

Emission standards in the European Union for non-road vehicles

Table 1: Stage III A standards for non-road mobile machinery

Category	Net power (KW)	Date (placing on the market)	CO (g/kWh)	NO _x +HC (g/kWh)	PM (g/kWh)
H	130 ≤ P ≤ 560	01/2006	3.5	4.0	0.2
I	75 ≤ P < 130	01/2007	5.0	4.0	0.3
J	37 ≤ P < 75	01/2008	5.0	4.7	0.4
K	19 ≤ P < 37	01/2007	5.5	7.5	0.6

Dates for constant speed engines are: 01/2011 for categories H, I and K; 01/2012 for category J.

Table 2: Stage III B standards for non-road vehicles

Category	Net power (KW)	Date (placing on the market)	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	PM (g/kWh)
L	130 ≤ P ≤ 560	01/2011	3.5	0.19	2.0	0.025
M	75 ≤ P < 130	01/2012	5.0	0.19	3.3	0.025
N	56 ≤ P < 75	01/2012	5.0	0.19	3.3	0.025
P	37 ≤ P < 56	01/2013	5.0		4.7	0.025

Table 3: Stage IV standards for non-road mobile machinery

Category	Net power (KW)	Date (placing on the market)	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	PM (g/kWh)
Q	130 ≤ P ≤ 560	01/2014	3.5	0.19	0.4	0.025
R	56 ≤ P < 130	10/2014	5.0	0.19	0.4	0.025

Railcars and locomotives

Table 4: Stage III A standards for Rail Traction Engines

Cat.	Net power (KW)	Date	CO (g/kWh)	HC (g/kWh)	HC + NO _x (g/kWh) ^x	NO _x (g/kWh)	PM (g/kWh)
RC A	130 < P	01/2006	3.5	-	4.0		0.2
RL A	130 ≤ P ≤ 560	01/2007	3.5	-	4.0		0.2
RH A	P > 560	01/2009	3.5	0.5*	-	6.0	0.2

* HC = 0.4 g/kWh and NO_x = 7.4 g/kWh for engines of P > 2,000 kW and D > 5 liters/cylinder

Table 5: Stage III B propulsion engines used in railcars (RC) and locomotives (R)

Cat.	Net power (KW)	Date	CO (g/kWh)	HC (g/kWh)	HC + NO _x (g/kWh) ^x	NO _x (g/kWh)	PM (g/kWh)
RC B	130 < P	01/2012	3.5	0.19	-	2.0	0.025
R B	130 < P	01/2012	3.5	-	4.0	-	0.025

Equipment for agricultural, construction, marine, generating sets, material handling and railway.

- **Stage I** implemented in 1999
- **Stage II** implemented between 2001 to 2004,
- **Stage III/IV** implemented in 2004 and 2005.
 - **Stage III A** becomes effected beginning of 2006 until 2012, depending on the engine power
 - **Stage III B** becomes effected beginning of 2011 until 2013. Depending on the engine power the reduction in PM is about 90% or more compared to Stage III A and will request a DPF
 - **Stage IV** becomes effected in 2014. Depending on the engine power the reduction in NO_x is about 80% or more compared to Stage III B and will request a NO_x aftertreatment system