

Used equipment

For sale by Intercem

1 pre-owned pendulum cooler

I01059

On offer: a pre-owned pendulum cooler (OEM: IKN)

The pendulum cooler will be single stage with single hydraulic drive located under the IKN Clinker Inlet Distribution Support – KIDS. The mobile frame will be suspended from the IKN Linear Pendulum Support – LPS – integrated into the under grate housing.

The grate area will be sized for a clinker outlet temperature of 65°C above ambient at 3500 t/d. At this production a grate speed of 9 spm only is expected.

The cooler is offered with an IKN Roll Crusher located at the cold end. As compared with a hammer crusher there will be no chain curtain, no grizzly bars and no kiln stops caused by large lumps or coating pieces. Electric power and wear will be lower.

Clinker fall through will be air piped to the clinker discharge by the IKN Pneumatic Hopper Drainage – PHD. There will be no drag chain under the cooler.

The large kiln hood with outlet seal is sized for 5 m/s to reduce dust return to kiln. Tertiary air will be taken from the top of kiln hood. The temperature of secondary and tertiary air will be identical at all times. Extra high secondary air temperature is avoided so that the cooler can be operated with higher and more stable heat recuperation.

If interested, please contact:

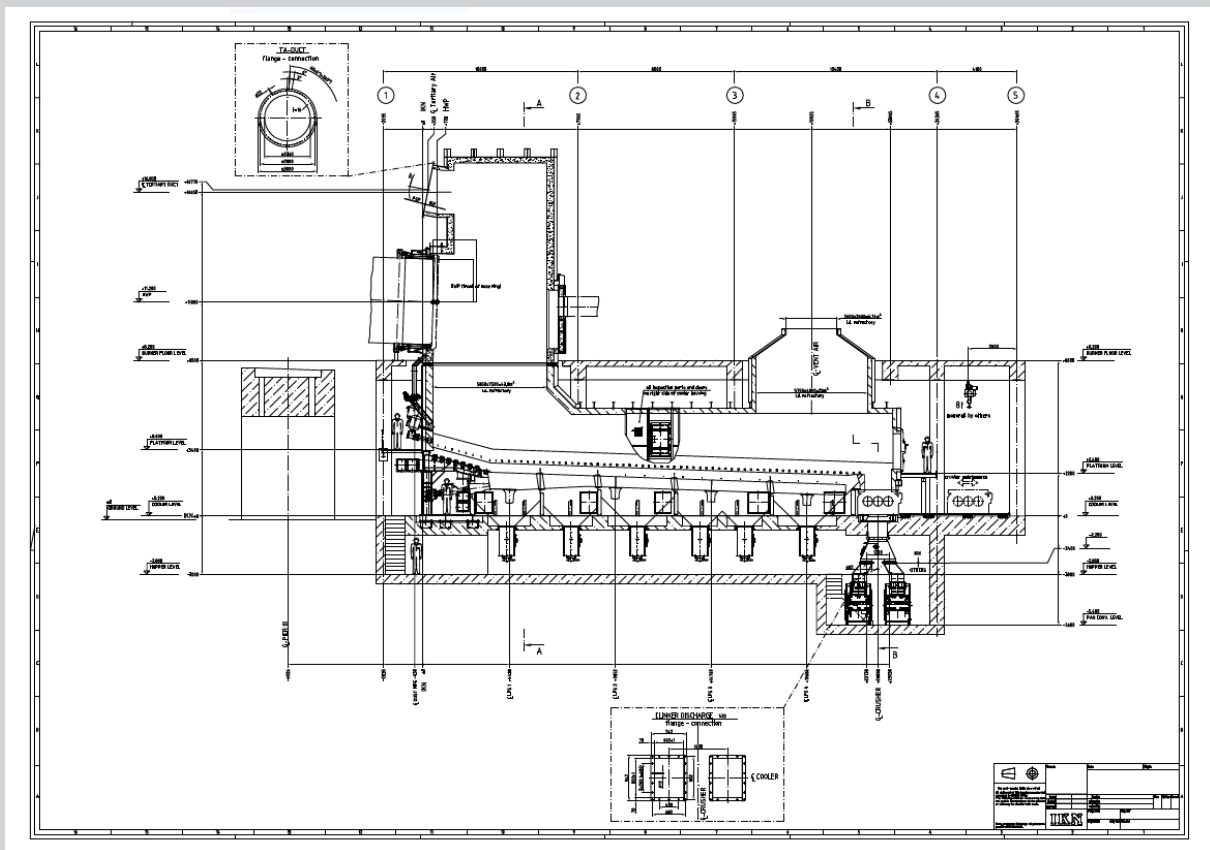
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Intercem Engineering is a leading company for the supply of pre-owned and new equipment and services for the cement industry. Turn-key plants are designed as combination of used and (where necessary) new equipment. A top notch team of engineers also provides comprehensive engineering of the technology and design of complete new production lines. The component described above could be implemented in a comprehensive solution upon demand.

Technical specification:

- Supplier: IKN
- Cooling interval: 1400 °C / 65 °C above ambient (P-2)
- Cooler size:
 - Fixed inlet: 3,8 m x 7 rows, sloped: 15°
 - Pendulum section: 3,8 m x 59 rows, sloped: 2°
- Aerated surface: 80,3 m²
- Clinker load: 43,6 t/m²,d
- Installed cooling air: 2,00 Nm³/kg_{cl}
- No. of new fans: 8 pcs.
- Tertiary air: taken from kiln hood
- Crusher: Roll crusher
- Clinker discharge: pneumatic hopper drainage PHD
- Vent air volume at upset: 399.240 m³/h at 300 °C
- Frequency: 50 Hz



Scope of supplies:

Pos.	Qty. [-]	Description	Supply [kg]	Local [kg]
1		Grate system		
1.1	91	COANDA nozzles 402D/403D, permeable for air and not for clinker, 428 x 150 x 75 mm, material: 1.4837 (25 Cr, 12 Ni)	1.259	
1.2	84	key nozzles with grooves 402D/403D, permeable for air and not for clinker, 428 x 150 x 75 mm, material: 1.4837 (25 Cr, 12 Ni)	1.162	
1.3	7	air beams, material: 1.0570	3.616	
1.4	1	set of accessories like bolts, pull rods, lock nuts,	269	
1.5	1121	COANDA nozzles 490, permeable for air and not for clinker, 428 x 200 x 75 mm, material: blades: High chrome, 50 HRC	20.490	
1.6		permanent side boards with ceramic seal and wear boards, materials: side boards 1.4825 (18 Cr, 8 Ni), wear boards: Low chrome, 50 HRC	1.304	
1.7		high wear resistant spacers, horizontal hooks, lock plates, lock bolts, bolts, nuts, flat and round ceramic seal, stainless electrodes, all with sufficient surplus	956	
1.8	19	movable air beams, machined	9.127	
	40	fixed air beams; material: 1.0570	18.907	
	59	Sets slide gates for flow adjustment included		
2		Supporting Structure		
2.1	2	Fixed side rails with adjustable saddles and supports		6.362
	1	Fixed center rail with adjustable saddle and supports		3.181
		set of accessories like bolts and nuts	2.301	
2.2	1	mobile frame with transverse beams, saddles and alignment beams	16.777	
2.3	1	Yoke for hydraulic cylinder	1.269	
	1	Fork flanges for hydraulic cylinder; all items heat treated, machined, material: 1.0570	732	
		support for hydraulic cylinder	761	
	4	4 guide roller for mobile frame	105	
		box with 2 membranes	83	
2.4	8	Stand LPS pendulum supports with pendulum straps, suitable for pre-erection of entire cooler	4.731	
3		Air Ducts and Seals		
3.1		pressure ducts with Y-distributor, steel plate 3 mm, individual ducts to air beams left side and right side		2.850

Pos.	Qty. [-]	Description	Supply [kg]	Local [kg]
3.2	2	flaps for the first 1 air beam to partially reduce flow		26
		side sealing of the fixed inlet		520
3.3		Pressure ducts between fans and compartments		4.660
3.4		Side seal and support against refractory		2.650
4		Grate Drive		
4.1	1	Hydraulic cylinder with 2 flexible joints, strokes per minute: 9 expected, 16 max., integrated 4/3 directional proportional valve	556	
	1	Set of pressure accumulators	516	
4.2		Hydraulic power pack with 2 sets of hydraulic pumps, one set as standby, 133 1/min, 55 kW, 400 V, 50 Hz	1.119	
		Oil cooling by water	30	
		Filter unit and a set of small parts	554	
		Pump support and flexible coupling	200	
4.3		Oil tank with temperature and level transducer	1.259	
4.4		High pressure hoses for cylinder and power pack	50	
		approx. 24 m hydraulic piping, 300 bar	696	
	1	Set of supports for hydraulic piping		300
4.5		Tube flaring tool for clean connection of hydraulic pipes	57	
5		Fans		
		Cooling air fans with motors, 400 V, 50 Hz; <ul style="list-style-type: none"> • Fans # 5.1 - #5.5 with inlet vane dampers • Fans # 5.6 - # 5.8 with frequency converters • Direct drive, impeller mounted an motor shaft • Pillow block bearings for a rated life of 50.000 h • Calibrated inlet nozzle for piezo measurement of air flow • Intake silencer for 85 dB(A) 1 m away with support • Ambient temperature 20°C, site elevation 600 masl; • For following volumes and static pressures at fan outlets 		
5.1	1	3 rows 4,5 m3/s 9,0 kPa 55/75 kW		2.088

Pos.	Qty. [-]	Description	Supply [kg]	Local [kg]
5.2	1	4 rows 4,7 m ³ /s 8,9 kPa 55/75 kW		2.111
5.3	1	4 rows 4,7 m ³ /s 8,9 kPa 55/75 kW		2.111
5.4	1	9 rows 13,6 m ³ /s 5,4 kPa 102/110 kW		4.593
5.5	1	9 rows 13,1 m ³ /s 5,1 kPa 94/110 kW		4.473
5.6	1	12 rows 16,7 m ³ /s 4,8 kPa 113/132 kW		6.072
5.7	1	15 rows 19,8 m ³ /s 4,4 kPa 124/132 kW		6.914
5.8	1	14 rows 17,4 m ³ /s 4,1 kPa 102/110 kW		5.951
total	8	66 rows 94,4 m ³ /s 700/819 kW		
		Fan volumes are 2,00 nm ³ /kg with 0,05 nm ³ /kg reserve over flow requirement of P-2. Fan pressures are with 5% reserve.		
6		Air Cannons		
6.1	2	Side air cannons DN 100 with stainless nozzles, 100 liter tanks, 1 central air cannon DN 150 with stainless nozzle, 100 liter tank, tanks with pressure relief valve, 3/2 directional valves and maintenance unit	573	
6.2		Additional stainless nozzles for quick relocation of tanks:		
	2	• For the side cannons	129	
	2	• For the central cannon	152	
6.3	2	seal cannons DN 40 with stainless nozzles and 8 liter tanks for clinker hoppers under the kiln outlet seal	49	
6.4		compressed air of 19 m ³ /h at min. 6 bars		local
7		Cooler Housing		
7.1		Welded under grate housing 5 mm with stiffeners		22.950
	4	Compartment walls		1.540
		Large entry ports for each chamber, open/closed indicated by proximity switches	552	
	5	Lamps & windows	47	
7.2		Welded upper housing 5 mm with stiffeners;		21.960
	1	Large entry ports approx. 800 x 1400 mm, open/closed indicated by proximity switches	520	
	4	Inspection ports	169	
	1	Double door above crusher, open/closed indicated by		520

Pos.	Qty. [-]	Description	Supply [kg]	Local [kg]
		proximity switch		
7.3		Cooler roof for suspension of anchors		4.320
		bull nose 5 mm with stiffeners		1.375
		vent air off-take with flange, no take over of loads		5.460
7.4		TD for:		
		• platforms around cooler front wall		
		• gangway at double door of roll crusher		
		• gangway at one side of upper housing		17.600
		• access stair ways		3.490
7.5		Base frame for cylinder		3.100
		LPS housing cover plates and base frames		4.150
	4	Inspection ports	20	
8		Kiln Hood and Seal		
8.1		Large, stationary kiln hood with 1 double door suspended on rollers, 2 entry ports and 2 inspection ports		57.070
8.2		Kiln outlet seal by air cooled spring steel		
8.2.1		Kiln mounting ring and wear ring		2.935
8.2.2	1	Set of special hardened spring steel blades	81	
		graphite lubrication of steel blades	15	
8.2.3		Dust pipe		130
8.2.4		Annular duct with nozzles for the joint air cooling of nose ring segments and seal blades		1.140
9		Roll Crusher		
9.1	3	Rolls, 3600 mm wide, crusher rings, seal rings, shafts and bearings	15.889	
9.2	3	Drive units with bevel planetary gear, and squirrel cage motor, 11 kW, IP 55	1.695	
9.3		Crusher housing with seals and liners, wheel mounted for pull out	7.145	
9.4		Central lubrication system, type optional	119	
10		Clinker Discharge		
10.1	6	Fines hoppers covered with lighting grids		4.740
10.2	6	pneumatic hopper drainages PHD with ball valves, slide gates and wear protected elbows	540	
		dust discharging pipes and air supply pipes, connected	503	

Pos.	Qty. [-]	Description	Supply [kg]	Local [kg]
		with second KIDS fan		
	1	set of coupling pipes and accessories	38	
	1	pneumatic system and maintenance unit	59	
10.3	1	clinker discharge chute under crusher without dedusting		630
11		Water Injection - as calculated in data sheet P-3		
11.1	1	rotary pump, for 5,1 m ³ /h., 40 bar, 30 kW with motor 400 V, 50 Hz, prefabricated valve station with solenoid valves and 1,5 kW seal air fan, 2 nozzle lance		1.861
11.2		50 m piping, 6 m ³ water tank		2.025
12		Refractory Lining Cooler - weights estimates only		
12.1		hot section side walls: 230 mm bricks, 1500°C, 120 mm insulation	84.220	
12.2		kiln hood, same as hot section	182.570	
12.3		cold section side walls: 116 mm bricks, 850°C, 90 mm insulation	47.330	
12.4		Castable side curbs for KIDS and Pendulum, 600 /700 mm high	26.150	
12.5		Cooler roof with anchors: hot section: 234 mm castable, 1500°C	14.160	
		cold section: 185 mm castable, 800°C	19.290	
		116/65 mm insulation	1.860	
12.6		Cooler drawing showing refractory thicknesses for tendering		
13		Instrumentation		
13.1	1	Thermocouple for secondary or tertiary air PtRh/Pt, 24 V DC, with transmitter, 2 wires	4	
13.2	4	Thermocouples for KIDS COANDA nozzles NiCr/Ni, 24 V DC, with transmitter, 2 wires	16	
13.3	8	Thermocouples for COANDA nozzles NiCr/Ni, 24 V DC, with transmitter, 2 wires	14	
13.4		Fans: pressure: 8 linear transducers 24 V DC, 4-20 mA, 2 wires		31
		flow: 8 square rooting transducers 24 V DC, 4-20 mA, 2 wires		31

Pos.	Qty. [-]	Description	Supply [kg]	Local [kg]
13.5	6	Thermometers for roll crusher bearing temperature Pt100, 24 V DC, with transmitter, 2 wires	12	
13.6	6	capacitance level probes	126	
13.7		approx. 112 m piping 8 x 1 mm for flow and pressure transducers including fittings and drainages		134
13.8		approx. 40 m protection pipes for grate plate thermocouples	48	
14		Electrical Portion and Control		
14.1	1	main cubicle consisting of		
14.1.1	1	Cubicle with low voltage feeding, generation and distribution of control power, emergency stop loops	500	
14.1.2	1	Set of motor starters (DOL) with load and thermal protection of motors of hydraulic power pack	200	
		Cubicle for motor starters of hydraulic drive	200	
14.1.3	1	Control cubicle with PLC Siemens S7-300, 1/0-modules, linear positioning module, bus coupler (Profibus) for the connection of distributed 1/0s; application program for control and monitoring of - hydraulic power pack - oil temperature and pressure - grate drive - air cannons	180	
14.2	1	Hydraulic control board for control of hydraulic power pack, oil temperature and oil pressure	35	
14.3	1	Local control board with operator panel for commissioning and local control of grate drive cylinder	25	
14.4	1	"Satellite Service for remote assistance via modern at start-up and troubleshooting by IKN central office; analog telephone line to be connected by customer	50	