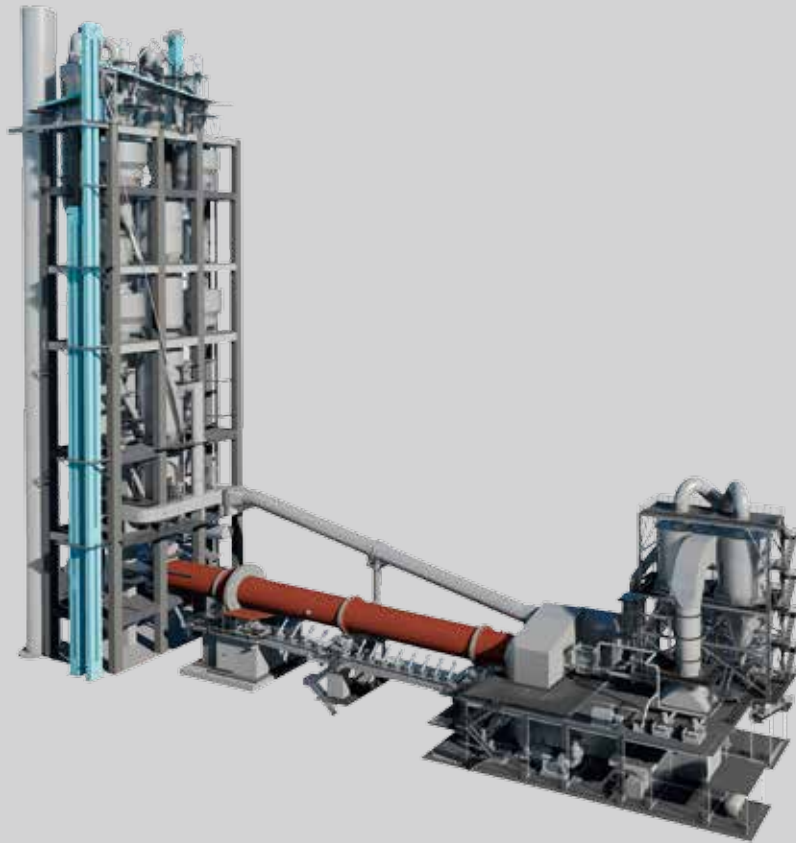




Sinoma Sinoma International
Engineering Co., Ltd.

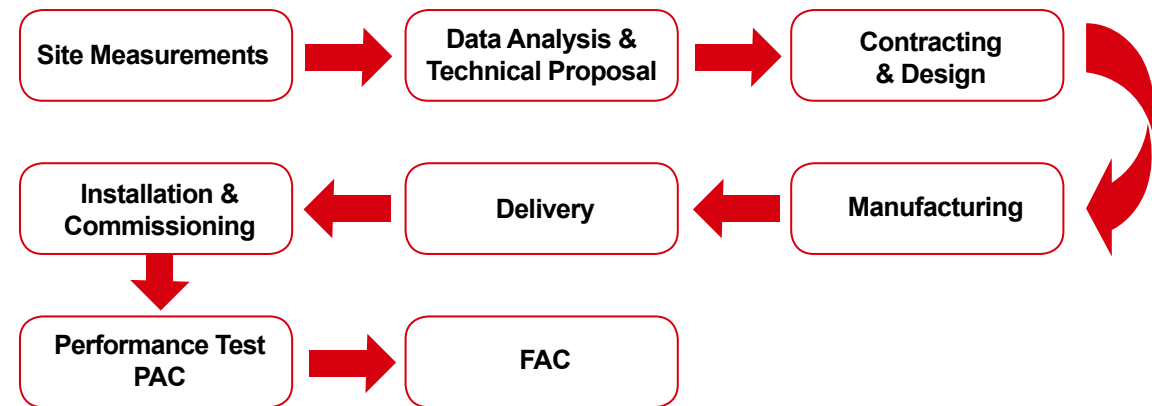
Pyro System Retrofit Solution



SINOMA TECHNOLOGY & EQUIPMENT GROUP CO., LTD.

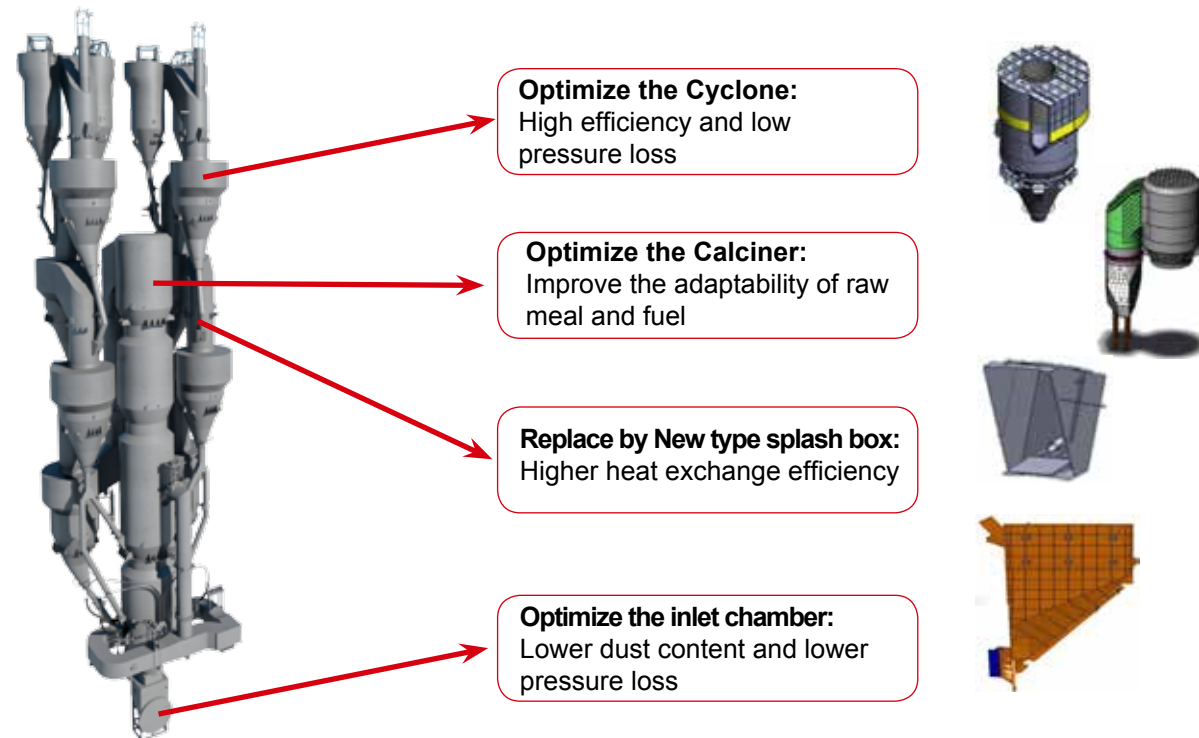


1 PROCESS

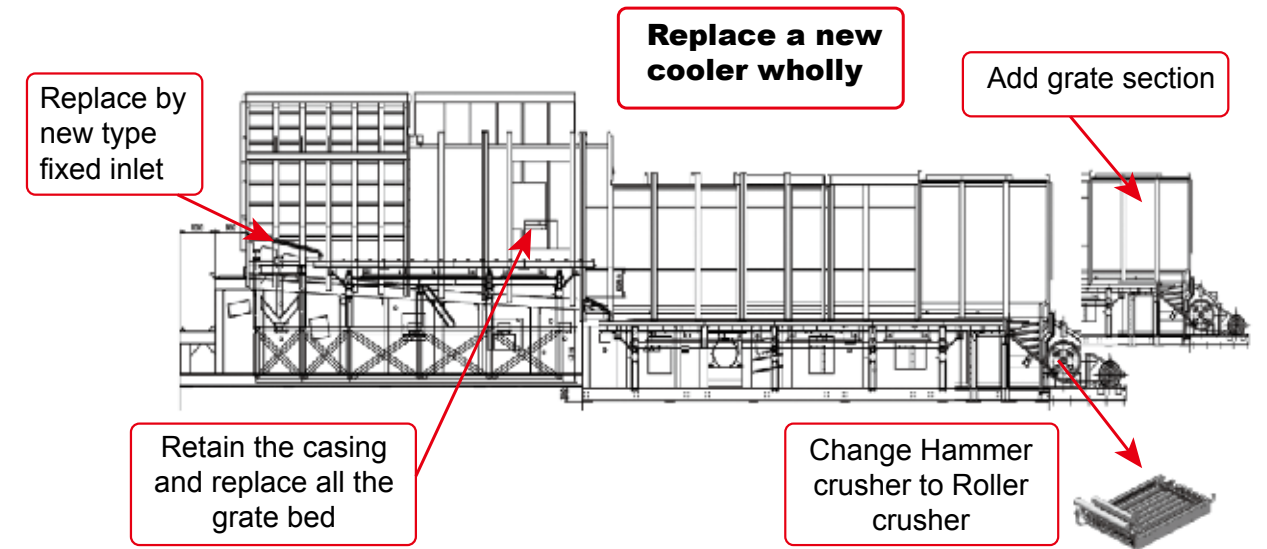


2 PURPOSE

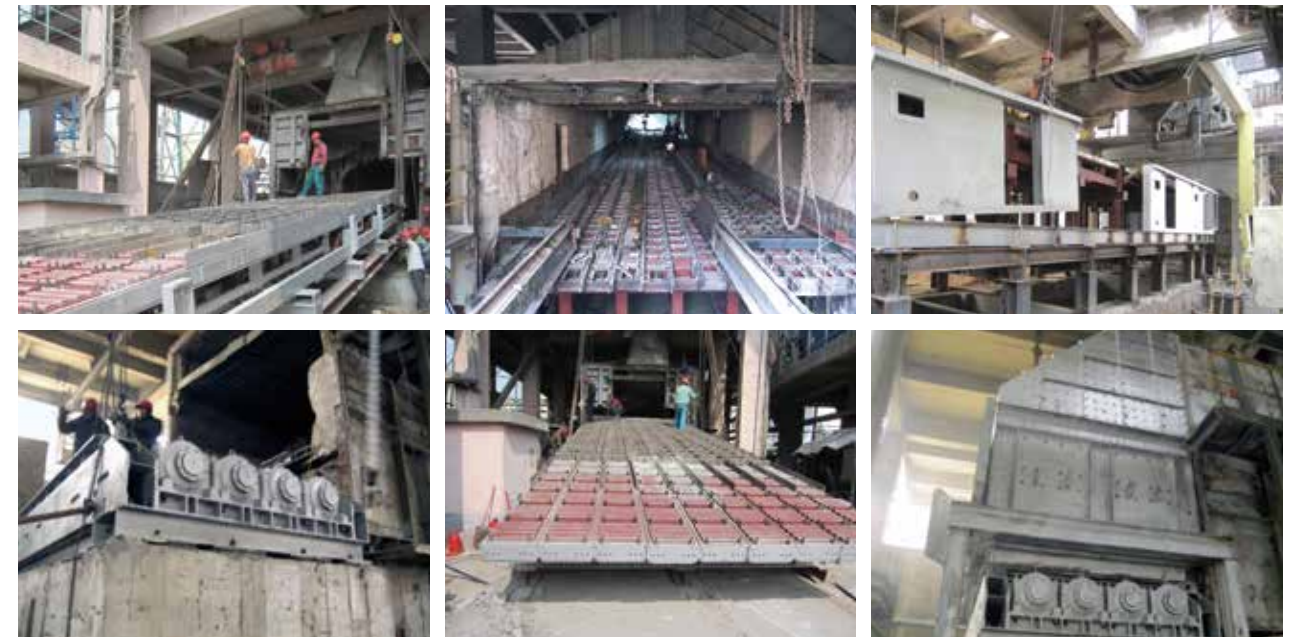
1.Preheater Retrofit



2.Cooler Retrofit



More combination options to meet the different requirements of the customer.



3 TYPICAL

Case 1. Huzhou BAIXIAN South Cement Co., Ltd. (Zhejiang, China)

Execute Time	2014.2.4~2014.3.20
Model	EPC
Period	45 days
Retrofit content	1) Preheater system ● Cyclone: reduce pressure loss, Improve the separation efficiency ● Calciner: Enlarge volume, Optimize the point of raw meal and pulverized coal into the calciner ● Optimize the inlet chamber

Item	Unit	Data	
		Before retrofit	After retrofit
Capacity	t/d	6200~6300	6200~6300
C1 Tem.	°C	330	322
C1 Pressure	Pa	-6100	-5200
Real coal consumption	kg/t.cl	148.75	142.6
Power consumption of clinker line	kWh/t.cl	62.5	61.5

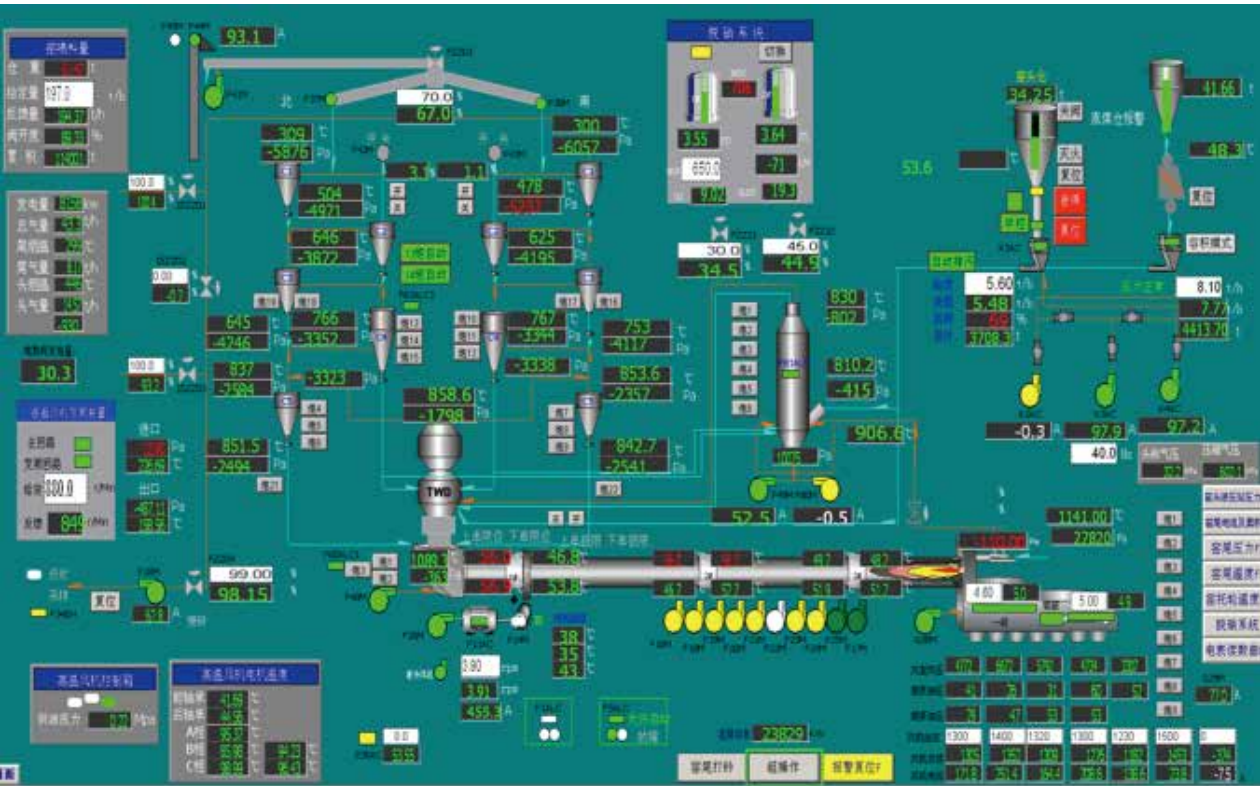


Case 2. China Century Cement Ltd. (HEIDELBERG & China Resources Joint Venture, Guangzhou, China)

Execute Time	2014.3.13~2014.6.9
Model	EPC
Period	94 days
Retrofit content	1) Preheater system ● Cyclone: reduce pressure loss ● Calciner optimization 2) Cooler ● Replace by whole SINOWALK 4G cooler with intermediate roller crusher 3) Kiln ● Increase speed 4) Burner ● Replace by SINOSWIRL four channels burner

No.	Item	Unit	Data	
			Before retrofit	After retrofit
1	Pyro-system	capacity	t/d	4960
		Fuel	Type	Soft coal
		Heat consumption	kcal/kg.cl	784
		Power consumption	kWh/t.cl	27.34
2	Kiln	size	m	Φ 4.75 × 75
		slope	%	4.00
		Max. speed	r/min	3.50
3	Preheater	Supplier		Euro brand
		C1 Tem.	°C	327
		C1 Pressure	Pa	-7320
		Dust content	g/Nm ³	140
4	Calciner	size	m	Φ 6.9
		volume	m ³	560
5	Cooler	Type		3G cooler
		Supplier		Euro brand
		Grate area	m ²	119.4
		Tem. of second air	°C	913
		Tem. of tertiary air	°C	800
		Tem. out of cooler	°C	225
		Heat recovery efficiency	%	65

Case 3. China Resources (HongShuiHe) 2500t/d cement line (Guangxi, China)



Execute Time	2013.8.15~2013.10.5
Model	EP
Period	50 days
Retrofit content	1) Preheater system ● Cyclone: reduce pressure loss ● Calciner optimization 2) Cooler ● Replace by whole SINOWALK cooler with intermediate roller crusher



Performance indicators	Existing cooler data	Contract data	Performance test data after retrofit
Capacity(tpd)	2500	≥ 2750	2750
Heat recovery efficiency(%)	64	≥ 74	75.5
Electricity consumption of fan+drive+crusher(kWh/t clinker)	6.5		5.2
Clinker outlet temp.(above ambient temp.)(℃)	130	≤ 65 (at 2750tpd)	60 (at 2750tpd)
Specific cooling air(Nm3/h)	1.9	2.0	1.9
Standard coal consumption (kg.ce/t.cl)	112.5		107
Cooler Running rate(%)	85		100

Item	Unit	Data	
		Before retrofit	After retrofit
Capacity	t/d	2654	2970
Heat consumption	kcal/kg.cl	795	750
C1 Tem.	℃	316	300
C1 Pressure	Pa	-6150	-6140
Tem. of second air	℃	1020	1060
Tem. of tertiary air	℃	860	1130
Raw meal decomposition rate	%	91.4	95.5

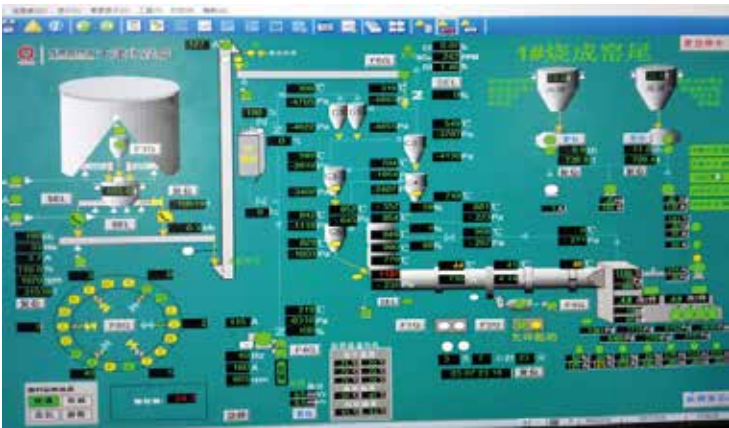
Case 4. CHANGXING South Cement Co., Ltd.
(Zhejiang, China)



Execute Time	2017.2.4~2017.3.21
Model	EPC
Period	46 days
Retrofit content	1) Cooler Replaced by whole SINOWALK cooler with intermediate roller crusher

Performance indicators	Contract data	Performance test data
Capacity(tpd)	≥ 5800	5800
Clinker outlet temp.(above ambient temp.)(°C)	≤ 65	63.42
Secondary air temperature(°C)	≥ 1150	1192
Electricity consumption of fan+drive+crusher (kWh/t clinker)	≤ 5.6	5.52
Reduce standard coal consumption (kg/t · cl)	≥ 2	2.153
Cooler Running rate(%)		100

Case 5.
Qilianshan
YONGDENG Cement
Co., Ltd. Line1
(Gansu, China.
Elevation 2270m)



Execute Time	2016.12.26~2017.5.15
Model	EPC
Period	140 days
Retrofit content	1) Preheater system - Cyclone: reduce pressure loss - Calcliner optimization 2) Cooler - Replace by whole SINOWALK 4G cooler with intermediate roller crusher 3) Kiln - Increase speed, Expand the kiln inlet 4) Burner - Replace by SINOSWIRL four channels burner

Item	Unit	Data	
		Before retrofit	After retrofit
Capacity	t/d	2300	3000
Standard coal consumption	kg/t.cl	122.4	110
Heat consumption	kcal/kg.cl	784	731
Power consumption of sintering process	kWh/t.cl	40.4	38
C1 Tem.	°C	362	310
C1 Pressure	Pa	-5400	-4800
Tem. of tertiary air	°C	860	908



4 REFERENCES

1.Sinowalk Cooler Retrofit Reference

No.	Project	Existing	TPD	Execution	Retrofit Solution
1	Sinoma,Xinjiang	3 rd cooler	3000	2011	Whole replace by 4G cooler
2	Sinoma,Xinjiang	3 rd cooler	2000	2011	Whole replace by 4G cooler
3	China Resource,Fujian	EURO 3 rd cooler	2500	2012	Whole replace by 4G cooler
4	Lianshi,Xinjiang	3 rd cooler	2000	2013	Whole replace by 4G cooler
5	Aluminate cement,Henan	2 nd cooler	360	2013	Whole replace by 4G cooler
6	Quantou Cement,Shandong	4 th cooler	6000	2013	Extend the grate area, End roller
7	China Resource,Guangdong	3 rd cooler	5000	2013	Whole replace by 4G cooler, Intermediate roller crusher
8	China Resource,Guangxi	RURO 3 rd cooler	2500	2013	Whole replace by 4G cooler, Intermediate roller crusher
9	Jingdadi,Hunan	3 rd cooler	2500	2014	Whole replace by 4G cooler, Intermediate roller crusher
10	Yinshantai,Hunan	3 rd cooler	2500	2014	Whole replace by 4G cooler
11	Larfage,North Korea	3 rd cooler	3300	2014	Whole replace by 4G cooler
12	China Resource,Fujian	3 rd cooler	2500	2014	Whole replace by 4G cooler
13	Zhenxin,Henan	4 th cooler	3500	2014	Retain casing, only replace grate
14	Heidelberg,Guangdong	EURO 3 rd cooler	7200	2015	Plus one section
15	China Resource,Yunnan	3 rd cooler	2500	2015	Whole replace by 4G cooler
16	Alumina,Shanxi	3 rd cooler	2500	2016	Retain casing, only replace grate

No.	Project	Existing	TPD	Execution	Retrofit Solution
17	Beiyuan 1#,Shanxi	3 rd cooler	3800	2016	Retain casing, only replace grate
18	India JKLC	3 rd cooler	4000	2016	Whole replace by 4G cooler
19	Conch ,Guizhou	4 th cooler	3200	2016	Retain casing, only replace grate
20	South Cement, Zhejiang	3 rd cooler	5000	2016	Whole replace by 4G cooler, Intermediate roller crusher
21	Conch ,Hunan	3 rd cooler	3000	2016	Retain casing, only replace grate
22	Qilianshan Cement,Gansu	3 rd cooler	3000	2017	Retain casing, only replace grate bed
23	Kenya NCCL	3 rd cooler	3000	2016	Whole replace by 4G cooler
24	South Cement, Hunan	3 rd cooler	2500	2017	Retain casing, only replace grate bed
25	Conch ,Gansu	3 rd cooler	2800	2017	Retain casing, only replace grate bed
26	Conch ,Guangdong	3 rd cooler	3800	2017	Retain casing, only replace grate bed
27	Huanwo,Shandong	3 rd cooler	2500	2017	Retain casing, only replace grate bed
28	Beiyuan 2#,Shanxi	3 rd cooler	3500	2017	Retain casing, only replace grate bed
29	Linxia Conch ,Gansu	3 rd cooler	2800	2017	Retain casing, only replace grate bed
30	Linyun Conch ,Guangdong	3 rd cooler	3800	2017	Retain casing, only replace grate bed
31	Huanwo,Shandong	3 rd cooler	2500	2017	Retain casing, only replace grate bed
32	Beiyuan 2#,Shanxi	3 rd cooler	3500	2018	Retain casing, only replace grate bed
33	Hubei Jinglan Cement	3 rd cooler	3200	2018	Retain casing, only replace grate bed
34	Tonglu Red Lion Cement	3 rd cooler	6000	2018	Retain casing, only replace grate bed
35	Shandong yizhou Cement	3 rd cooler	5000	2018	Whole replace by 4G cooler, Intermediate roller crusher



No.	Project	Existing	TPD	Execution	Retrofit Solution
36	Tianshui sinoma cement	3 rd cooler	2500	2018	Retain casing, only replace grate bed
37	Ningxia Qingtongxia cement	3 rd cooler	2500	2018	Retain casing, only replace grate bed
38	Guizhou Huishui Haolong Cement	3 rd cooler	3200	2018	Whole replace by 4G cooler, Intermediate roller crusher
39	Ningxia Saima cement 1#	3 rd cooler	2500	2018	Retain casing, only replace grate bed
40	Ningxia Saima cement 2#	3 rd cooler	2500	2018	Retain casing, only replace grate bed
41	Alumina,Shanxi	3 rd cooler	2500	2018	Retain casing, only replace grate bed
42	Zhejiang Jinyuan cement	3 rd cooler	2500	2018	Retain casing, only replace grate bed
43	Ningguo conch cement	3 rd cooler	4000	2018	Retain casing, only replace grate bed
44	Kunming conch cement	3 rd cooler	2500	2018	Retain casing, only replace grate bed
45	Yiyang conch cement	3 rd cooler	5000	2018	Retain casing, only replace grate bed
46	Laishui Jidong cement	3 rd cooler	6500	2018	Retain casing, only replace grate bed
47	Qinghai Hongyang cement	4 th cooler	3000	2018	Retain casing, only replace grate bed
48	Fujian Quanzhou ridge cement	3 rd cooler	3000	2018	Retain casing, only replace grate bed
49	Quanjiao conch cement	3 rd cooler	5000	2018	Retain casing, only replace grate bed
50	Fenxi conch cement	3 rd cooler	2500	2018	Retain casing, only replace grate bed
51	Huaining conch cement	3 rd cooler	5000	2018	Retain casing, only replace grate bed

2.Preheater Retrofit Reference

No.	Project	TPD	Execution	Retrofit Solution
1	China Resource (hongshuihe),Guangxi	2500	2013	Combined retrofit, EP
2	China Resource (Zhushui), Guangzhou, China	5000	2014	Combined retrofit, EPC
3	Huzhou BAIXIAN South Cement Co., Ltd.	5000	2014	Combined retrofit, EPC
4	Fujian Yongding Minfu Material Co., Ltd.	2500	2014	Partial modification
5	China Resources (Caoxi) Cement Co., Ltd.	2500	2014	Combined retrofit, EPC
6	Xinxiang Zhenxin Cement Co., Ltd.	3500	2014	Partial modification
7	Henan Tong Li Group Co., Ltd.	2500	2014	Partial modification
8	Xinxiang Zhenxin Cement Co., Ltd.	5000	2014	Partial modification
9	Lingchuan BBMG	3500	2014	Partial modification
10	Quan tou group Zaozhuang Golden Bridge rotary Kiln Cement Co., Ltd.	5000	2014	Partial optimize
11	China Resources (Yue Bao) Cement Co., Ltd.	5000	2015	Combined modification, EPC
12	Zanhuang BBMG	2500	2015	Partial modification
13	Sinoma Hanjiang Cement Co., Ltd.	2500	2015	Partial modification
14	Luquan Dingxin BBMG	2500	2015	Partial modification
15	China Resources Cement (NANNING) Co., Ltd.	5000	2015	Partial modification
16	Sinoma Pingxiang Cement Co., Ltd.	5000	2015	Partial optimize
17	Congo CILU Project	1700	2016	Upgrade new one
18	Chongqing FuHuang Building Materials Co., Ltd.	4000	2016	Combined modification, EPC



No.	Project	TPD	Execution	Retrofit Solution
19	Qilian Yongdeng Cement Co., Ltd. Line1	3000	2016	Combined modification, EPC
20	Kyrgyz South Cement	2500	2017	Upgrade new one
21	Henan Mengdian Cement Group Co. Ltd.	5500	2017	Combined modification, EPC
22	Hubei Jinglan Cement Group Co. Ltd.	3200	2017	Combined modification
23	Hangzhou Sanya South Cement Co., Ltd.	5000	2017	Combined modification, EP
24	Guizhou Huishui-hao Long Cement Co., Ltd.	3200	2017	Combined modification
25	Qilian Yongdeng Cement Co., Ltd. Line2	3000	2017	Combined modification, EPC
26	Zhejiang Jinyuan Cement Co., Ltd.	2500	2018	Combined modification, EPC
27	Daye Jianfeng Cement Co., Ltd.	5000	2018	Combined modification, EPC
28	Qinghai Huzhu Jinyuan Cement Co., Ltd.	5000	2018	Combined modification, EP
29	Huzhou Huaikan South Cement Co., Ltd.	5000	2018	Combined modification, EPC
30	Anhui Guangde South Cement Co., Ltd.	5000	2018	Combined modification, EPC
31	Changxing South Cement Co., Ltd.	5000	2018	Combined modification, EPC



Pyro System
Retrofit Solution



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