



SANDVIK CS840i CONNECTED CONE CRUSHER

TECHNICAL SPECIFICATION

Sandvik CS840i is a high capacity cone crusher for secondary stage crushing. With up to 50% higher capacity, 25% increased reduction ratio and a reduced recirculation by up to 50%, with the same amount of high-value end product compared to similar crushers in its class, it is a true super producer. The wide range when it comes to Closed Side Settings, (CSS), together with more and bigger throws, gives you extreme flexibility as the CS840i can be set to fit a huge variety of capacity needs.

The CS840i 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 CS840i 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 the 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
Max. feed size	431 mm
CSS range	22-70 mm
Nominal capacity*	212-659 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	25,794 kg
Main frame	Three-part unibody structure without moving parts. Cast steel.
Top shell	Two-arm design
Bottom shell	Five-arm design Two inspection hatches
Feed hopper	Rubber 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 • 40, 44, 48
Eccentric speed	290 rpm (50 Hz, SPC-belt) 295 rpm (60 Hz, SPC- or 8V-belt)
Max. motor power	330 kW
Drive	V-Belt or Direct
Safety coupling	Omega (for Direct drive option)
Pinion shaft speed	1,307 rpm (50 Hz, SPC-belt) 1,329 rpm (60 Hz, SPC- or 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, S
Concave alternatives	EC, C
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	1,850–2,650 Kg
Rated power	330 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 ³ /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

UPPER FEED HOPPER

No. of rubber liners	16
Max. weight	8 kg
Material	Sandvik WT6000 rubber
Fastening method	Bolted

LOWER FEED HOPPER

No. of rubber liners	4
Max. weight	114 kg
Material	Manganese steel
Fastening method	Bolted

TOP SHELL SPIDER CAP

Max. weight	293 kg
Material	Carbon steel
Fastening method	Bolted seal with O-ring

TOP SHELL ARM SHIELDS

No. of shields	2
Max. weight	205 kg
Material	Manganese steel
Fastening method	Bolted

BOTTOM SHELL BODY LINERS

No. of liners	10
Max. weight	16-24 kg / 5-7 kg
Material	Wear-resistant hardened steel or Sandvik WT6000 rubber (option)
Fastening method	Bolted

BOTTOM SHELL ARM LINERS

No. of liners	5
Max. weight	80–83 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	112 l/min @50 Hz 135 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	4 kW @50 Hz 4.8 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

CS840i CONNECTED – NOMINAL CAPACITY* (MTPH)

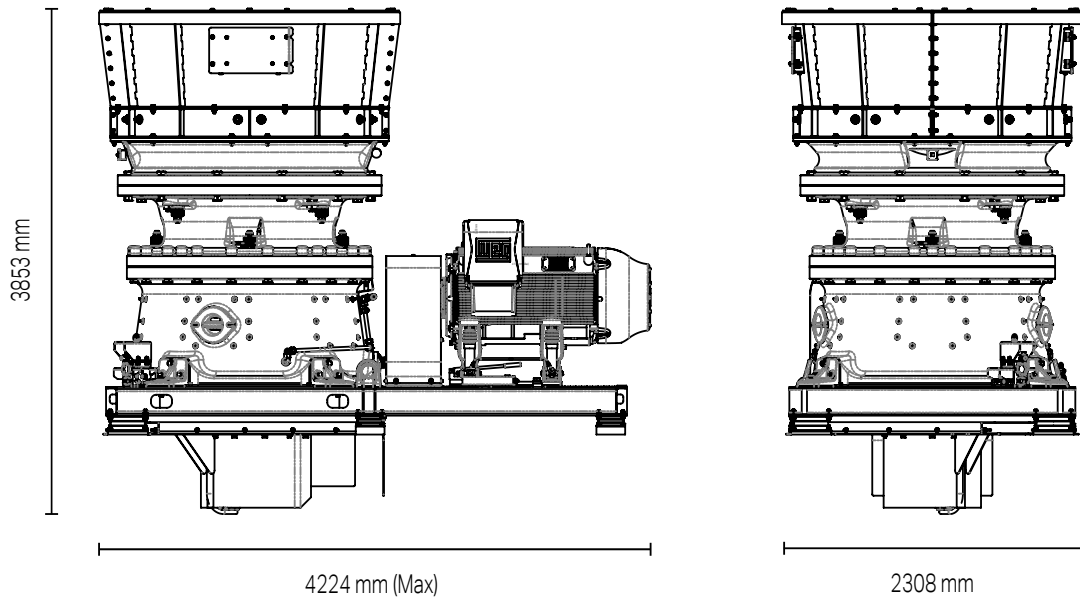
	Concave	EC	C
Max. feed size (mm)	Closed side setting (CSS)	165-190	145-170
	F90	286	229
	F100	431	345
Max. motor power (kW)		330	330
Eccentric throw (mm)		24-48	24-48
CSS (mm)	22	–	212-260
	25	230	225-380
	29	248-391	243-410
	32	262-442	257-433
	35	276-466	270-456
	38	290-489	284-478
	41	304-512	297-501
	44	317-535	311-524
	48	336-566	329-554
	51	350-590	342-577
	54	363-613	356-600
	57	377-636	369-623
	60	391-659	383-645
64	409-597	401-584	
70	437-487	428-477	
	Mantle	A/B/S	A/B/S

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

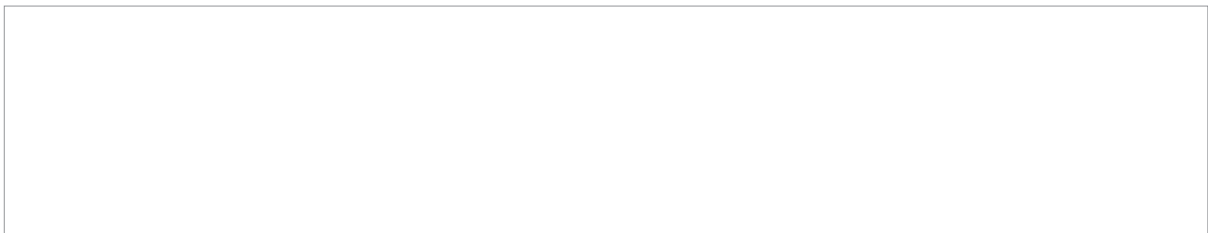
WEIGHT (KG)

	Kg	Lb
Top shell assembly	6,585	14,517
Bottom shell assembly	5,772	12,725
Main shaft assembly	5,498	12,121
Pinion shaft housing assembly	273	602
Hydroset cylinder assembly	1,080	2,381
Feed hopper assembly	992	2,187
Eccentric assembly	767	1,691
Dust collar assembly	252	556
Hoses and protection assembly	51	112
Crusher weight	25,794	56,866
Subframe	1,384	3,051
Electric motor (max.)	2,650	5,843
Tolat weight (incl. subframe and drive)	30,784	67,867

DIMENSIONS*



* Always refer to the installation manuals



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