



SANDVIK CH860 & CH865 CONE CRUSHER

TECHNICAL SPECIFICATION

Sandvik CH860 and Sandvik CH865 are technologically advanced, mid-range cone crushers designed for your mine's specific requirements. With a more than two-fold increase in performance range compared to other crushers in their class, Sandvik CH860 and Sandvik CH865 offer production flexibility. Depending on crushing application, they perform up to 30% better.

Sandvik CH860 is dedicated for high capacity secondary crushing thanks to its 500kW motor delivering higher power and more crushing force at maximum throw. The aggressive crushing action processes more ore, yet maintains product size, giving customers more throughput.

With the Sandvik CH865, the increased crushing force facilitates higher size reduction, resulting in a finer product size and less circulating load in closed circuits. It's particularly beneficial for tertiary and pebble crushing applications.

Each crusher is supplied as a complete package with all functions working in harmony and with a motor designed for exacting requirements. The Automatic Setting Regulation - ASRi™ control system enables real-time performance management, most tangibly equaling maximized crusher performance and productivity.



KEY FEATURES

Hydroset™ system	Provides safety and setting adjustment functions
ASRi™ coupled with Hydroset™	Automatically adapts the crusher to varying feed conditions ensuring maximum 24/7 performance
Mainframe is built as a unibody without moving parts	For optimal strength and less components requiring maintenance
Top serviceability	Lifting from above minimizes risks, and allows for quicker and safer maintenance
Adjustable eccentric throw	To exactly balance capacity to the process thus harmonizing the crushing stages
Constant liner profile	Maintains the feed opening and performance during the entire service life of the liners
Wide range of crushing chambers suited for all types of applications	Choose from extra coarse crushing chambers with the largest intake to extremely fine crushing chambers
PLC controlled electric dump valve for tramp iron protection	Reduces pressure peaks and mechanical stress on the crusher, greatly improving reliability
Tank instrumentation monitoring system (TIMS)	Offers real-time monitoring of the crusher lubrication system

GENERAL INFORMATION

GENERAL DESIGN CRITERIA

	CH860	CH865
Crusher type	Cone crusher, hydraulically adjusted	
Application	Minerals processing	
Crushing stage	Secondary	Tertiary, quaternary, pebble
Max. feed size	275 mm	100 mm
CSS range	13-51 mm	8-44 mm
Nominal capacity*	214–1,024 mtph	127–560 mtph
Ambient temperature	-20°C to +40°C (Contact Sandvik if outside range)	
Altitude of site	≤ 2000 m (Contact Sandvik if outside range)	

* Capacity is dependent on the crushing chamber, the eccentric throw, the crusher's setting and the feed material's bulk density, crushability, size analysis, moisture content, etc.

GENERAL CRUSHER DATA

	CH860	CH865
Weight	39,710 kg	38,930 kg
Main frame	Two-part unibody structure without moving parts. Cast steel.	
Top shell	Two-arm design	
Bottom shell	Four-arm design. Two inspection hatches.	
Feed hopper	Rubber lined steel hopper. Two inspection doors. Capacity 3,050 kg (bulk density 1,600 kg/m³)	
Feed level sensor	Vegapuls 67	
Main shaft	Supported at both ends Top spider bearing and bottom eccentric bearing	
Eccentric bushings (Throws – mm)	<ul style="list-style-type: none"> • 30, 34, 38, 42 • 42, 46, 50, 54, 58 • 58, 62, 66, 70 	
Eccentric speed	290 rpm (4.8 Hz)	
Max. motor power	500 kW	
Drive	Direct	
Safety coupling	Omega	
Pinion shaft speed	990 rpm (50 Hz) 1,190 rpm (60 Hz)	
Subframe	With rubber dampers	
CH660 adaptor	Available as option	
Maintenance tool box	Extractor for eccentric bushing. Extractor for bottom shell bushing. Extractor for step bearing Additional lifting and maintenance tools included	

CRUSHING CHAMBERS

	CH860	CH865
Mantle alternatives	A, B, FF	A, B, EF, OB
Concave alternatives	EC, C, MC, M	MF, F, EF, HR
Alloys for mantles and concaves	M1, M2, M7	
Mantle and concave backing material	Plastic free, metallic contact	
Lifting tool for mantle	Available as option	

CRUSHER DRIVE SYSTEM

MOTOR CHARACTERISTICS

Manufacturer	WEG
Model	HGF 450
Type	Three-phase, squirrel cage
Weight	5,880 kg
Rated power	500 kW
Frequency	50/60 Hz
Poles	6
Vibration resistance	Motor is supplied with special winding that is reinforced in order to support the vibration levels
Insulation class	F
Protection class	IP65

CRUSHER DUST EXCLUSION

SYSTEM CHARACTERISTICS

Type	Over-pressure air system
Air input	Blower (standard) or air regulator (option)
Air quality	Filtered
Air flow	> 0.3 m³/min
Air pressure	> 600 Pa when crusher is operating
Weight (blower, hoses)	25 kg
Motor power	0.75 kW
Motor speed	2,800 rpm (50Hz) 3,350 rpm (60Hz)
Phases	3
Insulation class	F
Protection class	IP55

CRUSHER TRAMP IRON PROTECTION

HYDRAULIC PRESSURE RELIEF VALVE

System description	Mechanical spring loaded hydraulic valve
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ELECTRIC DUMP VALVE (OPTION)

System description	Electrically controlled hydraulic valve
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Pressure transmitter and an electric pilot valve connected to a dedicated, rapid sampling PLC system

Hydraulic pressure sampling rate	200 times per second
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Mechanical assembly

Weight	212 kg
Dimensions (LxWxH)	320x407x643 mm
Heating elements	2 x 200 W

PLC cabinet

Manufacturer	Siemens
Dimensions (LxHxD)	760x760x300 mm
Weight	83 kg
Supply voltage	100-240 VAC
Phases	1
Frequency	50/60 Hz
Power	750 W
Protection class	IP66
Control voltage	24 VDC
Communication interface	Hard-wired communication
Customer feedback signals	Electrical dump valve, ready Electrical dump valve, open Hydroset oil pressure, error Valve assembly temperature, error Electric pilot valve, error

CRUSHER WEAR PROTECTION

SPLITTER (CH865)

No. of wear components	16
Max. weight	11 kg
Material	Metal
Fastening method	Bolted

UPPER FEED HOPPER

No. of rubber liners	12
Max. weight	10 kg
Material	Sandvik WT6000 rubber
Fastening method	Bolted

LOWER FEED HOPPER

	CH860	CH865
No. of rubber liners	12	16
Max. weight	14 kg	9 kg
Material	Sandvik WT6000 rubber	Sandvik WT6000 rubber
Fastening method	Bolted	Bolted

TOP SHELL SPIDER CAP

Max. weight	372 kg
Material	Manganese steel
Fastening method	Bolts, seal with O-ring

TOP SHELL ARM SHIELDS

	CH860	CH865
No. of shields	2	2
Max. weight	125 kg	230 kg
Material	Manganese steel	Manganese steel
Fastening method	Bolted	Bolted (welding*)

TOP SHELL RIM LINERS (CH865)

No. of liners	8
Max. weight	70 kg
Material	Wear-resistant hardened steel
Fastening method	Bolted (welding*)

BOTTOM SHELL BODY LINERS

No. of liners	8
Max. weight	50 kg
Material	Wear-resistant hardened steel
Fastening method	Bolted

BOTTOM SHELL ARM LINERS

No. of liners	4
Max. weight	200 kg
Material	Manganese steel
Fastening method	Bolted (welding*)

* No main frame welding.

AUTOMATIC SETTING REGULATION - INTELLIGENT (ASRi™)

ASRi is the cone crusher's setting and regulation system.

MONITORING FUNCTIONS

Power draw (kW or hp)
Hydroset hydraulic pressure (MPa or psi)
Main shaft position
Calculated CSS (based on main shaft position)
Lubrication oil temperature
Liner wear
Historical data log

REGULATION FUNCTIONS (CRUSHING PROGRAMS)

Auto-load	The ASRi aims to maintain the maximum or desired load. The crusher adapts the settings in real time to match feed curve variations and/or variations in feed material hardness.
Auto-CSS	The ASRi aims to maintain the desired CSS
20 customized programs can be stored	

OTHER FUNCTIONS

Automatic liner wear compensation
Push button setting calibration (metal-to-metal)

SAFETY FUNCTIONS

Protects the crusher from overload by automatically regulating the crusher based on preset operational values
Remote push button setting calibration (metal-to-metal)
Alarm severity levels: A, B or C.
Alarm log

OPERATOR'S PANEL

	Wall mounted	Panel mounted (option)
Dimensions (LxHxD)	358x290x70 mm	350x290x88 mm
Weight	6.5 kg	5.6 kg
Operational temperature	-20°C to +50°C	-20°C to +50°C
Protection class	IP65 (front)	IP65 (front) IP30 (rear)
Power supply	18-32 VDC	18-32 VDC

ELECTRICAL HARDWARE

Hydroset drive unit
Power measurement unit
Power supply unit
Cable kit

SOFTWARE PACKAGE (OPTIONAL)

OPC Server
• Enables a seamless integration with control systems such as SCADA and DCS
• Allows total access to all the parameters in the ASRi
• Possibility to make ASRi adjustments remotely during operation

WINi
• Simultaneously control up to 9 different ASRi 2.x systems from a PC via an Ethernet network
• Control the ASRi remotely using the same graphical user interface

ASRi Reporter
• Export ASRi data to a PC for analysis and storage

Operating system compability:
• Windows 7, Windows Vista, Windows XP, Windows 2000

CT86 TANK UNIT

GENERAL CT86 DATA

Purpose	Supplies oil to the crusher and pinionshaft lubrication systems and to the Hydroset system
Control system	The crusher lubrication system is monitored by the Tank Instrumentation Monitoring System (TIMS).
No. of doors	3
No. of inspection hatches	2 located on top of unit
Cabinet material	Metal
Dimensions (LxWxH)	2555 x 1403 x 1600 mm
Dry weight	1,600 kg (single main lubrication pump model) 1,850 kg (incl. standby pump)

HYDROSET SYSTEM

Oil tank reservoir capacity	233 liters
Pump design	Gear pump
Pump capacity	25 l/min (50 Hz) 30 l/min (60 Hz)

Oil filter

No. of cartridges	1
Blocked filter sensor	No

Pump motor

Type	Three-phase, squirrel cage
Power	7.5 kW
Speed	875 rpm (50 Hz) 1,180 rpm (60 Hz)
Poles	2
Insulation class	F
Protection class	IP55

MAIN CRUSHER LUBRICATION SYSTEM

System design	Closed circuit, single pump, gravity return.
Oil tank reservoir capacity	600 liters
Pump design	Screw pump
Standby pump	Available as option
Pump capacity	216 l/min (50 Hz) 208 l/min (60 Hz)

Pump motor

Type	Three-phase, squirrel cage
Power	9.2 kW
Speed	1,475 rpm (50 Hz) 1,180 rpm (60 Hz)
Insulation class	F
Protection class	IP55

Oil filters

No. of filters	6
Blocked filter sensor	Differential pressure sensor

Oil heaters

No. of heaters	3
Type	Electrical immersion
Rating	2.0 – 2.2 kW depending on voltage
Method	Indirect heating
Phases	3

PINIONSHAFT LUBRICATION SYSTEM

System design	Closed circuit, single pump, gravity return.
Oil tank reservoir capacity	66 litres
Pump design	Gear pump
Pump capacity	0.70 l/min (50 Hz) 0.84 l/min (60 Hz)

Pump motor

Type	Three-phase, squirrel cage
Power	0.25 kW (50 Hz) 0.28 kW (60 Hz)
Speed	935 rpm (50 Hz) 1,122 rpm (60 Hz)
Insulation class	F
Protection class	IP55

Oil filter

No. of cartridges	1
Blocked filter sensor	Pressure switch

OVER-PRESSURE AIR SYSTEM

Type	Over-pressure air system
Air input	Blower (standard) or air regulator (option)
Air quality	Filtered
Air flow	20 m³/h
Air pressure	~ 1 kPa
Weight (blower, hoses)	25 kg
Motor power	0.37 kW (50 Hz) 0.46 kW (60 Hz)
Motor speed	2,800 rpm (50 Hz) 3,350 rpm (60 Hz)
Phases	3
Insulation class	F
Protection class	IP55

TANK INSTRUMENTATION MONITORING SYSTEM (TIMS)

The system monitors the instruments and safety devices in the tank unit for correct operation - via the plant's control system - of the various ancillary systems.

MONITORING FUNCTIONS

Main crusher lubrication circuit	Oil temperature Oil flow Oil pressure Differential pressure across filter Oil tank temperature
Pinionshaft lubrication circuit	Oil pressure Differential pressure across filter
Over-pressure air system air	
Temperature close to spider	

OPERATIONAL FUNCTIONS

Oil heaters
Main lubrication oil pump
Pinionshaft lubrication oil pump
Over-pressure fans
Air/oil coolers
Signal permitting operation of the crusher drive motor

PLC CABINET

Manufacturer	Siemens
Communication interface	Standard: Hard-wired communication Optional: Profinet, Profibus, Ethernet/IP, Modbus RTU, ControlNet, DeviceNet, Modbus TCP

OIL COOLING SYSTEMS (FOR MAIN CRUSHER LUBRICATION)

AIR/OIL COOLERS

No. of units	2
Dry weight (incl. stand)	522 kg
Material	Aluminum
Oil volume	36 litres
Oil pressure drop	0.15 MPa
Oil flow rate	216 l/min (50 Hz) 208 l/min (60 Hz)
Motor power	5.5 kW
Motor speed	935 rpm (50 Hz) 1,122 rpm (60 Hz)
Max. air flow	21,000 m ³ /hr 24,000 m ³ /hr

WATER/OIL COOLER (OPTION)

No. of units	1
Dry weight	150 kg
Material	Stainless steel
Mounting	Stand alone or on CT86 tank
Oil volume	13 litres
Oil pressure drop	0.13 MPa
Oil flow rate	216 l/min (50 Hz) 208 l/min (60 Hz)
Water flow rate	210 l/min \pm 20
Inlet water temperature	< 30°C
Max. water feed pressure	0.30 MPa
Max. cooling capacity	53 kW

OFFLINE FILTER UNIT FOR MAIN LUBRICATION (OPTION)

Purpose	Removes particles, degrading particles, and water from the main lubrication system in a continuous slow offline filtration process
Model	27/108
Oil capacity	40 litres
Dimensions (LxWxH)	650x450x1518 mm
Weight	125 kg
Filter housing material	Cast iron
Filter type	B 27/27
No. of filter inserts	4
Blocked filter sensor	Pressure switch
Filter insert material	Cellulose
Filtration grade	3 μ m absolute ($\beta_3 \geq 75$)
Pump design	Gear wheel
Pump capacity	400 l/h (50 Hz) 480 l/h (60 Hz)
Pump motor	Three phase, squirrel cage
Protection class	IP55

MANUALS

Operator's manual	CH860 CH865, CT86, ASRi	Any language
Installation manual	CH860 CH865, CT86, ASRi	Any language
Installation manual appendix	CH860 CH865, CT86, ASRi	Any language
Maintenance manual	CH860 CH865	Any language
Spare parts catalogue	CH860 CH865	English only

CH860 PERFORMANCE – NOMINAL CAPACITY* (MTPH)

	Concave	EC	C	MC	M
Max. feed size (mm)	Closed side setting (CSS)	130-150	120-140	95-110	–
	Square hole size	235	200	160	125
	Top size	275	230	180	140
Max. motor power (kW)		500	500	500	500
Eccentric throw (mm)		30-70	30-70	30-70	30-70
CSS (mm)	13	–	–	233	214-300
	16	231	261-365	251-452	231-540
	19	248-414	280-578	269-628	248-597
	22	265-583	299-697	288-671	265-619
	25	282-658	318-742	306-714	282-658
	29	305-711	343-801	330-771	305-711
	32	321-750	363-846	349-814	321-750
	35	338-790	382-890	367-857	338-790
	38	355-829	401-935	386-900	355-829
	41	372-869	420-979	404-942	372-869
	44	389-908	439-1024	422-985	389-908
	48	412-851	464-960	447-923	412-851
	51	429-829	483-934	465-899	429-829
	Mantle	A/B	A/B	A/B	A/B

* based on material with bulk density of 1,600 kg/m³

CH865 PERFORMANCE – NOMINAL CAPACITY* (MTPH)

	Concave	MF	F	EF	HR
Max. feed size (mm)	Square hole size	90	75	55	–
	Top size	100	80	60	–
Max. motor power (kW)		500	500	500	–
Eccentric throw (mm)		30-70	30-70	30-70	–
CSS (mm)	8	–	–	127-296	–
	10	168	151-333	134-314	–
	13	182-401	164-383	146-340	–
	16	197-459	177-413	157-367	–
	19	211-493	190-444	169-394	–
	22	226-526	203-474	180-421	–
	25	240-560	216-504	192-448	–
	29	259-536	233-482	207-429	–
	32	274-492	246-443	219-394	–
	38	302-423	272-381	242-339	–
	44	331	298	265	–
	Mantle	EF/OB	EF/OB	EF/OB	A/B

* based on material with bulk density of 1,600 kg/m³

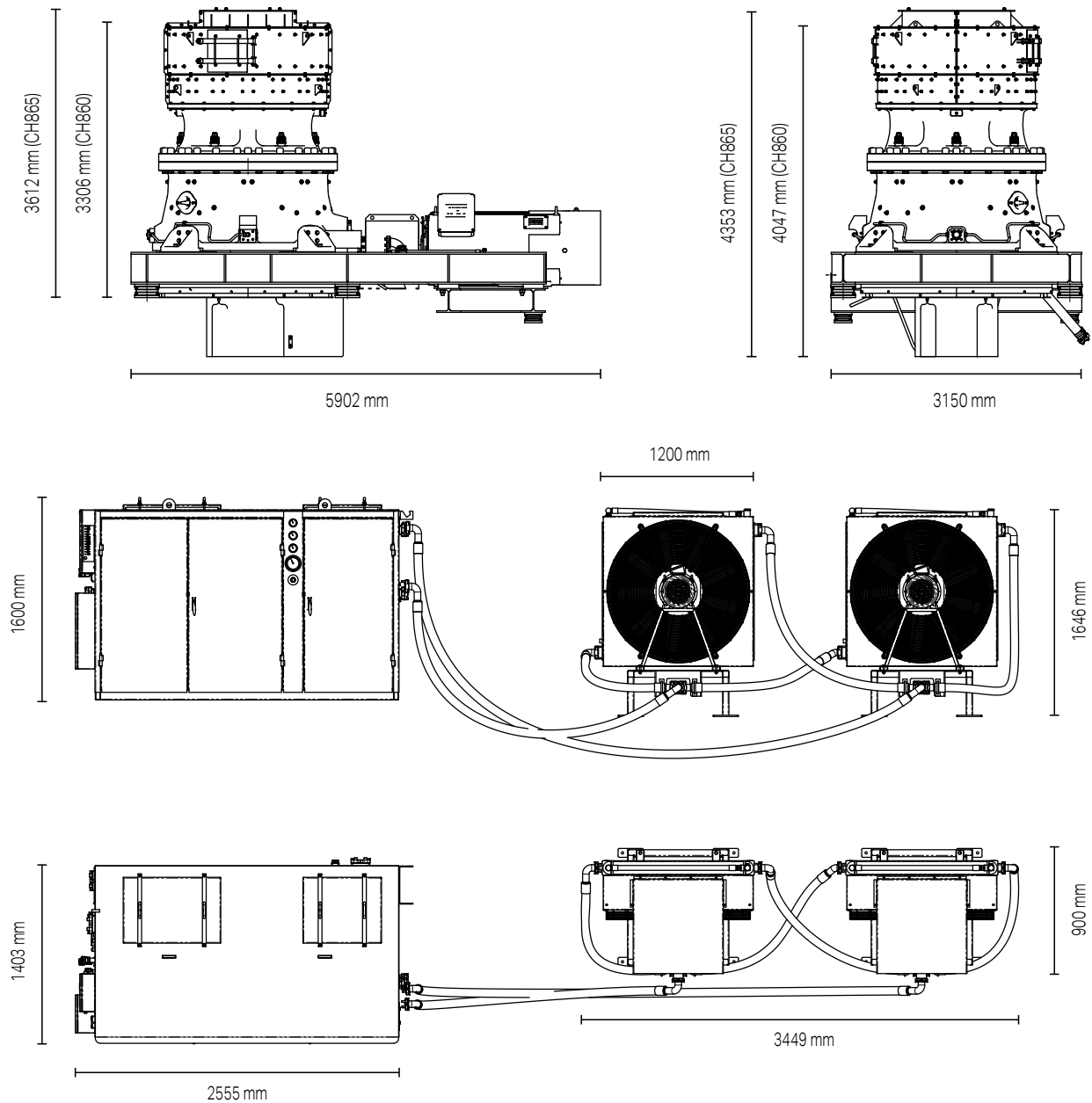
WEIGHT (KG)

	CH860	CH865
Top shell assembly	11,780	11,000
Bottom shell assembly	12,520	12,520
Main shaft assembly	7,930	7,930
Pinion shaft housing assembly	670	670
Hydroset cylinder assembly	2,380	2,380
Feed hopper assembly	1,400 *	1,400 **
Eccentric assembly	1,850	1,850
Dust collar assembly	650	650
Hoses and protection assembly	530	530
Crusher weight	39,710	38,930
Subframe	4,700	4,700
Electric motor (max.)	5,900	5,900
Coupling and shaft	220	220
Total weight (incl. subframe and drive)	50,530	49,750

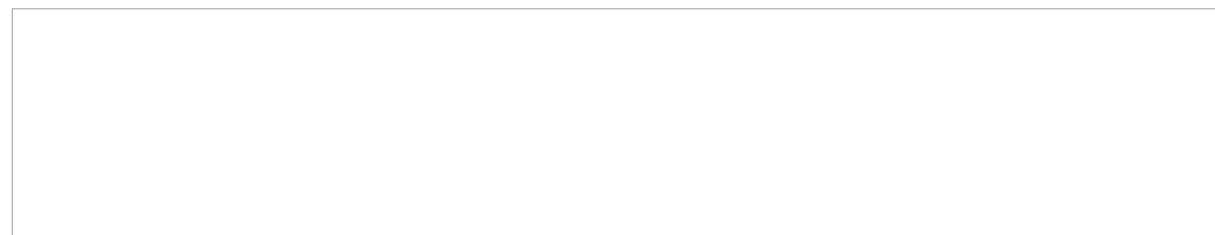
* incl. cones

** incl. splitter

DIMENSIONS*



* Always refer to the installation manuals



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