



### FEATURES

### FUEL ECONOMY

Consistent performance . . . variable-timed fuel injection . . . broad rpm turbocharger match . . . excellent fuel economy over entire operating range.

### RELIABILITY AND DIESEL DURABILITY Diesel tough components . . . precise balance and conservative speed for smooth operation and long engine life.

### STANDARD EQUIPMENT

Air intake single stage, dry air cleaner Cooling lube oil, jacket water pump, thermostats Exhaust dry, flanged outlet Fuel priming and transfer pumps. filter Instruments and Gauges instrument panel, fuel pressure and lube oil pressure gauges, service meter Lubricating oil cooler, oil filter Flywheel and Flywheel Housing, SAE No.1

### Industrial Engine

**3306** 125-325 bhp/93-243 kW 2000-2200 rpm

### **SPECIFICATIONS**

In-Line, 6 Cylinder, 4-Stroke-Cycle Diesel
Bore—in (mm) 4.75 (121)
Stroke—in (mm) 6.00 (152)
Displacement—cu in (L) 638 (10.5)
Combustion System Direct injection
Rotation (from flywheel end) Counterclockwise
Capacity for Liquids—U.S. Gal (L)
Cooling System (engine only)
DITA
DINA & DIT 4.2 (15.9)
Lube Oil System (refill)7.3 (27.4)
Engine Weight, Net Dry (approx)—Ib (kg)
Turbocharged (T)
Turbocharged-Aftercooled (TA) 2220 (1007)
Naturally Aspirated (NA)

- FLEXIBLE APPLICATION RANGE High torque rise . . . big displacement . . . convenient installation . . . more performance for your money.
- WORLDWIDE PRODUCT SUPPORT AND PARTS AVAILABILITY

### **OPTIONAL EQUIPMENT**

Alternator Cooling

raditor, fan drive, belt tightener, Vee belt

Exhaust

flexible fittings, mufflers, watercooled manifolds Instruments and Gauges

electric gauges, tachometer

Lubricating

dipstick, oil filler, oil filter

Power Takeoffs

auxiliary drive pulleys, front and rear enclosed clutches, hydraulic pump

**Protection Devices** 

electrical and mechanical shutoffs, oil pressure and water temperature alarm switches

Starting

air, electric

### **PERFORMANCE DATA**

<b>—</b> · ·	
lurbocharo	ed-Aftercooled

g/kW-hr

L/hr

247

232

37.3 32.2 29.4

Turbocharged-Afterc	ooled														
Rating Level	E			D			С			В			Α		
Rated rpm	2200 2200			2200			2000			2000					
Engine Power@rpm	335 I	ohp (25	50 kW)	) 330 bhp (249 kW)		325 bhp (242 kW)			295 bhp (220 kW)			275 bhp (194 kW)			
	1	-			-						-			-	
rpm	2200	1800	1500	2200	1800	1500	2200	1800	1500	2000	1700	1500	2000	1700	1500
bhp	335	331	317	330	318	300	325	302	281	295	280	261	275	259	244
lb/hp-hr	.380	.358	.339	.381	.357	.349	.380	.353	.340	.357	.350	.340	.357	.345	.340
gal/hr	18.2	16.9	15.3	18.0	16.2	14.9	17.6	15.2	13.7	15.0	14.0	12.7	14.0	12.8	11.9
	1	1	1	1		1	1								
kW	250	247	236	249	240	226	242	225	210	220	209	195	205	193	182
g/kW-hr	231	218	206	232	217	212	231	215	207	217	213	207	217	210	207
L/hr	68.8	64.1	58.0	68.1	61.3	56.5	66.7	57.7	51.7	56.9	53.0	48.0	53.0	48.3	44.9
Turbocharged-Afterc	ooled														
Rating Level		Е			D			С			В			Α	
Rated rpm		2200			2200			2200			2000		2000		
Engine Power@rpm	325 I	ohp (24	13 kW)	310 b	hp (23	1 kW)	300 b	hp (22	4 kW)	275 b	hp (20	5 kW)	260 b	hp (19	4 kW)
	1			1	-	-	I	-		I.	-		1	-	-
rpm	2200	1800	1500	2200	1800	1500	2200	1800	1500	2000	1700	1500	2000	1700	1500
bhp	325	323	310	310	307	281	300	285	250	275	261	213	260	230	180
lb/hp-hr	.385	.362	.362	.381	.360	.358	.380	.358	.357	.363	.355	.357	.363	.355	.360
gal/hr	17.9	16.7	16.0	16.9	15.8	14.4	16.3	14.6	12.7	14.3	13.2	10.9	13.5	11.7	9.3
	1	1	1	1		1									
kW	243	241	231	231	229	210	224	213	187	205	195	159	194	172	134
g/kW-hr	234	220	220	232	219	218	231	218	217	221	216	217	221	216	219
L/hr	67.6	63.2	60.6	63.9	59.8	54.5	61.6	55.2	48.2	54.0	50.1	41.1	51.1	44.2	35.0
Turbocharged															
Rating Level		Е			D			С			В			Α	
Rated rpm		2200			2200			2200			2000			2000	
Engine Power@rpm	275 l	ohp (20	)5 kW)	268 b	hp (20	0 kW)	249 b	hp (18	6 kW)	225 b	hp (16	8 kW)	190 b	hp (14	2 kW)
Engine Power@rpm	275 l	ohp (20	05 kW)	268 b	hp (20	0 kW)	249 b		6 kW)	225 b	hp (16	8 kW)	190 b	hp (14:	2 kW)
Engine Power@rpm rpm	275 l 2200	ohp (20 1800	05 kW) 1500	268 b 2200	hp (20 1800	0 kW) 1500	249 b 2200		6 kW) 1500	225 b 2000	0hp (16	8 kW) 1500	190 b 2000	hp (14)	2 kW) 1500
						1	1	hp (18				1500 169			
rpm	2200	1800	1500 219 .373	2200	1800	1500	2200	hp (18 1800	1500	2000 225 .368	1700	1500	2000	1700	1500
rpm bhp	2200 275	1800 255	1500 219	2200 268	1800 244	1500 205	2200 249	hp (18 1800 214	1500 178	2000 225	1700 191	1500 169	2000 190	1700 165	1500 145
rpm bhp lb/hp-hr gal/hr	2200 275 .385 15.1	1800 255 .372 13.5	1500 219 .373 11.7	2200 268 .383 14.7	1800 244 .368 12.8	1500 205 .372 10.9	2200 249 .378 13.4	hp (18 1800 214 .365 11.2	1500 178 .368 9.4	2000 225 .368 11.8	1700 191 .365 10.0	1500 169 .367 8.8	2000 190 .373 10.1	1700 165 .363 8.6	1500 145 .365 7.6
rpm bhp lb/hp-hr gal/hr kW	2200 275 .385 15.1	1800 255 .372 13.5	1500 219 .373 11.7 163	2200 268 .383 14.7 200	1800 244 .368 12.8 182	1500 205 .372 10.9	2200 249 .378 13.4	hp (18 1800 214 .365 11.2 160	1500 178 .368 9.4 133	2000 225 .368 11.8 168	1700 191 .365 10.0	1500 169 .367 8.8 126	2000 190 .373 10.1	1700 165 .363 8.6 123	1500 145 .365 7.6 108
rpm bhp lb/hp-hr gal/hr kW g/kW-hr	2200 275 .385 15.1 205 234	1800 255 .372 13.5 190 226	1500 219 .373 11.7 163 227	2200 268 .383 14.7 200 233	1800 244 .368 12.8 182 224	1500 205 .372 10.9 153 226	2200 249 .378 13.4 186 230	hp (18 1800 214 .365 11.2 160 222	1500 178 .368 9.4 133 224	2000 225 .368 11.8 168 224	1700 191 .365 10.0 143 222	1500 169 .367 8.8 126 223	2000 190 .373 10.1 142 227	1700 165 .363 8.6 123 221	1500 145 .365 7.6 108 222
rpm bhp lb/hp-hr gal/hr kW	2200 275 .385 15.1	1800 255 .372 13.5	1500 219 .373 11.7 163	2200 268 .383 14.7 200	1800 244 .368 12.8 182	1500 205 .372 10.9	2200 249 .378 13.4	hp (18 1800 214 .365 11.2 160	1500 178 .368 9.4 133	2000 225 .368 11.8 168	1700 191 .365 10.0	1500 169 .367 8.8 126	2000 190 .373 10.1	1700 165 .363 8.6 123	1500 145 .365 7.6 108
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA	2200 275 .385 15.1 205 234	1800 255 .372 13.5 190 226 51.2	1500 219 .373 11.7 163 227	2200 268 .383 14.7 200 233	1800 244 .368 12.8 182 224 48.6	1500 205 .372 10.9 153 226	2200 249 .378 13.4 186 230	hp (18 1800 214 .365 11.2 160 222 42.2	1500 178 .368 9.4 133 224	2000 225 .368 11.8 168 224	1700 191 .365 10.0 143 222 37.7	1500 169 .367 8.8 126 223	2000 190 .373 10.1 142 227	1700 165 .363 8.6 123 221 32.4	1500 145 .365 7.6 108 222
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level	2200 275 .385 15.1 205 234	1800 255 .372 13.5 190 226 51.2 <b>E</b>	1500 219 .373 11.7 163 227	2200 268 .383 14.7 200 233	1800 244 .368 12.8 182 224 48.6 <b>D</b>	1500 205 .372 10.9 153 226	2200 249 .378 13.4 186 230	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b>	1500 178 .368 9.4 133 224	2000 225 .368 11.8 168 224	1700 191 .365 10.0 143 222 37.7 <b>B</b>	1500 169 .367 8.8 126 223	2000 190 .373 10.1 142 227	1700 165 .363 8.6 123 221 32.4 <b>A</b>	1500 145 .365 7.6 108 222
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm	2200 275 .385 15.1 205 234 57.2	1800 255 .372 13.5 190 226 51.2 <b>E</b> 2200	1500 219 .373 11.7 163 227 44.2	2200 268 .383 14.7 200 233 55.5	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200	1500 205 .372 10.9 153 226 41.2	2200 249 .378 13.4 186 230 50.9	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> 2200	1500 178 .368 9.4 133 224 35.4	2000 225 .368 11.8 168 224 44.8	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000	1500 169 .367 8.8 126 223 33.5	2000 190 .373 10.1 142 227 38.3	1700 165 .363 8.6 123 221 32.4 32.4 <b>A</b> 2000	1500 145 .365 7.6 108 222 28.6
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level	2200 275 .385 15.1 205 234 57.2	1800 255 .372 13.5 190 226 51.2 <b>E</b>	1500 219 .373 11.7 163 227 44.2	2200 268 .383 14.7 200 233 55.5	1800 244 .368 12.8 182 224 48.6 <b>D</b>	1500 205 .372 10.9 153 226 41.2	2200 249 .378 13.4 186 230 50.9	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b>	1500 178 .368 9.4 133 224 35.4	2000 225 .368 11.8 168 224 44.8	1700 191 .365 10.0 143 222 37.7 <b>B</b>	1500 169 .367 8.8 126 223 33.5	2000 190 .373 10.1 142 227 38.3	1700 165 .363 8.6 123 221 32.4 <b>A</b>	1500 145 .365 7.6 108 222 28.6
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm Engine Power@rpm	2200 275 .385 15.1 205 234 57.2	1800 255 .372 13.5 190 226 51.2 <b>E</b> <b>2200</b> bhp (12	1500 219 .373 11.7 163 227 44.2 7 kW)	2200 268 .383 14.7 200 233 55.5	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200 hp (12	1500 205 .372 10.9 153 226 41.2 0 kW)	2200 249 .378 13.4 186 230 50.9	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> <b>2200</b> hp (11	1500 178 .368 9.4 133 224 35.4 2 kW)	2000 225 .368 11.8 168 224 44.8	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000 chp (10	1500 169 .367 8.8 126 223 33.5 1 kW)	2000 190 .373 10.1 142 227 38.3	1700 165 .363 8.6 123 221 32.4 <b>A</b> 2000 ohp (93	1500 145 .365 7.6 108 222 28.6
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm Engine Power@rpm	2200 275 .385 15.1 205 234 57.2 170 t	1800 255 .372 13.5 190 226 51.2 <b>E</b> 2200 php (12 1800	1500 219 .373 11.7 163 227 44.2 7 kW)	2200 268 .383 14.7 200 233 55.5 160 b 2200	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200 hp (12 1800	1500 205 .372 10.9 153 226 41.2 0 kW)	2200 249 .378 13.4 186 230 50.9 150 b 2200	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> <b>2200</b> hp (11 1800	1500 178 .368 9.4 133 224 35.4 2 kW)	2000 225 .368 11.8 168 224 44.8 135 b 2000	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000 ohp (10	1500 169 .367 8.8 126 223 33.5 33.5 1 kW)	2000 190 .373 10.1 142 227 38.3 38.3	1700 165 .363 8.6 123 221 32.4 <b>A</b> 2000 ohp (93 1700	1500 145 .365 7.6 108 222 28.6 28.6
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm Engine Power@rpm Frpm bhp	2200 275 .385 15.1 205 234 57.2 170 k 2200 170	1800 255 .372 13.5 190 226 51.2 <b>E</b> 2200 0hp (12 1800 156	1500 219 .373 11.7 163 227 44.2 7 kW) 1500 140	2200 268 .383 14.7 200 233 55.5 160 b 2200 160	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200 hp (12 1800 149	1500 205 .372 10.9 153 226 41.2 0 kW) 1500 135	2200 249 .378 13.4 186 230 50.9 50.9 150 b 2200 150	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> <b>2200</b> hp (11 1800 129	1500 178 .368 9.4 133 224 35.4 2 kW) 1500 107	2000 225 .368 11.8 168 224 44.8 135 b 2000 135	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000 hp (10 1700 115	1500 169 .367 8.8 126 223 33.5 33.5 1 kW) 1 kW)	2000 190 .373 10.1 142 227 38.3 38.3 125 t 2000 125	1700 165 .363 8.6 123 221 32.4 <b>A</b> 2000 php (93 1700 106	1500 145 .365 7.6 108 222 28.6 28.6 8 kW) 1500 94
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm Engine Power@rpm bhp lb/hp-hr	2200 275 .385 15.1 205 234 57.2 170 k 2200 170 .406	1800 255 .372 13.5 190 226 51.2 <b>E</b> 2200 0hp (12 1800 156 .381	1500 219 .373 11.7 163 227 44.2 7 kW) 1500 140 .388	2200 268 .383 14.7 200 233 55.5 160 b 2200 160 .401	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200 hp (12 1800 149 .376	1500 205 .372 10.9 153 226 41.2 0 kW) 1500 135 .380	2200 249 .378 13.4 186 230 50.9 150 b 2200 150 .399	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> <b>2200</b> hp (11 1800 129 .378	1500 178 .368 9.4 133 224 35.4 35.4 2 kW) 1500 107 .367	2000 225 .368 11.8 168 224 44.8 135 b 2000 135 .386	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000 hp (10 1700 115 .376	1500 169 .367 8.8 126 223 33.5 126 23 33.5 126 126 102 .368	2000 190 .373 10.1 142 227 38.3 38.3 125 I 2000 125 .386	1700 165 .363 8.6 123 221 32.4 <b>A</b> 2000 ohp (93 1700 106 .375	1500 145 .365 7.6 108 222 28.6 28.6 8 kW) 1500 94 .368
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm Engine Power@rpm Frpm bhp	2200 275 .385 15.1 205 234 57.2 170 k 2200 170	1800 255 .372 13.5 190 226 51.2 <b>E</b> 2200 0hp (12 1800 156	1500 219 .373 11.7 163 227 44.2 7 kW) 1500 140	2200 268 .383 14.7 200 233 55.5 160 b 2200 160	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200 hp (12 1800 149	1500 205 .372 10.9 153 226 41.2 0 kW) 1500 135	2200 249 .378 13.4 186 230 50.9 50.9 150 b 2200 150	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> <b>2200</b> hp (11 1800 129	1500 178 .368 9.4 133 224 35.4 2 kW) 1500 107	2000 225 .368 11.8 168 224 44.8 135 b 2000 135	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000 hp (10 1700 115	1500 169 .367 8.8 126 223 33.5 33.5 1 kW) 1 kW)	2000 190 .373 10.1 142 227 38.3 38.3 125 t 2000 125	1700 165 .363 8.6 123 221 32.4 <b>A</b> 2000 php (93 1700 106	1500 145 .365 7.6 108 222 28.6 28.6 8 kW) 1500 94
rpm bhp lb/hp-hr gal/hr kW g/kW-hr L/hr NA Rating Level Rated rpm Engine Power@rpm bhp lb/hp-hr	2200 275 .385 15.1 205 234 57.2 170 k 2200 170 .406	1800 255 .372 13.5 190 226 51.2 <b>E</b> 2200 0hp (12 1800 156 .381	1500 219 .373 11.7 163 227 44.2 7 kW) 1500 140 .388	2200 268 .383 14.7 200 233 55.5 160 b 2200 160 .401	1800 244 .368 12.8 182 224 48.6 <b>D</b> 2200 hp (12 1800 149 .376	1500 205 .372 10.9 153 226 41.2 0 kW) 1500 135 .380	2200 249 .378 13.4 186 230 50.9 150 b 2200 150 .399	hp (18 1800 214 .365 11.2 160 222 42.2 <b>C</b> 2200 hp (11 1800 129 .378	1500 178 .368 9.4 133 224 35.4 35.4 2 kW) 1500 107 .367	2000 225 .368 11.8 168 224 44.8 135 b 2000 135 .386	1700 191 .365 10.0 143 222 37.7 <b>B</b> 2000 hp (10 1700 115 .376	1500 169 .367 8.8 126 223 33.5 126 23 33.5 126 126 102 .368	2000 190 .373 10.1 142 227 38.3 38.3 125 I 2000 125 .386	1700 165 .363 8.6 123 221 32.4 <b>A</b> 2000 ohp (93 1700 106 .375	1500 145 .365 7.6 108 222 28.6 28.6 8 kW) 1500 94 .368

244

34.7

229

231

30.3 27.7 32.4

243

230

26.4

223

21.2

235

28.2

229

23.4

224

235

20.3 26.1

228

21.5

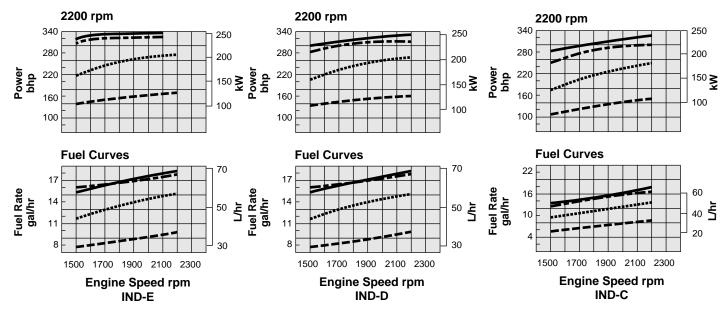
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18.7

236

### **RATING CURVES**

DITA	
DITA	
DIT	
DINA	



### **INDUSTRIAL RATINGS**

#### IND-E

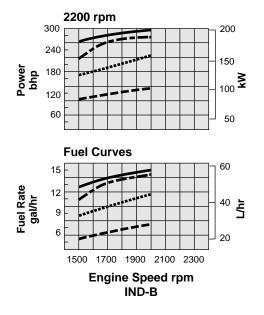
IND-E ratings are for service where speed and power are required for a short time for initial starting or sudden overload. For emergency service where standard power is unavailable. The maximum horsepower and speed capability of the engine can be utilized for a maximum of 15 uninterrupted minutes followed by one hour at intermittent or duration of the emergency. Operating limits are:

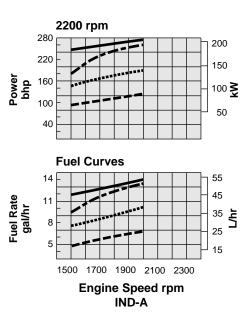
- 1. Time at full load not to exceed 5% of the duty cycle or 15 minutes max.
- 2. Load factor limited to 35%.
- 3. The maximum horsepower and speed capability of the engine can bc utilized for a maximum of 15 minutes followed by one hour at intermittent or duration of the emergency.
- 4. Typical operating hours per year is 500.

Examples of an IND-E industrial application are:

- 1. Standby centrifugal water pumps
- 2. Oil field well servicing
- 3. Crash trucks
- 4. Gas turbine starters

### **RATING CURVES**





### INDUSTRIAL RATINGS/cont'd

### IND-D

IND-D ratings are for service where rated power is required by period overloads. The maximum horse-power and speed capability of the engine can be utilized for a minimum of 30 uninterrupted minutes followed by one hour at intermittent. Operating limits are:

- 1. Time at full load not to exceed 10% of the duty cycle or 30 min max
- 2. Load factor limited to 50%.
- 3. Full load operation to a maximum of 30 minutes followed by one hour at intermittent.
- 4. Typical operating hours per year is 1500.

Examples of an IND-D industrial application are:

- 1. Offshore cranes
- 2. Runway snowblowers
- 3. Water well drills
- 4. Portable air compressors
- 5. Fire pump certification power (advertised power)

### IND-C (INTERMITTENT)

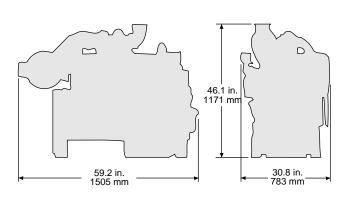
IND-C ratings are for service where power and/or speed are cyclic. The horsepower and speed of the engine which can be utilized for one uninterrupted hour followed by one hour of operation at or below the continuous rating. Operating limits are:

- 1. Time at full load not to exceed 50% of the duty cycle or one hour max.
- 2. Load factor limited to 70%.
- 3. Full load operation limited to one uninterrupted hour followed by one hour of operation at or below the continuous rating.
- 4. Typical operating hours per year is 3000 hours.

Examples of an IND-C industrial application are:

- 1. Agricultural tractors, harvesters, and combines
- 2. Truck off highway
- 3. Fire pump application power (90% of certified power)
- 4. Blast hole drills
- 5. Rock crushers and wood chippers with high torque rise
- 6. Oil field hoisting

### DIMENSIONS



### **INDUSTRIAL RATINGS**

#### IND-B

IND-B ratings are for moderate-duty service where power and/or speed are cyclic. Operating limits are:

- 1. Time at full load not to exceed 80% of the duty cycle.
- 2. Load factor limited to 85%.
- 3. Typical operating hours per year is 4000 hours.

Examples of an IND-B industrial application are:

- 1. Irrigation where normal pump demand is 85% of engine rating
- 2. Oil field mechanical pumping/drilling
- 3. Stationary/plant air compressors

### **IND-A (CONTINUOUS)**

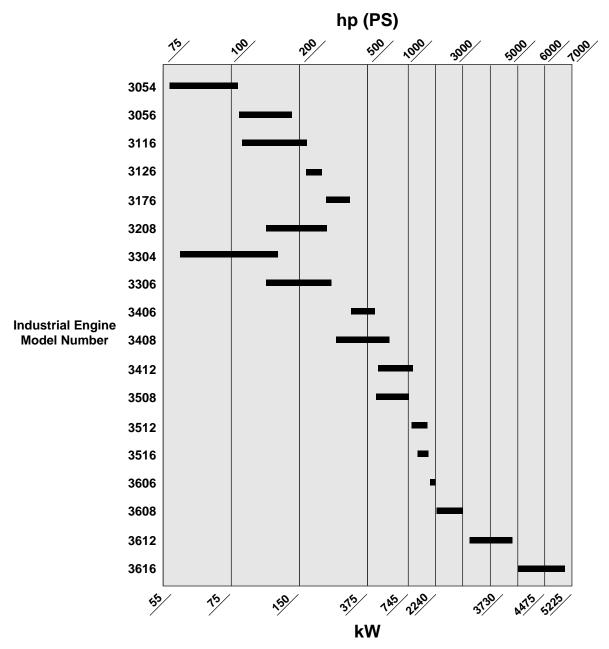
Continuous ratings are for heavy-duty service when the engine is operated at rated load and speed up to 100% of the time without interruption or load cycling. Operating limits are:

- 1. No hour or load factor limitation.
- 2. Continuous operation at full load.
- 3. Average load factor to approach 100%.
- 4. Typical operating hours per year is over 4000 hours.

Examples of an IND-A industrial application are:

- 1. Pipeline pumping
- 2. Ventilation
- 3. Customer specs

## Match a Reliable Cat<sup>®</sup> Diesel to Your Application.



### **RATING DEFINITIONS & CONDITIONS**

**Ratings** are based on SAE J1349 standard conditions. These ratings also apply at ISO3046/1, DIN6271, and BS5514 standard conditions.

Additional ratings are available for specific customer requirements. Consult your Caterpillar dealer.

**Fuel rates** are based on ISO3046 and on fuel oil of 35° API (60° F or 16° C) gravity having an LHV of 18 390 Btu/lb (42 780 kJ/kg) when used at 85° F (29° C) and weighing 7.001 lbs/U.S. gal. (838.9 g/L).