



# SANDVIK CH830i CONNECTED CONE CRUSHER

## TECHNICAL SPECIFICATION

Sandvik CH830i is a technologically advanced, high capacity mid-range cone crusher for secondary and tertiary crushing, designed for crushing applications in mines or large sized quarries.

Each crusher has a hydraulically supported main shaft which is supported at both ends. With a robust design, adjustable eccentric throw, a constant intake opening, high performance can be achieved by proper selection of a Sandvik OEM crushing chamber.

The CH830i brings you a revolution in intelligent crushing. Connected via the My Sandvik portal, it offers 24/7 access to data generated by your connected Sandvik crusher fleet. Now you can make decisions based on facts, and clearly see areas where you can improve uptime and productivity. My Sandvik also gives you access to manuals and an e-commerce platform for easily and efficiently buying and reordering wear and spare parts. It lets you track and trace parts online to make maintenance planning simpler.

The CH830i comes with the new generation Automation and Connectivity System (ACS) as standard. The system continuously monitors and optimizes crusher performance and controls the complete lubrication system, increasing uptime and reliability. It can automatically adjust crusher settings to compensate for crushing chamber wear, ensuring consistent product size. Hydroset™ and the advanced dump valve automatically provide overload protection to let tramp iron or other uncrushable material pass through.

Bolted rather than welded top and bottom shell liners reduce maintenance time and are much safer. It's 90% faster to change liners compared to welding. The improved over-pressure system with dedicated air channel inlets keeps dust out to increase reliability. The standard off-line filter unit keeps lubrication oil cleaner with 24/7 fine filtration, reducing wear on your internal crusher components and extending oil life by up to 5 times.



### KEY FEATURES

New generation world-class Automation & Connectivity System (ACS)	Automatically adapts the crusher to varying feed conditions ensuring maximum 24/7 performance
Hydroset™ system	Provides safety and setting adjustment functions
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
Mechanical dump valve for tramp iron protection	Reduces pressure peaks and mechanical stress on the crusher, greatly improving reliability
Full lubrication monitoring and control	Real-time monitoring of the crusher lubrication system for increased uptime and reliability

## GENERAL INFORMATION

### GENERAL DESIGN CRITERIA

Crusher type	Cone crusher, hydraulically adjusted
Application	Minerals processing
Crushing stage	Secondary, tertiary, quaternary
Max. feed size	211 mm
CSS range	5-41 mm
Nominal capacity*	61-283 mtph
Ambient temperature	-20°C to +40°C (Contact Sandvik if outside range)
Altitude of site	≤ 2,000 m (Contact Sandvik if outside range)

\* Capacity and possible CSS 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

Weight	12,734 kg
Main frame	Two-part unibody structure without moving parts. Cast steel.
Top shell	Two-arm design
Bottom shell	Five-arm design Two inspection hatches
Feed hopper	Rubber / steel lined steel hopper Two inspection doors
Feed level sensor	Vegapuls 67
Main shaft	Supported at both ends Top spider bearing and eccentric bearing
Eccentric bushings (Throws – mm)	• 24, 28, 32 • 32, 36, 40, 44 • 44, 48, 52
Eccentric speed	361 rpm (50 Hz, SPC-belt) 367 rpm (60 Hz, SPC-belt) 366 rpm (60 Hz, 8V-belt)
Max. motor power	250 kW
Drive	V-Belt or Direct
Safety coupling	Omega (for Direct drive option)
Pinion shaft speed	1,470 rpm (50 Hz, SPC-belt) 1,494 rpm (60 Hz, SPC-belt) 1,491 rpm (60 Hz 8V-belt)
Subframe	With rubber dampers
Maintenance tool box	Extractor for eccentric bushing Extractor for bottom shell bushing Extractor for step bearing Additional lifting and maintenance tools included

### CRUSHING CHAMBERS

Mantle alternatives	A, B, EF, FlexiFeed B
Concave alternatives	EC, C, M, F, EF
Alloys for mantles and concaves	M1, M2, M7, M9
Mantle and concave backing material	Plastic free, metallic contact
Lifting tools for mantles and concaves	Available as option

### CRUSHER DRIVE SYSTEM

#### MOTOR CHARACTERISTICS

Manufacturer	WEG
Model	W22/HGF
Type	Three-phase, squirrel cage
Weight	1,500-2,150 Kg
Rated power	250 kW
Frequency	50/60 Hz
Poles	4
Vibration resistance	Motor is supplied with special winding that is reinforced in order to support the vibration levels
Insulation class	F
Protection class	IP55

### CRUSHER DUST EXCLUSION

#### SYSTEM CHARACTERISTICS

Type	Supported at both ends Dust seal air pressure
Air input	Blower
Air quality	Filtered
Air flow	<70 m <sup>3</sup> /h
Air pressure	<10 kPa
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

### MECHANICAL DUMP VALVE

System description	Mechanical spring loaded hydraulic valve
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## CRUSHER WEAR PROTECTION

### FEED HOPPER

No. of rubber liners	12
Max. weight	4 kg
Material	Sandvik WT6000 rubber
Fastening method	Bolted

### CONE LINER

No. of rubber liners	16
Max. weight	7 kg / 4 kg
Material	Manganese steel or Sandvik WT6000 rubber (option)
Fastening method	Bolted

### TOP SHELL SPIDER CAP

Max. weight	145 kg
Material	Carbon steel
Fastening method	Bolted seal with O-ring

### TOP SHELL ARM SHIELDS

No. of shields	2
Max. weight	38 kg
Material	Manganese steel
Fastening method	Bolted

### BOTTOM SHELL BODY LINERS

No. of liners	5
Max. weight	13-17 kg / 6-9 kg
Material	Wear-resistant hardened steel or Sandvik WT6000 rubber (option)
Fastening method	Bolted

### BOTTOM SHELL ARM LINERS

No. of liners	5
Max. weight	84-87 kg
Material	Manganese steel
Fastening method	Bolted (welding*)

\*No main frame welding

## AUTOMATION & CONNECTIVITY SYSTEM (ACS)

### SETTING REGULATION

#### MONITORING FUNCTIONS (AVAILABLE WITH METRIC AND IMPERIAL UNITS)

Energy consumption
Hydroset hydraulic pressure
Main shaft position
Calculated CSS (based on main shaft position)
Lubrication oil temperature
Temperature close to the spider bearing
Liner wear
Historical data log
Automatic liner wear compensation (Only available for CH-models)

#### REGULATION FUNCTIONS (CRUSHING MODES)

CSS (Auto CSS)	Keep CSS constant
Peak Pressure (Auto Load)	Keep load constant
Multi-CSS (Multi – CSS)	Alternate between two CSS settings
10 customized programs can be stored	

#### SAFETY FUNCTIONS

Protects the crusher from overload by automatically regulating the crusher based on preset operational limits and the real-time input from the crusher
Alarm severity levels: Direct Stop, Sequential Stop, Feeder stop, Notices and Events
Signal permitting operation of the crusher drive motor
Alarm log

#### OTHER FUNCTIONS & CABINET DIMENSIONS

Push button box for manual setting of CSS	
Setting regulation cabinet (LxHxD)	1200x600x250 mm
Connection box crusher (LxHxD)	600x350x155 mm
Network repeater box (LxHxD) (Recommended for distances over 100m)	300x300x210 mm

#### OPERATOR'S PANEL

Dimensions (LxHxD)	316X251X72.5 mm
Weight	3.5 kg
Operational temperature	-25°C to +70°C
Protection class	IP65
Power supply	10–30 VDC

#### ELECTRICAL HARDWARE

Setting regulation control
Power measurement unit
Customer interface gateway
Connection box crusher
Cable kit

### LUBRICATION CONTROL (ACS)

#### MONITORING FUNCTIONS

Main/secondary lubrication circuit data	Oil temperature Oil flow Oil pressure Oil tank temperature Oil level Differential pressure across filter
Pinion shaft lubrication circuit data	Oil pressure Differential pressure across filter

Over-pressure air system
Filter monitoring functions
Offline filter status

#### OPERATIONAL FUNCTIONS

Oil heaters
Main lubrication oil pump
Pinion lubrication oil pump
Over-pressure fan
Air/oil coolers
Offline filter functions

#### ELECTRICAL HARDWARE

Lubrication control
Connection modules tank
Cable kit

#### CABINET DIMENSIONS

Lubrication control cabinet (LxHxD)	1200x800x250 mm
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### SOFTWARE PACKAGE (OPTIONAL)

Communication gateway interface	ControlNet DeviceNet Ethernet/IP Modbus TCP Profibus Profinet
WINi	Simultaneously control up to 9 different crushers with ACS from a PC via Ethernet network

Operating system compatibility: Control the ACS remotely using the same graphical user interface  
Windows 10, Windows 8, Windows 7, Windows Vista, Windows XP, Windows 2000

ACS Reporter	Export data from the Automation & Connectivity System to a PC for analysis and storage
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## TANK UNIT

#### GENERAL DATA

Oil tank reservoir capacity	Supplies oil to the main lubrication system, Pinion lubrication systems and to the Hydroset system.
No. of doors	3
No. of inspection hatches	2 located on top of unit
Cabinet material	Metal
Tank unit dimensions (LxWxH)	1,980x1,130x2,000 mm
Dry weight	865 kg

#### HYDROSET SYSTEM

System design	Single reversible pump
Oil tank reservoir capacity	85 liters
Pump design	Gear pump
Pump capacity	10.4 l/min @50 Hz 12.6 l/min @60 Hz

#### Oil filter

Filter type	Spin-on
Filtration grade	10 µm
Filter material	Glass fiber
No. of filters	1

#### Pump motor

Type	Three-phase, squirrel cage
Power	3 kW @50 Hz 3.6 kW @60 Hz
Speed	1,500 rpm @50 Hz 1,800 rpm @60 Hz
Poles	4
Insulation class	F
Protection class	IP55

#### MAIN CRUSHER LUBRICATION SYSTEM

System design	Closed circuit, single pump, gravity return
Oil tank reservoir capacity	400 liters
Pump design	Gear pump
Standby pump	N/A
Pump capacity	70 l/min @50 Hz 85 l/min @60 Hz

#### Oil filters

Filter type	Filter element insert
Filtration grade	25 µm
Filter material	Glass fiber
No. of filters	1

#### Pump motor

Type	Three-phase, squirrel cage
Power	3 kW @50 Hz 3.6 kW @60 Hz
Speed	1,500 rpm @50 Hz 1,800 rpm @60 Hz
Insulation class	F
Protection class	IP55

#### Oil heaters

No. of heaters	2 (Optional 3)
Type	Immersion heater
Rating	1.65 kW
Installation type	Immersion heater tube
Phases	3

#### PINIONSHAFT LUBRICATION SYSTEM

System design	Closed circuit, single pump, gravity return
Oil tank reservoir capacity	52 liters
Pump design	Gear pump
Pump capacity	0.9 l/min @50 Hz 1.1 l/min @60 Hz

#### Oil filter

Filter type	Spin-on
Filtration grade	10 µm
Filter material	Glass fiber
No. of filters	1

#### Pump motor

Type	Three-phase, squirrel cage
Power	0.12 kW @50 Hz / @60 Hz
Speed	1,500 rpm @50 Hz 1,800 rpm @60 Hz
Insulation class	F
Protection class	IP55

**OIL COOLING SYSTEMS  
(FOR MAIN CRUSHER LUBRICATION)**

**STANDARD AIR/OIL COOLERS**

No. of units	1
Dry weight (incl. stand)	240 kg
Material	Aluminum
Oil volume	12.8 liters
Max. air flow	2.8 kg/s @50 Hz 3.3 kg/s @60 Hz

**AIR COOLER FAN MOTOR**

Type	Three-phase, squirrel cage
Power	2.2 kW @50 Hz 3.6 kW @60 Hz
Speed	1,500 rpm @50 Hz 1,800 rpm @60 Hz

**HOT CLIMATE AIR/OIL COOLERS**

No. of units	1
Dry weight (incl. stand)	390 kg
Material	Aluminum
Oil volume	19.0 liters
Max. air flow	7,8 kg/s @50 Hz 9,3 kg/s @60 Hz

**AIR COOLER FAN MOTOR**

Type	Three-phase, squirrel cage
Power	5,5 kW @50 Hz 6,3 kW @60 Hz
Speed	1,500 rpm @50 Hz 1,800 rpm @60 Hz

**OFFLINE FILTER UNIT FOR MAIN LUBRICATION**

Purpose	Removes particles and water from the main lubrication system in a continuous slow offline filtration process
Model	27/54
Oil capacity	20 liters
Dimensions (LxWxH)	650x450x1,055mm
Weight	100 kg
Pump design	Gear wheel

**Oil filter**

Filter type	Filter Insert
Filtration grade	3 µm
Filter material	Cellulose
Filter housing material	Cast iron
No. of filters	2

**Pump motor**

Type	Three-phase, squirrel cage
Capacity	200 @50 Hz 240 @60 Hz
Speed	915 rpm @50 Hz 1,120 rpm @60 Hz
Protection class	IP55

**MANUALS**

Operator's manual	Any language
Installation manual	Any language
Installation manual appendix	Any language
Maintenance manual	Any language
Spare parts catalogue	English only

**PERFORMANCE**

**CH830i CONNECTED – NOMINAL CAPACITY\* (MTPH)**

	Concave	EC	C	M	F	EF
Max. feed size (mm)	F85**	119	87	-	-	-
	F90	145	105	74	49	38
	F100	211	153	93	61	48
Max. motor power (kW)		250	250	250	250	250
Eccentric throw (mm)		24-52	24-52	24-52	24-52	24-52
CSS (mm)	5	-	-	-	61-81	67-82
	6	-	-	-	63-112	70-123
	8	-	-	84-112	67-119	74-131
	10	-	-	89-158	72-126	79-139
	13	113-150	116-180	97-172	78-137	85-132
	16	121-215	126-222	105-185	84-139	92-133
	19	130-230	135-238	112-199	90-139	99-121
	22	139-246	144-255	120-212	96-128	106-117
	25	148-262	153-271	128-198	102-125	-
	29	160-283	165-256	138-183	110	-
	32	169-280	175-251	146-177	-	-
	35	178-256	184-224	153	-	-
38	187-248	193-214	-	-	-	
41	196-217	-	-	-	-	
	Mantle	A/B/FF	A/B/FF	A/B	A/B	EF

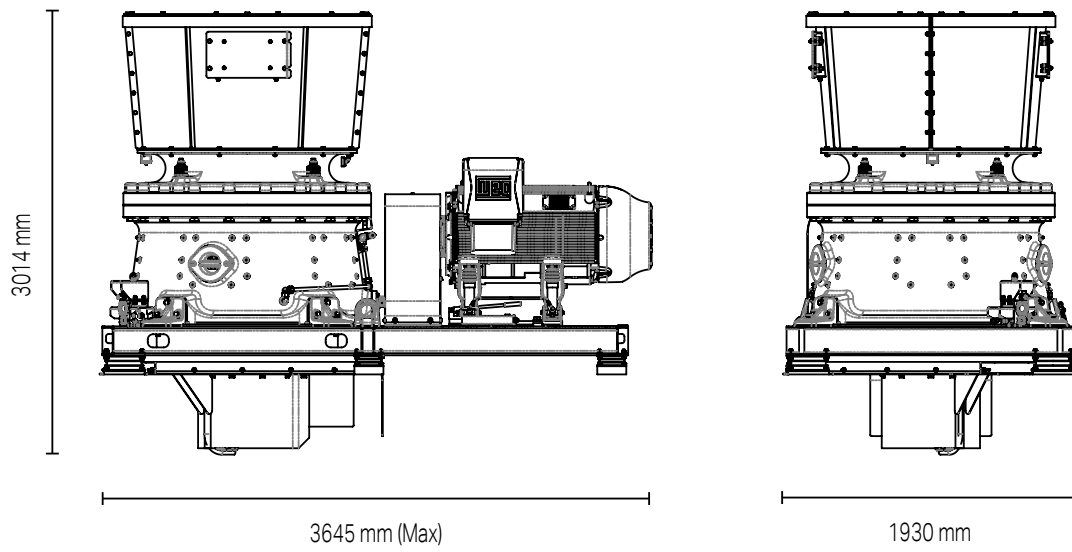
\* based on material with bulk density of 1,600 kg/m<sup>3</sup>

\*\* Additional feed size requirement applicable for FF mantle only (FlexiFeed)

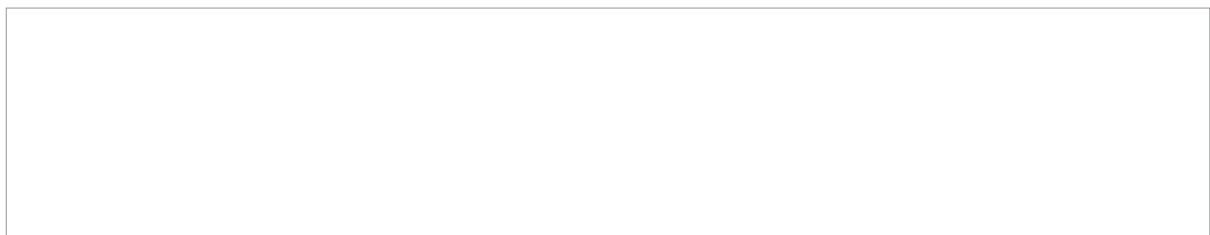
**WEIGHT (KG)**

	Kg	Lb
Top shell assembly	3,936	8,677
Bottom shell assembly	3,774	8,320
Main shaft assembly	2,424	5,344
Pinion shaft housing assembly	198	437
Hydroset cylinder assembly	681	1,501
Feed hopper assembly	931	2,053
Eccentric assembly	506	1,116
Dust collar assembly	143	315
Hoses and protection assembly	50	110
<b>Crusher weight</b>	<b>12,734</b>	<b>28,074</b>
Subframe	1,162	2,561
Electric motor (max.)	2,150	4,740
Total weight (incl. subframe and drive)	16,594	36,584

DIMENSIONS\*



\* Always refer to the installation manuals



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