4.09 x 5.2)	17.0:1	GS	✓
FPT Industrial	NEF Series	N67	6.7	Pregnana, Italy	5,000	Tier 3	6, inline	DI, 2/4	141-212 (189-284) @ 1800	NA	104 x 132 (4.09 x 5.2)	17.5:1	GS	✓
FPT Industrial	NEF Series	N67	6.7	Torino, Italy	4,000	Tier 4 Final	6, inline	DI, 4	145-223 (194-300) @ 1800	NA	104 x 132 (4.09 x 5.2)	17.0:1	GS	✓
FPT Industrial	Cursor Series	Cursor 9	8.7	Pregnana, Italy	6,000	Tier 3	6, inline	DI, 4	280-320 (375-429) @ 1800	NA	117 x 135 (4.60 x 5.31)	16.5:1	GS	✓
FPT Industrial	Cursor Series	Cursor 9	8.7	Chongqing, China	5,000	Tier 4 Final	6, inline	DI, 4	260-330 (348-442) @ 1800	NA	117 x 135 (4.60 x 5.31)	16.0:1	GS	✓
FPT Industrial	Cursor Series	Cursor 13	12.9	Pregnana, Italy	2,000	Tier 3	6, inline	DI, 4	334-371 (448-497) @ 1800	NA	135 x 150 (5.31 x 5.9)	16.5:1	GS	✓
FPT Industrial	Cursor Series	Cursor 13	12.9	Bourbon-Lancy, France	1,500	Tier 4 Final	6, inline	DI, 4	353-424 (473-568) @ 1800	NA	135 x 150 (5.31 x 5.9)	16.5:1	GS	✓

**General Motors**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
General Motors	Duramax	6.6L	6.6	Moraine, Ohio (GM/Isuzu)	120,000	Tier 3 Bin 250 / Bin 270	V8	DI, 4	332 (445) @ 2800	1234 (910) @ 1600	103 x 99 (4.05 x 3.9)	16.0:1	TB	✓

**Isuzu Motors**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Isuzu	L	4L-Series	2.2	Japan	38,000	Tier 4 Final / Stage IV	4, inline	DI	30-49 (40-66) @ 1800 / 36-46 (48-62) @ 2400	159 (117) @ 1800 / 215 (159) @ 1800	NA	NA	IS, OH, GS	✓
Isuzu	J	4J-Series	3.0	Japan	6,000	Tier 4 Final / Stage IV	4, inline	DI	52 (70) @ 2000 / 86 (115) @ 2200	255 (188) @ 1500 / 375 (277) @ 1800	NA	NA	IS, OH	✓
Isuzu	J	4J-Series	3.0	Japan	15,000	Tier 4 Final / Stage IV	4, inline	DI	71 (95) @ 1800	-	NA	NA	GS	✓
Isuzu	H	4H-Series	5.2	Japan	8,000	Tier 4 Final / Stage IV	4, inline	DI	140 (188) @ 2000	676 (499) @ 1800	NA	NA	IS, OH	✓
Isuzu	H	4H-Series	5.2	Japan	18,000	Tier 4 Final / Stage IV	4, inline	DI	127 (171) @ 1800	-	NA	NA	GS	✓
Isuzu	H	6H-Series	7.8	Japan	15,000	Tier 4 Final / Stage IV	6, inline	DI	210 (282) @ 1900	1080 (797) @ 1500	NA	NA	IS, OH	✓
Isuzu	U	6U-Series	9.8	Japan	3,000	Tier 4 Final / Stage IV	6, inline	DI	270 (362) @ 2000	1435 (1058) @ 1500	NA	NA	IS, OH	✓
Isuzu	W	6W-Series	15.7	Japan	2,600	Tier 4 Final / Stage IV	6, inline	DI	382 (512) @ 1800	2200 (1622) @ 1500	NA	NA	IS, OH	✓

**JCB Power Systems**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
JCB	DieselMax	DieselMax 430 TCAE	4.0	Derbyshire, UK	1,500	Stage V	4, inline	4	55 (74)	440 (325)	92 x 112	NA	IS, OH	✓
JCB	DieselMax	DieselMax 430 TCAE	4.0	Derbyshire, UK	6,500	Tier 4	4, inline	4	55 (74)	400 (295)	92 x 112	NA	IS, OH	✓
JCB	DieselMax	DieselMax 448 TCAE	4.0	Derbyshire, UK	1,000	Stage V	4, inline	4	81 (109) / 97 (130) / 112 (150) / 129 (173)	516 (381) / 550 (406) / 600 (443) / 690 (509)	106 x 135	NA	IS, OH	✓
JCB	EcoMax	EcoMax 444 TCAE	4.0	Derbyshire, UK	2,000	Stage IV / Tier 4	4, inline	4	68 (91) / 93 (125)	432 (319) / 516 (380)	103 x 132	NA	IS, OH	✓
JCB	EcoMax	EcoMax 444 TCAE	4.0	Derbyshire, UK	2,500	Stage IIIB / Tier 4 Interim	4, inline	4	55 (74) / 68 (91) / 93 (125)	400 (295) / 433 (319) / 550 (406)	103 x 132	NA	IS, OH	✓
JCB	EcoMax	EcoMax 448 TCAE	4.0	Derbyshire, UK	1,000	Stage IV / Tier 4	4, inline	4	108 (145) / 129 (173)	560 (413) / 690 (509)	106 x 135	NA	IS, OH	✓
JCB	EcoMax	EcoMax 448 TCAE	4.0	Derbyshire, UK	1,000	Stage IIIB / Tier 4 Interim	4, inline	4	108 (145) / 129 (173)	560 (413) / 690 (509)	106 x 135	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 TC	4.0	Derbyshire, UK	3,500	Stage IIIA / Tier 3	4, inline	4	55 (74) / 63 (84) / 68.6 (92)	327 (241) / 362 (267) / 408 (301)	103 x 132	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 TC	4.0	Derbyshire, UK	1,500	Stage II / Tier 2	4, inline	4	74 (99)	425 (313)	103 x 132	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 TCA	4.0	Derbyshire, UK	25,000	Stage IIIA / Tier 3	4, inline	4	74 (99) / 85 (114)	440 (325)	103 x 132	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 TCA	4.0	Derbyshire, UK	15,000	Stage II / Tier 2	4, inline	4	93 (125)	525 (387)	103 x 132	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 TCAE	4.0	Derbyshire, UK	1,500	Stage IIIA / Tier 3	4, inline	4	97 (130) / 108 (145) / 120 (161)	532 (392) / 550 (406) / 657 (484)	103 x 132	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 NA	4.0	Derbyshire, UK	1,000	Stage II / Tier 2	4, inline	4	63 (84)	320 (236)	103 x 132	NA	IS, OH	✓

JCB POWER SYSTEMS CONTINUED NEXT PAGE

Legend – 2020 North American heavy-duty diesel engines

- AG:** Agriculture
- DI:** Direct Injection
- GS:** Generator Set
- IDI:** Indirect Injection
- IS:** Industrial/Stationary
- M:** Marine
- NA:** Not Available
- O&G:** Oil and Gas
- OH:** Off-Highway Mobile
- TB:** Truck/Bus/Coach
- VPC:** Valves per Cylinder

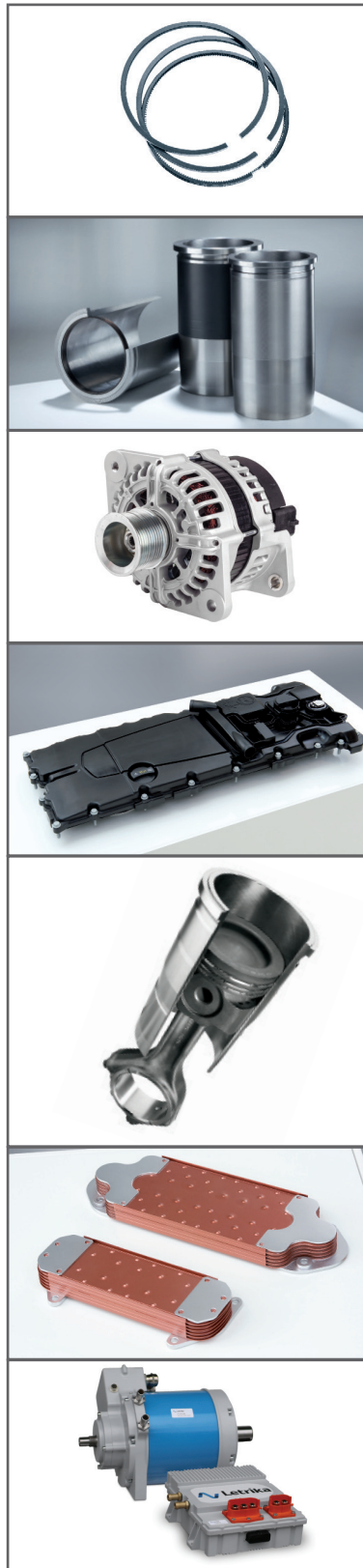
\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.



North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**JCB Power Systems (continued)**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
JCB	DieselMax	DieselMax 672 TCAE	6.0	Derbyshire, UK	2,500	Stage II / Tier 2	6, inline	6	140 (188) / 165 (221) / 190 (255)	950 (701) / 1000 (738) / 1150 (848)	106 x 135	NA	IS, OH	✓
JCB	DieselMax	DieselMax 444 NA G-Drive	4.0	Derbyshire, UK	4,000	Non Certified	4, inline	4	56 (75)	-	103 x 132	NA	GS	✓
JCB	DieselMax	DieselMax 444 TC G-Drive	4.0	Derbyshire, UK	3,000	Non Certified	4, inline	4	62 (83) / 90 (121)	-	103 x 132	NA	GS	✓
JCB	DieselMax	DieselMax 444 TC G-Drive	4.0	Derbyshire, UK	4,000	Stage II	4, inline	4	81.6 (109.4)	-	103 x 132	NA	GS	✓
JCB	DieselMax	DieselMax 444 TCA G-Drive	4.0	Derbyshire, UK	2,000	Non Certified	4, inline	4	105 (141)	-	103 x 132	NA	GS	✓
JCB	DieselMax	DieselMax 444 TCA G-Drive	4.0	Derbyshire, UK	2,500	Stage II	4, inline	4	110 (148) / 128 (172)	-	103 x 132	NA	GS	✓
JCB	DieselMax	DieselMax 444 TCAE G-Drive	4.0	Derbyshire, UK	4,000	Tier 4	4, inline	4	54 (72) / 81 (109)	287 (212) / 428 (316)	103 x 132	NA	GS	✓
JCB	DieselMax	DieselMax 448 TC G-Drive	4.0	Derbyshire, UK	3,500	Stage IIIA	4, inline	4	66 (89) / 79.6 (107)	-	106 x 135	NA	GS	✓
JCB	DieselMax	DieselMax 448 TCA G-Drive	4.0	Derbyshire, UK	3,000	Non Certified	4, inline	4	132 (177)	-	106 x 135	NA	GS	✓
JCB	DieselMax	DieselMax 448 TCA G-Drive	4.0	Derbyshire, UK	3,000	Stage IIIA	4, inline	4	101.2 (135.7)	-	106 x 135	NA	GS	✓
JCB	DieselMax	DieselMax 448 TCAE G-Drive	4.0	Derbyshire, UK	2,500	Stage IIIA	4, inline	4	112 (150) / 133 (178)	-	106 x 135	NA	GS	✓
JCB	DieselMax	DieselMax 448 TCAE G-Drive	4.0	Derbyshire, UK	2,000	Tier 4	4, inline	4	127 (170)	671 (495)	106 x 135	NA	GS	✓

**John Deere**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
John Deere	PowerTech EWX	3029H	2.9	Saran, France; Torreon, Mexico	50,000	Final Tier 4 / Stage V	3, inline	DI, 2	36-55 (48-74) @ 2200-2400	192-304 (142-224) @ 1600	106 x 110 (4.2 x 4.3)	16.9:1	AG, GS, OH	✓
John Deere	PowerTech M	4045T	4.5	Saran, France; Torreon, Mexico	16,000	Tier 3 / Stage III A	4, inline	DI, 2	56-74 (75-99) @ 2200-2400	275-366 (203-270) @ 1600-1700	106 x 127 (4.2 x 5.0)	19.0:1	AG, OH	✓
John Deere	PowerTech E	4045T	4.5	Saran, France; Torreon, Mexico	6,000	Tier 3 / Stage III A	4, inline	DI, 2	63-104 (85-140) @ 2200-2400	313-525 (231-387) @ 1500-1600	106 x 127 (4.2 x 5.0)	19.0:1	AG, OH	✓
John Deere	PowerTech Plus	4045H	4.5	Saran, France; Torreon, Mexico	8,000	Tier 3 / Stage III A	4, inline	DI, 4	111-129 (149-173) @ 2000-2400	574-645 (424-476) @ 1400	106 x 127 (4.2 x 5.0)	17.0:1	AG, OH	✓
John Deere	PowerTech EWX	4045T	4.5	Saran, France; Torreon, Mexico	6,000	Final Tier 4 / Stage V	4, inline	DI, 4	55 (74) @ 2200-2400	304 (224) @ 1600	106 x 127 (4.2 x 5.0)	19.0:1	AG, OH	✓
John Deere	PowerTech PWL	4045H	4.5	Saran, France; Torreon, Mexico	4,000	Final Tier 4	4, inline	DI, 4	63-104 (84-139) @ 2200-2400	333-540 (246-399) @ 1600	106 x 127 (4.2 x 5.0)	17.0:1	AG, OH	✓
John Deere	PowerTech PSL	4045H	4.5	Saran, France; Torreon, Mexico	14,000	Final Tier 4	4, inline	DI, 4	93-129 (125-173) @ 2200-2400	537-667 (396-492) @ 1600	106 x 127 (4.2 x 5.0)	17.2:1	AG, GS, OH	✓
John Deere	PowerTech PWS	4045H	4.5	Saran, France; Torreon, Mexico	16,000	Final Tier 4 / Stage V	4, inline	DI, 4	74-104 (99-140) @ 2200-2400	427-540 (315-399) @ 1600	106 x 127 (4.2 x 5.0)	17.0:1	AG, OH	✓
John Deere	PowerTech PSS	4045C, 4045H	4.5	Saran, France; Torreon, Mexico	4,000	Final Tier 4 / Stage V	4, inline	DI, 4	116-129 (156-173) @ 2200-2400	616-667 (455-492) @ 1600	106 x 127 (4.2 x 5.0)	17.2:1	AG, OH	✓
John Deere	PowerTech PSS	4045C, 4045H	4.5	Saran, France; Torreon, Mexico	3,000	Final Tier 4 / Stage V	4, inline	DI, 4	93-129 (125-173) @ 2200	537-667 (396-492) @ 1600	106 x 127 (4.2 x 5.0)	17.2:1	AG, OH	✓
John Deere	PowerTech E	6068H	6.8	Saran, France; Torreon, Mexico	50	Tier 3 / Stage III A	6, inline	DI, 2	104-149 (139-200) @ 2200-2400	538-785 (397-579) @ 1500	106 x 127 (4.2 x 5.0)	19.0:1	AG, OH	✓
John Deere	PowerTech Plus	6068H	6.8	Saran, France; Torreon, Mexico	18,000	Tier 3 / Stage III A	6, inline	DI, 4	134-205 (180-275) @ 2000-2400	690-1025 (509-756) @ 1400	106 x 127 (4.2 x 5.0)	17.0:1	AG, OH	✓
John Deere	PowerTech PVS	6068H	6.8	Saran, France; Torreon, Mexico	6,000	Final Tier 4 / Stage V	6, inline	DI, 4	104-187 (140-251) @ 2200-2400	556-1000 (410-738) @ 1600-1700	106 x 127 (4.2 x 5.0)	17.2:1	AG, OH	✓
John Deere	PowerTech PSS	6068C	6.8	Saran, France; Torreon, Mexico	9,500	Final Tier 4 / Stage V	6, inline	DI, 4	168-224 (225-300) @ 2200-2400	1000-1141 (738-842) @ 1600-1700	106 x 127 (4.2 x 5.0)	16.7:1	AG, OH	✓
John Deere	PowerTech Plus	6090H	9.0	Waterloo, Iowa	6,000	Tier 3 / Stage III A	6, inline	DI, 4	168-298 (225-400) @ 2000-2200	984-1550 (726-1143) @ 1500	118 x 136 (4.6 x 5.4)	16.0:1	AG, OH	✓
John Deere	PowerTech PSS	6090C	9.0	Waterloo, Iowa	5,000	Final Tier 4 / Stage V	6, inline	DI, 4	187-317 (251-425) @ 2000 - 2200	1120-1685 (827-1244) @ 1600	118 x 136 (4.6 x 5.4)	16.0:1	AG, OH	✓
John Deere	PowerTech Plus	6135H	13.5	Waterloo, Iowa	500	Tier 3 / Stage III A	6, inline	DI, 4	261-448 (350-600) @ 1900-2100	1602-2550 (1182-1881) @ 1400-1600	132 x 165 (5.2 x 6.5)	16.0:1	AG, OH	✓
John Deere	PowerTech PSS	6135C	13.5	Waterloo, Iowa	2,000	Final Tier 4 / Stage V	6, inline	DI, 4	309-448 (414-601) @ 2100	1986-2750 (1465-2028) @ 1550	132 x 165 (5.2 x 6.5)	15.3:1	AG, OH	✓
John Deere	PowerTech PWS	6136H	13.6	Waterloo, Iowa	250	Final Tier 4 / Stage V	6, inline	DI, 4	300-410 (402-550) @ 2100	1986-2510 (1465-1851) @ 1550	132 x 165 (5.2 x 6.5)	15.9:1	AG, OH	✓
John Deere	PowerTech PSS	6136C	13.6	Waterloo, Iowa	250	Final Tier 4 / Stage V	6, inline	DI, 4	391-510 (524-684) @ 2100	2495-3050 (1840-2250) @ 1550	132 x 165 (5.2 x 6.5)	15.9:1	AG, OH	✓
John Deere	PowerTech PWL	6136H	13.6	Waterloo, Iowa	500	Final Tier 4	6, inline	DI, 4	300-410 (402-550) @ 2100	1986-2510 (1465-1851) @ 1550	132 x 165 (5.2 x 6.5)	15.9:1	AG, OH	✓
John Deere	PowerTech PSL	6136C	13.6	Waterloo, Iowa	500	Final Tier 4	6, inline	DI, 4	391-510 (524-684) @ 2100	2495-3050 (1840-2250) @ 1550	132 x 165 (5.2 x 6.5)	15.9:1	AG, OH	✓
John Deere	PowerTech M	3029T, 3029H	2.9	Saran, France; Torreon, Mexico	2,500	Non-emissions certified 50 Hz	3, inline	DI, 2	38-72 (51-97) @ 1500-1800	-	106 x 110 (4.2 x 4.3)	17.2:1	GS	✓

JOHN DEERE CONTINUED NEXT PAGE

Legend – 2020 North American heavy-duty diesel engines

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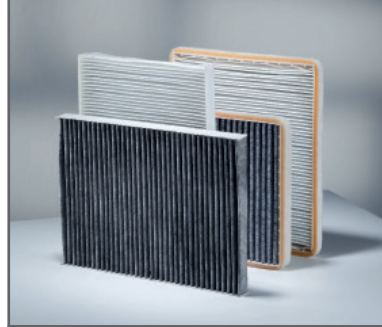
**AG:** Agriculture  
**DI:** Direct Injection  
**GS:** Generator Set  
**IDI:** Indirect Injection  
**IS:** Industrial/Stationary  
**M:** Marine  
**NA:** Not Available  
**O&G:** Oil and Gas  
**OH:** Off-Highway Mobile  
**TB:** Truck/Bus/Coach  
**VPC:** Valves per Cylinder

\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.

North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**John Deere (continued)**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
John Deere	PowerTech M	3029D	2.9	Saran, France; Torreon, Mexico	3,500	Non-emissions certified 60 Hz	3, inline	DI, 2	28-36 (38-48) @ 1500-1800	-	106 x 110 (4.2 x 4.3)	17.2:1	GS	✓
John Deere	PowerTech M	3029T, 3029H	2.9	Saran, France; Torreon, Mexico	4,000	Tier 3 / Stage III A	3, inline	DI, 2	28-46 (38-62) @ 1800	-	106 x 110 (4.2 x 4.3)	17.2:1	GS	✓
John Deere	PowerTech M	4045H	4.5	Saran, France; Torreon, Mexico	500	Non-emissions certified 50 Hz	4, inline	DI, 2	93-135 (125-181) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech M	4045T	4.5	Saran, France; Torreon, Mexico	500	Non-emissions certified 60 Hz	4, inline	DI, 2	75-135 (101-181) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech M	4045T, 4045H	4.5	Saran, France; Torreon, Mexico	1,000	Interim Tier 4, Tier 3 / Stage III A	4, inline	DI, 2	50-74 (67-99) @ 1800	-	106 x 127 (4.17 x 5.0)	19.0:1	GS	✓
John Deere	PowerTech M	4045H	4.5	Saran, France; Torreon, Mexico	1,500	Tier 3 / Stage III A	4, inline	DI, 2	56-65 (75-87) @ 1500-1800	-	106 x 127 (4.17 x 5.0)	19.0:1	GS	✓
John Deere	PowerTech E	4045T, 4045H	4.5	Saran, France; Torreon, Mexico	1,500	Tier 3 / NSPS	4, inline	DI, 2	67-118 (90-158) @ 1800	-	106 x 127 (4.17 x 5.0)	19.0:1	GS	✓
John Deere	PowerTech E	4045H	4.5	Saran, France; Torreon, Mexico	1,000	Tier 3 / Stage III A	4, inline	DI, 2	76-126 (102-169) @ 1500-1800	-	106 x 127 (4.17 x 5.0)	19.0:1	GS	✓
John Deere	PowerTech Plus	4045H	4.5	Saran, France; Torreon, Mexico	1,000	Tier 3 / NSPS	4, inline	DI, 4	134-147 (180-197) @ 1800	-	106 x 127 (4.17 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech EWS	4045H	4.5	Saran, France; Torreon, Mexico	250	Final Tier 4 / Stage V	4, inline	DI, 2	76-106 (102-142) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.1:1	GS	✓
John Deere	PowerTech PVL	4045H	4.5	Saran, France; Torreon, Mexico	250	Final Tier 4	4, inline	DI, 4	62-99 (83-133) @ 1500-1800	-	106 x 127 (4.17 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech M	6068H	6.8	Saran, France; Torreon, Mexico	500	Non-emissions certified 50 Hz	6, inline	DI, 2	139-210 (186-282) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech M	6068T, 6068H	6.8	Saran, France; Torreon, Mexico	1,000	Non-emissions certified 60 Hz	6, inline	DI, 2	101-210 (135-282) @ 1800	-	106 x 127 (4.2 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech E	6068H	6.8	Saran, France; Torreon, Mexico	250	Tier 3 / Stage III A	6, inline	DI, 2	139-212 (186-284) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	19.0:1	GS	✓
John Deere	PowerTech E	6068H	6.8	Saran, France; Torreon, Mexico	250	Non-emissions certified 50 Hz	6, inline	DI, 2	205-260 (275-349) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.2:1	GS	✓
John Deere	PowerTech E	6068H	6.8	Saran, France; Torreon, Mexico	500	Tier 3 / Stage III A	6, inline	DI, 2	134-212 (180-284) @ 1800	-	106 x 127 (4.2 x 5.0)	19.0:1	GS	✓
John Deere	PowerTech Plus	6068H	6.8	Saran, France; Torreon, Mexico	750	Tier 3 / NSPS	6, inline	DI, 4	214-235 (287-315) @ 1800	-	106 x 127 (4.2 x 5.0)	17.0:1	GS	✓
John Deere	PowerTech PVL	6068H	6.8	Saran, France; Torreon, Mexico	250	Final Tier 4	6, inline	DI, 4	146-192 (196-257) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.2:1	GS	✓
John Deere	PowerTech PSL	6068H	6.8	Saran, France; Torreon, Mexico	500	Final Tier 4	6, inline	DI, 4	179-240 (240-322) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	16.7:1	GS	✓
John Deere	PowerTech PVS	6068H	6.8	Saran, France; Torreon, Mexico	250	Final Tier 4 / Stage V	6, inline	DI, 4	150-180 (201-241) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	17.2:1	GS	✓
John Deere	PowerTech PSS	6068C	6.8	Saran, France; Torreon, Mexico	250	Final Tier 4 / Stage V	6, inline	DI, 4	184-216 (247-290) @ 1500-1800	-	106 x 127 (4.2 x 5.0)	16.7:1	GS	✓
John Deere	PowerTech E	6090H	9.0	Waterloo, Iowa	1,500	Tier 3 / NSPS	6, inline	DI, 4	345 (463) @ 1800	-	118 x 136 (4.65 x 5.35)	16.0:1	GS	✓
John Deere	PowerTech E	6090H	9.0	Waterloo, Iowa	1,500	Tier 3 / Stage III A	6, inline	DI, 4	230-315 (308-422) @ 1500-1800	-	118 x 136 (4.65 x 5.35)	16.0:1	GS	✓
John Deere	PowerTech Plus	6090H	9.0	Waterloo, Iowa	1,000	Tier 3 / NSPS	6, inline	DI, 4	287-315 (385-422) @ 1800	-	118 x 136 (4.65 x 5.35)	16.0:1	GS	✓
John Deere	PowerTech PSL	6090H	9.0	Waterloo, Iowa	500	Final Tier 4	6, inline	DI, 4	249-345 (334-463) @ 1500-1800	-	118 x 136 (4.65 x 5.35)	16.0:1	GS	✓
John Deere	PowerTech PSS	6090C	9.0	Waterloo, Iowa	500	Final Tier 4 / Stage V	6, inline	DI, 4	248-326 (333-437) @ 1500-1800	-	118 x 136 (4.65 x 5.35)	16.0:1	GS	✓
John Deere	PowerTech E	6135H	13.5	Waterloo, Iowa	1,000	Tier 2 / Non-emissions certified 50 Hz	6, inline	DI, 4	419-563 (562-755) @ 1800	-	132 x 165 (5.2 x 6.5)	16.0:1	GS	✓
John Deere	PowerTech E	6135H	13.5	Waterloo, Iowa	3,000	Tier 3 / NSPS	6, inline	DI, 4	401-460 (538-617) @ 1800	-	132 x 165 (5.2 x 6.5)	16.0:1	GS	✓
John Deere	PowerTech Plus	6135H	13.5	Waterloo, Iowa	400	Tier 3 / NSPS	6, inline	DI, 4	365-401 (489-538) @ 1800	-	132 x 165 (5.2 x 6.5)	16.0:1	GS	✓
John Deere	PowerTech PSL	6135H	13.5	Waterloo, Iowa	100	Final Tier 4	6, inline	DI, 4	391-473 (524-634) @ 1500-1800	-	132 x 165 (5.2 x 6.5)	15.3:1	GS	✓
John Deere	PowerTech PSS	6136C	13.6	Waterloo, Iowa	100	Final Tier 4 / Stage V	6, inline	DI, 4	460-505 (617-677) @ 1500-1800	-	132 x 165 (5.2 x 6.5)	15.9:1	GS	✓

**Kubota**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Kubota	03 Series	D1803-CR-TE5	1.8	Japan	2,500	Tier 4 / Stage V	3, inline	DI	37.0 (49.6) @ 2700	150.5 (111.0) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	03 Series	D1803-CR-TIE4	1.8	Japan	4,500	Tier 4	3, inline	DI	37.0 (49.6) @ 2700	150.5 (111.0) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	03 Series	D1803-CR-TIE5	1.8	Japan	3,000	Tier 4 / Stage V	3, inline	DI	42.0 (56.3) @ 2700	182.7 (134.8) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	03 Series	V2403-CR-E5	2.4	Japan	19,000	Tier 4 / Stage V	4, inline	DI	37.4 (50.2) @ 2700	159.8 (117.9) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	03 Series	V2403-CR-TIE4	2.4	Japan	14,000	Tier 4	4, inline	DI	48.6 (65.2) @ 2700	198.5 (146.4) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	03 Series	V2403-CR-TE5	2.4	Japan	8,000	Tier 4 / Stage V	4, inline	DI	48.6 (65.2) @ 2700	198.5 (146.4) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	03 Series	V2403-CR-TIE5	2.4	Japan	5,000	Tier 4 / Stage V	4, inline	DI	55.4 (74.3) @ 2700	248.7 (183.4) @ 1600	87 x 102.4 (3.43 x 4.03)	NA	AG, IS, M, OH	✓
Kubota	07 Series	V2607-CR-E5	2.6	Japan	3,000	Tier 4 / Stage V	4, inline	DI	42.0 (56.3) @ 2700	174.1 (128.4) @ 1600	87 x 110 (3.43 x 4.33)	NA	AG, IS, M, OH	✓
Kubota	07 Series	V2607-TIE4	2.6	Japan	1,500	Tier 4	4, inline	DI	53.0 (71.1) @ 2700	225.0 (166.0) @ 1600	87 x 110 (3.43 x 4.33)	NA	AG, IS, M, OH	✓
Kubota	07 Series	V2607-CR-TE5	2.6	Japan	4,000	Tier 4 / Stage V	4, inline	DI	53.0 (71.1) @ 2700	225.0 (166.0) @ 1600	87 x 110 (3.43 x 4.33)	NA	AG, IS, M, OH	✓

**KUBOTA CONTINUED NEXT PAGE**

**Legend – 2020 North American heavy-duty diesel engines**

**AG:** Agriculture      **DI:** Direct Injection      **IS:** Indirect Injection      **NA:** Not Available      **TB:** Truck/Bus/Coach  
**DI:** Direct Injection      **IS:** Industrial/Stationary      **O&G:** Oil and Gas      **VPC:** Valves per Cylinder  
**GS:** Generator Set      **M:** Marine      **OH:** Off-Highway Mobile

\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

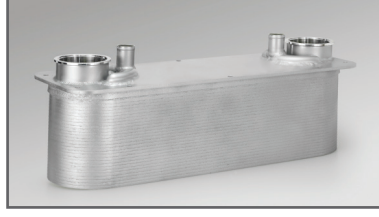
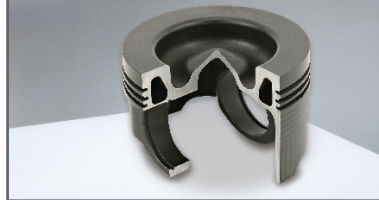
<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.

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North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**Kubota (continued)**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Kubota	07 Series	V2607-CR-TIE5	2.6	Japan	2,000	Tier 4 / Stage V	4, inline	DI	55.4 (74.3) @ 2700	269.0 (198.4) @ 1600	87 x 110 (3.43 x 4.33)	NA	AG, IS, M, OH	✓
Kubota	07 Series	V3307-TIE4	3.3	Japan	8,000	Tier 4	4, inline	DI	55.4 (74.3) @ 2600	265.0 (195.5) @ 1500	94 x 120 (3.70 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	07 Series	V3307-CR-TIE5	3.3	Japan	4,000	Tier 4 / Stage V	4, inline	DI	55.4 (74.3) @ 2600	265.0 (195.5) @ 1500	94 x 120 (3.70 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	07 Series	V3307-CR-TIE5	3.3	Japan	6,000	Tier 4 / Stage V	4, inline	DI	55.4 (74.3) @ 2600	335 (247.1) @ 1400	94 x 120 (3.70 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	V3 Series	V3800-CR-TIE5	3.8	Japan	8,000	Tier 4 / Stage V	4, inline	DI	55.4 (74.3) @ 2200	310 (228.7) @ 1500	100 x 120 (3.94 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	V3 Series	V3800-CR-TIE4	3.8	Japan	12,000	Tier 4	4, inline	DI	55.4 (74.3) @ 2200	310 (228.7) @ 1500	100 x 120 (3.94 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	V3 Series	V3800-CR-TIE5	3.8	Japan	10,000	Tier 4 / Stage V	4, inline	DI	86.4 (115.9) @ 2600	385 (284) @ 1500	100 x 120 (3.94 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	V3 Series	V3800-CR-TIE5H	3.8	Japan	6,000	Tier 4 / Stage V	4, inline	DI	96.4 (130.9) @ 2400	446.6 (324.5) @ 1800	100 x 120 (3.94 x 4.72)	NA	AG, IS, M, OH	✓
Kubota	09 Series	V4309-TIE5	4.3	Japan	2,500	Tier 4 / Stage V	4, inline	DI	115.7 (155.2) @ 2200	649 (479.1) @ 1500-1600	110 x 112 (4.33 x 4.41)	NA	AG, IS, M, OH	✓
Kubota	09 Series	V5009-TIE5	5.0	Japan	7,500	Tier 4 / Stage V	4, inline	DI	157.3 (210.9) @ 2200	883 (651.3) @ 1500-1600	110 x 132 (4.33 x 5.20)	NA	AG, IS, M, OH	✓
Kubota	09 Series	S7509	7.5	Japan	3,000	Tier 4 / Stage V	6, inline	DI	228.4 (306.2) @ 1900	1324 (977) @ 1500-1600	110 x 132 (4.33 x 5.20)	NA	AG, IS, M, OH	✓

**MTU America**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
MTU/Detroit Diesel	DD5	DD5	5.1	Redford, Michigan	1,100	EPA GHG 2017	4, inline	DI, 4	149-179 (200-240) @ 2200	759-895 (560-660) @ 1400	110 x 135 (4.3 x 5.3)	17.6:1	IS, O&G, TB	✓
MTU/Detroit Diesel	DD8	DD8	7.7	Redford, Michigan	800	EPA GHG 2017	6, inline	DI, 4	194-280 (260-375) @ 2200	895-1424 (660-1050) @ 1400	110 x 135 (4.3 x 5.3)	17.6:1	IS, O&G, TB	✓
MTU/Detroit Diesel	DD13	DD13	12.8	Redford, Michigan	2,000	EPA GHG 2017	6, inline	DI, 4	261-377 (350-505) @ 1625	1830-2508 (1350-1850) @ 975	132 x 156 (5.2 x 6.1)	18.4:1	IS, O&G, TB	✓
MTU/Detroit Diesel	DD16	DD16	15.6	Redford, Michigan	1,400	EPA GHG 2017	6, inline	DI, 4	373-447 (500-600) @ 1800	2508-2779 (1850-2050) @ 975	139 x 171 (5.5 x 6.7)	17.0:1	IS, O&G, TB	✓
MTU/Mercedes-Benz	Series 900	904	4.2	São Bernardo, Brazil	110	Stage IIIA / Tier 3	4, inline	DI, 4	75-129 (101-173) @ 2200	400-675 (295-498) @ 1200-1600	102 x 130 (4.0 x 5.1)	18.0:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 900	924	4.8	São Bernardo, Brazil	50	Stage IIIA / Tier 3	4, inline	DI, 4	145 (194) @ 2200	705 (520) @ 1200-1600	106 x 136 (4.2 x 5.4)	18.0:1	AG, IS, OH	✓
MTU/Mercedes-Benz	Series 900	924	4.8	São Bernardo, Brazil	70	Stage IIIB / Tier 4 Interim	4, inline	DI, 4	95-150 (127-201) @ 2200	550-800 (406-590) @ 1200-1600	106 x 136 (4.2 x 5.4)	18.0:1	AG, IS, OH	✓
MTU/Mercedes-Benz	Series 1000	4R1000	5.1	Mannheim, Germany	1,040	Stage IV / Tier 4 Final / Stage V	4, inline	DI, 4	115-170 (154-228) @ 1800	675-950 (498-701) @ 1200-1500	110 x 135 (4.3 x 5.3)	17.6:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 900	906	6.4	São Bernardo, Brazil	150	Stage IIIA / Tier 3	6, inline	DI, 4	130-205 (174-275) @ 2200	700-1100 (516-810) @ 1200-1600	102 x 130 (4.0 x 5.1)	18.0:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 900	926	7.2	São Bernardo, Brazil	70	Stage IIIA / Tier 3	6, inline	DI, 4	220-240 (295-322) @ 2200	1200-1300 (885-959) @ 1200-1600	106 x 136 (4.2 x 5.4)	18.0:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 900	926	7.2	São Bernardo, Brazil	50	Stage IIIB / Tier 4 Interim	6, inline	DI, 4	175-240 (235-322) @ 2200	850-1300 (627-959) @ 1200-1600	106 x 136 (4.2 x 5.4)	18.0:1	AG, IS, OH	✓
MTU/Mercedes-Benz	Series 1000	6R1000	7.7	Mannheim, Germany	3,150	Stage IV / Tier 4 Final / Stage V	6, inline	DI, 4	180-280 (241-375) @ 1800	1000-1550 (738-1143) @ 1200-1600	110 x 135 (4.3 x 5.3)	17.6:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 1100	6R1100	10.7	Mannheim, Germany	400	Stage IV / Tier 4 Final / Stage V	6, inline	DI, 4	240-340 (322-456) @ 1600	1700-2200 (1401-1622) @ 1300	125 x 145 (4.9 x 5.7)	17.6:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 460	460	12.8	Mannheim, Germany	140	Stage IIIA / Tier 3	6, inline	DI, 4	220-375 (295-503) @ 1800	1400-2200 (1033-1586) @ 1300	128 x 166 (5.0 x 6.5)	18.0:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 460	460	12.8	Mannheim, Germany	50	Stage IIIB / Tier 4 Interim	6, inline	DI, 4	265-375 (355-503) @ 1800	1850-2200 (1290-1620) @ 1300	128 x 166 (5.0 x 6.5)	18.0:1	AG, IS, OH	✓
MTU/Mercedes-Benz	Series 1300	6R1300	12.8	Mannheim, Germany	950	Stage IV / Tier 4 Final / Stage V	6, inline	DI, 4	320-390 (429-523) @ 1600	2200-2600 (1625-2286) @ 1300	132 x 156 (5.2 x 6.1)	17.3:1	AG, IS, OH, O&G	✓
MTU/Mercedes-Benz	Series 1500	6R1500	15.6	Mannheim, Germany	60	Stage IV / Tier 4 Final / Stage V	6, inline	DI, 4	380-480 (510-644) @ 1600	2600-3100 (1918-2286) @ 1300	139 x 171 (5.5 x 6.7)	17.3:1	AG, IS, OH, O&G	✓
MTU/Detroit Diesel	Series 60	S60	14	Tooele, Utah	1,600	Stage II / Tier 2	6, inline	DI, 4	336-496 (450-665) @ 2100-2300	2237-2576 (1650-1900) @ 1350	133 x 168 (5.2 x 6.6)	16.0:1	AG, IS, OH, O&G	✓
MTU/Detroit Diesel	Series 60	S60	14	Tooele, Utah	500	Stage IIIA / Tier 3	6, inline	DI, 4	242-496 (325-665) @ 2000-2300	1559-2576 (1150-1900) @ 1350	133 x 168 (5.2 x 6.6)	16.0:1	AG, IS, OH, O&G	✓
MTU	Series 2000	12V2000C02/S02	23.9	Aiken, South Carolina	100	Tier 2	V12	DI, 4	567-750 (760-1005) @ 2100	3098-4204 (2280-3100) @ 1350-1500	130 x 150 (5.1 x 5.9)	16.0:1	AG, IS, OH, O&G	✓
MTU	Series 2000	12V/16V/18V2000G05	23.9-35.8	Friedrichshafen, Germany; Aiken, South Carolina	300	Tier 2	V12; V16; V18	DI, 4	515-1310 (691-1757) @ 1500-1800	NA	130 x 150 (5.1 x 5.9)	16.0:1	GS	✓
MTU	Series 2000	12V/16V/18V2000G06	26.8-40.2	Friedrichshafen, Germany	250	Tier 4 Interim	V12; V16; V18	DI, 4	665-1371 (892-1839) @ 1500-1800	NA	135 x 156 (5.3 x 6.1)	16.5:1 / 17.5:1	GS	✓
MTU	Series 2000	12V/16V2000S06	26.8-35.7	Aiken, South Carolina	200	Tier 4 Interim	V12; V16	DI, 4	783-1163 (1050-1560) @ 2100	4640-6582 (3423-4854) @ 1100-1600	135 x 156 (5.3 x 6.2)	16.5:1	O&G	✓
MTU	Series 2000	12V/16V2000C06	26.8-35.7	Aiken, South Carolina	200	Tier 4 Interim	V12; V16	DI, 4	783-970 (1050-1301) @ 1800-2100	4636-5286 (3419-3899) @ 1100-1400	135 x 156 (5.3 x 6.2)	16.5:1	AG, IS, OH	✓
MTU	Series 2000	16V2000C02/S02	31.9	Aiken, South Carolina	200	Tier 2	V16	DI, 4	783-1120 (1050-1500) @ 1800-2100	4450-6005 (3288-4429) @ 1350-1500	130 x 150 (5.1 x 5.9)	16.0:1	AG, IS, OH, O&G	✓
MTU	Series 4000	12V4000C05	57.2	Aiken, South Carolina	75	Tier 4 Final	V12	DI, 4	1150-1500 (1542-2012) @ 1800	7351-9588 (5422-7072) @ 1494-1500	170 x 210 (6.7 x 8.3)	15.5:1	AG, IS, OH	✓

Legend – 2020 North American heavy-duty diesel engines

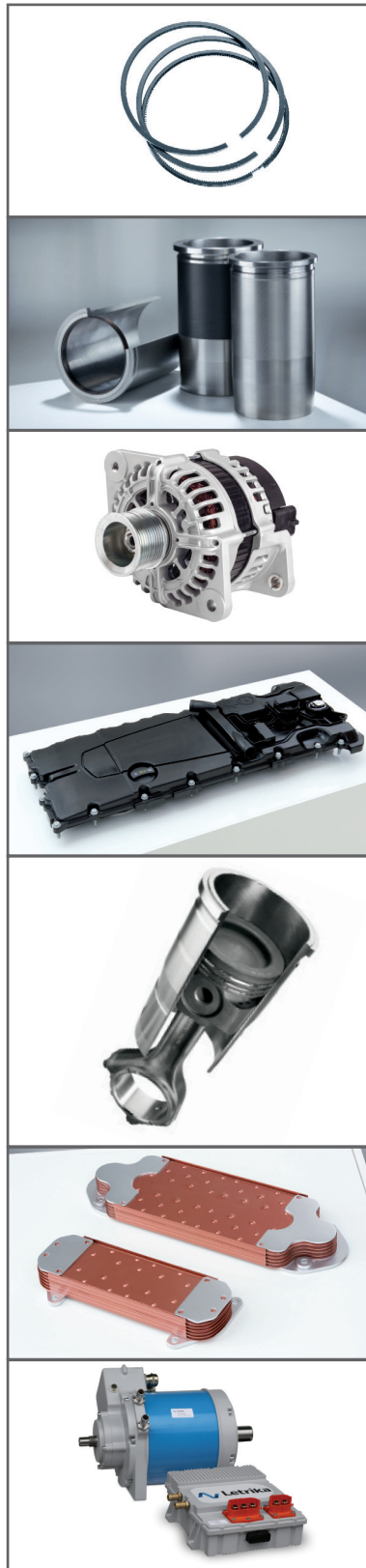
**AG:** Agriculture      **DI:** Indirect Injection      **NA:** Not Available      **TB:** Truck/Bus/Coach  
**DL:** Direct Injection      **IS:** Industrial/Stationary      **O&G:** Oil and Gas      **VPC:** Valves per Cylinder  
**GS:** Generator Set      **M:** Marine      **OH:** Off-Highway Mobile

\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.

North American availability & specifications 37-1492 kW (50-2000 hp)

MAHLE products for commercial vehicle applications



**Navistar**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
International	International	A26	12.4	Huntsville, Alabama	7,500	EPA 2010 / GHG 2017	6, inline	DI, 4	272-373 (365-500) @ 1700	1695-2373 (1250-1750) @ 1000	126 x 166 (4.96 x 6.54)	18.5:1	TB	✓

**PACCAR**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
PACCAR	PX	PX-7	6.7	Rocky Mount, North Carolina	11,000	EPA 2013 / Euro 6	6, inline	DI, 4	149-268 (200-360) @ 1600-2400	705-1085 (520-800) @ 1600-1800	107 x 124 (4.21 x 4.88)	17.3:1	TB	✓
PACCAR	PX	PX-9	8.9	Rocky Mount, North Carolina	15,000	EPA 2013 / Euro 6	6, inline	DI, 4	194-335 (260-450) @ 1400-2100	976-1695 (720-1250) @ 1300-1400	114 x 145 (4.49 x 5.69)	16.6:1	TB	✓
PACCAR	MX	MX-11	10.8	Columbus, Mississippi; Eindhoven, Netherlands	3,000	EPA 2013 / Euro 6	6, inline	DI, 4	265-320 (355-430) @ 1600	1695-2237 (1250-1650) @ 900-1500	123 x 152 (4.84 x 5.98)	18.5:1	TB	✓
PACCAR	MX	MX-13	12.9	Columbus, Mississippi; Eindhoven, Netherlands	36,000	EPA 2013 / Euro 6	6, inline	DI, 4	303-380 (405-510) @ 1600	1966-2500 (1450-1850) @ 900-1500	130 x 162 (5.12 x 6.38)	18.5:1	TB	✓

**Scania**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Scania	DC09	084A; 085A; 086A; 087A; 089A	9.3	Södertälje, Sweden	15,000	Tier 4 Final / Stage IV	5, inline	DI, 4	202-294 (275-400) @ 1800-2100	919-1560 (678-1150) @ 1800-2100	130 x 140 (5.1 x 5.5)	16.0:1 / 17.0:1	IS, OH, TB	✓
Scania	DC13	084A; 085A; 087A	12.7	Södertälje, Sweden	80,000	Tier 4 Final / Stage IV	6, inline	DI, 4	257-405 (350-550) @ 1800-2100	1169-2149 (862-1585) @ 1800-2100	130 x 160 (5.1 x 6.3)	17.3:1 / 17.5:1	IS, OH, TB	✓
Scania	DC16	084A; 085A; 086A	16.4	Södertälje, Sweden	11,000	Tier 4 Final / Stage IV	V8	DI, 4	405-566 (550-770) @ 1800-2100	1842-3003 (1359-2215) @ 1800-2100	130 x 154 (5.1 x 6.1)	16.7:1	IS, OH, TB	✓

**Volvo**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Mack	MP7	MP7	11	Hagerstown, Maryland	10,100	GHG 2017 / EPA 2017	6, inline	DI, 4	242-317 (325-425) @ 1500-1900	1708-2115 (1260-1560) @ 1200	123 x 152 (4.84 x 5.98)	17.0:1	TB	✓
Mack	MP8	MP8	13	Hagerstown, Maryland	11,500	GHG 2017 / EPA 2017	6, inline	DI, 4	309-377 (415-505) @ 1500-1800	1979-2522 (1460-1860) @ 1200	131 x 158 (5.16 x 6.22)	17.0:1	TB	✓
Volvo	D11	D11	11	Hagerstown, Maryland	1,900	GHG 2017 / EPA 2017	6, inline	DI, 4	242-317 (325-425) @ 1400-1900	1695-2102 (1250-1550) @ 1200	123 x 152 (4.84 x 5.98)	17.0:1	TB	✓
Volvo	D13	D13	13	Hagerstown, Maryland	30,000	GHG 2017 / EPA 2017	6, inline	DI, 4	302-372 (405-500) @ 1400-1800	1965-2508 (1450-1850) @ 1100	131 x 158 (5.16 x 6.22)	17.0:1	TB	✓
Volvo	D13	D13 TC (Turbo Compound)	13	Hagerstown, Maryland	1,000	GHG 2017 / EPA 2017	6, inline	DI, 4	317-340 (425-455) @ 1300-1700	1965-2508 (1450-1850) @ 1100	131 x 158 (5.16 x 6.22)	17.0:1	TB	✓

**Yanmar**

Brand	Engine Family	Engine Model	Displacement (L)	Production Location	2019 Production Volume <sup>1</sup>	U.S. / EU Emissions Level	Layout	Cylinder Head, VPC	Power, kW (hp) @ rpm	Torque, N•m (lb•ft) @ rpm	Bore x Stroke, mm (in)	Compression Ratio	Application	MAHLE Components
Yanmar	TNV	4TNV86CT	2.1	Japan	33,000	Tier 4 / Stage V	4, inline	DI, 2	44 (59) @ 3000	168.2 (124.1) @ 1950	86 x 90 (3.39 x 3.54)	19.2:1	AG, IS, OH	✓
Yanmar	TNV	4TNV98C	3.3	Japan	11,000	Tier 4 / Stage V	4, inline	DI, 2	41.5 (55.6) @ 1800	NA	98 x 110 (3.86 x 4.33)	18.3:1	GS	✓
Yanmar	TNV	4TNV98C	3.3	Japan	45,000	Tier 4 / Stage V	4, inline	DI, 2	51.7 (69.3) @ 2500	235 (173.3) @ 1625	98 x 110 (3.86 x 4.33)	18.3:1	AG, IS, OH	✓
Yanmar	TNV	4TNV98CT	3.3	Japan	3,200	Tier 4 / Stage V	4, inline	DI, 2	51.0 (68.4) @ 1800	NA	98 x 110 (3.86 x 4.33)	18.1:1	GS	✓
Yanmar	TNV	4TNV98CT	3.3	Japan	22,000	Tier 4 / Stage V	4, inline	DI, 2	53.7 (72) @ 2500	280 (206.5) @ 1625	98 x 110 (3.86 x 4.33)	17.9:1	AG, IS, OH	✓
Yanmar	TNV	4TNV94FHT	3.1	Japan	31,000	Tier 4 / Stage V	4, inline	DI, 2	88.4 (118.5) @ 2500	394 (290.6) @ 1700	94 x 110 (3.70 x 4.33)	17.6:1	AG, IS, OH	✓

Legend – 2020 North American heavy-duty diesel engines

**AG:** Agriculture  
**DI:** Direct Injection  
**GS:** Generator Set  
**IDI:** Indirect Injection  
**IS:** Industrial/Stationary  
**M:** Marine  
**NA:** Not Available  
**O&G:** Oil and Gas  
**OH:** Off-Highway Mobile  
**TB:** Truck/Bus/Coach  
**VPC:** Valves per Cylinder

\* Meet Tier 4 Interim regulations using Transitional Program for Equipment Manufacturers (TPEM). Available in other regulated areas.

<sup>1</sup> Engine production volumes provided by Rhein Associates. Global production estimates for plants shown.