



HOLCIM BULACAN PLANT

Use of High Efficiency Fans and Motors for Clinker Cooler Fans

SUMMARY OF THE OPTION

HOLCIM (formerly Union Cement Corporation) Bulacan plant located in Bulacan, Philippines, and produces about 1.9 million tons of cement per year.

Fourteen clinker cooler fans were evaluated for their flow, power and efficiency. Eleven fans operated at a combined efficiency of less than 50%. The combined efficiency is determined by the efficiency of the fan and the efficiency of the motor, and can be improved in the following ways:

- Improve the fan efficiency by installing backward curve/airfoil type centrifugal fans, which are high efficiency fans
- Improve the motor efficiency by replacing existing motors with electric motors with efficiency of 90% or higher.
- In this case it is not possible to install variable frequency drives, because the damper positions are rarely adjusted, i.e. the fans and motors operate at a consistent speed.

At time of writing of this case study, this option was still under investigation for its feasibility.

Table 1. Clinker Cooler Fans Performance Data

Fan #	Technical Specifications					Measured Data					Air kW	Combined Efficiency %
	? P, mmCE	Inlet Flow, Acmh	Density, kg/m ³	Temp., °C	Fan kW	Airflow, Acmh	Pressure, mbar	Damper Opening, %	Motor kW			
1R	1038	21960	1.146	35	77	15931	89	41	55	39.4	71.7	
1L	1038	21960	1.146	35	77	15808	84	56	59	36.9	62.6	
1C	1047	29280	1.146	35	107	28628	72	48	107	57.3	53.6	
2R	935	39180	1.146	35	119	30794	65	97	143	55.7	38.9	
2L	935	39180	1.146	35	119	28860	74	60	138	59.4	43.0	
3R	841	45720	1.146	35	127	28744	76	52	134	60.8	45.3	
3L	841	45720	1.146	35	127	27535	63	45	120.32	48.3	40.1	
4C	841	45720	1.146	35	127	29196	54	26	113	43.9	38.8	
5R	735	64140	1.146	35	163	59377	29	52	140	47.9	34.2	
6R	687	64140	1.146	35	153	66586	33	60	197.63	61.1	30.9	
7R	637	64140	1.146	35	143	57488	28	60	158.25	44.8	28.3	
8R	590	69480	1.146	35	147	54619	24	32	123	36.5	29.6	
P1	746	47580	1.146	35	121	43738	47	100	145	57.2	39.4	
P2	745	46860	1.146	35	118	48847	28	77	130	38.0	29.3	

KEY WORDS

Cement, Philippines, Fans and Blowers, Electric Motors, Clinker Cooler



FOR MORE INFORMATION

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