

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-13-4

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

DEUTZ MOTOR GmbH

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Deutz Motor GmbH 1996 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Gensets, Compressors

Fuel Type: Diesel

<u>Engine Family</u>	<u>Liters (Cubic Inches)</u>		<u>Exhaust Emission Control Systems and Special Features</u>
TDZ16.RGDARB	15.8	(969)	Turbocharger Charge Air Cooler Smoke Puff Limiter

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

<u>Exhaust Emissions (g/bhp-hr)</u>				<u>Smoke Opacity ( % )</u>		
<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

<u>Engine Family</u>	<u>Exhaust Emission (g/bhp-hr)</u>				<u>Smoke Opacity ( % )</u>		
	<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
TDZ16.RGDARB	0.3	0.5	4.6	0.2	10	8	21


BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 27<sup>th</sup> day of June 1996.



R. B. Summerfield  
Assistant Division Chief  
Mobile Source Division

Engine type	Engine code	Nominal power ±5%	Nominal speed ±50rpm	Mean effective pressure at nominal power	Injection rate at nominal power ±6mm <sup>3</sup>	Nominal torque ±5%	Mean effective pressure at nominal torque	Speed at nom. torque ± 100rpm	Low idle -50-+300 rpm	High idle (+50 - +300 rpm, dep. on engine applic.)
		kW	rpm	bar	mm <sup>3</sup> /stroke	Nm	bar	rpm	rpm	rpm
BF8M1015C	C420	420	2100	15.1	370	2674	21.17	1300	550	2180
BF8M1015C	C400	400	2100	14.4	350	2547	20.17	1300	550	2180
BF8M1015C	C381	381	2100	13.7	330	2426	19.21	1300	550	2180
BF8M1015C	C364	364	2100	13.1	315	2317	18.35	1300	550	2180
BF8M1015C	C348	348	2100	12.5	300	2216	17.54	1300	550	2180
BF8M1015C	C420/1	420	2000	15.9	370	2700	21.38	1300	550	2080
BF8M1015C	C400/1	400	2000	15.1	350	2674	21.17	1300	550	2080
BF8M1015C	C381/1	381	2000	14.4	330	2547	20.17	1300	550	2080
BF8M1015C	C364/1	364	2000	13.8	315	2433	19.27	1300	550	2080
BF8M1015C	C348/1	348	2000	13.2	300	2326	18.42	1300	550	2080
BF8M1015C	C420/2	420	1900	16.7	370	2700	21.38	1300	550	1970
BF8M1015C	C400/2	400	1900	15.9	350	2700	21.38	1300	550	1970
BF8M1015C	C381/2	381	1900	15.2	336	2585	20.47	1300	550	1970
BF8M1015C	C364/2	364	1900	14.5	320	2470	19.56	1300	550	1970
BF8M1015C	C348/2	348	1900	13.8	303	2361	18.70	1300	550	1970
BF8M1015C	C400/3	400	1800	16.8	360	2700	21.38	1300	550	1970
BF8M1015C	C380	380	1800	16	340	2700	21.38	1300	550	1870
BF8M1015C	C362	362	1800	15.2	325	2593	20.53	1300	550	1870
BF8M1015C	C345	345	1800	14.5	310	2471	19.57	1300	550	1870
BF8M1015C	C330	330	1800	13.9	297	2364	18.72	1300	550	1870
BF8M1015C	D420	420	2100	15.1	370	n.a.	n.a.	n.a.	n.a.	n.a.
BF8M1015C	D362	362	1800	15.2	325	n.a.	n.a.	n.a.	n.a.	n.a.
BF8M1015C	D333	333	1500	16.8	338	n.a.	n.a.	n.a.	n.a.	n.a.
BF8M1015C	C300	300	2100	14.4	335	1910	20.17	1300	550	2180
BF8M1015C	C286	286	2100	13.7	322	1821	19.22	1300	550	2180
BF8M1015C	C273	273	2100	13.1	309	1738	18.35	1300	550	2180
BF6M1015C	C261	261	2100	12.5	298	1662	17.54	1300	550	2180
BF6M1015C	C300/1	300	2000	15.1	340	2006	21.17	1300	550	2080
BF6M1015C	C286/1	286	2000	14.4	328	1912	20.19	1300	550	2080
BF6M1015C	C273/1	273	2000	13.8	314	1825	19.27	1300	550	2080
BF6M1015C	C261/1	261	2000	13.2	302	1745	18.42	1300	550	2080
BF6M1015C	C300/2	300	1900	15.9	350	2025	21.38	1300	550	1970
BF6M1015C	C286/2	286	1900	15.2	335	1941	20.49	1300	550	1970
BF6M1015C	C273/2	273	1900	14.5	324	1852	19.56	1300	550	1970
BF6M1015C	C261/2	261	1900	13.8	312	1771	18.70	1300	550	1970
BF6M1015C	C285	285	1800	16	340	2025	21.38	1300	550	1870
BF6M1015C	C271	271	1800	15.2	325	1941	20.49	1300	550	1870
BF6M1015C	C259	259	1800	14.5	315	1855	19.59	1300	550	1870
BF6M1015C	C248	248	1800	13.9	303	1776	18.75	1300	550	1870
BF6M1015C	D300	300	2100	14.4	335	n.a.	n.a.	n.a.	n.a.	n.a.
BF6M1015C	D310	310	1800	17.4	365	n.a.	n.a.	n.a.	n.a.	n.a.
BF6M1015C	D271	271	1800	15.2	325	n.a.	n.a.	n.a.	n.a.	n.a.
BF6M1015C	D285	285	1500	19.2	370	n.a.	n.a.	n.a.	n.a.	n.a.
BF6M1015C	D250	250	1500	16.8	335	n.a.	n.a.	n.a.	n.a.	n.a.