

# MSHA Approval (30 CFR Part 7) of DEUTZ EPA Tier 2 / 4I Engines

Issued by: J. E. Sauerteig \*\*\* DEUTZ Corporation \*\*\* Status: May 19, 2008



Engine	Rating			Assigned Vent.		Particulate Index		Approval No.	Issue Date	High Idle [ rpm ]	Max Perm Press		Max Altitude Bef. Derate (*) [ m ] / [ ft ]	8-Mode Cycle Results					Min Filter efficiency for 5 [g/hr]	Min Filter efficiency for 2.5 [g/hr]
	kW	HP	rpm	cfm	cfm/HP	cfm	cfm/HP				Intake mbar	Exhaust mbar		NOx [ g/kWh ]	HC [ g/kWh ]	CO [ g/kWh ]	PM [ g/hr ]	PM rate [ g/hr ]		
F2L 2011 D 2011 L02i (Tier 4I)	22.5	30.2	2800	1,500	50	2,000	66	07-ENA040010-0	Nov 2, 2004 June 5, 2007	3220	45	48	305 / 1,000	5.77	0.42	2.83	0.267	3.26	0.0%	23.0%
F2M 2011 D 2011 L02 (Tier 4I)	23.5	31.5	2800	1,500	48	2,000	63	07-ENA040010-0	Nov 2, 2004 June 5, 2007	3220	45	48	305 / 1,000	5.77	0.42	2.83	0.267	3.26	0.0%	23.0%
F3L 2011 D 2011 L03i (Tier 4I)	35.8	48.0	2800	2,000	42	3,000	62	07-ENA040011-0	Nov 2, 2004 June 5, 2007	3220	50	62	305 / 1,000	5.77	0.42	2.83	0.267	4.89	0.0%	48.9%
F3M 2011 D 2011 L03 (Tier 4I)	36.5	49.0	2800	2,000	41	3,000	61	07-ENA040011-0	Nov 2, 2004 June 5, 2007	3220	50	62	305 / 1,000	5.77	0.42	2.83	0.267	4.89	0.0%	48.9%
F4L 2011	47.8	64.0	2800	3,000	47	4,000	62	07-ENA040012-0	Nov 2, 2004	3100	55	100	305 / 1,000	5.77	0.42	2.83	0.267	6.52	23.3%	61.7%
F4M 2011	48.5	65.0	2800	3,000	46	4,000	62	07-ENA040012-0	Nov 2, 2004	3100	55	100	305 / 1,000	5.77	0.42	2.83	0.267	6.52	23.3%	61.7%
BF3L 2011	44.9	60.2	2800	4,500	75	2,000	33	07-ENA050007-0	Sept 28, 2005	3150	50	62	305 / 1,000	6.59	0.51	1.55	0.123	3.02	0.0%	17.2%
	38.9	52.2	2300	4,000	77	2,000	38	07-ENA050007-0	Sept 28, 2005	2650	50	62	305 / 1,000	6.75	0.4	1.13	0.12	2.68	0.0%	6.7%
BF3M 2011	48.5	65.0	2800	4,500	69	2,000	31	07-ENA050007-0	Sept 28, 2005	3150	50	62	305 / 1,000	6.59	0.51	1.55	0.123	3.02	0.0%	17.2%
	42.0	56.3	2300	4,000	71	2,000	36	07-ENA050007-0	Sept 28, 2005	2650	50	62	305 / 1,000	6.75	0.4	1.13	0.12	2.68	0.0%	6.7%
BF4L 2011	58.1	78	2800	6,000	77	2,500	32	07-ENA040004-0 07-ENA040004-1	Aug 24, 2004 Sept 27, 2005	3100	55	75	305 / 1,000	6.69	0.30	1.16	0.11	3.50	0.0%	28.6%
BF4M 2011	65	87	2800	6,000	69	2,500	29	07-ENA040004-0 07-ENA040004-1	Aug 24, 2004 Sept 27, 2005	3100	55	75	305 / 1,000	6.69	0.30	1.16	0.11	3.50	0.0%	28.6%
BF4M 2012	74.9	100	2500	6,000	60	3,000	30	07-ENA040002-0	July 12, 2004	2900	75	100	305 / 1,000	6.68	0.15	0.83	0.11	4.51	0.0%	44.6%
BF4M 2012C	103	138	2500	6,500	47	3,000	22	07-ENA040003-0	July 12, 2004	2850	55	75	1,000 / 3,280	5.60	0.18	0.69	0.083	4.57	0.0%	45.3%
	95	127	2200	5,500	43	3,000	24			2508		1,000 / 3,280	5.25	0.14	0.75	0.087	4.52	0.0%	44.7%	
BF6M 2012C	155	208	2500	9,000	43	3,500	17	07-ENA040008-0	Sept 16, 2004	2850	55	100	305 / 1,000	5.39	0.12	0.80	0.068	5.58	10.4%	55.2%
BF4M 1013FC (Mech)	129	173	2300	7,000	40	4,000	23	07-ENA040007-1	Jan 11, 2006	2600	55	75	305 / 1,000	5.19	0.37	0.75	0.089	6.20	19.0%	60.0%
	117	157	2200	6,500	41	3,000	19			2500		305 / 1,000	5.21	0.49	0.72	0.077	4.88	0.0%	49.0%	
BF4M 1013EC	118	158	2300	7,000	44	4,000	25	07-ENA040007-1	Jan 11, 2006	2600	55	75	305 / 1,000	5.19	0.37	0.75	0.089	6.20	19.0%	60.0%
BF4M 1013C	112	150	2300	7,000	47	4,000	27	07-ENA040007-1	Jan 11, 2006	2600	55	75	305 / 1,000	5.19	0.37	0.75	0.089	6.20	19.0%	60.0%
BF6M 1013FC (Mech)	200	268	2300	12,000	45	5,500	21	07-ENA040005-0	Aug 24, 2004	2690	55	75	1,000 / 3,280	5.26	0.47	0.65	0.086	9.24	45.9%	72.9%
BF4M 1013FC (MVS)	127	170	2300	9,000	53	2,500	15	07-ENA040014-0	Dec 3, 2004	2560±100	50	100	Automatic	6.07	0.10	0.31	0.058	3.94	0.0%	36.5%
	112	150	2200	6,000	40	2,000	13	07-ENA040014-1	Nov 8, 2005	2450±100	50	100	Automatic	5.71	0.36	0.57	0.052	3.09	0.0%	19.0%
	101	135	2200	6,000	44	1,500	11	07-ENA040014-1	Nov 8, 2005	2450±100	50	100	Automatic Electronic	5.89	0.32	0.60	0.047	2.54	0.0%	1.5%
BF6M 1013FC (MVS)	180	241	2300	12,000	50	3,000	12	07-ENA050002-0	April 26, 2005	2690	60	100	Automatic Electronic	5.59	0.37	0.70	0.05	4.63	0.0%	46.0%
F6L 914	87.5	117	2300	6,000	51	3,500	30	07-ENA040018-0	Dec 16, 2004	2392	55	100	305 / 1,000	5.93	0.60	2.67	0.124	5.73	12.7%	56.4%

(\*) The altitude listed is the maximum altitude for operation before fuel deration. The fuel rate of the engine must be reduced by 1% per 100 m (328 ft) above the elevation listed